2009 Annual Report



Arizona Department of Transportation

Office of Environmental Services 206 South 17th Avenue, MD 102A Phoenix, Arizona 85007

Stormwater Management Plan 2009 Annual Report AZPDES Permit No. AZS000018-2008



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ACRONYMNS and DEFINITIONS

AAC - Arizona Administrative Code

ADEQ - Arizona Department of Environmental Quality

ADOT - Arizona Department of Transportation

AZPDES - Arizona Pollutant Discharge Elimination System - The State program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA.

bgs – Below ground surface

BMP - Best Management Practice - Permit condition used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. BMPs may include, but are not limited to, treatment requirements, operating procedures, or practices to control plant/facility site runoff, spillage, leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may also include schedule of activities, prohibition of practices, maintenance procedure, or other management practice.

BOD - Biological Oxygen Demand

COD - Chemical Oxygen Demand

CWA - Clean Water Act - The Clean Water Act is an act passed by the U.S. Congress to control water pollution. It was formerly referred to as the Federal Water Pollution Control Act of 1972 or Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), 33 U.S.C. 1251 et. seq., as amended by: Public Law 96-483; Public Law 97-117; Public Laws 95-217, 97-117, 97-440, and 100-04.

CFR - Code of Federal Regulations - A codification of the final rules published daily in the Federal Register. Title 40 of the CFR contains the environmental regulations.

Composite Sample - Sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

DEC - District Environmental Coordinator

DMR - **Discharge Monitoring Report** - The form used (including any subsequent additions, revisions, or modifications) to report self-monitoring results by AZPDES permittees. DMRs must be used by approved states as well as by EPA.

EPA – U.S. Environmental Protection Agency

EPCP – Erosion and Pollution Control Plan

ERP – Enforcement Response Plan

Grab Sample - A sample that is taken from a waste stream on a one-time basis without consideration of the flow rate of the waste stream and without consideration of time.

MS4 - Municipal Separate Storm Sewer System - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned by a state, city, town or other public body, that is designed or used for collecting or conveying stormwater, which is not a combined sewer, and which is not part of a publicly owned treatment works. Commonly referred to as an "MS4" [40 CFR 122.26(b)(8)].

NASPA - Northern Arizona Stormwater Pollution Alliance

NOV – Notice of Violation

NPDES – National Pollutant Discharge Elimination System

OES – Office of Environmental Services

PAG – Pima Association of Governments

PCB – Polychlorinated biphenyls

Permittee - means the Arizona Department of Transportation.

PSI – Preliminary Site Investigation

QAM – Quality Assurance Manual

SMP – Slope Management Program

SSWMP - Statewide Stormwater Management Plan - A comprehensive plan for implementation of AZPDES permit requirements.

STORM - STormwater Outreach for Regional Municipalities

Stormwater - Stormwater runoff, snowmelt runoff, and surface runoff and drainage [40 CFR 122.26(b)(13)].

TDML – Total Daily Maximum Load

TSS – Total Suspended Solids

TDS - Total Dissolved Solids

TKN – Total Kjeldahl Nitrogen

SWPPP – Stormwater Pollution Prevention Plan

SWQS - Surface Water Quality Standard

Waters of the United States - All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Waters of the United States include but are not limited to all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, play lakes, or natural ponds. [See 40 CFR 122.2 for the complete definition.]

EXECUTIVE SUMMARY

The Arizona Department of Transportation (ADOT) is submitting this 2009 Statewide Stormwater Management Program (SSWMP) Annual Report describing activities and programs implemented from July 1, 2008 through June 30, 2009. During this time period ADOT operated under the following two stormwater permits:

- National Pollutant Discharge Elimination System (NPDES) Permit No. AZS000018 from July 1, 2008 through September 18, 2008
- Arizona Pollutant Discharge Elimination System (AZPDES) Permit No. AZS000018-2008 from September 19, 2008 through June 30, 2009

The new AZPDES Statewide Stormwater Permit (Permit) replaces and supersedes the NPDES permit issued by the U.S. Environmental Protection Agency (EPA) on September 30, 1999. This is the first Annual Report under ADOT's new Permit which expires September 18, 2013. The new Permit authorizes ADOT to discharge stormwater, and other discharges as specified, Statewide (except for Indian Country) to Waters of the United States in Arizona in accordance with its terms and conditions. Specifically, the Permit covers:

- Activities associated with the Municipal Separate Storm Sewer System (MS4) operated by ADOT
- Activities associated with construction from the commencement of construction until final stabilization initiated and controlled by ADOT
- Activities associated with industrial and maintenance facilities owned and operated by ADOT

The Annual Report is divided into thirteen categories: (1) General Information, (2) Annual Report Certification, (3) Narrative Summary of the SSWMP activities, (4) Numeric Summary of SSWMP Activities, (5) Evaluation of the SSWMP, (6) SSWMP Modifications, (7) MS4 Monitoring Location Information, (8) Storm Event Records, (9) Summary of MS4 Monitoring Data, (10) Summary of Industrial and Construction Monitoring Results, (11) Assessment of Monitoring Data, (12) Estimate of Pollutant Loading, and (13) Annual Expenditures. This Annual Report will be used by ADOT to assess the performance of its stormwater management program and to establish long-term assessment strategies.

GENERAL INFORMATION 1

Permittee Name: Arizona Department of Transportation

Permit Number: AZS000018-2008	Reporting Period: July 1, 2008 - June 30, 2009
Stormwater Management Program Contact:	Name of Certifying Official :
<u>Wendy Terlizzi</u>	<u>Todd G. Williams, M. Sc.</u>
Title: <u>Water Quality Manager</u>	Title: <u>Director, Office of Environmental Services</u>
Mailing Address:	Mailing Address:
<u>Arizona Department of Transportation</u>	<u>Arizona Department of Transportation</u>
<u>1611 West Jackson Street, MD EM02</u>	<u>206 South 17th Avenue, MD 102A</u>
City: <u>Phoenix, Arizona</u> Zip Code: <u>85007</u>	City: <u>Phoenix, Arizona</u> Zip Code: <u>85007</u>
Telephone Number: <u>(602) 712 – 8353</u>	Telephone Number: <u>(602) 712 – 7391</u>
Fax Number: <u>(602) 712 – 3352</u>	Fax Number: <u>(602) 712 – 8315</u>
Email Address: <u>WTerlizzi@azdot.gov</u>	Email Address: <u>TGWilliams@azdot.gov</u>

ANNUAL REPORT CERTIFICATION 2

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Todd G. Williams, M. Sc, Director, OES Date Date

3 NARRATIVE SUMMARY OF SSWMP ACTIVITIES

Permit Requirement (9.1.2(c)): Provide a summary of the status of the SSWMP each year, including a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices.

ADOT is currently operating under its SSWMP submitted to the Arizona Department of Environmental Quality in February 2005. This document presents an initial plan for management of stormwater discharges throughout the State. An update to the 2005 SSWMP is currently under development in accordance with Permit requirements and will be finalized in January 2010. The updated SSWMP will include, at a minimum, the following components:

- Description of the best management practices (BMPs) selected, implemented, maintained, and updated to minimize the discharges of pollutants that may contribute to an exceedence of any surface water quality standard
- List of narrative and/or numeric measurable goals for each BMP
- Timeframe by which ADOT will achieve each measurable goal
- Title(s) of the person(s) responsible for implementing and coordinating each measure

As required by Section 9.1.2(c) of the Permit, ADOT is to provide a narrative summary of SSWMP activities in the Annual Report. This summary is provided in Appendix A and includes a brief description of the implementation and progress of individual BMPs. The summary indentifies BMPs and their locations within the 2005 SSWMP and those required by the new Permit.

3.1 ADOT Technical Documents

Permit Requirement (Appendix B, Part 3): Include a short statement for each of the following documents indicating if a review was completed. Describe any major updates to each document.

ADOT is continually in the process of reviewing and updating technical stormwater documents. A status summary of each document required to be updated is provided below:

- *Erosion and Pollution Control Manual* This manual has been updated continuously in accordance with required by Permit Section 3.2.2.1(c). These updates included revision of BMP detail drawings and the SWPPP index sheets. A final update to this manual is estimated for completion in December 2009.
- *Maintenance and Facilities Best Management Practices Manual* This manual is currently being updated by ADOT in accordance with Permit Section 3.2.3.1(c). Updates include a description of the selection criteria, design, installation and maintenance of effective BMPs to minimize pollutants in ADOT's non-stormwater discharges. This manual is schedule for completion in October 2009
- *Stormwater Monitoring Guidance Manual for MS4 Activities* This manual has been updated by ADOT in accordance with Permit Section 3.2.3.2(c). Updates include a comprehensive approach to how ADOT will conduct dry weather screening. This incorporates BMP evaluation, dry weather field screening procedures, and water quality assessments.

- Stormwater Monitoring Guidance Manual for Construction Activities This manual has been updated in accordance with Permit Section 8.4.2. Changes to the manual include requirements and guidance to stormwater sampling of construction projects located within ¼ mile of unique or impaired waterways. Other updates include requirements for analytical monitoring, visual monitoring, and concrete and asphalt batch plants.
- *Stormwater Monitoring Guidance Manual for Industrial Activities* This manual has been updated in accordance with Permit Section 8.5.1. Updates include a list of facilities covered by the manual, analytical requirements for each facility, when and how to sample. Other updates include training, record keeping and reporting requirements under the new Permit.
- *Post-Construction Stormwater Control BMP Manual* This manual has been updated in accordance with Permit Section 3.2.5.1. Updates include design standards and maintenance requirements for post-construction controls. It also provides guidance for low impact development techniques and how activities will protect water quality.
- *Quality Assurance Manual* The Quality Assurance Manual (QAM) is required by Permit Section 8.3.2 and was completed in August 2009. The purpose of the QAM is to document ADOT policies and procedures for stormwater monitoring quality assurance/quality control. The QAM will be reviewed annually and updated as needed by the Water Quality Group.
- *Enforcement Response Plan* The Enforcement Response Plan (ERP), although not a requirement of the permit, was developed by ADOT developed to provide personnel with procedures necessary to enforce the requirements of the Statewide Stormwater Permit. Implementation of the ERP will ensure a consistent enforcement response throughout the state, avoiding confusion, delays, and disputes over enforcement for stormwater pollution prevention. This manual is reviewed annually and updated as needed by the Water Quality Group. This manual is scheduled for completion October 2009.

3.2 Outfall Inspection and Tracking

Permit Requirement (Section 3.2.3.2(e)): In the first Annual Report, ADOT shall document that a system to track and record the findings of outfall inspections, including the conditions of outfalls, potential sources of pollutants, and maintenance needs has been implemented and is being maintained.

ADOT is currently developing a system to track and record the condition of its storm sewer system. This tracking system is being developed in accordance with Permit section 3.2.6.1(b)(i) and will be implemented by September 18, 2010. The tracking system is being designed to record conditions of the storm sewer system including roadways, catch basins, storm drain inlets, open channels, washes, culverts and retention/detention basins. The purpose of this tracking system will be to identify potential sources of pollutants and determine maintenance needs. ADOT currently performs these inspections during normal operations, but has limited capabilities to numerically track them individually. Other inspections for potential pollutant sources performed by ADOT include:

- Pump stations
- Tunnels
- Major and minor outfalls
- Interconnects

3.3 Public Access to Stormwater Documents

Permit Requirement (Section 3.2.2.3(a)): In the first Annual Report, ADOT shall summarize the status of public access to stormwater documents.

ADOT developed and maintains a Stormwater Library for ADOT employees and the public to access. The Stormwater Library is a virtual library located at:

www.azdot.gov/ADOT_and/Storm_Water/stormwater.asp

This library houses documents required by the Permit. Employees and members of the public without internet access can view available documents by contacting ADOT's Office of Environmental Services (OES) at (602) 712-8353. The Water Quality Group is currently unable to track the number of hits annually to the virtual library. ADOT is in the process of updating the webpage to include software that will track the number of visits per reporting year. Documents maintained in the Library are reviewed and updated annually. Documents currently available in the Stormwater Library include:

- Erosion and Pollution Control Manual
- Maintenance and Facilities BMP Manual
- Stormwater Monitoring Guidance Manual for MS4 Activities
- Post-Construction Stormwater Control BMP Manual
- Stormwater Enforcement Response Plan
- Quality Assurance Manual
- Stormwater Monitoring Guidance Manual for Construction Activities
- Stormwater Monitoring Guidance Manual for Industrial Activities

3.4 Illicit Discharges

Permit Requirement (Section 3.2.3.4(d)): In the first Annual Report, ADOT shall summarize the status of implementation procedures to track actions taken on illicit discharges and illegal dumping. Develop and implement a procedure to track the action taken on identified illicit discharges and illegal dumping

ADOT has developed an ERP to assist in enforcing provisions of its Permit. The procedure for enforcement activities includes:

- Written Warning If an inspection of the drainage system identifies an illegal connection/discharge to the ADOT system, ADOT will issue a "Notice of Illegal Discharge and Demand for Corrective Action" letter to the property owner where an illegal connection/discharge is discovered. The letter will request that the connection/discharge be ceased or removed within 30 days. A follow up inspection will be performed to ensure compliance. A Notice of Illegal Discharge and Demand for Corrective Action letter is included in Appendix B.
- 2. *Removal of Connection/Discharge* ADOT may remove the illegal connection/discharge if it has not been corrected within 30 days. If ADOT removes the illegal connection/discharge, the responsible party is subject to an action for damages by the state brought by the attorney general or the county attorney of the county in which the act

is committed on direction of the attorney general, pursuant to A.R.S. §28-7053 Misuse of Public Highway.

- *3. Civil Action* If the illegal connection/discharge is not corrected within 30 days, ADOT may forward this matter to the Arizona Office of the Attorney General so that a lawsuit may be filed.
- 4. Other Enforcement Actions Because ADOT is not a typical MS4, such as a city or county, with its own enforcement branch such as police department or sheriff. Without its own enforcement branch, ADOT relies on other jurisdictions for enforcement assistance. ADOT may request the assistance of other government entities to assist with enforcement assistance to include other MS4s, ADEQ and/or the U.S. EPA

Enforcement actions will be tracked initially by the inspector/District Environmental Coordinator (DEC) that identifies an illicit discharge. The discharge will be documented to include the source, date/time, photo points, contact person (if any), description of the nature of the non-compliance or illicit discharge, and actions taken. This information will be forwarded to the OES and the discharge tracked. OES will assist the DEC in coordinating/tracking enforcement action or request the assistance of the Attorney General's office. Illicit discharges will be reported in the Annual Report in accordance with section 3.2.3.4(ii) of the Permit.

3.5 Erosion Abatement Projects

Permit Requirement (Section 3.2.6.2(d)): In the first Annual Report, ADOT shall describe the tracking system used to identify, track and prioritize erosion abatement projects. Summarize erosion abatement projects conducted during each year.

ADOT will utilize the existing Slope Management Program (SMP) database to identify, track and prioritize erosion abatement projects in accordance with Permit Section 3.2.6.2(d). The SMP is a Microsoft ACCESS database that allows ADOT to track and prioritize the severity of rock slopes, soil cuts and embankments throughout the state.

Field forms will be submitted to the SMP database manager who will review the Districts' input data before entering it into the database to avoid duplicating information or overwriting existing data. Each District Engineer or Resident Engineer will be responsible for reviewing the erosion inventory database and ensuring erosion abatement projects are completed according to their priority level.

3.6 Spills and Other Releases

Permit Requirement (Section 4.1.5.2(d)): In the first Annual Report, ADOT shall document that a system to track and record spills and other releases by ADOT staff and at ADOT maintenance facilities has been established.

ADOT has developed a system to track and record spills by ADOT staff and spills at ADOT maintenance facilities in accordance with Permit Section 4.1.5.2(d). The system requires ADOT personnel to report non-emergency spills to their respective DEC. Spills requiring an emergency response are to be reported to the ADOT Safety and Health Section and the DEC. The DEC will document the following when spills occur:

- Number of spills
- Location
- Date/time

- Extent of the spill
- Media impacted (if any)
- Circumstances of the release
- Names of parties involved
- Corrective actions taken
- Follow up required (if any)

The DEC will forward the information to the OES where it will be maintained within a database. The OES will also assist the DEC with follow up actions if necessary. The OES will maintain the spill information and include the required information in the reporting year's Annual Report.

3.7 Maintenance Facility SWPPPs

Permit Requirement (Section 4.2.1.1): In the first Annual Report, ADOT shall document individually that the SWPPP required for each maintenance facility has been updated.

ADOT developed and implemented Stormwater Pollution Prevention Plans (SWPPPs) for 18 maintenance facilities as required by section 4.2.1.1 of the Permit to include:

- Avondale Maintenance Yard
- Broadway Maintenance Yard
- Douglas Maintenance Yard
- Durango Maintenance Yard
- Phoenix Equipment Services
- Flagstaff Maintenance Yard
- Grand Avenue Landscape Maintenance Yard
- Little Antelope Yard
- Mesa Country Club Maintenance Yard
- Mesa Recker Road Maintenance Yard
- Nogales Maintenance Yard
- North Phoenix Maintenance Yard
- Prescott Valley Maintenance Yard
- Statewide Striping Facility
- Superior Maintenance Yard
- Superior Storage and Fuel Yard
- Tucson Grant Road Maintenance Yard
- Yuma Maintenance Yard

A SWPPP was not developed for the Bisbee Storage Yard due to the lease ending for this property and not renewed by ADOT. At the request of ADOT, the ADEQ has removed the Bisbee Storage Yard from requiring a SWPPP in the minor Permit modification dated June 22, 2009.

3.8 Wickenburg Yard Investigation

Permit Requirement (Section 4.4.3): In the first Annual Report, ADOT shall document that any areas found to have contaminants that could contribute to stormwater discharges have been remediated at the Wickenburg Maintenance Yard.

ADOT conducted a Preliminary Site Investigation (PSI) of the Wickenburg Maintenance Yard located at 600 E. Wickenburg Way, Wickenburg, Arizona on November 14, 2007. The PSI was

conducted by HDR Engineering, Inc. (HDR) and included the advancement of twelve soil borings ranging in depths from 2 to 20 feet below ground surface (bgs). The purpose of the PSI was to determine the current extent and concentration of suspect contaminants in soils at the following:

- Current hot oil tank
- Former hot oil tank
- Welding shop
- Suspect buried 55-gallon drums of paint

Soil samples were collected at these locations to assess vertical distribution of suspect contamination, using field instrumentation and confirmatory analysis by an analytical laboratory. HDR concluded that soil sampling results found no actionable concentrations of petroleum constituents, metals, Polychlorinated biphenyls (PCBs), or soil vapor impacts, in the immediate vicinity of the soil borings. Portions of the Wickenburg Maintenance Yard investigation summary report conducted by HDR are provided in Appendix C.

3.9 Dry Weather Field Screening

Permit Requirement (3.2.3.2.(c)): Provide a summary of updates to the Dry Weather Field Screening Portion of the Stormwater Monitoring Guidance Manual for MS4 Activities Section.

Dry weather field screening requirements have been updated within the *Stormwater Monitoring Guidance Manual for MS4 Activities*. The update identifies a comprehensive approach to how ADOT will conduct dry weather screening. This incorporates BMP evaluation, dry weather field screening procedures, and water quality assessments.

3.10 Construction Site Issues

Permit Requirement (Section 5.3.4): A list and description of all violations ADOT has determined at construction sites and their resolution, including any enforcement actions taken against ADOT contractors.

3.10.1 Construction Site Tracking System

ADOT is currently developing a system to identify, track, and resolve violations at construction sites. Current State budget issues are restricting ADOT from fully developing and implementing this program. Once funded, the tracking will include the following elements:

- Track construction sites to include inspections and enforcement
- Prioritize sites for inspection based on risk to waterway, resources, and operator history
- Resolve violations as needed

3.10.2 Construction Violations

ADOT received two Notices of Violation (NOVs) from the ADEQ on March 4, 2009 and March 24, 2009. Both NOV's are associated with the SR179 Village of Oak Creek to Sedona construction project. A summary of each NOVs is provided below:

• On March 4, 2009 ADOT received a NOV for two alleged violations: (1) failure to conduct stormwater monitoring during a storm event that caused a run-off discharge into Oak Creek; and (2) failure to identify within the SWPPP a sewage spill that occurred at a manhole along SR179 and not identifying BMPs in the SWPPP to reduce or eliminate non-stormwater discharges. ADOT responded to the ADEQ concerning this NOV on

March 13, 2009 and followed up on March 23, 2009. ADOT is currently awaiting a response from the ADEQ.

• On March 24, 2009 ADOT received a NOV for two alleged violations: (1) Unauthorized construction site discharge; and (2) ADOT did not provide a SWPPP to the ADEQ for the project. ADOT responded by letter to the ADEQ on March 27, 2009. A meeting was held between ADOT and ADEQ on April 15, 2009 to discuss this NOV. ADOT formally responded to ADEQ on April 24, 2009. ADOT is currently awaiting a response from the ADEQ.

3.11 Industrial Facilities

Permit Requirement (Section 6.6.2 & 6.7.2): In the first Annual Report, provide a brief statement documenting that the SWPPPs for Grand Canyon National Park Airport and Durango Sign Factor were updated and on-site within 90 days of the effective date of the permit.

3.11.1 SWPPP Update

The SWPPP for the Grand Canyon National Park Airport and the Durango Sign Factory were updated in February 2009. Additionally, personnel at each facility have been trained on SWPPP requirements and procedures.

3.11.2 No Exposure Certification

Permit Requirement (Section 6.9.2): Confirms the Print Shop has "no exposure" to stormwater

ADOT confirms that the Print Shop meets the condition of "no exposure" to stormwater. The following nine conditions and practices have been maintained at this facility:

- No industrial machinery is stored or cleaned in outside areas where processes or residuals may be exposed to stormwater
- No materials or residuals have been placed on the ground and stormwater inlets have been protected from spills/leaks
- All material handling equipment (except for adequately maintained vehicles) have been kept in areas that are not exposed to precipitation and/ or runoff or run-on
- No exposure of materials or products to precipitation or runoff or run-on has occurred during loading/unloading or transporting activities
- No materials or products have been outdoors (except final products that are intended for outside use [e.g., new signs] where exposure to stormwater does not result in the discharge of pollutants
- No materials have been stored in open, deteriorated, or leaking storage drums, barrels, tanks, or similar containers
- All waste materials were placed in covered, non-leaking containers
- No process wastewater has been applied or discharged on-site
- No particulate matter or visible deposits of residuals from roof stacks and/or vents has come in contact with stormwater

3.12 Material Sources

Permit Requirement (Section 6.8.3): Provide a map of material sources and provide a status summary of each site.

ADOT's Materials Group maintains an inventory of regulated material sources and stockpile sites in accordance with Permit Section 6.8.3. These sites are classified into the following four groups:

- Group A Active Sites
- Group B Inactive Sites
- Group C Reclaimed Sites
- Group I Non-mining Sites

A site map illustrating the locations of material sources indentifying the locations of these four groups is provided in Appendix D. The following section summarizes the status of each group and the Table in Appendix E provides additional detail for all material sources in the inventory.

3.12.1 Active Sites – Group A

Permit Requirement (Section 6.8.3): Provide a status summary of each site.

Group A are active sites where activities related to the extraction, processing, removal or recovery of minerals is being conducted. Group A may also include a site or portion of site where mining is inactive and the facility may or may not be covered by a mining permit issued by the landowner(s), applicable State or Federal government agency. ADOT currently has 17 sites in Group A.

3.12.2 Inactive Sites – Group B

Permit Requirement (Section 6.8.4.1(f)(ii)): In the first Annual Report, present a list of all abandoned material source sites (unreclaimed sites where final stabilization was never completed), accompanied by a four year schedule to reclaim or utilize all Group B sites statewide.

Group B includes sites or portions of sites where mining occurred in the past but is no longer active. A site no longer being used will remain in this group until it can be reclaimed, at which time it will be moved to Group C. ADOT currently has 11 sites in Group B. As required by Permit Section 6.8.4.1.(f)(ii)(1), ADOT is to provide a schedule to reclaim or utilize Group B sites within the term of the Permit. Table 1 below provides a summary of the 11 sites and those proposed for permit renewal or closure along with a general reclamation schedule

Site No. &				Reclamation Schedule			
Name	District	County	Closure	Year 2	Year 3	Year 4	Year 5
5585 - Deer					Reclamation	Initiate/Achieve	
Tank	Flagstaff	Coconino	Yes	Assess Site	Plan	Stabilization	Close
					Reclamation	Initiate/Achieve	
7101 - Munds	Flagstaff	Coconino	Yes	Assess Site	Plan	Stabilization	Close
3044 - Board				Permit			
Tree Saddle	Globe	Gila	No	Renewal			
3512 - Burnt				Permit			
Corral	Globe	Maricopa	No	Renewal			
8629 –							
Seven Mile					Reclamation	Initiate/Achieve	
Wash	Globe	Gila	Yes	Assess Site	Plan	Stabilization	Close
8763 - Fish				Permit			
Creek	Globe	Maricopa	No	Renewal			
				Permit			
8318 - Aztec	Holbrook	Navajo	No	Renewal			
6451 –					Assess Site		
Slick Rock						Reclamation	Initiate/Achieve
Wash	Safford	Graham	Yes			Plan	Stabilization
8223 –					Assess Site		Initiate/Achieve
Upper Sheep						Reclamation	Stabilization
Wash	Safford	Greenlee	Yes			Plan	
1318 -					Assess Site	Reclamation	Initiate/Achieve
Quijotoa	Tucson	Pima	Yes			Plan	Stabilization
478 -					Assess Site	Reclamation	Initiate/Achieve
Mohawk	Yuma	Yuma	Yes			Plan	Stabilization

Table 1 -	Reclamation	Schedule for	Group	B Sites
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Reclamation of Group B sites is dependent upon receiving State funding. Currently, no State budget has been approved and ADOT is unable to fully commit to reclamation of Group B sites. Once a State budget has been approved, ADOT will move forward with assessing sites scheduled for closure and developing and implementing reclamation plans. Those sites identified for permit renewal will be moved to Group A once permits are received.

3.12.3 Reclaimed Sites – Group C

Group C includes sites where activities are being conducted to return the land to its pre-mining state. Once a site is reclaimed, it will be removed from the list. ADOT has 3 sites in Group C. Currently, Material Source #769 is the only site actively undergoing reclamation. The Coconino National Forest (land manager) and ADOT are meeting in early FY 2010 to finalize reclamation goals and plans. Reclamation of MS 769 is anticipated to be completed prior to the next annual report. Table 2 below summarizes the proposed reclamation activities for the 3 sites in Group C.

			Reclamation Schedule			
Site No. & Name	District	County	Year 2	Year 3	Year 4	Year 5
769 - Twin Arrows	Flagstaff	Coconino	Finalize reclamation goals	Initiate reclamation plan	Achieve final stabilization	Closure & removal from list
770 - Winona	Flagstaff	Coconino	Released	Not Applicable	Not Applicable	Not Applicable
8491/8746 - Gray Mountain	Flagstaff	Coconino	Released	Not Applicable	Not Applicable	Not Applicable

 Table 2 - Group C Reclamation Schedule

As previously discussed, reclamation of Group C sites is dependant upon receiving State funding. No State budget has been approved and ADOT is unable to fully commit to

reclamation of Group C sites. Once a State budget has been approved, ADOT will move forward with reclamation plans.

3.12.4 Non-mining Sites – Group I

Group I includes non-mining sites used for stockpiling of materials. ADOT currently has 17 sites in Group I. These stockpile sites are sites that the ADOT Materials Group administers and is a subset of stockpile sites in the state. It is important to note that other stockpiles occur in the region; however, they are not covered under Section 6.8. Other stockpiles may be covered under Permit Sections 4.0 or 5.0.

3.12.5 Inspection of Material Sources

Permit Requirement (Section 6.8.4.2): ADOT shall create a summary for each Annual Report of all inspections conducted. The summary shall include the inspection findings, deficiencies, and corrections made to each site.

All Group A, B, and C sites were inspected at least once during permit year one as required by Permit Section 6.8.4.2(d). However, due to budget constraints, particularly travel restrictions affecting fuel use, lodging, and per diem, not all sites were visited in accordance with the permit conditions (i.e., quarterly, bimonthly, biannually, etc...). Likewise, because the State budget was not approved at the time of this submittal, it is uncertain which programs will have priority for funding in Fiscal Year 2010. Implementing, inspecting, and maintaining BMPs will be affected until ADOT can fund this program. Table 3 below summarizes the inspection findings, deficiencies, and corrective actions for the sites that were found to be out of compliance with the individual permit. It is anticipated that corrective action will be completed as soon as practicable after the State budget is approved and staff are authorized to utilize State equipment for other than emergency activities.

Site No. & Name	Findings	Deficiencies	Corrective Action*
1662 - Tanner	Sediment discharge into adjacent ephemeral wash	No measures in place to preclude discharges into adjacent wash	Install silt fence or berm along wash margins or relocate stockpiles
3562 – Beaver Creek	Sediment discharge west and southwest of stockpiles	Berm along west perimeter is inadequate; sheet flow across site collects and discharges along the access road resulting in erosion of v-ditches	Reevaluate berm; consider implementing v-ditch and swale to funnel sheet flow; add velocity dissipaters along haul road
5781 – Blue Grade	Sediment discharge along west, southwest boundary	V-ditch not maintained	Maintain v-ditch; ensure v- ditch daylights to retention basin
6662 – Val Vista	Comingled discharges; access road impacted by run-on from adjacent county-maintained road	V-ditch along county maintained road not maintained; ADOT 100-foot-wide buffer between pit and edge of pavement not maintained	Contact county to discuss road maintenance; Implement full width 100-foot-wide buffer along western perimeter to ensure run-on is excluded
8109 – BVD	Sediment discharge northwest corner	Retention basin and furrows inadequately sized	Calculate drainage area and increase dimensions of sediment basin; install velocity dissipaters in v-ditches

Site No. & Name (continued)	Findings (continued)	Deficiencies (continued)	Corrective Action* (continued)
8268 – Tiger Wash	Sediment discharge from		Maintain v-ditch / swale or
West	processing area	Berm fragmented	implement continuous berm
	Sediment discharge and erosion of access road; undercutting of fence	The retention basin is inadequately sized or maintenance is not being conducted as	Reconfigure retention basin; implement check dams; provide diversion channel to
8763 – Fish Creek	post	needed	intercept run-on

* To the extent practicable, any off-site discharges will be collected and placed within the permitted boundary

All inspection reports are on file at the Materials Group. Federal land managing agencies, ADOT, and the Federal Highway Administration have established a stormwater subgroup because of the non-exclusive use aspect of permits on public land. Additionally, because none of the ADOT-licensed sources require a SWPPP under Permit condition 6.8.3a, i.e., none are located within ¼ mile of an unique or impaired water, ADOT realized the need to coordinate stormwater compliance with the land managers. The focus of the subgroup has been to evaluate the necessary compliance components and derive a system to address BMP implementation and maintenance, inspection frequencies, accountability, and information sharing. It was determined that all sources will have an Erosion and Pollution Control Plan (EPCP). Components of the EPCP include a site map, points of contact and compliance responsibility, inspection schedule and reports, and BMP details. The EPCP format is undergoing peer review with the stakeholders and is expected to be in use by the end of calendar year 2009. Sites not listed in Table 3 are in compliance with the Permit.

4 NUMERIC SUMMARY OF SSWMP ACTIVITIES

Permit Requirement (Appendix B, Part 4): Provide a numeric summary of BMPs and activities performed each year.

A numeric summary of BMPs and activities performed by ADOT during the reporting year is provided in Appendix F. The progress of any BMPs with no numerical goal identified is described in Section 3, Narrative Summary of SSWMP Activities.

5 EVALUATION OF THE SSWMP

Permit Requirement (Section 3.1.5): Provide an evaluation of the progress and success of the SSWMP each year, including an assessment of the effectiveness of stormwater management practices in reducing the discharge of pollutants to and from the municipal storm sewer system.

An evaluation of ADOT's SSWMP has been conducted utilizing EPA's January 2008 guidance entitled *Evaluating the Effectiveness of Municipal Stormwater Programs*. This guidance provides a set of methods to assess the success of a stormwater management program. The three EPA recommended approaches to SSWMP effectiveness were used:

- Assessing program operations
- Evaluating social indicators
- Monitoring water quality

While ADOT is currently updating its SSWMP in accordance with Permit conditions, all attempts have been made to track and monitor progress of each aspect of the stormwater program. This sections outlines progress ADOT has made since the Permit came into effect on September 18, 2009.

5.1 Assessment of Program Operations

The assessment of ADOT's program operations and activities is to verify basic compliance with its Permit and document that tangible efforts have been made to reduce impacts to stormwater. While ADOT is still in the process of updating it's SSWMP to comply with Permit conditions the following progress has been made to its program:

Guidance Manuals

ADOT is has made the following progress in the development of guidance manuals:

- 6 guidance manuals have been updated
- 1 Quality Assurance Manual has been developed
- 1 Enforcement Response Plan is under development

BMP Tracking

ADOT is currently developing a system to track and record the condition of its storm sewer system. However, the following BMPs were tracked:

- 7 trainings were offered to ADOT employees specifically on stormwater issues¹
- 173 contractors were trained and certified in erosion control
- 119 miles of drainage canals, and 5,000 roadway (lane) miles and associated storm drains, catch basin, outfall structures, and basins were inspected within the Phoenix metropolitan area
- 1 non-ADOT industrial discharge was identified and removed
- 19 SWPPPs for ADOT facilities were updated in accordance with Permit requirements
- 6 outfalls assessed for dry weather discharges

5.2 Assessment of Social Indicators

The assessment of social indicators is an important element which tracks knowledge and awareness. It is also an important tool in tracking behavioral changes. The following social indicators were tracked:

- 1,835 participants assisted with the Adopt-a-Highway Litter Initiative (AHLI)
- 2,291 miles of highway were cleaned by AHLI volunteers
- 246 tons of trash were removed from ADOT highways by AHLI volunteers
- 3,389 calls were received through the Litter Hotline
- 5 public events were attended by ADOT and educational materials displayed
- 2,600 stormwater educational materials were distributed

ADOT is also actively involved in three separate stormwater groups as summarized below:

• STormwater Outreach for Regional Municipalities (STORM) - Is a regional organization promoting stormwater quality education within the greater Phoenix metropolitan area. STORM was founded in 2002, in response to federal regulations requiring certain municipalities to implement measures to educate the public on ways to protect the quality of stormwater runoff. STORM educates the public on ways to keep pollutants out of the storm drain system by advertising on radio, television, theater ads, website (www.azstorm.org), and public events.

¹ The number of training classes reported here may not be reflective of the total amount of training that occurred. In the middle of the reporting year, ADOT switched from one tracking program for training to another.

- Northern Arizona Stormwater Pollution Alliance (NASPA) Is a northern Arizona regional stormwater group consisting of nine regulated MS4s. NASPA was established in 2008 to open dialogue amongst the MS4s and address stormwater issues unique to the region.
- Pima Association of Governments (PAG) Stormwater Management Working Group Is a southern Arizona regional group that conducts stormwater outreach activities on behalf of PAG member, which are represented on the Stormwater Management Working Group. Members of the Working Group also include representatives from the building and construction industry, state government, the University of Arizona and Davis Monthan Air Force Base.

5.3 Monitoring Water Quality

ADOT has conducted a comprehensive stormwater quality monitoring program throughout the reporting year to include:

- 2 MS4 monitoring locations (Phoenix and Tucson)
- 4 ADOT industrial facilities
- 1 construction site located near a unique waterway
- 1 discharge to ADOT's MS4 system

Monitoring has included physical, chemical and biological dimensions of water quality. As a result, ADOT identified two sampling events with the Tucson MS4 that had an exceedence for Total Dissolved Solids (TDS). The BMPs within the Tucson area will be reviewed and appropriate actions taken as the State budget allows. ADOT has also located 5 new MS4 stormwater sampling locations as proposed within this Annual Report. These 5 locations will utilize automated samplers designed to meet Permit requirements.

6 SSWMP MODIFICATIONS

Permit Requirement (Section 3.1.6): Provide a description of modifications to the SSWMP each year:

ADOT is currently updating its 2005 SSWMP in accordance with Permit Section 3.1.3.4. These updates will establishes a comprehensive statewide stormwater management program for ADOT activities associated with construction, industrial, and maintenance activities.

6.1 Addition of New BMPs

Permit Requirement (Section 3.1.6): Summarize the development and implementation of any new stormwater management practices or pollution controls each year.

ADOT has not developed or implemented any new BMPs during the reporting period. Any new BMPs will be identified in the updated SSWMP.

6.2 Temporary or Experimental BMPs

Permit Requirement (Section 3.1.6): Describe the initiation and cessation of such BMPs and the perceived success of the temporary or experimental stormwater control.

ADOT has not instituted any temporary or experimental BMPs during the reporting period. Any temporary or experimental BMPs required by ADOT will be identified in the updated SSWMP.

6.3 Increase of Existing BMPs

Permit Requirement (Section 3.1.6): Summarize modifications to existing stormwater management practices that increase the number of activities, increase the frequency of activities, or other increases in the level of implementation.

ADOT reports that no current BMPs have been modified that would cause an increase in the number of activities, increase the frequency of activities, or otherwise cause an increases in the level of implementation during the reporting period. Any changes to BMPs that would cause an increase will be identified in the updated SSWMP.

6.4 Replacement of Existing BMPs

Permit Requirement (Section 3.1.6): Describe modifications to replace an ineffective stormwater management practice with an alternate practice by demonstrating that the change will continue to achieve an equivalent reduction in pollutants and will not cause or contribute to a violation of any applicable water quality standard.

ADOT has not modified or replaced any of its current BMPs during the reporting period. Modifications or additions to any BMPs will be identified in the updated SSWMP.

7 MONITORING LOCATION INFORMATION

Permit Requirement (Appendix B, Part 4): Provide a brief description of each stormwater monitoring location (outfall), including the following information: 1. The outfall identification number or name; 2. Address or physical location of the site, including the latitude and longitude of the outfall; 3. Size of outfall's drainage area; 4. Land use(s) with an estimated percentage of each use; 5. Name and description of the receiving water; and 6. Type of monitoring equipment used.

ADOT has identified five stormwater monitoring locations as required by Permit Section 8.7.2.1(a). This section requires the current Phoenix monitoring location be replaced with one that discharges directly to a water of the U.S. In addition, ADOT is required to monitor at the established Tucson monitoring location and select three additional monitoring locations (for a total of five). The following considerations were also required for selecting the additional sampling locations:

- Selected outfalls shall discharge to a water of the U.S.
- Selected outfall shall represent various drainage areas and land uses
- Outfalls that discharge directly to an impaired water shall be selected for monitoring
- Outfalls that discharge directly to a unique water shall be selected for monitoring

Using these parameters, ADOT proposes five stormwater monitoring locations identified in Table 4:

Outfall Name	Physical Location	Approximate Drainage Area	Land Use	Receiving Water/Use	Monitoring Equipment
10-255.8	Tucson: I-10 & Grant Rd, within Grant Rd. Maintenance Yard	4.8 Acres	Urban Highway (90%) & ADOT	Santa Cruz A&Wedw	SIGMA 900 MAX Portable
	Latitude: 32°15'17.19"N Longitude: 110°59'49.39"W		Facility (10%)	PBC	Sampler
40-195.27	Flagstaff: South side of intersection at Business 40 and SR180	29.30 Acres	29.30 Acres Rural Highway (80%) & Commercial Streets (20%)	Rio de Flag A&Wedw PBC	SIGMA 900 MAX Portable
	Latitude: 35°11'53.39"N Longitude: 111°39'05.48"W				Sampler
00.057	Nogales: Intersect of I19 and SR82 in NE quadrant		Urban Highway (80%) & Residential Streets (20%)	Nogales Wash (Impaired waterway) A&Ww PBC	SIGMA 900 MAX
82.0.57	Latitude: 31°21'02.10"N Longitude: 110°55'24.48"W	59.5 Acres			Portable Sampler
	Sedona: At SR179 bridge over Oak Creek		State Rout/Business	Oak Creek (Unique waterway)	SIGMA 900 MAX
89A-371.74	4 7.35 Acres	7.35 Acres	Route (90%) & Commercial	A&Wc FCB	Portable Sampler
	Latitude: 34°51'43.93"N Longitude: 111°45'42.68"W		(10%)	FC AgL	Compier
51-7.04	Phoenix: 400' S and E of intersection @ Northern and Squaw Peak Freeway	39.25 Acres	Urban Highway (90%) & Residential	Dreamy Draw Wash None	SIGMA 900 MAX Portable
	Latitude: 33°33'29.75"N Longitude: 112°02'14.29"W		Streets (10%)		Sampler

 Table 4: Proposed ADOT Stormwater Monitoring Locations

Site maps of each proposed monitoring location is provided in Appendix G and information concerning the Sigma stormwater monitoring equipment is included in Appendix H. ADOT requests ADEQ approval of these locations prior to installing automated samplers at each location.

8 STORM EVENT RECORDS

Permit Requirement: For each MS4 outfall monitoring location, provide a summary of all subsequent representative storm events necessary to collect at least one representative stormwater sample (greater than 0.1 inch rainfall) occurring within the reporting period, including the date of each event, the amount of precipitation (inches) for each event, and whether a sample was collected, or if not collected, information on the conditions that prevented sampling.

ADOT has maintained records for representative storm events that occurred within the area of existing MS4 sampling location within Phoenix and Tucson during the reporting year. As defined in Permit Section 8.7.2.2(a), a representative storm event is a rainfall in the amount of 0.10 inches or more for each sampling season. The sampling season includes the summer (June 1 - October 31) and winter (November 1 - May 31). Information on storm events and sample collection is provided in Table 5. If a sample was not collected for a given storm event an explanation is provided within the table 5.

	Date	Phoenix MS4 Location	Rainfall (inches)		Date	Tucson MS4 Location	Rainfall (inches)
31)	NE	NE	NE		6/30/2009	SC	0.12
mer Oct.	NE	NE	NE		NE	NE	NE
Summer (June 1 - Oct.	NE	NE	NE		NE	NE	NE
In()	NE	NE	NE		NE	NE	NE
	11/26/2008	NS	0.39		11/26/2008	NS	0.46
	12/17/2008	SC	0.25	39 11/26/2008 NS 25 12/1/2008 SC 61 12/18/2008 IS	0.22		
	12/26/2008	NS	0.61		IS	0.10	
inter - May 31)	1/19/2009	IF	0.10		1/10/2008	NS	0.25
Winter . 1 - May	2/5/2009	IF	0.25		1/12/2008	NF	0.12
Wi (Nov. 1	2/9/2009	NF	0.83		2/2/2008	IS	0.23
	3/2/2009	NF	0.13		2/7/2008	IS	0.25
	4/10/2009	IF	0.25		5/17/2009	NS	0.42
	5/15/2009	NS	0.34		NE	NE	NE

Table 5: MS4 Storm Event Records

SC - Sample Collected; NS - No Sample Collected; NE - No Event; IS - Insufficient Sample; NF - No Flow

9 SUMMARY OF MONITORING DATA

Permit Requirement (Appendix B, Part 9): Provide the outfall identification number, the receiving water, designated uses, and the lowest surface water quality standards applicable to the receiving water. Enter the analytical results for the stormwater samples collected for each season of the reporting period for each year. Include, as an attachment, the laboratory reports for stormwater samples.

ADOT has conducted wet weather monitoring in accordance with Permit Section 8.7.2.1 at existing MS4 monitoring locations at the two sites identified in Table 6:

Outfall Name	Physical Location	Approximate Drainage Area	Land Use	Receiving Water/Use	Monitoring Equipment	
32 nd Street & Loop202	Northeast quadrant of 32 nd Street and Loop 202 within retention basin	3.7 Acres	Urban Highway & ADOT facility	Retention Basin/ No designated Use	Nalgene® Stormwater	
& L00p202	Latitude: Longitude:		& ADOT lacinty		Sampler	
I-10 and Grant Rd Maint. Yard	Tucson: I-10 & Grant Rd, within Grant Rd. Maintenance Yard Latitude: 32°15'17.19"N Longitude: 110°59'49.39"W	4.8 Acres	Urban Highway & ADOT facility	Santa Cruz/ A&Wedw PBC	Nalgene® Stormwater Sampler	

Table 6: ADOT's Existing MS4 Monitoring Locations

Site maps of each current monitoring location is provided in Appendix I and monitoring data in tabular form for each MS4 location is provided in Appendix J. Monitoring data includes the locations, outfall identifier, receiving waters, designated water use, sampling season, monitoring parameters, water quality standards and sampling data for each location. Samples were collected during each season to include the summer and winter. Laboratory reports for each storm event sampled are located in Appendix K.

ADOT's Phoenix Area MS4

Stormwater samples were collected at ADOT's Phoenix MS4 location during the winter season on December 17, 2008. No sample was obtained to date for the summer season.

ADOT's Tucson Area MS4

Stormwater samples were collected at ADOT's Grant Yard in Tucson, AZ during the winter and summer season on the following dates:

- December 1, 2008 winter storm event
- June 30, 2009 summer storm event

No adverse conditions occurred that prevented the sampling of stormwater discharges from either MS4 facility. However, due to the Tucson MS4 monitoring location being within the Grant Yard Maintenance Yard, access during weekends was limited.

10 ASSESSMENT OF MONITORING RESULTS

10.1 MS4 Results

10.1.1 Stormwater Quality

Permit Requirement (Appendix B, Part 11.A): Provide an evaluation of the sampling results for each outfall monitoring location, including an assessment of any trends, improvements, or degradation of stormwater quality from each drainage area. Discuss possible explanations for stormwater quality trends, including the implementation of stormwater management practices to reduce the discharge of pollutants to and from the storm sewer system.

ADOT has conducted stormwater quality sampling within the Phoenix and Tucson area. Because this reporting year is the first time the required set of parameters have been analyzed, only comparison to the winter and summer season can be comparatively made. A discussion of the Phoenix and Tucson MS4 sampling data is provided below.

ADOT's Phoenix Sampling Location – Stormwater results were obtained for the winter season only during this reporting period. The laboratory results indicate no SWQS was exceeded at ADOT's Phoenix sampling location. A summary of the sampling results is provided in Table 7.

Table 7 – ADOT ST hoems Area MS4 Sampling Results				
Winter Season	Summer Season	SWQS		
12-17-08	(mg/L)	(mg/L)		
(mg/L)				
13	NSOD	NNS		
110	NSOD	NNS		
85	NSOD	NNS		
290	NSOD	500		
4.15*	NSOD	NNS		
3.0	NSOD	NNS		
NA	NSOD	NNS		
<0.020	NSOD	0.006		
<0.020	NSOD	0.050		
0.098	NSOD	2.0		
0.023	NSOD	1.3		
0.0084	NSOD	0.015		
0.053	NSOD	2.10		
<5.0	NSOD	NNS		
0.00068	NSOD	0.0050		
0.0039	NSOD	10.0		
	Winter Season 12-17-08 (mg/L) 13 110 85 290 4.15* 3.0 NA <0.020	Winter Season 12-17-08 (mg/L) Summer Season (mg/L) 13 NSOD 110 NSOD 85 NSOD 290 NSOD 4.15* NSOD 3.0 NSOD NSOD <0.020		

Table 7 – ADOT's Phoenix Area MS4 Samplin	ng Results
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* - Calculated; NSOD – No Sample Obtained to Date; NNS – No Numerical Standard; NA – Not Analyzed (inadequate flow/ sample volume)

ADOT's Tucson Sampling Location - Stormwater results were obtained for both the winter and summer season at the Tucson MS4 sampling location. Table 8 results indicate a slight increase between the winter and summer season. This may be due to the Tucson area having more rainfall events within the drainage basin and pollutants not having enough time to buildup their concentration levels.

Table 6 – ADOT S Tucson Area W54 Sampling Results				
Parameter	Winter Season 12-01-08	Summer Season 6-30-09	SWQS (mg/L)	
	(mg/L)	(mg/L)		
BOD	65	44	NNS	
COD	560	640	NNS	
TSS	110	160	NNS	
TDS	680	680	500	
Total Nitrogen	12	7.01*	NNS	
TKN	12	14	NNS	
Total Phosphorous	0.42	0.36	NNS	
Antimony	NA	0.0046	0.006	
Arsenic	<0.020	0.0030	0.050	
Barium	0.20	0.20	2.0	
Copper	NA	0.033	1.3	
Lead	0.015	<0.0050	0.015	
Zinc	NA	0.18	2.10	
Total Petroleum Hydrocarbons	<5.6	<6.7	NNS	
Ethylbenzene	<0.0010	<0.00050	0.700	
Total Xylene	< 0.0030	<0.0015	10.0	

Table 8 – ADOT's Tucson Area MS4 Sampling Results

* - Calculated ; NNS – No Numerical Standard; NA – Not Analyzed (inadequate flow sample volume)

10.1.2 Water Quality Standards

Permit Requirement (Appendix B, Part 11.B): Compare the sampling results for each outfall monitoring location with the applicable surface water quality standards for the receiving water. Provide an assessment of stormwater quality relative to water quality standards, including the progress towards reducing the discharge of pollutants to the maximum extent practicable and protecting receiving water quality.

MS4 stormwater sampling results were compared to applicable SWQS as identified in Table 7 and Table 8. The results indicate TDS exceed its applicable SWQS during both the winter and summer season within the Tucson MS4 area. 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.

10.1.3 Exceedances of SWQS

Permit Requirement (Appendix B, Part 11.C): Describe any exceedence of a surface water quality standard during the reporting year.

The only SWQS exceedence that occurred was for TDS at the Tucson MS4 sampling location. Table 9 provides a summary of the exceedances that occurred during each sampling season.

Monitoring	SWQS			
Location Tucson MS4 - I10 and	Water	December 12, 2008	Exceeded TDS = 680	Standard
Grant Rd Maintenance Yard	Santa Cruz	June 30, 2009	TDS = 680	TDS = 500

Table 9 – Summary of SWQS Exceedances

The circumstance that may have caused the exceedence for TDS is that ADOT drainage within the Tucson area is typically with dry washes and arroyos. Stormwater drainage within the Tucson MS4 location enters an unnamed wash prior to flowing to the MS4 sampling location. The analytical result for both the winter and summer sampling event indicated TDS was 680 mg/L. This may indicate a constant source for dissolved solids that is not associated with roadway runoff. ADOT will continue to monitor TDS within this location and review its BMPs within the drainage area. As previously discussed, current State budget issues bust be resolved proper to ADOT being able to properly review and adjust BMPs accordingly.

10.1.4 Total Maximum Daily Loads

Permit Requirement (Appendix B, Part 11.D): Assess the effectiveness of BMPs meeting wasteload allocation associated with TMDL.

No Total Maximum Daily Loads (TMDL) has been established for receiving water within the Phoenix MS4 or Tucson MS4 sampling location.

10.2 Industrial Results

Permit Requirement (Section 8.3.3 & 8.5.2.2): Provide a summary of monitoring performed at industrial and construction sites as required in the permit. Describe any adverse conditions that prevented sampling stormwater discharges. Where facility outfalls are essentially identical, justify the sampling of only one outfall.

A summary of monitoring performed at ADOT industrial and construction sites is provided below as required by Permit Section 8.5.2.2 Discharge Monitoring Reports (DMRs) for both industrial monitoring and construction monitoring are provided in Appendix L. ADOT had limited time to collect a 2008 summer sample due to the timeframe from when the Permit became effective on September 18, 2008 and the summer sampling season ending on October 31, 2008 (approximately 44 days). However, ADOT did attempt to collect samples during a portion of the 2009 summer season that is within the timeframe of this reporting period.

10.2.1 Bisbee Storage Yard

Stormwater monitoring was not performed at the Bisbee Storage Yard. The lease ended for this property and it was not renewed by ADOT. The yard was shut down and all materials removed. The ADEQ removed the Bisbee Storage Yard from Permit requirements in the minor modification dated June 22, 2009.

10.2.2 Nogales Maintenance Yard

Stormwater samples were collected at the Nogales Maintenance Yard during the winter and summer seasons on the following dates:

- February 10, 2009 winter storm event
- June 30, 2009 summer storm event

No adverse conditions occurred that prevented the sampling of stormwater discharges from this facility. However, an inadequate sample volume was collected during the June 30, 2009 storm event and analyses for chlorine, total coliform, and *E*. coli could not be completed. The stormwater analysis indicates no surface water quality standard was exceeded.

10.2.3 Superior Maintenance Yard

A stormwater sample was collected at the Superior Maintenance Yard during the winter season on December 16, 2008. Sampling was conducted by installing a Nalgene® Stormwater Sampler prior to the storm event. This is a type of passive sample bottle that has a floating ball valve that seals off the sample collection port once the bottle is full. The sampler was installed within a stormwater basin adjacent to an 18-inch corrugated metal pipe that discharges from the yard into Queen Creek Wash. The stormwater analysis indicates no surface water quality standard was exceeded.

10.2.4 Superior Fuel Yard

A stormwater sample was collected at the Superior Maintenance Yard during the winter season on November 26, 2008. Sampling was also conducted using the Nalgene® Stormwater Sampler. The stormwater analysis indicates no surface water quality standard was exceeded

10.2.5 Durango Sign Factory

Stormwater sampling was attempted at the Durango Sign Factory during the 2008/09 winter and summer season but no adequate sample was obtained for analyses. Sample collection was performed by hanging a Nalgene® Stormwater Sampler to a drywell grate. The sampler was placed as close as possible to the edge of the drywell, but received inadequate flow to fill the sample bottle. ADOT attempted to collect samples during the following qualifying storm events:

- December 16, 2008 0.20 inches (winter season)
- November 27, 2008 0.24 inches (winter season)

ADOT has since designed a small flume using Plexiglas material in an attempt to direct stormwater to the sampler.

10.3 Construction Results

ADOT conducted monitoring within Oak Creek from Sept 15, 2008 through June 30, 2009. This monitoring coincided with construction improvements along State Route (SR) 179 in the Village

of Oak Creek and City of Sedona adjacent to Oak Creek. Oak Creek has been designated by the ADEQ as a Unique and Scenic Waterway. The monitoring consisted of in-stream data collection as identified in Table 10:

Мо	nitoring Point	Description	Latitude/Longitude	Monitoring
ID	Source	Description		Frequency
MP1	In Oak Creek - Upstream of Tlaquepaque bridge construction	Oak Creek north of bridge construction at approx. Sta. 1125+00 SR89, 55' Rt.	34° 51' 59.15" N 111° 45' 42.53" W	Prior to construction every 2 weeks (baseline). During construction on weekly basis and within 24 hrs of storm event >0.5", or >10 NTU increase in daily turbidity.
MP2	In Oak Creek - Downstream of Tlaquepaque bridge construction	Oak Creek south of bridge construction at approx. Sta. 797+00 SR179, 120' Lt.	34° 51' 42.00" N 111° 45' 43.83" W	Daily during bridge construction
MP3	Run-on at ephemeral wash	Located in ephemeral wash at r/w east of new box culvert at approximate Sta. 765+00, 110' Rt.	34° 51' 09.10" N 111° 45' 51.91" W	When flow occurs
MP4	Run-on ephemeral wash	Located in ephemeral wash at r/w west of existing box culvert at approximate Sta. 765+50, 68' lt.	34° 51' 10.19" N 111° 45' 53.52" W	When flow occurs
MP5	In Oak Creek - Downstream of major road construction	Oak Creek adjacent to north side of Oak Creek Cliffs Drive	34° 50' 40.46" N 111° 46' 39.84" W	Prior to construction every 2 weeks (baseline). During construction on weekly basis and within 24 hrs of storm event >0.5", or >10 NTU increase in daily turbidity

Table 10 – In-Stream Sam	pling Locations within Oak Creek
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DMRs for in-stream monitoring activities are included in Appendix L and a site map identifying these in-stream monitoring locations is provided in Appendix M as figure 8. No samples were collected from MP3 and MP4 due to no flow occurring at these locations. Parameters for monitoring within Oak Creek included turbidity, stream flow, dissolved oxygen, pH, conductivity, suspended-sediment concentration, total suspended solids, and total dissolved solids. No adverse conditions occurred that prevented in-stream monitoring of discharges associated with construction activities.

11 ESTIMATE OF POLLUTANT LOADING

Permit Requirement (Section 8.7.7): Provide an estimate of the pollutant loadings each year from the storm sewer system to waters of the U.S. for each constituent detected by stormwater monitoring within the permit term.

ADOT has estimated pollutant loading as required by Permit Section 8.7.7. Constituents detected during MS4 stormwater monitoring required for pollutant loading estimation include:

- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)

- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- Total Nitrogen
- Total Kjeldahl Nitrogen (TKN)
- Total Phosphorous
- Detected metals

The Simple Method was utilized for calculating the pollutant loading for each constituent identified above. This method was selected because it is best suited for small urban watersheds similar to where ADOT's current MS4 sampling locations are located. The Simple Method estimates stormwater pollutant loads as the product of mean pollutant concentrations and runoff depths over specified periods of time. The Simple Method estimates pollutant loads for chemical constituents as a product of annual runoff volume and pollutant concentration using the following equation:

L = 0.226 * R * C * A

Where: L = Annual loads; (lbs) R = Runoff (inches); C = Pollutant concentration (mg/l); A = Area (acres); 0.226 = Unit conversion factor

11.1 ADOT's Phoenix Area MS4 Pollutant Loading Estimates

Pollutant loading estimates for the Phoenix area monitoring location have been calculated for the winter season, summer season, and annually. Data used to calculate pollutant loading is provided in Appendix M. A summary of pollutant loading estimates as required by Permit Section 8.7.7(a) is provided in Table 11:

Pollutant	Estimated Pollutant Loading in Pounds			
	Winter Season	Summer Season	Annual	
BOD	2.52	NSOD	96.01	
COD	21.29	NSOD	812.40	
TSS	16.45	NSOD	627.76	
TDS	47.69	NSOD	2,141.78	
Total Nitrogen	0.68	NSOD	30.65	
TKN	0.49	NSOD	22.16	
Total Phosphorous	NA	NSOD	NA	
Barium	0.02	NSOD	0.72	
Copper	0.0038	NSOD	0.17	
Lead	0.0014	NSOD	0.06	
Zinc	0.01	NSOD	0.39	

 Table 11 – ADOT's Phoenix Area MS4 Pollutant Loading Estimates

NSOD - No Sample Obtained to Date Tucson MS4 Pollutant Loading Estimates; NA - Not Analyzed

11.2 ADOT's Tucson Area MS4 Pollutant Loading Estimates

Pollutant loading estimates for the Tucson area monitoring location have been calculated for the winter season, summer season, and annually. Data used to calculate pollutant loading is provided in Appendix M. A summary of pollutant loading estimates as required by Permit Section 8.7.7(a) is provided in Table 12:

Pollutant	Estimated Pollutant Loading in Pounds			
	Winter Season	Summer Season	Annual	
BOD	31.95	16.32	538.85	
COD	275.28	237.44	5,932.32	
TSS	54.07	59.36	1,334.77	
TDS	334.27	252.28	6,723.29	
Total Nitrogen	5.90	2.60	93.98	
TKN	5.90	5.19	128.53	
Total Phosphorous	0.21	0.13	3.86	
Barium	0.10	0.07	1.98	
Copper	NA	0.01	0.16	
Lead	0.01	NA	0.07	
Zinc	NA	0.07	0.89	

Table 12 – ADOT's Tu	cson Area MS4 Pollutant Loading Estimates

NA – *Not Analyzed (inadequate flow or sample volume)*

12 ANNUAL EXPENDITURES

Permit Requirement (Appendix B, Part 13): Provide a summary of the expenditures incurred each reporting period (July 1-June 30) to implement and maintain the stormwater management program, including associated monitoring and reporting activities. Provide the estimated budget for implementing and maintaining the stormwater program in the subsequent reporting period. Include a brief description of the funding sources used to support program expenditures.

ADOT does not maintain a specific fund dedicated solely for its stormwater programs. There are, however, several sources available for funding of this program, which include: the Arizona Department of Transportation Five-Year Construction Program, the Highway Maintenance Program, and the Administrative Budget.

12.1 Five-Year Construction Program

ADOT's Five-Year Construction Program is a source of funding that will be used when a stormwater issue or concern is related to a construction project that is in the existing program. The Program is reviewed on an annual basis, and at that time, new projects are added and modifications to existing projects are made. There are several sources of funds that are identified to fund the Program. These include federal, state, local, and private sources. The approval process required for incorporation of the stormwater issues into the program is the identification of the project and funding requirements and submittal to the Priority Planning Committee, and then in turn, to the Transportation Board for final approval. The program is adopted July 1st of each year.

12.2 Highway Maintenance Program

Stormwater issues related to maintenance will be covered under the Highway Maintenance Program, which is funded by the State. Issues and costs are identified and submitted for approval to the legislature in August of each year. Funds for new issues are received on July 1st of the following year. Currently, there is a total of approximately \$100,000,000 in this program.

12.3 Administrative Budget

An additional source of funding for ADOT stormwater programs is the Administrative Budget, which again, is state-funded and appropriated by the Arizona Legislature. The process is

identical to the Highway Maintenance Program. As part of the Administrative Budget, ADOT receives a total of approximately \$60,000,000 in state funds for administrative purposes.

12.4 Office of Environmental Services Budget

The OES was formed in 2006 and its budget has not been established. Currently, the OES operates under several budget accounts. Table 13 provides actual and estimated expenditures implemented under ADOT's Statewide Permit Number AZS000018-2008 requirements.

PROGRAM/ACTIVITY	FY 2008/2009 Actual	FY 2009/2010 Estimated
Street Sweeping – Phoenix and Tucson Area	\$2,496,305.00	\$2,869,049.00
Litter Pick-up and Removal – Phoenix and Tucson Area	\$4,101,386.00	\$4,213,495.00
Preparation and Implementation of Statewide Permit	\$190,000.00	\$250,000.00
Implement/ Update of SWPPPs for ADOT yards	\$78,856.00	\$10,000.00
Maintain and Update Stormwater Outfall Map to ADOT's GIS	\$00.00	\$78,000.00
Dry Weather Sampling – 20% of Outfalls (includes training)	\$16,541.00	\$15,000.00
Stormwater Monitoring	\$15,000.00	\$65,000.00
Preparation of Annual Report	\$16,969.00	\$25,500.00
ANNUAL TOTALS	\$6,915,057.00	\$7,526,044.00

 Table 13 - Estimated Stormwater Program Comprehensive Annual Budget

APPENDIX A Narrative Summary of SSWMP Activities

implementation of specific management pra New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
BEST MANAGEMENT PRACTICES	3.2.1.1, 3.2.1.2, and 3.2.1.3	new section	The 2005 SSWMP contained a series of goals designed for ADOT to improve operations and reduce pollution at or within ADOT facilities, Statewide and District Maintenance, MS4s, industrial facilities, and material sources. Goals were also established for improving or providing training, outreach, and information management. BMPs were not included in the 2005 SSWMP but were instead referenced to the following manuals: -Erosion and Pollution Control Manual -Maintenance and Facilities BMP Manual -Post-Construction Stormwater Control BMP Manual -Stormwater Monitoring Guidance Manual for Construction Activities -Stormwater Monitoring Guidance Manual for Industrial Activities The 2009 SSWMP contains a number of changes to comply with the new Permit. One of the changes is to specifically address BMPs and although the same manuals referenced above are still relied on for BMP guidance, Section 4 of the SSWMP is dedicated to the implementation of the following new BMPs.
A. MEASURES TO CONTROL DISCHARGES THROUGH EDUCATION	3.2.2	largely new section	Description of the education program including training, public education and outreach, public participation and involvement, and intra- and inter- governmental coordination.
1. ADOT Employee Training	3.2.2.1(a)	Chapter V, Section A	This section of the current SSWMP will require significant revision to comply with the new permit. Example text – ADOT has conduct Stormwater Awareness Training, training for contractors through the AGCetc

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
a. Stormwater Awareness Training	3.2.2.1(a) (i)	new section	Identify the ADOT employees requiring general awareness training and describe the curriculum. Annual Report documentation should include number of employees trained and number of trainings offered. General awareness training is offered with each of the specific stormwater training sessions. General awareness training is required for personnel at all levels of responsibility who are involved in activities that may impact stormwater or who may come into contact with or otherwise observe an illicit discharge or illicit connection. Training is conducted once in the first year of the permit and refresher training is required once every three years. The annual report will include the number of employees trained and number of sessions offered.
b. Specific Stormwater Training	3.2.2.1(a) (ii)	new section	The Permit requires ADOT employees to attend specific stormwater training in line with their responsibilities. BMPs have been established for specific training including: 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. Training is conducted once in the first year of the permit and refresher training is required once every three years. The annual report will include the number of employees trained and number of sessions offered.

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices						
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs			
c. Stormwater Library	3.2.2.1(a) (iii)	new section	This new BMP establishes an on-line central collection point for stormwater related documents to be made available to the public. Documents contained in the Library include: Erosion and Pollution Control Manual Maintenance and Facilities BMP Manual Stormwater Monitoring Guidance Manual for MS4 Activities Post-Construction Stormwater Control BMP Manual Arizona Department of Emergency Management Plan Stormwater Enforcement Response Plan Quality Assurance Manual Stormwater Monitoring Guidance Manual for Construction Activities Stormwater Guidance Manual for Industrial Activities Maintenance Yard SWPPPs Previous Annual Reports SSWMP The number of visitors to the online library is currently unable to be tracked. Will be corrected as quickly as possible.			

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
2. ADOT Construction Contractor Training and Certification	3.2.2.1(b)	new section	ADOT requires all contractor's inspectors to participate in the Construction Contractor Training and Certification Course offered by the Arizona Association of General Contractors to become an Erosion Control Coordinator (ECC) on ADOT projects. The 16 hour ECC training course covers the erosion and sediment control BMP requirements in the AZPDES CGP and inspection and maintenance of these BMPs. The number of ADOT attendees is reported in the annual report. Describe the training and certification requirements for Construction Contractors currently in the ADOT Standard Specifications, including the requirements for approved 16 hour Erosion Control Coordinator
			course and 1 year experience.
3. Erosion and Pollution Control Manual	3.2.2.1(c)	new section	This newly added BMP requires an update to the Erosion and Pollution Control Manual to address the selection, design, installation and maintenance of effective erosion, sediment, and waste control BMPs that ADOT will use for stormwater and non-stormwater discharges. ADOT will conduct annual updates to the Manual and include those updates in the annual report. Reference new SSWMP Section 2(C)(1). Note that Annual Report documentation will include description of updates.
4. Public Education and Outreach	3.2.2.2	Chapter V, Section B	Although goals for public participation and involvement were included in the 2005 SSWMP, this section has been significantly revised. This section of the current SSWMP will require significant revision to comply with the new permit.

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
a. Program Description	3.2.2.2(a)	new section	In the new BMP, target audiences and pollutants have been identified to better focus ADOT outreach efforts. Target audiences consist of individuals in the construction industry and highway users. Target pollutants include sedimentation from construction sites, litter, unsecured loads, and tire treads. Describe the overall program including target audiences and how they were selected, target pollutants/sources and how they were selected, and methods/materials to be used.	
b. Distribution of Materials through Public Places	3.2.2.2(b) (i)	new section	Materials will be distributed through participation at events with Regional Stormwater Coalitions, Arizona Clean and Beautiful, and Don't Trash AZ. Educational materials and information will be distributed via pamphlets, posters, rest stop bulletin boards, bus stop posters, TV advertisements, Radio announcements, and booths at local events. The annual report will include details from the number and type of outreach events attended and information distributed to the public. Identify the public venues for material distribution, the associated target audience, target pollutant /source, and the type of material. Annual Report should include the number of materials created and distributed and events attended, and any other appropriate measureable goals.	

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs		
c. Distribution of Materials through ADOT's Stormwater Web Page	3.2.2.2(b) (ii)	new section	 This new BMP establishes ADOTs stormwater web page as a location for the public to visit to access a variety of stormwater related documents, MS4 contacts, document templates, and links to other organizations that play a role in stormwater management. The number of visits to the webpage is included in the annual report. Describe the ADOT web page and procedure for updating it. Annual Report documentation should include number of hits. 		
5. Public Involvement and Participation	3.2.2.3	Chapter V, Section C	This section of the current SSWMP will require significant revision to comply with the new permit.		
a. Public Availability of Stormwater Documents	3.2.2.3(a)	new section	This BMP will be achieved via the Stormwater Library (see A.1.C). Reference new SSWMP Section II(C) which will describe newly developed public access to SSWMP and other stormwater documents.		
b. Public Comments	3.2.2.3(b)		Gathering of public comments is required by this new BMP. A link is present on the stormwater webpage and allows the public to comment on the SSWMP and other stormwater related documents. The permit refers to an existing system for public comments on the SSWMP. No such information in current SSWMP but may exist elsewhere.		

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices			
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
c. Public Reporting System	3.2.2.3(c)	new section	This new BMP requires ADOT to implement a public reporting system within the first year of the permit so the public can report illicit discharges and illegal dumping.
			The number of reports received from the public is included in the annual report.
			Describe newly developed public reporting system for spills, discharges and dumping including procedures for receiving and investigating complaints. System should include posted or advertised phone numbers. Annual Report documentation should include number of reports received and investigated.
d. Adopt-A-Highway	3.2.2.3(d)	Chapter V, Section C, Goal 3	This BMP (although previously listed as a goal) is largely unchanged from the previous SSWMP.
			The text from the current SSWMP should be revised to include a stormwater component for this program and the required BMP information (the BMP requirement, the narrative or numerical goal; the method of tracking for the Annual Report; and the responsible person/department.)
e. Litter Hotline	3.2.2.3(e)	Chapter V, Section B, Goal 2	This BMP (although previously listed as a goal) is largely unchanged from the previous SSWMP.
			The text from the current SSWMP should be revised to include the required BMP information (the BMP requirement, the narrative or numerical goal; the method of tracking for the Annual Report; and the responsible person/department.)

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
6. Intra and Inter-Governmental Coordination	3.2.2.4	Chapter I(C) Chapter II	This BMP (although not previously defined as a BMP) is unchanged from the previous SSWMP.
			May want to leave Chapter II as is and just reiterate the details in BMP format in this section.
a. Internal Coordination	3.2.2.3(a)	Chapter II	Various departments throughout ADOT work together to achieve the goals of the Permit. The Office of Environmental Services (OES) oversees the stormwater components from each department as well as with the SWATS and Stormwater Management Committee.
			Revision required following the BMP format. May want to leave Chapter II as is and just reiterate the details in BMP format in this section. (Recommend reorganizing the SWAT teams to more closely parallel the permit organization.)
b. Intergovernmental Coordination	3.2.2.3(b)	Chapter I(C)	ADOT continues to coordinate with outside agencies such as the Federal Highway Administration, Bureau of Land Management, and the Department of Agricultural Forest Service. ADOT also works with Metropolitan Planning Organizations, Councils of Governments, and Regional Stormwater Coalitions throughout the state.
			Describe ADOT's participation in StORM, PAG Stormwater Working Group, and Flagstaff. (May be able to pull text from Annual Reports.) Activities of the Encroachment Permits SWAT relating to agreements with adjoining local jurisdictions may also be relevant.

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
B. ILLICIT DISCHARGE/ ILLEGAL DUMPING DETECTION AND ELIMINATION MEASURES	3.2.3 3.2.3.1(a)		Description of program to minimize, detect, investigate, and eliminate illicit discharges, including unauthorized non-stormwater discharges and spills, into ADOT MS4. Include description of legal authority to prohibit and eliminate illicit discharges.
1. Minimizing Illicit Discharges and illegal Dumping	3.2.3.1		
a. Encroachment Permit Enforcement	3.2.3.1(b)	new section	 This new BMP requires ADOT to continue to implement and enforce encroachment permits and external party requirements on stormwater impacts for activities within ADOTs jurisdiction. The number of encroachment permit enforcement actions applied annually is included in the annual report. Reference new SSWMP Section I(B)(1) on Encroachment Permits.
b. Maintenance and Facilities Best Management Practices (BMPs) Manual	3.2.3.1(c)	new section	Within the first 12 months of the Permit, this new BMP requires the Manual to be updated to describe the selection criteria, design, installation and maintenance of effective BMPs to minimize pollutants in ADOT's non-stormwater discharges. This manual is updated annually and updates are included in the annual report. Reference new SSWMP Section II(C)(2).

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
c. Authorized Non-Stormwater Discharges	3.2.3.1(d)	new section	This new BMP allows ADOT to discharge conditionally authorized non-stormwater discharges provided ADOT develops and implements BMPs to minimize the discharge of pollutants that may result from these flows. Authorized Non-Stormwater Discharges from industrial, construction, and MS4 activities as well as maintenance facilities include discharges such as: Landscape watering/irrigation Fire-fighting activities Water for dust control Uncontaminated air conditioning or compressor condensate Diverted stream flows. For a list of all authorized non-stormwater discharges, see section 1.3 of the Permit. ADOT is currently in the process of identifying BMPs to minimize the discharge of pollutants from each type of authorized non- stormwater discharge.	
d. Training	3.2.3.1(e)	new section	See A.1.b. Reference SSWMP section on illicit discharge training under Education BMPs	
2. Detecting Potential Illicit Discharges and Illicit Connections	3.2.3.2			

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
a. Outfall Inventory	3.2.3.2 (a)	Phase I and Phase II Storm Water System Maps (9/2005)	This new BMP serves to meet the Permit requirement which requires ADOT to prepare a list of the 71 major outfalls within the first Permit year as well as to provide a proposal to ADEQ to identify all outfalls in the Phase II municipalities and all Priority Outfalls statewide. The first annual report of the Permit term will include an update on the status of the inventory.	
			List the 71 current major outfalls. Plan and schedule for identifying outfalls in the Phase II municipalities and Priority Outfalls statewide. Include priority areas to be completed within the current permit term. (No need for a separate submittal since SSWMP and plan are due within 12 months.)	
b. Storm Sewer System Map	3.2.3.2 (b)	new section	This new BMP allows ADOT to map stormwater collection and conveyance structures, highway system, district boundaries, jurisdictional boundaries, drainage patterns, and unique, impaired, and non-attaining waters within the state. Within the first four years of the Permit, ADOT will identify the location of all major outfalls and their receiving waters statewide. The GIS layers and related maps will be made available to ADEQ.	
			Plan for developing storm sewer system maps showing all ADOT major outfalls and receiving waters statewide, with all specific detail required by the permit Section 3.2.3.2 (b)(i). Maps must be complete by permit Year 4 annual report/ renewal application, include interim annual goals in SSWMP.	

New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
c. Stormwater Monitoring Guidance Manual for MS4 Activities	3.2.3.2(c)		Within the first 12 months of the Permit, this new BMP requires an update to the dry weather field screening part of the Manual. The Manual will describe a comprehensive approach to dry weather field screening that consists of BMP performance evaluation, dry weather field screening, water quality impacts assessment, and how ADOT assesses the effectiveness of its stormwater pollution prevention program. This manual is updated annually and updates are included in the annual report.
			Reference new SSWMP Section II(C)(3).

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
d. Dry Weather Screening	3.2.3.2(d), (e)	new section	This new BMP requires ADOT to implement its dry weather outfall screening and discharge characterization program and to inspect major and priority outfalls during the permit term. ADOT will inspect outfalls according to the following schedule: first 35 major outfalls in year one remaining 36 the 71 major outfalls in year two all 71 major outfalls in each year of years 3, 4, and 5 all priority outfalls at least once during the permit term In the annual report, ADOT will include the following: number of major outfalls inspected number of 71 identified major outfalls inspected number of priority outfalls inspected number of storm drain cross connections detected number of other dry weather flows detected Schedule for inspecting the 71 outfalls over the first two years of the permit, and then all 71 each of the final three years of the permit. Also provision and schedule for inspecting all Priority Outfalls (identified under Outfall Inventory) at least once during the permit term. This section should also describe the system used to track and record the findings of the inspections including outfall condition, potential sources of pollutants, and maintenance needs.	
e. Training	3.2.3.2(f)		See A.1.b.	
		Appendix A: Dog	Reference SSWMP section on illicit discharge training under Education BMPs.	

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
3. Investigating Potential Illicit Discharges	3.2.3.3		
a. Establish illicit discharge investigation procedures	3.2.3.3 (a)	new section	This new BMP requires ADOT to update the 'Dry Weather Field Screening Sites' portion of the Stormwater Monitoring Guidance Manual for MS4 Activities to describe procedures to investigate potential illicit discharges to identify possible sources. Updates to the manual are included in the annual report.
			Reference new SSWMP Section II(C)(3).

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices			
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
b. Investigate Illicit Discharges (Source Identification)	3.2.3.3 (b) 3.2.3.3 (c) and 3.2.3.4(d)	new section	This new BMP requires ADOT to initiate investigations and respond to complaints within 15 days from the date of detection or report of an illicit discharge. Within the first year of the Permit, ADOT will also develop a system to receive and track reports of illicit discharges and illegal dumping as well as ADOT's response and follow-up actions. ADOT will include in the annual report: number of storm drain cross connections investigated number of illicit discharges investigated number of other dry weather flows investigated number of complaints received number of complaints responded to average response time (in days) Describe the system to ensure that all detections and public reports [new Public Reporting System under new SSWMP Section III (A)(5)(c)] are investigated within 15 days, including method to track reports and ADOT response for the Annual Report.

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
c. Incidental Dry Weather Discharge Reporting	3.2.3.3(d)	new section	This new BMP requires ADOT employees to report dry weather discharges from any ADOT outfall. Within 15 days of detection ADOT will initiate appropriate follow-up action to eliminate the discharge, including reporting the discharge to ADEQ as appropriate.ADOT will report the number of discharges reported to ADEQ in the annual report.	
			Describe procedures for reporting incidental discharges from ADOT Outfalls found during ADOT's normal course of business.	
4. Eliminating Illicit Discharges and Illegal Dumping	3.2.3.4			
a. Eliminate Existing Dry Weather Flows	3.2.3.4 (a)		This new temporary BMP is only meant to be implemented for the first 90 days of the new Permit.	
			Within the first 90 days of the Permit, ADOT was required to investigate and eliminate (if possible) the sources of existing dry weather flows from the six major outfalls in the July 21, 2005 Summary Report – Dry Weather Screening.	
			The first annual report will include the findings of investigations as well as actions taken to eliminate dry weather flows.	
			Done before new SSWMP is complete. No entry required other than to remember to report in first Annual Report.	

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any
significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for
implementation of specific management practices

New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
b. Eliminate Sources of Illicit Discharges	3.2.3.4 (b)	new section	This new BMP requires ADOT to take action to eliminate source(s) of illicit discharges within 90 days of detection using ADOTs legal authority (Enforcement Response Plan) to terminate illicit discharges and illegal dumping. ADOT will include in the annual report the number of illicit discharges eliminated each year.
			Describe 90 day requirement for eliminating sources of illicit discharges and system for tracking number of such discharges eliminated for Annual Report. Reference new SSWMP Section I(B) and the new <i>Enforcement Response Plan</i> for illicit discharge enforcement policy.
c. Coordinate with Local Jurisdictions for Complaint Response and Investigation	3.2.3.4 (c)		This new BMP requires ADOT to coordinate with 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. ADOT coordinates with other jurisdictions as described in the Enforcement Response Plan.
			The number of illicit discharges reported to other jurisdictions for follow-up is included in the annual report.
			Reference new SSWMP Section I(C) and the Enforcement Response Plan for these procedures for coordinating with municipalities, state, and federal regulatory agencies to address permit violations originating outside ADOT's jurisdiction.

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
d. Record Actions	3.2.3.4(d)		Already included in B.3.b Reference system described in new SSWMP Section III(B) (3)(b) for tracking illicit discharge and illegal dumping investigation and response.	
5. Responding to Spills	3.2.3.5	Chapter I (C) (3)	 Although not previously defined as a BMP, this BMP requires ADOT to respond to spills as a result of highway accidents and emergencies. ADOT implements guidance from the Arizona Department of Emergency Management Plan, ESF-10 Oil and Hazardous Materials Annex to comply with this BMP. In each annual report ADOT includes the number of highway accident spills responded to and the number of highway accident spills prioritized (based on potential for discharge). Description of emergency response for highway accidents and emergencies. Include reference to <i>Arizona Hazardous Materials Response and Recovery Plan</i> and new SSWMP Section II(C)(5). 	
C. MEASURES TO CONTROL DISCHARGES FROM NEW CONSTRUCTION AND LAND DISTURBANCES	3.2.4		Description of a program to reduce the discharge of pollutants from construction sites.	

New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
1. Applicability of Construction Requirements	5.1	new section	This new BMP sets forth the requirement for all construction sites and activities that are owned, operated, or contracted by ADOT to comply with provisions of the Permit.
			Describe the applicability of the construction requirements to constructions activities that are owned, operated or contracted by ADOT.
2. Construction Site SWPPPs	5.2		Describe requirements for Construction SWPPPs.
a. General Requirements	5.2.1	new section	This new BMP requires ADOT or its contractor(s) to develop and implement construction site SWPPPs for sites that meet the following criteria:
			Sites that disturb more than one acre, or disturb less than one acre but is part of a larger common plan of development that ultimately disturb one or more acres.
			Activities used exclusively for ADOT construction projects including staging areas, borrow areas, storage areas and yards, access roads, and mobile operations.
			Any other support activities within 1/4 mile of an impaired or unique water.
			SWPPPs are maintained on the site as well as at the appropriate ADOT Office.
			Describe general requirements for Construction SWPPPs.

 ation and progress of every individual best management practice (BMP). Also, provide an explanation of any number or type of activities, the frequency or schedule of activities, or the priorities or procedures for ctices
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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
b. Site and Activity Description	5.2.2	new section	This new BMP describes the required components of the SWPPP including a site description, map, receiving waters, monitoring program, potential pollutants sources, and off-site material storage areas. Describe the Construction SWPPP requirements for site description, site map, receiving waters, monitoring program, summary of potential pollutant sources, and off-site materials sources.
c. BMPs to Reduce Pollutants	5.2.3	new section	 This new BMP describes criteria for selection, installation, and maintenance of BMPs for inclusion in Construction SWPPPs. The BMPs selected are selected for the following activities: erosion and sediment control good housekeeping post-construction stormwater management non-stormwater discharge management BMPs contained in the Erosion and Pollution Control Manual, Maintenance and Facilities BMP Manual, Post-Construction Stormwater Control BMP Manual, Stormwater Monitoring Guidance Manual for Construction Activities serve as the potential sources of BMPs to be included in Construction SWPPPs. Describe BMPs selection, installation and maintenance including BMPS for erosion and sediment control, good housekeeping, post-construction stormwater management, non-stormwater discharge management, and other BMPs.

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs		
d. Construction Inspections	5.2.5	new section	This new BMP requires routine inspections of construction sites to ensure BMPs are functional and effective and that the SWPPP is being properly implemented. These routine inspections are conducted by the ECC. Inspections must be completed on a routine schedule and include all areas of the site disturbed by construction activities and areas used for materials storage. Following an inspection, a Construction Compliance Evaluation Report is filed documenting the findings of the inspection amongst other inspection details (date, inspector, weather information, BMPs, corrective action, etc). Describe construction inspection requirements including inspection schedule, inspectors, scope of inspections, and Construction Compliance Evaluation Reports.		
e. Construction BMP Maintenance	5.2.4	new section	This new BMP sets forth the requirement to include a maintenance plan for all erosion and sediment control BMPs implemented by the Construction SWPPP. Upon discovering a BMP not operating properly maintenance must be performed within seven days and before the next storm event. Describe procedures for repair and maintenance of construction BMPs, including requirement to repair BMPs within seven days of discovery or before next storm event.		

New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
f. SWPPP Updates	5.2.6	new section	This BMP requires updates to the SWPPP be conducted to include additional or modified BMPs to correct problem identified during an inspection. Corrections to the SWPPP will be implemented within 15 calendar days of the inspection.	
			Describe requirements for SWPPP revision, based on inspection results, within 15 calendar days of the inspection.	
3. Operators under Contract to ADOT for Performing Construction Activities	5.3			
a. Compliance with Construction General Permit	5.3.1	new section	This new BMP guides ADOT to require it's contractors to comply with the AZPDES CGP for regulated construction projects. This requirement includes the requirement to file an NOI for each construction project or site.	
			For work on Tribal Land, NOIs are filed by both the contractor and ADOT to the EPA. For work on non-Tribal Land, an NOI is only filed by the contractor.	
			Describe requirement and procedures for ADOT contractors to comply with the Construction General Permit, ADOT system to track NOIs, and reference the Enforcement Response Plan as it applies to construction operators under contract to ADOT.	

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
b. NOT - Transfer of Responsibility to ADOT	5.3.2	new section	This new BMP requires contractors to file a NOT to terminate their responsibility for site activities once a site and interim stabilization is in place. ADOT assumes responsibility for the site until final stabilization is achieved for the entire project. ADOT also removes all temporary sediment control BMPs that may impede stormwater flow as soon as practicable after final stabilization. If work is conducted on Tribal Land, ADOT files an NOT to the EPA. Describe procedures for contractors to File NOT and transfer responsibility through final stabilization to ADOT.
c. Completed Construction Site Inventory	5.3.3	new section	This new BMP states that twice per year (by July 10 and January 10) ADOT will provide ADEQ with an electronic list of all construction projects, including the name of the project and its associated AZCON number(s) that have achieved final stabilization and that ADOT considers to be complete. Describe system to track NOIs and maintain list of all construction sites that have achieved final stabilization, including project name and report to ADOT by July 10 th and January 10 th of each year.
d. Enforcement Tracking and Reporting	5.3.4	new section	This new BMP requires ADOT to include in the annual report a list and description of all violations and their resolution, including any enforcement actions taken against its contractors. ADOT achieves enforcement actions through implementation of its stormwater Enforcement Response Plan. Describe system to track and report all Construction General Permit violations and their resolution, including enforcement actions taken against contractors. Reference Enforcement Response Plan.

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
D. MEASURES TO CONTROL DISCHARGES FROM NEW DEVELOPMENT AND REDEVELOPMENT	3.2.5	new section	This is a new section primarily containing references to the <i>Post-Construction Stormwater Control BMP Manual</i> and describing the programs in place to ensure and document compliance with the manual. The introductory section should describe the applicability of these	
			requirements.	
1. Post-Construction Stormwater Control BMP Manual	3.2.5.1		This new temporary BMP requires ADOT to develop and submit to ADEQ a Post-Construction Stormwater Control BMP Manual within the first year of the Permit. A draft version of the BMP Manual has already been prepared and will be submitted to ADEQ for review. Reference new SSWMP Section II(C)(4).	
2. Install post-construction stormwater control BMPs	3.2.5.2	new section	This new BMP requires post-construction stormwater control BMPs be installed within three months after roadway construction is complete for projects where post-construction stormwater control BMPs are indicated. Run-off from roadways and the storm sewer system will be treated by a post-construction stormwater control BMP prior to leaving ADOT's MS4 and/or entering waters of the US.	
			Describe system to document compliance with <i>Post-Construction</i> <i>Stormwater Control BMP Manual</i> requirements for post-construction BMPs near unique or impaired waters and other sites identified as needing such controls.	

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
3. Inventory, inspect, and maintain all post-construction stormwater pollution control BMPs	3.2.5.3 and 3.2.6.1(a)	new section	The Maintenance and Facilities group will inventory, inspect, and maintain all post-construction BMPs.
			Describe system to compliance with <i>Post-Construction Stormwater</i> <i>Control BMP Manual</i> requirements for inventorying, inspecting, and maintaining all post-construction stormwater pollution control BMPs. Inventory should categorize these BMPs by type and location. Due with 24 months.
4. Training	3.2.5.4		See A.1.b.
			Reference new SSWMP section on construction inspection training under Education BMPs
E. MEASURES TO CONTROL DISCHARGES FROM ROADWAYS	3.2.6		
1. Maintenance and Facilities Best Management Practices Manual	3.2.6 (a) and (b)		Within the first 12 months of the Permit, this new BMP requires the Roadway Maintenance BMP portion of the Manual to be updated.
			This manual is updated annually and updates are described in the annual report.
			Reference new SSWMP Section II(C)(2).
2. Storm Sewer System and Highway Maintenance	3.2.6.1		

New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
a. Inventory Post-Construction Stormwater Pollution Control BMPs	3.2.6.1(a)		This new BMP requires ADOT to maintain and update an inventory of post-construction stormwater pollution control BMPs. The prioritized inventory lists BMPs by type and location. The initial inventory will be supplied to ADEQ within the first 24 months of the Permit. The inventory will include features such as: retention/detention basins constructed wetlands media filtration systems oil/water separators other major post-construction stormwater BMPs Reference new SSWMP Section III(D)(3) on system to inventory post- construction stormwater pollution control BMPs.
b. Inspect Storm Sewer System	3.2.6.1 (b)	new section	 This new BMP requires ADOT to inspect and record the condition of its storm sewer system within the first 24 months of the Permit. The inspection includes roadways used for stormwater conveyance, catch basins, storm drain inlets, open channels, washes, culverts, and retention/detention basins to identify potential sources of pollutants and determine maintenance needs. Inspection and maintenance activities are documented using the PeCoS database. ADOT will maintain records of inspections and inspection results and will report the number of inspections completed in the annual report. Describe plan to implement a storm sewer system inspection program by the end of the permit year 2. The system will include a tracking and documentation system for the Annual Report.

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New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
c. Develop Maintenance Schedules and Priorities	3.2.6.1 (c)	new section	This new BMP requires ADOT to identify routine maintenance schedules and maintenance priorities for its storm sewer system. Each year, ADOT will evaluate priorities and update the maintenance schedule accordingly. Each year, individual Maintenance Districts develop their own maintenance and prioritization schedules. Describe routine maintenance schedule, with maintenance priorities, and the system for annual updates to the system.

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
d. Stormwater System Repair, Maintenance, and Cleaning	3.2.6.1(d), (e), and (f)	new section	This new BMP requires ADOT to repair, maintain, and clean its roadways used for stormwater conveyance and its storm sewer system to minimize the discharge of pollutants from the storm sewer system. During maintenance activities, each storm drain inlet is assessed for evidence of illicit discharges or illegal dumping in accordance with the Maintenance and Facilities BMP Manual. If evidence is discovered, illicit discharges or illegal dumping are reported and followed up according to B.4.b. While conducting maintenance and cleaning activities ADOT will implement BMPs to reduce the discharge of pollutants from unpaved roads, shoulders, parking lots, unpaved roads, and unpaved parking lots. ADOT properly disposes of al waste removed from its storm sewer system and facilities. In the annual report, ADOT includes the number of miles of roadways repaired/maintained, number of inlets cleaned, and number of drain inlets containing significant materials. Describe repair, maintenance, and cleaning BMPs in the <i>Maintenance and Facilities Best Management Practices Manual</i> , including proper waste disposal methods for materials generated from stormwater system repair, maintenance, and cleaning.	
3. Training	3.2.6.1 (g)		See A.1.b.	
			Reference new SSWMP section on storm sewer inspection and highway maintenance training under Education BMPs.	

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents Permit Reference 2005 SSWMP Reference or Other Source Required changes New Table of Contents Permit Reference 2005 SSWMP Reference or Other Source Required changes				

3. Roadside Maintenance Program	3.2.6.2	new section	This new section includes guidance on how ADOT will manage vegetation along roadsides as well as how ADOT will identify, track, and prioritize timely stabilization and repairs to road segments where slopes are 3:1 or greater and actively eroding and sediment is leaving ADOT's right of way or discharging to a water of the US. Vegetation management is conducted by the Maintenance Group and the Integrated Natural Resources and Vegetation Management Group in accordance with the Maintenance and Facilities BMP Manual and the Vegetation Management Plan. Describe system to ensure compliance with <i>Maintenance and Facilities Best Management Practices Manual</i> requirements for vegetation management
a. Pesticide and Fertilizer Application	3.2.6.2(c)		

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
i. Optimize Chemical Applications	3.2.6.1 (c)(i)	new section	This new BMP requires ADOT employees and commercial applicators to implement practices and procedures in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) at ADOT facilities and within right-of-ways. The BMP requires ADOT to develop BMPs to address the timing of applications in relation to precipitation events within the first 12 months of the Permit in addition to requiring ADOT to use only pesticides approved for aquatic use in areas within or adjacent to a water of the US. Application practices are reviewed annually and procedures are updated as needed to minimize runoff of pollutants. The Natural Resources Management Group within ADOT, and ADOT commercial applicators, abide by the Maintenance and Facilities Best Management Practices Manual and the Vegetation Management Plan regarding insecticide, fungicide, and rodenticide applications.	
			precipitation events, proximity to water bodies and other practices to minimize runoff; practices to minimize the amount of chemicals applied; use of pesticides approved for aquatic use near waters of the US; and a system to update these procedures annually.	
ii. FIFRA Certification	3.2.6.1 (c)(ii)	new section	This BMP requires all staff and commercial applicators to continue certification/licensing to apply pesticide products at ADOT facilities, public areas, and right-of-ways.	
			Describe requirement for ADOT staff and contractors to have proper certification/licensing for applying pesticides at ADOT facilities, public areas, and right-of-ways.	

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any
significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for
implementation of specific management practices

New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs
iii. Training	3.2.6.2 (c)(iii)		See A.1.b.
			Reference new SSWMP section on pesticide and fertilizer application training under Education BMPs.
b. Erosion Abatement Projects	3.2.6.2(d)	new section	This BMP requires ADOT to develop a system to identify, track and prioritize erosion abatement projects in areas actively eroding with sediment leaving ADOT's right of way.
			The system will be described in the first annual report and in each subsequent annual report ADOT will summarize erosion abatement projects conducted during the year.
			Describe system to identify, track and prioritize erosion abatement projects in areas actively eroding with sediment leaving ADOT's right of way. System should include provision for reporting projects in the Annual Report.

Provide a brief description of the implementation and progress of every individual best management practice (BMP). Also, provide an explanation of any significant developments or changes to the number or type of activities, the frequency or schedule of activities, or the priorities or procedures for implementation of specific management practices				
New Table of Contents	Permit Reference	2005 SSWMP Reference or Other Source	Required changes Description and Implementation of BMPs	
4. Winter Storm Policies	3263	new section	This new BMP requires ADOT to implement BMPs in the Maintenance	

4. Winter Storm Policies	3.2.6.3	new section	This new BMP requires ADOT to implement BMPs in the Maintenance and Facilities Best Management Practices Manual. BMPs are implemented to minimize stormwater impacts from: application of salt de-icing and anti-icing chemicals abrasives for snow and ice removal salt and sand storage snow disposal areas
			Describe requirement to follow all winter storm policies in the <i>Maintenance and Facilities Best Management Practices Manual.</i>

APPENDIX B Notice of Illegal Discharge and Demand for Corrective Action Letter



Arizona Department of Transportation

Intermodal Transportation Division

206 South Seventeenth Avenue Phoenix, Arizona 85007-3213

Janice K. Brewer

John S. Halikowski Director

DATE

Floyd Roehrich Jr. State Engineer

NOTICE OF ILLEGAL DISCHARGE OR CONNECTION

Person or Business Name Address Phoenix, AZ

Dear Property Owner:

The Arizona Department of Transportation (ADOT) is responsible for maintaining not only roadways, but also the extensive storm drain network located within the State rights-of-way. The Arizona Pollutant Discharge Elimination System (AZPDES) Program, which is a component of the Clean Water Act of 1972, requires ADOT to control the amount of pollutants entering the drainage system. Part of this charge is the detection and elimination of illegal discharges or connections to the system that may contain pollutants or are otherwise not allowed. Left uncorrected, any pollutants entering the system will ultimately impact nearby streams, as storm drainage is not treated at any sort of treatment facility. In addition, neighboring property owners are not allowed to occupy, use or interfere with public right of way without permission. Any discharge/connection without permission is an illegal encroachment on ADOT right of way.

An inspection of the drainage system has occurred in the vicinity of your property and an illegal connection/discharge was discovered entering into the ADOT system. The discharge/connection was discovered on date at business name and address.

Indicators or Source include piping and staining.

Photographs of this discharge/connection are enclosed with this letter. In addition, I have enclosed an aerial photograph showing the location of this discharge/connection.

This discharge or connection must be ceased or removed within 30 days. A follow-up investigation will be conducted after that time to ensure compliance. If the situation is not corrected, ADOT will take corrective measures, including but not limited to sending this matter to the Arizona Office of the Attorney General so that a lawsuit may be filed. In the alternative, ADOT may remove the discharge/connection and bill you directly pursuant to A.R.S. § 28-7053.

If the illegal discharge/connection cannot be removed within 30 days, you do not understand this notice, or you disagree that an illegal discharge/connection exists at your property, please contact me with further details or explanation by calling 602.712.8353 or by email at wterlizzi@azdot.gov.

Sincerely,

Wendy Terlizzi ADOT Office of Environmental Services Water Quality Manager 1611 W Jackson Street, MD EM02 Phoenix, Arizona 85383

Enclosure (photographs)

cc: Todd G. Williams, M.Sc, ADOT Office of Environmental Services Director District Engineer District Environmental Coordinator

APPENDIX C Summary of Wickenburg Maintenance Yard Investigation

ONE COMPANY | Many Solutions -

August 21, 2007

Mr. Ed Green, Senior Environmental Planner ADOT Environmental Planning Group 1611 W. Jackson St., MD EM02 Phoenix, AZ 85007-3212

Re: Phase I Environmental Site Assessment Report **Recommendations** Letter ADOT Wickenburg Maintenance Yard, Wickenburg, AZ HDR Project #044-66739-001

Dear Mr. Green:

As requested, HDR is submitting the Recommendations related to the abovereferenced Phase I Environmental Site Assessment in this letter, rather than as a separate section within the report. The Phase I Environmental Site Assessment (ESA) report presented our methodology, findings, opinions, and conclusions regarding environmental conditions at the project site.

The following Conclusions were drawn in the report:

Conclusions

Through the Phase I ESA investigative process, one historical REC and three RECs have been identified, as defined in ASTM Practice E 1527-05. Figure 2 in Appendix A indicates the location of these RECs, and the following description of these RECS is offered:

- The facility previously operated a UST system from 1963 through 1999 at the site. The USTs were removed in 1999, and gasoline and diesel impacts were discovered beneath the pump island. The LUST case was investigated in early 2002, and the case was closed by ADEQ in late 2006. Residual hydrocarbons remain onsite, but in concentrations below action levels employed by ADEQ. The closed status of this LUST case is a historical REC, and requires no further investigation.
- Long-term, small-volume releases from the former oil shed -- Although this building is no longer used as an oil storage shed, the foundation area remains stained by oil that was released over a long period of time from this shed. The visible staining, coupled with reports of longterm releases from this building, indicate that residual hydrocarbons could be present in the subsurface.
- Long-term, unknown volume releases from the former hot oil tank location - Aerial photographs and anecdotal accounts indicate that small releases, spills, and overfills of road oil at this location occurred for a period of several decades. This information indicates that residual hydrocarbons may be present in the subsurface.

HDR Engineering, Inc.

3200 E. Camelback Suite 350 Phoenix, AZ 85018-2311 Phone: 6022522-7700 602-522-7707 Web: hdrinc.com

Fax:

 A one-time release of road oil outside the containment berm at the new hot oil tank location may have resulted in residual hydrocarbons in the subsurface. Although a limited remedial effort was undertaken, no confirmatory sampling was conducted to verify the effectiveness of the action.

Recommendations

HDR recommends a limited Phase II investigation of the three areas potentially impacted by surface releases of oil. These areas include the oil shed, the former hot oil tank platform, and the current hot oil storage area. Specifically, borings should be advanced west of the oil shed, southwest of the former hot oil tank platform, and west to southwest of the current hot oil storage area. Soil samples should be collected to a sufficient depth to assess the potential vertical extent of impacts (a maximum of 15 feet or groundwater, whichever occurs first). If groundwater is encountered and displays evidence of impacts, then a grab sample of groundwater should be collected and analyzed for polynuclear aromatic hydrocarbons, (PAHs) as a gross indicator of impacts.

HDR appreciates the opportunity to serve ADOT on this important project. If you have any questions or comments, please feel free to contact Kelly W. Kading at (602) 522-4321.

Cordially,

HDR ENGINEERING, INC.

Kelly W. Kading CPG CHMM Senior Environmental Project Manager

KWK/ls

Distribution:

Addressee: Two unbound originals and one disk (pdf) File

Phase I Environmental Site Assessment ADOT Wickenburg Maintenance Yard

600 E. Wickenburg Way #B Wickenburg, Maricopa County, Arizona

Prepared for: Arizona Department of Transportation Environmental Planning Group

Prepared by:

HDR Engineering, Inc. 3200 E. Camelback Road, Suite 350 Phoenix, AZ 85018

August 21, 2007

Executive Summary

HDR Engineering, Inc. (HDR), has conducted a Phase | Environmental Site Assessment (ESA) of the ADOT Wickenburg Maintenance Yard located at 600 E. Wickenburg Way #B, Wickenburg, Maricopa County, Arizona. This Phase I ESA documents the evaluation of the project area for indications of "recognized environmental conditions." A recognized environmental condition (REC) is defined by the American Society for Testing and Materials (ASTM) Practice E 1527-05 as: "The presence or likely presence of any hazardous substances or petroleum products on a project site under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the project site or into the ground, groundwater, or surface water of the project site. The term includes hazardous substances or petroleum products even under conditions of storage and use in compliance with local and state laws and regulations. The term is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of regulatory governmental agencies. Conditions determined to be de minimus are not recognized environmental conditions."

This Phase I ESA includes a summary of the site reconnaissance conducted on July 23, 2007, a review of environmental databases, a review of historical data sources, and onsite and telephone interviews. The following findings and conclusions have resulted from the ESA investigation process:

Findings

- The facility is located in an area of mixed-use development, with commercial, residential, and undeveloped parcels located nearby.
- The facility is located at an average elevation of approximately 2,100 feet, on granular erosional sediments with moderate to high infiltration rates.
- Less than one third of the property's approximately 75 acres is currently developed (as the ADOT Wickenburg Maintenance Yard). The remainder of the site is native Sonoran desert scrub.
- Although vehicle fueling is no longer performed onsite, at least one generation of underground storage tanks (USTs) existed on the property (removed in 1999). The tank removal resulted in the listing of the site as a Leaking Underground Storage Tank (LUST) case, but the case was closed by ADEQ in 2006, based upon the limited extent of impacts.
- Several surface spills of road oil have occurred onsite, related to the current and former hot oil tanks.
- The former oil shed was the source of surface releases of oil for a number of years.

Conclusions

Through the Phase I ESA investigative process, **one** historical REC and **three** RECs have been identified, as defined in ASTM Practice E 1527-05. Figure 2 in Appendix A indicates the location of these RECs, and the following description of these RECS is offered:

• The facility previously operated a UST system from 1963 through 1999 at the site. The USTs were removed in 1999, and gasoline and diesel impacts were discovered beneath the pump island. The LUST case was investigated in early 2002, and the case was closed by ADEQ in late 2006. Residual hydrocarbons remain onsite, but in concentrations below action levels employed by ADEQ. The closed status of this LUST case is a historical REC, and requires no further investigation.

- Long-term, small-volume releases from the former oil shed -- Although this building is no longer used as an oil storage shed, the foundation area remains stained by oil that was released over a long period of time from this shed. The visible staining, coupled with reports of long-term releases from this building, indicate that residual hydrocarbons could be present in the subsurface.
- Long-term, unknown volume releases from the former hot oil tank location Aerial
 photographs and anecdotal accounts indicate that small releases, spills, and overfills
 of road oil at this location occurred for a period of several decades. This information
 indicates that residual hydrocarbons may be present in the subsurface.
- A one-time release of road oil outside the containment berm at the new hot oil tank location may have resulted in residual hydrocarbons in the subsurface. Although a limited remedial effort was undertaken, no confirmatory sampling was conducted to verify the effectiveness of the action.

PRELIMINARY SITE INVESTIGATION WICKENBURG MAINTENANCE YARD 600 E. WICKENBURG WAY WICKENBURG, MARICOPA COUNTY, ARIZONA

PREPARED FOR:

Arizona Department of Transportation Environmental Planning Group 1611 W. Jackson Street, MD EM02 Phoenix, Arizona 85007-3212

PREPARED BY:

HDR ENGINEERING, INC. 3200 E. Camelback Road Suite 350 Phoenix, AZ 85018

December 14, 2007

EXECUTIVE SUMMARY

HDR Engineering, Inc. (HDR) was contracted by the Arizona Department of Transportation (ADOT) to perform a Preliminary Site Investigation (PSI) of the Arizona Department of Transportation (ADOT) Wickenburg Maintenance Yard located at E. Wickenburg Way, Wickenburg, Maricopa County, Arizona. The purpose of the PSI is to investigate the subsurface conditions related to recognized environmental conditions (RECs). The PSI was performed to provide ADOT with information regarding the current extent and concentration of suspect contaminants in soils, if present. Information from the Initial Site Assessment (performed by HDR) was used in scoping the PSI. ADOT contracted HDR to perform this PSI in October, 2007.

The PSI field effort (drilling and sampling) was performed on November 14, 2007 according to the scope of work agreed to by HDR and ADOT. The PSI scope included the advancement of twelve soil borings to ranging in depths from 2 to 20 feet below ground surface (bgs). The eleven borings were advanced using a hollow-stem auger drill rig operated by a subcontracted drilling firm (Yellow Jacket Drilling), with samples collected by driven, decontaminated stainless steel split spoon samplers. Samples were collected at five-foot intervals. One sample was collect using a stainless steel hand auger. Soil samples were collected to assess the geologic conditions and to evaluate the vertical distribution of contamination, using field instrumentation verified by a laboratory analytical program.

The site investigation resulted in the following findings and observations:

- The geology of the Wickenburg area is complex and consists of Miocene to Oligocene volcanic and sedimentary rock, overlain by quaternary alluvium and reworked fluvial deposits near the Hassayampa River. Where present, volcanic rock is primarily welded ashflow tuffs with variable secondary cementation. Sedimentary rocks are primarily sandstones and siltstones that have been tilted and fractured by volcanism.
- Soils generally encountered included brown, fine-to-coarse grained sand.
- Field instrument and analytical laboratory results found no actionable concentrations of petroleum constituents, and no soil vapor impacts in the immediate vicinity of the identified RECs.
- At Site B (current welding shop), analytical laboratory results found no actionable levels of long chain hydrocarbons as EPA test method 8310 and 8270.
- At Site C (current and former hot oil tanks), analytical laboratory results found no actionable concentrations of petroleum hydrocarbons.
- At Sites W, X, Y, Z (vicinity of the buried 55-gallon drums of paint), analytical laboratory results found no actionable concentrations of metals or volatiles.

1

CONCLUSIONS

HDR has completed the scope of work described in Section 1.1 and has developed the following conclusions regarding the presence of residual impacts at the project site. The summary of findings presented in this section is a synopsis, and the reader should not infer that the information presented is complete or as detailed as provided in other sections.

Within the scope of this PSI, soil sampling results found no actionable concentrations of petroleum constituents, metals, PCBs, and no soil vapor impacts, in the immediate vicinity of the soil borings.

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of the Preliminary Site Investigation (PSI) is to investigate the subsurface conditions related to the four areas; current hot oil tank (release), former hot oil tank (release), welding shop, and buried 55-gallon drums of paint. The PSI was performed in order to provide Arizona Department of Transportation (ADOT) with information regarding the current extent and concentration of suspect contaminants in soils if present.

The scope of this PSI included the advancement of twelve borings ranging from depths of 2 to 20 feet below ground surface (bgs). Soil samples were collected to assess vertical distribution of contamination, using field instrumentation and confirmatory analysis by an analytical laboratory.

1.2 LIMITATIONS

This report has been prepared for use by ADOT. The information presented in this report is based on the ADOT-approved scope of work, which included analysis of geologic conditions through data collection, review of published information, and direct observation of geologic features in the project area, advancement of soil borings, and collection of soil samples for field and laboratory evaluation of the presence of petroleum constituents, metals, and polychlorinated biphenyls (PCBs). HDR makes no warranties or guarantees regarding the accuracy or completeness of the information provided or compiled by others.

As with any investigation that uses sampling points to characterize an impacted area, it is possible that the sampling locations did not intersect all potentially impacted areas. HDR determined that twelve sampling locations would be sufficient to characterize the distribution of impacts, if present in the immediate vicinity of the areas of potential concern.

In addition, some substances may be present at the site or in the vicinity in quantities below those categorized as actionable by current environmental regulations. HDR cannot be responsible if regulatory standards are changed in the future to a regulatory level that renders the current site conditions actionable.

2.0 PROJECT DESCRIPTION

2.1 DESCRIPTION OF STUDY AREA

The site includes approximately 75 acres and is located at 600 E. Wickenburg Way #B, Wickenburg, Maricopa County, Arizona. East Wickenburg Way is also designated as United States Route 60 (US 60). The site's latitude and longitude (reported at the entry road) are N33.9695 and W-112.7212, at an average elevation of approximately 2,100 feet. A complete legal description was not provided by ADOT, but is on file with ADOT's Right-of-Way section, and the Maricopa County Assessor's office. A Project Location Map is included as Figure 1, a Soil Boring Location Map is included as Figure 2, and photographic documentation is provided in Appendix A.

2.2 GEOLOGY

The geology of the Wickenburg area is complex and consists of Miocene to Oligocene volcanic and sedimentary rock, overlain by quaternary alluvium and reworked fluvial deposits near the Hassayampa River. Where present, volcanic rock is primarily welded ashflow tuffs with variable secondary cementation. Sedimentary rocks are primarily sandstones and siltstones that have been tilted and fractured by volcanism.

The project area includes the inner terrace of the Hassayampa River, which consists of layered fluvial deposits with a poorly sorted mixture of silt to boulder-sized material. The immediate vicinity of the Hassayampa River includes compacted fill overlying the native reworked fluvial deposits. Benches above the river (present at the project site) display erosional channels cut into reworked fluvial deposits, as well as alluvium from source rock not reworked by fluvial action.

2.3 INVESTIGATION METHODOLOGY

Based upon the information provided by ADOT about known contaminant releases in the immediate project area, HDR developed the following investigation methodology that was approved by ADOT. The PSI scope of work included the advancement of soil borings, interpretation of geologic and field instrument data, collection of soil samples for laboratory analysis, interpretation of results, and preparation of a final report.

Soil borings were completed at the locations identified on Figure 2. Soil boring locations were selected in an attempt to delineate the extent of residual impacts, without causing pathways for additional migration of contaminants. Constraints in the placement of the soil borings included physical barriers to rig location such as buried utilities and existing structures.

Drilling was performed by Yellow Jacket Drilling Company (at the direction of HDR) using a Boart Longyear BK-66 Hollow Stem Auger drill rig. The borings were advanced using a 6-3/4 inch outside diameter hollow stem auger. Borings were sampled at selected depth intervals using a decontaminated split-spoon sampler. All drilling and sampling tools were decontaminated prior to use with a non-phosphate detergent wash and deionized water rinse by onsite HDR field personnel.

Soil samples were collected from undisturbed soils by advancing a decontaminated stainless steel split-spoon type sampler ahead of the lowest point of the auger at the selected sampling interval. Samples were selected for laboratory analysis based on the highest photoionization detector (PID) reading. If no elevated PID readings in a boring were detected, the deepest sample from a boring was submitted to the laboratory. The specific laboratory sample collection procedure included collection of soil from the lowest section of the brass sleeve in the sampler, capping the ends of the sleeve with Teflon and plastic caps, preserving the sample with methanol, labeling the sample, and immediately placing it on ice for transport. Samples were collected, preserved, and transported to the laboratory under chain-of-custody protocols and within Quality Control standards established by HDR, in compliance with Arizona Department of Environmental Quality (ADEQ) data quality objectives.

Each sample interval was field-screened using a soil sample from the middle section of the sampler (directly above the laboratory-submitted sample) for field headspace analysis using a Perkin-Elmer Photovac 20/20 PID. The PID was calibrated with 100 parts per million (ppm) isobutylene reference gas at the beginning of each field day.

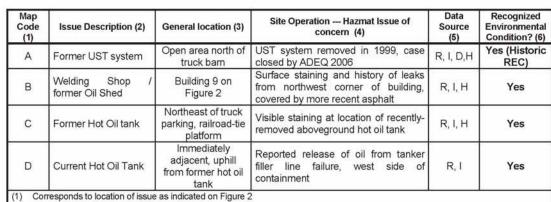


Boring Location

Legend

- 1. Maintenance Office
- 2. DPS Office
- 3. Construction Office
- 4. Truck Barn
- 5. Staff Ready Room
- 6. Tire Shop
- 7. Spreader Rack
- 8. Sign Dock
- 9. Road Materials Storage





(2) Description of Issue of Concern

Location related to onsite landmark

(3) (4) (5) Description of Site Operation / hazmat issue of concern

Indicates primary information sources for listing: R=Reconnaissance, I=Interview, D=Database, H=Historical Documentation (6

Sufficient risk of hazardous materials impacts exist to classify the issue as a REC

5 Wickenburg E Wickenburg Way

Project Name



Preliminary Site Investigation ADOT Wickenburg Maintenance Yard 600 E. Wickenburg Way #B Wickenburg, AZ 85390

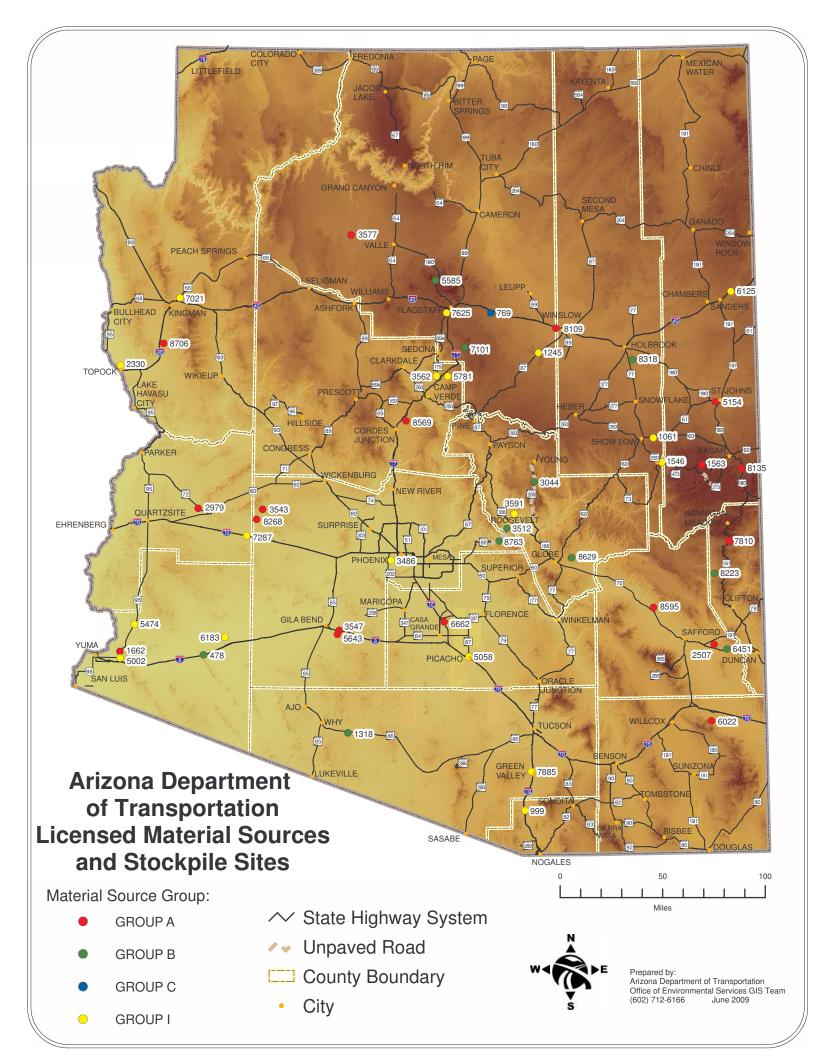
Figure Name

Boring Location Map

Figure 2

Phase I ESA Data Table

APPENDIX D ADOT Licensed Material Sources and Stockpile Sites



APPENDIX E Material Sources Table (Group A, B, C, and I)

ADOT-licensed Material Sources Inventory

Material					_					Latitude	Longitudo		010			Potential		Water	Distance	
Source (MS) No.	Source Name	ADOT District	County	Owner Code	Town- ship	Range	Sec	Hwy	MP	°-'-"N	Longitude ° - ' - " W	Total Acres	SIC Code	Site Use	Exclusive use	Non-SW Discharge	Stockpiled Material	of US	to Waters (miles)	U / I Waters
	: A materials source in the																			
	urrently mining is not bein						an active	mining	permit is	sued by the lar	ndowner(s), ap	plicable St	ate or Fed	eral govern	ment agency.				-	
	rces are expected to be u	,																		
1563 5154	Pole Knoll JMP Ranches Inc.	Globe Globe	Apache	3	08 N 13 N	27 E 28 E	30 30	260 180	381 366		109-31-55.04 109-24-18.65		1429 1499	5,7 7	Yes Yes	A,D,E A,D	Yes	Yes Yes	0.25 <0.25	No No
8109	BVD	Holbrook	Apache Coconino	1,5	13 N 19 N	20 E 15 E	21	1-40	250		110-45-32.79	80	1499	5,7	Yes	A,D A,D,F,G	No Yes	No	<0.25 >0.50	No
7810	Crabtree	Safford	Greenlee	3	02 N	29 E	14	191	216		109-18-59.02	10	1429	5	Yes	A,D,E	Yes	Yes	0.25	No
6662	Val Vista	Tucson	Pinal	4	05 S	06 E	23	I-10	187		111-43-04.41	120	1499	7,8	Yes	A,C,D	No	Yes	On-site	No
1662	Tanner	Yuma	Yuma	4	08 S	21 W	9	95	38		114-25-33.55	95	1429	5,7,9	No	A,B,D	Yes	Yes	On-site	No
3547	Gila Bend North rces are used less than a	Yuma	Maricopa	4	06 S	03 W	7	I-8	124	32-54-55.14	112-35-51.77	19	1499	5,7	Yes	A,D	Yes	Yes	On-site	No
3577	Tin House	Flagstaff	are conducted a Coconino	at least annua 6	27 N	02 W	29	64	225	35-41-53 01	112-31-03.42	142	1442	2	Yes	A,D	No	Yes	<0.25	No
8135	Warm Springs	Globe	Apache	3	07 N	30 E	5	191	411	34-01-33.25	109-11-53.27	95	1429	5,9	No	A,D,E	Yes	Yes	On-site	No
8706	Yucca	Kingman	Mohave	1,2,4,6	18 N	17 W	30	I-40	29	34-55-04.24	114-07-02.16	133	1429	8,5	Yes	A,D	Yes	Yes	On-site	No
8569	Dugas	Prescott	Yavapai	3	12 N	03 E	27	I-17	270		112-02-26.61	40	1429	5	Yes	A,D,G	Yes	Yes	<0.25	No
2507	San Jose Wash	Safford	Graham	4	7 S	28 E	23	191	136	32-48-52.85		28	1442	2,8	Yes	A,D	No	Yes	On-site	No
6022 8595	Bowie Fort Thomas	Safford Safford	Cochise Graham	4,2	13 S 04 S	28 E 23 E	32 26	I-10 70	365 305	32-15-20.64 33-03-44.97	109-30-02.93 109-57-50.34	134 14	1429 1442	5,8 2,8	Yes Yes	A,C,D A,D	Yes No	Yes Yes	On-site On-site	No No
2979	Vicksburg	Yuma	La Paz	4	04 0 05 N	15 W	23	72	44		113-47-39.44		1499	5	Yes	A,D	Yes	Yes	<0.25	No
3543	Tiger Wash East	Yuma	Maricopa	4	04 N	10 W	16	I-10	73		113-17-10.02	80	1442	2,8	Yes	A,D	No	Yes	On-site	No
8268	Tiger Wash West	Yuma	Maricopa	4	04 N	10 W	16	I-10	73	33-41-29.35	113-18-02.48	74	1442	5,8	Yes	A,C	Yes	Yes	On-site	No
		17																		
GROUP B	: A material source in the	is group will include a	a site or portion	of a site whe	ere mining	occurred	in the pa	ast but is	not an a	ctive facility. A	site that is no	longer bei	ng used wi	ll remain in	this group unti	l it can be recla	aimed, at which	i time it w	ould be moved	to Group C.
5585	Deer Tank	Flagstaff	Coconino	3	23 N	06 E	17	180	234		111-47-12.12		1429	9	No	A,E	No	No	>0.50	No
7101	Munds	Flagstaff	Coconino	3	18 N	08 E	27	I-17	320		111-32-06.73		1429	9	No	A,E	No	Yes	<0.25	No
3044 3512	Board Tree Saddle	Globe Globe	Gila	3	07 N 03 N	14 E 11 E	7	288 88	295 237		110-57-11.80	15 11	1429 1499	1,5,7	Yes	A A,C	Yes	Yes	<0.25 0.25	No
8629	Burnt Corral Seven Mile Wash	Globe	Maricopa Gila	3	03 N 03 N	16 E	23	60	268		111-11-18.65 110-38-47.23	1	Not 14XX	1,5,7 1,4,5	Yes Yes	A,C A	Yes Yes	Yes Yes	0.25 On-site	No No
8763	Fish Creek	Globe	Maricopa	3	02 N	10 E	5	88	200		111-15-15.76	•	1499	1,7	Yes	A,C	Yes	Yes	0.25	No
8318	Aztec	Holbrook	Navajo	2,6	16 N	21 E	3	77	381		110-06-18.35		1499	1,5,7	Yes	A	No	Yes	<0.25	No
6451	Slick Rock Wash	Safford	Graham	4	08 S	29 E	10	70	361		109-21-28.43		1442	5,8	Yes	A	Yes	Yes	On-site	No
8223	Upper Sheep Wash	Safford	Greenlee	3	02 S	28 E	2	191	190		109-26-54.60	7	Not 14XX	1	Yes	A	No	Yes	On-site	No
1318 478	Quijotoa Mohawk	Tucson Yuma	Pima Yuma	5	14 S 08 S	02 W 14 W	19 17	86 I-8	68 55		112-31-03.30	10 40	1499 1499	1,5,7 8	Yes Yes	A	Yes	Yes Yes	<0.25 On-site	No No
5643	Gila Bend South	Yuma	Maricopa	4	06 S	03 W	19	I-0 I-8	123		112-36-42.77		1499	5,8	Yes	A	Yes	Yes	On-site	No
7287	Centennial	Yuma	La Paz	1	03 N	11 W	27	I-10	68		113-22-48.65		1499	5	Yes	A,F	Yes	Yes	On-site	No
	TES IN GROUP B =	13																		
GROUP C	: Includes activities inte	nded to return the lan	nd to its pre-mir	ning state. (O	nce a site	is reclaim	ed, it will	be remo	oved from	n this Group)										
769	Twin Arrows	Flagstaff	Coconino	3	20 N	10 E	2	I-40	217	35-09-04.61	111-18-45.07	32	1429	3,4	Yes	A,E	No	Yes	<0.25	No
770	Winona	Flagstaff	Coconino	3	21 N	09 E	23	I-40	211		111-24-26.20	21	1429	6	N/A	N/A	UNK	N/A	N/A	N/A
	Gray Mountain	Flagstaff	Coconino	2,6	27 N	09 E	29	89	454	35-41-48.87	111-27-46.91	320	1429	6	N/A	N/A	UNK	N/A	NA	N/A
	TES IN GROUP C = : NON-MINING SITES: Ir	3		atory that are	not minin	a citoc. Th	000 1001	ulated etc	ocknilo ci	tos will bo incr	acted at least	quartarly								
GROUP 1.		iciddes siles on origin		nory that are		y siles. III	ese legi	lialeu sit	Jokpile Si		Jecleu al least	quarteriy.								
3562	Beaver Creek	Flagstaff	Yavapai	3	15 N	05 E	12	179	302	34-42-35.03	111-46-45.18	2	Not 14XX	1,5,7	Yes	A,E	Yes	Yes	<0.25	No
5781	Blue Grade	Flagstaff	Yavapai	3	16 N	06 E	35	I-17	304		111-40-58.62		Not 14XX	5,7	Yes	A,E,F	Yes	Yes	0.25	No
7625	Fort Tuthill	Flagstaff	Coconino	1,3	21 N	07 E	31	89A	400		111-41-31.75		Not 14XX	5,7	Yes	A,E,F	Yes	Yes	On-site	No
1061	Second Knoll	Globe	Navajo	3	10 N	23 E	18	60	347	34-15-25.88	109-56-19.91	16	Not 14XX	5,7	Yes	A,E	Yes	Yes	0.25	No
1546 3591	Kinney Mountain	Globe	Navajo	5	08 N 04 N	23 E	24	260	360		109-52-15.06 110-34-06.08	22	Not 14XX	1,5,7	Yes	A,E	Yes	Yes	<0.25	No
3591	Carol Spring Mountain Sunset Pass	Globe Holbrook	Gila Coconino	3	04 N 17 N	17 E 13 E	33 13	60 87	278 327		110-34-06.08	6 10	Not 14XX Not 14XX	5,7 5,7	Yes Yes	A,E,F A,E	Yes Yes	Yes Yes	<0.25 On-site	No No
6125	Puerco River	Holbrook	Apache	2,0	22 N	29 E	27	I-40	345		109-14-55.43	19	Not 14XX	2	Yes	A	No	Yes	On-site	No
2330	Topock NWR	Kingman	Mohave	1	16 N	21 W	23	95	215	34-45-20.78	114-28-43.53	37	Not 14XX	2	Yes	A	No	Yes	On-site	No
7021	Gordon Drive	Kingman	Mohave	1	22 N	16 W	33	I-40	59		113-59-04.02		Not 14XX	5,7	Yes	A,F	Yes	Yes	< 0.25	No
3486	51st Ave	Phoenix	Maricopa	1	01 N	02 E	21	85	189		112-09-48.45	15	Not 14XX	4	Yes	A	No	Yes	On-site	No
999	Tubac	Tucson	Santa Cruz	1	20 S	13 E	31	I-19	24		111-03-19.16		Not 14XX	4,7	Yes	A	No	Yes	On-site	No
5058 7885	Picacho Sahuarita	Tucson Tucson	Pinal Pima	1	08 S 17 S	08 E 13 E	15 27	87 I-19	195 44		111-30-43.93 111-00-01.88	52 37	Not 14XX Not 14XX	5,7 5,7	Yes Yes	A A,F	Yes Yes	Yes Yes	On-site <0.25	No No
5002	Fortuna/Blaisedell	Yuma	Yuma	1	08 S	21 W	33	95	33		114-25-19.78		Not 14XX	5,7	Yes	A,F	Yes	Yes	On-site	No
5474	YPG	Yuma	Yuma	7	06 S	20 W	3	95	53		114-18-32.26	14	Not 14XX	7	Yes	A	No	Yes	0.25	No
6183	Dateland	Yuma	Yuma	2	06 S	13 W	36	I-8	67	32-51-32.30	113-33-07.68	60	Not 14XX	5,7	Yes	A,F	Yes	Yes	On-site	No
TOTAL SIT	FES IN GROUP I =	17																		

Definitions:	may also include a site or portion of	s group will include a place where work or other activities a site where mining has occurred in the past, yet curren ner(s), applicable State or Federal government agency.									
		p B : A material source in this group will include a site or portion of a site where mining occurred in the past but is not an active facility. A site that is no longer being used will remain in this until it can be reclaimed, at which time it would be moved to Group C.									
	Group C : Includes activities intend	ed to return the land to its pre-mining state. (Once a site	is reclaimed, it will be re	emoved from this Group).							
	Group I: Non-mining sites.										
	Waters of the US:	Based on review of topographic maps and/or on-s	ite review								
	Latitude/Longitude:	Latitude/Longitude are expressed in NAD 83									
	N/A:	Not Applicable									
Site Use Codes:			Ownership Codes:								
Sile Use Codes:	Expired permit or license		Ownership Codes: 1	ADOT							
2	Never used		2	Arizona State Land Departmer	2 4						
2 3	Undergoing reclamation		2	USDA Forest Service	iit.						
4	Requires revegetation or contour	ing	4	Bureau of Land Management							
5	Stockpiles present		5	Tribal							
6	Released from site by land owner	r/manager	6	Private							
7	Maintenance only	manager	7	Department of the Army							
8	Construction only										
9	Multiple permitees		Non-Stormwater Di	ischarge Codes:							
			Α	Water for dust control (not eff	luent or other wastewater)						
Standard Industrial	С		В	Uncontaminated groundwater							
1429	Crushed and broken stone (basal	It and volcanic rock)	С	Diverted stream flow							
1442	Sand and gravel		D	Coring and drilling water - pro	vided no additives are used						
1499	Borrow or fill dirt		E	Deicing chemicals or products	S						
Not 14xx	Non-mining sites; material storag	je area only	F	Petroleum-containing materia							
			G	Fertilizers - herbicidal applicat	tion to invasive plants						
ADOT Districts:	Address:		District Engineers:	Phone:	E - Mail:						
Flagstaff District	1801 S. Milton Road, F	lagstaff, AZ 86001	John Harper	928-774-1491	jharper@azdot.gov						
Globe District	P.O. Box 2717, Globe,		Jerry Barnes	928-402-5600	ibarnes@azdot.gov						
Holbrook District	2407 E. Navajo Blvd., H	lolbrook, AZ 86025	Lynn Johnson	928-524-5408	ljohnson@azdot.gov						
Kingman District	3660 E. Andy Devine, H	Kingman, AZ 86401	Mike Kondelis	928-681-6010	mkondelis@azdot.gov						
Phoenix Construction		Hwy., Phoenix, AZ 85017	Robert Samour	602-712-8965	rsamour@azdot.gov						
Phoenix Maintenanc			Tim Wolfe	602-712-6550	twolfe@azdot.gov						
Prescott District	1109 Commerce Drive,		Greg Gentsch	928-777-5862	ggentsch@azdot.gov						
Safford District	2082 U.S. Hwy. 70, Saft		Bill Harmon	928-428-5470	bharmon@azdot.gov						
Tucson District	1221 South 2 nd Ave., Tu		Vacant	520-388-4210	Vacant						
Yuma District	2243 East Gila Ridge R	toad, Yuma, AZ 85365-2101	Paul Patane	928-317-2156	ppatane@azdot.gov						

APPENDIX F Numeric Summary of BMPs

					uly1 - June	
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-
Number		2009	2010	2011	2012	2013
	MEASURES TO CONTROL DISCHARGES THRO	UGH EDUC	ATION			
3.2.2.1(a)(ii)(1)	Train ADOT Employees - Illicit discharges and illegal dumping					
	Number of trainings offered	7				
	Number of employees trained	35				
	(Other numeric measurable goals(s))	0				
3.2.2.1(a)(ii)(2)	Train ADOT Employees - Non-stormwater discharges					
	Number of trainings offered	7				
	Number of employees trained	35				
	(Other numeric measurable goals(s))	0				
3.2.2.1(a)(ii)(3)	Train ADOT Employees - New Construction and land disturbances					
	Number of trainings offered	7				
	Number of employees trained	35				
	(Other numeric measurable goals(s))	0				
2, 2, 2, 4(a)(ii)(4)	Train ADOT Employees - New development and significant					
3.2.2.1(a)(ii)(4)	redevelopment					
	Number of trainings offered	7				
	Number of employees trained	35				
	(Other numeric measurable goals(s))	0				
2.2.2.1(a)(ii)(5)	Train ADOT Employees - Storm sewer system and highway					
3.2.2.1(a)(ii)(5)	maintenance					
	Number of trainings offered	7				
	Number of employees trained	35				
	(Other numeric measurable goals(s))	0				
3.2.2.1(a)(ii)(6)	Train ADOT Employees - Good housekeeping and material BMPs					
	Spill Prevention and Response - Number of trainings offered	7				
	Spill Prevention and Response - Number of employees trained	35				
	Pesticides, Herbicides, and Fertilizer Application - Number of trainings					
	offered	7				
	Pesticides, Herbicides, and Fertilizer Application - Number of employees					
	trained	35				
	Industrial Sites - Number of trainings offered	7				
	Industrial Sites - Number of employees trained	35				
	(Other numeric measurable goals(s))	0				

		An	Annual Reporting Year (July1 - June 30)							
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-				
Number		2009	2010	2011	2012	2013				
3.2.2.1(a)(iii)	Develop Stormwater Library									
	Number of times accessed or visited	NA								
	(Other numeric measurable goals(s))	0								
3.2.2.1(b)	ADOT Construction Contractor Training and Certification									
	Number of trainings offered	7								
	Number of ADOT employees trained/certified	35								
	Number of ADOT employees recertified	5								
3.2.2.2(b)(i)	Distribution of Educational Materials Through Public Places									
	Number of materials (posters, brochures, signs, etc.) distributed	2600								
	Number of public events ADOT attended with displays	5								
	(Other numeric measurable goals(s))	0								
3.2.2.2(b)(ii)	Distribution of Educational Materials Through ADOT's Stormwater Webpage									
	Number of hits on webpage	NA								
	(Other numeric measurable goals(s))	0								
3.2.2.3 (b)	Record and Consider Public Comments									
	Number of public comments received	0								
	(Other numeric measurable goals(s))	0								
3.2.2.3(c)	Implement a Public Reporting System									
	Number of reports received from public	0								
	Number of reports investigated	0								
	(Other numeric measurable goals(s))	0								
3.2.2.3(d)	Develop a Stormwater Component of the Adopt-a-Highway Litter Initiative									
	Number of volunteer groups participating	1,835								
	Number of miles cleaned	2,291								
	Amount of trash collected (tons)	246								
	(Other numeric measurable goals(s))	0								
3.2.2.3(e)	Continue Implementation of Litter Hotline									
	Number of calls received	3,389								
	(Other numeric measurable goals(s))	0								

		Annual Reporting Year (July1 - June 30)						
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
Number		2009	2010	2011	2012	2013		
		Annual Reporting Year (July1 - June 30)						
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
Number		2009	2010	2011	2012	2013		
	ILLICIT DISCHARGE/ILLEGAL DUMPING DETECTION AND		TION MEAS	JRES				
3.2.3.1(a)	Maintain Illicit Discharge Authority		1	T	1	I		
	(Numeric Measurable goal(s))	0						
3.2.3.1(b)	Enforce Standard Encroachment Permit		1	T	1	T		
	Number of enforcement actions	0						
	(Other numeric measurable goal(s))	0						
3.2.3.1(c)	Implement Non-Stormwater BMPs							
	(Numeric Measurable goal(s))	0						
3.2.3.1(d)	Inspect Outfalls for Dry Weather Discharges							
	Number of major outfalls inspected	35						
	Number of 71 identified major outfalls inspected	35						
	Number of priority outfalls inspected	7						
	Number of storm drain cross connection detected	0						
	Number of illicit discharges detected	1						
	Number of other dry weather flows detected	0						
	(Other numeric measurable goal(s))	0						
3.2.3.3(b)	Investigate Illicit Discharges (Source Identification)							
	Number of storm drain cross connection investigated	0						
	Number of illicit discharges investigated							
	Number of other dry weather flows investigated							
	(Other numeric measurable goal(s))	0						
3.2.3.3(c)	Respond to Complaints							
	Number of complaints received	0						
	Number of complaints responded to	0						
	Average response time (in days)	0						
	(Other numeric measurable goal(s))	0						
3.2.3.3(d)	Report Incidental Dry Weather Discharges							
	Number of discharges reported to ADEQ	1						
	(Other numeric measurable goal(s))	0						
3.2.3.4(a)	Take Action to Eliminate Existing Dry Weather Flows							
	Number of existing dry weather discharges eliminated	0						

		Annual Reporting Year (July1 - June 30)							
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-			
Number		2009	2010	2011	2012	2013			
	(Other numeric measurable goal(s))	0							
3.2.3.4(b)	Take Action to Eliminate Sources of Illicit Discharges								
	Number of storm drain cross connection eliminated	0							
	Number of illicit discharges eliminated	1							
	Number of dry weather discharges eliminated	1							
	(Other numeric measurable goal(s))	0							
2.2.2.4(a)	Coordinate with Local Jurisdictions for Complaint Response and								
3.2.3.4(c)	Investigation								
	Number of illicit discharges reported to other jurisdictions for follow-up	1							
	(Other numeric measurable goal(s))	0							
3.2.3.5	Responding to Spills								
	Number of highway accident spills responded to	0							
	Number of highway accident spills prioritized (potential for discharge)	0							
	(Other numeric measurable goal(s))	0							

		Annual Reporting Year (July1 - June 30)						
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
Number		2009	2010	2011	2012	2013		
		An	nual Repor	ting Year (J	uly1 - June	30)		
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
Number		2009	2010	2011	2012	2013		
	MEASURES TO CONTROL DISCHARGES FROM NEW DEVELO	PMENT AN	D REDEVE	OPMENT	-			
3.2.5.2	Install Post-Construction Stormwater Control BMPs							
	Number of new post-construction stormwater control BMPs installed	NA						
	(Other numeric measurable goal(s))	0						

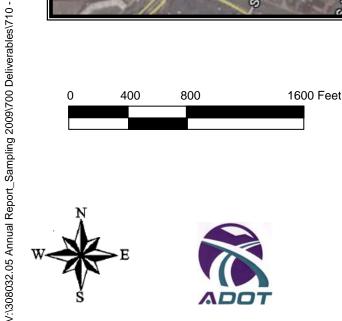
	Annual Reporting Year (July1 - June 30)						
Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
	2009	2010	2011	2012	2013		
	An	nual Report	ting Year (J	uly1 - June	30)		
Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
	2009	2010	2011	2012	2013		
MEASURES TO CONTROL DISCHARGES FRO	M ROADW	AYS					
Inspect Storm Sewer System							
Number of inspections performed	0						
(Other numeric measurable goal(s))	0						
Develop Maintenance Schedules and Priorities							
(Numeric measurable goal(s))	0						
Perform Repair, Maintenance, and Cleaning							
Number of miles of roadways repaired/maintained	0*						
Number of inlets cleaned	0*						
Number of drain inlets containing significant materials	0*						
(Other numeric measurable goal(s))	0						
Require Certification/License							
Number of licensed ADOT applicators	41						
Stabilize Roadway Slopes (attach summary of tracking & prioritization)							
Acres of roadway slopes stabilized	0						
	Stormwater BMP or Activity MEASURES TO CONTROL DISCHARGES FROM Inspect Storm Sewer System Number of inspections performed (Other numeric measurable goal(s)) Develop Maintenance Schedules and Priorities (Numeric measurable goal(s)) Perform Repair, Maintenance, and Cleaning Number of miles of roadways repaired/maintained Number of inlets cleaned Number of drain inlets containing significant materials (Other numeric measurable goal(s)) Require Certification/License Number of licensed ADOT applicators Stabilize Roadway Slopes (attach summary of tracking & prioritization) Stabilize Roadway Slopes	Stormwater BMP or Activity 2008- 2009 Image: Stormwater BMP or Activity Arr 2008- 2009 MEASURES TO CONTROL DISCHARGES FROM ROADW Inspect Storm Sewer System 0 Image: Number of inspections performed 0 (Other numeric measurable goal(s)) 0 Develop Maintenance Schedules and Priorities 0 (Numeric measurable goal(s)) 0 Perform Repair, Maintenance, and Cleaning 0* Number of miles of roadways repaired/maintained 0* Number of inlets cleaned 0* (Other numeric measurable goal(s)) 0 Perform Repair, Maintenance, and Cleaning 0* Number of miles of roadways repaired/maintained 0* (Other numeric measurable goal(s)) 0 Require Certification/License 0* Stabilize Roadway Slopes (attach summary of tracking & prioritization) 41	Stormwater BMP or Activity2008- 20092009- 2010Stormwater BMP or Activity2008- 20092009- 2009Stormwater BMP or Activity2008- 20092009- 2009Inspect Storm Sewer System00MEASURES TO CONTROL DISCHARGES FROM ROADWAYSInspect Storm Sewer System0Develop Maintenance Schedules and Priorities00Perform Repair, Maintenance, and Cleaning00Number of miles of roadways repaired/maintained0*Number of drain inlets containing significant materials0*Number of drain inlets containing significant materials0*(Other numeric measurable goal(s))0Require Certification/License0Stabilize Roadway Slopes (attach summary of tracking & prioritization)41	Stormwater BMP or Activity2008- 20092010- 2010200920102011Annual Reporting Year (J 20092009- 20102010- 2010Stormwater BMP or Activity2008- 20092009- 20102010- 2010MEASURES TO CONTROL DISCHARGES FROM ROADWAYSInspect Storm Sewer System	Stormwater BMP or Activity 2008- 2009 2009- 2010 2010- 2011 2011- 2012 Manual Reporting Year (July1 - June Stormwater BMP or Activity 2008- 2009 2009- 2010 2010- 2011 2011- 2009 MEASURES TO CONTROL DISCHARGES FROM ROADWAYS 2010- 2009 2010 2011 2012 Inspect Storm Sewer System 0		

* In a ccordance with 3.2.6.1(b), ADOT has 24 months to implement a system to inspect and record conditions of its storm sewer system

		Annual Reporting Year (July1 - June 30)						
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
Number		2009	2010	2011	2012	2013		
		An	nual Repor	ting Year (J	uly1 - June	30)		
Section	Stormwater BMP or Activity	2008-	2009-	2010-	2011-	2012-		
Number		2009	2010	2011	2012	2013		
	MEASURES TO CONTROL DISCHARGES FROM ADOT N	AINTENAN	CE FACILIT	TIES		-		
4.1.5.3	Stencil Drain Inlets at ADOT Facilities							
	Number of new catch basins installed	0						
	Number of catch basins marked or stenciled	15						
	(Other numeric measurable goal(s))	0						

APPENDIX G Site Maps for Proposed MS4 Monitoring Locations







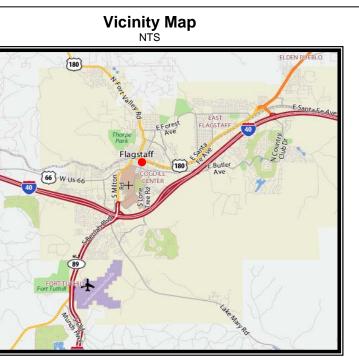
Stormwater Sample Location



Ν





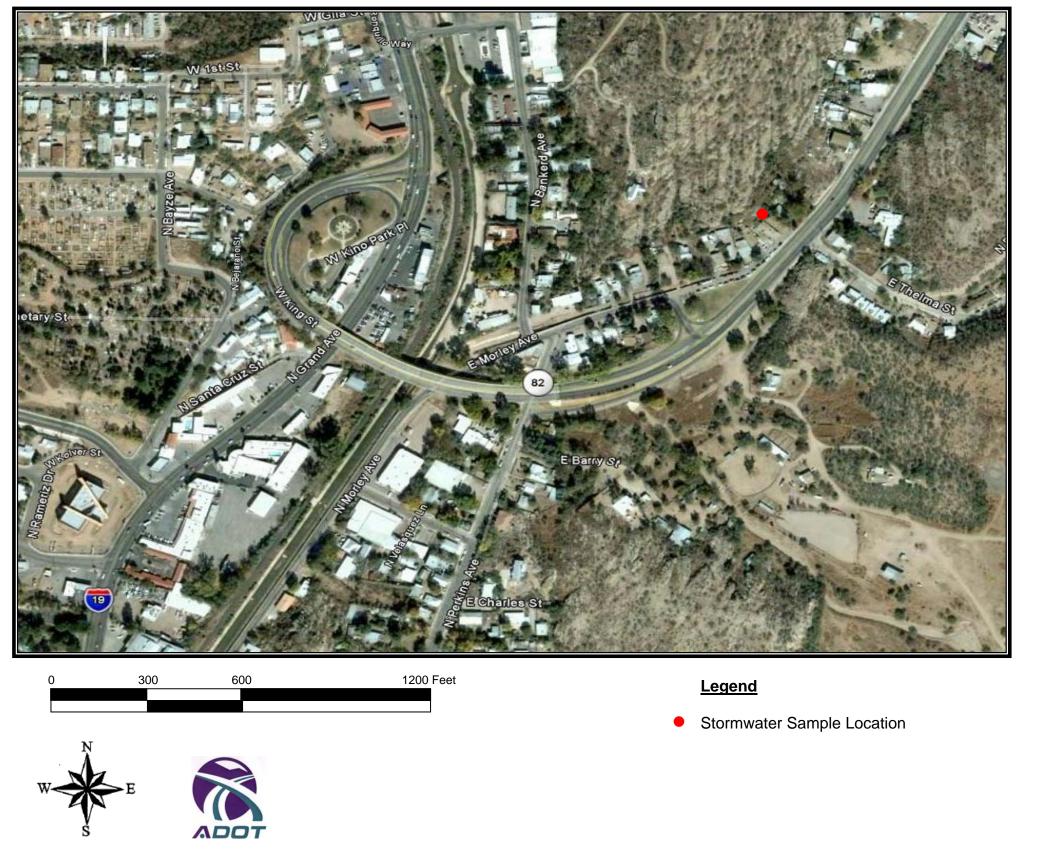


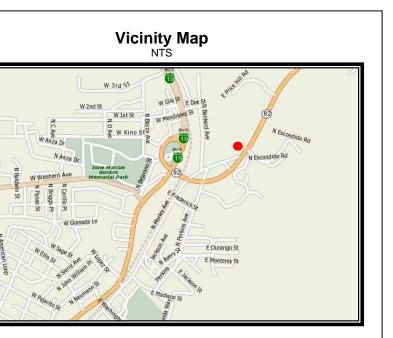
Photograph: Outlet from Roadway looking North



Figure 1 Proposed MS4 Sampling Location Flagstaff, Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION AZPDES STORM WATER MONITORING SITE





Photograph: Outlet looking East



Figure 2 Proposed MS4 Sampling Location Nogales, Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION AZPDES STORM WATER MONITORING SITE



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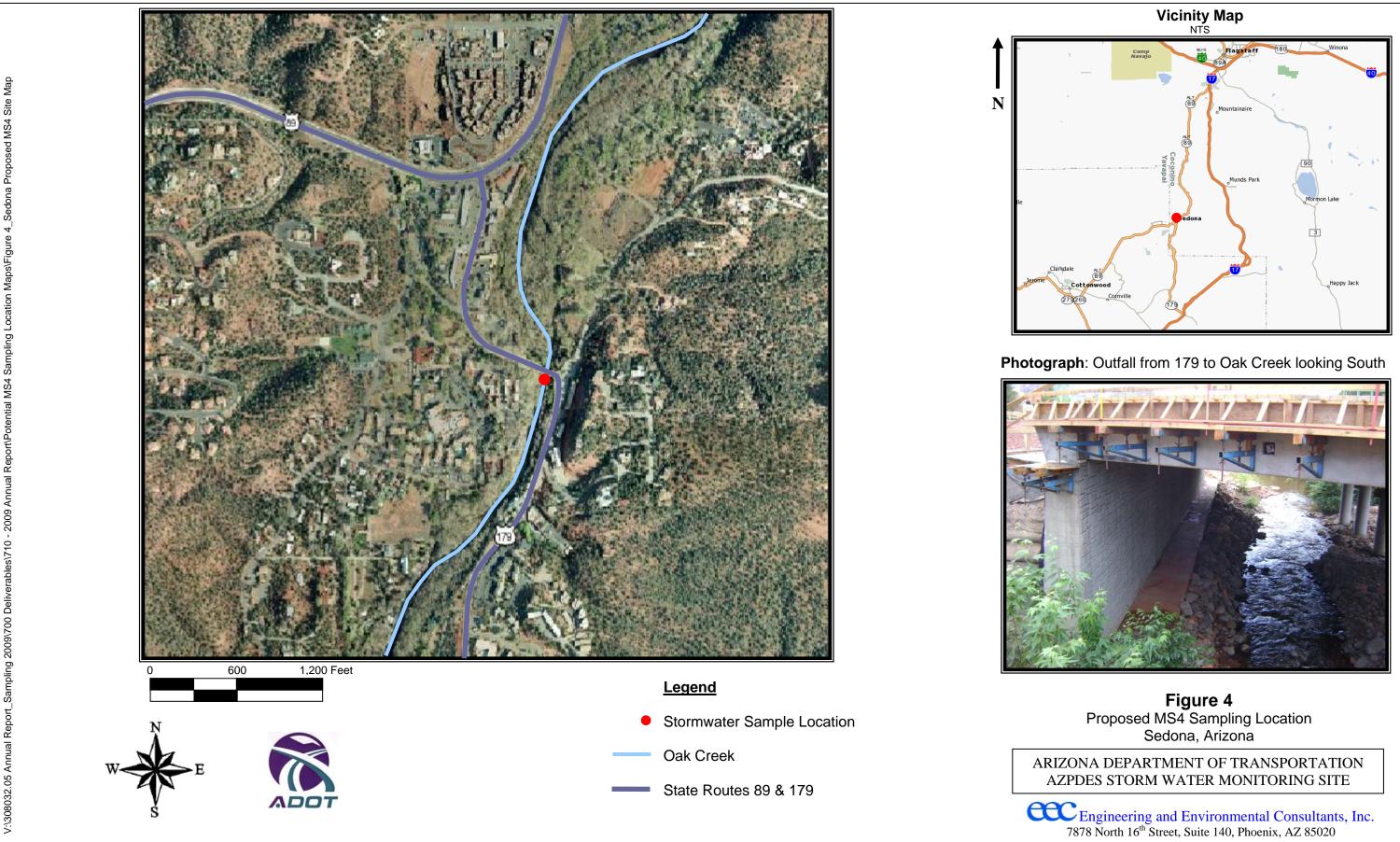


Photograph: Outfall location looking Northwest



Figure 3 Proposed MS4 Sampling Location Phoenix, Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION AZPDES STORM WATER MONITORING SITE





Yard







Maps\Figure 5_ Ы ğ ing Sar ntial MS4 (Annual Report/Pote 2009 / ables\710 Deliv 2009\700 pling. Sar ual Report_ .05 Anr /:\308032

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Photograph: Outfall from Roadway looking East



Figure 5 Proposed MS4 Sampling Location Tucson, Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION AZPDES STORM WATER MONITORING SITE

APPENDIX H SIGMA Stormwater Equipment

Hach Sigma 900 Max Portable Samplers



Features and Benefits

5 Goals for Effectiveness and Efficiency

Accuracy—highly accurate measurements keep systems in compliance at all times

Simplicity—easy to operate equipment saves valuable time and effort

Flexibility—extensive product options and features accommodate specific needs

Reliability-robust products with minimal downtime and outstanding customer support

Economy—affordably priced products for the best value for the money

Field Convertible for Compact or **Discrete Sampling**

Weighing only 28 pounds (12.7 kg)—with a three-gallon polyethylene bottle installed-the Hach Sigma 900 Max Portable Sampler is designed for accuracy and convenience. Quickly switch between composite to discrete sampling in the field using an interchangeable compactor standard-sized base. Carrying is made easy with flip-up handles. Configurable for single or multiple bottle applications, it is specifically designed for use in 18-inch manholes.

Reliable Peristaltic Pump Technology

The Sigma 900 Max sampler uses a positive displacement peristaltic pump made of corrosion-resistant Delrin® material. Flow is induced by squeezing a flexible 3/8-in. tube (only the tubing is in contact with the liquid). While other peristaltic pumps fail to meet EPA1 criteria for representative intake velocity, Hach samplers produce a 3.3 ft./s velocity at 3 ft. lift in a 3/8-in. ID intake line. The liquid is under pumped-flow from the point of intake until it reaches the sample bottle.

Advanced Liquid Detection Techniques

The non-contact ultrasonic liquid sensing system guarantees volume accuracy and repeatability regardless of changes in head or composition of the waste stream or temperature variations in the sample liquid. Samples are compromised less often when the intake line is thoroughly purged before and after every sample collection. Reduce cross-contamination with a line rinse where the intake is preconditioned with the source liquid prior to collection. In the event that a plugged intake prevents collection, the unit detects the failed attempt and immediately repeats the cycle starting with a high-pressure purge.



The advanced technology and comprehensive customer service of Hach Sigma 900 Max Portable Samplers can be summarized in five key concepts: accuracy, simplicity, flexibility, reliability, and economy.

Monitor and Manage

Easy, menu-type programming is made via a large 8-line by 40-character backlit display. Use the Sigma 900 Max sampler to monitor and log rainfall, level, flow, velocity, temperature, pH or ORP, conductivity, and dissolved oxygen with 12 data logging channels. Depending on model, up to seven external analog signals can also be logged. As many as 116,000 readings may be recorded. RAM memory is automatically allocated as necessary during operation. Flash memory is used to install software enhancements (available on the Internet), without returning the sampler to the factory.

Unique Constant Time/Variable Volume Sampling

The patented* Constant Time/Variable Volume sampling method varies sample size in proportion to flow rate-flowweighted samples are captured on the first try. This method closely simulates manual grab samples. Limitations of conventional samplers, such as insufficient sample volumes during low flow periods or truncated sample time during high flow periods, make capturing short-lived, illicit discharges, or significant storm events difficult. The Constant Time/Variable Volume feature takes regularly timed, proportional samples depending on the flow ratesample volume increases and decreases with the flow, ensuring that representative samples are taken at even intervals throughout the sampling period.

*Patent #5587926

Continued on next page.

DW = drinking water WW = wastewater municipal PW = pure water / power IW = industrial water E = environmental C = collections FB = food and beverage



С

Features and Benefits continued

Customizable Set Points

Use the Sigma 900 Max sampler to collect samples in response to changing levels of selected parameters—set high and low trip points to immediately collect when a parameter exceeds preset limits. Samples may also be taken only when the parameter exceeds these settings. Out-of-limit sample can then be segregated from normal samples to help quickly identify problem sources.

Easy Data Management Software

Powerful and user-friendly software makes it easy to analyze the data and produce presentation-quality reports—report maximums, minimums, totals, and averages for any time period. Or generate customized reports integrating sample collections with flow, level, rainfall, other water quality parameters such as pH, ORP, temperature, conductivity, or dissolved oxygen.

Three Ways to Download Data

Sampler to DTU to PC—the palm-sized and waterproof Data Transfer Unit (DTU) is faster, easier, and more economical than a laptop computer to get data from up to 20 samplers to the office.

Sampler to Modem to PC—a built-in modem transmits data via cellular phone or telephone right to the office. Automatically "call" the sampler at predetermined times to retrieve data, or retrieve data on demand. Also, alarm conditions may be sent to up to three pagers or a central monitoring computer.

Sampler to PC—link directly to a PC using the standard built-in RS-232 serial port.

Applications

Hach Sigma 900 Max Portable Samplers are ideal for NPDES stormwater compliance, stormwater runoff monitoring, pretreatment compliance, CSO studies and monitoring, industrial wastewater discharge, and WWTP process control.

Specifications*

General

Sampler Housing

Impact resistant ABS plastic, 3-section construction

Double-walled base with 1 in. (2.54 cm) insulation, direct ice contact with bottles

Controller Housing

High-Impact, injection-molded ABS; submersible, watertight, dust-tight, corrosion, and ice resistant; NEMA 4X, 6

Temperature

General Use: 0 to 49 °C (32 to 120°F)

Liquid Crystal Display (LCD): -10 to 70°C (-14 to 158°F)

Storage: -40 to 80°C (-40 to 176°F)

Power Requirements

12 Vdc supplied by optional a/c power converter or battery

Average current with pump running: 2.25 amps dc

Average current without pump running: 4 mA dc

ac Power Backup (Pump Controller Only)

Rechargeable 6 amp-hour gel lead acid battery takes over automatically with ac line power failure

Integral trickle charger maintains battery as full charge (factory installed option)

Internal Battery

Two 1.5 V dc "C" cells; maintains program logic and real time clock for five years

Graphics Display

8 line x 40 character alphanumeric, back-lit liquid-crystal graphics display

Self prompting/menu driven program

User Interface

21 key membrane switch keypad with 4 multiple function soft keys

Data Logging

Records program start time and date, sample volume collected, sample volume remaining, stores up to 400 sample collection times/dates, all program entries, operational status including number of minutes or pulses to next sample, bottle number, number of samplers collected, number remaining, sample volume collected, volume remaining, sample identification, and all logged data

Up to 200 events logged, including alarm conditions, program run/stop events, etc.

Set Point Sample Trigger

When equipped with integral flow meter, pH/temperature/ORP meter, conductivity, and/or DO monitoring options, sampling can be triggered upon an upset condition when field selectable limits are exceeded

Sampling Modes

Multiple bottle time, multiple bottle flow, composite time, composite flow, composite multiple bottle time, composite multiple bottle flow, flow with time override, variable interval, start/stop, and level actuation

Overload Protection

5 amp dc line fuse for pump; 5 amp dc line fuse for ac power converter

Diagnostics

Tests keypad, RAM, ROM, pump, distributor, liquid sensor, and velocity signal

Program Languages

Czech, Danish, English, French, German, Swedish

Program Lock

Access code protection prevents tampering

Dimensions

Standard and 12 Bottle Base: 50.5 cm x 69.4 cm (10.9 x 27.3 in.)

Compact Base: 44.1 x 61 cm (17.4 x 24 in.)

Composite Base: 50.28 x 79.75 cm (19.8 x 31.4 in.)

Weight

Standard and 12 bottle base: 15 kg (35.6 lb.) with (24) 1-L polyethylene bottles

14.8 kg (32.6 lb.) with 3-gal polyethylene container

Compact Base:

12.2 kg (27 lb.) with (24) 575-mL polyethylene bottles

12.9 kg (28.3 lb.) with 3-gal polyethylene container

Composite Base:

15 kg (36 lb.) with (12) 950-mL glass bottles

Continued on next page.

Specifications continued

Communications

EPROM Flash Memory

Via RS232; permits embedded software upgrades in the field; requires ac power

Serial Interface

RS-232 compatible; allows on-site collection of stored data

Modem

14,400 bps, V.32 bis, V.42, MNP2-4 error correction

V 0.42 bis MNP5 data compression

MNP10-EC Cellular Protocol, optional cell phone—FCC approved

Pager

Sends alarm codes to up to three separate pager telephone numbers or to a dc running data analysis software

Program Delay

1 to 9,999 minutes or external flow pulses in one unit increments

Sampler start time/date and time/day of week

Sampler start on external 12 Volt or contact closure input

Sample Bottle Capacity

Standard Base Capacity

- (24) 1 L polyethylene and/or 350-mL glass bottles
- (8) 2.3 L polyethylene and/or 1.9 L glass bottles
- (4) 3.8 L (1 gal) polyethylene and/or (4) 3.8 L (1 gal) glass bottles
- (2) 3.8 L (1 gal) polyethylene and/or
 (2) 3.8 L (1 gal) glass bottles
- 20.8 L (5.5 gal) polyethylene composite container or (1) 15.1 L (4 gal) polyethylene composite container or (1) 20 L (6 gal) polyethylene or (1) 10 L (3 gal) polyethylene or (1) 9.5 L (2.5 gal) glass

Compact Base Capacity

- (24) 575 mL polyethylene bottles
- (8) 950 mL glass bottles
- 11.4 L (3 gal) polyethylene bottle
- 9.5 L (2.5 gal) glass bottle

12 Bottle Base Capacity

- (12) 950 mL glass bottles
- 10 L (3 gal) polyethylene bottle
- 9.5 L (2.5 gal) glass bottle

Composite Base Capacity

(1) 22.7 L (6 gal) polyethylene bottle

Sampling Features

Multiple Programs

Stores up to five sampling programs

Cascade

Allows using two samplers in combination where the first sampler at the completion of the program initiates the second

Upset Sampling

When equipped with integral flow meter, pH/temperature/ORP, conductivity, and/or DO monitoring options, or triggered from an external control device, sampling can be triggered upon an upset condition when field selectable limits are exceeded; concurrent with normal sampling routine, sample liquid is deposited in designated "Trouble Bottle(s)"

Status Display

Alerts operator to low main battery, low memory battery, plugged intake, jammed distributor arm, sample collected, and purge failure

Automatic Shutdown

Multiple Bottle Mode: After complete revolution of distributor arm (unless Continuous Mode is selected)

Composite Mode: After preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container.

Sample Volume

Programmed in one mL increments from 10 to 9,999 mL

Sample Volume Repeatability ±5% typical

Interval Between Samples

Selectable in single increments from 1 to 9,999 flow pulses (momentary contact closure 25 ms or 5 to 12 Vdc pulse; 4-20 mA interface optional), or 1 to 9,999 minutes in one minute increments

Multiplex (Multiple Bottle Mode)

Programming allows multiple samples per bottle and/or multiple bottles per sample collection

Specifications continued

Sample Pump and Strainer

Sample Pump

High-speed peristaltic, dual roller, with 0.95 ID x 0.16 OD cm (3/8 ID x 5/8 in. OD) pump tube

Pump Body

Impact/corrosion resistant, glass reinforced $\text{Delrin}^{\texttt{R}}$

Vertical Lift

8.23 m (27 ft.) maximum

Note: Remote Pump Option recommended for lifts from 6.7 to 10.7 m (22 to 35 ft.)

Sample Transport Velocity

0.61 cm/s (2 ft./s) minimum, at 4.6 m (15 ft.) vertical lift in a 0.95 cm (3/8-in.) ID intake tube

Pump Flow Rate

60 mL/s at 0.91 m (3 ft.) vertical lift in a 0.95 cm (3/8-in.) ID intake line

Factory Installed Options

PH/TEMPERATURE/ORP METER

Control/Logging

Field selectable to log pH/temperature or ORP independent of sample operation or to control sample collection in response to exceeding low/high setpoints

pH/Temperature Sensor

Temperature compensated; impact resistant ABS plastic body

Combination electrode with porous $\ensuremath{\mathsf{Teflon}}\xspace^{\ensuremath{\mathbb{R}}}$ junction

Measurement Range

pH: 0 to 14 pH

Temperature: -10 to 105°C (-14 to 221°F)

Operating Temperature -18 to 80°C (0 to 176°F)

Dimensions 1.9 x 15.2 cm (0.75 x 6 in.) with 1.9 cm (0.75 in.) MPT cable end

DISSOLVED OXYGEN METER

Control/Logging

Field selectable to log dissolved oxygen independent of sampler operation or to control sample collection in response to exceeding low/high setpoints

Measurement Method Galvanic

Galvanic

Liquid Sensor

Non-wetted, non-contact, ultrasonic

Intake Purge

Air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths

Pump/Controller Housing

High impact injection molded ABS; submersible, watertight, dust tight, corrosion and ice resistant; NEMA 4X, 6

Internal Clock

Indicates real time and date; 0.007% time base accuracy

Manual Sample

Initiates a sample collection independent of program in progress

Intake Rinse

Intake line automatically rinsed with source liquid prior to each sample, from 1 to 3 rinses

Intake Retries

Sample collection cycle automatically repeated from 1 to 3 times if sample not obtained on initial attempt

Intake Tubing

9.5 mm (3/8 in.) ID vinyl or 9.5 mm (3/8 in.) ID Teflon $^{\ensuremath{\mathbb{R}}}$ lined polyethylene

Intake Strainers

Choice of Teflon[®] and 316 stainless steel construction, and all 316 stainless steel in standard size, high velocity, and low profile for shallow depth applications

Sensor

Temperature compensated; impact resistant polypropylene body

Measurement Range 0 to 20 mg/L

Resolution 0.01 mg/L

Accuracy ±3% of reading or 0.1 mg/L

Operating Temperature 0 to 50 °C (32 to 122 °F)

Dimensions

1.7 x 15.7 cm (0.65 x 6.25 in.) with 1.9 cm (0.75 in.) MPT cable end

CONDUCTIVITY METER

Control/Logging

Field selectable to log conductivity independent of sampler connection or to control sample collection in response to volume exceeding low/high setpoints

Sensor

Temperature compensated; impact resistant polypropylene body

Measurement Range 0 to 20 mS/cm

Resolution 0.01 mS/cm or 1 mS/cm Accuracy ±2% of reading or 0.01 ms

Operating Temperature 0 to 50°C (32 to 122°F)

Dimensions

1.7 x 15.2 cm (0.67 x 6 in.) with 1.9 cm (0.75 in.) MPT cable end

SUBMERGED PRESSURE TRANSDUCER

Material

Epoxy body with stainless steel diaphragm

Cable

Polyurethane sensor cable with air vent

Length: 7.6 m (25 ft.) standard; 20 m (15.24 ft.) optional

Sensor Dimensions

2 x 3.8 x 12.7 cm (0.8 x 1.5 x 5 in.)

Maximum Range

5 psi, 0.063 to 3.5 mm (0.018 to 11.5 ft.) 15 psi, 0.063 m to 10.5 m (0.018 to 34.6 ft.)

Maximum Allowable Level 3x over pressure

Operating Temperature 0 to 71°C (32 to 160°F)

Specifications continued

Compensated Temperature Range 0 to 30°C (32 to 86°F)

Air Intake

Atmospheric pressure reference is desiccant protected

SUBMERGED AREA/VELOCITY PROBE

Method

Velocity: Doppler Principle

Level: Pressure Transducer

Material

Polymer body, 316 series stainless steel diaphragm

Cable

8-conductor urethane jacketed sensor cable with air vent

Length: 7.6 m (25 ft.) standard, 76.2 m (250 ft.) maximum

Sensor Dimension 12.7 x 3.8 x 2 cm (5 x 1.5 x 0.8 in.)

Velocity Velocity Accuracy: 2% of reading

Zero Stability: <0.015 m/s (0.05 ft./s)

Response Time: 4.8 seconds

Profile Time: 4.8 seconds

Range: -1.52 to 6.1 m/s (-5 to 20 ft./s)

Resolution: 0.3 cm/s (0.01 ft./s)

Depth

Depth Accuracy: ±1.37 mm (0.054 in.) at 0 to 3.35 m (0 to 11 ft.) ±4.09 mm (0.161 in.) at 0 to10.06 m (0 to 33 ft.)

Maximum Allowable Level: 3x over pressure

Operating Temperature: 0 to 71 °C (32 to 160 °F)

Compensated Temperature Range: 0 to 30 °C (32 to 86 °F)

Temperature Error: 0.005 to $3.5 \text{ m} \pm 0.0022 \text{ m/°C}$ (0.018 to $11.5 \text{ ft} \pm 0.004 \text{ ft./°F}$) 0.005 to $10.5 \text{ m} \pm 0.006 \text{ m/°C}$ (0.018 to $34.6 \text{ ft} \pm 0.012 \text{ ft./°F}$) Maximum error within compensated temperature range per degree of change.

Velocity Induced Error on Depth (patent pending): 0 to 3.05 m/s (0 to 10 ft./s) = 0.085% of reading

Air Intake: Atmospheric pressure reference is desiccant protected

Rain Gauge Input

For use with Hach Sigma Tipping Bucket Rain Gauge

The Sampler Program can be initiated upon field selectable rate of rain

Sampler records rainfall data

Each tip = 0.25 mm (0.01 in.) of rain

Analog Input Channels

Up to 3 additional data logging channels record data from external source(s)

Field assignable units: -4.0 to +4.0 Vdc and 0 to 20 mA

4-20 mA Output

Up to 2 output signals available

User assignable

Maximum Resistive Load: 600 ohms

Output Voltage: 24 Vdc, no load

Isolation Voltage: Between flow meter and 4-20 mA output, 2500 Vac Between the two 4-20 mA outputs, 1 500 Vac

Alarm Relays

(4) 10 amp/120 Vac or 5 amp/220 Vac form C relays

±0.1% FS error

User assignable for any logged internal or external data channel or assignable event

 ${\sf Delrin}^{\mathbbm R}$ and ${\sf Teflon}^{\mathbbm R}$ are registered trademarks of E.I. du Pont de Nemours and Company

*Specifications subject to change without notice.

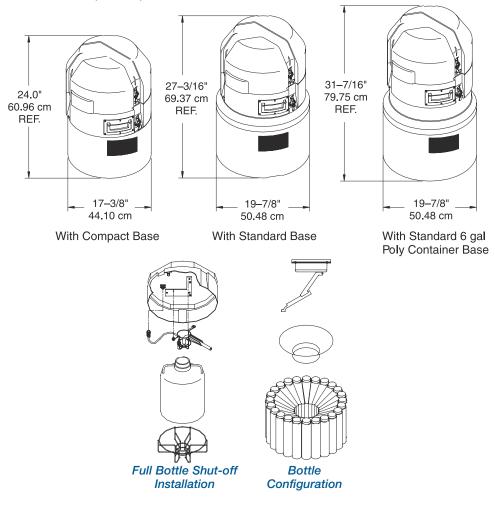
Engineering Specifications

- 1. The sampler shall be suitable for the representative collection of toxic and conventional pollutants.
- 2. The sampler shall incorporate a high-speed peristaltic pump for collection of the sample liquid.
- 3. The sample pump shall produce a minimum intake velocity of 2 feet per second at 15 feet vertical lift in a 3/8-inch ID intake line.
- 4. All electromechanical components shall be protected within a totally sealed housing conforming to NEMA 4X and 6 standards for submersible, watertight, dust-tight, and corrosion resistant operation.
- 5. The unit shall have interchangeable compact and standard bases.
- 6. The sampler base shall be double wall insulated constructed of beige ABS plastic.
- The sampler shall be convertible to discrete operation by installing a modular distribution assembly and bottle set.
- 8. The sampler shall be convertible to composite operation by installing a composite container
- 9. The controller shall have a hermetically sealed 19 key, multiple function keypad and self-prompting 8 line x 40 character back-lit liquid crystal graphics display.
- 10. The sampler shall allow for the following integral options: level meter, flow meter, pH-temperature/ORP meter, temperature meter, dissolved oxygen meter, conductivity meter, rain gauge input, and three (3) analog inputs.
- 11. The unit shall have the capability of retaining up to five complete sampling programs in memory.

- 12. The sampler shall be capable of operation in a timed or flow proportional mode.
- 13. The sampler shall be capable of rinsing the intake line with the source liquid immediately prior to sample collection.
- 14. In the event that sample liquid is not obtained on the initial attempt, the sampler shall automatically purge and repeat the collection cycle.
- 15. To permit sampling during work shifts or other specific periods, the sampler shall be programmable for up to twenty-four start/stop intervals.
- 16. The sampler case shall be of high impact vacuum-formed ABS plastic, 3-section construction.
- 17. The base(s) shall be insulated, double wall construction.
- The base shall hold (select: standard base; 32 pounds of ice with the 350 mL glass bottles in place, compact base; 8.5 pounds of ice with the 575 mL polyethylene bottles in place).
- 19. The sampler shall be provided with a 4-20mA interface allowing flow proportional sampling from an external flow meter analog output.
- 20. The sampler shall be provided with a liquid level actuator for program initiation based on a rising liquid level.
- 21. The sampler shall be provided with a full bottle cut off switch.
- 22. The sampler shall be the Sigma Model 900 Max Portable Sampler, manufactured by Hach Company

Dimensions

The Hach Sigma 900 Max Portable Sampler is designed for indoor or outdoor use. No secondary enclosure is required when operated within the specified temperature range. The sampler consists of three main sections—the top cover, the center control system, and the bottle/base section held together by stainless steel latches which serve as the connection point for the optional suspension harness. The lockable top cover protects the controller from extreme weather and unauthorized use.



Ordering Information

oller and Base Options	Bottle	Retainers (for multiple bottles)
Sigma 900 Max Portable Sampler, with controller, center sections, and top cover (complete sampler requires adding a base option) Compact Insulated Base Standard Insulated Base 12 Bottle Base Composite Insulated Base	2620 2189 1422 2347 2190	Retainer for (12) 950 mL Glass Bottles Retainer for (24) 350 mL Glass Bottles Retainer for (8) Glass, (8) Poly, (24) 575 mL Poly, and (24) 1 Liter Poly Bottles Retainer for (8) 950 mL Glass Bottles Retainer for 1 Gallon Glass and 1 Gallon Polyethylene Bottles
Options	Distrib	utors
 2.5 Gallon Glass, with Teflon-lined cap 3 Gallon Polyethylene, with cap 6 Gallon Polyethylene, with cap 6 Gallon Polyethylene, with cap Container Support Retainer/Full Container Shut-off Set of (24) 1 Liter Polyethylene, with caps Set of (24) 575 mL Polyethylene, with caps Set of (8) 950 mL Glass, with Teflon lined caps Set of (4) 1 Gallon Polyethylene, with caps Set of (2) 1 Gallon Polyethylene, with caps Set of (2) 1 Gallon Polyethylene, with caps Set of (2) 1 Gallon Polyethylene, with caps 	8582 8580 8584 8583 8581 8585	Distributor with Arm for 24 Bottle, Standard Case and 12 Bottle Base Distributor with Arm for 24 Bottle Compact Base Distributor with Arm for 2, 4 and 8 Bottle Standard Base and 8 Bottle Compact Base Distributor Arm only for 24 Bottle Standard Base and 12 Bottle Base, requires distributor assembly Distributor Arm for 24 Bottle with Compact Base, requires distributor assembly Distributor Arm for 2, 4 and 8 Bottle with Standard Base, requires distributor assembly
	Sigma 900 Max Portable Sampler, with controller, center sections, and top cover (complete sampler requires adding a base option) Compact Insulated Base Standard Insulated Base 12 Bottle Base Composite Insulated Base 2.5 Gallon Glass, with Teflon-lined cap 3 Gallon Polyethylene, with cap 6 Gallon Polyethylene, with cap 6 Gallon Polyethylene, with cap Container Support Retainer/Full Container Shut-off Set of (24) 1 Liter Polyethylene, with caps Set of (24) 575 mL Polyethylene, with caps Set of (8) 950 mL Glass, with Teflon lined caps Set of (4) 1 Gallon Polyethylene, with caps Set of (4) 1 Gallon Glass, with Teflon lined caps Set of (2) 1 Gallon Polyethylene, with caps	Sigma 900 Max Portable Sampler, with controller, center sections, and top cover (complete sampler requires adding a base option)2620 2189 1422Compact Insulated Base Standard Insulated Base Composite Insulated Base2347 219012 Bottle Base Composite Insulated Base2347 21902.5 Gallon Glass, with Teflon-lined cap 3 Gallon Polyethylene, with cap 6 Gallon Polyethylene, with cap Container Support8580 85848583 Set of (24) 1 Liter Polyethylene, with caps Set of (4) 1 Gallon Polyethylene, with caps Set of (4) 1 Gallon Polyethylene, with caps Set of (2) 1 Gallon Polyethylene, with caps

Continued on next page.

Ordering Information continued

Intake Tubing and Strainers

922	25 ft. Teflon Lined Polyethylene Tubing, 3/8-in. ID (requires Prod. No. 2186 Connection Kit)
2186	Connector Kit, for Teflon lined polyethylene tubing
920	25 ft. Vinyl Intake Tubing, 3/8-in ID
2070	Strainer, all 316 stainless steel
2071	Strainer, for shallow depth applications, all 316 stainless steel
4652	Strainer, high velocity and shallow dept

Pump Tubing

4600-15	Pump	Tubing,	15 ft.

8964 Pump Tube Insert

Integral Water Quality Parameters

8793	Integral pH-Temp/ORP Option, factory installed

- 3328 pH-Temperature Probe (grounded), with 25 ft. cable
- 3227 DO and Conductivity Receptacle, factory installed
- 3216 Kit, D.O. Probe, with 25 ft. Cable
- 3223 Conductivity Probe only, with 25 ft. cable

4-20 mA Input

8795 Three (3) Analog Input Data Logging Channels

4-20 mA Output

 8797
 First 4-20 mA Output

 8798
 Second 4-20 mA Output

Alarm Relays

8984 Four (4) Alarm Relays

Modem

1602 Modem, 14,400 baud

Rain Gauge

8800 Rain Gauge Receptacle, factory installed

Cables and Interfaces

1727	Sampler or Flow Meter to PC Cable
3358	RS-232 Extension Cable

Accessories

1355	Suspension Harness (suspends the sampler)
9542	Manhole Support Bracket/Spanner, 18 to 28 in.
9557	Manhole Support Bracket/Spanner, 28 to 48 in.
5713000	Manhole Support Bracket, 18 to 27 in.
943	Liquid Level Actuator, 25 ft. cable

At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...

Keep it pure.

Make it simple.

Be right.

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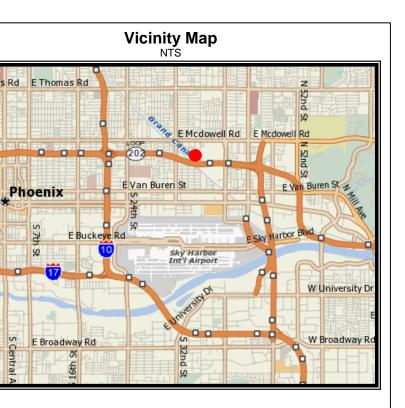


APPENDIX I Current MS4 Monitoring Locations



ing MS4 Site Map Exis .× F ം e, Map E 5 g Sa tial MS4 Rep la 2009 Anr \$\710 -De 2009\700 g Sa 05 V:\308032

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Photograph: Outfall at basin looking South

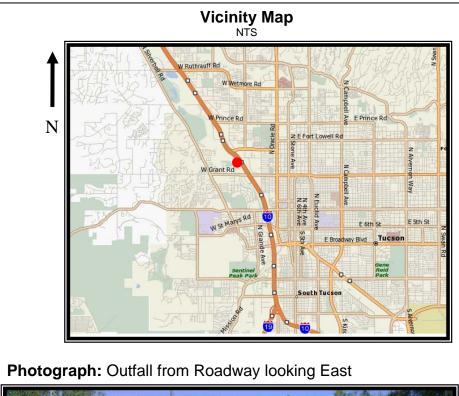


FIGURE 6 Existing MS4 Sampling Location Phoenix, Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION AZPDES STORM WATER MONITORING SITE

Engineering and Environmental Consultants, Inc. 7878 North 16th Street, Suite 140, Phoenix, AZ 85020









Map

Existing MS4 Site

Tucson

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- ADOT Grant Road Maintenance Yard





Figure 7 Existing MS4 Sampling Location Tucson, Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION AZPDES STORM WATER MONITORING SITE

Engineering and Environmental Consultants, Inc. 7878 North 16th Street, Suite 140, Phoenix, AZ 85020

APPENDIX J Summary of MS4 Monitoring Data

ADOT's Phoenix Area MS4 Monitoring Data

OUTFALL ID: 202-2.36 - ADOT's Phoenix Area MS	4			MON		EASONS					
RECEIVING WATER: Retention Basin				Summe	er: June 1-	October 3 ⁴	1				
RECEIVING WATER. Retention Basin		Winter: November 1-May 31									
DESIGNATED USES: Water Retention		Winter 2008 09	Summer 2009	Winter 2009-10	Summer 2010	Winter 2010-11	Summer 2011	Winter 2011-12	Summer 2012	Winter 2012-13	Summer 2013
	SAMPLING DATE		Summer 2009	2009-10	2010	2010-11	2011	2011-12	2012	2012-13	2013
MONITORING PARAMETERS		12/17/08									
Flow	WQS NNS	1.7gpm			-						
pH	5.0-9.0	7.75									
Temperature (F°)	5.0-9.0 NNS	54.4									
Hardness	NNS	180									
Specific conductance (mg/L)	NNS	550									
Total Dissolved Solids (TDS) (mg/L)	500.00	290									
Total Suspended Solids (TSS) (mg/L)	NNS	85									
Turbidity (NTU)	NNS	49									
Biochemical Oxygen Demand (BOD) (mg/L)	NNS	13									
Chemical Oxygen Demand (COD) (mg/L)	NNS	110									
Inorganics											
Cyanide (mg/L)	0.20	<0.0050									
Sulfates (mg/L)	250.00	56									
Nutriants											
Nitrate (mg/L)	10.00	3.3									
Nitrite (mg/L)	1.00	0.19									
Total Kjeldahl Nitrogen (TKN) (mg/L)	NNS	3									
Total Phosphorous (mg/L)	NNS	-									
Phosphate, Ortho (mg/L)	NNS	<0.12									
Total Nitrogen (mg/L)	NNS	-									
Total Amonia (mg/L)	NNS	0.66									
Sodium (mg/L)	NNS	49									
Calcium (mg/L)	NNS	46									
Chloride (mg/L)	NNS	69									
Microbiological											
Coliform, fecal (col/100 ml)	NNS	>1,200									
E.Coli (cfu/100 ml)	100.00	>24,200									

OUTFALL ID: 202-2.36 - ADOT's Phoenix Area MS4				MON		EASONS							
RECEIVING WATER, Retartion Resin				Summe	er: June 1-	October 3 ²	l						
RECEIVING WATER: Retention Basin		Winter: November 1-May 31											
DESIGNATED USES: Water Retention		Winter 2008		Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer		
		09	Summer 2009	2009-10	2010	2010-11	2011	2011-12	2012	2012-13	2013		
Total Metals													
Antimony (mg/L)	0.006	<0.020											
Arsenic (mg/L)	0.050	<0.021											
Barium (mg/L)	2.000	0.098											
Beryllium (mg/L)	0.004	<0.0020											
Cadmium (mg/L)	0.005	<0.0050											
Chromium (mg/L)	0.100	<0.010											
Copper (mg/L)	1.300	0.023											
Lead (mg/L)	0.015	0.0084											
Mercury (mg/L)	0.002	<0.00020											
Nickel (mg/L)	0.140	<0.020											
Selenium (mg/L)	0.020	<0.020											
Silver (mg/L)	NNS	<0.010											
Zinc (mg/L)	2.10	0.053											
Organic Toxic Pollutnats													
Total Petroleum Hydrobarbons (TPH) (mg/L)	NNS	0.73											
Oil & Grease (Hexane Extr) (mg/L)	NNS	<5.0											
Chlorine, residual (mg/L)	0.70000	0.2											
VOCs, Semi-VOCs and Pesticides													
Benzene (mg/L)	0.0050	<0.00050											
Ethylbenzene (mg/L)	0.0050	0.00068											
Toluene (mg/L)	1.00	<0.0050											
Total Xylene (mg/L)	10.00	0.0039											
Chromium, Trivalent (mg/L)	NNS	<0.010											
MBAS (mg/L)	NNS	0.3											
Endrin ketone (mg/L)	NNS	<0.00050											
Hexachlorobenzene (mg/L)	0.001	<0.00050											
Methoxychlor (mg/L)	0.004	<0.00050											
Benzidine (mg/L)	0.000	<0.050											
Bis(2-chlorethoxy)methane (mg/L)	NNS	<0.010											

OUTFALL ID: 202-2.36 - ADOT's Phoenix Area MS4				MON		EASONS							
RECEIVING WATER: Retention Recin				Summe	er: June 1-	October 3 ⁻	I						
RECEIVING WATER: Retention Basin		Winter: November 1-May 31											
DESIGNATED USES: Water Retention		Winter 2008 09	Summer 2009	Winter 2009-10	Summer 2010	Winter 2010-11	Summer 2011	Winter 2011-12	Summer 2012	Winter 2012-13	Summer 2013		
Bis(2-chloroethyl)ether (mg/L)	0.030	<0.010											
Bis(2-chloroisopropyl)ether (mg/L)	0.280	<0.010											
4-Bromophenyl-phenylether (mg/L)	NNS	<0.010											
2-Chloronaphthalene (mg/L)	NNS	<0.010											
4-Chlorophenyl-phenylether (mg/L)	NNS	<0.010											
3,3-Dichlorobenzidine (mg/L)	0.0031	<0.010											
2,4-Dinitrotoluene (mg/L)	0.0140	<0.010											
2,6-Dinitrotoluene (mg/L)	0.0001	<0.010											
Hexachlorobenzene (mg/L)	0.0010	<0.010											
Hexachloro-1,3-butadiene (mg/L)	NNS	<0.010											
Hexachlorocyclopentadiene (mg/L)	0.0500	<0.010											
Hexachloroethane (mg/L)	0.0025	<0.010											
Indeno(1,2,3-cd)pyrene (mg/L)	0.0005	<0.0010											
Isophorone (mg/L)	0.0370	<0.010											
Nitrobenzene (mg/L)	0.0035	<0.010											
n-Nitrosodimethylamine (mg/L)	0.0080	<0.050											
n-Nitrosodiphenylamine (mg/L)	0.0071	<0.010											
n-Nitrosodi-n-propylamine (mg/L)	0.0050	<0.010											
Benzylbutyl phthalate (mg/L)	NNS	<0.010											
Bis(2-ethylhexyl)phthalate (mg/L)	NNS	<0.010											
1,2,4-Trichlorobenzene (mg/L)	0.070	<0.010											
4-Chloro-3-methylphenol (mg/L)	NNS	<0.010											
4,6-Dinitro-2-methylphenol (mg/L)	NNS	<0.010											
Acid Compounds													
2-Chlorophenol (mg/L)	0.035	<0.010											
2,4-Dichlorophenol (mg/L)	0.021	<0.010											
2,4-Dimethylphenol (mg/L)	0.140	<0.010											
2,4-Dinitrophenol (mg/L)	0.014	<0.010											
2-Nitrophenol (mg/L)	NNS	<0.010											
4-Nitrophenol (mg/L)	NNS	<0.010											
Pentachlorophenol (mg/L)	0.001	<0.010											

OUTFALL ID: 202-2.36 - ADOT's Phoenix Area MS4			MON	TORING S	EASONS							
RECEIVING WATER: Retention Basin		Summer: June 1-October 31										
		Winter: November 1-May 31										
DEGIONIATED LIGES, Water Detention		Winter 2008	•	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	
DESIGNATED USES: Water Retention		09	Summer 2009	2009-10	2010	2010-11	2011	2011-12	2012	2012-13	2013	
Phenol (mg/L)	4.20	<0.010										
2,4,6-Trichlorophenol (mg/L)	0.00320	<0.010										

OUTFALL ID: 202-2.36 - ADOT's Phoenix Area MS4		MONITORING SEASONS											
RECEIVING WATER, Retention Regin				Summe	er: June 1-0	October 31	l						
RECEIVING WATER: Retention Basin		Winter: November 1-May 31											
DESIGNATED USES: Water Retention		Winter 2008		Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer		
Bases/Neutrals		09	Summer 2009	2009-10	2010	2010-11	2011	2011-12	2012	2012-13	2013		
Acenaphthene (mg/L)	0.42	<0.0010											
Acenaphthylene (mg/L)	NNS	<0.0010											
Anthracene (mg/L)	2.10	<0.0010											
Benzo(a)anthracene (mg/L)	0.00190	<0.0010											
Benzo(a)pyrene (mg/L)	0.00020	<0.0010											
Benzo(b)fluoranthene (mg/L)	NNS	<0.0010											
Benzo(g,h,i)perylene (mg/L)	NNS	<0.0010											
Benzo(k)fluoranthene (mg/L)	0.0480	<0.0010											
Chrysene (mg/L)	0.00479	<0.0010											
Dibenzo(a,h)anthracene (mg/L)	0.00190	<0.0010											
Diethyl phthalate (mg/L)	5.60	<0.0010											
Dimethyl phthalate (mg/L)	NNS	<0.010											
Di-n-butyl phthalate (mg/L)	NNS	< 0.010											
Di-n-octyl phthalate (mg/L)	2.80	< 0.010											
Fluoranthene (mg/L)	0.28	<0.0010											
Fluorene (mg/L)	0.28	<0.0010											
Naphthalene (mg/L)	0.14	<0.0010											
Phenanthrene (mg/L)	NNS	<0.0010											
Pyrene (mg/L)	0.21	<0.0010											
Pesticides													
Aldrin (mg/L)	0.0020	<0.00050											
Alpha BHC (mg/L)	NNS	<0.00050											
Beta BHC (mg/L)	NNS	<0.00050											
Delta BHC (mg/L)	NNS	<0.00050											
Gamma BHC (mg/L)	NNS	<0.00050											
Chlordane (mg/L)	0.0020	<0.0050											
4,4-DDD (mg/L)	NNS	<0.00050											
4,4-DDE (mg/L)	NNS	<0.00050											
4,4-DDT (mg/L)	NNS	<0.00050											
Dieldrin (mg/L)	0.0020	<0.00050											

OUTFALL ID: 202-2.36 - ADOT's Phoenix Area I	NS4		MONITORING SEASONS											
RECEIVING WATER: Retention Basin			Summer: June 1-October 31											
			Winter: November 1-May 31											
Winter 2008WinterSummerWinterSummerWinterSummerWinter09Summer 20092009-1020102010-11201120112011-12					Summer 2012	Winter 2012-13	Summer 2013							
Endosulfan I (mg/L)	NNS	<0.00050												
Endosulfan II (mg/L)	NNS	<0.00050												
Endosulfan sulfate (mg/L)	NNS	<0.00050												
Endrin (mg/L)	0.0020	<0.00050												
Endrin aldehyde (mg/L)	NNS	<0.00050												
Heptachlor (mg/L)	0.00040	<0.00050												
Heptachlor epoxide (mg/L)	0.00020	<0.00050												
Toxaphene (mg/L)	NNS	<0.010												

ADOT's Tucson Area MS4 Monitoring Data

OUTFALL ID: ADOT's Tucson Area MS4				MONITO	ORING SE	ASONS							
RECEIVING WATER: Santa Cruz				Summer:	June 1-Oc	tober 31:							
RECEIVING WATER. Sand Cluz			Winter: November 1-May 31										
DESIGNATED USES: ADOT Facility			Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer		
-		Winter 2008-09	2009	2009-10	2010	2010-11	2011	2011-12	2012	2012-13	2013		
	-	12/1/08	6/30/09										
MONITORING PARAMETERS	WQS			1	1	1	1 1						
Flow	NNS	-	-										
pH	6.5-8.5	-	-										
Temperature (F°)	NNS	62.3	88.1										
Hardness	NNS	250											
Total Dissolved Solids (TDS) (mg/L)	500	680*	680*										
Total Suspended Solids (TSS) (mg/L)	NNS	110	160										
Turbidity (NTU)	NNS	94	-										
Biochemical Oxygen Demand (BOD) (mg/L)	NNS	65	44										
Chemical Oxygen Demand (COD) (mg/L)	NNS	560	640										
Inorganics													
Cyanide, total (mg/L)	0.2	0.0059	<0.0050										
Sulfates (mg/L)	250	110	68										
Nutriants													
Nitrate (mg/L)	1	<0.10	0.21										
Nitrite (mg/L)	10	<0.10	<0.10										
Total Ammonia (mg/L)	NNS	6.2	6.7										
Total Kjeldahl Nitrogen (TKN) (mg/L)	NNS	12	14										
Total Phosphorous (mg/L)	NNS	0.42	0.36										
Phosphate, Ortho (mg/L)	NNS	0.62	<0.12										
Sodium (mg/L)	NNS	-	18										
Calcium (mg/L)	NNS	-	100										
Chloride (mg/L)	10	26	19										
Microbiological													
Coliform, fecal (col/100 ml)	NNS	-	-										
E.Coli (cfu/100 ml)	100.00	-	-										

OUTFALL ID: ADOT's Tucson Area MS4		MONITORING SEASONS									
				Summer:	June 1-Oc	tober 31					
RECEIVING WATER: Santa Cruz		Winter: November 1-May 31									
DESIGNATED USES: ADOT Facility		Winter 2008-09	Summer 2009	Winter 2009-10	Summer 2010		Summer 2011	Winter 2011-12	Summer 2012	Winter 2012-13	Summer 2013
Total Metals											
Antimony (mg/L)	0.00600	-	0.0046								
Arsenic (mg/L)	0.05000	<0.020	0.003								
Barium (mg/L)	2.0T	0.2	0.2								
Beryllium (mg/L)	0.00400	<0.0050	<0.0020								
Cadmium (mg/L)	0.00500	-	<0.0050								
Chromium (mg/L)	0.1T	<0.010	<0.010								
Copper (mg/L)	1.3T	-	0.033								
Lead (mg/L)	0.015T	0.015	<0.0050								
Mercury (mg/L)	0.00200	<0.00020	<0.00020								
Nickel (mg/L)	0.14000	-	<0.020								
Selenium (mg/L)	0.02000	<0.020	0.02								
Silver (mg/L)	NNS	<0.010	<0.010								
Zinc (mg/L)	2.1T	-	0.18								
Organic Toxic Pollutnats											
Total Petroleum Hydrobarbons (TPH) (mg/L)	NNS	6.2	-								
Oil & Grease (Hexane Extr) (mg/L)	NNS	<5.6	<6.7								
Chlorine, residual (mg/L)	0.7	<0.10	-								
VOCs, Semi-VOCs and Pesticides											
Benzene (mg/L)	0.005	<0.0010	<0.00050								
Ethylbenzene (mg/L)	0.70000	<0.0010	<0.00050								
Toluene (mg/L)	1.00000	<0.0050	<0.0050								
Total Xylene (mg/L)	10.00000	<0.0030	<0.0015								
Chromium, Hexavalent (mg/L)	NNS	-	<0.010								
Chromium, Trivalent (mg/L)	NNS	-	<0.010								
MBAS (mg/L)	NNS	-	11								
Phosphorus, Total	NNS	0.42	0.36								
Specific conductance (mg/L)	NNS	720	690								
Total Nitrogen (mg/L)	NNS	12	-								
Toluene - d8 (mg/L)	NNS	99	-								
Dibromofluoromethane (mg/L)	TTHM	100	-								

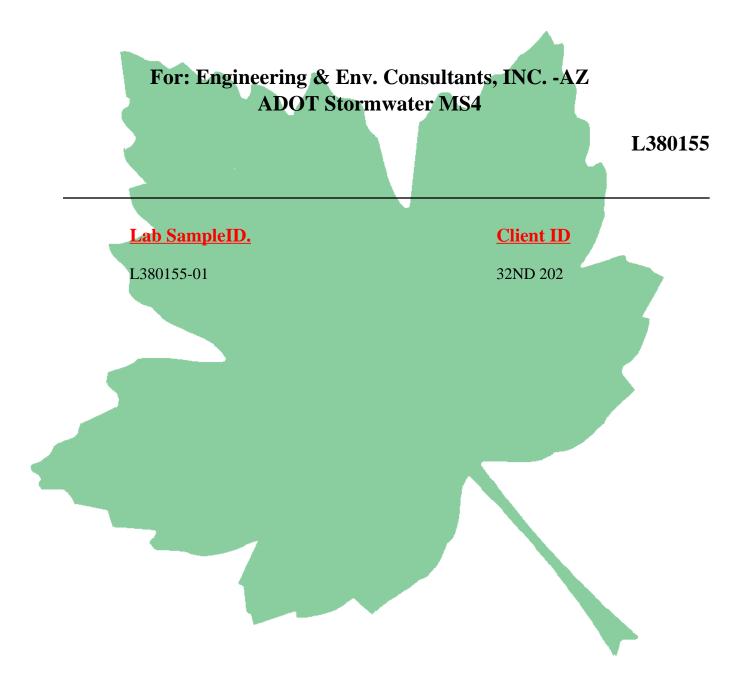
OUTFALL ID: ADOT's Tucson Area MS4			MONITORING SEASONS Summer: June 1-October 31								
RECEIVING WATER: Santa Cruz											
RECEIVING WATER. Santa Cruz				Winter: N	lovember [·]	1-May 31					
DESIGNATED USES: ADOT Facility		Winter 2008-09	Summer 2009	Winter 2009-10	Summer 2010	Winter 2010-11	Summer 2011	Winter 2011-12	Summer 2012	Winter 2012-13	Summer 2013
Endrin ketone (mg/L)	NNS	-	<0.000050								
Hexachlorobenzene (mg/L)	0.00100	-	<0.000050								
Methoxychlor (mg/L)	0.00400	-	<0.000050								
Benzidine (mg/L)	0.00020	-	<0.050								
Bis(2-chlorethoxy)methane (mg/L)	NNS	-	<0.010								
Bis(2-chloroethyl)ether (mg/L)	0.03000	-	<0.010								
Bis(2-chloroisopropyl)ether (mg/L)	0.28000	-	<0.010								
4-Bromophenyl-phenylether (mg/L)	NNS	-	<0.010								
2-Chloronaphthalene (mg/L)	NNS	-	<0.010								
4-Chlorophenyl-phenylether (mg/L)	NNS	-	<0.010								
3,3-Dichlorobenzidine (mg/L)	0.00310	-	<0.010								
2,4-Dinitrotoluene (mg/L)	0.01400	-	<0.010								
2,6-Dinitrotoluene (mg/L)	0.00005	-	<0.010								
Hexachlorobenzene (mg/L)	0.00100	-	<0.010								
Hexachloro-1,3-butadiene (mg/L)	NNS	-	<0.010								
Hexachlorocyclopentadiene (mg/L)	0.05000	-	<0.010								
Hexachloroethane (mg/L)	0.00250	-	<0.010								
Isophorone (mg/L)	0.03700	-	<0.010								
Nitrobenzene (mg/L)	0.00350	-	<0.010								
n-Nitrosodimethylamine (mg/L)	0.00800	-	<0.050								
n-Nitrosodiphenylamine (mg/L)	0.00710	-	<0.010								
n-Nitrosodi-n-propylamine (mg/L)	0.00500	-	<0.010								
Benzylbutyl phthalate (mg/L)	NNS	-	<0.010								
Bis(2-ethylhexyl)phthalate (mg/L)	NNS	-	<0.010								
1,2,4-Trichlorobenzene (mg/L)	0.07000	-	<0.010								
4-Chloro-3-methylphenol (mg/L)	NNS	-	<0.010								
4,6-Dinitro-2-methylphenol (mg/L)	NNS	-	<0.010								

OUTFALL ID: ADOT's Tucson Area MS4				MONIT	ORING SE	ASONS					
RECEIVING WATER: Santa Cruz		Summer: June 1-October 31									
RECEIVING WATER. Santa Cluz		Winter: November 1-May 31									
DESIGNATED USES: ADOT Facility		Winter 2008-09	Summer 2009	Winter 2009-10	Summer 2010	Winter 2010-11	Summer 2011	Winter 2011-12	Summer 2012	Winter 2012-13	Summer 2013
Acid Compounds											
2-Chlorophenol (mg/L)	0.03500	-	<0.010								
2,4-Dichlorophenol (mg/L)	0.02100	-	<0.010								
2,4-Dimethylphenol (mg/L)	0.14000	-	<0.010								
2,4-Dinitrophenol (mg/L)	0.01400	-	<0.010								
2-Nitrophenol (mg/L)	NNS	-	<0.010								
4-Nitrophenol (mg/L)	NNS	-	<0.010								
Pentachlorophenol (mg/L)	0.00100	-	<0.010								
Phenol (mg/L)	4.20000	-	<0.010								
2,4,6-Trichlorophenol (mg/L)	0.00320	-	<0.010	1							
Bases/Neutrals											
Acenaphthene (mg/L)	0.42000	-	<0.010								
Acenaphthylene (mg/L)	NNS	-	<0.010								
Anthracene (mg/L)	2.10000	-	<0.010								
Benzo(a)anthracene (mg/L)	0.00190	-	<0.010								
Benzo(a)pyrene (mg/L)	0.00020	-	<0.010								
Benzo(b)fluoranthene (mg/L)	NNS	-	<0.010								
Benzo(g,h,i)perylene (mg/L)	NNS	-	<0.010								
Benzo(k)fluoranthene (mg/L)	0.04800	-	<0.010								
Chrysene (mg/L)	0.00479	-	<0.010								
Dibenz(a,h)anthracene (mg/L)	0.00190	-	<0.010								
Diethyl phthalate (mg/L)	5.60000	-	<0.010								
Dimethyl phthalate (mg/L)	NNS	-	<0.010								
Di-n-butyl phthalate (mg/L)	NNS	-	<0.010								
Di-n-octyl phthalate (mg/L)	2.80000	-	<0.010								
Fluoranthene (mg/L)	0.28000	-	<0.010								
Fluorene (mg/L)	0.28000	-	<0.010								
Indeno(1,2,3-cd)pyrene (mg/L)	0.00048	-	<0.010								
Naphthalene (mg/L)	0.14000	-	<0.010								
Phenanthrene (mg/L)	NNS	-	<0.010								
Pyrene (mg/L)	0.21000	-	<0.010								

OUTFALL ID: ADOT's Tucson Area MS4		MONITORING SEASONS									
RECEIVING WATER: Santa Cruz		Summer: June 1-October 31									
RECEIVING WATER. Saina Cruz		Winter: November 1-May 31									
DESIGNATED USES: ADOT Facility		Winter 2008-09	Summer 2009	Winter 2009-10	Summer 2010	Winter 2010-11	Summer 2011	Winter 2011-12	Summer 2012	Winter 2012-13	Summer 2013
Pesticides											
Aldrin (mg/L)	0.00200	-	<0.000050								
Alpha BHC (mg/L)	NNS	-	<0.000050								
Beta BHC (mg/L)	NNS	-	<0.000050								
Delta BHC (mg/L)	NNS	-	<0.000050								
Gamma BHC (mg/L)	NNS	-	<0.000050								
Chlordane (mg/L)	0.00200	-	<0.00050								
4,4-DDD (mg/L)	NNS	-	<0.000050								
4,4-DDE (mg/L)	NNS	-	<0.000050								
4,4-DDT (mg/L)	NNS	-	<0.000050								
Dieldrin (mg/L)	0.00200	-	<0.000050								
Endosulfan I (mg/L)	NNS	-	<0.000050								
Endosulfan II (mg/L)	NNS	-	<0.000050								
Endosulfan sulfate (mg/L)	NNS	-	<0.000050								
Endrin (mg/L)	0.00200	-	<0.000050								
Endrin aldehyde (mg/L)	NNS	-	<0.000050								
Heptachlor (mg/L)	0.00040	-	<0.000050								
Heptachlor epoxide (mg/L)	0.00020	-	<0.000050								
Toxaphene (mg/L)	NNS	-	<0.00050								

APPENDIX K Lab Reports

ADOT's Phoenix Area MS4 Lab Reports



(615) 758-5858 1-800-767-5859 Fax (615) 758-5859



For: Engineering & Env. Consultants, INC. -AZ Project: ADOT Stormwater MS4 L380155

SDG: L380155

January 14, 2009

Sample Receiving and Handling

All sample aliquots were received at the correct temperature, in the proper containers, and with the appropriate preservatives. All method specified holding times were met.

Anions by Method 9056

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399086. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Sample Duplicate Analysis

For analytical batch WG399086 sample duplicate analysis was performed on sample L380114-01. The relative percent differences were within the method limits.

For analytical batch WG399086 sample duplicate analysis was performed on sample L380156-01. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399086 matrix spike/matrix spike duplicate analysis was performed on sample L380114-02. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

MBAS by Method 5540C

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG398713. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG398713 sample duplicate analysis was performed on sample L379673-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG398713, matrix spike/matrix spike duplicate analysis was performed on sample L379673-01. The spike recoveries were above the laboratory control limits. The relative percent difference was within control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

BOD by Method SM5210B

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399074. The laboratory control sample associated with this sample was within the laboratory control limits.



For: Engineering & Env. Consultants, INC. -AZ Project: ADOT Stormwater MS4 L380155

SDG: L380155

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Sample Duplicate Analysis

For analytical batch WG399074 sample duplicate analysis was performed on sample L380148-01. The relative percent difference was within the method limits.

For analytical batch WG399074 sample duplicate analysis was performed on sample L380102-01. The relative percent difference exceeded the method limits.

For analytical batch WG399074 sample duplicate analysis was performed on sample L380085-01. The relative percent difference was within the method limits.

For analytical batch WG399074 sample duplicate analysis was performed on sample L380212-02. The relative percent difference was within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Ammonia Nitrogen by Method 350.1

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399210. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399210 sample duplicate analysis was performed on sample L379979-02. The relative percent difference exceeded the method limits.

For analytical batch WG399210 sample duplicate analysis was performed on sample L380186-01. The relative percent difference exceeded the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399210, matrix spike/matrix spike duplicate analysis was performed on sample L380175-01. The spike recoveries were above the laboratory control limits. The relative percent difference was within control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Turbidity by Method SM2130B

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399220. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399220 sample duplicate analysis was performed on sample L380186-04. The relative percent difference was within the method limits.



For: Engineering & Env. Consultants, INC. -AZ Project: ADOT Stormwater MS4 L380155

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Matrix Spike/Matrix Spike Duplicate

Precision for batch WG399220 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Chromium, Hexavalent by Method 7196A

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399222. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399222 sample duplicate analysis was performed on sample L380168-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399222, matrix spike/matrix spike duplicate analysis was performed on sample L380170-01. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Phosphate, Ortho by Method 4500P-E

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399223. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399223 sample duplicate analysis was performed on sample L380155-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399223, matrix spike/matrix spike duplicate analysis was performed on sample L380211-01. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Dissolved Solids by Method 2540C

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399305. The laboratory control sample associated with this sample was within the laboratory control limits.



For: Engineering & Env. Consultants, INC. -AZ Project: ADOT Stormwater MS4 L380155

SDG: L380155

January 14, 2009

Sample Duplicate Analysis

For analytical batch WG399305 sample duplicate analysis was performed on sample L380210-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG399305 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Suspended Solids by Method 2540D

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399308. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399308 sample duplicate analysis was performed on sample L380155-01. The relative percent difference was within the method limits.

For analytical batch WG399308 sample duplicate analysis was performed on sample L380338-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG399308 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

E.Coli by Method 909A

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399404. The assocated laboratory quality control samples were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Kjeldahl Nitrogen, TKN by Method 351.2

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399530. The laboratory control sample associated with this sample was within the laboratory control limits.



For: Engineering & Env. Consultants, INC. -AZ Project: ADOT Stormwater MS4 L380155

SDG: L380155

January 14, 2009

Sample Duplicate Analysis

For analytical batch WG399530 sample duplicate analysis was performed on sample L380166-08. The relative percent difference was within the method limits.

For analytical batch WG399530 sample duplicate analysis was performed on sample L380088-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399530, matrix spike/matrix spike duplicate analysis was performed on sample L380357-01. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Cyanide by Method 9012B

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399534. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399534 sample duplicate analysis was performed on sample L380155-01. The relative percent difference was within the method limits.

For analytical batch WG399534 sample duplicate analysis was performed on sample L380566-02. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399534, matrix spike/matrix spike duplicate analysis was performed on sample L380542-01. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

COD by Method 410.4

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399759. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399759 sample duplicate analysis was performed on sample L380626-01. The relative percent difference was within the method limits.

For analytical batch WG399759 sample duplicate analysis was performed on sample L379892-01. The relative percent difference was within the method limits.



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SDG: L380155

January 14, 2009

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399759, matrix spike/matrix spike duplicate analysis was performed on sample L380365-02. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Hardness by Method 130.1

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399799. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399799 sample duplicate analysis was performed on sample L379918-02. The relative percent difference exceeded the method limits.

For analytical batch WG399799 sample duplicate analysis was performed on sample L380361-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399799, matrix spike/matrix spike duplicate analysis was performed on sample L379918-04. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Chlorine, residual by Method 4500Cl-G

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399941. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399941 sample duplicate analysis was performed on sample L380155-01. The relative percent difference was within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Specific Conductance by Method 9050A

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399962. The laboratory control sample associated with this sample was within the laboratory control limits.



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SDG: L380155

January 14, 2009

Sample Duplicate Analysis

For analytical batch WG399962 sample duplicate analysis was performed on sample L380397-01. The relative percent difference was within the method limits.

For analytical batch WG399962 sample duplicate analysis was performed on sample L380156-03. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG399962 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Oil & Grease (Hexane Extr) by Method

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG400016. The laboratory control sample associated with this sample was within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG400016 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Mercury by Method 7470A

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399178. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG399178 sample duplicate analysis was performed on sample L380186-02. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399178, matrix spike/matrix spike duplicate analysis was performed on sample L380186-02. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Trace Metals by Method 6010B

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399629. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.



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January 14, 2009

Sample Duplicate Analysis

For analytical batch WG399629 sample duplicate analysis was performed on sample L380350-09. The relative percent difference exceeded the method limits for Selenium.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399629 matrix spike/matrix spike duplicate analysis was performed on sample L380350-09. The matrix spike recoveries were below laboratory control limits for Silver. The spike recoveries for the remaining target compounds were within limits. The relative percent difference was within laboratory limits for all compounds. Post digestion spike recoveries were within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Method 8021B

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399252. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399252 matrix spike/matrix spike duplicate analysis was performed on sample L380155-01. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Pesticides by Method 8081

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399143. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG399143 was evaluated using the LCS / LCSD. The RPDs were within method limits on both columns.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Semi-Volatiles by Method 8270C

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399666. The laboratory control sample associated with this sample had all target compounds within method limits except for Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, and Benzo(g,h,i)perylene.



For: Engineering & Env. Consultants, INC. -AZ Project: ADOT Stormwater MS4 L380155

SDG: L380155

January 14, 2009

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG399666 matrix spike/matrix spike duplicate analysis was performed on sample L380186-02. The matrix spike recoveries were below laboratory control limits for Phenol, 2-Chlorophenol, 2,4-Dimethylphenol, 2,4-Dichlorophenol, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, Di-n-octyl phthalate, Benzo(a)pyrene, and Benzo(g,h,i)perylene. The spike recoveries for the remaining target compounds were within limits. The relative percent difference exceeded laboratory limits for 2,4-Dimethylphenol, 2,4,6-Trichlorophenol, Benzidine, Indeno(1,2,3-cd)pyrene, and Benzo(g,h,i)perylene.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Diesel Range Organics by Method 8015

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399357. The laboratory control sample associated with this sample was within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG399357 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Polynucluear Aromatic Hydrocarbons by Method 8310

Laboratory Control Sample

Sample L380155-01 was analyzed in analytical batch WG399459. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG399459 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nancy F. Winters ESC Representative Environmental Science Corporation



12065 Lebanon Rd. Mt. Juliet, TN 37122 (615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Gary Hoffman Engineering & Env. Consultants, INC. -AZ 7878 N. 16th Street, Suite 140

Phoenix, AZ 85020

Report Summary

Tuesday January 13, 2009

Report Number: L380155 Samples Received: 12/18/08 Client Project: 308032.01

Description: ADOT-Superior

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Laboratory Certification Numbers

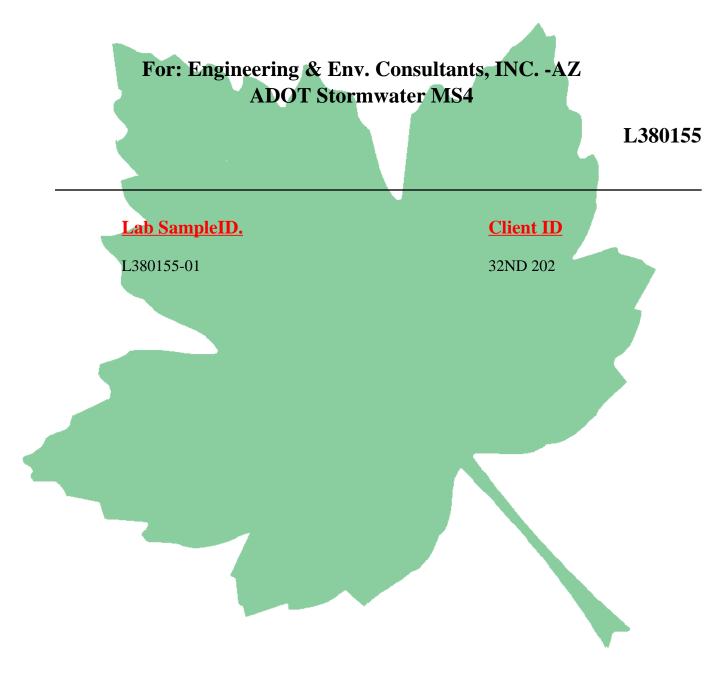
A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487 GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140 NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233 AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

Richards,

**ESC

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> 1 Samples Reported: 01/13/09 16:22 Printed: 01/13/09 16:22 Page 1 of 8



(615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Enviro	nmental Scier	nce Corporatio	on	SAMP	LE NUME 32ND 2	
Customer :		v. Consultants, INC		:	308032.0	1
Source :		··· consultants, n.c.		mpled :		<u>-</u>)8 9:00 AM
Location :	ADOT Stormwate	r MS4	Sample	-	Gary Hof	
Lab Sample ID		<u>1 1010+</u>	-	eceived :	<u>12/18/200</u>	
*	<u>. LJ00155-01</u>		Date K	<u> </u>	12/10/200	0
9056	G2 0000 C	1 1 D 1 10/10	12000		T : 5 (0)	
Analytic Batch: We Instrument: IC3	6399086	Analysis Date: 12/18	/2008		s Time: 5:40	
Method: 9056		Analyst: 159 Dilution: 1		Preparat	ion Date: 12/	18/2008 9:51
Method. 9030						
CAS NO	Analyte		RL	R	ESULTS	FLAG
	<i></i>		mg/l	m	g/l	_
16887-00-6	Chloride		1.0	69)	
14797-55-8	Nitrate		0.10	3.	3	
14797-65-0	Nitrite		0.10		19	
14808-79-8	Sulfate		5.0	50	6	
SM5210B						
Analytic Batch: W	G399074	Analysis Date: 12/18	/2008	Analysis	s Time: 11:00	
Instrument: NONE		Analyst: 421		Preparat	ion Date:	
Method: SM5210B		Dilution: 1				
CAS NO	Analyte		RL		ESULTS	FLAG
	BOD		<u>mg/l</u> 5.0	<u> </u>	g/l	
	DOD		5.0	1.	,	
4500Cl-G	~~~~					
Analytic Batch: W		Analysis Date: 12/24	/2008		s Time: 7:27	
Instrument: HANN		Analyst: 183 Dilution: 1		Preparat	ion Date:	
Method: 4500Cl-G		Dilution: 1				
CAS NO	Analyte		RL	R	ESULTS	FLAG
	1 mail j ve		mg/l		g/l	12110
	Chlorine, residual		0.10		20	
410.4						
Analytic Batch: W	G399759	Analysis Date: 12/24	/2008	Analyci	s Time: 10:01	
Instrument: HACH		Analysis Date: 12/24 Analyst: 234	, 2000		ion Date: 12/	
Method: 410.4		Dilution: 1		Topulu		, 2000 0.20
CAS NO	Analyte		RL	Ð	ESULTS	FLAG
	1 many cc		mg/l		g/l	PLAN
E-10117	COD		20		10	

¹⁾ Sample results are reported as rounded values.

Enviror	nmental Scier	nce Corporatio	on	SAMP	PLE NUME 32ND 2	
Customer : Source : Location : Lab Sample ID :	ADOT Stormwate	v. Consultants, INC er MS4	Project : Date Sam Sampled Date Reco	By:	<u>308032.0</u> <u>12/17/200</u> <u>Gary Hof</u> 12/18/200	<u>8 9:00 AM</u> f <u>mann</u>
909A	L300133-01		Date Reco		12/10/200	0
Analytic Batch: WC Instrument: NONE Method: 909A	3399404	Analysis Date: 12/17 Analyst: 699 Dilution: 1	/2008		s Time: 12:00 tion Date:	
CAS NO	Analyte		RL col/100ml		ESULTS ol/100ml	FLAG
	Coliform,fecal				1200	
<i>9012B</i> Analytic Batch: WC Instrument: LACHA Method: 9012B		Analysis Date: 12/22 Analyst: 244 Dilution: 1	/2008		s Time: 1:34 I tion Date: 12/2	
CAS NO	Analyte		RL mg/l		ESULTS 1g/l	FLAG
57-12-5	Cyanide		0.0050		0.0050	
<i>H10029</i> Analytic Batch: WC Instrument: NONE Method: H10029	3399404	Analysis Date: 12/17 Analyst: 699 Dilution: 1	/2008		s Time: 12:00 tion Date:	
CAS NO	Analyte		RL cfu/100 ml		ESULTS fu/100 ml	FLAG
	E.Coli				24,200	
<i>130.1</i> Analytic Batch: WO Instrument: LACHA Method: 130.1		Analysis Date: 12/23 Analyst: 165 Dilution: 1	/2008		s Time: 10:19 tion Date: 12/2	23/2008 10:58
CAS NO	Analyte		RL mg/l		ESULTS 1g/l	FLAG
471-34-1	Hardness		30	18		

1) Sample results are reported as rounded values.

Enviro	onmental Scienc	e Corporatio	on		32ND 2	202
Customer :	Engineering & Env.	Consultants, INC	Project	:	<u>308032.0</u>	1
Source :		<u> </u>		impled :		
Location :	ADOT Stormwater N	/IS4	Sample	-	Gary Hof	
	D: L380155-01		1	eceived :	12/18/20	
	<u>. L300135-01</u>		Date K		12/10/20	00
7196A			12000		T : 0.02	
Analytic Batch: WG399222		Analysis Date: 12/19	/2008		s Time: 9:03	10/2000 4 5
Instrument: HAC	H 4000	Analyst: 183 Dilution: 10		Preparat	ion Date: 12/	18/2008 4:55
Method: 7196A		Dilution: 10				
CAS NO	Analyte		RL	R	ESULTS	FLAG
	· · · · · · · · · · · · · · · · · · ·		mg/l		g/l	1210
18540-29-9	Chromium,Hexavalent		0.10		0.10	
Calc	,					
Analytic Batch: W	VG399629	Analysis Date: 12/26	/2008	Analysis	s Time: 12:00)
Instrument: ICP7		Analyst: 338	2000		ion Date: 12/	
Method: Calc		Dilution: 1		Ttoputu	.1011 D'ute: 12,	22/2000 / 12
CAS NO	Analyte		RL	R	ESULTS	FLAG
			mg/l		g/l	
16065-83-1	Chromium, Trivalent		0.010	<	0.010	
5540C						
Analytic Batch: W	VG398713	Analysis Date: 12/20	/2008	Analysis	s Time: 4:52	PM
Instrument: HAC	H 4000	Analyst: 183		Preparat	tion Date: 12/	/18/2008 9:00
Method: 5540C		Dilution: 1				
CAS NO	Analyta		RL	D	ESULTS	FLAG
CAS NO	Analyte		KL mg/l		esuers g/l	FLAG
	MBAS		0.10		<u>30</u>	
250.1			0.10			
<i>350.1</i> Analytic Batch: W	VG300210	Analysis Date: 12/22	/2008	Analysi	s Time: 2:19	DМ
Instrument: LACH		Analysis Date: 12/22 Analyst: 165	/ 2000		tion Date: 12	
Method: 350.1		Dilution: 1		rieparat	1011 Date: 12/	17/2000 3.02
CAS NO	Analyte		RL		ESULTS	FLAG
			mg/l	m	g/l	
7664-41-7	Ammonia Nitrogen		0.10	-	66	

SAMPLE NUMBER

. . 4

¹⁾ Sample results are reported as rounded values.

Enviror	nmental Science	e Corporatio	n	SAMP	LE NUMB 32ND 20	
Customer : Source : Location : Lab Sample ID :	Engineering & Env. C ADOT Stormwater M L380155-01		Project : Date Sam Sampled 2 Date Reco	By :	308032.01 12/17/200 Gary Hoff 12/18/200	<u>8 9:00 AM</u> mann
<i>1664A</i> Analytic Batch: WC Instrument: BAL Method: 1664A		Analysis Date: 12/24, Analyst: 078 Dilution: 1		Analysis	Time: 12:51	
CAS NO	Analyte		RL mg/l		ESULTS g/l	FLAG
	Oil & Grease (Hexane Ex	tr)	5.0	<	5.0	
4500P-E Analytic Batch: WC Instrument: HACH Method: 4500P-E		Analysis Date: 12/19/ Analyst: 183 Dilution: 5	/2008		Time: 10:06 ion Date: 12/1	8/2008 4:55
CAS NO	Analyte		RL mg/l		ESULTS g/l	FLAG
	Phosphate,Ortho		0.12	<	0.12	
9050A Analytic Batch: WC Instrument: ORION Method: 9050A		Analysis Date: 12/24, Analyst: 234 Dilution: 1	/2008		Time: 8:30 ion Date:	
CAS NO	Analyte		RL umhos/cm		ESULTS nhos/cm	FLAG
	Specific Conductance			55		
<i>351.2</i> Analytic Batch: WC Instrument: LACHA Method: 351.2		Analysis Date: 12/23, Analyst: 244 Dilution: 1	/2008		5 Time: 10:31 ion Date: 12/2	1/2008 9:30
CAS NO	Analyte		RL mg/l	RI m;	ESULTS g/l	FLAG
7727-37-9	Kjeldahl Nitrogen, TKN		0.10	3.		

Comments:

1) Sample results are reported as rounded values.

				BANI		
Enviro	nmental Scien	ce Corporatio	n		32ND 2	202
Customer :	Engineering & En	v. Consultants, INC	Project ·		308032.0	1
Source :	Engineering & En	<u>v. Consultants, INC</u>	Date Sar			<u>-</u>)8 9:00 AN
Location :		- MCA		1		
	ADOT Stormwate	<u>r M54</u>	Sampled	•	Gary Hof	
Lab Sample ID :	L380155-01		Date Rec	ceived :	12/18/200)8
SM2130B						
Analytic Batch: WO	3399220	Analysis Date: 12/18	/2008		s Time: 5:42	PM
Instrument: NONE		Analyst: 183		Preparat	tion Date:	
Method: SM2130B		Dilution: 1				
CAS NO	Analyte		RL	R	ESULTS	FLAG
			NTU		TU	
	Turbidity		0.10	4	9	
2540C						
Analytic Batch: WC	G399305	Analysis Date: 12/22	/2008	Analysi	s Time: 1:42	PM
Instrument: BAL		Analyst: 036			tion Date: 12/	
Method: 2540C		Dilution: 1				
CAS NO	Analyte		RL		ESULTS	FLAG
	D: 1 10 11		mg/l		ng/l 90	
	Dissolved Solids		10	2	90	
2540D						
Analytic Batch: WC	3399308	Analysis Date: 12/19	/2008		s Time: 2:55	
Instrument: BAL		Analyst: 036		Preparat	tion Date: 12/	19/2008 9:19
Method: 2540D		Dilution: 1				
CAS NO	Analyte		RL	R	ESULTS	FLAG
			mg/l		ıg/l	
	Suspended Solids		1.0	8	5	
7470A						
Analytic Batch: WC	399178	Analysis Date: 12/19	/2008	Analysi	s Time: 9:51	
						18/2008 3:45
Instrument: CVAA		Analyst: 429		ricpara	1011 Dutc. 12	
Method: 7470A		Analyst: 429 Dilution: 1		Tepara	1011 Dute: 12/	
Method: 7470A	3		RL			FLAG
			RL mg/l	R	ESULTS	FLAG

2) These results are applicable only to the items tested.

SAMPLE NUMBER

¹⁾ Sample results are reported as rounded values.

Environmental Science Corporation32ND 202Customer :Engineering & Env. Consultants. INCProject :308032.01Date Sampled By :Gary HoffmannLab Sample ID :L380155-01Date Sampled By :Gary HoffmannLab Sample ID :L380155-01Date Received :12/18/2008Malysis Date:12/26/2008Analysis Time: 6:26 PMInstrument:Received :RESULTSFLAGmg/mg/7440-36-0Analysis Date:12/28/2008Analysis Date:0.0207Analysis Date:0.0200.020712/18/20087Analysis Date: <td co<="" th=""><th></th><th></th><th></th><th></th><th>SAMP</th><th>PLE NUM</th><th></th></td>	<th></th> <th></th> <th></th> <th></th> <th>SAMP</th> <th>PLE NUM</th> <th></th>					SAMP	PLE NUM	
Source : Date Sampled : $12/17/2008 9:00 \text{ AN}$ Location : ADOT Stormwater MS4 Sampled By : Gary Hoffmann Lab Sample ID : L380155-01 Date Received : $12/18/2008$ 6010B Analytic Batch: WG399629 Analytis Date: $12/18/2008$ Analytis Time: 6:26 PM Analytic Batch: WG399629 Analytis 338 Preparation Date: $12/22/2008 7:21$ Method: 6010B Dilution: 1 FLAG mg/l mg/l 7440-36-0 Antimony 0.020 < 0.020 < 0.020 7440-38-2 Arsenic 0.020 < 0.020 < 0.020 7440-43-9 Cadmium 0.00050 < 0.0098 $< 7440-47-3$ 7440-43-9 Cadmium 0.0010 < 0.020 < 0.020 7440-43-9 Cadmium 0.0020 < 0.020 $< 7440-43-3$ 7440-47-3 Chromium 0.010 < 0.010 $< 7440-43-3$ 7440-47-3 Chromium 0.020 < 0.020 $< 7440-43-3$ 7440-47-3 Chromium 0.020 < 0.020 $< 7440-43-3$ $< 7440-43-3$ $ 7440-43-3$	Environ	mental Scienc	e Corporatio)n		32ND 2	202	
Location :ADOT Stormwater MS4Sampled By :Gary Hoffmann Date Received :12/18/20086010BL380155-01Date Received :12/18/2008Analytic Batch: WG399629Analysis Date:12/26/2008Analysis Time: 6:26 PM Preparation Date:12/22/2008 7:21Method: 6010BDilution: 1RLRESULTSFLAG mg/lCAS NOAnalyteRLRESULTSFLAG mg/l7440-36-0Antimony0.020< 0.020< 0.0207440-38-2Arsenic0.020< 0.020< 0.0207440-38-3Barium0.00500.00987440-47-3Chromium0.0050< 0.0050< 0.00507440-47-3Chromium0.010< 0.010< 0.0107440-47-3Chromium0.010< 0.010< 0.0107440-47-3Chromium0.020< 0.020< 0.0207440-47-3Chromium0.010< 0.010< 0.0107440-47-3Chromium0.020< 0.020< 0.0207440-47-3Chromium0.020< 0.020< 0.0207440-27-3Selenium0.020< 0.020< 0.0207440-27-3Sodium0.5040< 0.010< 0.0107440-27-3Sodium0.053497440-27-3Solium0.020< 0.0207440-27-3Selenium0.020< 0.00057440-27-3Solium0.050497440-27-3Solium0.053497440-27-4Sileniu	Customer :	Engineering & Env.	<u>Consultants, INC</u>	Project :		<u>308032.0</u>	1	
Location :ADOT Stormwater MS4Sampled By :Gary Hoffmann Date Received :12/18/20086010BL380155-01Date Received :12/18/2008Analytic Batch: WG399629Analysis Date:12/26/2008Analysis Time: 6:26 PM Preparation Date:12/22/2008 7:21Method: 6010BDilution: 1RLRESULTSFLAG mg/lCAS NOAnalyteRLRESULTSFLAG mg/l7440-36-0Antimony0.020< 0.020< 0.0207440-38-2Arsenic0.020< 0.020< 0.0207440-38-3Barium0.00500.00987440-47-3Chromium0.0050< 0.0050< 0.00507440-47-3Chromium0.010< 0.010< 0.0107440-47-3Chromium0.010< 0.010< 0.0107440-47-3Chromium0.020< 0.020< 0.0207440-47-3Chromium0.010< 0.010< 0.0107440-47-3Chromium0.020< 0.020< 0.0207440-47-3Chromium0.020< 0.020< 0.0207440-27-3Selenium0.020< 0.020< 0.0207440-27-3Sodium0.5040< 0.010< 0.0107440-27-3Sodium0.053497440-27-3Solium0.020< 0.0207440-27-3Selenium0.020< 0.00057440-27-3Solium0.050497440-27-3Solium0.053497440-27-4Sileniu	Source :			Date San	pled :	12/17/20	08 9:00 AM	
Lab Sample ID: L380155-01 Date Received: 12/18/2008 6010B Analysis Date: 12/26/2008 Analysis Time: 6:6 PM Analytic Batch: WG399629 Analysis Date: 12/26/2008 Analysis Time: 6:26 PM Nethod: 6010B Dilution: 1 Preparation Date: 12/22/2008 7:21 Method: 6010B Malysis Jate: 12/26/2008 Analysis Time: 6:26 PM Nethod: 6010B Dilution: 1 Preparation Date: 12/22/2008 7:21 7440-36-0 Antimony 0.020 < 0.020	Location :	ADOT Stormwater M	A S4		+			
6010B Analytic Batch: WG399629 Analysis Date: 12/26/2008 Analysis Time: 6:26 PM Instrument: ICP7 Analysi: 338 Preparation Date: 12/22/2008 7:21 Method: 6010B Dilution: 1 Preparation Date: 12/22/2008 7:21 Octored Colspan="2">CAS NO Analyte RL RESULTS FLAG mg/l mg/l mg/l RL RESULTS FLAG 7440-36-0 Antimony 0.020 < 0.020				-	•	-		
Analytic Batch: WG399629 Analysis Date: 12/26/2008 Analysis Time: 6:26 PM Instrument: ICP7 Analysis: 338 Preparation Date: 12/22/2008 7:21 Method: 6010B Dilution: 1 Preparation Date: 12/22/2008 7:21 CAS NO Analyte RL RESULTS FLAG mg/l mg/l mg/l Preparation Date: 12/22/2008 7:21 7440-36-0 Antimony 0.020 < 0.020	•	L300135-01		Dute Ree	civeu .	12/10/20	50	
Instrument: ICP7 Analyst: 338 Preparation Date: 12/22/2008 7:21 Method: 6010B Dilution: 1 RL RESULTS FLAG mg/l mg/l mg/l mg/l Rd 7440-36-0 Antimony 0.020 < 0.020		200.620		2000		π' () (
Method: 6010B Dilution: 1 CAS NO Analyte RL RESULTS FLAG 7440-36-0 Antimony 0.020 < 0.020		399629		/2008				
CAS NO Analyte RL mg/l RESULTS mg/l FLAG mg/l 7440-36-0 Antimony 0.020 < 0.020					Preparat	tion Date: 12/	22/2008 7:21	
mg/l mg/l 7440-36-0 Antimony 0.020 < 0.020	Method: 6010B		Dilution: 1					
7440-36-0 Antimony 0.020 < 0.020	CAS NO	Analyte		RL	R	ESULTS	FLAG	
7440-38-2 Arsenic 0.020 < 0.020				mg/l	m	g/l		
7440-39-3 Barium 0.0050 0.098 7440-41-7 Beryllium 0.0020 < 0.0020								
7440-41-7 Beryllium 0.0020 < 0.0020 7440-43-9 Cadmium 0.0050 < 0.0050								
7440-43-9 Cadmium 0.0050 < 0.0050 7440-70-2 Calcium 0.50 46 7440-70-2 Calcium 0.010 < 0.010								
7440-70-2 Calcium 0.50 46 7440-47-3 Chromium 0.010 < 0.010								
7440-47-3 Chromium 0.010 < 0.010 7440-50-8 Copper 0.020 0.023 7439-92-1 Lead 0.0050 0.0084 7440-02-0 Nickel 0.020 < 0.020					<	0.0050		
7440-50-8 Copper 0.020 0.023 7439-92-1 Lead 0.0050 0.0084 7440-02-0 Nickel 0.020 < 0.020								
7439-92-1 Lead 0.0050 0.0084 7440-02-0 Nickel 0.020 < 0.020								
7440-02-0 Nickel 0.020 < 0.020 7782-49-2 Selenium 0.020 < 0.020								
7782-49-2 Selenium 0.020 < 0.020 7440-22-4 Silver 0.010 < 0.010								
7440-22-4 Silver 0.010 < 0.010 7440-23-5 Sodium 0.50 49 7440-66-6 Zinc 0.030 0.053 8021B Analytic Batch: WG399252 Analysis Date: 12/19/2008 Analysis Time: 12:28 Instrument: VOCGC1 Analysi: 74 Preparation Date: 12/19/2008 12:2 Method: 8021B Dilution: 1 Preparation Date: 12/19/2008 12:2 T1-43-2 Benzene 0.00050 < 0.00050								
7440-23-5 Sodium 0.50 49 7440-66-6 Zinc 0.030 0.053 8021B Analytic Batch: WG399252 Analysis Date: 12/19/2008 Analysis Time: 12:28 Instrument: VOCGC1 Analysi: 74 Preparation Date: 12/19/2008 12:2 Method: 8021B Dilution: 1 CAS NO Analyte RL RESULTS FLAG mg/1 mg/1 71-43-2 Benzene 0.00050 < 0.00050								
7440-66-6 Zinc 0.030 0.053 8021B Analytic Batch: WG399252 Analysis Date: 12/19/2008 Analysis Time: 12:28 Instrument: VOCGC1 Analyst: 74 Preparation Date: 12/19/2008 12:2 Method: 8021B Dilution: 1 CAS NO Analyte RL RESULTS FLAG mg/l mg/l 71-43-2 Benzene 0.00050 < 0.00050								
8021B Analytic Batch: WG399252 Analysis Date: 12/19/2008 Analysis Time: 12:28 Instrument: VOCGC1 Analysi: 74 Preparation Date: 12/19/2008 12:2 Method: 8021B Dilution: 1 Tepperation Date: 12/19/2008 12:2 CAS NO Analyte RL RESULTS FLAG mg/l mg/l mg/l 1 71-43-2 Benzene 0.00050 < 0.00050								
Analytic Batch: WG399252 Analysis Date: 12/19/2008 Analysis Time: 12:28 Instrument: VOCGC1 Analysi: 74 Preparation Date: 12/19/2008 12:2 Method: 8021B Dilution: 1 FLAG CAS NO Analyte RL RESULTS FLAG 71-43-2 Benzene 0.00050 < 0.00050	7440-66-6	Zinc		0.030	0.	053		
Instrument: VOCGC1 Method: 8021B Analyst: 74 Dilution: 1 Preparation Date: 12/19/2008 12:2 CAS NO Analyte RL mg/l RESULTS FLAG 71-43-2 Benzene 0.00050 < 0.00050								
Method: 8021B Dilution: 1 CAS NO Analyte RL RESULTS FLAG mg/l mg/l mg/l mg/l mg/l mg/l 71-43-2 Benzene 0.00050 < 0.00050	•			/2008				
CAS NO Analyte RL mg/l RESULTS mg/l FLAG 71-43-2 Benzene 0.00050 < 0.00050		1	-		Preparat	tion Date: 12/	19/2008 12:2	
mg/l mg/l 71-43-2 Benzene 0.00050 < 0.00050	Method: 8021B		Dilution: 1					
mg/l mg/l 71-43-2 Benzene 0.00050 < 0.00050	CAS NO	Analyte		RL	R	ESULTS	FLAG	
108-88-3 Toluene 0.0050 < 0.0050 100-41-4 Ethylbenzene 0.00050 0.00068 1330-20-7 Total Xylene 0.0015 0.0039 Surrogates Analyte PERCENT RECOVERY QUALIFIERS FLAG		•						
100-41-4 Ethylbenzene 0.00050 0.00068 1330-20-7 Total Xylene 0.0015 0.0039 Surrogates Analyte PERCENT RECOVERY QUALIFIERS FLAG								
1330-20-7 Total Xylene 0.0015 0.0039 Surrogates Analyte PERCENT QUALIFIERS FLAG RECOVERY		Toluene			<	0.0050		
Surrogates Analyte PERCENT QUALIFIERS FLAG RECOVERY		Ethylbenzene			0.	00068		
Analyte PERCENT QUALIFIERS FLAG RECOVERY	1330-20-7	Total Xylene		0.0015	0.	0039		
Analyte PERCENT QUALIFIERS FLAG RECOVERY	Surrogates							
	0	Analyte		-	LIFIER	S	FLAG	
		a,a,a-Trifluorotoluene(PI						

1) Sample results are reported as rounded values.

2) These results are applicable only to the items tested.

				SAM	PLE NUM	
Environ	mental Scienc	e Corporatio)n		32ND 2	202
Customer :	Engineering & Env.	Consultants, INC	Proj	ect :	308032.0	1
Source :				e Sampled :		
Location :	ADOT Stormwater M	121		pled By :	Gary Hot	
		154		•	-	
Lab Sample ID :	L380155-01		Date	e Received :	12/18/20	<u>J8</u>
3510/DRO	200257	Analasia Datas 12/22	2000	A	a Times 7.02	
Analytic Batch: WG3 Instrument: SVGC16		Analysis Date: 12/22	/2008		s Time: 7:03	10/2009 2.52
		Analyst: 191 Dilution: 1.10		Prepara	tion Date: 12	19/2008 2:52
Method: 3510/DRO		Dilution: 1.10				
CAS NO	Analyte		RL mg/l		ESULTS	FLAG
68334-30-5	TPH (GC/FID) High Frac	ction	0.11		ng/l .73	
Surrogates	· · · ·					
Bullogates	Analyte	PERCENT	r	QUALIFIER	S	FLAG
	mulyte	RECOVE		QUILIIIII	.0	1 Lilo
	o-Terphenyl	68.2				
8081A						
Analytic Batch: WG3	399143	Analysis Date: 12/19	/2008	Analysi	s Time: 9:35	
Instrument: SVGC23		Analyst: 298		Prepara	tion Date: 12	/18/2008 12:5
Method: 8081A		Dilution: 1				
CAS NO	Analyte		RL	F	ESULTS	FLAG
			mg/l		ng/l	
309-00-2	Aldrin		0.000)50 <	0.00050	
319-84-6	Alpha BHC		0.000)50 <	0.00050	
319-85-7	Beta BHC		0.000)50 <	0.00050	
319-86-8	Delta BHC		0.000)50 <	0.00050	
58-89-9	Gamma BHC		0.000)50 <	0.00050	
57-74-9	Chlordane		0.005	50 <	0.0050	
72-54-8	4,4-DDD		0.000)50 <	0.00050	
72-55-9	4,4-DDE		0.000		0.00050	
50-29-3	4,4-DDT		0.000)50 <	0.00050	
60-57-1	Dieldrin		0.000)50 <	0.00050	
959-98-8	Endosulfan I		0.000)50 <	0.00050	
33213-65-9	Endosulfan II		0.000)50 <	0.00050	
1031-07-8	Endosulfan sulfate		0.000)50 <	0.00050	
72-20-8	Endrin		0.000		0.00050	
7421-93-4	Endrin aldehyde		0.000		0.00050	
53494-70-5	Endrin ketone		0.000		0.00050	
118-74-1	Hexachlorobenzene		0.000		0.00050	
76-44-8	Heptachlor		0.000		0.00050	
1024-57-3	Heptachlor epoxide		0.000		0.00050	
72-43-5	Methoxychlor		0.000		0.00050	
8001-35-2	Toxaphene		0.010) <	0.010	
Surrogates	Analyte	PERCENT RECOVE		QUALIFIER	S	FLAG
	Decachlorobiphenyl	28.1				
	Tetrachloro-m-xylene					

1) Sample results are reported as rounded values.

2) These results are applicable only to the items tested.

			SAMPLE NUM	IDER
Environ	mental Science Co	orporation	32ND	202
Customer :	Engineering & Env. Consu	-	308032.	01
Source :	Engineering & Env. Consu			01 008 9:00 AM
		Date Sam	1	
Location :	ADOT Stormwater MS4	Sampled	• •	
Lab Sample ID :	L380155-01	Date Rec	eived : 12/18/20	008
8270C				
Analytic Batch: WG	399666 Anal	ysis Date: 12/24/2008	Analysis Time: 7:31	PM
Instrument: BNAMS	Anal	yst: 279	Preparation Date: 12	2/22/2008 10:1
Method: 8270C	Dilut	ion: 1		
CAS NO	Analyte	RL	RESULTS	FLAG
		mg/l	mg/l	
83-32-9	Acenaphthene	0.0010	< 0.0010	
208-96-8	Acenaphthylene	0.0010	< 0.0010	
120-12-7	Anthracene	0.0010	< 0.0010	
92-87-5	Benzidine	0.050	< 0.050	
56-55-3	Benzo(a)anthracene	0.0010	< 0.0010	
205-99-2	Benzo(b)fluoranthene	0.0010	< 0.0010	
207-08-9	Benzo(k)fluoranthene	0.0010	< 0.0010	1.0
<u>191-24-2</u>	Benzo(g,h,i)perylene	0.0010	< 0.0010	L2
50-32-8	Benzo(a)pyrene	0.0010	< 0.0010	L2
<u>111-91-1</u> 111-44-4	Bis(2-chlorethoxy)methane	0.010	< 0.010	
108-60-1	Bis(2-chloroethyl)ether Bis(2-chloroisopropyl)ether	0.010	< 0.010 < 0.010	
101-55-3	4-Bromophenyl-phenylether	0.010	< 0.010	
91-58-7	2-Chloronaphthalene	0.010	< 0.010	
7005-72-3	4-Chlorophenyl-phenylether	0.010	< 0.010	
218-01-9	Chrysene	0.0010	< 0.0010	
53-70-3	Dibenz(a,h)anthracene	0.0010	< 0.0010	L2
91-94-1	3,3-Dichlorobenzidine	0.010	< 0.010	22
121-14-2	2,4-Dinitrotoluene	0.010	< 0.010	
606-20-2	2,6-Dinitrotoluene	0.010	< 0.010	
206-44-0	Fluoranthene	0.0010	< 0.0010	
86-73-7	Fluorene	0.0010	< 0.0010	
118-74-1	Hexachlorobenzene	0.010	< 0.010	
87-68-3	Hexachloro-1,3-butadiene	0.010	< 0.010	
77-47-4	Hexachlorocyclopentadiene	0.010	< 0.010	
67-72-1	Hexachloroethane	0.010	< 0.010	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0010	< 0.0010	L2
78-59-1	Isophorone	0.010	< 0.010	
91-20-3	Naphthalene	0.0010	< 0.0010	
98-95-3	Nitrobenzene	0.010	< 0.010	
62-75-9	n-Nitrosodimethylamine	0.050	< 0.050	
86-30-6	n-Nitrosodiphenylamine	0.010	< 0.010	
621-64-7	n-Nitrosodi-n-propylamine	0.010	< 0.010	
85-01-8	Phenanthrene	0.0010	< 0.0010	
85-68-7	Benzylbutyl phthalate	0.010	< 0.010	
117-81-7	Bis(2-ethylhexyl)phthalate	0.010	< 0.010	
84-74-2	Di-n-butyl phthalate	0.010	< 0.010	
84-66-2	Diethyl phthalate	0.010	< 0.010	
131-11-3	Dimethyl phthalate	0.010	< 0.010	
117-84-0	Di-n-octyl phthalate	0.010	< 0.010	
129-00-0	Pyrene	0.0010	< 0.0010	

1) Sample results are reported as rounded values.

2) These results are applicable only to the items tested.

SAMPLE NUMBER

				SAMP	LE NUM	BER
Environ	mental Science	e Corporatio	on		32ND	202
Customer :	Engineering & Env. C	Consultants, INC	Project :		308032.0)1
Source :	-0 0		Date San	npled :		
Location :	ADOT Stormwater M	[S4	Sampled	1	Gary Ho	
Lab Sample ID :	L380155-01		Date Rec	•	<u>12/18/20</u>	
*	LJ00135-01			erveu.	12/10/20	08
8270C						
Analytic Batch: WG		Analysis Date: 12/24	/2008		Time: 7:31	
Instrument: BNAMS Method: 8270C	11	Analyst: 279 Dilution: 1		Preparat	ion Date: 12	/22/2008 10:1
CAS NO	Analyte		RL		ESULTS	FLAG
100.00.1	104511		mg/l	m		
120-82-1	1,2,4-Trichlorobenzene		0.010		0.010	
<u>59-50-7</u>	4-Chloro-3-methylphenol		0.010		0.010	
<u>95-57-8</u> 120-83-2	2-Chlorophenol 2,4-Dichlorophenol		0.010		0.010 0.010	
120-83-2 105-67-9	2,4-Dichlorophenol		0.010		0.010	
534-52-1	4,6-Dinitro-2-methylphen	റി	0.010		0.010	
51-28-5	2,4-Dinitrophenol	01	0.010		0.010	
88-75-5	2-Nitrophenol		0.010		0.010	
100-02-7	4-Nitrophenol		0.010		0.010	
87-86-5	Pentachlorophenol		0.010		0.010	
108-95-2	Phenol		0.010		0.010	
88-06-2	2,4,6-Trichlorophenol		0.010		0.010	
	2, 1, 0 11101101001001		0.010		0.010	
	_ , , , o m monophenor		0.010		0.010	
		DEDCENT				FLAC
	Analyte	PERCENT RECOVE	Г QUA	ALIFIERS		FLAG
	Analyte 2-Fluorophenol	RECOVE: 35.8	Г QUA			FLAG
	Analyte 2-Fluorophenol Phenol-d5	RECOVE 35.8 28.8	Г QUA			FLAG
	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5	RECOVE 35.8 28.8 62.7	Г QUA			FLAG
	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl	RECOVE 35.8 28.8 62.7 66.9	Г QUA			FLAG
	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol	RECOVE 35.8 28.8 62.7 66.9 82.3	Г QUA			FLAG
	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl	RECOVE 35.8 28.8 62.7 66.9	Г QUA			FLAG
Surrogates 	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2	r QUA RY		5	
Surrogates 8310 Analytic Batch: WG:	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2	r QUA RY	ALIFIERS	5 5 Time: 6:50	PM
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	r QUA RY	ALIFIERS	5 5 Time: 6:50	PM
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2	r QUA RY	ALIFIERS	5 5 Time: 6:50	PM
Surrogates Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	F QU RY /2008 RL	ALIFIERS	S Time: 6:50 ion Date: 12 ESULTS	PM
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	Γ QU <u>RY</u> /2008	ALIFIERS Analysis Preparati Rl mj	S Time: 6:50 ion Date: 12 ESULTS	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	F QU RY /2008 RL mg/l	ALIFIERS Analysis Preparati RI 	S Time: 6:50 ion Date: 12 ESULTS g/I	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7 83-32-9	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	Γ QU RY /2008 RL mg/l 0.00010	ALIFIERS Analysis Preparati RI my < (S 5 Time: 6:50 ion Date: 12 ESULTS g/l 0.00010	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7 83-32-9 208-96-8	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene Acenaphthene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	Γ QU RY √2008 RL mg/l 0.00010 0.00010	ALIFIERS Analysis Preparati RI my < (< (S 5 Time: 6:50 ion Date: 12 ESULTS g/l 0.00010 0.00010	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7 83-32-9 208-96-8 56-55-3	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene Acenaphthene Acenaphthylene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	Γ QU RY /2008 RL mg/l 0.00010 0.00010 0.00010	ALIFIERS Analysis Preparati RI my < (< (S Time: 6:50 ion Date: 12 ESULTS g/l 0.00010 0.00010 0.00010	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7 83-32-9 208-96-8 56-55-3 50-32-8	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene Acenaphthene Acenaphthylene Benzo(a)anthracene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	Γ QU RY /2008 RL mg/l 0.00010 0.00010 0.00010 0.00010	ALIFIERS Analysis Preparati RJ mg < (< (< (< (S Time: 6:50 ion Date: 12 ESULTS g/l 0.00010 0.00010 0.00010	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7 83-32-9 208-96-8 56-55-3 50-32-8 205-99-2	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene Acenaphthene Acenaphthylene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	F QU∉ RY /2008 RL mg/l 0.00010 0.00010 0.00010 0.00010 0.00010	ALIFIERS Analysis Preparati RI 	S Time: 6:50 ion Date: 12 ESULTS g/l 0.00010 0.00010 0.00010 0.00010	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7 83-32-9 208-96-8 56-55-3 50-32-8 205-99-2 191-24-2 207-08-9	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene Acenaphthene Acenaphthylene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	C QU₄ RY RY /2008 RL mg/l 0.00010	ALIFIERS Analysis Preparat: RI Mg <() <() <() <() <() <() <() <() <() <()	S 5 Time: 6:50 ion Date: 12 ESULTS g/l 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010	PM /20/2008 12:1
Surrogates 8310 Analytic Batch: WG3 Instrument: HPLC2 Method: 8310 CAS NO 120-12-7 83-32-9 208-96-8 56-55-3 50-32-8 205-99-2 191-24-2 207-08-9 218-01-9	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene Acenaphthene Acenaphthylene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(k)fluoranthene Benzo(k)fluoranthene Chrysene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	Γ QU₄ RY	ALIFIERS Analysis Preparati RI 0 < ()	S Time: 6:50 ion Date: 12 ESULTS g/l 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010	PM /20/2008 12:1
Surrogates	Analyte 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14 399459 Analyte Anthracene Acenaphthene Acenaphthylene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene	RECOVE 35.8 28.8 62.7 66.9 82.3 63.2 Analysis Date: 12/22 Analyst: 169	C QU₄ RY RY /2008 RL mg/l 0.00010	ALIFIERS Analysis Preparati RI mg <() <() <() <() <() <() <() <() <() <()	S 5 Time: 6:50 ion Date: 12 ESULTS g/l 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010 0.00010	PM /20/2008 12:10

1) Sample results are reported as rounded values.

2) These results are applicable only to the items tested.

Environ	mental Scienc	e Corporatio	on	SAMP	LE NUM	
Customer : Source : Location :	Engineering & Env.		Date	ct : Sampled : bled By :	<u>308032.0</u> <u>12/17/20</u> <u>Gary Hot</u>	08 9:00 AM
Lab Sample ID :	L380155-01		Date	Received :	12/18/20	08
8310 Analytic Batch: WG Instrument: HPLC2 Method: 8310	399459	Analysis Date: 12/22 Analyst: 169 Dilution: 1	/2008		s Time: 6:50 tion Date: 12	PM /20/2008 12:10
CAS NO	Analyte		RL mg/l		ESULTS g/l	FLAG
86-73-7	Fluorene		0.0001	10 <	0.00010	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0001	10 <	0.00010	
90-12-0	1-Methylnaphthalene		0.0001	10 <	0.00010	
91-57-6	2-Methylnaphthalene		0.0001	10 <	0.00010	
91-20-3	Naphthalene		0.0001	10 <	0.00010	
85-01-8	Phenanthrene		0.0001	10 <	0.00010	
129-00-0	Pyrene		0.0001	10 <	0.00010	
Surrogates	Analyte	PERCENT RECOVE		QUALIFIER	S	FLAG
	p-Terphenyl-d14	104				
LEGEND						
RL -	Reporting Limit					
	eted to Aquatic Consulting a to sample color and turbic					
QUALIFIERS						
L2 -	The associated blank spil	ke recovery was below l	laborato	ry acceptance	limits.	

Comments:

1) Sample results are reported as rounded values.

2) These results are applicable only to the items tested.



Engineering & Env. Consultants, INC. -AZ

Test: Anions by Method 9056 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Analysis Date: 12/18/2008 Instrument ID: IC3 Analyst: 159 Analytic Batch: WG399086 L380155

EPA ID: TN00003

Method BlankAnalyteCASPQLChloride<1.00</td>Nitrate<0.100</td>Nitrite<0.100</td>Sulfate<5.00</td>

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits Qualifiers
Chloride	40.0	37.3	93.2	90 - 110
Nitrate	8.00	8.02	100	90 - 110
Nitrite	8.00	8.04	100	90 - 110
Sulfate	40.0	37.1	92.8	90 - 110

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Chloride	40.0	37.3	93.2	90 - 110	
Nitrate	8.00	8.02	100	90 - 110	
Nitrite	8.00	8.06	101	90 - 110	
Sulfate	40.0	37.1	92.8	90 - 110	



Engineering & Env. Consultants, INC. -AZ

Test: Anions by Method 9056 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date: 12/17/2008 Analysis Date: 12/18/2008 Instrument ID:IC3 Analyst: 159 Analytic Batch: WG399086 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	%	Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Chloride	40.0	37.3	93.2	37.3	93.2	90-110	0.0	20
Nitrate	8.00	8.02	100	8.02	100	90-110	0.0	20
Nitrite	8.00	8.04	100	8.06	101	90-110	0.2	20
Sulfate	40.0	37.1	92.8	37.1	92.8	90-110	0.0	20

Sample Duplicate

L380114-01

	Sample	Results			
Name	Results	Duplicate	%RPD	Limit	Qualifiers
Chloride	15.2	15.2	0.0	20	
Nitrate	2.80	2.83	1.1	20	
Nitrite	0.000	0.000			
Sulfate	42.0	41.6	1.0	20	

Sample Duplicate L380156-01

	Sample	Results			
Name	Results	Duplicate	%RPD	Limit	Qualifiers
Chloride	19.0	18.8	1.1	20	
Nitrate	2.70	2.64	2.2	20	
Nitrite	0.000	0.000			
Sulfate	2.80	0.000			



Engineering & Env. Consultants, INC. -AZ

Test: Anions by Method 9056 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Analysis Date: 12/18/2008 Instrument ID: IC3 Analyst: 159 Analytic Batch: WG399086 L380155

EPA ID: TN00003

Matrix Spike/Matrix Spike Duplicate L380114-02

	Spike	%		%	Control	% Control
Analyte	Value Sampl	e MS Re	c MSD	Rec	Limits	Qualifier RPD Limits Qualifier
Chloride	50.0 2.92	51.0 96	2 51.5	97.2	80-120	1.0 20
Nitrate	5.00 0.460	5.38 98	4 5.46	100	80-120	1.5 20
Nitrite	5.00 0.030	4.90 97	4 4.91	97.6	80-120	0.2 20
Sulfate	50.0 0.000	50.4 10	1 50.9	102	80-120	1.0 20

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Ammonia Nitrogen by Method 350.1 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/22/2008 2: 19:00 PM Instrument ID: LACHAT3 Analyst: 165 Analytic Batch: WG399210

EPA ID: TN00003

L380155

	Method Blank	
Analyte	CAS	PQL
Ammonia Nitrogen		<0.100

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Ammonia Nitrogen	7.50	7.84	105	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Ammonia Nitrogen	7.50	7.92	106	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Ammonia Nitrogen by Method 350.1

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/22/2008 2:19:00 PM Instrument ID:LACHAT3 Analyst:165 Analytic Batch:WG399210 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	-	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Ammonia Nitrogen	7.50	7.84	105	7.92	106	85-115	1.0 20

Sample Duplicate

L379979-02

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Ammonia Nitrogen	0.200	0.147	31	20	R8

Sample Duplicate

L380186-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Ammonia Nitrogen	0.130	0.204	44	20	R8

Matrix Spike/Matrix Spike Duplicate L380175-01

	Spike			%		%	Control		%	Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifi	er RPD	Limits Qualifier
Ammonia Nitrogen	5.00	0.150	6.29	123	5.79	113	80-120	M1	8.3	20

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: BOD by Method SM5210B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L 380155

Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/18/2008 11:00:00 AM Instrument ID:NONE Analyst:421 Analytic Batch:WG399074

EPA ID: TN00003

Method BlankAnalyteCASBOD0.0000

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
BOD	198	192	97.0	85 - 115	
BOD	198	192	97.0	85 - 115	
BOD	198	184	92.9	85 - 115	
BOD	198	193	97.5	85 - 115	
BOD	198	175	88.4	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Sample Duplicate

Test:BOD by Method SM5210B Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/18/2008 11:00:00 AM Instrument ID:NONE Analyst:421 Analytic Batch:WG399074

L380155

EPA ID: TN00003

	L380	148-01			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
BOD	0.0000	0.0000			
	-	Duplicate 102-01			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
BOD	72.0	820	168	10	R8
	_	Duplicate 085-01			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
BOD	42.0	40.3	4.1	10	
	-	Duplicate 212-02			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
BOD	0.0000	0.0000			

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ *Test:* COD by Method 410.4 *Matrix:* Water - mg/L

Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 10:01:00 AM Instrument ID:HACH 4000 Analyst:234 Analytic Batch:WG399759

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
COD		<20.0

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
COD	383	395	103	90 - 110	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
COD	383	395	103	90 - 110	

Analytic Batch:WG399759 Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	%	Control
Analyte	-	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD	Limits Qualifier
COD	383	395	103	395	103	90-110	0.0	20

Environmental Science Corporation

Sample Duplicate

L380626-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
COD	0.0000	0.0000			

Sample Duplicate

L379892-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
COD	490	454	7.6	20	

Matrix Spike/Matrix Spike Duplicate L380365-02

	Spike			%		%	Control	% Control	
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifier	
COD	400	32.0	426	98.5	422	97.5	90-110	0.9 5.0	

L380155

EPA ID: TN00003

Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Test: COD by Method 410.4 *Matrix:* Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/22/2008 Analysis Date: 12/24/2008 10:01:00 AM Instrument ID:HACH 4000 Analyst:234

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Chlorine, residual by Method 4500Cl-G L380155 *Matrix:* Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date: 12/17/2008

Quality Control Summary for client sample(s) 32ND 202

Method Blank

CAS PQL Analyte

Chlorine, residual

Analytic Batch:WG399941

Extraction Date: 12/23/2008 Analysis Date: 12/24/2008 7:27:00 AM Instrument ID:HANNAH HI9 Analyst:183

EPA ID: TN00003

< 0.100

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Chlorine, residual by Method 4500Cl-G

L380155

Test: Chlorine, residual by Me *Matrix:* Water - mg/L *Project:* ADOT Stormwater MS4 *Project No:* 308032.01 *Login No:* L380155 *Sample Number:* L380155-01 *Sample Date:* 12/17/2008 *Extraction Date:* 12/23/2008 *Analysis Date:* 12/24/2008 7:27:00 AM *Instrument ID:* HANNAH HI9 *Analyst:* 183 *Analytic Batch:* WG399941

EPA ID: TN00003

	-	Duplicate 155-01			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Chlorine, residual	0.200	0.200	0.0	20	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Chromium, Hexavalent by Method 7196A

L380155

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/19/2008 9:03:00 AM Instrument ID:HACH 4000 Analyst:183 Analytic Batch:WG399222

EPA ID: TN00003

Method Blank						
Analyte	CAS	PQL				
Chromium,Hexavalent		< 0.0100				

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Chromium, Hexavalent	0.600	0.623	104	85 - 115	

A 1.	True		Recovery	Control	0 110
Analyte	Value	Found	%	Limits	Qualifiers
Chromium, Hexavalent	0.600	0.630	105	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Chromium, Hexavalent by Method 7196A

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/19/2008 9:03:00 AM Instrument ID:HACH 4000 Analyst:183 Analytic Batch:WG399222 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	-	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Chromium,Hexavalent	0.600	0.623	104	0.630	105	85-115	1.1 20

Sample Duplicate

L380168-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Chromium,Hexavalent	0.0000	0.0000			

Matrix Spike/Matrix Spike Duplicate L380170-01

	Spike			%		%	Control	%	Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Chromium,Hexavalent	0.500	0.0000	0.527	105	0.526	105	85-115	0.2	20

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Cyanide by Method 9012B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Brainat Mar209022 01

Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/20/2008 Analysis Date:12/22/2008 1:34:00 PM Instrument ID:LACHAT4 Analyst:244 Analytic Batch:WG399534

EPA ID: TN00003

Method Blank							
Analyte	CAS	PQL					
Cyanide		< 0.0050					

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Cyanide	0.100	0.102	102	90 - 110	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Cyanide	0.100	0.101	101	90 - 110	

Spike % % Control

Test: Cyanide by Method 9012B

Project: ADOT Stormwater MS4

Matrix: Water - mg/L

Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/20/2008

Instrument ID:LACHAT4 Analyst:244 Analytic Batch:WG399534

	Spike		%		%	Control	%	Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Cyanide	0.100	0.102	102	0.101	101	90-110	1.0	20

Laboratory Control Sample/ Laboratory Control Sample Duplicate

L380155-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Cyanide	0.0000	0.0000			

Sample Duplicate L380566-02

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Cyanide	0.0000	0.0000			

Matrix Spike/Matrix Spike Duplicate L380542-01

	Spike			%		%	Control	%	Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Cyanide	0.200	0.0000	0.194	97.0	0.190	95.0	90-110	2.1	20

L380155

EPA ID: TN00003

Analysis Date: 12/22/2008 1:34:00 PM

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Dissolved Solids by Method 2540C Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/19/2008 Analysis Date: 12/22/2008 1:42:00 PM Instrument ID: BAL Analyst: 036 Analytic Batch: WG399305

L380155

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Dissolved Solids		<10.0

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Dissolved Solids	8800	8550	97.1	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Dissolved Solids	8800	8520	96.9	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Dissolved Solids by Method 2540C Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/19/2008 Analysis Date: 12/22/2008 1:42:00 PM Instrument ID: BAL Analyst: 036 Analytic Batch: WG399305

L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control	
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Quality	fier
Dissolved Solids	8800	8550	97.1	8520	96.9	85-115	0.3 20	

Sample Duplicate

L380210-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Dissolved Solids	590	590	0.0	5	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Hardness by Method 130.1 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155

Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/23/2008 Analysis Date:12/23/2008 10:19:00 AM Instrument ID:LACHAT3 Analyst:165 Analytic Batch:WG399799

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Hardness		<30.0

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Hardness	200	191	95.5	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Hardness	200	181	90.5	85 - 115	

Sample Results Results **Duplicate** %RPD Name Hardness 40.0 59.0 38

Sample Duplicate

L380361-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Hardness	420	488	15	20	

Matrix Spike/Matrix Spike Duplicate L379918-04

	Spike			%		%	Control	% Control	
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifie	r
Hardness	150	42.0	193	101	187	96.7	80-120	3.2 20	

Quality Control Summary for client sample(s) 32ND 202

Environmental Science Corporation

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Hardness by Method 130.1 *Matrix:* Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/23/2008 Analysis Date: 12/23/2008 10:19:00 AM Instrument ID:LACHAT3 Analyst:165 Analytic Batch:WG399799

EPA ID: TN00003

Qualifiers

R8

Limit

20

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	-	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Hardness	200	191	95.5	181	90.5	85-115	5.4 20

Sample Duplicate L379918-02

L380155

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Kjeldahl Nitrogen, TKN by Method 351.2

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/20/2008 Analysis Date:12/23/2008 10:31:00 AM Instrument ID:LACHAT4 Analyst:244 Analytic Batch:WG399530 L380155

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Kjeldahl Nitrogen, TKN		<0.100

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Kjeldahl Nitrogen, TKN	8.60	9.01	105	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Kjeldahl Nitrogen, TKN	8.60	8.99	105	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Kjeldahl Nitrogen, TKN by Method 351.2

Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/20/2008 Analysis Date:12/23/2008 10:31:00 AM Instrument ID:LACHAT4 Analyst:244 Analytic Batch:WG399530 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Kjeldahl Nitrogen, TKN	8.60	9.01	105	8.99	105	85-115	0.2 20

Sample Duplicate

L380166-08

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Kjeldahl Nitrogen, TKN	0.500	0.461	8.1	20	

Sample Duplicate L380088-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Kjeldahl Nitrogen, TKN	1.80	1.98	9.5	20	

Matrix Spike/Matrix Spike Duplicate L380357-01

	Spike			%		%	Control	% Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifier
Kjeldahl Nitrogen, TKN	5.00	0.290	4.79	90.0	4.68	87.8	80-120	2.3 20

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: MBAS by Method 5540C

Test: **MBAS by Method 5540C** *Matrix:* Water - mg/L *Project:* **ADOT Stormwater MS4** *Project No:* 308032.01 *Login No:* L380155 *Sample Number:* L380155-01 *Sample Date:* 12/17/2008 *Extraction Date:* 12/16/2008 *Analysis Date:* 12/20/2008 4:52:00 PM *Instrument ID:* HACH 4000 *Analyst:* 183 *Analytic Batch:* WG398713

EPA ID: TN00003

Analyte	CAS	PQL
MBAS		<0.100

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
MBAS	1.00	1.00	100	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
MBAS	1.00	0.996	99.6	85 - 115	

Extraction Date:12/16/2008 Analysis Date:12/20/2008 4:52:00 PM Instrument ID:HACH 4000

Analyst:183
Analytic Batch:WG398713

Matrix: Water - mg/L

Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008

Test: MBAS by Method 5540C

Project: ADOT Stormwater MS4

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Environmental Science Corporation

Quality Control Summary – Engineering & Env. Consultants, INC. -AZ

	Spike		%		%	Control	% Cor	ntrol
Analyte	-	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Lir	nits Qualifier
MBAS	1.00	1.00	100	0.996	99.6	85-115	0.4 2	0

Sample Duplicate

L379673-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
MBAS	0.170	0.174	2.3	20	

Matrix Spike/Matrix Spike Duplicate

L379673-01

	Spike			%		%	Control		%	Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifi	er RPD	Limits Qualifier
MBAS	1.00	0.170	1.34	117	1.43	126	80-120	M1	6.5	20

L380155

EPA ID: TN00003

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: **MBAS by Method 5540C** *Matrix:* Water - mg/L units *Project:* **ADOT Stormwater MS4** *Project No:* 308032.01 *Login No:* L380155 *Sample Number:* L380155-01 *Sample Date:* 12/17/2008 *Extraction Date:* 12/16/2008 *Analysis Date:* 12/20/2008 4:52:00 PM *Instrument ID:* HACH 4000

Analytic Batch:WG398713

Method Blank Summary								
Client Sample ID	Laboratory Sample ID	Lab Filename	Instrument	Date Analyzed	Time Analyzed			
Blank WG398713	Blank WG398713		HACH 4000	12/20/2008	4:37 PM			
LCS WG398713	LCS WG398713		HACH 4000	12/20/2008	4:40 PM			
LCSD WG398713	LCSD WG398713		HACH 4000	12/20/2008	4:41 PM			
DUP WG398713	DUP WG398713		HACH 4000	12/20/2008	4:42 PM			
MS WG398713	MS WG398713		HACH 4000	12/20/2008	4:45 PM			
MSD WG398713	MSD WG398713		HACH 4000	12/20/2008	4:47 PM			
32ND 202	L380155-01		HACH 4000	12/20/2008	4:52 PM			

L380155

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Oil & Grease (Hexane Extr) by Method

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/24/2008 Analysis Date:12/24/2008 12:51:00 PM Instrument ID:BAL Analyst:078 Analytic Batch:WG400016

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Oil & Grease (Hexane	e Extr)	<5.00

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Oil & Grease (Hexane Extr)	40.0	32.0	80.0	78 - 114	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Oil & Grease (Hexane Extr)	40.0	39.0	97.5	78 - 114	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ *Test:* Oil & Grease (Hexane Extr) by Method

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/24/2008 Analysis Date:12/24/2008 12:51:00 PM Instrument ID:BAL Analyst:078 Analytic Batch:WG400016 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	_	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Oil & Grease (Hexane	40.0	32.0	80.0	39.0	97.5	78-114	20 20

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Phosphate,Ortho by Method 4500P-E Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/19/2008 10:06:00 AM Instrument ID:HACH 4000 Analyst:183 Analytic Batch:WG399223

L380155

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Phosphate,Ortho		< 0.0250

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Phosphate,Ortho	0.750	0.763	102	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Phosphate,Ortho	0.750	0.766	102	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Phosphate, Ortho by Method 4500P-E

Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/19/2008 10:06:00 AM Instrument ID:HACH 4000 Analyst:183 Analytic Batch:WG399223 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control	
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifie	r
Phosphate,Ortho	0.750	0.763	102	0.766	102	85-115	0.4 20	

Sample Duplicate

L380155-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Phosphate,Ortho	0.0000	0.0000			

Matrix Spike/Matrix Spike Duplicate

L380211-01

	Spike			%		%	Control	%	Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Phosphate,Ortho	5.00	0.880	6.14	105	5.84	99.2	80-120	5.0	20

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

*Test:*Specific Conductance by Method 9050A

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/23/2008 Analysis Date:12/24/2008 8:30:00 AM Instrument ID:ORION170 Analyst:234 Analytic Batch:WG399962

EPA ID: TN00003

L380155

Γ	Method Blank	
Analyte	CAS	Results
Specific Conductance		1.80

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Specific Conductance	519	540	104	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Specific Conductance	519	530	102	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Specific Conductance by Method 9050A

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/23/2008 Analysis Date:12/24/2008 8:30:00 AM Instrument ID:ORION170 Analyst:234 Analytic Batch:WG399962

EPA ID: TN00003

L380155

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	_	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Specific Conductance	519	540	104	530	102	85-115	1.9 20

Sample Duplicate

L380397-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Specific Conductance	290	284	2.2	20	

Sample Duplicate L380156-03

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Specific Conductance	250	250	0.2	20	

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Suspended Solids by Method 2540D Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/19/2008 Analysis Date: 12/19/2008 2:55:00 PM Instrument ID: BAL Analyst: 036 Analytic Batch: WG399308

L380155

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Suspended Solids		<1.00

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Suspended Solids	778	808	104	85 - 115	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Suspended Solids	778	784	101	85 - 115	

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Suspended Solids by Method 2540D

Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/19/2008 Analysis Date:12/19/2008 2:55:00 PM Instrument ID:BAL Analyst:036 Analytic Batch:WG399308 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Suspended Solids	778	808	104	784	101	85-115	3.0 20

Sample Duplicate

L380155-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Suspended Solids	85.0	84.8	0.2	5	

Sample Duplicate
L380338-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Suspended Solids	63.0	63.0	0.0	5	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Turbidity by Method SM2130B

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/18/2008 5:42:00 PM Instrument ID:NONE Analyst:183 Analytic Batch:WG399220

EPA ID: TN00003

L380155

Analyte	CAS	PQL
Turbidity		<0.100

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Turbidity	20.0	19.0	95.0	85 - 115	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Turbidity	20.0	19.0	95.0	85 - 115	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ *Test:* Turbidity by Method SM2130B

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/18/2008 5:42:00 PM Instrument ID:NONE Analyst:183 Analytic Batch:WG399220 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Turbidity	20.0	19.0	95.0	19.0	95.0	85-115	0.0 20

Sample Duplicate

L380186-04

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Turbidity	16.0	16.0	0.0	20	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Mercury by Method 7470A Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Engineering & Env. Consultants, INC. -AZ

Project. ADOT Stoffiwater M34 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/18/2008 Analysis Date:12/19/2008 9:51:00 AM Instrument ID:CVAA3 Analyst:429 Analytic Batch:WG399178

EPA ID: TN00003

Method Blank

Analyte CAS PQL Mercury <0.0002

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Mercury	0.0030	0.0028	93.3	85 - 115	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Test: Mercury by Method 7470A Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/19/2008 9:51:00 AM Instrument ID: CVAA3 Analyst: 429 Analytic Batch: WG399178

L380155

EPA ID: TN00003

Sample Duplicate L380186-02

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Mercury	0.0004	0.0004	2.8	20	

Matrix Spike/Matrix Spike Duplicate L380186-02

	Spike			%		%	Control	%	Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Mercury	0.0030	0.0004	0.0032	94.3	0.0035	105	70-130	9.3	20

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Trace Metals by Method 6010B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/22/2008 Analysis Date: 12/26/2008 Instrument ID: ICP7 Analyst: 338 Analytic Batch: WG399629

L380155

EPA ID: TN00003

Method Blank

Analyte	CAS	PQL		
Antimony	7440-36-0	< 0.0200		
Arsenic	7440-38-2	< 0.0200		
Barium	7440-39-3	< 0.00500		
Beryllium	7440-41-7	< 0.00200		
Cadmium	7440-43-9	< 0.00500		
Calcium	7440-70-2	< 0.500		
Chromium	7440-47-3	< 0.0100		
Copper	7440-50-8	< 0.0200		
Lead	7439-92-1	< 0.00500		
Nickel	7440-02-0	< 0.0200		
Selenium	7782-49-2	< 0.0200		
Silver	7440-22-4	< 0.0100		
Sodium	7440-23-5	< 0.500		
Zinc	7440-66-6	< 0.0300		

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Trace Metals by Method 6010B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/22/2008 Analysis Date: 12/26/2008 Instrument ID: ICP7 Analyst: 338 Analytic Batch: WG399629

L380155

EPA ID: TN00003

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Antimony	1.13	1.11	98.2	85 - 115	
Arsenic	1.13	1.15	102	85 - 115	
Barium	1.13	1.15	102	85 - 115	
Beryllium	1.13	1.14	101	85 - 115	
Cadmium	1.13	1.17	104	85 - 115	
Calcium	11.3	11.3	100	85 - 115	
Chromium	1.13	1.13	100	85 - 115	
Copper	1.13	1.15	102	85 - 115	
Lead	1.13	1.19	105	85 - 115	
Nickel	1.13	1.12	99.1	85 - 115	
Selenium	1.13	1.10	97.3	85 - 115	
Silver	1.13	1.12	99.1	85 - 115	
Sodium	11.3	11.6	103	85 - 115	
Zinc	1.13	1.12	99.1	85 - 115	

Laboratory Control Sample (LCS)

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Trace Metals by Method 6010B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/22/2008 Analysis Date: 12/26/2008 Instrument ID: ICP7 Analyst: 338 Analytic Batch: WG399629

L380155

EPA ID: TN00003

Sample Duplicate L380350-09

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
		•			
Antimony	0.00000	0.0217			
Arsenic	0.00000	0.00000			
Barium	0.110	0.110	0.0	20	
Beryllium	0.00000	0.00000			
Cadmium	0.00000	0.00000			
Calcium	56.2	55.9	0.5	20	
Chromium	0.0235	0.0240	2.1	20	
Copper	0.00000	0.0121			
Lead	0.00000	0.00000			
Nickel	0.00000	0.00000			
Selenium	0.0419	0.0560	29	20	R8
Silver	0.00000	0.00000			
Sodium	1.50	1.62	7.7	20	
Zinc	0.00000	0.0234			

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Trace Metals by Method 6010B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/22/2008 Analysis Date: 12/26/2008 Instrument ID: ICP7 Analyst: 338

Analytic Batch:WG399629

L380155

EPA ID: TN00003

Matrix Spike/Matrix Spike Duplicate L380350-09

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier
Antimony	1.13	0.0217	1.12	97.2	1.09	94.5	75-125	2.7	20
Arsenic	1.13	0.00000	1.14	101	1.12	99.1	75-125	1.8	20
Barium	1.13	0.110	1.24	100	1.22	98.2	75-125	1.6	20
Beryllium	1.13	0.00000	1.14	101	1.12	99.1	75-125	1.8	20
Cadmium	1.13	0.00000	1.14	101	1.11	98.2	75-125	2.7	20
Calcium	11.3	55.9	65.4	84.1	65.0	80.5	75-125	0.6	20
Chromium	1.13	0.0240	1.14	98.8	1.12	97.0	75-125	1.8	20
Copper	1.13	0.0121	1.12	98.0	1.12	98.0	75-125	0.0	20
Lead	1.13	0.00000	1.16	103	1.13	100	75-125	2.6	20
Nickel	1.13	0.00000	1.11	98.2	1.08	95.6	75-125	2.7	20
Selenium	1.13	0.0560	1.10	92.4	1.06	88.8	75-125	3.7	20
Silver	1.13	0.00000	0.774	68.5	0.877	77.6	75-125	M2 12	20
Sodium	11.3	1.62	13.0	101	12.6	97.2	75-125	3.1	20
Zinc	1.13	0.0234	1.11	96.2	1.09	94.4	75-125	1.8	20

Quality Control Summary – Engineering & Env. Consultants, INC. -AZ

Test: Method 8021B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Analysis Date: 12/19/2008 Instrument ID: VOCGC1 Analyst: 74 Analytic Batch: WG399252 L380155

EPA ID: TN00003

Method Blank								
Analyte	CAS	PQL						
Benzene Toluene Ethylbenzene m&p-Xylene o-Xylene	71-43-2 108-88-3 100-41-4 1330-20-7 1330-20-7	<0.0005 <0.0050 <0.0005 <0.0015 <0.0015						

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0461	92.1	79 - 114	
Toluene	0.0500	0.0448	89.6	79 - 112	
Ethylbenzene	0.0500	0.0453	90.6	80 - 116	
m&p-Xylene	0.100	0.0923	92.3	85 - 120	
o-Xylene	0.0500	0.0449	89.8	82 - 116	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0469	93.7	79 - 114	
Toluene	0.0500	0.0454	90.9	79 - 112	
Ethylbenzene	0.0500	0.0461	92.2	80 - 116	
m&p-Xylene	0.100	0.0937	93.7	85 - 120	
o-Xylene	0.0500	0.0457	91.3	82 - 116	



Engineering & Env. Consultants, INC. -AZ

Test: Method 8021B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Analysis Date: 12/19/2008 Instrument ID: VOCGC1 Analyst: 74 Analytic Batch: WG399252 L380155

EPA ID: TN00003

Surrogate Summary

Laboratory	a,a,a-Trifluorotoluene - FID	a,a,a-Trifluorotoluene - PID
Sample ID	ppb % Rec	ppb % Rec
LCS WG399252 LCSD WG399252 Blank WG399252 L380155-01 MS WG399252 MSD WG399252		$\begin{array}{cccc} 101 & 101 \\ 101 & 101 \\ 102 & 102 \\ 102 & 102 \\ 102 & 102 \\ 101 & 101 \end{array}$

a,a,a-Trifluorotoluene (FID) 200 ppb Limits - 0 - 0 a,a,a-Trifluorotoluene (PID) 200 ppb Limits - 71 - 122

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Method 8021B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Analysis Date: 12/19/2008 Instrument ID: VOCGC1 Analyst: 74 Analytic Batch: WG399252 L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyta	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	% Qualifier PPD	Control Limits Qualifier
Analyte		LCS	Kec	LCSD	Rec	Linnts	Qualifier KFD	Linnis Quanner
Benzene	0.0500	0.0461	92.1	0.0469	93.7	79-114	1.7	20
Toluene	0.0500	0.0448	89.6	0.0454	90.9	79-112	1.4	20
Ethylbenzene	0.0500	0.0453	90.6	0.0461	92.2	80-116	1.8	20
m&p-Xylene	0.100	0.0923	92.3	0.0937	93.7	85-120	1.5	20
o-Xylene	0.0500	0.0449	89.8	0.0457	91.3	82-116	1.7	20

Matrix Spike/Matrix Spike Duplicate

L380155-01

Analyte	Spike Value Sampl	e MS	% Rec	MSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier
Benzene	0.0500 0.000	3 0.0460	91.3	0.0480	95.3	35-147	4.2	20
Toluene	0.0500 0.0000	0.0443	88.6	0.0462	92.5	35-148	4.3	20
Ethylbenzene	0.0500 0.000	0.0449	88.5	0.0469	92.4	39-141	4.3	20
m&p-Xylene	0.100 0.003	3 0.0918	88.5	0.0957	92.4	26-157	4.2	20
o-Xylene	0.0500 0.0000	5 0.0446	88.0	0.0466	92.1	40-145	4.4	20



Test: Method 8021B Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Date: 12/17/2008 Analysis Date: 12/19/2008 Instrument ID: VOCGC1 Analyst: 74 Analytic Batch: WG399252

EPA ID: TN00003

Inte	ernal Standar	d Response and Reten	tion Time Summar	У	
FileID:1218_15.D		Date:12/18/2008	Ti	me:9:11 PM	
		IS - FID		IS - PID	
	Response	RT	Response	RT	
12 Hour Std			14600615	4.18	
Upper Limit			29201230	4.68	
Lower Limit			7300307.5	3.68	
Sample ID	Response	RT	Response	RT	
Blank WG399252			14853972	4.18	
L380155-01			14822840	4.18	
LCS WG399252			14556210	4.18	
LCSD WG399252			14283603	4.18	
MS WG399252			14644637	4.18	
MSD WG399252			14176543	4.19	

Engi	nmental Scier Quality Control neering & Env. Cons nge Organics by Method 80	Summary – sultants, INCAZ	
Matrix: Water - mg			2500155
Project: ADOT Sto			
Project No:308032.01			
Login No:L380155			
Sample Number:L380155-0)1		
Sample Date:12/17/2008			
<i>Extraction Date:12/19/2008</i>			
Analysis Date: 12/22/2008			
Instrument ID:SVGC16	,		
Analyst:191			
Analytic Batch:WG39935'	7		EPA ID: TN00003
Ť	Method Blank		
Analyte	CAS	PQL	

< 0.10

Diesel Range Organics

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Diesel Range Organics	1.50	1.14	75.7	50 - 150	

Laboratory Control Sample Duplicate (LCSD)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Diesel Range Organics	1.50	1.09	72.8	50 - 150	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Diesel Range Organics by Method 8015

L380155

*Matrix:*Water - mg/L *Project:*ADOT Stormwater MS4 *Project No:*308032.01 *Login No:*L380155 *Sample Number:*L380155-01 *Sample Date:*12/17/2008 *Extraction Date:*12/19/2008 *Analysis Date:*12/22/2008 *Instrument ID:*SVGC16 *Analyst:*191 *Analytic Batch:*WG399357

EPA ID: TN00003

Surrogate Summary

% Rec	o-terphenylD ppm	Laboratory Sample ID
66.0	0.0132	Blank WG399357
64.2	0.0128	LCS WG399357
62.6	0.0125	LCSD WG399357
68.2	0.0145	L380155-01

o-terphenyl Limits - 50 - 150

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Diesel Range Organics by Method 8015 L380155 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/19/2008

Quality Control Summary for client sample(s) 32ND 202

Analysis Date:12/22/2008 Instrument ID:SVGC16 Analyst:191 Analytic Batch:WG399357

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	_	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Diesel Range Organics	1.50	1.14	75.7	1.09	72.8	50-150	3.9 25

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

*Test:*Semi-Volatiles by Method 8270C *Matrix:* Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/22/2008 Analysis Date: 12/24/2008

Instrument ID: BNAMS10 Analyst:279

Analytic Batch:WG399666

EPA ID: TN00003

Method Blank				
Analyte	CAS	PQL		
n-Nitrosodimethylamine	62-75-9	< 0.0500		
Bis(2-chloroethyl)ether	111-44-4	< 0.0100		
Phenol	108-95-2	< 0.0100		
2-Chlorophenol	95-57-8	< 0.0100		
Bis(2-chloroisopropyl)ether	108-60-1	< 0.0100		
Hexachloroethane	67-72-1	< 0.0100		
n-Nitrosodi-n-propylamine	621-64-7	< 0.0100		
Nitrobenzene	98-95-3	< 0.0100		
Isophorone	78-59-1	< 0.0100		
2-Nitrophenol	88-75-5	< 0.0100		
2,4-Dimethylphenol	105-67-9	< 0.0100		
Bis(2-chlorethoxy)methane	111-91-1	< 0.0100		
2,4-Dichlorophenol	120-83-2	< 0.0100		
1,2,4-Trichlorobenzene	120-82-1	< 0.0100		
Naphthalene	91-20-3	< 0.0010		
Hexachloro-1,3-butadiene	87-68-3	< 0.0100		
4-Chloro-3-methylphenol	59-50-7	< 0.0100		
Hexachlorocyclopentadiene	77-47-4	< 0.0100		
2,4,6-Trichlorophenol	88-06-2	< 0.0100		
2-Chloronaphthalene	91-58-7	< 0.0100		
Acenaphthylene	208-96-8	< 0.0010		
Dimethyl phthalate	131-11-3	< 0.0100		
2,6-Dinitrotoluene	606-20-2	< 0.0100		
Acenaphthene	83-32-9	< 0.0010		
2,4-Dinitrophenol	51-28-5	< 0.0100		
2,4-Dinitrotoluene	121-14-2	< 0.0100		
4-Nitrophenol	100-02-7	< 0.0100		
Fluorene	86-73-7	< 0.0010		
4-Chlorophenyl-phenylether	7005-72-3	< 0.0100		
Diethyl phthalate	84-66-2	< 0.0100		
4,6-Dinitro-2-methylphenol	534-52-1	< 0.0100		
n-Nitrosodiphenylamine	86-30-6	< 0.0100		
4-Bromophenyl-phenylether	101-55-3	< 0.0100		
Hexachlorobenzene	118-74-1	< 0.0100		
Pentachlorophenol	87-86-5	< 0.0100		

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Semi-Volatiles by Method 8270C Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/22/2008 Analysis Date: 12/24/2008

Instrument ID:BNAMS10 Analyst:279

Analytic Batch:WG399666

EPA ID: TN00003

Method Blank				
Analyte	CAS	PQL		
Phenanthrene	85-01-8	< 0.0010		
Anthracene	120-12-7	< 0.0010		
Di-n-butyl phthalate	84-74-2	< 0.0100		
Fluoranthene	206-44-0	< 0.0010		
Benzidine	92-87-5	< 0.0500		
Pyrene	129-00-0	< 0.0010		
Benzylbutyl phthalate	85-68-7	< 0.0100		
3,3-Dichlorobenzidine	91-94-1	< 0.0100		
Benzo(a)anthracene	56-55-3	< 0.0010		
Chrysene	218-01-9	< 0.0010		
Bis(2-ethylhexyl)phthalate	117-81-7	< 0.0100		
Di-n-octyl phthalate	117-84-0	< 0.0100		
Benzo(b)fluoranthene	205-99-2	< 0.0010		
Benzo(k)fluoranthene	207-08-9	< 0.0010		
Benzo(a)pyrene	50-32-8	< 0.0010		
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.0010		
Dibenz(a,h)anthracene	53-70-3	< 0.0010		
Benzo(g,h,i)perylene	191-24-2	< 0.0010		

Quality Control Summary for client sample(s) 32ND 202

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008

Extraction Date: 12/22/2008 Analysis Date: 12/24/2008 Instrument ID: BNAMS10 Analyst: 279

Analytic Batch:WG399666

EPA ID: TN00003

L380155

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
n-Nitrosodimethylamine	0.0100	0.0042	42.4	11 - 69	
Bis(2-chloroethyl)ether	0.0100	0.0075	75.1	26 - 115	
Phenol	0.0100	0.0028	28.1	17 - 52	
2-Chlorophenol	0.0100	0.0064	63.7	38 - 114	
Bis(2-chloroisopropyl)ether	0.0100	0.0082	82.0	32 - 115	
Hexachloroethane	0.0100	0.0058	58.3	15 - 109	
n-Nitrosodi-n-propylamine	0.0100	0.0086	86.4	47 - 122	
Nitrobenzene	0.0100	0.0065	65.0	31 - 105	
Isophorone	0.0100	0.0072	71.8	48 - 126	
2-Nitrophenol	0.0100	0.0074	73.6	35 - 118	
2,4-Dimethylphenol	0.0100	0.0093	92.8	40 - 124	
Bis(2-chlorethoxy)methane	0.0100	0.0087	87.3	42 - 116	
2,4-Dichlorophenol	0.0100	0.0070	69.9	46 - 115	
1,2,4-Trichlorobenzene	0.0100	0.0067	66.6	26 - 103	
Naphthalene	0.0100	0.0073	73.0	29 - 103	
Hexachloro-1,3-butadiene	0.0100	0.0071	70.6	21 - 116	
4-Chloro-3-methylphenol	0.0100	0.0066	66.4	47 - 116	
Hexachlorocyclopentadiene	0.0100	0.0066	66.1	4 - 126	
2,4,6-Trichlorophenol	0.0100	0.0069	69.1	49 - 118	
2-Chloronaphthalene	0.0100	0.0074	73.8	44 - 110	
Acenaphthylene	0.0100	0.0081	80.7	48 - 113	
Dimethyl phthalate	0.0100	0.0033	33.4	10 - 135	
2,6-Dinitrotoluene	0.0100	0.0077	77.1	56 - 121	
Acenaphthene	0.0100	0.0080	80.2	48 - 110	
2,4-Dinitrophenol	0.0100	0.0056	56.2	10 - 125	
2,4-Dinitrotoluene	0.0100	0.0078	77.9	56 - 128	
4-Nitrophenol	0.0100	0.0031	30.5	10 - 66	
Fluorene	0.0100	0.0079	78.6	49 - 116	
4-Chlorophenyl-phenylether	0.0100	0.0086	85.5	49 - 116	
Diethyl phthalate	0.0100	0.0059	58.6	36 - 128	
4,6-Dinitro-2-methylphenol	0.0100	0.0072	72.4	24 - 119	
n-Nitrosodiphenylamine	0.0100	0.0086	86.0	59 - 143	
4-Bromophenyl-phenylether	0.0100	0.0077	77.0	45 - 105	
Hexachlorobenzene	0.0100	0.0078	77.6	51 - 121	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Semi-Volatiles by Method 8270C Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008

Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS10 Analyst:279

Analytic Batch:WG399666

EPA ID: TN00003

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Pentachlorophenol	0.0100	0.0074	73.8	20 - 122	
Phenanthrene	0.0100	0.0084	84.5	54 - 112	
Anthracene	0.0100	0.0087	86.7	55 - 127	
Di-n-butyl phthalate	0.0100	0.0077	76.7	51 - 131	
Fluoranthene	0.0100	0.0092	92.2	53 - 119	
Benzidine	0.0100	0.0006	6.1	0 - 46	
Pyrene	0.0100	0.0076	76.0	46 - 130	
Benzylbutyl phthalate	0.0100	0.0046	46.4	22 - 154	
3,3-Dichlorobenzidine	0.0100	0.0080	80.0	46 - 145	
Benzo(a)anthracene	0.0100	0.0075	75.3	57 - 115	
Chrysene	0.0100	0.0077	77.0	58 - 113	
Bis(2-ethylhexyl)phthalate	0.0100	0.0060	59.8	47 - 143	
Di-n-octyl phthalate	0.0100	0.0056	55.7	51 - 138	
Benzo(b)fluoranthene	0.0100	0.0062	62.3	50 - 123	
Benzo(k)fluoranthene	0.0100	0.0057	56.9	45 - 126	
Benzo(a)pyrene	0.0100	0.0065	64.6	63 - 125	
Indeno(1,2,3-cd)pyrene	0.0100	0.0042	42.1	40 - 143	
Dibenz(a,h)anthracene	0.0100	0.0039	38.6	39 - 144	L2
Benzo(g,h,i)perylene	0.0100	0.0041	40.8	39 - 143	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS10

Analyst:279 Analytic Batch:WG399666

EPA ID: TN00003

Laboratory Control Sample Duplicate (LCSD)

rue lue Four 100 0.00 100 0.00	157 57.0 170 70.4 129 28.7 161 60.8 181 81.1 1559 59.2 192 92.0 170 70.2 179 79.3	Limits 11 - 69 26 - 115 17 - 52 38 - 114 32 - 115 15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	nd % 57 57.0 70 70.4 29 28.7 61 60.8 981 81.1 59 59.2 992 92.0 70 70.2 79 79.3	Limits 11 - 69 26 - 115 17 - 52 38 - 114 32 - 115 15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	70 70.4 29 28.7 61 60.8 81 81.1 59 59.2 92 92.0 70 70.2 79 79.3	26 - 115 17 - 52 38 - 114 32 - 115 15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	70 70.4 29 28.7 61 60.8 81 81.1 59 59.2 92 92.0 70 70.2 79 79.3	26 - 115 17 - 52 38 - 114 32 - 115 15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	29 28.7 661 60.8 81 81.1 59 59.2 92 92.0 970 70.2 779 79.3	17 - 52 38 - 114 32 - 115 15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	6160.88181.15959.29292.07070.27979.3	38 - 114 32 - 115 15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	81 81.1 959 59.2 992 92.0 970 70.2 979 79.3	32 - 115 15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	5959.29292.097070.297979.3	15 - 109 47 - 122 31 - 105	
100 0.00 100 0.00 100 0.00 100 0.00 100 0.00	9292.09070.27079.3	47 - 122 31 - 105	
1000.001000.001000.00	070 70.2 079 79.3	31 - 105	
100 0.00 100 0.00	79.3		
0.00		48 - 126	
	68 67.8	10 120	
100 0.00		35 - 118	
	90 90.3	40 - 124	
0.00	95 95.1	42 - 116	
0.00	66 65.5	46 - 115	
0.00	70.4	26 - 103	
0.00	76 75.9	29 - 103	
0.00	76 76.0	21 - 116	
0.00	60 60.3	47 - 116	
0.00	68 68.0	4 - 126	
0.00	67 67.4	49 - 118	
0.00	77.1	44 - 110	
0.00	83 83.3	48 - 113	
0.00	46 45.7	10 - 135	
0.00	78.2	56 - 121	
0.00	83 82.7	48 - 110	
0.00	54 53.5	10 - 125	
0.00	81 81.4	56 - 128	
0.00	28 27.6	10 - 66	
0.00	80 79.5	49 - 116	
0.00			
	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	100 0.0076 76.0 $21 - 116$ 100 0.0060 60.3 $47 - 116$ 100 0.0068 68.0 $4 - 126$ 100 0.0067 67.4 $49 - 118$ 100 0.0077 77.1 $44 - 110$ 100 0.0077 77.1 $44 - 110$ 100 0.0083 83.3 $48 - 113$ 100 0.0046 45.7 $10 - 135$ 100 0.0078 78.2 $56 - 121$ 100 0.0083 82.7 $48 - 110$ 100 0.0084 53.5 $10 - 125$ 100 0.0081 81.4 $56 - 128$ 100 0.0080 79.5 $49 - 116$ 100 0.0083 83.1 $49 - 116$ 100 0.0068 67.5 $36 - 128$ 100 0.0066 66.2 $24 - 119$ 100 0.0090 90.0 $59 - 143$

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS10

Analyst:279 Analytic Batch:WG399666

EPA ID: TN00003

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Pentachlorophenol	0.0100	0.0069	68.9	20 - 122	
Phenanthrene	0.0100	0.0086	85.9	54 - 112	
Anthracene	0.0100	0.0087	87.0	55 - 127	
Di-n-butyl phthalate	0.0100	0.0081	80.6	51 - 131	
Fluoranthene	0.0100	0.0092	92.0	53 - 119	
Benzidine	0.0100	0.0007	6.6	0 - 46	
Pyrene	0.0100	0.0078	77.8	46 - 130	
Benzylbutyl phthalate	0.0100	0.0056	55.6	22 - 154	
3,3-Dichlorobenzidine	0.0100	0.0084	84.2	46 - 145	
Benzo(a)anthracene	0.0100	0.0076	75.8	57 - 115	
Chrysene	0.0100	0.0075	75.1	58 - 113	
Bis(2-ethylhexyl)phthalate	0.0100	0.0051	51.2	47 - 143	
Di-n-octyl phthalate	0.0100	0.0052	51.9	51 - 138	
Benzo(b)fluoranthene	0.0100	0.0051	51.4	50 - 123	
Benzo(k)fluoranthene	0.0100	0.0055	55.0	45 - 126	
Benzo(a)pyrene	0.0100	0.0058	58.3	63 - 125	L2
Indeno(1,2,3-cd)pyrene	0.0100	0.0036	36.3	40 - 143	L2
Dibenz(a,h)anthracene	0.0100	0.0036	36.5	39 - 144	L2
Benzo(g,h,i)perylene	0.0100	0.0038	38.0	39 - 143	L2

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

*Test:*Semi-Volatiles by Method 8270C *Matrix:*Water - mg/L

Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS10 Analyst:279 Analytic Batch:WG399666

EPA ID: TN00003

Surrogate Summary

Laboratory	N	IBZ	F	BP	T	PH	2F	ŦP	PH	IL	TE	8P	
Sample ID	ppb	% Rec	ppb	% Rec	ppb	% Rec	ppb	% Rec	ppb	% Re	c ppb	% R	ec
Blank WG399666	6.13	61.3	8.12	81.2	9.70	97.0	8.27	41.3	6.00	30.0	15.8	78.8	-
LCS WG399666	6.73	67.3	7.92	79.2	8.09	80.9	8.09	40.4	5.92	29.6	15.5	77.5	
LCSD WG399666	7.10	71.0	7.81	78.1	7.45	74.5	7.63	38.2	5.63	28.2	13.4	66.8	
L380155-01	6.27	62.7	6.69	66.9	6.32	63.2	7.15	35.8	5.77	28.8	16.5	82.3	
MS WG399666	7.01	70.1	7.49	74.9	5.85	58.5	0.480	2.4 S6	0.193	1.0	S 0.788	3.9	S6
MSD WG399666	6.79	67.9	7.97	79.7	4.95	49.5	0.342	1.7 S6	0.208	1.0	S 1.34	6.7	S 6
	NBZ - Nitr	obenzene	e-d5			12-	-120						
	FBP - 2-Flu	uorobiph	enyl			26-	-122						
	TPH - Terp	hneyl-d1	4			34-	-149						
	2FP - 2-Flu	orophen	ol			10-	-87						
	PHL - Pher	nol-d5				10-67							
	TBP - 2,4,6	6-Tribron	nophenc	ol		10-	-148						

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Analysis Date:12/24/2008 Instrument ID:BNAMS10 Analytic Batch:WG399666 L380155

EPA ID: TN00003

Matrix Spike/Matrix Spike Duplicate

L380186-02

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	Qualifi	% חסק ייני	Control	Qualifier
								Quann			Quaimer
n-Nitrosodimethylamine	0.0100	0.0000	0.0043	43.1	0.0033	33.3	0-75		26	50	
Bis(2-chloroethyl)ether	0.0100	0.0000	0.0068	67.6	0.0056	56.3	10-134		18	50	
Phenol	0.0100	0.0000	0.0000	0.0	0.0000	0.0	10-68	M2		32	
2-Chlorophenol	0.0100	0.0000	0.0010	9.7	0.0008	8.1	10-155	M2	18	50	
Bis(2-chloroisopropyl)ether	0.0100	0.0000	0.0071	71.3	0.0063	63.1	14-124		12	40	
Hexachloroethane	0.0100	0.0000	0.0059	59.0	0.0047	47.3	10-125		22	50	
n-Nitrosodi-n-propylamine	0.0100	0.0000	0.0086	86.0	0.0069	68.9	20-145		22	43	
Nitrobenzene	0.0100	0.0000	0.0069	69.1	0.0062	61.8	14-122		11	46	
Isophorone	0.0100	0.0000	0.0070	70.0	0.0070	70.1	32-131		0.1	38	
2-Nitrophenol	0.0100	0.0000	0.0052	51.9	0.0045	45.0	12-121		14	48	
2,4-Dimethylphenol	0.0100	0.0000	0.0004	3.8	0.0008	7.7	10-142	M2	68	36	R2
Bis(2-chlorethoxy)methane	0.0100	0.0000	0.0075	75.3	0.0076	76.3	21-135		1.3	39	
2,4-Dichlorophenol	0.0100	0.0000	0.0005	5.0	0.0006	5.6	10-133	M2	11	50	
1,2,4-Trichlorobenzene	0.0100	0.0000	0.0067	66.8	0.0060	60.5	18-105		9.9	50	
Naphthalene	0.0100	0.0000	0.0072	72.3	0.0069	69.3	14-114		4.2	50	
Hexachloro-1,3-butadiene	0.0100	0.0000	0.0076	75.5	0.0065	64.8	16-118		15	50	
4-Chloro-3-methylphenol	0.0100	0.0000	0.0003	2.9	0.0003	3.3	10-136	M2	13	29	
Hexachlorocyclopentadiene	0.0100	0.0000	0.0055	54.7	0.0044	43.5	0-132		23	50	
2,4,6-Trichlorophenol	0.0100	0.0000	0.0012	12.5	0.0008	8.1	10-137	M2	43	42	R2
2-Chloronaphthalene	0.0100	0.0000	0.0069	68.9	0.0068	68.3	33-109		0.9	39	
Acenaphthylene	0.0100	0.0000	0.0081	80.6	0.0080	80.3	37-114		0.4	35	
Dimethyl phthalate	0.0100	0.0000	0.0054	54.3	0.0068	67.5	42-107		22	27	
2,6-Dinitrotoluene	0.0100	0.0000	0.0075	75.1	0.0077	77.4	35-123		3.0	37	
Acenaphthene	0.0100	0.0000	0.0083	82.7	0.0082	82.2	39-112		0.6	37	
2,4-Dinitrophenol	0.0100	0.0000	0.0068	68.2	0.0057	56.6	10-150		19	50	
2,4-Dinitrotoluene	0.0100	0.0000	0.0073	73.2	0.0076	76.4	32-137		4.3	36	
4-Nitrophenol	0.0100	0.0000	0.0032	31.7	0.0027	26.7	13-59		17	50	
Fluorene	0.0100	0.0000	0.0077	77.3	0.0078	78.2	37-120		1.2	30	
4-Chlorophenyl-phenylether	0.0100	0.0000	0.0081	80.7	0.0076	76.0	39-116		6.0	32	
Diethyl phthalate	0.0100	0.0000	0.0075	75.3	0.0083	83.4	23-132		10	35	
4,6-Dinitro-2-methylphenol	0.0100	0.0000	0.0052	51.7	0.0042	42.4	0-138		20	50	
n-Nitrosodiphenylamine	0.0100	0.0000	0.0076	75.7	0.0082	82.2	10-171		8.2	34	
4-Bromophenyl-phenylether	0.0100	0.0000	0.0074	73.8	0.0070	69.6	35-102		5.9	23	
Hexachlorobenzene	0.0100	0.0000	0.0077	76.7	0.0067	67.2	41-114		13	28	
Pentachlorophenol	0.0100	0.0000	0.0010	10.5	0.0010	10.3	0-137		1.9	50	
Phenanthrene	0.0100	0.0000	0.0082	82.3	0.0079	78.7	38-121		4.5	26	
Anthracene	0.0100	0.0000	0.0078	78.4	0.0081	80.7	44-136		2.9	24	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

*Test:*Semi-Volatiles by Method 8270C

L380155

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Analysis Date:12/24/2008 Instrument ID:BNAMS10 Analytic Batch:WG399666

EPA ID: TN00003

Matrix Spike/Matrix Spike Duplicate

L380186-02

	Spike			%		%	Control		%	Control	
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier	RPD	Limits	Qualifier
Di-n-butyl phthalate	0.0100	0.0000	0.0088	88.0	0.0093	92.8	46-121		5.3	27	
Fluoranthene	0.0100	0.0000	0.0086	85.6	0.0085	84.8	36-130		0.9	27	
Benzidine	0.0100	0.0000	0.0000	0.3	0.0002	2.0	0-25		148	50	R5
Pyrene	0.0100	0.0000	0.0075	75.3	0.0074	74.1	27-136		1.6	33	
Benzylbutyl phthalate	0.0100	0.0000	0.0065	64.6	0.0075	74.8	47-121		15	28	
3,3-Dichlorobenzidine	0.0100	0.0000	0.0064	63.6	0.0076	75.5	10-135		17	40	
Benzo(a)anthracene	0.0100	0.0000	0.0065	65.1	0.0061	61.4	43-117		5.8	25	
Chrysene	0.0100	0.0000	0.0063	63.4	0.0058	57.7	41-117		9.4	24	
Bis(2-ethylhexyl)phthalate	0.0100	0.0000	0.0032	32.3	0.0024	24.4	10-115		28	33	
Di-n-octyl phthalate	0.0100	0.0000	0.0026	26.5	0.0020	20.1	22-109	M2	27	31	
Benzo(b)fluoranthene	0.0100	0.0000	0.0060	60.0	0.0042	41.9	35-128		36	50	
Benzo(k)fluoranthene	0.0100	0.0000	0.0053	52.7	0.0043	43.2	36-119		20	40	
Benzo(a)pyrene	0.0100	0.0000	0.0028	28.3	0.0028	27.6	33-137	M7	2.5	34	
Indeno(1,2,3-cd)pyrene	0.0100	0.0000	0.0021	21.4	0.0012	12.2	10-138		55	50	R5
Dibenz(a,h)anthracene	0.0100	0.0000	0.0021	20.9	0.0013	13.4	10-145		44	50	
Benzo(g,h,i)perylene	0.0100	0.0000	0.0020	20.0	0.0000	0.3	10-139	M7	194	50	R2

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Analysis Date:12/24/2008 Instrument ID:BNAMS10 Analytic Batch:WG399666

L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	C:lea		%		%	Control	0/	Control
Analyta	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier
Analyte		LCS	Kec	LCSD	Kec	Lillins	Qualifier KFD	Linnis Quanner
n-Nitrosodimethylamine	0.0100	0.0042	42.4	0.0057	57.0	11-69	29	50
Bis(2-chloroethyl)ether	0.0100	0.0075	75.1	0.0070	70.4	26-115	6.5	50
Phenol	0.0100	0.0028	28.1	0.0029	28.7	17-52	2.1	33
2-Chlorophenol	0.0100	0.0064	63.7	0.0061	60.8	38-114	4.7	36
Bis(2-chloroisopropyl)ether	0.0100	0.0082	82.0	0.0081	81.1	32-115	1.1	47
Hexachloroethane	0.0100	0.0058	58.3	0.0059	59.2	15-109	1.5	50
n-Nitrosodi-n-propylamine	0.0100	0.0086	86.4	0.0092	92.0	47-122	6.3	33
Nitrobenzene	0.0100	0.0065	65.0	0.0070	70.2	31-105	7.7	43
Isophorone	0.0100	0.0072	71.8	0.0079	79.3	48-126	9.9	31
2-Nitrophenol	0.0100	0.0074	73.6	0.0068	67.8	35-118	8.2	35
2,4-Dimethylphenol	0.0100	0.0093	92.8	0.0090	90.3	40-124	2.7	36
Bis(2-chlorethoxy)methane	0.0100	0.0087	87.3	0.0095	95.1	42-116	8.6	38
2,4-Dichlorophenol	0.0100	0.0070	69.9	0.0066	65.5	46-115	6.5	28
1,2,4-Trichlorobenzene	0.0100	0.0067	66.6	0.0070	70.4	26-103	5.5	38
Naphthalene	0.0100	0.0073	73.0	0.0076	75.9	29-103	3.9	45
Hexachloro-1,3-butadiene	0.0100	0.0071	70.6	0.0076	76.0	21-116	7.4	50
4-Chloro-3-methylphenol	0.0100	0.0066	66.4	0.0060	60.3	47-116	9.6	22
Hexachlorocyclopentadiene	0.0100	0.0066	66.1	0.0068	68.0	4-126	2.8	50
2,4,6-Trichlorophenol	0.0100	0.0069	69.1	0.0067	67.4	49-118	2.5	28
2-Chloronaphthalene	0.0100	0.0074	73.8	0.0077	77.1	44-110	4.4	30
Acenaphthylene	0.0100	0.0081	80.7	0.0083	83.3	48-113	3.2	28
Dimethyl phthalate	0.0100	0.0033	33.4	0.0046	45.7	10-135	31	33
2,6-Dinitrotoluene	0.0100	0.0077	77.1	0.0078	78.2	56-121	1.4	23
Acenaphthene	0.0100	0.0080	80.2	0.0083	82.7	48-110	3.1	26
2,4-Dinitrophenol	0.0100	0.0056	56.2	0.0054	53.5	10-125	4.9	50
2,4-Dinitrotoluene	0.0100	0.0078	77.9	0.0081	81.4	56-128	4.4	24
4-Nitrophenol	0.0100	0.0031	30.5	0.0028	27.6	10-66	10.0	37
Fluorene	0.0100	0.0079	78.6	0.0080	79.5	49-116	1.1	25
4-Chlorophenyl-phenylether	0.0100	0.0086	85.5	0.0083	83.1	49-116	2.8	26
Diethyl phthalate	0.0100	0.0059	58.6	0.0068	67.5	36-128	14	27
4,6-Dinitro-2-methylphenol	0.0100	0.0072	72.4	0.0066	66.2	24-119	8.9	50
n-Nitrosodiphenylamine	0.0100	0.0086	86.0	0.0090	90.0	59-143		23
4-Bromophenyl-phenylether	0.0100	0.0077	77.0	0.0082	82.5	45-105	6.9	26
Hexachlorobenzene	0.0100	0.0078	77.6	0.0073	73.1	51-121	6.0	23

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Analysis Date:12/24/2008 Instrument ID:BNAMS10 Analytic Batch:WG399666

L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyta	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier
Analyte		LCS	Kee	LCSD	Kee	Lillits	Qualifier KFD	Linits Quantier
Pentachlorophenol	0.0100	0.0074	73.8	0.0069	68.9	20-122	6.9	50
Phenanthrene	0.0100	0.0084	84.5	0.0086	85.9	54-112	1.6	22
Anthracene	0.0100	0.0087	86.7	0.0087	87.0	55-127	0.3	24
Di-n-butyl phthalate	0.0100	0.0077	76.7	0.0081	80.6	51-131	5.0	22
Fluoranthene	0.0100	0.0092	92.2	0.0092	92.0	53-119	0.2	28
Benzidine	0.0100	0.0006	6.1	0.0007	6.6	0-46	7.9	50
Pyrene	0.0100	0.0076	76.0	0.0078	77.8	46-130	2.3	28
Benzylbutyl phthalate	0.0100	0.0046	46.4	0.0056	55.6	22-154	18	29
3,3-Dichlorobenzidine	0.0100	0.0080	80.0	0.0084	84.2	46-145	5.1	31
Benzo(a)anthracene	0.0100	0.0075	75.3	0.0076	75.8	57-115	0.7	20
Chrysene	0.0100	0.0077	77.0	0.0075	75.1	58-113	2.5	21
Bis(2-ethylhexyl)phthalate	0.0100	0.0060	59.8	0.0051	51.2	47-143	15	24
Di-n-octyl phthalate	0.0100	0.0056	55.7	0.0052	51.9	51-138	7.1	22
Benzo(b)fluoranthene	0.0100	0.0062	62.3	0.0051	51.4	50-123	19	32
Benzo(k)fluoranthene	0.0100	0.0057	56.9	0.0055	55.0	45-126	3.4	37
Benzo(a)pyrene	0.0100	0.0065	64.6	0.0058	58.3	63-125	L2 10	22
Indeno(1,2,3-cd)pyrene	0.0100	0.0042	42.1	0.0036	36.3	40-143	L2 15	30
Dibenz(a,h)anthracene	0.0100	0.0039	38.6	0.0036	36.5	39-144	L2 5.6	30
Benzo(g,h,i)perylene	0.0100	0.0041	40.8	0.0038	38.0	39-143	L2 7.1	31

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS11

Analyst:279 Analytic Batch:WG399666 L380155

EPA ID: TN00003

FileID:1224_02.D		Date:12/2	24/2008		Time:12:13 PM			
	IS1 Response	RT	IS2 Response	RT	IS3 Response	RT		
12 Hour Std	66712	5.15	270192	5.89	128364	6.91		
Upper Limit Lower Limit	133424 33356	5.65 4.65	540384 135096	6.39 5.39	256728 64182	7.41 6.41		
Sample ID	Response	RT	Response	RT	Response	RT		
Blank WG399666	72315	5.15	283710	5.89	133019	6.91		
L380155-01 LCS WG399666 LCSD WG399666	93171 80942 74089	5.15 5.14 5.15	386438 318570 277760	5.89 5.89 5.89	204321 160802 138762	6.92 6.91 6.91		

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS11 Analyst:279

Analytic Batch:WG399666

L380155

EPA ID: TN00003

FileID:1224_02.D		Date:12/24/	2008		Time:12	2:13 PM
	IS4 Response	RT	IS5 Response	RT	IS6 Response	RT
	1		1		1	
12 Hour Std	206019	7.78	182666	9.35	125775	10.54
Upper Limit	412038	8.28	365332	9.85	251550	11.04
Lower Limit	103009.5	7.28	91333	8.85	62887.5	10.04
Sample ID	Response	RT	Response	RT	Response	RT
Blank WG399666	199162	7.78	194343	9.34	155809	10.54
L380155-01	343504	7.78	270063	9.34	157746	10.54
LCS WG399666	250207	7.78	239416	9.35	184335	10.54
LCSD WG399666	212171	7.78	198886	9.34	160101	10.54

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS10

Analyst:279 Analytic Batch:WG399666 L380155

EPA ID: TN00003

FileID:1226_02.D		Date:12/26/2	2008	Time:1:53 PM				
	IS1 Response	RT	IS2 Response	RT	IS3 Response	RT		
12 Hour Std Upper Limit Lower Limit	49514 99028 24757	4.91 5.41 4.41	190584 381168 95292	5.68 6.18 5.18	116242 232484 58121	6.71 7.21 6.21		
Sample ID	Response	RT	Response	RT	Response	RT		
MS WG399666 MSD WG399666	56534 66763	4.91 4.91	204712 222409	5.68 5.68	131262 137573	6.71 6.71		

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test:Semi-Volatiles by Method 8270C Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Date:12/17/2008 Extraction Date:12/22/2008 Analysis Date:12/24/2008 Instrument ID:BNAMS10

Analyst:279 Analytic Batch:WG399666 L380155

EPA ID: TN00003

FileID:1226_02.D		Date:12/26/2	2008		Time:1:53 PM			
	IS4 Response	RT	IS5 Response	RT	IS6 Response	RT		
12 Hour Std Upper Limit Lower Limit	169011 338022 84505.5	7.59 8.09 7.09	163975 327950 81987.5	9.18 9.68 8.68	130308 260616 65154	10.47 10.97 9.97		
Sample ID	Response	RT	Response	RT	Response	RT		
MS WG399666 MSD WG399666	193017 202782	7.59 7.59	185198 194557	9.19 9.19	104307 104745	10.48 10.48		

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Polynucluear Aromatic Hydrocarbons by Method 8310

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/20/2008 Analysis Date:12/22/2008 Instrument ID:HPLC2 Analyst:169

Analytic Batch:WG399459

EPA ID: TN00003

Method Blank			
Analyte	CAS	PQL	
Naphthalene	91-20-3	< 0.00010	
Acenaphthylene	208-96-8	< 0.00010	
1-Methylnaphthalene	90-12-0	< 0.00010	
2-Methylnaphthalene	91-57-6	< 0.00010	
Acenaphthene	83-32-9	< 0.00010	
Fluorene	86-73-7	< 0.00010	
Phenanthrene	85-01-8	< 0.00010	
Anthracene	120-12-7	< 0.00010	
Fluoranthene	206-44-0	< 0.00010	
Pyrene	129-00-0	< 0.00010	
Benzo(a)anthracene	56-55-3	< 0.00010	
Chrysene	218-01-9	< 0.00010	
Benzo(b)fluoranthene	205-99-2	< 0.00010	
Benzo(k)fluoranthene	207-08-9	< 0.00010	
Benzo(a)pyrene	50-32-8	< 0.00010	
Dibenz(a,h)anthracene	53-70-3	< 0.00010	
Benzo(g,h,i)perylene	191-24-2	< 0.00010	
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.00010	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Polynucluear Aromatic Hydrocarbons by Method 8310

L380155

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/20/2008 Analysis Date:12/22/2008 Instrument ID:HPLC2 Analyst:169 Analytic Batch:WG399459

EPA ID: TN00003

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Naphthalene	0.00400	0.00237	59.1	22 - 105	
Acenaphthylene	0.00400	0.00320	79.9	41 - 112	
1-Methylnaphthalene	0.00400	0.00249	62.3	31 - 95	
2-Methylnaphthalene	0.00400	0.00263	65.8	30 - 97	
Acenaphthene	0.00400	0.00272	68.1	32 - 120	
Fluorene	0.00400	0.00326	81.5	45 - 117	
Phenanthrene	0.00400	0.00309	77.2	48 - 122	
Anthracene	0.00400	0.00320	79.9	48 - 122	
Fluoranthene	0.00400	0.00351	87.8	52 - 125	
Pyrene	0.00400	0.00345	86.3	53 - 128	
Benzo(a)anthracene	0.00400	0.00342	85.5	52 - 122	
Chrysene	0.00400	0.00350	87.4	53 - 126	
Benzo(b)fluoranthene	0.00400	0.00312	78.1	46 - 118	
Benzo(k)fluoranthene	0.00400	0.00301	75.3	45 - 112	
Benzo(a)pyrene	0.00400	0.00279	69.9	45 - 120	
Dibenz(a,h)anthracene	0.00400	0.00153	38.3	26 - 113	
Benzo(g,h,i)perylene	0.00400	0.00157	39.3	31 - 110	
Indeno(1,2,3-cd)pyrene	0.00400	0.00247	61.7	40 - 113	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Polynucluear Aromatic Hydrocarbons by Method 8310

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/20/2008 Analysis Date:12/22/2008 Instrument ID:HPLC2 Analyst:169

Analytic Batch:WG399459

EPA ID: TN00003

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Naphthalene	0.00400	0.00267	66.7	22 - 105	
Acenaphthylene	0.00400	0.00362	90.4	41 - 112	
1-Methylnaphthalene	0.00400	0.00282	70.5	31 - 95	
2-Methylnaphthalene	0.00400	0.00300	75.0	30 - 97	
Acenaphthene	0.00400	0.00308	77.0	32 - 120	
Fluorene	0.00400	0.00362	90.4	45 - 117	
Phenanthrene	0.00400	0.00337	84.2	48 - 122	
Anthracene	0.00400	0.00349	87.1	48 - 122	
Fluoranthene	0.00400	0.00384	96.1	52 - 125	
Pyrene	0.00400	0.00380	95.0	53 - 128	
Benzo(a)anthracene	0.00400	0.00375	93.7	52 - 122	
Chrysene	0.00400	0.00385	96.2	53 - 126	
Benzo(b)fluoranthene	0.00400	0.00343	85.7	46 - 118	
Benzo(k)fluoranthene	0.00400	0.00334	83.5	45 - 112	
Benzo(a)pyrene	0.00400	0.00310	77.4	45 - 120	
Dibenz(a,h)anthracene	0.00400	0.00160	39.9	26 - 113	
Benzo(g,h,i)perylene	0.00400	0.00161	40.3	31 - 110	
Indeno(1,2,3-cd)pyrene	0.00400	0.00273	68.4	40 - 113	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ *Test:* Polynucluear Aromatic Hydrocarbons by Method 8310 Matrix: Water - mg/L

L380155

Matrix:Water - mg/L Project:ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Sample Date:12/17/2008 Extraction Date:12/20/2008 Analysis Date:12/22/2008 Instrument ID:HPLC2 Analyst:169 Analytic Batch:WG399459

EPA ID: TN00003

Surrogate Summary

Laboratory	p-TRP	
Sample ID	ppm	% Rec
Blank WG399459	0.00048	96.0
LCS WG399459	0.00052	104
LCSD WG399459	0.00058	116
L380155-01	0.00052	104

p-Terphenyl-d14 0.0005 ppb Limits - 57 - 131

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

*Test:***Polynucluear Aromatic Hydrocarbons by Method 8310**

Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No:L380155 Sample Number:L380155-01 Analysis Date: 12/22/2008 Instrument ID: HPLC2 Analytic Batch: WG399459

EPA ID: TN00003

L380155

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier
Naphthalene	0.00400	0.00237	59.1	0.00267	66.7	22-105	12	37
Acenaphthylene	0.00400	0.00320	79.9	0.00362	90.4	41-112	12	30
1-Methylnaphthalene	0.00400	0.00249	62.3	0.00282	70.5	31-95	12	32
2-Methylnaphthalene	0.00400	0.00263	65.8	0.00300	75.0	30-97	13	34
Acenaphthene	0.00400	0.00272	68.1	0.00308	77.0	32-120	12	29
Fluorene	0.00400	0.00326	81.5	0.00362	90.4	45-117	10	27
Phenanthrene	0.00400	0.00309	77.2	0.00337	84.2	48-122	8.6	26
Anthracene	0.00400	0.00320	79.9	0.00349	87.1	48-122	8.7	26
Fluoranthene	0.00400	0.00351	87.8	0.00384	96.1	52-125	9.0	23
Pyrene	0.00400	0.00345	86.3	0.00380	95.0	53-128	9.6	24
Benzo(a)anthracene	0.00400	0.00342	85.5	0.00375	93.7	52-122	9.2	22
Chrysene	0.00400	0.00350	87.4	0.00385	96.2	53-126	9.5	23
Benzo(b)fluoranthene	0.00400	0.00312	78.1	0.00343	85.7	46-118	9.3	24
Benzo(k)fluoranthene	0.00400	0.00301	75.3	0.00334	83.5	45-112	10	24
Benzo(a)pyrene	0.00400	0.00279	69.9	0.00310	77.4	45-120	10	24
Dibenz(a,h)anthracene	0.00400	0.00153	38.3	0.00160	39.9	26-113	4.1	35
Benzo(g,h,i)perylene	0.00400	0.00157	39.3	0.00161	40.3	31-110	2.5	31
Indeno(1,2,3-cd)pyrene	0.00400	0.00247	61.7	0.00273	68.4	40-113	10	29

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/19/2008 Instrument ID: SVGC23 Analyst: 298 Analytic Batch: WG399143

L380155

EPA ID: TN00003

Method Blank											
Analyte	CAS	PQL									
Hexachlorobenzene	118-74-1	< 0.000500									
Alpha BHC	319-84-6	< 0.000500									
Gamma BHC	58-89-9	< 0.000500									
Beta BHC	319-85-7	< 0.000500									
Delta BHC	319-86-8	< 0.000500									
Heptachlor	76-44-8	< 0.000500									
Aldrin	309-00-2	< 0.000500									
Heptachlor epoxide	1024-57-3	< 0.000500									
Endosulfan I	959-98-8	< 0.000500									
4,4-DDE	72-55-9	< 0.000500									
Dieldrin	60-57-1	< 0.000500									
Endrin	72-20-8	< 0.000500									
4,4-DDD	72-54-8	< 0.000500									
Endosulfan II	33213-65-9	< 0.000500									
4,4-DDT	50-29-3	< 0.000500									
Endrin aldehyde	7421-93-4	< 0.000500									
Endosulfan sulfate	1031-07-8	< 0.000500									
Methoxychlor	72-43-5	< 0.000500									
Endrin ketone	53494-70-5	< 0.000500									
Chlordane	57-74-9	< 0.00500									
Toxaphene	8001-35-2	< 0.0100									

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/19/2008 Instrument ID: SVGC23 Analyst: 298 Analytic Batch: WG399143

L380155

EPA ID: TN00003

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Hexachlorobenzene	0.000200	0.000121	60.5	28 - 115	
Alpha BHC	0.000200	0.000148	73.8	38 - 119	
Gamma BHC	0.000200	0.000155	77.6	35 - 114	
Beta BHC	0.000200	0.000161	80.6	42 - 126	
Delta BHC	0.000200	0.000162	81.0	24 - 141	
Heptachlor	0.000200	0.000151	75.6	21 - 123	
Aldrin	0.000200	0.000153	76.6	25 - 115	
Heptachlor epoxide	0.000200	0.000164	82.2	38 - 121	
Endosulfan I	0.000200	0.000167	83.5	37 - 125	
4,4-DDE	0.000200	0.000154	77.1	33 - 124	
Dieldrin	0.000200	0.000175	87.5	37 - 130	
Endrin	0.000200	0.000182	90.8	37 - 126	
4,4-DDD	0.000200	0.000187	93.6	37 - 142	
Endosulfan II	0.000200	0.000174	86.9	38 - 131	
4,4-DDT	0.000200	0.000186	93.2	32 - 143	
Endrin aldehyde	0.000200	0.000165	82.7	24 - 154	
Endosulfan sulfate	0.000200	0.000170	84.8	38 - 131	
Methoxychlor	0.000200	0.000196	97.8	55 - 150	
Endrin ketone	0.000200	0.000175	87.4	37 - 139	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/19/2008 Instrument ID: SVGC23 Analyst: 298 Analytic Batch: WG399143

L380155

EPA ID: TN00003

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Hexachlorobenzene	0.000200	0.000132	66.0	28 - 115	
Alpha BHC	0.000200	0.000157	78.6	38 - 119	
Gamma BHC	0.000200	0.000164	81.7	35 - 114	
Beta BHC	0.000200	0.000179	89.4	42 - 126	
Delta BHC	0.000200	0.000174	86.9	24 - 141	
Heptachlor	0.000200	0.000160	80.1	21 - 123	
Aldrin	0.000200	0.000163	81.6	25 - 115	
Heptachlor epoxide	0.000200	0.000174	87.0	38 - 121	
Endosulfan I	0.000200	0.000177	88.7	37 - 125	
4,4-DDE	0.000200	0.000160	80.1	33 - 124	
Dieldrin	0.000200	0.000184	92.2	37 - 130	
Endrin	0.000200	0.000188	94.0	37 - 126	
4,4-DDD	0.000200	0.000192	95.7	37 - 142	
Endosulfan II	0.000200	0.000183	91.3	38 - 131	
4,4-DDT	0.000200	0.000194	96.9	32 - 143	
Endrin aldehyde	0.000200	0.000184	92.2	24 - 154	
Endosulfan sulfate	0.000200	0.000183	91.4	38 - 131	
Methoxychlor	0.000200	0.000202	101	55 - 150	
Endrin ketone	0.000200	0.000188	93.8	37 - 139	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/19/2008 Instrument ID: SVGC23 Analyst: 298 Analytic Batch: WG399143

L380155

EPA ID: TN00003

Laboratory Control Sample Duplicate (LCSD)

	True		Recovery	Control	0 110
Analyte	Value	Found	%	Limits	Qualifiers
** 11 1	0.000	0.000101	~~~	20 115	
Hexachlorobenzene	0.000200	0.000131	65.5	28 - 115	
Alpha BHC	0.000200	0.000164	81.7	38 - 119	
Gamma BHC	0.000200	0.000169	84.6	35 - 114	
Beta BHC	0.000200	0.000174	86.9	42 - 126	
Delta BHC	0.000200	0.000172	85.8	24 - 141	
Heptachlor	0.000200	0.000164	82.2	21 - 123	
Aldrin	0.000200	0.000164	82.0	25 - 115	
Heptachlor epoxide	0.000200	0.000174	87.2	38 - 121	
Endosulfan I	0.000200	0.000176	88.2	37 - 125	
4,4-DDE	0.000200	0.000166	82.9	33 - 124	
Dieldrin	0.000200	0.000186	93.1	37 - 130	
Endrin	0.000200	0.000193	96.6	37 - 126	
4,4-DDD	0.000200	0.000200	99.9	37 - 142	
Endosulfan II	0.000200	0.000185	92.7	38 - 131	
4,4-DDT	0.000200	0.000201	100	32 - 143	
Endrin aldehyde	0.000200	0.000175	87.6	24 - 154	
Endosulfan sulfate	0.000200	0.000177	88.6	38 - 131	
Methoxychlor	0.000200	0.000205	102	55 - 150	
Endrin ketone	0.000200	0.000184	91.7	37 - 139	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/19/2008 Instrument ID: SVGC23 Analyst: 298 Analytic Batch: WG399143

L380155

EPA ID: TN00003

Laboratory Control Sample Duplicate (LCSD)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Hexachlorobenzene	0.000200	0.000123	61.5	28 - 115	
Alpha BHC	0.000200	0.000150	75.0	38 - 119	
Gamma BHC	0.000200	0.000153	76.5	35 - 114	
Beta BHC	0.000200	0.000165	82.4	42 - 126	
Delta BHC	0.000200	0.000157	78.6	24 - 141	
Heptachlor	0.000200	0.000147	73.6	21 - 123	
Aldrin	0.000200	0.000149	74.4	25 - 115	
Heptachlor epoxide	0.000200	0.000158	78.8	38 - 121	
Endosulfan I	0.000200	0.000159	79.6	37 - 125	
4,4-DDE	0.000200	0.000146	72.9	33 - 124	
Dieldrin	0.000200	0.000167	83.4	37 - 130	
Endrin	0.000200	0.000168	83.9	37 - 126	
4,4-DDD	0.000200	0.000174	87.2	37 - 142	
Endosulfan II	0.000200	0.000167	83.4	38 - 131	
4,4-DDT	0.000200	0.000176	88.1	32 - 143	
Endrin aldehyde	0.000200	0.000171	85.7	24 - 154	
Endosulfan sulfate	0.000200	0.000166	83.0	38 - 131	
Methoxychlor	0.000200	0.000181	90.6	55 - 150	
Endrin ketone	0.000200	0.000172	86.1	37 - 139	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No: 308032.01 Login No: L380155 Sample Number: L380155-01 Sample Date: 12/17/2008 Extraction Date: 12/18/2008 Analysis Date: 12/19/2008 Instrument ID: SVGC23 Analyst: 298 Analytic Batch: WG399143

L380155

Surrogate Summary

Laboratory	TC	X Col 1	TC	X Col 2	DC	CB Col 1	DC	CB Col 2
Sample ID	ppm	ppm % Rec ppm		% Rec	ppm	% Rec	ppm	% Rec
Blank WG399143	0.00014	74.2	0.0001	70.1	0.0001	65.4	0.0001	58.8
LCS WG399143	0.00010	51.6	0.0001	56.6	0.0001	74.3	0.0001	94.6
LCSD WG399143 L380155-01	0.00011 0.00008	57.1 44.6	$0.0001 \\ 0.0000$	54.2 30.8	$0.0001 \\ 0.0000$	78.1 28.1	0.0001 0.0000	87.0 22.0

Column 1 TCMX DCB	Limits -15 - 114 Limits -10 - 123	
Column 2 TCMX DCB	Limits -15 - 114 Limits -10 - 123	95 of 102

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Analysis Date:12/19/2008 Instrument ID:SVGC23 Analytic Batch:WG399143

L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Column #1													
Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier					
Hexachlorobenzene	0.00020	0.00012	60.5	0.00013	65.5	28-115	7.8	29					
Alpha BHC	0.00020	0.00014	73.8	0.00016	81.7	38-119	10	30					
Gamma BHC	0.00020	0.00015	77.6	0.00016	84.6	35-114	8.5	30					
Beta BHC	0.00020	0.00016	80.6	0.00017	86.9	42-126	7.5	31					
Delta BHC	0.00020	0.00016	81.0	0.00017	85.8	24-141	5.8	41					
Heptachlor	0.00020	0.00015	75.6	0.00016	82.2	21-123	8.3	38					
Aldrin	0.00020	0.00015	76.6	0.00016	82.0	25-115	6.7	45					
Heptachlor epoxide	0.00020	0.00016	82.2	0.00017	87.2	38-121	6.0	33					
Endosulfan I	0.00020	0.00016	83.5	0.00017	88.2	37-125	5.5	35					
4,4-DDE	0.00020	0.00015	77.1	0.00016	82.9	33-124	7.3	37					
Dieldrin	0.00020	0.00017	87.5	0.00018	93.1	37-130	6.2	36					
Endrin	0.00020	0.00018	90.8	0.00019	96.6	37-126	6.1	37					
4,4-DDD	0.00020	0.00018	93.6	0.00020	99.9	37-142	6.5	39					
Endosulfan II	0.00020	0.00017	86.9	0.00018	92.7	38-131	6.5	36					
4,4-DDT	0.00020	0.00018	93.2	0.00020	100	32-143	7.4	42					
Endrin aldehyde	0.00020	0.00016	82.7	0.00017	87.6	24-154	5.7	36					
Endosulfan sulfate	0.00020	0.00017	84.8	0.00017	88.6	38-131	4.4	37					
Methoxychlor	0.00020	0.00019	97.8	0.00020		55-150		40					
Endrin ketone	0.00020	0.00017	87.4	0.00018	91.7	37-139	4.9	36					

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Pesticides by Method 8081 Matrix: Water - mg/L Project: ADOT Stormwater MS4 Project No:308032.01 Login No:L380155 Sample Number:L380155-01 Analysis Date:12/19/2008 Instrument ID:SVGC23 Analytic Batch:WG399143

L380155

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Column #2													
Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier					
Hexachlorobenzene	0.00020	0.00013	66.0	0.00012	61.5	28-115	6.9	29					
Alpha BHC	0.00020	0.00015	78.6	0.00015	75.0	38-119	4.8	30					
Gamma BHC	0.00020	0.00016	81.7	0.00015	76.5	35-114	6.6	30					
Beta BHC	0.00020	0.00017	89.4	0.00016	82.4	42-126	8.1	31					
Delta BHC	0.00020	0.00017	86.9	0.00015	78.6	24-141	10	41					
Heptachlor	0.00020	0.00016	80.1	0.00014	73.6	21-123	8.4	38					
Aldrin	0.00020	0.00016	81.6	0.00014		25-115	9.2	45					
Heptachlor epoxide	0.00020	0.00017	87.0	0.00015	78.8	38-121	9.8	33					
Endosulfan I	0.00020	0.00017	88.7	0.00015	79.6	37-125	11	35					
4,4-DDE	0.00020	0.00016	80.1	0.00014	72.9	33-124	9.4	37					
Dieldrin	0.00020	0.00018	92.2	0.00016	83.4	37-130	9.9	36					
Endrin	0.00020	0.00018	94.0	0.00016	83.9	37-126	11	37					
4,4-DDD	0.00020	0.00019	95.7	0.00017	87.2	37-142	9.4	39					
Endosulfan II	0.00020	0.00018	91.3	0.00016	83.4	38-131	9.0	36					
4,4-DDT	0.00020	0.00019	96.9	0.00017	88.1	32-143	9.6	42					
Endrin aldehyde	0.00020	0.00018	92.2	0.00017	85.7	24-154		36					
Endosulfan sulfate	0.00020	0.00018	91.4	0.00016	83.0	38-131	9.5	37					
Methoxychlor	0.00020	0.00020	101	0.00018	90.6	55-150		40					
Endrin ketone	0.00020	0.00018	93.8	0.00017	86.1	37-139	8.6	36					

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AQUATIC CONSULTING & TESTING, INC.

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Sample delivery group # :___

Jason Deathridge	athridge
From:	From: Daphne Richards
Sent:	Sent: Wednesday, December 17, 2008 4:00 PM
To:	To: Login
Subject:	Subject: Samples Arriving 12/18 *ENGENVPAZ* FW: Phoenix MS4 Stormwater Samples
Attachment	Attachments: COC - Phx MS4 - Dec 17, 2008.pdf
Login	Login
We will be rec	We will be receiving samples tomorrow from ENGENVPAZ-please see CoC attached. Please scan this behind
criain Several tests v MBAS Na, Ca, Sb, At Cr6, Cr3 SV8081 SV8081 SV8310PAH's change the OC	criain Several tests were left off the chain and need to be logged: MBAS Na, Ca, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn Hg Cr6, Cr3 SV8270 SV8081 SV8081 SV8310PAH's change the OGHEX to TPHOGHEX
Any questions Thanks	s please let me know
From: John Burton	From: John Burton [mailto:jburton@eecphx.com]
Sent: Wednesday,	Sent: Wednesday, December 17, 2008 2:30 PM
To: Daphne Richard	To: Daphne Richards; Shannon C. Lefebvre
Cc: Gary Hoffmann	Cc: Gary Hoffmann
Subject: RE: Phoe	Subject: RE: Phoenix MS4 Stormwater Samples
Daphne, Attached is the COC. analyses.	e COC. Gary informed me that he has sent along an extra liter of water to assit with the required
From: Daphn	From: Daphne Richards [mailto:DRichards@envsci.com]
Sent: Wedne	Sent: Wednesday, December 17, 2008 1:26 PM
To: Shannon	To: Shannon C. Lefebvre
Cc: Gary Hoff	Cc: Gary Hoffmann; John Burton
Subject: RE:	Subject: RE: Phoenix MS4 Stormwater Samples
Do you happer	Do you happen to have a copy of the CoC? Do you know if we have enough containers for all the extra tests or
are we doing a	are we doing as many tests as we can get out of the containers being submitted.
These are for (These are for delivery 11/18?
Thanks	

From: Shannon C. Lefebvre [mailto:SLefebvre@eecphx.com] Sent: Wednesday, December 17, 2008 2:04 PM

Page 1 of 2 5 -

100 of 102

To: Daphne Richards Cc: John Burton; Gary Hoffmann Subject: Phoenix MS4 Stormwater Samples

Hello Daphne,

Gary is sending some samples out today that need to be analyzed for the parameters on the attached list. The COC is missing the ones highlighted in yellow. For the metals, please verify that all of the metals listed are tested for total metals (including Cr III, Cr VI and Cr Total) (dissolved is not necessary). For TPH, please use 418.1 instead of DRO. We still need oil and grease separate. Please let me know if you have any questions. Thanks!

Shannon Lefebvre

Environmental Scientist Engineering and Environmental Consultants, Inc. (EEC) 7878 N. 16th Street, Suite 140, Phoenix, AZ 85020 Tel 602-248-7702 ext 332 | Ext | Fax 602-248-7851 slefebvre@eecphx.com Visit us @ <u>eec-info.com</u>

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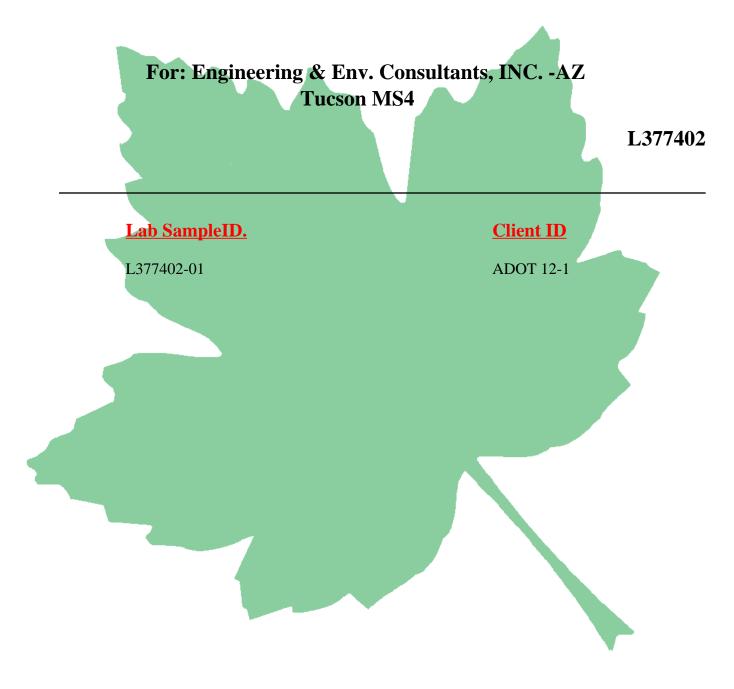
An Employee Owned Company

Customer Focus | Commitment | Communication

ENVIRONMENTAL SCIENCE CORP.	Login No. : CSPOISS Login No. : CSPOISS Date: 	Non-Conformance (check applicable items) Image: Second state items Image: Second state items Chain of Custody is missing Image: Second state items Image: Second state items Improper container type Improper preservation Improper preservation Improper container type Improper preservation Improper temperature Improper container(s) see below Improper temperature Improper temperature Insufficient packing material around container: Improper temperature Improper temperature	Comments: Unit Recipient and material inside cooler Improper handling by carrier (FedEx / UPS / Courier) Sample was frozen Sample was frozen Amey nave 3 su test and mags and other unperserved test Please cleanify what on the to run.	Login Instructions: TSR Initials: DR Client informed by call / email / fax / voice mail date: 19/18 time: DR Client contact: Client contact: DR time: DR	Run everything listed on Col. For the OGHEX on the Coc -use TPHOGHEX. Also MOHS, Crle, CrS, SVB270, SVB081, SVB310PAH Na, Ca, Sb, As, Ba, Ba, Cd, Cr, Ch, Pb, Ni, Se, AB, Zn + HB Use volumes we have. Cluind is a ware of possible dilution. I based on amount of sample received
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ADOT's Tucson Area MS4 Lab Reports



(615) 758-5858 1-800-767-5859 Fax (615) 758-5859



For: Engineering & Env. Consultants, INC. -AZ Project: Tucson MS4 L377402

SDG: L377402

December 16, 2008

Sample Receiving and Handling

All sample aliquots were received at the correct temperature, in the proper containers, and with the appropriate preservatives. All method specified holding times were met.

Anions by Method 9056

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396694. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Sample Duplicate Analysis

For analytical batch WG396694 sample duplicate analysis was performed on sample L377034-11. The relative percent differences were within the method limits.

For analytical batch WG396694 sample duplicate analysis was performed on sample L377444-02. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396694 matrix spike/matrix spike duplicate analysis was performed on sample L377367-12. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Hardness by Method 130.1

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396455. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396455 sample duplicate analysis was performed on sample L376482-02. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396455, matrix spike/matrix spike duplicate analysis was performed on sample L377253-02. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

BOD by Method SM5210B

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396649. The laboratory control sample associated with this sample was below method limits control.



For: Engineering & Env. Consultants, INC. -AZ Project: Tucson MS4 L377402

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Sample Duplicate Analysis

For analytical batch WG396649 sample duplicate analysis was performed on sample L377402-01. The relative percent difference was within the method limits.

For analytical batch WG396649 sample duplicate analysis was performed on sample L377337-01. The relative percent difference was within the method limits.

For analytical batch WG396649 sample duplicate analysis was performed on sample L377356-01. The relative percent difference was within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Kjeldahl Nitrogen, TKN by Method Calc.

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396682. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396682 sample duplicate analysis was performed on sample L377464-01. The relative percent difference was within the method limits.

For analytical batch WG396682 sample duplicate analysis was performed on sample L377250-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396682, matrix spike/matrix spike duplicate analysis was performed on sample L377358-02. The spike recoveries were below the laboratory control limits. The relative percent difference was within control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Turbidity by Method SM2130B

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396731. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396731 sample duplicate analysis was performed on sample L377329-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG396731 was evaluated using the LCS / LCSD. The RPDs were within method limits.



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SDG: L377402

December 16, 2008

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Dissolved Solids by Method 2540C

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396737. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396737 sample duplicate analysis was performed on sample L377349-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG396737 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Suspended Solids by Method 2540D

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396739. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396739 sample duplicate analysis was performed on sample L377352-03. The relative percent difference was within the method limits.

For analytical batch WG396739 sample duplicate analysis was performed on sample L377337-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG396739 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Specific Conductance by Method 9050A

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396746. The laboratory control sample associated with this sample was within the laboratory control limits.



For: Engineering & Env. Consultants, INC. -AZ Project: Tucson MS4 L377402

SDG: L377402

December 16, 2008

Sample Duplicate Analysis

For analytical batch WG396746 sample duplicate analysis was performed on sample L374734-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG396746 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Phosphate,Ortho by Method 4500P-E

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396762. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396762 sample duplicate analysis was performed on sample L377402-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396762, matrix spike/matrix spike duplicate analysis was performed on sample L377856-01. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Chlorine, residual by Method 4500Cl-G

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396763. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396763 sample duplicate analysis was performed on sample L377402-01. The relative percent difference was within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Oil & Grease (Hexane Extr) by Method 1664A

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396787. The laboratory control sample associated with this sample was within the laboratory control limits.



For: Engineering & Env. Consultants, INC. -AZ Project: Tucson MS4 L377402

SDG: L377402

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Matrix Spike/Matrix Spike Duplicate

Precision for batch WG396787 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Cyanide by Method 9012B

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396853. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396853 sample duplicate analysis was performed on sample L377586-01. The relative percent difference was within the method limits.

For analytical batch WG396853 sample duplicate analysis was performed on sample L377464-02. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396853, matrix spike/matrix spike duplicate analysis was performed on sample L377597-02. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Phosphorus, Total by Method 365.1

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396891. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396891 sample duplicate analysis was performed on sample L377318-01. The relative percent difference was within the method limits.

For analytical batch WG396891 sample duplicate analysis was performed on sample L377464-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396891, matrix spike/matrix spike duplicate analysis was performed on sample L377352-02. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.



For: Engineering & Env. Consultants, INC. -AZ Project: Tucson MS4 L377402

SDG: L377402

December 16, 2008

Ammonia Nitrogen by Method 350.1

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396894. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396894 sample duplicate analysis was performed on sample L377465-01. The relative percent difference was within the method limits.

For analytical batch WG396894 sample duplicate analysis was performed on sample L377537-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396894, matrix spike/matrix spike duplicate analysis was performed on sample L377485-07. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

COD by Method 410.4

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396916. The laboratory control sample associated with this sample was within the laboratory control limits.

Sample Duplicate Analysis

For analytical batch WG396916 sample duplicate analysis was performed on sample L377307-01. The relative percent difference was within the method limits.

For analytical batch WG396916 sample duplicate analysis was performed on sample L377465-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396916, matrix spike/matrix spike duplicate analysis was performed on sample L377508-01. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Mercury by Method 7470A

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396802. The laboratory control sample associated with this sample was within the laboratory control limits.



For: Engineering & Env. Consultants, INC. -AZ Project: Tucson MS4 L377402 SDG: L377402

December 16, 2008

Sample Duplicate Analysis

For analytical batch WG396802 sample duplicate analysis was performed on sample L377452-01. The relative percent difference was within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396802, matrix spike/matrix spike duplicate analysis was performed on sample L377452-01. The spike recoveries and relative percent differences were within laboratory control limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Trace Metals by Method 6010B

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG397641. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Sample Duplicate Analysis

For analytical batch WG397641 sample duplicate analysis was performed on sample L378352-02. The relative percent differences were within the method limits.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG397641 matrix spike/matrix spike duplicate analysis was performed on sample L378352-02. The matrix spike recoveries were below laboratory control limits for Silver. The spike recoveries for the remaining target compounds were within limits. The relative percent difference exceeded laboratory limits for Silver. Post digestion spike recoveries were within the method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Volatile Organic Compounds by Method 8260B

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396686. The laboratory control sample associated with this sample was within the laboratory control limits for all compounds.

Matrix Spike/Matrix Spike Duplicate

For analytical batch WG396686 matrix spike/matrix spike duplicate analysis was performed on sample L377027-08. The matrix spike recoveries and relative percent differences were within laboratory control limits for all target analytes.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.



For: Engineering & Env. Consultants, INC. -AZ Project: Tucson MS4 L377402

SDG: L377402

December 16, 2008

Diesel Range Organics by Method 8015

Laboratory Control Sample

Sample L377402-01 was analyzed in analytical batch WG396768. The laboratory control sample associated with this sample was within the laboratory control limits.

Matrix Spike/Matrix Spike Duplicate

Precision for batch WG396768 was evaluated using the LCS / LCSD. The RPDs were within method limits.

Blank Analysis

The method blank, the initial, and all continuing calibration blanks contained no analytes at concentrations above the method reporting limit.

Nancy F. Winters ESC Representative Environmental Science Corporation



12065 Lebanon Rd. Mt. Juliet, TN 37122 (615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Gary Hoffman Engineering & Env. Consultants, INC. -AZ 7878 N. 16th Street, Suite 140

Phoenix, AZ 85020

Report Summary Tuesday December 16, 2008 Report Number: L377402 Samples Received: 12/03/08 Client Project: 308032.01

Description: Tucson MS4

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Laboratory Certification Numbers

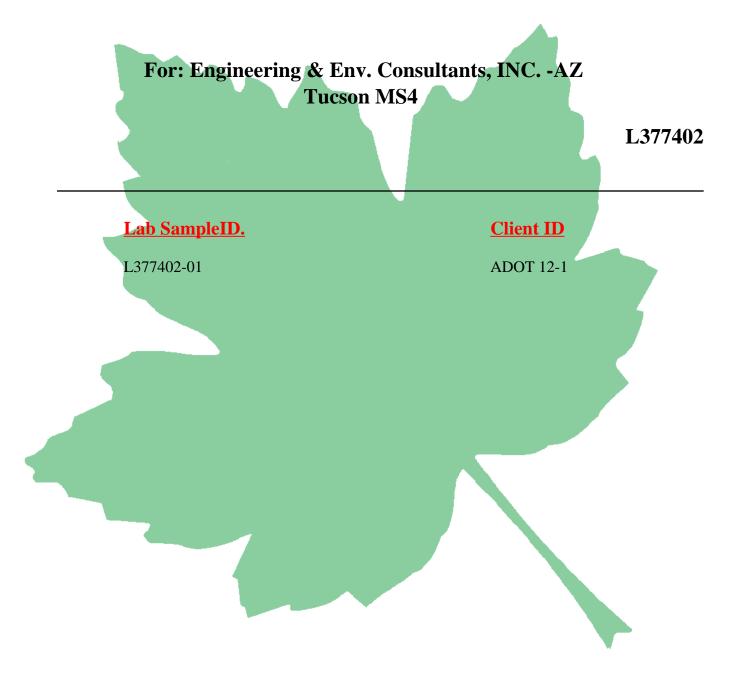
A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487 GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140 NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233 AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

Richards,

-ESC

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> 1 Samples Reported: 12/14/08 09:23 Revised: 12/16/08 13:49 Page 1 of 5



(615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Environ	mental Scier	nce Corporatio)n	SAMPLE NUM	
Customer : Source : Location :	Engineering & En	v. Consultants, INC	5	ampled : $12/1/200$) <u>1</u> 8 9:20 AM
Lab Sample ID :			-	eceived : 12/3/200	8
•	L377402-01			<u>eceiveu. 12/3/200</u>	0
9056 Analytic Batch: WG Instrument: IC4 Method: 9056	396694	Analysis Date: 12/4/2 Analyst: 245 Dilution: 1	2008	Analysis Time: 2:53 Preparation Date: 12	/3/2008 1:53
CAS NO	Analyte		RL	RESULTS	FLAG
			mg/l	mg/l	0
16887-00-6	Chloride		1.0	26	
14797-55-8	Nitrate		0.10	< 0.10	
14797-65-0	Nitrite		0.10	< 0.10	
14808-79-8	Sulfate		5.0	110	
Analytic Batch: WG Instrument: NONE Method: SM5210B	396649	Analysis Date: 12/3/2 Analyst: 365 Dilution: 1	2008	Analysis Time: 1:25 Preparation Date:	PM
CAS NO	Analyte		RL mg/l	RESULTS mg/l	FLAG
	BOD		5.0	65	L1
<i>4500Cl-G</i> Analytic Batch: WG Instrument: HANNA Method: 4500Cl-G		Analysis Date: 12/5/2 Analyst: 183 Dilution: 1	2008	Analysis Time: 3:15 Preparation Date:	РМ
CAS NO	Analyte		RL mg/l	RESULTS mg/l	FLAG
	Chlorine, residual		0.10	< 0.10	
410.4					
Analytic Batch: WG Instrument: HACH 4 Method: 410.4		Analysis Date: 12/5/2 Analyst: 352 Dilution: 1	2008	Analysis Time: 6:00 Preparation Date: 12	
CAS NO	Analyte		RL mg/l	RESULTS mg/l	FLAG
E-10117	COD		20	560	

Envir	onmental Scien	ce Corporatio)n	SAMPLE NU ADC	MBER DT 12-1
Customer : Source : Location :	Engineering & Env Tucson MS4	7. Consultants, INC		mpled : $12/1/2$	2 <u>.01</u> 2008 9:20 AM
Lab Sample II	D: L377402-01		Date Re	eceived : 12/3/2	2008
9012B					
Analytic Batch: Instrument: LAC Method: 9012B		Analysis Date: 12/8/2 Analyst: 244 Dilution: 1	2008	Analysis Time: 1 Preparation Date:	
CAS NO	Analyte		RL mg/l	RESULTS mg/l	5 FLAG
57-12-5	Cyanide		0.0050	0.0059	
130.1 Analytic Batch: V Instrument: LAC Method: 130.1		Analysis Date: 12/3/2 Analyst: 165 Dilution: 1	2008	Analysis Time: 2 Preparation Date	
CAS NO	Analyte		RL mg/l	RESULTS mg/l	S FLAG
471-34-1	Hardness		30	250	
<i>Calc.</i> Analytic Batch: ¹ Instrument: LAC Method: Calc.		Analysis Date: 12/5/2 Analyst: 244 Dilution: 1	2008	Analysis Time: 1 Preparation Date	
CAS NO	Analyte		RL mg/l	RESULTS mg/l	5 FLAG
7727-37-9	Total Nitrogen		0.10	12	
<i>350.1</i> Analytic Batch: V Instrument: LAC Method: 350.1		Analysis Date: 12/8/2 Analyst: 165 Dilution: 1	2008	Analysis Time: 2 Preparation Date	
CAS NO	Analyte		RL mg/l	RESULTS mg/l	5 FLAG
7664-41-7	Ammonia Nitrogen		0.10	6.2	

Comments:

Enviro	nmental Scienc	ce Corporatio	n	SAMP	LE NUME ADOT 1	
Customer : Source : Location : Lab Sample ID	Tucson MS4	Consultants, INC	Project : Date Sam Sampled Date Reco	By :	<u>308032.0</u> <u>12/1/2008</u> 12/3/2008	9:20 AM
<i>1664A</i> Analytic Batch: W Instrument: BAL Method: 1664A		Analysis Date: 12/5/2 Analyst: 078 Dilution: 1		Analysis	Time: 11:20 ion Date: 12/	
CAS NO	Analyte		RL mg/l	m	ESULTS g/l	FLAG
	Oil & Grease (Hexane E	Extr)	5.6	< .	5.6	
4500P-E Analytic Batch: W Instrument: HACH Method: 4500P-E		Analysis Date: 12/6/2 Analyst: 183 Dilution: 10	2008		Time: 9:34 ion Date: 12/	3/2008 5:21
CAS NO	Analyte		RL mg/l		ESULTS g/l	FLAG
	Phosphate,Ortho		0.25	0.		
<i>365.1</i> Analytic Batch: We Instrument: LACH Method: 365.1		Analysis Date: 12/8/2 Analyst: 0165 Dilution: 1	2008		Time: 10:22 ion Date: 12/	
CAS NO	Analyte		RL mg/l		ESULTS g/l	FLAG
7723-14-0	Phosphorus, Total		0.10	0.4		
9050A Analytic Batch: W Instrument: ORION Method: 9050A		Analysis Date: 12/4/2 Analyst: 352 Dilution: 1	2008		Time: 12:00 ion Date:	
CAS NO	Analyte		RL umhos/cm		ESULTS nhos/cm	FLAG
	Specific Conductance			72	.0	

Enviror	mental Science	e Corporatio	on	SAMP	LE NUMI ADOT 1	
Customer : Source : Location :	Engineering & Env. (Tucson MS4	Consultants, INC	Date Sa Sampled	mpled : d By :		3 9:20 AM
Lab Sample ID :	L377402-01		Date Re	ceived :	12/3/2008	3
<i>351.2</i> Analytic Batch: WC Instrument: LACHA Method: 351.2		Analysis Date: 12/5/2 Analyst: 244 Dilution: 1	2008		s Time: 1:50 ion Date: 12/	
CAS NO	Analyte		RL	R	ESULTS	FLAG
	·		mg/l	m	g/l	
7727-37-9	Kjeldahl Nitrogen, TKN		0.10	12	2	
<i>SM2130B</i> Analytic Batch: WC Instrument: NONE Method: SM2130B	396731	Analysis Date: 12/3/2 Analyst: 183 Dilution: 1	2008		s Time: 4:47 i ion Date:	PM
CAS NO	Analyte		RL NTU		ESULTS TU	FLAG
	Turbidity		0.10	94		
2540C Analytic Batch: WC Instrument: BAL Method: 2540C	396737	Analysis Date: 12/8/2 Analyst: 193 Dilution: 1	2008		s Time: 12:15 ion Date: 12/	
CAS NO	Analyte		RL mg/l		ESULTS g/l	FLAG
	Dissolved Solids		10	68		
2540D Analytic Batch: WC Instrument: BAL Method: 2540D	396739	Analysis Date: 12/4/2 Analyst: 193 Dilution: 1	2008		s Time: 8:26 ion Date: 12/	3/2008 3:50
CAS NO	Analyte		RL mg/l	m	ESULTS g/l	FLAG
	Suspended Solids		1.0	11	10	

Comments:

mental Scienc	e Corporatio	on		
	•		. 208022 ()1
Engineering & Env.	Consultants, INC	•		
			1	8 9:20 AM
Tucson MS4		-	•	
L377402-01		Date Re	<u>eceived : 12/3/200</u>	8
96802	Analysis Date: 12/4/2	2008	Analysis Time: 8:26	PM
	•			
	Dilution: 1		1	
Analyte		RL	RESULTS	FLAG
1 mary ve				1210
Mercury		0.00020	< 0.00020	
97641	Analysis Data: 12/11	/2008	Analysis Time 10.2	3
7/041		/2008		
	2		Preparation Date: 12	/9/2008 0:38
	Dilution: 1			
Analyte		RI.	RESULTS	FLAG
maryte				TLING
Arsenic				
Silver		0.010	< 0.010	
96686	Analysis Date: 12/3/	2008	Analysis Time: 10.3	9
		2000		
T	2		Treparation Date: 12	15/2000 10.5
	Diracioni i			
Analyte		RL	RESULTS	FLAG
·		mg/l	mg/l	
Benzene		0.0010	< 0.0010	
Toluene		0.0050	< 0.0050	
Ethylbenzene		0.0010	< 0.0010	
Total Xylenes		0.0030	< 0.0030	
Analyta	DEDCENT	г от	AT IFIEDS	FLAG
Analyte		•	ALIFICKS	ГLAG
Toluene-d8				
Dibromofluoromethane	<u> </u>			
a,a,a-Trifluorotoluene	101			
	Engineering & Env. 9 Tucson MS4 L377402-01 396802 Analyte Mercury 397641 Analyte Arsenic Barium Cadmium Chromium Lead Selenium Silver 396686 4 Analyte Benzene Toluene Ethylbenzene	Engineering & Env. Consultants, INC Tucson MS4 L377402-01 396802 Analysis Date: 12/4/2 Analysis Date: 12/4/2 Analyst: 429 Dilution: 1 Analyte Mercury 397641 Analysis Date: 12/11 Analyte Analyte Arsenic Barium Cadmium Cadmium Chromium Lead Selenium Silver 396686 Analysis Date: 12/3/2 Analyst: 156 Dilution: 1 Analyte Benzene Toluene Ethylbenzene Total Xylenes	Date Sa Tucson MS4 Samplex L377402-01 Date Re 396802 Analysis Date: 12/4/2008 Analyte RL mg/l Mercury Mercury 0.00020 397641 Analysis Date: 12/11/2008 Analyte RL mg/l Mercury 397641 Analysis Date: 12/11/2008 Analyte RL mg/l Manalyst: 447 Dilution: 1 Nalysis Date: 12/11/2008 Analyte RL mg/l Arsenic 0.0020 Ootso Barium 0.0050 Cadmium 0.0050 Cadmium 0.0010 Lead 0.0050 Selenium 0.020 Silver 0.010 Silver 0.010 396686 Analysis Date: 12/3/2008 4 Analysis Date: 12/3/2008 5 Dilution: 1	Image: Second State Second StateEngineering & Env. Consultants, INC Date Sampled : I2/1/200Project : Date Sampled : Sampled By : Date Received : Date Received : I2/3/200396802Analysis Date: 12/4/2008 Analyst: 429 Dilution: 1Analysis Time: 8:26 Preparation Date: 12 Dilution: 1AnalyteRL mg/lRESULTS mg/lMercury0.00020 (0.00020)< 0.00020

Comments:

Customer :	Engineering & Env. C	onsultants INC -	Proje	ect ·	308032.0	1
Source :	Engineering & Env. C			Sampled :		1 8 9:20 AM
Location :	Tucson MS4			pled By :	12/1/2000	<u>5 7.20 A</u>
Lab Sample ID :			-	Received :	12/3/2008	3
3510/DRO						
Analytic Batch: WG3	396768	Analysis Date: 12/4/20	008	Analysis	Time: 12:58	3
Instrument: SVGC7		Analyst: 267			ion Date: 12/	
Method: 3510/DRO		Dilution: 1.10				
CAS NO	Analyte		RL	R	ESULTS	FLAG
	1 mary te		mg/l		g/l	1210
68334-30-5	TPH (GC/FID) High Fracti	ion	0.11	6.		
Surrogates						
C	Analyte	PERCENT RECOVER		QUALIFIER	5	FLAG
	o-Terphenyl	72.7				
LEGEND						
RL -	Reporting Limit					

Quality Control Summary – Engineering & Env. Consultants, INC. -AZ

Test: Anions by Method 9056 Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Analysis Date: 12/3/2008 Instrument ID: IC4 Analyst: 245 Analytic Batch: WG396694 L377402

EPA ID: TN00003

Method Blank

Analyte	CAS	PQL
Chloride Nitrate Nitrite Sulfate		<1.00 <0.100 <0.100 <5.00

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Chloride	40.0	39.7	99.2	90 - 110	
Nitrate	8.00	8.12	101	90 - 110	
Nitrite	8.00	7.98	99.8	90 - 110	
Sulfate	40.0	39.5	98.8	90 - 110	

Laboratory Control Sample Duplicate (LCSD)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Chloride	40.0	40.1	100	90 - 110	
Nitrate	8.00	8.20	102	90 - 110	
Nitrite	8.00	8.07	101	90 - 110	
Sulfate	40.0	39.9	99.8	90 - 110	

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Anions by Method 9056 Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Analysis Date: 12/3/2008 Instrument ID: IC4 Analyst: 245 Analytic Batch: WG396694 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	%	Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Chloride	40.0	39.7	99.2	40.1	100	90-110	1.0	20
Nitrate	8.00	8.12	101	8.20	102	90-110	1.0	20
Nitrite	8.00	7.98	99.8	8.07	101	90-110	1.1	20
Sulfate	40.0	39.5	98.8	39.9	99.8	90-110	1.0	20

Sample Duplicate

L377034-11

	Sample	Results			
Name	Results	Duplicate	%RPD	Limit	Qualifiers
Chloride	210	207	1.4	20	
Nitrate	0.173	0.000			
Nitrite	0.000	0.000			
Sulfate	42.8	43.0	0.5	20	

Sample Duplicate

L377444-02

	Sample	Results			
Name	Results	Duplicate	%RPD	Limit	Qualifiers
Chloride	11.0	10.1	8.5	20	
Nitrate	0.000	0.000			
Nitrite	0.047	0.000			
Sulfate	17.9	17.7	1.1	20	



Engineering & Env. Consultants, INC. -AZ

Test: Anions by Method 9056 Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No:L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Analysis Date: 12/3/2008 Instrument ID: IC4 Analyst: 245 Analytic Batch: WG396694 L377402

EPA ID: TN00003

Matrix Spike/Matrix Spike Duplicate L377367-12

	Spike			%		%	Control	% Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifier
Chloride	50.0	8.41	57.9	99.0	57.0	97.2	80-120	1.6 20
Nitrate	5.00	1.30	6.30	100	6.14	96.8	80-120	2.6 20
Nitrite	5.00	0.025	5.05	100	4.95	98.5	80-120	2.0 20
Sulfate	50.0	0.000	51.0	102	50.1	100	80-120	1.8 20

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Ammonia Nitrogen by Method 350.1

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/8/2008 2:28:00 PM Instrument ID:LACHAT3 Analyst:165 Analytic Batch:WG396894 L377402

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Ammonia Nitrogen		< 0.100

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Ammonia Nitrogen	7.50	7.24	96.5	85 - 115	

Laboratory Control Sample Duplicate (LCSD)

Analyte	True Value	Found	Recovery %	Control Limits	Oualifiers
Ammonia Nitrogen	7.50	7.46	99.5	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Ammonia Nitrogen by Method 350.1

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/8/2008 2:28:00 PM Instrument ID:LACHAT3 Analyst:165 Analytic Batch:WG396894

EPA ID: TN00003

L377402

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Ammonia Nitrogen	7.50	7.24	96.5	7.46	99.5	85-115	3.0 20

Sample Duplicate

L377465-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Ammonia Nitrogen	5.00	4.99	0.2	20	

Sample Duplicate

L377537-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Ammonia Nitrogen	14.0	14.2	1.4	20	

Matrix Spike/Matrix Spike Duplicate L377485-07

	Spike			%		%	Control	% Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifier
Ammonia Nitrogen	5.00	0.0000	4.78	95.6	5.01	100	80-120	4.7 20

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: BOD by Method SM5210B

Matrix: Water - mg/L Project: Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date: 12/3/2008 Analysis Date: 12/3/2008 1:25:00 PM Instrument ID:NONE Analyst:365 Analytic Batch:WG396649

EPA ID: TN00003

Method Blank CAS Results Analyte BOD 0.0000

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
BOD	198	199	101	85 - 115	
BOD	198	188	94.9	85 - 115	
BOD	198	138	69.7	85 - 115	L1

L377402

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Sample Duplicate

Test:BOD by Method SM5210B Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/3/2008 1:25:00 PM Instrument ID:NONE Analyst:365 Analytic Batch:WG396649

L377402

EPA ID: TN00003

	L3774	402-01			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
BOD	65.0	63.0	3.1	10	
	-	Duplicate 337-01			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
BOD	37.0	37.0	0.0	10	
	-	Duplicate 356-01			
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
BOD	0.0000	0.0000			

Quality Control Summary for client sample(s) ADOT 12-1

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: COD by Method 410.4 Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/4/2008 Analysis Date: 12/5/2008 6:00:00 PM Instrument ID: HACH 4000 Analyst: 352 Analytic Batch: WG396916 L377402

EPA ID: TN00003

Analyte	CAS	PQL
COD		<20.0

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
COD	383	389	102	90 - 110	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
COD	383	384	100	90 - 110	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: COD by Method 410.4 Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/4/2008 Analysis Date: 12/5/2008 6:00:00 PM Instrument ID: HACH 4000 Analyst: 352 Analytic Batch: WG396916 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control	
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifie	r
COD	383	389	102	384	100	90-110	1.3 20	

Sample Duplicate

L377307-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
COD	75.0	78.5	4.6	20	

Sample Duplicate

L377465-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
COD	100	108	7.7	20	

Matrix Spike/Matrix Spike Duplicate L377508-01

	Spike			%		%	Control	% Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifier
COD	400	0.0000	408	102	407	102	90-110	0.2 5.0

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Chlorine, residual by Method 4500Cl-G L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/5/2008 3:15:00 PM Instrument ID:HANNAH HI9 Analyst:183 Analytic Batch:WG396763

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Chlorine.residual		< 0.100

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Chlorine, residual by Method 4500Cl-G

L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/5/2008 3:15:00 PM Instrument ID:HANNAH HI9 Analyst:183 Analytic Batch:WG396763

EPA ID: TN00003

	Sample L377				
Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Chlorine.residual	0.0000	0.0000			

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Cyanide by Method 9012B Matrix: Water - mg/L Project: Tucson MS4

Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/8/2008 10:10:00 AM Instrument ID:LACHAT4 Analyst:244 Analyst:244

EPA ID: TN00003

L377402

	Method Blank	
Analyte	CAS	PQL
Cyanide		<0.0050

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Cyanide	0.100	0.110	110	90 - 110	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Cyanide	0.100	0.109	109	90 - 110	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Cyanide by Method 9012B Matrix: Water - mg/L Project: Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/8/2008 10:10:00 AM Instrument ID:LACHAT4 Analyst:244 Analytic Batch:WG396853

L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Cyanide	0.100	0.110	110	0.109	109	90-110	0.9 20

Sample Duplicate

L377586-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Cyanide	0.0190	0.0179	6.0	20	

Sample Duplicate

L377464-02

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Cyanide	0.0000	0.0000			

Matrix Spike/Matrix Spike Duplicate L377597-02

	Spike			%		%	Control	% Control	
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifier	
Cyanide	0.200	0.0000	0.197	98.5	0.184	92.0	90-110	6.8 20	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Test: Dissolved Solids by Method 2540C Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/3/2008 Analysis Date: 12/8/2008 12: 15:00 PM Instrument ID: BAL Analyst: 193 Analytic Batch: WG396737

EPA ID: TN00003

L377402

	Method Blank	
Analyte	CAS	PQL
Dissolved Solids		<10.0

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Dissolved Solids	8800	8560	97.3	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Dissolved Solids	8800	8680	98.7	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Dissolved Solids by Method 2540C

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/8/2008 12:15:00 PM Instrument ID:BAL Analyst:193 Analytic Batch:WG396737 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% (Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Dissolved Solids	8800	8560	97.3	8680	98.7	85-115	1.4	20

Sample Duplicate

L377349-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Dissolved Solids	530	527	0.6	5	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Hardness by Method 130.1 Matrix: Water - mg/L Project: Tueson MS4

Project: Tucson MS4 *Project No:*308032.01 *Login No:*L377402 *Sample Number:*L377402-01 *Sample Date:*12/1/2008 *Extraction Date:*12/2/2008 *Analysis Date:*12/3/2008 2:44:00 PM *Instrument ID:*LACHAT3 *Analyst:*165 *Analytic Batch:*WG396455

EPA ID: TN00003

L377402

	Method Blank	
Analyte	CAS	PQL
Hardness		<30.0

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Hardness	200	186	93.0	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Hardness	200	186	93.0	85 - 115	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Test:Hardness by Method 130.1 Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/2/2008 Analysis Date:12/3/2008 2:44:00 PM Instrument ID:LACHAT3 Analyst:165 Analytic Batch:WG396455 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Hardness	200	186	93.0	186	93.0	85-115	0.0 20

Sample Duplicate

L376482-02

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Hardness	0.0000	39.1			

Matrix Spike/Matrix Spike Duplicate

L377253-02

	Spike			%		%	Control	% Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD Limits Qualifier
Hardness	150	44.0	174	86.7	173	86.0	80-120	0.6 20

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Kjeldahl Nitrogen, TKN by Method Calc.

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/5/2008 12:00:00 AM Instrument ID:LACHAT4 Analyst:244 Analytic Batch:WG396682 L377402

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Kjeldahl Nitrogen, TKN		<0.100

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Kjeldahl Nitrogen, TKN	8.60	8.69	101	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Kjeldahl Nitrogen, TKN	8.60	8.64	100	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Kjeldahl Nitrogen, TKN by Method Calc.

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/5/2008 12:00:00 AM Instrument ID:LACHAT4 Analyst:244 Analytic Batch:WG396682 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	%	Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Kjeldahl Nitrogen, TKN	8.60	8.69	101	8.64	100	85-115	0.6	20

Sample Duplicate

L377464-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Kjeldahl Nitrogen, TKN	3.10	3.08	0.6	20	

Sample Duplicate L377250-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Kjeldahl Nitrogen, TKN	0.0000	0.0000			

Matrix Spike/Matrix Spike Duplicate L377358-02

	Spike			%		%	Control		%	Control	
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifi	ier RPD	Limits Qualized	fier
Kjeldahl Nitrogen, TKN	5.00	2.40	5.88	69.6	5.76	67.2	80-120	M2	2.1	20	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Engineering & Env. Consultants, INC *Test:***Oil & Grease (Hexane Extr) by Method 1664A**

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/5/2008 11:20:00 AM Instrument ID:BAL Analyst:078 Analytic Batch:WG396787

EPA ID: TN00003

L377402

	Method Blank	
Analyte	CAS	PQL
Oil & Grease (Hexane	Extr)	<5.00

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Oil & Grease (Hexane Extr)	40.0	32.0	80.0	78 - 114	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Oil & Grease (Hexane Extr)	40.0	33.0	82.5	78 - 114	

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Oil & Grease (Hexane Extr) by Method 1664A

L377402

Matrix: Water - mg/L Project: Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/4/2008 Analysis Date: 12/5/2008 11:20:00 AM Instrument ID:BAL Analyst:078 Analytic Batch:WG396787

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	-	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Oil & Grease (Hexane	40.0	32.0	80.0	33.0	82.5	78-114	3.1 20

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

*Test:***Phosphate,Ortho by Method 4500P-E**

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/6/2008 9:34:00 AM Instrument ID:HACH 4000 Analyst:183 Analytic Batch:WG396762

EPA ID: TN00003

L377402

	Method Blank	
Analyte	CAS	PQL
Phosphate,Ortho		< 0.0250

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Phosphate,Ortho	0.750	0.774	103	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Phosphate,Ortho	0.750	0.785	105	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Phosphate, Ortho by Method 4500P-E

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/6/2008 9:34:00 AM Instrument ID:HACH 4000 Analyst:183 Analytic Batch:WG396762 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control	
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier	•
Phosphate,Ortho	0.750	0.774	103	0.785	105	85-115	1.4 20	

Sample Duplicate

L377402-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Phosphate,Ortho	0.620	0.667	7.3	20	

Matrix Spike/Matrix Spike Duplicate L377856-01

	Spike			%		%	Control	% (Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Phosphate,Ortho	0.500	0.0570	0.571	103	0.579	104	80-120	1.4	20

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Phosphorus, Total by Method 365.1

L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/8/2008 10:22:00 AM Instrument ID:LACHAT2 Analyst:0165 Analytic Batch:WG396891

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Phosphorus, Total		< 0.100

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Phosphorus, Total	1.00	1.05	105	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Phosphorus, Total	1.00	1.06	106	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Phosphorus, Total by Method 365.1

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/8/2008 10:22:00 AM Instrument ID:LACHAT2 Analyst:0165 Analytic Batch:WG396891 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Phosphorus, Total	1.00	1.05	105	1.06	106	85-115	0.9 20

Sample Duplicate

L377318-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Phosphorus, Total	10.0	9.95	0.5	20	

Sample Duplicate

L377464-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Phosphorus, Total	0.490	0.496	1.2	20	

Matrix Spike/Matrix Spike Duplicate L377352-02

	Spike			%		%	Control	%	Control
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD	Limits Qualifier
Phosphorus, Total	2.50	1.70	4.01	92.4	4.10	96.0	80-120	2.2	20

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Specific Conductance by Method 9050A

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/4/2008 12:00:00 PM Instrument ID:ORION170 Analyst:352 Analytic Batch:WG396746

EPA ID: TN00003

L377402

Ι	Method Blank	
Analyte	CAS	Results
Specific Conductance		0.540

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Specific Conductance	519	540	104	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Specific Conductance	519	540	104	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Specific Conductance by Method 9050A

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/4/2008 12:00:00 PM Instrument ID:ORION170 Analyst:352 Analytic Batch:WG396746 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control	
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifie	r
Specific Conductance	519	540	104	540	104	85-115	0.0 20	

Sample Duplicate

L374734-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Specific Conductance	770	775	0.6	20	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Suspended Solids by Method 2540D L377402

Matrix: Water - mg/L Project: Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/4/2008 8:26:00 AM Instrument ID:BAL Analyst:193 Analytic Batch:WG396739

EPA ID: TN00003

	Method Blank	
Analyte	CAS	PQL
Suspended Solids		<1.00

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Suspended Solids	778	792	102	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Suspended Solids	778	780	100	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Suspended Solids by Method 2540D

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/4/2008 8:26:00 AM Instrument ID:BAL Analyst:193 Analytic Batch:WG396739 L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Suspended Solids	778	792	102	780	100	85-115	1.5 20

Sample Duplicate

L377352-03

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Suspended Solids	2300	2280	0.9	5	

Sample Duplicate

L377337-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Suspended Solids	44.0	43.6	1.0	5	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test:Turbidity by Method SM2130B

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/3/2008 4:47:00 PM Instrument ID:NONE Analyst:183 Analytic Batch:WG396731

EPA ID: TN00003

L377402

Analyte	CAS	PQL
Turbidity		<0.100

Laboratory Control Sample (LCS)

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Turbidity	20.0	22.0	110	85 - 115	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Turbidity	20.0	22.0	110	85 - 115	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: **Turbidity by Method SM2130B** Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/3/2008 Analysis Date: 12/3/2008 4:47:00 PM Instrument ID: NONE Analyst: 183 Analytic Batch: WG396731

L377402

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte		LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Turbidity	20.0	22.0	110	22.0	110	85-115	0.0 20

Sample Duplicate

L377329-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Turbidity	2.40	2.20	8.7	20	

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Mercury by Method 7470A Matrix: Water - mg/L

Matrix: Water - mg/L Project: Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/4/2008 Analysis Date:12/4/2008 8:26:00 PM Instrument ID:CVAA3 Analyst:429 Analytic Batch:WG396802

EPA ID: TN00003

L377402

Method Blank

Analyte CAS PQL Mercury<0.0002</td>

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Oualifiers
Mercury	0.0030	0.0030	98.3	85 - 115	Qualifiers

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Mercury by Method 7470A Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/4/2008 Analysis Date: 12/4/2008 8:26:00 PM Instrument ID: CVAA3 Analyst: 429 Analytic Batch: WG396802

L377402

EPA ID: TN00003

Sample Duplicate L377452-01

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Mercury	0.0000	0.0000			

Matrix Spike/Matrix Spike Duplicate L377452-01

	Spike			%		%	Control	% Control		
Analyte	Value	Sample	MS	Rec	MSD	Rec	Limits	Qualifier RPD	Limits Qualifier	
Mercury	0.0030	0.0000	0.0025	82.0	0.0029	97.0	70-130	17	20	

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Trace Metals by Method 6010B Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/9/2008 Analysis Date: 12/11/2008 Instrument ID: ICP7 Analyst: 447 Analytic Batch: WG397641

L377402

EPA ID: TN00003

Method Blank

Analyte	CAS	PQL
Arsenic	7440-38-2	< 0.0200
Barium	7440-39-3	< 0.00500
Cadmium	7440-43-9	< 0.00500
Chromium	7440-47-3	< 0.0100
Lead	7439-92-1	< 0.00500
Selenium	7782-49-2	< 0.0200
Silver	7440-22-4	< 0.0100

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits Qualifiers
Arsenic	1.13	1.08	95.6	85 - 115
Barium	1.13	1.11	98.2	85 - 115
Cadmium	1.13	1.12	99.1	85 - 115
Chromium	1.13	1.09	96.5	85 - 115
Lead	1.13	1.14	101	85 - 115
Selenium	1.13	1.09	96.5	85 - 115
Silver	1.13	1.06	93.8	85 - 115

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Trace Metals by Method 6010B Matrix: Water - mg/L Project: Tucson MS4 Project No: 308032.01 Login No: L377402 Sample Number: L377402-01 Sample Date: 12/1/2008 Extraction Date: 12/9/2008 Analysis Date: 12/11/2008 Instrument ID: ICP7 Analyst: 447 Analytic Batch: WG397641

L377402

EPA ID: TN00003

Sample Duplicate L378352-02

Name	Sample Results	Results Duplicate	%RPD	Limit	Qualifiers
Arsenic	0.00000	0.00000			
Barium	0.0763	0.0762	0.1	20	
Cadmium	0.00033	0.00025			
Chromium	0.00000	0.00000			
Lead	0.00136	0.00348			
Selenium	-0.00850	0.00000			
Silver	0.00220	0.00030			

Matrix Spike/Matrix Spike Duplicate

L378352-02

Analyte	Spike Value	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Qualifier RPD	Control Limits	
Arsenic	1.13	0.00000	1.17	104	1.17	104	75-125	0.0	20	
Barium	1.13	0.0762	1.20	99.5	1.18	97.7	75-125	1.7	20	
Cadmium	1.13	0.00000	1.14	101	1.12	99.1	75-125	1.8	20	
Chromium	1.13	0.00000	1.12	99.1	1.10	97.3	75-125	1.8	20	
Lead	1.13	0.00348	1.15	101	1.14	101	75-125	0.9	20	
Selenium	1.13	0.00000	1.13	100	1.10	97.3	75-125	2.7	20	
Silver	1.13	0.00000	0.313	27.7	0.418	37.0	75-125	M2 29	20	R2

Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Test: Volatile Organic Compounds by Method 8260B

L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Analysis Date:12/3/2008 Instrument ID:VOCMS4 Analyst:156 Analytic Batch:WG396686

EPA ID: TN00003

Method Blank

Analyte	CAS	PQL
D	51.42.2	0.0010
Benzene	71-43-2	< 0.0010
Toluene	108-88-3	< 0.0050
Ethylbenzene	100-41-4	< 0.0010
m&p-Xylene	1330-20-7	< 0.0030
o-Xylene	1330-20-7	< 0.0030

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0489	97.8	67 - 126	
Toluene	0.0500	0.0479	95.8	72 - 122	
Ethylbenzene	0.0500	0.0488	97.6	76 - 129	
m&p-Xylene	0.100	0.0949	94.9	74 - 128	
o-Xylene	0.0500	0.0499	99.9	78 - 128	

Analyte	True Value	Found	Recovery %	Control Limits	Qualifiers
Benzene	0.0500	0.0505	101	67 - 126	
Toluene	0.0500	0.0480	96.1	72 - 122	
Ethylbenzene	0.0500	0.0493	98.7	76 - 129	
m&p-Xylene	0.100	0.0963	96.3	74 - 128	
o-Xylene	0.0500	0.0507	101	78 - 128	

Quality Control Summary Engineering & Env. Consultants, INC. -AZ

Test: Volatile Organic Compounds by Method 8260B

L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Analysis Date:12/3/2008 Instrument ID:VOCMS4 Analyst:156 Analytic Batch:WG396686

EPA ID: TN00003

			0		•				
Laboratory	Dibromo	Dibromofluoromethane		Toluene-d8		4-Bromofluorobenzene		Alternate Surrogate a,a,a-Trifluorotoluene	
Sample ID	ppb	% Rec	ppb	% Rec	ppb	% Rec	ppb	% Rec	
LCS WG396686	41.2	103	41.4	103	39.8	99.6	41.9	105	
LCSD WG396686	41.2	103	39.9	99.7	39.3	98.4	40.5	101	
MS WG396686	38.3	95.7	41.1	103	39.9	99.7	41.4	103	
MSD WG396686	38.9	97.4	41.0	102	39.3	98.2	41.1	103	
Blank WG396686	40.0	99.9	40.3	101	40.6	101	40.6	101	
L377402-01	40.4	101	39.6	99.0	40.5	101	41.0	102	
	Dibromof	luoromethane		40 ppb	79 - 125				
	Toluene -	d8		40 ppb	87 - 114				
	4-Bromof	luorobenzene		40 ppb	75 - 128				
			Alterna	ate Surrogat	e				
	a,a,a-Trif	luorotoluene		40 ppb	84 - 114				

Surrogate Summary



Test: Volatile Organic Compounds by Method 8260B

L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Analysis Date:12/3/2008 Instrument ID:VOCMS4 Analytic Batch:WG396686

EPA ID: TN00003

Laboratory Control Sample/ Laboratory Control Sample Duplicate

Analyte	Spike	LCS	% Rec	LCSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier
Benzene	0.0500	0.0489	97.8	0.0505	101	67-126	3.2	20
Toluene	0.0500	0.0479	95.8	0.0480	96.1	72-122	0.3	20
Ethylbenzene	0.0500	0.0488	97.6	0.0493	98.7	76-129	1.1	20
m&p-Xylene	0.100	0.0949	94.9	0.0963	96.3	74-128	1.4	20
o-Xylene	0.0500	0.0499	99.9	0.0507	101	78-128	1.6	20

Matrix Spike/Matrix Spike Duplicate

L377027-08

Analyte	Spike Value S	Sample	MS	% Rec	MSD	% Rec	Control Limits	% Qualifier RPD	Control Limits Qualifier
Benzene	0.0500 0	0.0164	0.0649	97.1	0.0656	98.5	16-158	1.1	21
Toluene	0.0500 0	0.0036	0.0504	93.6	0.0512	95.2	22-152	1.7	22
Ethylbenzene	0.0500	0.139	0.189	100	0.189	99.7	29-150	0.1	24
m&p-Xylene	0.100	0.107	0.209	102	0.209	102	24-151	0.2	23
o-Xylene	0.0500 0	0.0035	0.0512	95.4	0.0506	94.2	32-151	1.2	23

Environmental Science Corporation Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Volatile Organic Compounds by Method 8260B

L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Date:12/1/2008 Analysis Date:12/3/2008 Instrument ID:VOCMS4 Analyst:156 Analytic Batch:WG396686

EPA ID: TN00003

Internal Standard Response and Retention Time Summary									
FileID:1203_34.D		Date:12/3/2008				Time:4:34 PM			
IS		IS2			IS3		IS4	IS4	
	Response	RT	Response	RT	Response	RT	Response	RT	
12 Hour Std	731163	4.58	1171690	5.04	562957	6.24	661914	8.57	
Upper Limit	1462326	5.08	2343380	5.54	1125914	6.74	1323828	9.07	
Lower Limit	365581.5	4.08	585845	4.54	281478.5	5.74	330957	8.07	
Sample ID	Response	RT	Response	RT	Response	RT	Response	RT	
Blank WG396686	761834	4.57	1154400	5.04	529968	6.24	638453	8.57	
L377402-01	695204	4.57	1076159	5.03	494499	6.24	590211	8.57	
LCS WG396686	723869	4.58	1118806	5.04	541143	6.24	667343	8.57	
LCSD WG396686	710931	4.57	1124370	5.04	539229	6.24	656354	8.57	
MS WG396686	750264	4.57	1180469	5.03	589840	6.24	721821	8.57	
MSD WG396686	711791	4.57	1116348	5.03	561556	6.24	689959	8.57	

Internal Standard Response and Retention Time Summary

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Diesel Range Organics by Method 8015 L377402 *Matrix:* Water - mg/L Project: Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date: 12/3/2008 Analysis Date: 12/4/2008 Instrument ID:SVGC7 Analyst:267 Analytic Batch:WG396768 EPA ID: TN00003 **Method Blank** Analyte CAS PQL

< 0.10

Diesel Range Organics

Laboratory Control Sample (LCS)

Analyte	True Value	Found	Recovery %	Control Limits	Oualifiers
Diesel Range Organics	1.50	1.17	78.0	50 - 150	(

	True		Recovery	Control	
Analyte	Value	Found	%	Limits	Qualifiers
Diesel Range Organics	1.50	1.20	80.2	50 - 150	

Environmental Science Corporation

Quality Control Summary

Engineering & Env. Consultants, INC. -AZ

Test: Diesel Range Organics by Method 8015

L377402

Matrix:Water - mg/L Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/4/2008 Instrument ID:SVGC7 Analyst:267 Analytic Batch:WG396768

EPA ID: TN00003

Surrogate Summary

 Laboratory Sample ID	o-terphenylD ppm	% Rec
Blank WG396768	0.0160	79.8
LCS WG396768	0.0170	85.2
LCSD WG396768	0.0169	84.7
L377402-01	0.0158	78.8

o-terphenyl Limits - 50 - 150

Environmental Science Corporation Quality Control Summary Engineering & Env. Consultants, INC. -AZ Test: Diesel Range Organics by Method 8015 Matrix: Water - mg/L Project Tuscon MS4

Project:Tucson MS4 Project No:308032.01 Login No:L377402 Sample Number:L377402-01 Sample Date:12/1/2008 Extraction Date:12/3/2008 Analysis Date:12/4/2008 Instrument ID:SVGC7 Analyst:267 Analytic Batch:WG396768

EPA ID: TN00003

L377402

Laboratory Control Sample/ Laboratory Control Sample Duplicate

	Spike		%		%	Control	% Control
Analyte	_	LCS	Rec	LCSD	Rec	Limits	Qualifier RPD Limits Qualifier
Diesel Range Organics	1.50	1.17	78.0	1.20	80.2	50-150	2.7 25

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20/1207

10/30/08

Gary,

This cooler contains the following:

- Shipping supplies- consisting of 2 large plastic bags, bubble wrap to line the top and bottom of cooler, Fed Ex shipping labels, Zip ties for the large plastic bags, zip lock bags for COCs, custody seals, and instructions for preparing the samples to ship and for shipping. i
- Coliform-they have a small white pellet in the bottom of each 2. (2) small plastic sampling bottles for E.Coli and Fecal and are labeled on the zip lock bag they are in.
- 3. (2) 1L amber bottles with a blue dot on top for DRO -please add HCL preservative contained in the amber bottle to the sample water
- 4. (2) 40ml HCL VOA vials in bubble bag for BTEX
- 5. (1) 250ml plastic bottle w/ yellow sticker for COD-please add sulfuric acid preservative to the sample water
- 6. (1) 250ml plastic bottle w/ yellow sticker for TKN and total phosphorous-please add sulfuric acid preservative to the sample water
- 7. (1) 250ml plastic bottle w/yellow sticker for Ammonia as Nplease add sulfuric acid preservative to the sample water
- 8. (1) 500ml plastic bottle w/ red sticker for Hardness-please add nitric acid preservative to the sample water

201172 J

- 9. (1) 250ml "brown" plastic bottle w/pink sticker for Cyanidepreservative is already in bottle ready to go, no need to add
- for Nitrate+Nitrite *!!Please note there is a 48 hour hold time* (1) 250ml plastic bottle (No sticker-No preservative) for this test!! 10.
- Blank chains of custody (COCs) and blank labels 11.

Please feel free to call me if you have any questions. 602-708-8233

Also, if you need to use the Tucson courier- here is his contact info:

Jamey Fruhwirth Cell-520-591-5291 Office-520-888-5662 Please call him at least a day prior to when you will actually need him so you can coordinate a time and place for pickup.

Thanks,

Casey-ESC

20/22/202

10/30/08

Gary,

This cooler contains the following:

- Shipping supplies- consisting of 2 large plastic bags, bubble wrap to line the top and bottom of cooler, Fed Ex shipping labels, Zip ties for the large plastic bags, zip lock bags for COCs, custody seals, and instructions for preparing the samples to ship and for shipping. . ----
- 2. (3) 1L granther bottles w/ no stickers for SPCON, TDS, Turbidity, Sulfate, TSS, BOD, Ortho phosphate, chloride, and residual chlorine Plushic
- 3. (2) 1L glass amber bottles w/ blue stickers for OGHEX, please add the HCL preservative to the sample water
- 4. (1) 15 pt as mitter bottle w/ red sticker for Metals, please add the nitric preservative to the sample water
- 5. Blank chains of custody (COCs) and blank labels

Please feel free to call me if you have any questions. 602-708-8233

Also, if you need to use the Tucson courier- here is his contact info:

Jamey Fruhwirth Cell-520-591-5291 Office-520-888-5662

2344457

Please call him at least a day prior to when you will actually need him so you can coordinate a time and place for pickup.

Thanks,

Casey-ESC

ISK HIRA (OC-OKA PART.M	Client informed by call / email / fax / voice mail date: 13/3 time: 11:50 Client contact: Client gave okay to run all samples 4 run out of held	Login Instructions: DR	Broken container(s) see below Broken container: sufficient sample			Chain of Custody is missing Login Clarification Needed	on-Conformance (check applicable items)	ient:
ogin Instructions: TSR Initials: DR ient informed by call / email / fax / voice mail date: 13/3 time: 11:50 lient contact: Client gave okay to run all samples 4 run out of hele			Insufficient packing material ar Insufficient packing material in Improper handling by carrier (F Sample was frozen	Broken container(s) see below vol vol Insufficient packing material arou Insufficient packing material insid Insufficient packing material insid Improper handling by carrier (Fed Sample was frozen	Parameter(s) past holding time Broken container(s) see below vol Insufficient packing material arou Insufficient packing material insid Improper handling by carrier (Fed Sample was frozen	Improper container type Chain of custody is incomplete Parameter(s) past holding time Broken container(s) see below vol Insufficient packing material arou Insufficient packing material insid Improper handling by carrier (Fed Sample was frozen	Chain of Custody is missing Improper container type Chain of custody is incomplete Parameter(s) past holding time Broken container(s) see below vol Insufficient packing material arou Insufficient packing material insid Improper handling by carrier (Fed Sample was frozen	ng material aroun g by carrier (Fed
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tte: <u>7.3.00</u> aluarded by: <u>Acstr A</u> ieut: <u>T. T. T. Conformance (check applicable items)</u> n-Conformance (check applicable items) n-Conformance (check applicable items) Chain of Custody is missing Improper preservation Chain of custody is incomplete Improper container type Chain of custody is incomplete Parameter(s) past holding time Broken container is afficient sample volume remains for analysis requested Insufficient packing material inside cooler Insufficient packing material inside cooler Inproper handling by carrier (FedEx / UPS / Courier) Sample was frozen mments . <u>Vo</u> <u>CC</u> fin fin /b>	12.3. OS ted by: 12.3. OS Informance (check applicable items) onformance (check applicable items) Chain of Custody is missing Improper container type Chain of custody is incomplete Parameter(s) past holding time Broken container(s) see below Vol Insufficient packing material arou Insufficient packing material insid Improper handling by carrier (Fed All Sample was frozen All Short 5 All Short 5 All Short 5 Instructions: Tf	Red by: R.3. ON Informance (check applicable items) Informance (check applicable items) Onformance (check applicable items) Chain of Custody is missing Improper container type Vol Improper container type Vol Parameter(s) past holding time Vol Broken container(s) see below Vol Insufficient packing material arou Insufficient packing material insid Inproper handling by carrier (Fed Sample was frozen All Shart 5 Out	7.3.00 ted by: T <tr< td=""><td>12.3.00 ted by:</td><td>12.3.00 ted by: Use the ted by: The ted by: te</td><td>ite: 72.3.00 aluated by: Uset ient: T t (n-Conformance (check applicable items)</td><td></td><td>ated by:</td></tr<>	12.3.00 ted by:	12.3.00 ted by: Use the ted by: The ted by: te	ite: 72.3.00 aluated by: Uset ient: T t (n-Conformance (check applicable items)		ated by:
Login No.: 1374/M. Date: 12.3.0% Evaluated by: 12.3.0% Evaluated by: 12.3.0% Client: 14.1% Client: 14.1% Non-Conformance (check applicable items) Login Clarification Needed Improper container type Improper preservation Chain of Custody is missing Login Clarification Needed Improper container type Improper preservation Chain of custody is missing Improper preservation Chain of custody is missing Improper preservation Container type Noten container type Parameter(s) past holding time Broken container type Broken container(s) see bolow Nohme remains for analysis requested Insufficient packing material around container Insufficient sample Sample was frozen Nohme remains for analysis requested Comments: Mo Continer All Sample was frozen Nohme remains for analysis requested Insufficient packing material around container Informed by call (mainer latterial around container All Saved All Carl Carl Carl Carl Carl Carl Carl Ca	Vo.: 13.3.0 Å red by: 72.3.0 Å red by: 7.5.0 Å red: 7.5.0 Å <td>Vo.: 1.57740 red by: 7.2.3.02 red by: 7.1.5.03 red by: 7.1.5.04 red 1.5.04 red 1.5.04 red 1.5.04 red 1.5.044 red 2.047 red 2.047</td> <td>Yo.: 13.774/10 Red by: 72.3.05 Ited by: 12.3.05 Ited by: 12.3.05 Ited by: 12.3.05 Ited by: 12.3.05 Informance (check applicable items) 100 Improper container type 100 Parameter(s) past holding time 100</td> <td>Yo.: 13.0% Red by: 12.3.0% Importance (check applicable items) Onformance (check applicable items) Improper container type Chain of Custody is missing</td> <td>Vo.: 13.0% 12.3.0% red by: 12.3.0% T T Onformance (check applicable items) Orbin of Custody is missing</td> <td>gin No. : <u>1574/A</u> te: <u>72.3. oK</u> aluated by: <u>2.3. oK</u> ient: <u>7.7. (nethode</u> ient: <u>7.7. (nethode</u>)</td> <td>Yo. : .</td> <td>No. :/2 ated by:</td>	Vo.: 1.57740 red by: 7.2.3.02 red by: 7.1.5.03 red by: 7.1.5.04 red 1.5.04 red 1.5.04 red 1.5.04 red 1.5.044 red 2.047 red 2.047	Yo.: 13.774/10 Red by: 72.3.05 Ited by: 12.3.05 Ited by: 12.3.05 Ited by: 12.3.05 Ited by: 12.3.05 Informance (check applicable items) 100 Improper container type 100 Parameter(s) past holding time 100	Yo.: 13.0% Red by: 12.3.0% Importance (check applicable items) Onformance (check applicable items) Improper container type Chain of Custody is missing	Vo.: 13.0% 12.3.0% red by: 12.3.0% T T Onformance (check applicable items) Orbin of Custody is missing	gin No. : <u>1574/A</u> te: <u>72.3. oK</u> aluated by: <u>2.3. oK</u> ient: <u>7.7. (nethode</u> ient: <u>7.7. (nethode</u>)	Yo. : .	No. :/2 ated by:

ENVIRONMENTAL SCIENCE CORP.



12065 Lebanon Rd. Mt. Juliet, TN 37122 (615) 758-5858 1-800-767-5859 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

John Burton Engineering & Env. Consultants, INC. -AZ 7878 N. 16th Street, Suite 140

Phoenix, AZ 85020

Report Summary

Thursday July 09, 2009

Report Number: L410136 Samples Received: 07/01/09 Client Project: 30803201

Description: Tucson MS4

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487 GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140 NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233 AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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> 1 Samples Reported: 07/09/09 14:37 Printed: 07/09/09 14:37 Page 1 of 7

Richards, **ESC



John Burton

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REPORT OF ANALYSIS

July 09, 2009

Site ID :

ESC Sample # : L410136-01

Project # : 30803201

Date Received Description		July 01, 2009 Tucson/Grant Rd. MS4 Site
Sample ID	:	GR ADOT 2

Collected By : Chad S. Howard Collection Date : 06/30/09 08:30

Engineering & Env. Consultants, INC 7878 N. 16th Street, Suite 140 Phoenix, AZ 85020

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride Nitrate Nitrite Sulfate	19. 0.21 BDL 68.	1.0 0.10 0.10 5.0	mg/l mg/l mg/l mg/l	9056 9056 9056 9056	07/01/09 07/01/09 07/01/09 07/01/09	1 1 1 1
BOD	44.	5.0	mg/l	SM5210B	07/01/09	1
COD	640	10.	mg/l	410.4	07/03/09	1
Cyanide	BDL	0.0050	mg/l	9012B	07/03/09	1
Chromium, Hexavalent	BDL	0.010	mg/l	7196A	07/01/09	1
Chromium, Trivalent	BDL	0.010	mg/l	Calc	07/05/09	1
MBAS	11.	2.5	mg/l	5540C	07/02/09	25
Ammonia Nitrogen	6.7	0.10	mg/l	350.1	07/07/09	1
Oil & Grease (Hexane Extr)	BDL	6.7	mg/l	1664A	07/06/09	1
Phosphate,Ortho	BDL	0.12	mg/l	4500P-E	07/01/09	5
Phosphorus, Total	0.36	0.10	mg/l	365.1	07/06/09	1
Specific Conductance	690		umhos/cm	9050A	07/02/09	1
Kjeldahl Nitrogen, TKN	14.	0.10	mg/l	351.2	07/06/09	1
Dissolved Solids	680	10.	mg/l	2540C	07/06/09	1
Suspended Solids	160	1.0	mg/l	2540D	07/02/09	1
Antimony Arsenic Thallium	0.0046 0.0030 BDL	0.0010 0.0010 0.0010	mg/l mg/l mg/l	6020 6020 6020	07/09/09 07/09/09 07/09/09	1 1 1
Mercury	BDL	0.00020	mg/l	7470A	07/01/09	1
Barium Beryllium Cadmium Calcium Chromium	0.20 BDL BDL 100 BDL	0.0050 0.0020 0.0050 0.50 0.010	mg/l mg/l mg/l mg/l mg/l	6010B 6010B 6010B 6010B 6010B	07/05/09 07/05/09 07/05/09 07/05/09 07/05/09	1 1 1 1

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Page 2 of 7



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REPORT OF ANALYSIS

July 09, 2009

Site ID :

ESC Sample # : L410136-01

Project # : 30803201

Date Received Description	:	July 01, 2009 Tucson/Grant Rd. MS4 Site
Sample ID	:	GR ADOT 2
Collected By Collection Date	:	Chad S. Howard 06/30/09 08:30

Engineering & Env. Consultants, INC 7878 N. 16th Street, Suite 140 Phoenix, AZ 85020

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	0.033	0.020	mg/l	6010B	07/05/09	1
Lead	BDL	0.0050	mg/l	6010B	07/05/09	1
Nickel	BDL	0.020	mg/l	6010B	07/05/09	1
Selenium	0.020	0.020	mg/l	6010B	07/05/09	1
Silver	BDL	0.010	mg/l	6010B	07/05/09	1
Sodium	18.	0.50	mg/l	6010B	07/05/09	1
Zinc	0.18	0.030	mg/l	6010B	07/05/09	1
Benzene	BDL	0.00050	mg/l	8021B	07/02/09	1
Toluene	BDL	0.0050	mg/l	8021B	07/02/09	1
Ethylbenzene	BDL	0.00050	mg/l	8021B	07/02/09	1
Total Xylene	BDL	0.0015	mg/l	8021B	07/02/09	1
<pre>Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)</pre>	112.		% Rec.	8021B	07/02/09	1
TPH (GC/FID) High Fraction Surrogate recovery(%)	24.	2.0	mg/l	3510/DRO	07/03/09	20
o-Terphenyl	102.		% Rec.	3510/DRO	07/03/09	20
Pesticides						
Aldrin	BDL	0.000050	mg/l	8081A	07/03/09	1
Alpha BHC	BDL	0.000050	mg/l	8081A	07/03/09	1
Beta BHC	BDL	0.000050	mg/l	8081A	07/03/09	1
Delta BHC	BDL	0.000050	mg/l	8081A	07/03/09	1
Gamma BHC	BDL	0.000050	mg/l	8081A	07/03/09	1
Chlordane	BDL	0.00050	mg/l	8081A	07/03/09	1
4,4-DDD	BDL	0.000050	mg/l	8081A	07/03/09	1
4,4-DDE	BDL	0.000050	mg/l	8081A	07/03/09	1
4,4-DDT	BDL	0.000050	mg/l	8081A	07/03/09	1
Dieldrin	BDL	0.000050	mg/l	8081A	07/03/09	1
Endosulfan I	BDL	0.000050	mg/l	8081A	07/03/09	1
Endosulfan II	BDL	0.000050	mg/l	8081A	07/03/09	1
Endosulfan sulfate	BDL	0.000050	mg/l	8081A	07/03/09	1
Endrin	BDL	0.000050	mg/l	8081A	07/03/09	1
Endrin aldehyde	BDL	0.000050	mg/l	8081A	07/03/09	1
Endrin ketone	BDL	0.000050	mg/l	8081A	07/03/09	1
Hexachlorobenzene	BDL	0.000050	mg/l	8081A	07/03/09	1
Heptachlor	BDL	0.000050	mg/l	8081A	07/03/09	1
Heptachlor epoxide	BDL	0.000050	mg/l	8081A	07/03/09	1
Methoxychlor	BDL	0.000050	mg/l	8081A	07/03/09	1
Toxaphene	BDL	0.00050	mg/l	8081A	07/03/09	1
Pesticides Surrogates			<u> </u>			
Decachlorobiphenyl	25.0		% Rec.	8081A	07/03/09	1
Tetrachloro-m-xylene	47.1		% Rec.	8081A	07/03/09	1

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

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John Burton Engineering & Env. Consultants, INC 7878 N. 16th Street, Suite 140 Phoenix, AZ 85020	REPOR	T OF ANALYSIS		July 09, 2009		
Date Received : July 01, 200 Description : Tucson/Grant Rd.				ESC Sample # :	L410136-01	
Sample ID : GR ADOT 2				Site ID :		
Collected By : Chad S. Howard Collection Date : 06/30/09 08:30				Project # : 3	0803201	
Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Base/Neutral Extractables Acenaphthene Acenaphthylene Anthracene Benzidine Benzo(a)anthracene Benzo(b)fluoranthene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(a)pyrene Bis(2-chlorethoxy)methane Bis(2-chlorethoxy)methane Bis(2-chlorothyl)ether 4-Bromophenyl-phenylether 2-Chloronaphthalene 4-Chlorophenyl-phenylether Chrysene Dibenz(a,h)anthracene 3,3-Dichlorobenzidine 2,6-Dinitrotoluene Fluoranthene Fluorene Hexachlorocene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorone Naphthalene Nitrobenzene n-Nitrosodimethylamine n-Nitrosodiphenylamine	BDL BDL BDL BDL BDL BDL BDL BDL BDL BDL	0.010 0.010 0.010 0.050 0.010 0	<pre>mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l</pre>	8270C 8270C	07/06/09 07/06/09	1 1 1 1 1 1 1 1 1 1 1 1 1 1
n-Nitrosodi-n-propylamine Phenanthrene Benzylbutyl phthalate Bis(2-ethylhexyl)phthalate Di-n-butyl phthalate Diethyl phthalate Dimethyl phthalate Di-n-octyl phthalate Pyrene 1,2,4-Trichlorobenzene	BDL BDL BDL BDL BDL BDL BDL BDL BDL BDL	$\begin{array}{c} 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ \end{array}$	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	8270C 8270C 8270C 8270C 8270C 8270C 8270C 8270C 8270C 8270C 8270C 8270C	07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09	1 1 1 1 1 1 1 1 1

BDL - Below Detection Limit Det. Limit - Practical Quantitation Limit(PQL)

Page 4 of 7



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Tax I.D. 62-0814289

Est. 1970

John Burton Engineering & Env. Consultants, INC 7878 N. 16th Street, Suite 140 Phoenix, AZ 85020	REPOR	I OF ANALYSIS		July 09, 2009		
Date Received : July 01, 200 Description : Tucson/Grant Rd. Sample ID : GR ADOT 2				ESC Sample # : Site ID :	L410136-01	
Collected By : Chad S. Howard Collection Date : 06/30/09 08:30				Project # : 3	0803201	
Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acid Extractables 4-Chloro-3-methylphenol 2-Chlorophenol 2,4-Dichlorophenol 4,6-Dinitro-2-methylphenol 2,4-Dinitrophenol 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenol 2,4,6-Trichlorophenol Surrogate Recovery 2-Fluorophenol Phenol-d5 Nitrobenzene-d5 2-Fluorobiphenyl 2,4,6-Tribromophenol p-Terphenyl-d14	BDL BDL BDL BDL BDL BDL BDL BDL BDL BDL	$\begin{array}{c} 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ 0.010\\ \end{array}$	<pre>mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l</pre>	8270C 8270C	07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09 07/06/09	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.
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.
Reported: 07/09/09 14:37 Printed: 07/09/09 14:38

Page 5 of 7

Attachment A List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L410136-01	WG429238 WG429990 WG429990 WG429396	SAMP SAMP SAMP SAMP	Cyanide Benzylbutyl phthalate Dimethyl phthalate Chromium,Hexavalent	R802650 R806067 R806067 R799866	W J3 J3 T8
	WG429554	SAMP	o-Terphenyl	R802506	J7

Page 6 of 7

Attachment B Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
Т8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container
	Qualifier Report Information
	ample and result qualifiers as set forth by the EPA Contract Laboratory Program and most certifying bodies including NELAC. In addition to the EPA qualifiers adopted

as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

- Accuracy The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.
- Surrogate Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Page 7 of 7

Summary of Remarks For Samples Printed $07/09/09 \mbox{ at } 14{:}38{:}06$

TSR Signing Reports: 288 R5 - Desired TAT

Sample: L410136-01 Account: ENGENVPAZ Received: 07/01/09 09:00 Due Date: 07/08/09 00:00 RPT Date: 07/09/09 14:37

Company Name/Address	Alternate Billing						Analysis/Container/Preservative						tive		Chain of Custody	
									- %				*		C095	
EEC					•				Hereita							
7878 N. 16th St., Suite 140)												32	-	Prepared by:	
Phoenix, AZ 85020															_	
												F		Pres	ENVIRON	
2			Report to: 1							HNO3			: .		Science cor	•
			101	in Burto	17	_		-		Ŧ	Ø	Ż		Ž	12065 Lebar	non Road
			E-mail to;	rton CC	ocphr.	in				Ш	Pre	J.		HDPE	Mt. Juliet TN	37122
Project Description: Tucson/Grant R	d. MS4 Site			City/S	State Collected:					500ml HDPE	No	L.		보	Phone (615)	758-5858
PHONE:602-248-7702	Client Project	ło.		Lab Project #			보	6		E	Щ	N.	100	1	Phone (800	
FAX: 602-248-7851							1.003	No Pres	1L Amb No Pres	500	SPCON, TDS 500ml HDPE No Pres	ALLAURED ON ORDER CORRESPONDED E CALER ROSS	es	Chloride	. FAX (61	5)758-5859
Collected by: Chad S. Lancord	Site/Facility ID	¥ .		P.O.#			40ml Amb	٥N	9	Na	Ē	S	0 D	입었		
Collecter Dy(signature):				Date Result	s Needed	-	Ę		ą	a O	500	Š.	Z		CoCode	(lab use only)
		ab MUST be	-			No	C	Amb	A	ja ja	လ	R	DPE	Ortho-P,	ENGENVPAZ	
/ hed S. thread		Vext Day WO Day		Email?N		of	IШ Щ	7		S B	H	2	II	Ъ	Template/Prelogin	
Packed on ice NY		Three Day			loYes		H ا ب	270	81	bld	NO	X)	-	ate,	Shipped Via:	
Sample ID	Comp/Grab	Matrix		Date	Time	Cntrs	V8021-BTEX	SV8270	SV8081	PPM plus Ba, Ca, Na	SPC	×,	BOD 1L HDPE No Pres	Sulfate,	Remarks/contaminant	Sample # (lab only)
			Depth		l			8	x	x	X	-3	X	x	Remarks/containinant	64/0/36-01
GR ADOT 2	C	unter		6/30/09	<u>0830</u>	11										
					<u> </u>	+					- Contraction (1997)					
								008000	, j					2		
									, va , ja				an.			
						1	1		1.2.1		- 2003 - 1943		17400000 1440000 15 15 15			
						+			1040-00 1774-03 1714-03			1				
					1			-	830 V	:		1				e villige .
Matrix: SS-Soil/Solid GW-Groundwa	ater WW-Wa	stewater D	W-Drinking V	Vater OT-O	ther								pH_		Temp	
Remarks: 1 Shipped	in te	Ja Car	levs -	Re G	There here	9	69	740	~ .	7-6	./_	- 月	ow		Other	_
Reinquisher by:(Signatule	Date:	Time:	Received by:(S		(rae why	, 70		les retu		a: FedE	1/ \$}UF	26 PS_01	her_		Condition	(lab use onlý)
Thad Sandwich	6 30/09	1200		ed Fx	2mz										Cresi	
Relinquisher by:(Signature	Date:	Time:	Received by: (Signature) *	5.1		Z.C	1			Bottle	s Rece 3-1		?		
Relinquisher by:(Signature	Date:	Time:		ab by: (Signatur	e)		Date:	<u> </u>			Time:	<i>v</i> .			pH Checked:	NCF:
			<u> </u>	File	- AN		0.	101			6	291	10			
			0	9	669	14	53	7;	269	i i						

Company Name/Address	Alternate Billing				Analysis/Container/Preservative						tive		Chain of Custody			
EEC 7878 N. 16th St., Suite 140															Prepared by:	Page2_of3_
Phoenix, AZ 85020															Prepared by:	
															ENVIRON Science cor	
			Report to:	in Burl	ton										12065 Leba	- non Road
			E mailta:	Burton @		era									Mt. Juliet TN	N 37122
Project Description: Tucson/Grant Ro	d. MS4 Site		<u> </u>	City/5	State Collected:				S	s					Phone (615)	
PHONE:602-248-7702	Client Project	No.		Lab Project #	1		8	S	Pres	Pres	4	2	eneral ^e meditor d		Phone (800)) 767-5859
FAX: 602-248-7851							H2SO4	Pres	Ňo	٩	H2SO4	H2SO4	NaOH	H2SO4	. FAX (61	15)758-5859
Collected by: Chad S. Happort	Site/Facility ID	#		P.O.#			97A	°Z	DPE		Ш				CoCode	(lab use only)
Collected by(signature):		.ab MUST be Next Day	,	Date Result	ts N e eded	No	250ml HDPE	HDPE	25ml HDPE	125ml HDPE	250ml HDPE	250ml HDPE	250ml HDPE	250ml HDPE	ENGENVPAZ Template/Prelogin	
Inco samuel		TWO Day		Email?N	lo_X_Yes	of	50n	7	125	125	50n	50m	Jmo	E	Tenipiateri Telogini	
Packed on Ice NY _X		Three Day		FAX?N	loYes		1992	MBAS	Nitrate	ite			PR 201	25(Shipped Via:	
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	COD	MB	Nitr	Nitrite	NH3	TKN	CN	ЪТ	Remarks/contaminant	Sample # (lab only)
GR ADOT 2	<u>ر</u>	Water	0'	6/30/09	ංසිය	8	X	Χ	X	X	X	X	X	x		24/0/36-01
				· ·												
			:						· .							a nin a
							*									
							2						,			
													vie dille			
		4	L	- · · · · ·				<u> </u>	10000.0°4-1,4						•	
Matrix: SS-Soil/Solid GW-Groundwa	iter WW-Wa	istewater D	W-Drinking \	Water OT- O	ther								pH_		Temp	
Remarks: Shipped in 2	civileus	- Fed E		in 96	69 745	3 72						Flo			Other	_
Relimbuisher by:(Signature	Date:	Time: 1200	Received by:(1 .	PV1	-	Samp	es retur	ned via	a: FedE	X_UP	S_Ot	her		Condition	(lab use only)
Relinquisher by:(Signature	6/30/07 Date:	Time:	Received by: (5, 12		Temp 3	Ц		-	Bottles		ved: 	5	CCCS (Trate
Relinquisher by:(Signature	Date:	Time:	Received for	lab by: (Signatur	e)		Date:	<u>~</u> 7-01	7)9		Time:	390		,	pH Checked:	NCF

ı

Company Name/Address		Alternate Billing					Analysis/Container/Preservative						ative		Chain of Custody	
EEC 7878 N. 16th St., Suite 140	D													Prepared by:	Page 3 of 3	
Phoenix, AZ 85020				Report to: John Burton E-mail to: JBurton@exphr.com					art. 1980 - Pointe III, regelation - 1		the GM	₹		Environ Science cor 12065 Leba	' p non Road	
Project Description: Tucson/Grant F	d. MS4 Site			Burton C C Christen City/State Collected:							MER	4		Mt. Juliet TN Phone (615)		
PHONE:602-248-7702 FAX: 602-248-7851	Client Project I	No.		Lab Project #					Pres	(Calc)	teral Conternant and entertance and	ETON Jak		Phone (800		
Collected by: Chad Hanwel Collected by(signature)	Site/Facility ID			P.O.#			된	ЧĊ	PE No		Sector Sector	1 Page		CoCode	(lab use only)	
Thed S. America		ab MUST b Next Day		Date Result		No	Amb	1L CIr	ml HDPE	n Trivalent	ALLAN	ASMINED CONTRACT		ENGENVPAZ Template/Prelogin		
Packed on Ice N_Y_X		Two Day Three Day			lo_X_Yes loYes	of	SO 1L	OGHEX	3 250ml	Chromium	est Clo	Scilos		Shipped Via: Phoenix	Service Center	
Sample (D	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	DRO		Cr6					Remarks/contaminant	Sample # (lab only)	
GR ADOT 2	C	weiter	0'	6/30/09	0830	42	X	X	X	X		ð			24/0136-01	
						_			1.							
						+										
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									21 							
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											9911975		с.; ;			
Matrix: SS-Soil/Solid GW-Groundw Remarks: Shippid in	ater WW-Wa Z Coro (- 1 -						~ /	- 1, <i>i</i>	••••	FI	pH	Temp		
Relinquisher by: (Signature Relinquisher by: (Signature Relinquisher by: (Signature	Date: C/30/04 Date:	Time: 12cc	Received by:	Signature)	La le	97	Samp	es retur		726 a: FedE	x_UP	S_O	ther	Condition COCS /	- (lab use only)	
Relinquisher by:(Signature Date: Time: Received for lab by: (Signature)					Temp: Bottles Received: 34 23717B Date: 0701-09 Of OU 42				NCF:							
	<u> </u>			· July	h		0		UI			100			. e	

1.

ENVIRONMENTAL SCIENCE CORP.	SAMPLE NON-CONFORMANCE FORM 09 01/1/ ENUPAZ	applicable items)tody is missing	TSR Initials: DX oice mail date: 2/1 time: 10:00 ~ TSS per clumb
ENVIRONMEN	Login No. :SAMPLE NCLogin No. : $07-01-09$ Date: $07-01-09$ Evaluated by: $\overline{J} \cdot FJ W$ Client: $ENGE NUPAZ$	Non-Conformance (check applicable items) Non-Conformance (check applicable items) Chain of Custody is missing Improper container type Chain of custody is incomplete Parameter(s) past holding time Broken container(s) see below Insufficient packing Insufficient packing Improper handling Comments: Reccetuel T55 Ao3 Insufficient packing Insufficient packing	Login Instructions: Client informed by call cmail fax / voice mail Client contact: Devel A A Nun TS Doues N Vanue R.

APPENDIX L Industrial and Construction Discharge Monitoring Reports

Industrial DMRs



AZS000018 DISCHARGE MONITORING REPORT (DMR) (Complete a separate form for each monitoring point)

Facility Name:				Monitoring Point (Outfall):							
Durango Sign Factory				Storm drain	n located ap	proximately	south-cer	ntral in the parking lo	ot		
Facility Address:				Year:		· · ·		• •			
2104 South 22 nd Avenue, H	Phoenix, Ariz	ona 85009		2008/09 Re	porting Yea	ar – Summer	/Winter S	Storm Event			
Monitoring Personnel Name(s				Date/Time C							
Gary Hoffmann or Phillip	McNamara, F	EEC		December	16, 2008						
Time Rainfall Began:	Duration of R	ainfall Event:			Rainfall Amount (inches):						
Approximately 5:20am	Approximately	7 1 hr			0.20						
Runoff Source:	Time Elapsed	Since Last 0.1	inch Rainfall	Event:	Qualifying Rainfall Event:						
Rainfall Snowmelt	Approximately	7			YES NO						
Estimated Total Volume of Di 32,700 ft ² X 0.0 ft ² of rain = 0	scharge (Inclue	le units; gal, ft	³ , etc.):			NO DISCHA	RGE 🛛				
32,700 ft = 0.0 ft = 0.1	II A 75% Fullo	n = 0 n (0) = 0	u ganons								
Parameter	Qua	antity or Loadi	ng	Quality	or Concentr	ation	No Ex	Frequency of	Sample Type		
Taranicur	Average	Maximum	Units	Minimum	Average	Units		Analysis	Sumple Type		
Nitrate + Nitrite			The					Ornen on alt annan	Creck		
Nitrate + Nitrite			Lbs			mg/L		Once each season	Grab		
TSS			Lbs			mg/L		Once each season	Grab		
Aluminum			Lbs			mg/L		Once each season	Grab		
Iron			Lbs			mg/L		Once each season	Grab		
			1105			ing/L		once cuch seuson	Grub		
Zinc			Lbs			mg/L		Once each season	Grab		
Hardness			Lbs			mg/L		Once each season	Grab		



AZS000018 DISCHARGE MONITORING REPORT (DMR) (Complete a separate form for each monitoring point)

Facility Name:				Monitoring Point (Outfall):									
Durango Sign Factory				Storm drain	n located ap	proximately	south-cer	ntral in the parking lo	ot				
Facility Address:				Year:									
2104 South 22 nd Avenue, I	Phoenix, Ariz	ona 85009			1 0	ar – Summer	/Winter S	Storm Event					
Monitoring Personnel Name(s				Date/Time C									
Gary Hoffmann or Phillip	McNamara, E	EEC		November	November 27, 2008								
Time Rainfall Began:	Duration of R	ainfall Event:			Rainfall Amount (inches):								
Approximately 2:00am	Approximately	1 hr			0.24								
Runoff Source:		Since Last 0.1	inch Rainfall	Event:		Qualifying Rainfall Event:							
Rainfall Snowmelt	Approximately							YES 🗌 NO					
Estimated Total Volume of Di 32,700 ft ² X 0.0 ft ² of rain = 0	ischarge (Includ ft ³ X 75% runo	le units; gal, ft [*] ff	³ , etc.):			NO DISCHA							
52,700 it X 0.0 it of ram $= 0$		$\Pi = 0 \underline{\Pi} (0) =$	v <u>ganons</u>										
Parameter	Qua	antity or Loadi	ng	Quality	or Concentr	ation	No Ex	Frequency of	Sample Type				
T ut unitotot	Average	Maximum	Units	Minimum	Average	Units		Analysis					
Nitrate + Nitrite			Lbs			ma/I		Once each season	Grab				
Nitrate + Nitrite			LUS			mg/L		Once each season	Grad				
TSS			Lbs			mg/L		Once each season	Grab				
Aluminum			Lbs			mg/L		Once each season	Grab				
Iron			Lbs			mg/L		Once each season	Grab				
Zino													
Zinc			Lbs			mg/L		Once each season	Grab				
Hardness			Lbs			mg/L		Once each season	Grab				



(Complete a separate form for each monitoring point)

Facility Name:				Monitoring Point (Outfall):									
Nogales Maintenance Yar	d			U		,	ately 2.7	5 acres or 119,790 ft	²)				
Facility Address:				Year:									
1340 North Hohokam Driv	ve, Nogales, A	Arizona		2008/09 Re	2008/09 Reporting Year – Winter Storm Event								
Monitoring Personnel Name(s	5):			Date/Time C	ollected:								
Thomas Ross, EEC				2/9/2009 @	2/9/2009 @11:00am								
Time Rainfall Began:	Duration of R	ainfall Event:			Rainfall Amount (inches):								
Approx 2:30am	3.75 Hrs					0.23 inches (o	or 0.019 fee	et)					
Runoff Source:		Since Last 0.1	inch Rainfall	Event:									
Rainfall Snowmelt	Approximatel	y 43 days						YES 🗌 NO					
Estimated Total Volume of Di <u>119,790 ft² X 0.019 ft² of rain</u>	ischarge (Includ = <u>2,276.01 ft³ X</u>	de units; gal, ft ² 75% runoff =	, etc.): <u>1,593.21 ft³</u> (7.2827) = 11,602	2.85 gallons	NO DISCHA	RGE]					
Parameter	Qua	antity or Loadi	ng	Quality	or Concentr	ation	No Ex	Frequency of	Sample Type				
	Average	Maximum	Units	Minimum	Average	Units		Analysis					
Ammonia Nitrogen		-	Lbs	<0.10		mg/L		Once each season	Grab				
Total Dissolved Solids		26.48	Lbs	260		mg/L		Once each season	Grab				
Total Suspended Solids		1.12	Lbs	11		mg/L		Once each season	Grab				
Copper, total		-	Lbs	<0.020		mg/L		Once each season	Grab				
						8/		0 0					
TPH - DRO		0.08	Lbs	0.81		mg/L		Once each season	Grab				
TPH - DRO Chlorine		0.08	Lbs Lbs	0.81 <0.50					Grab Grab				
		0.08 - 0.4642				mg/L		Once each season					
Chlorine		-	Lbs	<0.50		mg/L mg/L		Once each season Once each season	Grab				



(Complete a separate form for each monitoring point)

Facility Name: Nogales Maintenance Yard	h			Monitoring Point (Outfall): Outfall from yard (drains approximately 2.75 acres or 119,790 ft ²)										
Facility Address: 1340 North Hohokam Driv		N mizono		Year:	•									
Monitoring Personnel Name(s		AIIZOIIa			2008/09 Reporting Year – Summer Storm Event Date/Time Collected:									
Thomas Ross, EEC				6/30/2009	30/2009 @ 12:00pm									
Time Rainfall Began: 7:30am	Duration of R 1.5 Hrs	ainfall Event:			Rainfall Amount (inches): 0.17 (or 0.014 feet)									
Runoff Source: ☐ Rainfall ☐ Snowmelt	Time Elapsed Approximatel	Since Last 0.1 i y 55 days	inch Rainfall	l Event:		Qualifying Rainfall Event: X YES NO								
Estimated Total Volume of Di <u>119,790 ft² X 0.014 ft²</u> of rain	scharge (Includ = <u>1,677.06 ft³ X</u>	le units; gal, ft ³ 75% runoff =	, etc.): <u>1,173.94 ft³</u>	(7.2827) = <u>8,549.</u>	NO DISCI	HARGE								
Parameter	Qua Average	antity or Loadin Maximum	ng Units	Quality Minimum	or Concentrat	tion Units	No Ex	Frequency of Analysis	Sample Type					
	Average		Units	Iviininum	Average	Units								
Ammonia Nitrogen		0.06	Lbs	0.74		mg/L		Once each season	Grab					
Total Dissolved Solids		47.43	Lbs	630		mg/L		Once each season	Grab					
Total Suspended Solids		1.51	Lbs	20		mg/L		Once each season	Grab					
Copper, total		-	Lbs	<0.020		mg/L		Once each season	Grab					
TPH - DRO		0.69	Lbs	9.2		mg/L		Once each season	Grab					
Chlorine		-	Lbs	*Inadequate sample vol.		mg/L		Once each season	Grab					
Total Coliform		-	Lbs	*Inadequate sample vol.		MPN		Once each season	Grab					
E. Coli		-	Lbs	*Inadequate sample vol.		MPN		Once each season	Grab					
Hardness		0.0146	Lbs	250		mg/L		Once each season	Grab					

*inadequate sample volume to perform complete analyses



(Complete a separate form for each monitoring point)

E 11:4 N				M	D-!4 (O46-1	D).								
Facility Name:	11 270050			Monitoring I			C (1	C 1 1						
ADOT – Superior Fuel Ya	ird L-3/9859			-	Along the west corner of the exterior of the fuel yard									
Facility Address:				Year:										
952 Main Street, Superior,		273				ar – Winter S	Storm Ev	ent						
Monitoring Personnel Name(s	s):			Date/Time C	collected:									
Gary Hoffmann, EEC				11/26/08										
Time Rainfall Began:	Duration of R	ainfall Event:			Rainfall Amount (inches):									
Approx 6:30am	Approx 1 hr				0.46 inches									
Runoff Source:	Time Elapsed	Since Last 0.1	inch Rainfall	Event:		ent:								
Rainfall Snowmelt	15 days							YES 🗌 NO						
Estimated Total Volume of Di <u>9,150</u> ft ² X <u>0.05</u> ft ² of rain = <u>45</u>	ischarge (Inclue 57.5 ft ³ X 75% i	de units; gal, ft runoff = <u>343.1.</u>	³ , etc.): <u>3 ft³</u> (7.2827)	= <u>2,498.88</u> gallor	ns	NO DISCHA	ARGE]						
Parameter	Qua	antity or Loadi	ng	Quality	or Concentr	ation	No Ex	Frequency of	Sample Type					
	Average	Maximum	Units	Minimum	Average	Units		Analysis						
Dissolved Solids		3.7332	Lbs	240		mg/L		Once Per Season	Grab					
Copper		0.00001	Lbs	0.13		mg/L		Once Per Season	Grab					
TPH (GC/FID) High		0.00012	Lbs	1.7		mg/L		Once Per Season	Grab					
Fraction						_								



(Complete a separate form for each monitoring point)

Facility Name:				Monitoring I	Point (Outfol	D•							
ADOT – Superior Fuel Ya	ord I_379859			0		of the exteri	or of the	fuel vard					
Facility Address:	uu L-377037			Year:	west conner	of the extern							
953 Main Street, Superior.	Arizona 852	773			enorting Ye	ar – Winter S	Storm Ev	nt					
Monitoring Personnel Name(s		273		Date/Time C	1 0								
Gary Hoffmann, EEC	<i></i>				11/26/08 @ 10:30am								
Time Rainfall Began:	Duration of R	ainfall Evant.		11/20/00 0	Rainfall Amount (inches):								
Approximately 2.15am	Approximately					0.46 inches (-5):						
Runoff Source:	Time Elapsed	Since Last 0.1	inch Rainfall	Event:		Qualifying R							
Rainfall Snowmelt	Approximately	/ 17 days					\boxtimes	YES 🗌 NO					
Estimated Total Volume of Di <u>9,150</u> ft ² X <u>0.38</u> ft ² of rain = <u>3</u> ,	ischarge (Inclue <u>477.0</u> ft ³ X 75%	de units; gal, ft ³ % runoff = <u>2,60</u>	³ , etc.): <u>7.75 ft³</u> (7.28	27) = <u>18,991.5</u> ga	allons	NO DISCHA	ARGE]					
Parameter	Qua	antity or Loadi	ng	Quality	or Concentr	ation	No Ex	Frequency of	Sample Type				
	Average	Maximum	Units	Minimum	Average	Units		Analysis					
Dissolved Solids		5.0317	Lbs	240		mg/L		Once Per Season	Grab				
Copper		0.0027	Lbs	0.13		mg/L		Once Per Season	Grab				
TPH (GC/FID) High													
Fraction		0.0356	Lbs	1.7		mg/L		Once Per Season	Grab				
							<u> </u>						



AZS000018 DISCHARGE MONITORING REPORT (DMR) (Complete a separate form for each monitoring point)

Facility Name:				Monitoring I										
ADOT – Superior Fuel Ya	rd L-379859			v	west corner	of the exteri	or of the	fuel yard						
Facility Address:				Year:										
953 Main Street, Superior,	, Arizona, 852	273		2008/09 Re	eporting Ye	ar – Winter S	Storm Ev	ent						
Monitoring Personnel Name(s	5):			Date/Time C	collected:									
Gary Hoffmann, EEC				11/26/08										
Time Rainfall Began:	Duration of R	ainfall Event: A	Approximately	3.5 Hours		es):								
Approximately 5am					0.46 inches (or 0.38 ft)									
Runoff Source:	Time Elapsed	Since Last 0.1	inch Rainfall	Event:		Qualifying F	ent:							
Rainfall Snowmelt	Approximately							YES NO						
Estimated Total Volume of Di	ischarge (Inclue	le units; gal, ft ³	, etc.):			NO DISCHA	ARGE	1						
$9,150 \text{ ft}^2 \text{ X } 0.38 \text{ ft}^2 \text{ of rain} = 3,$	<u>477.0</u> ft ³ X 75%	5 runoff = <u>2,60'</u>	<u>7.75 ft</u> 3 (7.28	27) = <u>18,991.5</u> ga	allons									
Parameter	Qua	antity or Loadii	ng	Quality	or Concentr	ation	No Ex	Frequency of	Sample Type					
T ut uniteter	Average	Maximum	Units	Minimum	Average	Units		Analysis						
Hardness		2.0222	Lbs	130		mg/L		Once each season	Grab					
Suspended Solids		26.4435	Lbs	1,700		mg/L		Once each season	Grab					
Copper, Dissolved		0.0010	Lbs	0.063		mg/L		Once each season	Grab					



AZS000018 DISCHARGE MONITORING REPORT (DMR) (Complete a separate form for each monitoring point)

Facility Name:				Monitoring	Daint (Autfal	I).						
	onao Vard			0	Monitoring Point (Outfall):							
ADOT – Superior Mainter	lance raru			-	Along the southeast corner of the maintenance yard							
Facility Address:	A 77 05070				Year: $\mathbf{V} = \mathbf{V} + \mathbf$							
951 W Main St., Superior,					2008/09 Reporting Year – Winter Storm Event							
Monitoring Personnel Name(s):					Date/Time Collected:							
Gary Hoffmann or Phillip McNamara, EEC				12/17/08	12/17/08							
Time Rainfall Began: Duration of Rainfall Event: Approximately 2				y 2.0 hours		Rainfall Am	ount (inch	es):				
Approximately 5:00 am						0.3 inches (o	r 0.03 ft)					
Runoff Source:	Time Elansed	Since Last 0.1	inch Rainfall	Event•		Qualifying I	Rainfall Ev	ent•				
\square Rainfall \square Snowmelt	Approximately		Inch Kunnun			Quanying		YES INO				
Estimated Total Volume of Discharge (Include units; gal, ft ³ , etc.): <u>16,500</u> ft ² X <u>0.03</u> ft ² of rain = <u>495.0</u> ft ³ X 75% runoff = <u>371.25 ft³</u> (7.2827)						NO DISCH	ARGE]				
$\frac{16,500}{16,500}$ ft ² X $\frac{0.03}{16}$ ft ² of rain = 4	<u>195.0</u> ft ³ X 75%	runoff = 371.2	<u>25 ft³ (7.2827</u>	7) = <u>2,70.70</u> galloi	ns			-				
D (Qua	antity or Loadi	ng	Quality	or Concentr	ation	NE	Frequency of				
Parameter	Average	Maximum	Units	Minimum	Average	Units	No Ex	Analysis	Sample Type			
Oil & Grease (Hexane Extr)	Inverage		Lbs	<5.0	liveluge	mg/L			Grab			
on & Grease (mexane Extr)			105	\0.0		ing/L			0140			
Dissolved Solids		1,859.84	Lbs	14,000		mg/L			Grab			
Suspended Solids		74.39	Lbs	560		mg/L			Grab			
_						-						
Copper		0.0412	Lbs	0.31		mg/L			Grab			
							1					

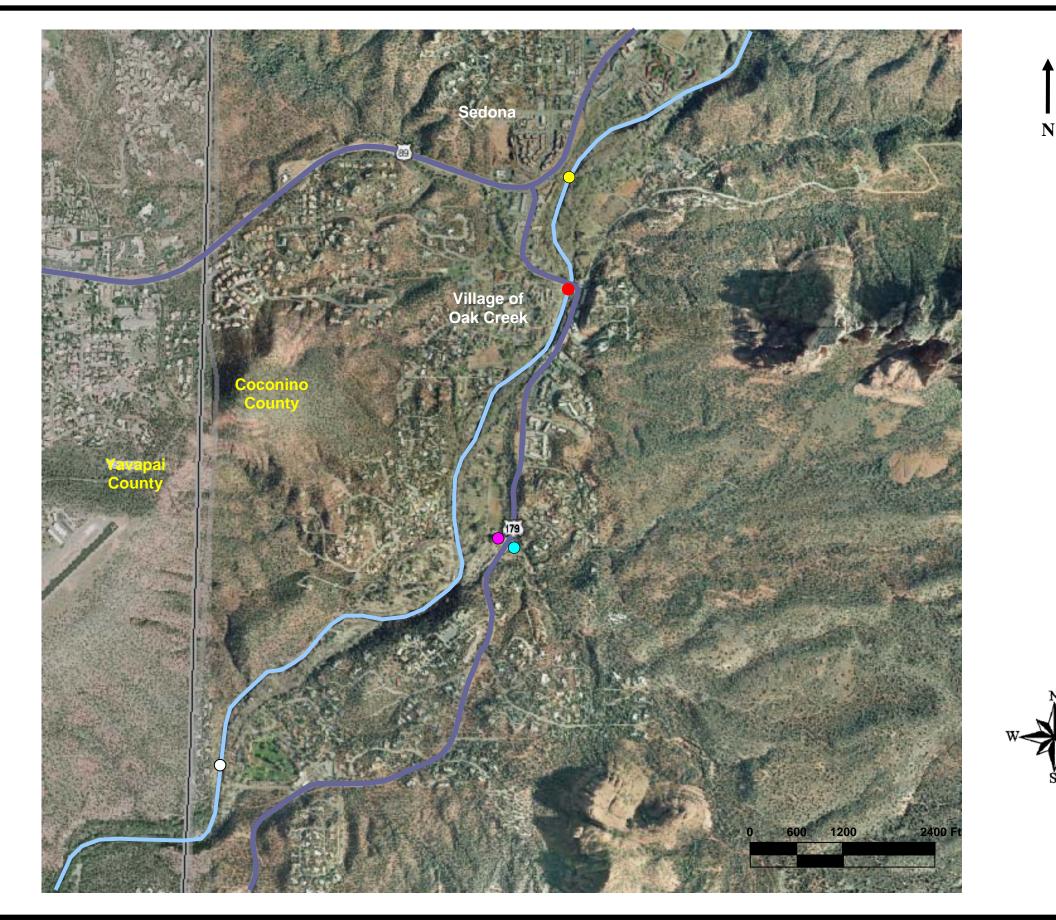
Construction DMR's

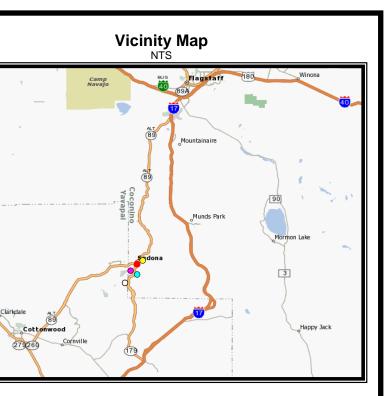
I. AZPDES # AZSO			Project/Site Name: Sedona SR 179-Project # II											
Monitoring Period:	8/01/08 to 6/30/09		Monitoring Point 1											
II. Contact Informat	tion		V. Pollutants Monitored											
Name: ADOT - Flags	staff District		A. V	isual Monite	oring:					B. Analyti	cal Monit	oring		
Address: 1801 South Flagstaff, AZ Flagsta Phone Number 928-7 Chuck Howe	ff, Arizona 86001	Sheen	Color	Foam	Solids	Odor	Turbidity	Stream Flow	DO	pН	Conducti vity	SSC	TSS	TDS
III. Discharge Date	IV. Sample Date													
8/14/2008	8/14/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/15/2008	8/15/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/16/2008	8/16/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/17/2008	8/17/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/18/2008	8/18/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/25/2008	8/25/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/29/2008	8/29/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/30/2008	8/30/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/31/2008	8/31/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/1/2008	9/1/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/4/2008	9/4/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/10/2008	9/10/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11/1/2008	11/1/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11/9/2008	11/9/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11/28/2008	11/28/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
12/15/2008	12/15/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
12/16/2008	12/16/2008	no data	no data	no data	no data	no data	7.8	0.7	9.92	8.69	335	no data	2	86
12/17/2008	12/17/2008	no data	no data	no data	no data	no data	6.3	0.4	9.54	9.97	1054	no data	1	71
12/18/2008	12/18/2008	no data	no data	no data	no data	no data	13.8	0.5	9.86	10.54	1046	no data	18	63
2/8/2009	2/8/2009	no data	no data	no data	no data	no data	4.8	1.7	11.14	7.09	224	2	2	117
2/16/2009	2/16/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
4/12/2009	4/12/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
5/23/2009	5/23/2009	no data	no data	no data	no data	no data	14.2	<0.1	8.3	8.34	305	19	19	162
5/24/2009	5/24/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
5/25/2009	5/25/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

I. AZPDES # <u>AZS</u> Monitoring Period		Project/Site Name: Sedona SR 179-Project # II Monitoring Point 2												
II. Contact Informa			V. Pollutants Monitored											
Name: ADOT - Flag	staff District		A. Vi	sual Monit	oring:					B. Analyti	cal Monito	oring		
Address: 1801 Sout Flagstaff, AZ Flagst Phone Number 928 Chuck Howe	th Milton Road aff, Arizona 86001	Sheen	Color	Foam	Solids	Odor	Turbidity	Stream Flow	DO	pН	Conducti vity	SSC	TSS	TDS
III. Discharge Date	IV. Sample Date													
8/14/2008	8/14/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/15/2008	8/15/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/16/2008	8/16/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/17/2008	8/17/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/18/2008	8/18/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/25/2008	8/25/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/29/2008	8/29/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/30/2008	8/30/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/31/2008	8/31/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/1/2008	9/1/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/4/2008	9/4/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/10/2008	9/10/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11/1/2008	11/1/2008	no data	no data	no data	no data	no data	2.25	<0.1	7.3	8.15	321	no data	3	158
11/9/2008	11/9/2008	no data	no data	no data	no data	no data	3.4	<0.1	7.75	8.17	314	no data	0	149
11/28/2008	11/28/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
12/15/2008	12/15/2008	no data	no data	no data	no data	no data	2.4	<1.0	7.93	7.62	331	no data	3	157
12/16/2008	12/16/2008	no data	no data	no data	no data	no data	14.7	<1.0	8.74	7.76	314	no data	0	43
12/17/2008	12/17/2008	no data	no data	no data	no data	no data	5.6	0.1	9.38	10.39	1035	no data	5	83
12/18/2008	12/18/2008	no data	no data	no data	no data	no data	16.9	<1.0	9.79	10.69	1060	no data	8	107
2/8/2009	2/8/2009	no data	no data	no data	no data	no data	5.8	0.9	11.26	7.14	239	1	1	120
2/16/2009	2/16/2009	no data	no data	no data	no data	no data	5.1	0.1	10.03	8.18	273	0	0	103
4/12/2009	4/12/2009	no data	no data	no data	no data	no data	3.3	<0.1	9.73	8.27	276	7	7	163
5/23/2009	5/23/2009	no data	no data	no data	no data	no data	32.2	<0.1	7.33	8.51	282	29	29	166
5/24/2009	5/24/2009	no data	no data	no data	no data	no data	8.8	<0.1	7.21	8.48	324	9	9	173
5/25/2009	5/25/2009	no data	no data	no data	no data	no data	5.5	<0.1	7.17	8.54	337	2	<1.0	178

I. AZPDES # <u>AZS</u> Monitoring Period:		Project/Site Name: Sedona SR 179-Project # II Monitoring Point 5												
II. Contact Informa	ation		V. Pollutants Monitored											
Name: ADOT - Flag	staff District		A. Vis	sual Monito	oring:					B. Analyti	cal Monito	oring		
Address: 1801 Sout Flagstaff, AZ Flagsta Phone Number 928- Chuck Howe	aff, Arizona 86001	Sheen	Color	Foam	Solids	Odor	Turbidity	Stream Flow	DO	рН	Conducti vity	SSC	TSS	TDS
III. Discharge Date	IV. Sample Date													
8/14/2008	8/14/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/15/2008	8/15/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/16/2008	8/16/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/17/2008	8/17/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/18/2008	8/18/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/25/2008	8/25/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/29/2008	8/29/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/30/2008	8/30/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
8/31/2008	8/31/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/1/2008	9/1/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/4/2008	9/4/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
9/10/2008	9/10/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11/1/2008	11/1/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11/9/2008	11/9/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
11/28/2008	11/28/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
12/15/2008	12/15/2008	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
12/16/2008	12/16/2008	no data	no data	no data	no data	no data	14.5	1.8	9.94	8.24	317	no data	0	90
12/17/2008	12/17/2008	no data	no data	no data	no data	no data	6.5	<1.0	9.66	10.71	1047	no data	0	136
12/18/2008	12/18/2008	no data	no data	no data	no data	no data	20.6	<1.0	10.09	9.81	1058	no data	16	97
2/8/2009	2/8/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	5.0	5.0	113.0
2/16/2009	2/16/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
4/12/2009	4/12/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
5/23/2009	5/23/2009	no data	no data	no data	no data	no data	122	<0.1	7.72	8.12	221	94	93	137
5/24/2009	5/24/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
5/25/2009	5/25/2009	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

APPENDIX M In-Stream Monitoring Locations





- LegendMonitoring Point 1
- Monitoring Point 2
- Monitoring Point 3
- Monitoring Point 4
- O Monitoring Point 5
- Oak Creek
- **____** State Routes 89 & 179



Figure 8 In-stream Monitoring Locations

Sedona, Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION AZPDES STORM WATER MONITORING SITE

Engineering and Environmental Consultants, Inc. 7878 North 16th Street, Suite 140, Phoenix, AZ 85020

APPENDIX N Pollutant Loading Estimates

ADOT's Phoenix Area MS4 Pollutant Loading Estimates

Annual Pollutant Loading: ADOT's Phoenix Area MS4-Winter								
	•			Winter Event Load				
Pollutant	Annual Runoff	Pollutant Concentration	Area	(lbs)				
BOD	0.19665	13	3.7	2.52				
COD	0.19665	110	3.7	21.29				
TSS	0.19665	85	3.7	16.45				
TDS	0.19665	290	3.7	47.69				
Total Nitrogen	0.19665	4.15	3.7	0.68				
Total Amonia	0.19665	0.66	3.7	0.11				
TKN	0.19665	3	3.7	0.49				
Total Phosphorous	0.19665	NA	3.7	0.00				
Barium	0.19665	0.098	3.7	0.02				
Calcium	0.19665	46	3.7	7.56				
Copper	0.19665	0.023	3.7	0.0038				
Lead	0.19665	0.0084	3.7	0.0014				
Sodium	0.19665	49	3.7	8.06				
Zinc	0.19665	0.053	3.7	0.01				
Specific conductance (mg/L)	0.19665	550	3.7	90.44				
Turbidity (NTU)	0.19665	49	3.7	8.06				
Sulfates (mg/L)	0.19665	56	3.7	9.21				
Nitrate (mg/L)	0.19665	3.3	3.7	0.54				
Nitrite (mg/L)	0.19665	0.19	3.7	0.03				
Phosphate, Ortho (mg/L)	0.19665	NA	3.7	0.00				
Chloride (mg/L)	0.19665	69	3.7	11.35				
Ethylbenzene (mg/L)	0.19665	0.00068	3.7	0.00011				
Coliform, fecal (col/100 ml)	0.19665	1,200	3.7	0.90				
E.Coli (cfu/100 ml)	0.19665	24,200	3.7	18.14				
Antimony (mg/L)	0.19665	<0.020	3.7	0.00				
Arsenic (mg/L)	0.19665	<0.020	3.7	0.00				
Total Petroleum Hydrobarbons (TPH) (mg/L)	0.19665	<5.0	3.7	0.00				
Chlorine, residual (mg/L)	0.19665	0.2	3.7	0.03				
Total Xylene (mg/L)	0.19665	0.0039	3.7	0.0006				
MBAS (mg/L)	0.19665	0.3	3.7	0.05				

Winter Event Runoff	0.19665
Winter Event Rainfall	0.23
Percent of Rainfall Runoff	0.9
Percent of Site Impervious	100%
Runoff Factor	0.95
NA: Not Analyzed	

Annual Pollutant Loa	ding: ADOT's Phoe	enix Area MS4- Mean/Annua	I Loading	
Pollutant	Annual Runoff	Pollutant Concentration	Area	Annual Load (lbs)
BOD	8.83215	13	3.7	96.01
COD	8.83215	110	3.7	812.40
TSS	8.83215	85	3.7	627.76
TDS	8.83215	290	3.7	2,141.78
Total Nitrogen	8.83215	4.15	3.7	30.65
Total Amonia	8.83215	0.66	3.7	4.87
TKN	8.83215	3	3.7	22.16
Total Phosphorous	8.83215	NA	3.7	0.00
Barium	8.83215	0.098	3.7	0.72
Calcium	8.83215	46	3.7	339.73
Copper	8.83215	0.023	3.7	0.17
Lead	8.83215	0.0084	3.7	0.06
Sodium	8.83215	49	3.7	361.89
Zinc	8.83215	0.053	3.7	0.39
Specific conductance (mg/L)	8.83215	550	3.7	4,061.99
Turbidity (NTU)	8.83215	49	3.7	361.89
Sulfates (mg/L)	8.83215	56	3.7	413.58
Nitrate (mg/L)	8.83215	3.3	3.7	24.37
Nitrite (mg/L)	8.83215	0.19	3.7	1.40
Phosphate, Ortho (mg/L)	8.83215	NA	3.7	0.00
Chloride (mg/L)	8.83215	69	3.7	509.60
Ethylbenzene (mg/L)	8.83215	0.00068	3.7	0.00502
Coliform, fecal (col/100 ml)	8.83215	1,200	3.7	40.39
E.Coli (cfu/100 ml)	8.83215	24,200	3.7	814.56
Antimony (mg/L)	8.83215	<0.020	3.7	0.00
Arsenic (mg/L)	8.83215	<0.020	3.7	0.00
Total Petroleum Hydrobarbons (TPH) (mg/L)	8.83215	<5.0	3.7	0.00
Chlorine, residual (mg/L)	8.83215	0.2	3.7	1.48
Total Xylene (mg/L)	8.83215	0.0039	3.7	0.0288
MBAS (mg/L)	8.83215	0.3	3.7	2.22

Winter Runoff	8.83215
Winter Rainfall	10.33
Percent of Rainfall Runoff	0.9
Percent of Site Impervious	100%
Runoff Factor	0.95
NA, Not Applymod	

NA: Not Analyzed

ADOT's Tucson Area MS4 Pollutant Loading Estimates

Annual Pollu	tant Loading: ADC	T's Tucson Area MS4- Winte	er	
Pollutant	Annual Runoff	Pollutant Concentration	Area	Annual Load (lbs)
BOD	0.45315	65	4.8	31.95
COD	0.45315	560	4.8	275.28
TSS	0.45315	110	4.8	54.07
TDS	0.45315	680	4.8	334.27
Total Nitrogen	0.45315	12	4.8	5.90
Total Ammonia	0.45315	6.2	4.8	3.05
TKN	0.45315	12	4.8	5.90
Total Phosphorous	0.45315	0.42	4.8	0.21
Copper (mg/L)	0.45315	NA	4.8	0.00
Turbidity (NTU)	0.45315	94	4.8	46.21
Cyanide, total (mg/L)	0.45315	0.0059	4.8	0.0029
Sulfates (mg/L)	0.45315	110	4.8	54.07
Nitrate (mg/L)	0.45315	NA	4.8	0.00
Phosphate, Ortho (mg/L)	0.45315	0.62	4.8	0.30
Sodium	0.45315	NA	4.8	0.00
Barium (mg/L)	0.45315	0.2	4.8	0.10
Lead (mg/L)	0.45315	0.015	4.8	0.01
Calcium	0.45315	NA	4.8	0.00
Chloride (mg/L)	0.45315	26	4.8	12.78
Antimony (mg/L)	0.45315	NA	4.8	0.00
Arsenic (mg/L)	0.45315	<0.020	4.8	0.00
Selenium (mg/L)	0.45315	NA	4.8	0.00
Zinc (mg/L)	0.45315	NA	4.8	0.00
Total Petroleum Hydrobarbons (TPH) (mg/L)	0.45315	<5.6	4.8	0.00
Ethylbenzene	0.45315	<0.0010	4.8	0.00
MBAS (mg/L)	0.45315	NA	4.8	0.00
Specific conductance (mg/L)	0.45315	720	4.8	353.94
Toluene - d8 (mg/L)	0.45315	99	4.8	48.67
Dibromofluoromethane (mg/L)	0.45315	100	4.8	49.16

Annual Runoff	0.45315
Annual Rainfall	0.53
Percent of Rainfall Runoff	0.9
Percent of Site Impervious	100%
Runoff Factor	0.95
NA: Not Analyzed	

Annual Pollutant Loading: ADOT's Tucson Area MS4- Summer								
Pollutant	Annual Runoff	Pollutant Concentration	Area	Annual Load (lbs)				
BOD	0.342	44	4.8	16.32				
COD	0.342	640	4.8	237.44				
TSS	0.342	160	4.8	59.36				
TDS	0.342	680	4.8	252.28				
Total Nitrogen	0.342	7.01	4.8	2.60				
Total Ammonia	0.342	6.7	4.8	2.49				
TKN	0.342	14	4.8	5.19				
Total Phosphorous	0.342	0.36	4.8	0.13				
Copper	0.342	0.033	4.8	0.01				
Turbidity (NTU)	0.342	NA	4.8	0.00				
Cyanide, total (mg/L)	0.342	NA	4.8	0.00				
Sulfates (mg/L)	0.342	68	4.8	25.23				
Nitrate (mg/L)	0.342	0.21	4.8	0.08				
Phosphate, Ortho (mg/L)	0.342	NA	4.8	0.00				
Sodium	0.342	18	4.8	6.68				
Barium (mg/L)	0.34	0.20	4.8	0.07				
Lead	0.34	NA	4.8	0.00				
Calcium	0.342	100	4.8	37.10				
Chloride (mg/L)	0.342	19	4.8	7.05				
Antimony (mg/L)	0.342	0.0046	4.8	0.0017				
Arsenic (mg/L)	0.342	0.003	4.8	0.0011				
Selenium (mg/L)	0.342	0.2	4.8	0.0742				
Zinc (mg/L)	0.342	0.18	4.8	0.07				
Total Petroleum Hydrobarbons (TPH) (mg/L)	0.342	<6.7	4.8	0.0000				
Ethylbenzene	0.342	<0.00050	4.8	0.0000				
MBAS (mg/L)	0.342	11	4.8	4.0810				
Specific conductance (mg/L)	0.342	690	4.8	255.99				
Toluene - d8 (mg/L)	0.342	NA	4.8	0.0000				
Dibromofluoromethane (mg/L)	0.342	NA	4.8	0.0000				

Annual Runoff	0.342
Annual Rainfall	0.4
Percent of Rainfall Runoff	0.9
Percent of Site Impervious	100%
Runoff Factor	0.95
NA: Not Analyzed	

NA: Not Analyzed

Annual Pollutant Loading: ADOT's Tucson Area MS4- Mean/Annual				
Pollutant	Annual Runoff	Pollutant Concentration	Area	Annual Load (lbs)
BOD	9.1143	54.5	4.8	538.85
COD	9.1143	600	4.8	5,932.32
TSS	9.1143	135	4.8	1,334.77
TDS	9.1143	680	4.8	6,723.29
Total Nitrogen	9.1143	9.505	4.8	93.98
Total Ammonia	9.1143	6.45	4.8	63.77
TKN	9.1143	13	4.8	128.53
Total Phosphorous	9.1143	0.39	4.8	3.86
Copper	9.1143	0.0165	4.8	0.16
Turbidity (NTU)	9.1143	47	4.8	464.70
Cyanide, total (mg/L)	9.1143	0.00295	4.8	0.03
Sulfates (mg/L)	9.1143	89	4.8	879.96
Nitrate (mg/L)	9.1143	0.105	4.8	1.04
Phosphate, Ortho (mg/L)	9.1143	0.31	4.8	3.07
Sodium	9.1143	9	4.8	88.98
Barium	9.1143	0.2	4.8	1.98
Lead	9.1143	0.0075	4.8	0.07
Calcium	9.1143	50	4.8	494.36
Chloride (mg/L)	9.1143	22.5	4.8	222.46
Antimony (mg/L)	9.1143	9.5	4.8	93.928
Arsenic (mg/L)	9.1143	0.0015	4.8	0.015
Selenium (mg/L)	9.1143	0.1	4.8	0.989
Zinc (mg/L)	9.1143	0.09	4.8	0.89
Total Petroleum Hydrobarbons (TPH) (mg/L)	9.1143	3.1	4.8	30.650
Ethylbenzene	9.1143	<5.6	4.8	0.000
MBAS (mg/L)	9.1143	5.5	4.8	54.380
Specific conductance (mg/L)	9.1143	705	4.8	6,970.47
Toluene - d8 (mg/L)	9.1143	49.5	4.8	489.416
Dibromofluoromethane (mg/L)	9.1143	50	4.8	494.360

Annual Runoff	9.1143
Annual Rainfall	10.66
Percent of Rainfall Runoff	0.9
Percent of Site Impervious	100%
Runoff Factor	0.95

NA: Not Analyzed