



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

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

**STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION**

**ADOT MS4
AUDIT REPORT**

**Audit Date:
October 25–29, 2010**

**Report Date:
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**United States Environmental Protection Agency
Region 9
75 Hawthorne Street
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Executive Summary

Between October 25 and 29, 2010, EPA contractor PG Environmental and representatives from the U.S. Environmental Protection Agency, Region 9 (“EPA”) conducted an audit of the State of Arizona, Department of Transportation (“ADOT”), Municipal Separate Storm Sewer System (MS4) Program. The purpose of the audit was to assess compliance with the *Arizona Pollutant Discharge Elimination System (“AZPDES”) Arizona Department of Transportation Statewide Permit for Discharges to Waters of the United States*, No. AZS000018-2008 (“Permit”) and to evaluate ADOT’s current implementation of its Statewide Stormwater Management Program (“SSWMP”).

The EPA Audit Team evaluated four ADOT Districts: Phoenix, Flagstaff, Tucson and Prescott. The audit included document review, interviews, and field verification inspections at 57 ADOT construction sites and maintenance facilities. ADOT staff, including Headquarters and District program managers and construction and maintenance personnel participated extensively throughout the entire audit process. An ADOT headquarters session was held to obtain information regarding overall program management, program evaluation and oversight, and the MS4-related monitoring program. In addition, the EPA Audit Team held a closing conference at ADOT Headquarters on October 29, 2010, with representatives from headquarters and several Districts.

The audit team observed several positive elements of the ADOT MS4 Program, including:

- ADOT Environmental Management personnel demonstrated a thorough knowledge of Permit requirements and ADOT’s SSWMP;
- ADOT had implemented sound monitoring and sampling practices at construction projects within ¼-mile of unique and sensitive waters; and
- The District Environmental Coordinators were knowledgeable of local stormwater features and maintenance issues and effectively communicated stormwater maintenance needs to ADOT staff.

This Program audit report also identifies program deficiencies and potential Permit violations; however, it is not a formal finding of violation. The following summarizes the most significant potential permit violations:

- ADOT had not fully implemented its Employee Stormwater Training Program;
- ADOT had not conducted dry-weather outfall screening of its 71 major MS4 outfalls;
- ADOT had not implemented an adequate illicit connection and illicit discharge detection and elimination program;
- ADOT had not conducted inspections of post-construction BMPs and had not implemented a system to inspect and track conditions of its MS4 system; and
- Inspections of ADOT facilities and construction sites revealed common housekeeping deficiencies, including improperly installed BMPs, inadequate containment of pollutant sources and uncertified or outdated Storm Water Pollution Prevention Plans.

Section 1.0 Background Information

ADOT manages approximately 18,000 travel lane miles of Arizona's roadways on lands owned and operated by various entities including ADOT, US Forest Service, Bureau of Land Management, National Park Service, State Park Service, and several Indian Nations. ADOT is divided into five main divisions—Administrative Services, Intermodal Transportation, Motor Vehicle, Enforcement and Compliance, and Multimodal Planning. The MS4 program compliance audit primarily included the Intermodal Transportation and Administrative Services divisions within its scope. ADOT employs an Environmental Coordinator for each of the 9 Districts who work with ADOT's Office of Environmental Services.

Discharges from the ADOT MS4 are regulated under the Permit that became effective September 19, 2008, and expires September 18, 2013. ADOT was first permitted under a Phase I municipal stormwater permit issued by EPA on September 30, 1999, and ADOT has been developing its MS4 Program since that time.

The Permit covers ADOT's stormwater discharges associated with its municipal, construction, and industrial activities that require permitting under AZPDES regulations, throughout the state of Arizona. The Permit specifies requirements that apply within the "MS4 compliance area," including areas requiring an MS4 permit (i.e., areas within the boundaries of Arizona's currently regulated MS4s). Additionally, Section 3 of the Permit requires ADOT to develop a Statewide Storm Water Management Program that includes best management practices (BMPs), a compliance schedule and measureable goals, and to implement the SSWMP in its entirety for ADOT's statewide system.

On November 4, 2009, ADOT requested a Permit modification from ADEQ to phase the compliance dates for certain requirements over the five-year permit term (see [Appendix B, Exhibit 1](#), hereinafter ADOT Permit Modification Request). Citing budget constraints, ADOT requested that it be allowed to use a "phased implementation" for permit requirements that require "significant plan development, training and new personnel." Additionally, ADOT stated that certain permit provisions would require "significant resources to track enormous quantities of data with limited utility" and requested that the permit be re-opened to modify those provisions. As of the time of the audit, however, ADEQ had neither approved ADOT's request nor modified the Permit.

The audit focused on the MS4 program components and associated Permit requirements listed in Table 1.

Table 1. Focus Areas of ADOT MS4 Program Compliance Audit

Permit Section	Program Component
Section 3.2.2.1.a	Employee Training
Section 3.2.3	Illicit Discharge/Illegal Dumping Detection and Elimination Measures
Sections 3.2.5	Post-Construction Storm Water Management
Section 3.2.6.1	Storm Sewer System and Highway Maintenance
Section 4.0	Maintenance Facilities Management—Good Housekeeping and Pollution Prevention
Section 5.0	Construction Site Storm Water Management
Section 6.0	Industrial Facilities Management
Section 8.0	Monitoring Program

In addition to the record review and interviews, the EPA Audit Team conducted 57 inspections of maintenance and industrial facilities and construction sites located in the ADOT-owned rights-of-way and/or served by the ADOT MS4 in the Phoenix, Flagstaff, Tucson and Prescott Districts. The purpose of the individual site visits was to (1) document overall site conditions, (2) observe the specific application and condition of BMPs employed by ADOT to prevent or reduce stormwater pollution, and (3) observe activities associated with ADOT’s oversight of stormwater compliance at its construction, industrial and maintenance facilities.

The audit schedule¹, a list of participants and a list of the ADOT facilities and construction activities inspected during the audit are presented in Appendix A. Observations and examples from selected individual site visits are included in the body of this audit report in Section 2.0, Information Obtained Regarding Compliance with the Permit. Observations from 20 of the 57 site visits are presented in individual site visit reports in Appendix C (Construction and Post-Construction Program Site Visit Reports) and Appendix D (Maintenance and Industrial Program Site Visit Reports). These sites were selected because they best represented issues observed during the course of conducting the 57 site visits as a whole. A copy of the Permit is included as Appendix E, and a copy of ADOT’s SSWMP is included as Appendix F. ADOT also maintains a stormwater library that includes many other program-related documents; it can be accessed at: http://www2.azdot.gov/ADOT_and/Storm_Water/stormwater.asp.

¹ These were tentative schedules provided prior to the Audit. Some variation to the schedules occurred during the Audit.

Section 2.0 Information Obtained Regarding Compliance with the Permit

Prior to the audit, the EPA Audit Team requested that ADOT have specific documentation available at the time of the audit, which would indicate progress toward SSWMP implementation. The EPA Audit Team provided ADOT with a written list of requested records on October 20, 2010, and modified it with a list of additional items at various times during the audit from October 25–29, 2010 (hereafter, collectively, EPA Records Request; see [Appendix B, Exhibit 2](#)). ADOT made multiple documents available during the audit and also provided the EPA Audit Team with an inventory of those documents (hereafter, ADOT Response Inventory; see [Appendix B, Exhibit 3](#)). The EPA Records Request and ADOT Response Inventory are referenced, as applicable, throughout this audit report.

During the audit, the EPA Audit Team also obtained documentation and other supporting evidence, such as photos, regarding compliance with the Permit and ADOT's implementation of its SSWMP. Referenced documentation used as supporting evidence is provided in Appendix B, and photo documentation is provided within applicable site visit reports in Appendices C and D. Information obtained during the evaluation is presented in this audit report as audit observations in Sections 2.1 through 2.8.

Section 2.1 Measures to Control Discharges through Education

Section 3.2.2 of the Permit requires ADOT to implement an education program that includes training of ADOT employees in order “to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater quality impacts.” Specifically, Section 3.2.2.1.a of the Permit requires:

ADOT shall implement an Employee Storm Water Training Program and shall outline the program in the SSWMP. The program shall provide for ADOT's employees identified in this permit to receive initial training within 12 months of the effective date of this permit [September 19, 2009] and refresher training at least once every three years thereafter. ADOT shall also provide training to new staff within the first year of hire, and to existing staff when job responsibilities change to newly incorporate stormwater duties. ADOT shall keep records of all employees who receive stormwater training.

Section 3.2.2.1.a.ii, *ADOT Employee Training*, requires that the following topics be included in the training:

- Illicit discharges and illegal dumping;
- Non-stormwater discharges;
- New construction and land disturbances;
- New development and significant redevelopment;
- Storm sewer system and highway maintenance; and
- Good housekeeping and material source BMPs.

The EPA Audit Team requested “Employee training records and syllabus for Illicit Discharges and Illegal Dumping, Construction Site Runoff Control, New Development and Significant Development, Storm Sewer System and Highway Maintenance, and

Good Housekeeping and Material Source BMPs” (see Appendix B, Exhibit 2, Item 5). The ADOT Water Quality Manager explained that ADOT had developed new training courses that correspond to the topics and items specified in Section 3.2.2.1.a.ii of the Permit, and provided an outline of the new courses (see Appendix B, Exhibit 4). The ADOT Water Quality Manager also explained that ADOT had not implemented the training course; therefore, ADOT did not have training records corresponding to the topics and items specified in Section 3.2.2.1.a.ii of the Permit. ADOT did provide training records for Maintenance Environmental Awareness and Erosion Control Coordinator Training, portions of which overlap with topics required by the Permit (see Appendix B, Exhibits 5 and 6). Additionally, ADOT’s Water Quality Manager reported that ADOT had conducted Storm Water Basic Awareness training but could not supply training records (see Appendix B, Exhibits 3). However, multiple ADOT maintenance staff members interviewed by the EPA Audit Team indicated that they had not received stormwater training and/or were not aware of the types of discharges allowed under the Permit.

Potential Permit Violation:

ADOT had not fully implemented an Employee Storm Water Training Program in accordance with the topics and items specified in Section 3.2.2.1.a.ii of the Permit.

Section 2.2 Illicit Discharge / Illegal Dumping Detection and Elimination

Section 3.2.3 of the Permit requires ADOT to implement a program to minimize, detect, investigate, and eliminate illicit discharges, including unauthorized non-stormwater discharges and spills, into the storm sewer system owned and/ or operated by ADOT. As demonstrated below, ADOT had not fully implemented an Illicit Discharge/Illegal Dumping Detection and Elimination Program in accordance with Section 3.2.3 of the Permit.

2.2.1. Conducting and recording dry-weather outfall screening of major MS4 outfalls

Section 3.2.3.2.d requires ADOT to inspect 35 of its 71 major outfalls for dry weather discharges by September 2009 and to inspect the remaining outfalls by September 2010. Additionally, 3.2.3.2.e requires that ADOT create a system to track and record findings of outfall inspections. The EPA Audit Team requested “Records of outfall inspections/dry weather field screening and monitoring for the 71 major outfalls identified in the September 2005 Phase I and Phase II Storm Water System Maps (Current Permit Term)” (see Appendix B, Exhibit 2, Item 11), but ADOT had not begun dry weather screening and the requested records were not available. In its Permit Modification Request, ADOT stated that due to budgetary and staff constraints “highway maintenance activities for highway safety (repairing guardrails, replacing highway signs, and accident response, etc.) would take precedence over outfall inspections.” (See Appendix B, Exhibit 1.)

ADOT has developed a guidance manual titled *Stormwater Monitoring Guidance Manual for MS4 Activities*, July 2009 (hereafter, MS4 Monitoring Manual), which includes a description of ADOT’s dry-weather field screening program. The MS4 Monitoring Manual includes a form, titled *Dry Weather Field Screen Site Report*, for documenting

observations made during dry-weather field screening activities (see Appendix B, Exhibit 7). As explained by the ADOT Water Quality Manager, ADOT staff have used the *Dry Weather Field Screen Site Report* forms to document several dry-weather outfall field screenings conducted in the ADOT Kingman District. However, the program had not been implemented in the four Districts that were the subject of this audit. Specifically, ADOT Flagstaff and Prescott District representatives explained that these Districts do not have a formal screening, inspection and reporting program. They explained that the maintenance staff members of the respective Districts conduct visual inspections of storm drain inlets to identify drainage issues, but the outlets are not routinely inspected and, if they do occur, inspection observations are not formally documented.

Potential Permit Violation:

ADOT had not conducted dry weather screening of any of the 71 major outfalls as required by Section 3.2.3.2.d. Further, ADOT had not created a system to track and record results of the dry weather screening program as required by Section 3.2.3.2.e.

2.2.2. Staff training on procedures for screening and responding to illicit discharges or illicit connections

Section 3.2.2.1.a.ii (1) of the Permit requires ADOT to train all staff whose responsibilities may include responding to illicit discharges or illicit connections to the storm sewer system. Training shall include: (a) The procedures for detection, investigation, (i.e. field screening procedures, sampling methods, field measurements) identification, clean-up and reporting of illicit discharges and connections, and improper disposal/dumping; and (b) The procedures for outfall screening and investigation.

The ADOT Water Quality Manager explained that specific staff have not been designated or tasked with conducting dry-weather screening, but it is anticipated that maintenance staff will fulfill this role. Accordingly, ADOT had not provided training to the maintenance staff members who are expected to be tasked with conducting dry-weather screening. Further, ADOT indicated that it will take “at least three months to train approximately 250 maintenance personnel across the state charged with performing field inspections” (see Appendix B, Exhibit 1). As discussed above, multiple ADOT maintenance staff members interviewed by the Audit Team indicated that they had not received stormwater training and/or were not aware of the types of discharges allowed under the Permit (see Section 2.1.1 of the MS4 Audit Report for additional information regarding the ADOT Employee Stormwater Training Program.).

Potential Permit Violation:

ADOT has not trained staff with responsibility for responding to illicit discharges or illegal dumping in accordance with Section 3.2.3.4.

2.2.3. Investigation and elimination of existing dry-weather flows from six major outfalls in the Phoenix District

Section 3.2.3.4.a of the Permit requires ADOT to investigate the source(s) of dry weather flows from the six major outfalls identified in the July 21, 2005 Summary Report – Dry Weather Screening, and if appropriate, take action to eliminate those flows by December

18, 2008. As described in Section 4.2.4.1 of ADOT's March 2010 SSWMP, ADOT, through its contractor EEC, Inc., conducted an investigation in February 2009.

According to an EEC, Inc., report, titled *Draft – Illicit Discharge Investigation* (see Appendix B, Exhibit 8) and dated February 6, 2009, dry-weather flow was observed from five of the six outfalls during dry-weather field screenings conducted December 4–5, 2008, and December 11, 2008. EEC, Inc., recommended the following with regard to the observed dry-weather flows:

EEC has completed an illicit discharge investigation of six ADOT outfalls to assist in identifying sources of dry weather flows. Five of the six outfalls investigated had dry weather flows and where observable were traced to their source. EEC identified six above-grade interconnects to ADOT's drainage system contributing to the flow. Municipalities contributing flow via the above-grade interconnects include City of Mesa, City of Avondale, City of Glendale, and the City of Phoenix. EEC also identified below-grade interconnects which may be contributing to dry weather flows. Municipalities with below-grade interconnects include City of Tempe, City of Mesa, City of Phoenix, and City of Glendale.

EEC recommends ADOT contact the stormwater coordinator for each municipality to determine why dry weather flows are being discharged to ADOT's drainage system. If appropriate, ADOT should take action to eliminate these dry weather flows once discussion with the municipalities is completed. EEC would also recommend a dye test be conducted if a municipality cannot determine the source of its contributing dry weather discharge.

However, as of the time of the audit, ADOT had not determined if the dry-weather flows were prohibited discharges. ADOT's March 2010 SSWMP states that the dry weather flows "have been preliminarily designated as either permitted discharges or were designed with the intent to discharge." ADOT cited manpower and funding constraints, and also stated that it was working to "further develop a schedule for investigation and elimination of flows." ADOT did not provide the EPA Audit Team with additional information regarding follow-up to the February 6, 2009 Draft – Illicit Discharge Investigation report.

Potential Permit Violation:

ADOT had not completed an investigation to determine the source of the dry weather flows or initiated appropriate follow-up action to eliminate the discharges as required by Section 3.2.3.3.d of permit.

2.2.4. Written procedures for notification and coordination with local jurisdictions for illicit connection and illicit discharge complaint response and investigation

As a state department of transportation, ADOT does not have traditional land use authority, and therefore its enforcement capabilities are limited. This is particularly the case for illicit connection/illicit discharge (IC/ID) incidents that are not brought under an ADOT regulatory mechanism (e.g., construction contract or encroachment permit). Section 3.2.3.4.c of the Permit requires that by September 19, 2009, ADOT was to "establish and implement procedures for notifying other jurisdictions, including ADEQ, for assistance in enforcement where ADOT lacks legal authority to establish enforceable

rules or if an illicit discharger fails to comply with procedures or policies established by ADOT.”

The EPA Audit Team requested “Written procedures for notification and coordination with local jurisdictions for complaint response and investigation” (see [Appendix B, Exhibit 2, Item 11](#)). The ADOT Water Quality Manager explained that ADOT did not have written procedures for coordination with local jurisdictions regarding IC/ID incidents. ADOT has developed a *Stormwater Enforcement Response Plan*, dated June 2010 (hereafter, Storm Water ERP), but it does not include procedures for notifying other jurisdictions for assistance in complaint response and investigation of illicit discharges and illegal dumping, as required by Section 3.2.3.4.c of the Permit.

Program Deficiency:

ADOT does not appear to have established and implemented procedures to adequately address illicit connections and discharges as required by Section 3.2.3.4 of the Permit. The EPA Audit Team recommends that ADOT create a written strategy to leverage the legal authority of traditional MS4s (cities and counties) when IC/IDs could either originate from or impact an adjoining MS4 system. The strategy should include a plan for coordination and discuss the use of memorandums of understanding between adjoining jurisdictions. In other cases, ADOT should exhaust its internal capabilities. If ADOT cannot achieve resolution or elimination of an IC/ID, ADOT should notify ADEQ to leverage the regulatory agency’s enforcement capabilities. Additionally, ADOT should consider modifying its Storm Water ERP to include procedures for notifying other jurisdictions for assistance in enforcement.

2.2.5. Development of a Storm Sewer Map

Section 3.2.3.2.b of the Permit requires that by September 19, 2012, ADOT “develop a storm sewer system map(s) identifying the location of all ADOT’s major outfalls identified to date and their receiving waters in Arizona statewide. The map(s) shall show ADOT’s stormwater collection and conveyance structures (i.e. drainage pipes, streets, floodway structures, major and priority outfalls, drywells, retention/detention basins, etc.), as well as the highway system, ADOT District boundaries, jurisdictional boundaries, drainage patterns, and unique, impaired, and not attaining waters.”

Section 12 of the Permit, *Definitions*, defines *major outfall* as an MS4 outfall that discharges from the following structures:

1. Single pipe with an inside diameter of 36 inches or more or its equivalent;
2. Single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres;
3. Single pipe with an inside diameter of 12 inches or more if it receives stormwater from lands zoned for industrial activity; or
4. Conveyance other than circular pipe associated with a drainage area of two acres or more if it receives stormwater from lands zoned for industrial activity.

Section 3.1 of the ADOT *Stormwater Monitoring Guidance Manual for MS4 Activities*, dated July 2009, states, “The location and total number of all major stormwater outfalls

operated by ADOT is unknown at this time.” Additionally, ADOT’s current MS4 maps for the Phoenix, Flagstaff, Tucson, and Prescott Districts, dated September 2005 and titled *Phase I and Phase II Storm Water System Maps*, display only outfalls that are 36 inches or more in diameter and do not identify lands zoned for industrial activity (see [Appendix B, Exhibit 9](#)). Therefore ADOT’s current MS4 maps do not enable ADOT to determine whether an outfall qualifies as a “major outfall.” Furthermore, according to ADOT Prescott District staff, several of these identified outfalls have been eliminated and multiple additional outfalls that are 36 inches or more in diameter have been installed since the maps were originally developed in 2005. As an example, one major outfall identified on the 2005 ADOT *Phase I and Phase II Storm Water System Maps* near the bridge crossing of Oak Creek at SR 179 and Schnebly Hill Road was eliminated, and at least two outfalls greater than 36 inches in diameter were installed, as a component of the recent Sedona II–SR 179 Construction Project located along SR 179 from Back O’Beyond Road to SR 89A in Sedona, Arizona (see [Appendix C, Site Visit 1](#)).

The ADOT Water Quality Manager explained that ADOT recognized that the mapping of “major outfalls” was incomplete and is developing a system to inventory its storm sewer system. ADOT has started to create an electronic Feature Inventory System (FIS) of all ADOT assets using geographic information system (GIS) software. The FIS is an overall asset management system that is intended to include ADOT’s MS4 assets (e.g., pipe openings, catch basins, box culverts, ditches), in addition to other ADOT property, as a unified statewide inventory. ADOT staff explained that they had begun inventorying MS4 assets for the FIS in late 2009. As of the time of the audit, the Flagstaff District was approximately 50 percent complete and the inventory of the Phoenix District had not yet begun.

While the FIS system has potential to be a powerful tool when it is operational, the demonstration of the FIS system given by ADOT illustrated several problems. The FIS system is composed of 16 types of features in the drainage category, one of which was pipe openings; however the pipe openings tracked in FIS (18-168 inches) are not consistent with the outfall dimensions specified in Section 12 of the Permit (12 inches) (see [Appendix B, Exhibit 10](#)). Therefore, the FIS will not enable ADOT to determine whether an outfall qualifies as a “major outfall.” Additionally, ADOT had not determined how the 2005 ADOT *Phase I and Phase II Storm Water System Maps* and existing GIS would be used in conjunction with its FIS to make “major outfall” determinations based on the criteria specified in Section 12 of the Permit, nor has ADOT determined how paper copies of as-built drawings will be incorporated into an electronic system. These as-builts contain valuable data as they can be used to identify drainage areas that are tributary to specific MS4 outfalls or drainage features (for example, see [Appendix C, Site Visit 2](#)).

Program Deficiency:

While ADOT still has time to complete the map, the system ADOT is using to develop the map will not create a map that will comply with the permit.

2.2.6. Spill Response

Section 3.2.3.5.b of the Permit, “Responding to Spills,” requires that “where conditions exist that may result in a discharge to ADOT’s storm sewer system or waters of the U.S., ADOT shall prioritize corrective actions to protect water quality.” The EPA Audit Team requested “Records showing incidents of illicit discharges/connections/spills and resolution (2009–2010 Reporting Year).” Item 8 of the ADOT Response Inventory, states that there was “only one” record for illicit discharges, connections, or spills that occurred during the 2009–2010 Reporting Year (see [Appendix B, Exhibit 3, Item 8](#)). ADOT provided the EPA Audit Team with documentation for an illicit connection/discharge that had been discovered at the PMA Photometals facility on October 31, 2008 (see [Appendix B, Exhibit 11](#)), which was not during the 2009–2010 Reporting Year (i.e., July 1, 2009, to June 30, 2010).

During the audit, the ADOT Compliance Manager also provided the EPA Audit Team with records maintained by ADOT’s Traffic Operations Center, for hazardous materials spills that had occurred within ADOT rights-of-way in the Flagstaff and Prescott Districts (for example, see [Appendix B, Exhibit 12](#)), as well as a summary of spills that had occurred during the 2009 calendar year and from January 1, 2010, to October 25, 2010 (see [Appendix B, Exhibit 13](#)). The summary of spills indicates the occurrence of 53 releases (i.e., “Saddle Tank Release” or “Other Release”) of hazardous material to ADOT rights-of-way in the Flagstaff and Prescott Districts during that time period. However, the documents maintained by ADOT’s Traffic Operations Center do not provide enough information to determine whether the spill occurred in an area where material might enter the ADOT MS4 or waters of the U.S. and do not provide a priority ranking for corrective action.

Program Deficiency

ADOT does not appear to be analyzing spills in order to prioritize to protect water quality, as required by the Section 3.2.3.5.b. ADOT should create records that describe the drainage features in the area of the spill in order to determine if the spill was conveyed to waters of the U.S. or whether the spill entered the ADOT storm sewer system (see [Appendix B, Exhibit 12](#)).

Section 2.3 Post-Construction Storm Water Management

Section 3.2.5 of the Permit requires ADOT to “develop and implement comprehensive planning procedures and BMPs to prevent or minimize water quality impacts from areas of new highway development and redevelopment within the MS4 Compliance Areas and unique and impaired waters.” The Permit also requires that ADOT’s program include maintenance of post-construction BMPs.

2.3.1. Post-construction stormwater control BMP manual

Section 3.2.5.1 of the Permit requires ADOT to develop a post-construction stormwater control BMP manual that “shall instruct ADOT staff to apply a site planning process and BMP selection and design criteria.” ADOT has developed a post-construction BMP manual titled *ADOT Post-Construction BMP Manual for Highway Design and Construction*, July 2009 (hereafter, ADOT Post-Construction BMP Manual). However,

the ADOT Water Quality Manager stated there is no formal directive that actually requires designers or reviewers to use the ADOT Post-Construction BMP Manual.

The ADOT Post-Construction BMP Manual had not been disseminated to the Districts for implementation, nor had training on the content and use of the ADOT Post-Construction BMP Manual been provided to project designers (typically contractors) and reviewers (e.g., Resident Engineers, District Environmental Coordinators, Phoenix landscape architects). Additionally, the preface of the ADOT Post-Construction BMP Manual states, “This manual is intended to serve as a general guidance to assist roadway designers in understanding when and where post-construction BMPs can be implemented... The manual is intended to guide the user through important decision-making steps, not to serve as a ‘cookbook’ for post-construction BMP selection and implementation.”

Section 2.1 of the ADOT Post-Construction BMP Manual defines what ADOT considers post-construction BMPs by using a recommended list or “toolbox” of BMPs. The ADOT Water Quality Manager and ADOT Office of Environmental Services Director also indicated that the ADOT Post-Construction Program was in its initial phases and was a work in progress. Because the ADOT Post-Construction BMP Manual had not been disseminated to the Districts for implementation and because ADOT had not provided training, the concept of post-construction BMPs was not well understood by District staff. In fact, multiple construction staff in the Tucson District—including the District Engineer, Assistant District Engineer, Resident Engineer, and Senior Engineer—were not aware that there is an ADOT Post-Construction BMP Manual.

Program Deficiency:

ADOT should disseminate the ADOT Post-construction BMP Manual and provide training on its use to ADOT’s District offices in order to ensure that post-construction BMPs are part of the comprehensive planning process.

2.3.2. Implementation of post-construction BMPs

Section 3.2.5.2 of the Permit requires that “[post-construction] controls shall be installed for *all newly developed or redeveloped roadways* that discharge stormwater runoff to impaired or unique waters...runoff from these roadways and the storm sewer system shall be *treated* by a post-construction stormwater pollution control BMP(s) prior to the runoff leaving ADOT’s MS4 and/or entering waters of the U.S. [emphasis added].” Section 3.2.5 of the Permit also states that this Section applies to construction disturbances of at least 1 acre. The ADOT Water Quality Manager explained that ADOT does not have traditional land use authority or regulatory mechanisms; therefore, ADOT’s method of obtaining post-construction controls is to have BMPs inserted into the design of a project. Additionally, Section 1.1 of the ADOT Post-Construction BMP Manual articulates a goal to “discuss the project planning and design factors that should be considered in the proper selection of post-construction BMPs,” which “focuses on the Water Quality/Treatment category of BMPs, as these are BMPs that ADOT has not focused on as much in the past.

The ADOT Water Quality Manager and other Office of Environmental Services (OES) staff indicated that the Sedona II - SR179 project (ADOT Project No. H341403C) was the first ADOT project for which they could recall the completed installation of water quality/treatment BMPs. The post-construction BMPs consisted of 4 stormceptor devices. See Appendix C, Site Visit 1 for additional information regarding the water quality/treatment BMPs installed on the Sedona II - SR179 project.

The EPA Audit Team conducted a site visit of Phase 1 of the Tucson - Benson Highway (I-10), Cienega Creek - Marsh Station project (ADOT Project No. H239001C), which discharges to Cienega Creek, a designated unique water and involves approximately 14 acres of disturbance. The ADOT Water Quality Manager stated that the proposed post-construction BMPs consisted of a V-ditch leading to a basin. However, the ADOT Tucson District Resident Engineer for the project believed that those controls had been eliminated because of archaeological ruins/constraints. The EPA Audit Team requested that ADOT provide records which demonstrated the infeasibility of this post-construction BMP (see Appendix B, Exhibit 2, Item 52). Subsequent to the audit, the ADOT Water Quality Manager stated that ADOT was still planning on installing the designed BMPs during Phase III of the project (see Appendix B, Exhibit 14).

Although Appendix A of the ADOT Post-Construction BMP Manual, "Post-Construction BMP Selection Guide," states that "Throughout the selection process, the roadway designer should document each of the decisions made (and the associated justification or back-up rationale)," ADOT could not provide this documentation for the Tucson - Benson Highway (I-10), Cienega Creek - Marsh Station project. Furthermore, the ADOT Post-Construction BMP Manual does not include a post-construction BMP plan review checklist to facilitate this type of recordkeeping. Additionally, according to ADOT plan review staff, ADOT does not use a formal written checklist or other tools to document the plan review process and ensure that post-construction BMP requirements are reviewed before construction activity begins.

Program Deficiency:

ADOT should develop a systematic method to ensure that post-construction BMPs are considered during the planning and project review phases. Additionally, ADOT should fully implement the ADOT Post Construction BMP manual by requiring designers to document and justify decisions regarding post-construction BMPs.

2.3.3. Inventory of post-construction BMPs

Section 3.2.6.1.a of the Permit requires ADOT to develop and maintain an inventory of its post-construction stormwater pollution control BMPs and to submit an initial inventory of stormwater retention/detention basins, constructed wetlands for water quality purposes, media filtration systems, oil/water separators, and other major post-construction stormwater pollution control BMPs statewide to ADEQ by September 19, 2010. Additionally, Section 3.2.5.3 of the Permit requires ADOT to inventory, inspect, and maintain all post-construction stormwater pollution control BMPs in accordance with its *Post-Construction Stormwater Control BMP Manual*." However, the ADOT Post-Construction BMP Manual does not address the tracking of post-construction BMPs or

how ADOT is to inventory the type and location of post-construction BMPs that are components of the MS4.

The EPA Audit Team requested a map or inventory of post-construction stormwater control BMPs with locations (see Appendix B, Exhibit 2, Item 42). ADOT could not provide any records other than retention/detention basins, stating that it had not started mapping other post-construction BMPs (see Section 2.2.5 above and Appendix B, Exhibit 3).

ADOT demonstrated the FIS system's ability to track retention/detention features. ADOT had mapped 17 retention/detention basins. However, retention/detention basin features are the only post-construction BMPs that FIS is currently able to track (see Appendix B, Exhibit 10).

Potential Permit Violation:

ADOT had not created or submitted an initial inventory of post-construction BMPs as required by the Permit. Additionally, ADOT is currently not tracking all required post-construction BMPs.

2.3.4. Post-construction BMP inspections to ensure proper operation and maintenance

Section 3.2.5.3 of the Permit states "ADOT shall inventory, inspect, and maintain all post-construction stormwater pollution control BMPs in accordance with its *Post-Construction Stormwater Control BMP Manual*." The ADOT Post-Construction BMP Manual generally provides and/or references inspection and maintenance requirements for ADOT's recommended BMP types.

The EPA Audit Team requested records of post-construction BMP inspection and maintenance records as well as checklists used in the field for the 2009-2010 reporting year (see Appendix B, Exhibit 2, Item 45). The ADOT Water Quality Manager explained that inspections of post-construction BMPs had not been conducted to ensure the BMPs are meeting design criteria and are properly maintained and functional. Further, during the site visits, the EPA Audit Team identified a detention pond that is a component of the I-10/West Papago Freeway drainage system. The EPA Audit Team observed signs of improper maintenance of the ADOT-owned detention pond, including trash and debris accumulation, bank erosion, and blockage of the outlet structure. (See Appendix C, Site Visit 2.).

Potential Permit Violation:

*ADOT has not inspected and maintained post-construction stormwater pollution control BMPs in accordance with its *Post-Construction Stormwater Control BMP Manual*.*

Section 2.4 Storm Sewer System and Highway Maintenance

Section 3.2.6.1 of the Permit requires that ADOT implement specific BMPs for “operating and maintaining roadways and drainage ways to minimize discharges to and from the storm sewer system in all the MS4 Compliance Areas.”

2.4.1. System for inspection and routine maintenance

Specifically, Section 3.2.6.1.b of the Permit requires that ADOT implement a system to inspect and record conditions of its storm sewer system to identify potential sources of pollutants and determine maintenance needs, by September 19, 2010. ADOT also must maintain records of inspections and present the number of inspection in its annual reports. The EPA Audit Team requested ADOT’s “Schedule for inspecting and maintaining the storm sewer system components during the current permit cycle.” ADOT stated it had “not started, pending outcome of November 2009 meeting with ADEQ” (see Appendix B, Exhibit 3).

The EPA Audit Team also requested records of storm drain system inspection and maintenance and checklists used in the field in the 2009-2010 reporting year (see Appendix B, Exhibit 2, Item 22). In response, ADOT provided a blank form titled “Outfall Inspection Report” and completed “Dry Weather Field Screening Site Report” forms for inspections conducted of the Lake Havasu outfalls in August 2009 (for example, see Appendix B, Exhibits 15 and 16). The completed “Dry Weather Field Screening Site Report” forms include a Section to denote the condition of outfall structures. ADOT did not provide any completed “Outfall Inspection Report” forms, nor did they provide blank or complete inspection records for any other storm drain system inspections.

Potential Permit Violation:

ADOT has not developed a schedule to inspect and record the conditions of its MS4 in accordance with Section 3.2.6.1 of the Permit.

2.4.2. Routine maintenance and maintenance priorities

Section 3.2.6.1.c.i of the Permit requires ADOT to identify routine maintenance schedules and maintenance priorities for its storm sewer system, including roadways, to minimize pollutant discharges from the storm sewer system. Section 4.5.2.3 of the ADOT SSWMP states, “Currently each District manages maintenance needs and sets priorities in a manner appropriate for each District. Within this permit term...[ADOT] will develop a standardized method for developing a routine maintenance schedule that includes prioritization, implementation, and a record keeping component.” These statements were supported by ADOT staff in the Phoenix, Flagstaff, Tucson, and Prescott Districts, who confirmed that maintenance needs are determined at the District level and formal schedules for maintenance activities had not been implemented specifically for the MS4. For example, as described by ADOT Flagstaff and Prescott District staff, a formal schedule had not been established for MS4 catch basin cleaning efforts, and catch basin cleaning is conducted in a reactive fashion as time and resources allow. In addition,

ADOT maintenance personnel at the Flagstaff and Prescott Districts did not have a formal written list of “hotspots” in the MS4 that require more frequent inspection or maintenance; this information is largely based on institutional knowledge.

The four ADOT Districts visited during the audit generally lacked written standard operating procedures for MS4 maintenance activities performed by District staff. However, the EPA Audit Team observed a significant amount of institutional knowledge among ADOT staff that had not been written down or incorporated into ADOT’s MS4 program documents.

Program Deficiency:

ADOT should develop a system which takes advantage of institutional knowledge among ADOT staff in order to prioritize areas of the MS4 for maintenance activities in a proactive fashion.

Section 2.5 Maintenance Facilities Management: Good Housekeeping and Pollution Prevention

Section 4.0 of the Permit requires ADOT to apply specific good housekeeping and pollution prevention measures at ADOT maintenance facilities throughout the state. The EPA Audit Team conducted site visits at 22 maintenance facilities owned and operated by ADOT in the Phoenix, Flagstaff, Tucson and Prescott Districts. The purposes of the individual site visits were to (1) document site conditions, (2) observe the application and condition of BMPs employed by ADOT to prevent or reduce stormwater pollution, and (3) observe activities associated with ADOT’s oversight of stormwater compliance at its maintenance facilities.

Observations from 6 of the 22 maintenance facility site visits are presented in individual site visit reports, included as Appendix D (Maintenance and Industrial Program Site Visit Reports). Refer to Appendix A for a list of the ADOT maintenance facilities at which site visits were conducted and the corresponding site visit report numbers. The site visit report number can be used to locate the individual reports within Appendix D. Where applicable to overall audit findings, observations and examples from selected individual site visits are included in this Section of the report.

2.5.1. Good Housekeeping

Section 4.1.5.1 of the Permit, “Good Housekeeping Practices,” requires that ADOT implement specific good housekeeping and materials management practices in the following areas of maintenance facilities: (1) Vehicle and Equipment Storage Areas, (2) Vehicle and Equipment Maintenance Areas, and (3) Material Storage Areas.

Maintenance Facility Vehicle and Equipment Storage Areas

Section 4.1.5.1.b.i.2 of the Permit requires that ADOT “use drip pans under vehicles/equipment,” and Section 4.1.5.1.b.i.7 requires that ADOT “clean pavement surfaces to remove oil and grease” in vehicle and equipment storage areas at ADOT maintenance facilities.

Inspectors observed several common deficiencies among the maintenance facilities inspected, including improperly installed BMPs, hydraulic fluid staining and lack of perimeter sediment barriers around large material stockpiles. The following inspection summaries highlight these deficiencies. For additional details and site context, refer to the applicable site visit reports provided in Appendix D.

Payson Maintenance Facility – Prescott District – 200 North Colcord, Payson, Arizona (see [Appendix D, Site Visit 3](#))

- The EPA Audit Team observed oily fluid and hydraulic fluid stains, typically under stored snowplow blades, throughout the facility (see [Photograph 1, 2 and 3](#)). Additionally, many of the hose connections were not capped to prevent leaks, as pictured in [Photograph 2](#).
- Oily fluid was leaking from a vehicle near the Equipment Services maintenance building, and no drip pan had been employed. An uncontained aggregate material had been spread under the vehicle to absorb leaking fluids, but was not swept up (see [Photographs 4 and 5](#)).

Maintenance Facility Material Storage Areas

Section 4.1.5.1.b.iii.3 of the Permit requires that ADOT “install berms/dikes [containment BMPs]” or alternatives that will provide equivalent protection, around material storage areas at ADOT maintenance facilities.

Grant Road Maintenance Facility – Tucson District – 1444 West Grant Road, Tucson, Arizona (see [Appendix D, Site Visit 4](#))

- The EPA Audit Team observed that BMPs had not been implemented for containment of a large material stockpile along the northwestern portion of the facility (see [Photographs 4 and 5](#)). The Facility Site Plan (i.e., facility map) included in the *Grant Road Maintenance Facility Stormwater Pollution Prevention Plan*, March 2009 (hereafter, Facility SWPPP) shows that stormwater flows in a west and southwest direction across this area of the site. The stockpile was located up-gradient of the most northern outlet to the Santa Cruz River (see [Photographs 5 and 6](#)). Section 5.1.5 of the Facility SWPPP states that ADOT will “install and maintain perimeter sediment barriers such as berms, dikes, silt fences, jersey barriers or sandbag barriers to prevent runoff from leaving the area around each pile of bulk material,” but such BMPs had not been implemented.

At multiple maintenance facilities visited by the EPA Audit Team, ADOT had implemented fiber-roll BMPs around the perimeter of stockpiles for containment in material storage areas; however, the EPA Audit Team observed multiple instances in which the fiber-roll BMPs had not been implemented in accordance with installation specifications. Appendix A, Section 810-3.06(C), of the ADOT SSWMP states that “fiber rolls shall be installed in a two-inch deep by five-inch wide anchor trench. Fiber rolls shall be secured with wooden stakes...the ends of adjacent rolls shall be abutted together.”

The following is a select example of the EPA Audit Team’s major site visit observations pertaining to the installation of fiber-roll BMPs for containment in material storage areas. For additional details and site context, refer to the applicable site visit reports provided in Appendix D.

Avondale Maintenance Facility – Phoenix District – 1702 North 10th Street, Avondale, Arizona (see Appendix D, Site Visit 6)

- The EPA Audit Team observed that in the northern part of the facility, fiber rolls had been installed around material stockpiles on an impervious surface, where they could not be placed in an anchor trench or staked into the ground (see Photographs 1 and 2). Stockpile material was observed beyond the fiber-roll BMPs, and a gap in the fiber rolls was observed around one of the stockpiles (see Photographs 1 and 2). In addition, also in the northern part of the facility, fiber rolls had been installed around material stockpiles on a pervious surface; however, the fiber rolls had not been placed in an anchor trench in the ground (see Photographs 3 and 4). Stockpile material was observed beyond the fiber-roll BMPs (see Photographs 3 and 4).

Potential Permit Violations:

ADOT has not implemented good housekeeping practices and materials management at all of its maintenance facilities.

2.5.2. Storm Water Pollution Prevention Plans (“SWPPP”)

Section 4.2.1.3 of the Permit requires that ADOT “keep a current copy of the SWPPP on-site and update it as necessary” for maintenance facilities that require SWPPPs. The Permit also requires that the SWPPP identify potential pollutant sources. Additionally, Section 11.3.2 of the Permit requires that “All reports required by this permit, SWPPPs, and other information requested by ADEQ shall be signed by a person described in sub-Section 11.3.1, or by a duly authorized representative of that person (e.g., ADOT District Engineer or Director of Environmental Services).”

The EPA Audit Team observed discrepancies between the information contained in the facility SWPPPs and the site conditions observed during the site visits for Nogales Maintenance Facility, (see Appendix D, Site Visit 1) the Statewide Striping Facility and the Durango Maintenance Facility.

Specifically, at the Nogales Maintenance Facility, the EPA Audit Team observed the following:

- Concrete waste and wash water residues were present on the pervious surface located on the eastern portion of the site (see Appendix C, Site Visit 1, Photographs 1, 2, and 3). The Facility SWPPP does not identify concrete wash-out as a potential pollutant source or as a designated on-site activity. Section 9.5 of the Facility SWPPP states that the SWPPP will be updated to reflect any changes from situations such as “identification of additional potential pollutant sources.”

- Section 1.2, “Site Description with Activities,” of the *Nogales Maintenance Facility Stormwater Pollution Prevention Plan*, March 2009 (hereafter, Facility SWPPP), explains that the eastern half of the administrative office building at the facility is used for sand storage. A facility representative explained, however, that the sand stockpile at the facility had been removed. Section 9.5 of the Facility SWPPP states that the “SWPPP will be updated to reflect any changes using the SWPPP Revision Log located in Appendix G.” The SWPPP was last modified August 17, 2010, but it had not been updated to reflect the removal of the sand storage.

Further, the SWPPPs at Statewide Striping Facility in Phoenix and the Durango Maintenance Facility had not been signed and certified in accordance with Section 11.3.1 of the Permit at the time of the site visits.

Potential Permit Violations:

SWPPS were observed to be incomplete regarding signature and certification requirements and BMP implementation.

Section 2.6 Construction Site Stormwater Management

Section 5.0 of the Permit requires ADOT to implement specific practices to reduce or eliminate the discharge of pollutants from ADOT owned or operated construction activity which disturbs at least one acre (or is part of a larger common plan of development). The Permit requires ADOT to develop and implement site-specific SWPPPs, to select and install BMPs, and to conduct inspections.

The EPA Audit Team conducted site visits at 21 construction project sites within the ADOT rights-of-way in the Phoenix, Flagstaff, Tucson and Prescott Districts. The purposes of the individual site visits were to (1) document site conditions, (2) observe the application and condition of best management practices employed by ADOT to prevent or reduce stormwater pollution, and (3) observe activities associated with ADOT’s oversight of stormwater compliance at construction project sites within its rights-of-way.

Observations from 10 of the 21 construction project site visits are presented in individual site visit reports, included as Appendix C (Construction and Post-Construction Program Site Visit Reports). Refer to Appendix A for a list of the ADOT maintenance facilities at which site visits were conducted and the corresponding site visit report numbers. The site visit report number can be used to locate the individual reports within Appendix C. Where applicable to overall audit findings, observations and examples from selected individual site visits are included in this section of the report.

2.6.1. Stormwater Pollution Prevention Plans

Section 5.2.1.1 of the Permit requires ADOT to prepare SWPPP for all construction sites that meet the criteria in Sections 5.1.1 and 5.1.4. Section 5.2.1.5 of the Permit provides descriptions of the required elements for construction site SWPPPs. Furthermore, Section 5.3.1.3 of the Permit requires ADOT to ensure that all applicable provisions of the AZPDES Construction General Permit and this permit [No. AZS000018-2008] are

implemented for ADOT projects. Because ADOT employs contractors for most of its construction projects and in most cases, contractors are responsible for preparing construction project SWPPPs, ADOT must ensure that ADOT's contractors have detailed provisions in the SWPPP and effectively implement the BMPs detailed in the SWPPP. (Section 5.2.1.2).

The EPA Audit Team requested that ADOT provide its procedures for site plan/SWPPP review (see Appendix B, Exhibit 2, Item 25). ADOT has developed a SWPPP template for construction projects that can be used to guide contractors in SWPPP preparation and for SWPPP review by ADOT or its contractors. Importantly, the SWPPP template includes a checklist (see Appendix B, Exhibit 17) that was designed to ensure that ADOT's contractors develop construction site SWPPPs that include the required items of the AZPDES Construction General Permit and ADOT's MS4 permit (No. AZS000018-2008); however, the ADOT Water Quality Manager explained that ADOT does not require its contractors to use the template. The use of the SWPPP template and associated checklist is at the discretion of the contractor and ADOT's assigned project engineer. Appendix B, Exhibit 18, for example, includes a SWPPP review and comment that did not use the ADOT SWPPP template checklist.

Program Deficiency:

ADOT has developed materials which will ensure that SWPPPs are developed that comply with permit requirements. ADOT should require that its project engineers and contractors use the SWPPP template and associated checklist.

2.6.2. Inspections of ADOT construction sites

BMP Installation and Maintenance

Section 5.2.3.2.a.i of the Permit requires BMPs to be “properly selected, installed, and maintained per the manufacturers’ specifications and good engineering practices.”

Inspectors observed several common BMP deficiencies at various construction sites including insecure storage of liquid construction chemicals and the improper installation and maintenance of fiber rolls.

The following inspection summaries highlight these and other BMP deficiencies. For additional details and site context, refer to the applicable site visit reports provided in Appendix C.

I-40 Babbitt Tanks Wash Construction Project – Flagstaff District – Milepost 225 along I-40E (see Appendix C, Site Visit 3)

- Fiber-roll BMPs installed in the median between the eastbound and westbound lanes of I-40 to the west of the bridges had not been entrenched into the ground (see Photographs 1 and 2). In addition, the ends of adjacent fiber rolls had not been abutted together in multiple areas (see Photographs 3 and 4). The BMP specifications in the *ADOT Babbitts Tank Wash Bridge and Canyon Diablo Bridges EB and WB Storm Water Pollution Prevention Plan*, (hereafter, Facility

SWPPP) explain that sediment wattles, or fiber-roll BMPs, should be installed in trenches in the ground surface. Appendix A, Detail E3, of the Facility SWPPP states that “trench depth [is] to be 1/3 the thickness of the sediment wattle. Place excavated material on uphill side of trench.”

- Fiber-roll BMPs had been implemented as inlet protection for a storm drain inlet located in the median between the eastbound and westbound lanes in the western portion of the project (see [Photograph 2](#)); however, the fiber-roll BMPs had not been installed in accordance with the installation specifications included in Appendix A, Detail E3, of the Facility SWPPP. Specifically, the fiber-roll BMPs had not been entrenched into the ground (see [Photograph 5](#)). In addition, the EPA Audit Team observed accumulated sediment in and around the storm drain inlet (see [Photograph 6](#)).
- Soil had been placed and/or had accumulated to the full height of the fiber-roll BMPs implemented along the construction site perimeter approximately 60 feet to the northeast of the westbound roadway (see [Photographs 8 and 9](#)). Section 5.2.3.2.a.i of the Permit requires that for ADOT construction projects “all BMPs shall be properly selected, installed, and maintained per the *manufacturers’ specifications and good engineering practices*” [emphasis added]. The Permit does not provide specific maintenance requirements for fiber-roll BMPs; however, a widely used reference manual in the erosion and sediment control industry, the California Stormwater Quality Association’s (CASQA) *California Stormwater BMP Handbook*, January 2003, provides the following maintenance protocols for fiber-roll BMPs:

If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-half the designated sediment storage depth, usually one-half the distance between the top of the fiber roll and the adjacent ground surface.

Good Housekeeping – Construction Chemical Storage and Construction Debris

Section 5.2.3.2.c.iii of the Permit requires that ADOT implement “good housekeeping procedures to prevent litter, construction debris, and construction chemicals exposed to stormwater from becoming a pollutant source for stormwater discharges.” In addition, Section 5.7.1 of the ADOT Erosion Control Manual, which is applicable to various materials, such as “petroleum products...fuel, oil and grease...acids, lime, glues, adhesives, paints, solvents, and curing compounds,” states that:

Liquids and petroleum products shall be handled in conformance with the following provisions: storage, preparation, and mixing shall be accomplished in temporary containment facilities. Each temporary containment facility shall provide a spill containment volume equal to 1.5 times the volume of all containers therein and shall be impervious to the materials contained therein for a minimum contact time of 72 hours...materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition...

The EPA Audit Team observed multiple instances in which construction chemicals and debris had not been properly stored to prevent the material from becoming a pollutant

source for stormwater discharges. The following are select examples of the EPA Audit Team's major site visit observations pertaining to this issue. For additional details and site context, refer to the applicable site visit reports provided in Appendix C.

I-40 Babbitt Tanks Wash Construction Project – Flagstaff District – Milepost 225 along I-40E (see Appendix C, Site Visit 3)

- Various liquid chemicals, such as concrete curing compound, form oil, and asphalt curing compound, were stored in an earthen berm containment pit with a plastic liner in the southwestern portion of the site (see Photographs 10 and 11); however, the plastic lining of the containment area was torn and had multiple holes (see Photographs 12 and 13). A facility representative explained that the containment pit is lined with a high-grade plastic; however, the *Babbitts Tank Wash Bridge and Canyon Diablo Bridges EB and WB Storm Water Pollution Prevention Plan* (hereafter, Facility SWPPP) did not include a description of this practice for liquid chemical storage, nor did it provide specifications for the plastic liner material or maintenance requirements.
- An unlabeled 5-gallon bucket containing a dark fluid, possibly a petroleum product, was stored in the plastic-lined containment pit without a lid (see Photographs 11 and 14). Section II of the Facility SWPPP, “Controls, Product Specific Practices,” states that “Petroleum products will be stored in tightly sealed containers that are clearly labeled.”

Oracle Junction – Florence Highway Construction Project – Tucson District – SR 79 Milepost 126 – 127.5 between Oracle, Arizona and Florence, Arizona (see Appendix C, Site Visit 7)

- An unlabeled drum, which a facility representative described as a concrete curing agent, was present in the staging yard at the construction site (see Photograph 6). The drum was stored in an earthen berm containment pit with a plastic liner; however, the plastic lining of the containment area was torn and had multiple holes (see Photograph 7).

Phoenix Highway (I-10 widening), Sarival Avenue to Dysart Road Construction Project – Phoenix District – I-10, Sarival Avenue to Dysart Road, Phoenix, Arizona (see Appendix C, Site Visit 8)

- Concrete curing compound and unlabeled drums were stored in a concrete berm containment pit near the center of the construction staging yard; however, a gap was present in the berm underneath the filling area/storage area for a portable curing trailer and the berm was deteriorated on the west side of the containment area (see Photographs 3 and 4).
- Trash, debris, and evidence of concrete waste material were present in the Agua Fria River channel at the Agua Fria bridge crossing on the east end of the project (see Photographs 11 and 12). Section 5.7.5 of the ADOT Erosion Control Manual states that “solid waste storage areas shall be located at least 50 feet from drainages...litter from work areas within the construction limits of the project shall be collected and place in watertight dumpsters at least weekly.”

Potential Permit Violation:

ADOT had not implemented good housekeeping procedures as required by Section 5.2.3.2.c at all of its construction sites to prevent litter, construction debris, and construction chemicals from being exposed to and discharged in stormwater runoff. In addition, ADOT had not properly installed or maintained BMPs as required by Section 5.2.3.2.a.i. of its MS4 Permit.

2.6.3 Enforcement of applicable construction project requirements by ADOT

Section 5.3.1.3 of the Permit requires ADOT to implement a *system to enforce* applicable provisions of the AZPDES Construction General Permit and MS4 permit (No. AZS000018-2008).

The EPA Audit Team requested “Procedures for site inspection and enforcement of control measures” (see Appendix B, Exhibit 2, Item 29). In response, ADOT provided its Stormwater ERP and explained that ADOT utilizes multiple types of construction site inspections. Routine inspections, which are required under Section 5.2.5.1 of the Permit, are typically conducted jointly by ADOT’s assigned project engineer and the contractor’s Erosion Control Coordinator (ECC). Additional inspections are conducted by ADOT Roadside Development, District Environmental Coordinators, and the Construction Operations “Quantlist” inspectors.

In contrast to the structured enforcement procedures contained in ADOT’s Stormwater ERP, multiple construction staff in the Tucson District—including the District Engineer, Assistant District Engineer, Resident Engineer, and Senior Engineer—were not aware of the existence of ADOT’s Stormwater ERP. The EPA Audit Team also questioned ADOT Flagstaff District and Prescott District construction representatives about enforcement procedures; the construction representatives did not mention ADOT’s Stormwater ERP.

During the audit, ADOT OES staff held discussions with ADOT construction representatives in order to provide Resident Engineers with additional enforcement options to obtain corrective actions. ADOT representatives indicated that it was difficult for ADOT to enforce SWPPP requirements upon contractors and parties with encroachment permits. Lacking an effective mechanism, oversight was time-consuming and relied on constant supervision by ADOT.

ADOT also has an additional enforcement option at its disposal, referred to as the SWPPP Directive Order, which establishes required corrective actions, deadlines, and documentation (see Appendix B, Exhibit 19). The SWPPP Directive Order, however, had not been incorporated into ADOT’s Stormwater ERP as an enforcement option and may not allow for sufficient consequences to ensure compliance.

Monetary penalties were one enforcement option discussed. As an example, the Minnesota Department of Transportation (MnDOT) is one state department of transportation that uses monetary penalties as an enforcement option. Specifically, MnDOT provides construction project engineers/supervisors with the authority to issue a

monetary penalty to contractors that do not respond to verbal and written warnings. The monetary penalty is in the form of a deduction or withholding of payment in the amount of \$500 per day per instance (i.e. \$500 per day would be assessed for each instance where a storm drain inlet lacked inlet protection). Additional options include the use of a fixed line item for stormwater controls in the RFP to establish a level playing field in the bidding process.

Program Deficiency:

ADOT lacks an effective enforcement mechanism to ensure that proper BMPs are installed and maintained by ADOT contractors and third parties with encroachment permits who are working in ADOT right-of-ways.

Section 2.7 Industrial Facilities Management

Section 6.0 of the Permit requires ADOT to implement specific practices to reduce or eliminate the discharge of pollutants from ADOT-owned industrial facilities, including material source areas. Specifically, the Permit requires ADOT to develop and implement site-specific SWPPPs, implement BMPs around fueling areas, conduct annual inspections with reports and conduct training.

The EPA Audit Team conducted site visits at industrial facilities owned or operated by ADOT in the Phoenix, Flagstaff, Tucson and Prescott Districts. The purposes of the individual site visits were to (1) document site conditions, (2) observe the application and condition of best management practices employed by ADOT to prevent or reduce stormwater pollution, and (3) observe activities associated with ADOT's oversight of stormwater compliance at its industrial facilities.

The EPA Audit Team conducted site visits at seven industrial facilities, including the Grand Canyon National Park Airport, Durango Sign Factory, and various material source sites. Observations from the Grand Canyon National Park Airport are presented in an individual site visit report ([see Appendix D, Site Visit 7](#)). Refer to Appendix A for a complete list of the ADOT industrial facilities at which site visits were conducted.

Section 6.8 of the Permit discusses requirements for a specific category of industrial activity: material source mining. ADOT's material source mining activities include borrow pits, cinder pits, sand and gravel operations, stone quarries, and activities that are categorized into the following groups:

- Group A. Exploring for stone, sand, gravel and cinder; developing material source pits; and excavating and storing mined materials
- Group B. Non-metallic mineral processing and mineral services (i.e., processing material sources), which includes but is not limited to, plant and truck screening, making pre-mix material, bulk material handling, and storage
- Group C. Reclamation of material source sites
- Group I. Non-Mining Sites containing stockpiles of processed material.

The requirements in Section 6.8 of the Permit “apply where ADOT has exclusive use of a material source site (i.e., ‘exclusive use sites’), or whenever ADOT is actively operating

at a joint use site. For material source joint-use sites, ADOT shall sign on to the operator's SWPPP, or develop and implement their own SWPPP for areas where ADOT has operational control."

2.7.1. Inspections

Section 6.8.4.2.a of the Permit requires ADOT to "conduct quarterly visual inspections of all BMPs at Group A sites (borrow pits, cinder, sand and gravel, and crushed stone)" and to conduct an annual inspection of all BMPs at all Group B and C sites. ADOT provided the EPA Audit Team with inspection records for Group A, B, C, and I site inspections that had been conducted during the 2009–2010 and 2010–2011 reporting years. The ADOT Materials Group Environmental Coordinator explained that these inspections began in June 2009, but they were the first inspections that ADOT had conducted and documented at its material source sites (see [Appendix B, Exhibit 20](#)).

Further explanation is included in a material source program description provided by the ADOT Materials Group (see [Appendix B, Exhibit 21](#)), which states:

Group A, B, C and I sites were inspected during Permit Year 2 [2009-2010 Reporting Year] and reports are available in the pit file at 1221 North 21st Avenue, Phoenix, or by the applicable District. While the Materials Group administers the licenses [to mine or stockpile], Districts utilize the sources. Management of the program has not been consistently implemented Statewide primarily due to regional allocation of limited resources.

Potential Permit Violation:

ADOT did not conduct inspections of "exclusive use" material source sites during the 2008–2009 reporting year. ADOT only began site inspections of these sites beginning in the 2009-2010 reporting year.

2.7.2 SWPPPs for material source mining sites

Section 6.8.5 of the Permit requires ADOT to prepare SWPPPs for all Group A, B, and C material source mining sites that lie within ¼-mile of any unique or impaired water."²

The ADOT Materials Group Environmental Coordinator explained that none of the ADOT-licensed sources were located within ¼-mile of any unique or impaired water, and therefore they did not trigger the requirement to develop a SWPPP under Section 6.8.5 of the Permit. However, ADOT and the Federal Highway Administration have established a stormwater subgroup that has begun a process of developing SWPPP-type documents (Erosion and Pollution Control Plans, or EPCPs) for all material sources (see [Appendix B, Exhibit 21](#)). ADOT anticipated that the EPCP template (see [Appendix B, Exhibit 23](#)) would be used to develop EPCPs during the 2010–2011 reporting year. Additionally, material source mining may require coverage under Arizona's Multi-Sector General Permit, issued since this audit was conducted on December 20, 2010.

² Additionally, the *ADOT-licensed Material Sources Inventory for Permit Year 3*, dated October 21, 2010, lists Group A and B material source sites as Standard Industrial Classification (SIC) code 14, Nonmetallic Minerals, which requires industrial stormwater permit coverage under the federal regulations (Title 40 of the *Code of Federal Regulations* (CFR), §122.26(b)(14)). See [Appendix B, Exhibit 22](#), for an inventory of ADOT material source sites where ADOT had not developed SWPPPs.

Positive Attribute:

ADOT should continue to develop the ECPC template for material sources and use it to create ECPCs for all material sources. This would ensure BMPs adequately address potential sources of stormwater pollution.

Section 2.8 Monitoring Program

Section 8.0 of the Permit requires ADOT to “monitor stormwater discharges associated with its construction and industrial activities, and its MS4 locations at designated outfall points....” The ADOT Administrative Services Division Director explained that the overall goal of monitoring was to use the data to alert ADOT of possible BMP ineffectiveness. ADOT staff explained that they would then research the issue to determine why BMPs are ineffective and then take action. ADOT believed that this process would result in improved BMPs, highway design, and programs. However, in contrast to these statements, Section 10.1.2 of ADOT’s 2008-2009 Annual Report states:

MS4 stormwater sampling results were compared to applicable SWQS [State Water Quality Standards] as identified in Table 7 and Table 8. The results indicate TDS [Total Dissolved Solids] exceed its applicable SWQS during both the winter and summer season within the Tucson MS4 area [Interstate 10 and Grant Road Maintenance Yard monitoring location]. ADOT is reviewing its BMP within this area to determine an appropriate response to reduce TDS to the maximum extent practicable and to protect the receiving water quality. ADOT recognizes that street sweeping may be a primary factor in reducing TDS. However, due to current State budget issues an increase in street sweeping is currently not an option for ADOT. Once budget issues are resolved ADOT will review BMP activity where appropriate and adjust accordingly.

2.8.1 Monitoring Discharges to Impaired or Unique Waters

Section 8.4 requires monitoring for construction sites, concrete batch plants, and asphalt plants that are located within ¼-mile of an unique or impaired water. The EPA Audit Team conducted site visits at multiple industrial and construction facilities where monitoring is required. Observations from the Nogales Maintenance Yard ([see Appendix D, Site Visit 1](#)) and Humphreys Street and Route 66 MS4 outfall ([see Appendix D, Site Visit 8](#)) are presented in individual site visit reports. No monitoring deficiencies were identified at these sites.

2.8.2 Maintenance Facilities Requiring Monitoring

Section 8.6.4 requires monitoring for maintenance facilities (including fuel yards) located within ¼-mile of an impaired or unique water, including the Nogales Maintenance Yard, the Superior Maintenance Yard and the Superior Storage and Fuel Yard. The 2010 Annual Report stated that samples were taken at the Nogales Maintenance Yard and the Superior Maintenance Yard, but not from the Superior Storage and Fuel Yard. None of the samples taken at the Nogales and Superior Maintenance Yards indicated an exceedance of state water quality standards.

Potential Permit Violation:

ADOT did not conduct monitoring at the Superior Storage and Fuel Yard as required by Section 8.6.4 of the Permit.

2.8.3 Wet Weather Monitoring at Outfalls

Section 8.7.2.1 of the Permit requires ADOT to continue its existing wet weather monitoring program at the Phoenix and Tucson locations for the first 12 months of the Permit term [September 19, 2008 – September 19, 2009]. In all following years, ADOT shall perform wet weather monitoring at the five established monitoring locations which discharge directly to a water of the U.S.. Section 10.1 of the 2010-2011 Annual Report states:

ADOT conducted stormwater monitoring for its MS4 at two locations within the Phoenix and Tucson area during the reporting year. Data associated with stormwater monitoring from these two locations is presented in this Section. As previously described in Section 7.2, ADOT had proposed five stormwater sampling locations in the previous reporting year and received approval of four locations by the ADEQ. ADOT has recently received approval of a fifth location and is currently completing encroachment permitting of those sites. ADOT expects installation of automated stormwater sampling equipment at these five locations in early 2011.

The sampling results from outfall locations at Tucson and Phoenix showed exceedances of zinc and total dissolved solids above Surface Water Quality Standards.

Potential Permit Violation:

ADOT did not conduct monitoring at all 5 wet weather outfalls locations in accordance with the permit schedule.

Appendix A Audit Schedule¹, Participants and Site Visits

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Phoenix District
October 25 – October 26, 2010
EPA Audit Team 1

Day	Time	Team A (Luz) Program/Agenda Item	Team B (Scott) Program/Agenda Item
Monday, October 25, 2010	8:00 am - 9:00 am	Kickoff Meeting & Program Management Overview	
	9:00 am - 10:15 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Office)	
	10:15 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Office)	
	12:00 pm - 1:00 pm	Lunch Break	
	1:00 pm - 3:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities	Construction Site Storm Water Runoff Control (Office)
	3:00 pm - 4:30 pm	Associated with Industrial Activities (Field)	Post Construction Storm Water Management in Development and Redevelopment (Office)
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Tuesday	
Tuesday, October 26, 2010	8:00 am - 9:00 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	9:00 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Field)	

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Phoenix District
October 25 – October 26, 2010
EPA Audit Team 1

Day	Time	Team A (Luz) Program/Agenda Item	Team B (Scott) Program/Agenda Item
	12:00 pm - 1:00 pm	Lunch Break	
	1:00 pm - 4:30 pm	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Wednesday	

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Tucson District
October 27 – October 28, 2010
EPA Audit Team 1

Day	Time	Team A (Luz) Program/Agenda Item	Team B (Scott) Program/Agenda Item
Wednesday, October 27, 2010	8:00 am - 9:00 am	Kickoff Meeting & Program Management Overview	
	9:00 am - 10:15 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Office)	
	10:15 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Office)	
	12:00 pm - 1:00 pm	Lunch Break	
	1:00 pm - 3:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Field)	Construction Site Storm Water Runoff Control (Office)
	3:00 pm - 4:30 pm		Post Construction Storm Water Management in Development and Redevelopment (Office)

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Tucson District
October 27 – October 28, 2010
EPA Audit Team 1

Day	Time	Team A (Luz) Program/Agenda Item	Team B (Scott) Program/Agenda Item
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Thursday	
Thursday, October 28, 2010	8:00 am - 9:00 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	9:00 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Field)	
	12:00 pm - 1:00 pm	Lunch Break	
	1:00 pm - 4:30 pm	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Friday	

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Flagstaff District
October 25 – October 26, 2010
EPA Audit Team 2

Day	Time	Team A (Brenner) Program/Agenda Item	Team B (Bobby) Program/Agenda Item
Monday, October 25, 2010	8:00 am - 9:00 am	Kickoff Meeting & Program Management Overview	
	9:00 am - 10:15 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Office)	
	10:15 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Office)	
	12:00 pm - 1:00 pm	Lunch Break	
	1:00 pm - 3:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Field)	Construction Site Storm Water Runoff Control (Office)
	3:00 pm - 4:30 pm		Post Construction Storm Water Management in Development and Redevelopment (Office)
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Tuesday	
Tuesday, October 26, 2010	8:00 am - 9:00 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	9:00 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Field)	
	12:00 pm - 1:00 pm	Lunch Break	

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Flagstaff District
October 25 – October 26, 2010
EPA Audit Team 2

Day	Time	Team A (Brenner) Program/Agenda Item	Team B (Bobby) Program/Agenda Item
	1:00 pm - 4:30 pm	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Wednesday	

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Prescott District
October 27 – October 28, 2010
EPA Audit Team 2

Day	Time	Team A (Brenner) Program/Agenda Item	Team B (Bobby) Program/Agenda Item	
Wednesday, October 27, 2010	8:00 am - 9:00 am	Kickoff Meeting & Program Management Overview		
	9:00 am - 10:15 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Office)		
	10:15 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Office)		
	12:00 pm - 1:00 pm	Lunch Break		
	1:00 pm - 3:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Field)	Construction Site Storm Water Runoff Control (Office)	
	3:00 pm - 4:30 pm		Post Construction Storm Water Management in Development and Redevelopment (Office)	
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Thursday		

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Prescott District
October 27 – October 28, 2010
EPA Audit Team 2

Day	Time	Team A (Brenner) Program/Agenda Item	Team B (Bobby) Program/Agenda Item
Thursday, October 28, 2010	8:00 am - 9:00 am	Illicit Discharge / Illegal Dumping Detection and Elimination Measures (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	9:00 am - 12:00 pm	Maintenance Facilities, Good Housekeeping & Pollution Prevention, and Discharges from ADOT Facilities Associated with Industrial Activities (Field)	
	12:00 pm - 1:00 pm	Lunch Break	
	1:00 pm - 4:30 pm	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)	Construction Site Storm Water Runoff Control / Post Construction Storm Water Management in Development and Redevelopment (Field)
	4:30 pm - 5:00 pm	Recap and Logistics Planning for Friday	

Tentative Agenda for MS4 Program Audit
Arizona Department of Transportation (ADOT) – Headquarters
October 29, 2010
EPA Audit Teams 1 and 2

Day	Time	Team 1(Scott) Program/Agenda Item	Team 2(Bobby) Program/Agenda Item
Friday, October 29, 2010	8:00 am - 9:30 am	Stormwater Discharge Monitoring (Office)	
	9:30 am - 11:30 am	Open Period for Additional Activities ¹ (Tentative time slot)	
	11:30 am - 12:30 pm	Lunch Break	
	12:30 pm - 1:00 pm	Internal Discussion ²	
	1:00 pm - 2:00 pm	Closing Conference ³ (Tentative time slot)	

¹ Open Period – This time slot will be used as necessary for follow-up activities, additional discussion, or records reviews.

² Internal Discussion - Time for inspectors to arrange notes and prepare information to be discussed with ADOT at the Closing Conference. ADOT participation is not expected.

³ ADOT is encouraged to invite representatives from all applicable organizational divisions/departments to the Closing Conference.

The tables on the following pages present the names and titles of the primary representatives involved in the audit.

ADOT Phoenix District Primary Audit Participants: October 25–26, 2010	
State of Arizona, Department of Transportation	John Nichols, Administrative Services Division Director Todd Williams, Office of Environmental Services Director Wendy Terlizzi, Water Quality Manager Michael Traubert, Policy and Standards Group Tim Wolfe, Maintenance District Engineer Lisa Andersen, Maintenance District Environmental Coordinator Robert Samour, Valley Transportation Group Deputy State Engineer Julie Kliewer, Construction District Engineer Madhu Reddy, Assistant Construction District Engineer Michael Zimmick, Assistant Construction District Engineer Leroy Brady, Chief Landscape Architect John Lawson, Materials Group Manager Leigh Waite, Materials Group Environmental Coordinator
Consultant to ADOT	Lisa Spahr, EEC, Inc.
EPA Representatives	David Wampler, EPA Region 9
EPA Contractors	Scott Coulson, PG Environmental, LLC Luz Slauter, PG Environmental, LLC

ADOT Flagstaff District Primary Audit Participants: October 25–26, 2010	
State of Arizona, Department of Transportation	Chuck Howe, Compliance Manager Dallas Hammit, Deputy State Engineer John Harper, District Engineer Chuck Gillick, District Maintenance Engineer Astrid Potter, Senior Resident Engineer Steve Monroe, Resident Engineer Rick Schilke, Project Supervisor Audra Merrick, Development Engineer

ADOT Flagstaff District Primary Audit Participants: October 25–26, 2010	
Consultants to ADOT	John Burton, EEC, Inc. Kurt Harris, Tetra Tech, Inc.
EPA Representatives	Rick Sakow, EPA Region 9 John Tinger, EPA Region 9
EPA Contractors	Bobby Jacobsen, PG Environmental, LLC Brenner Perryman, PG Environmental, LLC

ADOT Tucson District Primary Audit Participants: October 27–28, 2010	
State of Arizona, Department of Transportation	Todd Williams, Office of Environmental Services Director Wendy Terlizzi, Water Quality Manager Michael Traubert, Policy and Standards Group Angela Roach, District Environmental Coordinator Todd Emery, District Engineer (Construction) Jerry James, Assistant District Engineer (Construction) Jeremy Moore, Resident Engineer (Construction) Carter McKune, Senior Engineer (Construction) Sardar Chalabe, Resident Engineer (Construction) Randy Smith, Transportation Construction Technician Rod Lane, Acting Development Engineer and Maintenance Engineer Sylvia Hanna, Permits Supervisor Danny Granillo, District Funding Development
Consultant to ADOT	Lisa Spahr, EEC, Inc.
EPA Representatives	David Wampler, EPA Region 9
EPA Contractors	Scott Coulson, PG Environmental, LLC Luz Slauter, PG Environmental, LLC

ADOT Prescott District Primary Audit Participants: October 27–28, 2010	
State of Arizona, Department of Transportation	Chuck Howe, Compliance Manager Dallas Hammit, Deputy State Engineer Chuck Budinger, District Environmental Coordinator Greg Gentsch, District Engineer Andrew Roth, Senior Resident Engineer Alvin Stump, Development Engineer
Consultant to ADOT	John Burton, EEC, Inc.
EPA Representatives	Rick Sakow, EPA Region 9 John Tinger, EPA Region 9
EPA Contractors	Bobby Jacobsen, PG Environmental, LLC Brenner Perryman, PG Environmental, LLC

Site Visits Conducted during ADOT MS4 Audit

Appendix and Site Visit Report No.	ADOT District	Facility Type	Date	Site Name	Location	ADOT Project No.
Appendix C, Site Visit 1	Flagstaff	Construction	10/26/2010	Sedona II - SR 179	SR 179 - Back O'Beyond to SR 89A, Sedona, AZ, 86336	H341403C
Appendix C, Site Visit 2	Phoenix	Post-Construction	10/26/2010	Detention Pond #4, I-10/West Papago Freeway Drainage System	Under I-10 at 19 th Avenue, Phoenix, AZ	NA
Appendix C, Site Visit 3	Flagstaff	Construction	10/26/2010	I-40, Babbit Tanks Wash Bridge (EB)	MP 225 along I-40E	H699801C
Appendix C, Site Visit 4	Flagstaff	Construction	10/26/2010	SR 89A at Airport Road (InterSection Improvements - Sedona)	InterSection of SR 89A and Airport Road, Sedona, AZ, 86336	HX21901C
Appendix C, Site Visit 5	Prescott	Construction	10/28/2010	SR 87 Airport Drive Roundabout	InterSection of SR 87 and East Airport Road, Payson, AZ, 85541	H730401C
Appendix C, Site Visit 6	Prescott	Construction	10/28/2010	SR 260 Little Green Valley - Thompson Draw Bridge	Bridge over Thompson Draw along SR 260, Payson, AZ, 85541	H469901C
Appendix C, Site Visit 7	Tucson	Construction	10/28/2010	Oracle Junction-Florence Highway; SR 79 MP 126-127.4	SR 79 MP 126 - 127.5, between Oracle Junction, AZ and Florence, AZ	H690601C
Appendix C, Site Visit 8	Phoenix	Construction	10/29/2010	Phoenix Highway (I-10 widening); Sarival Avenue to Dysart Road	I-10, Sarival Avenue to Dysart Road, Phoenix, AZ	H729601C
Appendix C, Site Visit 9	Phoenix	Construction	10/26/2010	SR303 Loop - Happy Valley to Lake Pleasant	Lake Pleasant to I-17, Phoenix, AZ	H715601C
Appendix C, Site Visit 10	Prescott	Construction	10/28/2010	Portal IV	Highway 260, Pine, AZ	NA

ADOT Prescott District Primary Audit Participants: October 27–28, 2010

Appendix C, Site Visit 11	Prescott	Construction	10/28/2010	SR 69 Sundog to Sunrise (County Encroachment)	InterSection of SR 69 and East Diamond Drive, Prescott, AZ, 86301	NA
Appendix D, Site Visit 1	Tucson	Maintenance	10/27/2010	Nogales Maintenance Yard	1340 North Hohokam Drive, Nogales, AZ	NA
Appendix D, Site Visit 2	Flagstaff	Maintenance	10/26/2010	Little Antelope Maintenance Facility	I-17 - Exit 320 Schnebly Hill Road, Munds Park, Arizona, 86017	NA
Appendix D, Site Visit 3	Prescott	Maintenance	10/28/2010	Payson Maintenance Yard	200 North Colcord, Payson, AZ, 85541	NA
Appendix D, Site Visit 4	Tucson	Maintenance	10/28/2010	Grant Road Maintenance Yard	1444 West Grant Road, Tucson, AZ	NA
Appendix D, Site Visit 5	Flagstaff	Maintenance	10/25/2010	Flagstaff Maintenance Yard	5701 East Railhead Avenue, Flagstaff, AZ	NA
Appendix D, Site Visit 6	Phoenix	Maintenance	10/29/2010	Avondale Maintenance Yard	1702 North 10th Street, Avondale, AZ, 85323	NA
Appendix D, Site Visit 7	Flagstaff	Industrial	10/26/2010	Grand Canyon National Park Airport	Highway 64, Tusayan, AZ, 86023	NA
Appendix D, Site Visit 8	Flagstaff	MS4 Outfall	10/26/2010	Humphreys St. & Route 66 Outfall	InterSection of Humphreys Street and Route 66, Flagstaff, AZ	NA
Appendix D, Site Visit 9	Tucson	Remote Storage	10/27/2010	Mariposa Satellite Maintenance Yard	Southwest corner of Highway 189 and Highway 19, Nogales, AZ	NA
NA	Flagstaff	Construction	10/26/2010	I-17 McGuireville Rest Area - Yavapai County Line	McGuireville Rest Area near MP 296 along I-17S, Rimrock, AZ, 86335	H613601C

ADOT Prescott District Primary Audit Participants: October 27–28, 2010

NA	Phoenix	Construction	10/26/2010	SR303 Loop - Lake Pleasant to I-17	Happy Valley to Lake Pleasant, Phoenix, AZ	H715701C
NA	Prescott	Construction	10/27/2010	SR 89 and Center Street Encroachment Permit	InterSection of SR 89 and West Center Street, Chino Valley, AZ, 86323	NA
NA	Prescott	Construction	10/27/2010	Granite Dells Traffic Interchange	North side of westbound SR 89A, Prescott, AZ	NA
NA	Prescott	Construction	10/28/2010	SR 89A and SR 69 Traffic Interchange	InterSection of SR 89A and SR 69, Prescott, AZ, 86301	NA
NA	Prescott	Construction	10/28/2010	SR 69 Sundog to Sunrise (ADOT)	InterSection of SR 69 and East Robin Drive, Prescott, AZ, 86301	H712801C
NA	Prescott	Construction	10/28/2010	SR 89 Granite Creek Bridge	About 3/4 mile north of interSection of SR 89A and SR 69, Prescott, AZ, 86301	H648401C
NA	Tucson	Construction	10/28/2010	Casa Grande - Tucson Highway (I-10) Twin Peaks Traffic Interchange	I-10, MP 240.5 - 249.6, North of Tucson, AZ	H583801C
NA	Tucson	Construction	10/28/2010	Tucson - Benson Highway (I-10), Cienega Creek - Marsh Station	Marsh Station Traffic Interchange on I-10 near MP 291	H239001C
NA	Tucson	Construction	10/28/2010	Casa Grande - Tucson Highway (I-10), I-8 to SR 87	I-10 MP 199 near Picacho, AZ	H710401C
NA	Tucson	Construction	10/28/2010	Oracle Junction-Globe Highway; SR77 Calle Concordia to Tangerine	SR77 Calle Concordia to Tangerine, Tucson, AZ	H545901C
NA	Phoenix	Industrial	10/26/2010	Durango Sign Factory	2104 South 22 nd Avenue, Phoenix, AZ, 85009	NA

ADOT Prescott District Primary Audit Participants: October 27–28, 2010

NA	Flagstaff	Maintenance	10/25/2010	Rim Camp	SR 89A, MP 390, Flagstaff, AZ	NA
NA	Flagstaff	Maintenance	10/26/2010	Williams Maintenance Yard	I-40, MP 166, Williams, AZ	NA
NA	Flagstaff	Maintenance	10/26/2010	Gray Mountain Maintenance Yard	Highway 89, MP 457, Gray Mountain, AZ	NA
NA	Phoenix	Maintenance	10/25/2010	Country Club Drive (Salt River) Maintenance Yard	2409 North Country Club Drive, Mesa, AZ	NA
NA	Phoenix	Maintenance	10/25/2010	Recker Road Landscape Maintenance Yard	1540 South Recker Road, Mesa, AZ	NA
NA	Phoenix	Maintenance	10/26/2010	Durango Maintenance Yard	2209 West Durango Street, Phoenix, AZ 85009	NA
NA	Phoenix	Maintenance	10/26/2010	North Phoenix Maintenance Yard	24251 North 7th Avenue, Phoenix, AZ	NA
NA	Phoenix	Maintenance	10/26/2010	Statewide Striping Facility	1135 North 22 nd Street, Phoenix, AZ, 85009	NA
NA	Prescott	Maintenance	10/27/2010	Prescott Valley Maintenance Yard	6989 East 2nd Street, Prescott Valley, AZ 86314	NA
NA	Prescott	Maintenance	10/28/2010	Camp Verde Maintenance Yard	1073 Finnie Flat Road, Camp Verde, AZ, 86322	NA
NA	Prescott	Maintenance	10/28/2010	Cordes Junction Maintenance Yard	5015 South Highway 69, Cordes Junction, AZ 86333	NA

ADOT Prescott District Primary Audit Participants: October 27–28, 2010

NA	Tucson	Maintenance	10/26/2010	Casa Grande Maintenance Yard	Zertouche Place, Casa Grande, AZ	NA
NA	Tucson	Maintenance	10/27/2010	Sonoita Satellite Maintenance Yard	East of the interSection of Highway 83 and Highway 82; Ambrose Lane and Papago Springs Road, Sonoita, AZ	NA
NA	Tucson	Maintenance	10/28/2010	Oracle Maintenance Yard	3275 West SR 77, Oracle, AZ	NA
NA	Tucson	Maintenance	10/28/2010	Florence Satellite Maintenance Yard	Highway 79 just south of Florence, AZ	NA
NA	Tucson	Maintenance	10/28/2010	Coolidge Maintenance Yard	Northwest corner of the interSection of North Arizona Boulevard and West Kenworthy Avenue, Coolidge, AZ	NA
NA	Tucson	Material Source Area	10/26/2010	Val Vista (MS No. 6662)	I-10 MP 187, along North Avalon Street, Casa Grande, AZ	NA
NA	Tucson	Material Source Area	10/28/2010	Picacho (MS No. 5058)	SR 87 MP 195, Picacho, AZ	NA
NA	Flagstaff	Material Source Area	10/25/2010	Fort Tuthill	Purple Sage Road, Flagstaff, AZ	NA
NA	Flagstaff	Material Source Area	10/26/2010	Blue Grade Source Area	About 1/2 mile southeast of I-17N near MP 305	NA
NA	Prescott	Material Source Area	10/28/2010	Dugas Pit	Dugas Road, Mayer, AZ	NA

ADOT Prescott District Primary Audit Participants: October 27–28, 2010

NA	Prescott	Post-Construction	10/27/2010	Post-Construction BMPs - SR 89 and Road 2 South in Chino Valley	Near interSection of SR 89 and East Road 2 South, Chino Valley, AZ, 86323	NA
NA	Flagstaff	Remote Storage	10/26/2010	Highway 64 Cake Ring	Highway 64, MP 189.5	NA
NA	Flagstaff	Remote Storage	10/26/2010	Cosnino Millings Stockpile	MP 208 along I-40E	NA
NA	Phoenix	Remote Storage	10/26/2010	Remote Storage Under I-10	Under I-10 at North Arco Drive, Phoenix, AZ	NA