Program Evaluation Report

Tucson Area Stormwater Programs:
City of Tucson, Pima County, and the Town of Marana

Executive Summary

Tetra Tech, Inc., with assistance from the U.S. Environmental Protection Agency, Region 9 (EPA), in May 2006 conducted a program evaluation of three National Pollutant Discharge Elimination System (NPDES) stormwater permittees in the Tucson area: the city of Tucson, Pima County, and the town of Marana. The purpose of the program evaluation was to determine the permittees' compliance with their respective NPDES permits and to evaluate the current implementation status of the permittees' stormwater management programs. The program evaluation included an in-field verification of program implementation.

This program evaluation report identifies program deficiencies, potential permit violations, and positive attributes and is not a formal finding of violation. Program deficiencies are areas of concern for successful program implementation. Positive attributes indicate overall progress in implementing the program.

The following potential permit violations were identified:

- Pima County does not document costs associated with the stormwater program.

- Pima County does not require or review plans for post-construction water quality BMPs.

- The Town of Marana should remove "spills" as an allowable non-stormwater discharge from page 65 of the SWMP.

- The Town of Marana should ensure that the new Stormwater Ordinance includes enforcement procedures for the IDDE and Construction programs.

The following significant deficiencies were identified:

- All three permittees should develop a plan to document the long-term effectiveness of their stormwater programs.

- Pima County does not review plans for erosion and sediment control BMPs.

- Pima County does not require or review plans for post-construction water quality BMPs.

- The Town of Marana should address projects that disturb less than one acre but are part of a larger plan of development.

Several elements of the permittees' programs were particularly notable:

- The City of Tucson has a comprehensive management program and coordination among agencies that benefit program implementation.

- The City of Tucson has integrated many of its stormwater-related activities into a publicly-accessible online database and Geographic Information System, which is used by many of the City's department not only for daily activities, but also to report on activities that affect the stormwater program.

- The City of Tucson has a stormwater advisory committee that allows the public and elected officials to be involved in stormwater decision-making.

- The City of Tucson has an extensive dry weather screening program, the results of which are tracked in a GIS with photos and test results.

- The City of Tucson has mapped all of its industrial facilities as part of the City's GIS and can link location information with inspection status and other information.

- Pima County developed the Sonoran Desert Conservation Plan to protect a desert area rich in biodiversity.

- The Town of Marana is implementing many stormwater program activities outside of the Phase II boundary.

- The Town of Marana is implementing the SWMP Construction Program over a year before the required deadline.

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1.0   Introduction

1.1   Program Evaluation Purpose

Tetra Tech, Inc., with assistance from the U.S. Environmental Protection Agency, Region 9 (EPA), in May 2006 conducted a program evaluation of three National Pollutant Discharge Elimination System (NPDES) stormwater permittees in the Tucson area: the city of Tucson, Pima County, and the town of Marana. Tucson and Pima County are subject to their own individual Phase I MS4 permits, while the town of Marana is covered under the Arizona Department of Environmental Quality's (ADEQ's) Phase II small MS4 general permit. The purpose of the program evaluation was to determine the permittees' compliance with their respective NPDES permits and to evaluate the current implementation status of the permittees' stormwater management programs. Secondary goals included the following:

- Review the overall effectiveness of each program.

- Identify and document positive elements of each program that could benefit other Phase I and Phase II municipalities.

- Acquire data to assist in reissuance of the two Phase I permits.

- Serve as a compliance assistance tool for the town of Marana during the first permit term.

40 CFR 122.41(i) provides the authority to conduct the program evaluation.

1.2   History of Each Permit

For the City of Tucson, their Phase I MS4 permit was issued on February 14, 1997, with an effective date of March 19, 1997, and an expiration date of March 19, 2002. Although expired, the City's Phase I MS4 permit has been administratively extended until a new Phase I MS4 permit is issued.

For Pima County, their Phase I MS4 permit was issued on February 14, 1997, with an effective date of March 19, 1997, and an expiration date of March 19, 2002. Although expired, the County's Phase I MS4 permit has been administratively extended until a new Phase I MS4 permit is issued.

For the town of Marana, the NPDES stormwater Phase II small MS4 general permit was issued on December 19, 2002, and expires on December 19, 2007. The Town of Marana submitted a complete application for coverage under the general permit on March 10, 2003. ADEQ provided comments on the Stormwater Management Plan (SWMP) in September 2005, the SWMP was modified as necessary, approved by ADEQ in October 2005, and the Marana Town Council accepted the final SWMP in December 2005.

1.3   Logistics and Program Evaluation Preparation

Before initiating the on-site program evaluation, Tetra Tech, Inc., reviewed the following program materials:

City of Tucson

- City of Tucson NPDES Permit No. AZS000001
- City of Tucson Stormwater Management Program 2005 Annual Report
- City Web site (http://dot.ci.tucson.az.us/stormwater/)

Pima County

- Pima County NPDES Permit No. AZS000002 and amendments
- Pima County Stormwater Discharge Permit 2005 Annual Report
- Pima County Part II NPDES Permit Application materials
- County Web site (http://www.deq.pima.gov/water/stwmgmprog.html)

Town of Marana

- AZPDES Permit No. AZG2002-002 (Permit Authorization No. MS42002-21)
- Town of Marana 04-05 Annual Report
- Town of Marana Stormwater Management Plan (October 26, 2005)
- Town Web site (http://www.marana.com/publicworks-environmental_SWM.html)

On May 23–25, 2006, Tetra Tech, Inc., with assistance from EPA Region 9 and accompanied by Arizona Department of Environmental Quality, conducted the program evaluation. The evaluation schedule was as follows:

City of Tucson and Pima County Evaluation Schedule

Tuesday, May 23	Wednesday, May 24	Thursday, May 25
• Program evaluation kickoff meeting • Program Management; Program Effectiveness • Public education and involvement • New Development /Significant Redevelopment (office) • Construction (office)	• Construction (field) • Industrial and Commercial (office and field) • Illicit Discharge (office and field)	• Municipal Activities (office and field) • Outbrief

Town of Marana Evaluation Schedule

Tuesday, May 23	Wednesday, May 24
• Program evaluation kickoff meeting • Program Management • Public Education, Outreach, and Involvement • New Development/Significant Redevelopment and Construction	• Municipal activities (office and field) • Illicit Discharge Detection and Elimination (field) • Construction inspection (field) • Illicit Discharge Detection and Elimination (office)

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Upon completion of the evaluation, the evaluation teams held an exit interview with all three permittees to discuss the preliminary findings. During the exit interview, the attendees were informed that these findings were to be considered preliminary pending further review by EPA.

1.4   Program Areas Evaluated

The following program areas were evaluated:

- Program management, including how each permittee assesses their program's effectiveness
- Public education and involvement
- Illegal Discharges and Illicit Connections
- Construction
- New Development/Redevelopment
- Industrial/Commercial
- Municipal Activities

The Town of Marana covered all the above topics except for industrial/commercial programs.

1.5   Program Areas Not Evaluated

The following areas were not evaluated in detail as part of this program evaluation:

- Wet-weather monitoring program and monitoring program details (e.g., sample locations, types, frequency, parameters).

- Other NPDES permits issued to the permittees (e.g., industrial or construction NPDES stormwater permits).

- Fiscal resources required or expended to implement the programs outlined in the stormwater management programs.

- Legal authority.

- Inspection reports, plan review reports, and other relevant files. The program evaluation team did not conduct a detailed file review to verify that all elements of the Program were being implemented as described. Instead, the team relied on its observations and on statements from the permittees' representatives to assess overall compliance with permit requirements. A detailed file review of specific program areas could be included in a subsequent evaluation.

1.6   Program Areas Recommended for Further Evaluation

The evaluation team recommends the following additional assessments:

- An evaluation of Pima County's wet weather monitoring program, including appropriateness of sample locations, number of representative storm events, frequency of stormwater monitoring, and monitoring parameters.

- An evaluation of Tucson's wet weather monitoring program, including appropriateness of sample locations, number of representative storm events, frequency of stormwater monitoring, and monitoring parameters.

- An evaluation of Pima County's dry weather field screening program, including the number of major outfalls, frequency of inspection, types of discharges detected, identification methods, and enforcement strategy.

- An evaluation of Tucson's dry weather field screening program, including the number of major outfalls, frequency of inspection, types of discharges detected, identification methods, and enforcement strategy.

- An evaluation of Pima County ordinances for controlling discharges to the MS4, including illicit discharges, construction site discharges, and post-construction discharges.

- An evaluation of Tucson's ordinances for controlling discharges to the MS4, including illicit discharges, construction site discharges, and post-construction discharges.

2.0   Program Evaluation Results

This program evaluation report identifies program deficiencies and positive attributes and is not a formal finding of violation. Program deficiencies are areas of concern for successful program implementation. Positive attributes indicate a permittee's overall progress in implementing the Program. The evaluation team identified only positive attributes that were innovative (beyond minimum requirements). Some areas were found to be simply adequate; that is, neither deficient nor innovative.

The evaluation team did not evaluate all components of each permittee's stormwater program. Therefore, the permittees should not consider the list of program deficiencies contained in this report as constituting a comprehensive evaluation of individual program elements.

The most significant program deficiencies and positive attributes identified during the evaluation are noted in the Executive Summary and are described in text boxes in the following subsections.

2.1   City of Tucson

2.1.1   Evaluation of Program Management, Plan Development, Program Effectiveness and Assessment, and Monitoring

<u>Positive Attributes</u>:

- *The City of Tucson has a comprehensive management program and coordination among agencies that benefit program implementation.*

    The City has a dedicated section within the Transportation Department that coordinates a multi-agency approach to controlling stormwater. Activities such as trainings, multi-media inspections, and regular meetings provide the city staff with a good knowledge of the stormwater program. Especially given the challenges of implementing a stormwater program in a arid/semi-arid environment, the City is to be commended for their comprehensive approach to stormwater management.

- *The City of Tucson has integrated many of its stormwater-related activities into a publicly-accessible online database and Geographic Information System, which is used by many of the City's department not only for daily activities, but also to report on activities that affect the stormwater program.*

    The City has developed a variety of data layers characterizing many aspects of their stormwater program, including the details of the storm drain system, street sweeping schedules and actual sweeping dates, stenciled storm drain locations, the inspection and permit status of industrial and commercial businesses that may be subject to stormwater requirements, dry weather screening locations and sampling status, and many others. City staff can access this information via the Internet, even when in the field, and much of this information is available to the public.

    This integrated system allows City stormwater managers to track many of the stormwater-related activities being performed by other City crews and facilitates annual reporting as well as on-the-fly assessments of the status of various activities.

- *The City recently installed five state of the art monitoring stations to collect wet weather samples.*

    The City recently purchased and installed five automatic samplers to monitor flows from the MS4. The stations automatically notify staff via page when flows reach a threshold level to alert them that samples might need to be collected. Three staff members have been trained in their operation to ensure samples can be collected if a staff member happens to be away. Extensive documentation on the samplers' operation are included in the sheds housing the equipment, along with standard operating procedures and forms for collecting and handling samples.

Deficiencies Noted:

- *The City's SWMP should be updated on a regular basis with changes described in the Annual Report.*
  The City has modified or added to the activities it performs as part of the stormwater management program. These changes are outlined in the annual report, but the City does not regularly update the SWMP. The SWMP is intended to be a "living document" that is updated periodically and changed to reflect "lessons learned" and to account for increased capacity as the program matures. It is important to note that the City considers its annual report its working plan, and this is being modified on a regular basis.

- *The City should develop a plan to document the long-term effectiveness of its stormwater program.*
  The City describes past-year stormwater activities in its annual report. The city should expand on the information provided in its Annual Reports and develop a plan to document the long-term effectiveness of its stormwater program. The plan should set long-term goals and specify evaluation techniques that help the city demonstrate that it is making progress toward achieving these goals. This plan will help the City direct resources in order to improve implementation of the Program as well as assisting the City with documenting water quality improvements.

  For additional information on program effectiveness, the City should review the California Stormwater Quality Association's white paper on Stormwater Program Effectiveness Assessment at http://www.casqa.net/resources/CASQA%20White%20Paper_An%20Introduction%20to%20Stormwater%20Program%20Effectiveness%20Assessment.pdf. An additional resource is the information on program effectiveness assessments, including the effectiveness framework and baseline long-term effectiveness assessment developed by the San Diego Municipal Stormwater co-permittees available at http://www.projectcleanwater.org/html/wg_assessment.html.

2.1.2   Evaluation of Public Education and Involvement

Positive Attribute:

- *The City has a stormwater advisory committee that allows the public and elected officials to be involved in stormwater decision-making.*
  The City's stormwater advisory committee is made up of members of the public who are appointed by the mayor and city council, as well as several technical experts. The committee advises the mayor and city council of program needs and priorities and drives the City's decision-making process. This committee provides the City's stormwater managers with input from both the public and elected officials, increasing buy-in for stormwater activities and ensuring that program objectives meet community expectations.

Deficiency Noted:

- *The City should develop a strategy to guide public education activities.*
  The City currently conducts a number of public education and involvement activities and has developed an integrated set of materials and messages with a stormwater theme. The City should organize these activities in an overall framework for public education that formally identifies target audiences, measurable goals and milestones, methods for tracking the effectiveness of the overall program as well as individual activities. The strategy should also identify ways in which the program will grow or be modified over time.

  A good resource on developing a public education strategy is EPA's Getting In Step guidance documents available at
  http://www.epa.gov/owow/watershed/outreach/documents.

2.1.3 Evaluation of New Development/Significant Redevelopment

Positive Attribute:

- *The City has developed a Water Harvesting Manual.*
  The Water Harvesting Manual, while ostensibly focusing on groundwater recharge, encourages many low impact design concepts to control the negative impacts of development on stormwater. The manual includes descriptions of microbasins, swales, gabions, mulch, and subdivision design that are appropriate for arid regions. The manual presents these concepts in a manner that is targeted to the community and therefore the focus is on protecting "water harvesting" rather than specifically protecting surface waters. The manual may serve as a resource for other arid communities:
  http://dot.ci.tucson.az.us/stormwater/downloads/2006WaterHarvesting.pdf

Deficiency Noted:

- *The City should develop a manual or guidebook for plan reviewers.*
  The City has several staff responsible for plan review, and staff meet weekly to discuss projects and procedures. It is recommended that the City develop a checklist and accompanying manual or set of guidance materials that staff can use when reviewing plans; though there are no consistency issues at present because plan review staff are very experienced, this measure can be taken to ensure consistency among plan reviewers over the long term and to ensure that all stormwater-related requirements are being checked. The checklist and manual can be used as reference materials for existing staff and can be used as training materials for new staff.

2.1.4   Evaluation of Construction Program

Positive Attribute:

- *The City maintains inspection results and narratives in its Permits Plus database.*
  The City maintains electronic records of construction inspections, which are included as part of the City's development review database and GIS. Staff can access the system via the Internet, and records are available in the field via City-owned laptops with wireless connections. The records itemize problems and violations observed at the site, including follow-up actions and other details about a site's compliance status. This system not only facilitates the work of the inspectors but also provides an easily accessible record of inspections and violations in case of enforcement actions.

Deficiency Noted:

- *The City should revise its procedures for SWPPP development and approval for capital improvement projects.*
  The City presently relies on its construction contractors in most cases to develop SWPPPs for capital improvement projects. They have found inconsistency among SWPPPs in terms of quality. A plan is underway to address this concern by having the City develop its own SWPPPs or develop a template that outlines the City's expectations to improve both the quality and consistency of the submissions. The City is also looking at ways to improve contracts to help ensure that SWPPP provisions will be implemented.

2.1.5   Evaluation of Illicit Connections/Illegal Discharges

Positive Attribute:

- *The City has an extensive dry weather screening program, the results of which are tracked in a GIS with photos and test results.*
  The City conducts field screening at 20 percent of their outfalls annually (approximately 100). All outfalls are mapped in a GIS and linked to outfall descriptions, drainage area, test results, and photos of conditions at the time of sampling. These data are organized in such a way that trends can be tracked over time, and conditions at an outfall can be compared to typical conditions from the database to determine if an investigation is needed when flows are found.

2.1.6   Evaluation of Industrial/Commercial Program

Positive Attributes:

- *The City has mapped all of its industrial facilities as part of the City's GIS and can link location information with inspection status and other information.*
  The City tracks its industrial facilities geographically as part of the citywide GIS. These data points are linked to information about the facility, including inspection

status, requirement to file for NOI coverage under the Multi-Sector General Permit (MSGP), and filing status. The City uses this database and GIS to identify additional facilities to inspect and can quickly identify a facility on the map in the event of a reported spill or other incident.

- *The City developed and continually updates its inventory of industrial businesses using a thorough protocol that includes not only using business license records but also visually identifying businesses and using the phone book.*
  The City actively seeks out new businesses that might be subject to industrial stormwater requirements under the MSGP. To do this, they identify new business licenses issued each year, and they augment this information with visual identification of additional businesses. If an industry or business type has been identified as being a particular source of stormwater pollution, all businesses in this category are identified, in one case even using the phone book to locate as many as possible. The City's use of multiple sources of information helps to ensure that they are inspecting the proper facilities and are not missing any.

Deficiency Noted:

- *The City should consider coordinating with other departments and agencies that conduct inspections of commercial businesses to have stormwater inspection items addressed.*
  The City should consider coordinating with the Pima County departments who conduct inspections of businesses (e.g., pretreatment inspections or health inspections) and other departments within the City who conduct inspections (e.g., fire safety inspections). These other departments can not only refer businesses to the City that have potential stormwater-related problems but might also address stormwater issues as part of their inspections. This would also help the City to identify business categories that tend to have more violations as candidates for regular inspections by the City's stormwater inspectors.

2.1.7   Evaluation of Municipal Activities

Positive Attributes:

- *The City conducts annual inspections of all of its municipal facilities.*
  The City's Central Safety Services Department conducts health and safety inspections at all municipal facilities, including indoor and outdoor areas where municipal staff work. These inspections include a stormwater component, where a City stormwater inspector identifies possible stormwater pollution sources and identifies areas for improvement. The inspections occur throughout the year so that each facility is inspected once annually.

- *The City conducts spill prevention and control and stormwater-related training for all staff that may need to address spills.*
  The City has an extensive training program for new and current employees on a wide variety of topics related to health and safety. All staff who may have to address spills

or water quality issues are identified and provided training on spill response BMPs and notification procedures. Trainings are held throughout the year so that new staff are trained in a timely manner. Employees are provided handouts with reference materials about spill prevention and response to accompany the training.

2.2   Pima County

2.2.1   Evaluation of Program Management and Effectiveness

Potential Permit Violation:

- *The County does not document costs associated with the stormwater program.*
  In the 2005 annual report, the County provided the total costs associated with all
  departments that may be involved with stormwater because "it is not possible to track
  only those expenditures related to activities exclusively associated with the AZPDES
  stormwater permit area." This is not a valid assessment. Section C. 5 of the permit
  requires the permittee to report annual expenditures for the year and proposed budget
  for the next reporting period. By including a total cost in the annual report of all
  departments, it may give the erroneous impression that the County is spending $13
  million annually on the stormwater program.

Positive Attribute:

- *The County developed the Sonoran Desert Conservation Plan to protect a desert area
  rich in biodiversity.*
  The Sonora Desert Conservation Plan (http://www.pima.gov/cmo/sdcp/) is a regional
  plan to address the long-term conservation needs of the full range of natural and
  cultural resources in the Sonoran Desert. The plan addresses elements on critical
  habitat and biological corridors, riparian restoration, mountain parks, historical and
  cultural preservation, and ranch conservation. The County should incorporate both the
  process and lessons learned from developing the SDCP to help revise and update its
  stormwater management plan.

Deficiencies Noted:

- *The County's stormwater management plan is outdated and needs to be revised.*
  The County's stormwater management plan was developed 10 years ago in response
  to EPA's Part II NPDES permit applications for Phase I stormwater MS4s. The plan
  has not been updated since that time. The County stated that it is waiting for the
  issuance of a new NPDES permit before it revises its stormwater management plan.
  The SWMP is intended to be a "living document" that is updated periodically and
  changed to reflect "lessons learned" and to account for increased capacity as the
  program matures. The County should be more proactive and begin to develop a
  revised stormwater management plan now that incorporates changes to the program
  since the first plan was developed (e.g., the Sonoran Desert Conservation Plan and the
  change in NPDES regulations that requires stormwater controls for construction sites
  1 acre or larger). The plan should also describe organizational changes the County has
  made since the Part II application was submitted in 1996.

- *The County should develop a plan to document the long-term effectiveness of its stormwater program.*

The County describes past-year stormwater activities in its annual report. The County should expand on the information provided in its Annual Reports and develop a plan to document the long-term effectiveness of its stormwater program. The plan should set long-term goals and specify evaluation techniques that help the city demonstrate that it is making progress toward achieving these goals. This plan will help the County direct resources in order to improve implementation of the Program as well as assisting the City with documenting water quality improvements.

For additional information on program effectiveness, the County should review the California Stormwater Quality Association's white paper on Stormwater Program Effectiveness Assessment at http://www.casqa.net/resources/CASQA%20White%20Paper_An%20Introduction%20to%20Stormwater%20Program%20Effectiveness%20Assessment.pdf. An additional resource is the information on program effectiveness assessments, including the effectiveness framework and baseline long-term effectiveness assessment developed by the San Diego Municipal Stormwater co-permittees available at http://www.projectcleanwater.org/html/wg_assessment.html.

- *The County should coordinate closer with the City of Tucson on implementation of its stormwater program.*

Although under separate NPDES permits, the County and City are implementing stormwater programs in the same urban area and generally serving the same population. The County and City do not need to implement identical programs, however, the County could greatly improve the implementation of its program by building on lessons learned from what the City has already accomplished. The County also operates some facilities within the City that are not technically in the County's permit area. County facilities within the City of Tucson should be treated as part of the County's stormwater program. A closer partnership between the County and City will likely result in some cost savings as redundant efforts are identified.

2.2.2   Evaluation of Public Education/Involvement Program

Deficiencies Noted:

- *The County should develop a stormwater outreach strategy.*

The County is conducting a variety of public outreach activities such as school education and sponsoring events. However, the County should organize these activities in an overall framework for public education that formally identifies target audiences, measurable goals and milestones, methods for tracking the effectiveness of the overall program as well as individual activities. The strategy should also identify ways in which the program will grow or be modified over time. A good resource on developing a public education strategy is EPA's Getting In Step guidance documents available at http://www.epa.gov/owow/watershed/outreach/documents

The County should also conduct stormwater outreach to target audiences other than students and the general population, such as industry, construction, and commercial pesticide applicators, regardless of whether or not it can be incorporated into existing programs.

Information on developing a stormwater public education strategy can be found in the EPA guidance document "Getting In Step: A Guide for Conducting Watershed Outreach Campaigns" available at http://www.epa.gov/owow/watershed/outreach/documents.

- *The County should develop a strategy to guide public education activities.*
  The County currently conducts a number of public education and involvement activities and has developed an integrated set of materials and messages with a stormwater theme. The County should organize these activities in an overall framework for public education that formally identifies target audiences, measurable goals and milestones, methods for tracking the effectiveness of the overall program as well as individual activities. The strategy should also identify ways in which the program will grow or be modified over time.

  A good resource on developing a public education strategy is EPA's Getting In Step guidance documents available at http://www.epa.gov/owow/watershed/outreach/documents.

2.2.3   Evaluation of New Development and Significant Redevelopment

Potential Permit Violation:

- *The County does not require or review plans for post-construction water quality BMPs.*
  During the review of site plans, the County does not specifically require and review plans for post-construction stormwater quality BMPs. In accordance with a permit modification, the County submitted a plan for post-construction pollutant control in 1999; however, this plan relied largely on existing programs and public education described in the Part 2 application. The County is encouraged to use existing programs and functions to implement stormwater program elements, such as incorporating standards for design and maintenance of post-construction BMPs into flood control planning requirements. However, the County does not appear to have implemented the requirements for new development into public outreach efforts or existing programs as proposed in 1999.

  The County should develop specific standards for post-construction that include design standards for water quality treatment, source controls and maintenance requirements. The County should also develop and adopt local ordinances for plan review, site inspections, and enforcement. As a resource in developing these, the County should review relevant post-construction standards and tools developed by other cities, such as Tucson's water harvesting manual, and adopt a post-construction

design standard that best fits the type of development in the County. Examples of post-construction standards developed for communities in drier climates include:
- o Eastern Washington Stormwater Manual
  http://www.ecy.wa.gov/biblio/0410076.html
- o North Central Texas Council of Governments integrated Stormwater Management (iSWM) Design Manual for Site Development
  http://iswm.nctcog.org/index.asp
  Standard Urban Stormwater Mitigation Plan (SUSMP) requirements developed in Los Angeles County
  http://www.lastormwater.org/WPD/businesses/susmp/susmpintro.htm
- o City of Tucson Water Harvesting Manual
  http://dot.ci.tucson.az.us/stormwater/downloads/2006WaterHarvesting.pdf

2.2.4   Evaluation of Construction Program

Deficiencies Noted:

- *The County does not review plans for erosion and sediment control BMPs.*

  The County relies largely on the State/EPA stormwater pollution prevention plan (SWPPP) to ensure erosion and sediment control BMPs are on-site (the grading permit only requires final stabilization measures). However, the County does not review the SWPPP, and erosion and sediment control BMPs are often not required on site plans. The stormwater Phase I regulations require the County to implement a program to "maintain structural and non-structural best management practices to reduce pollutants in stormwater runoff from construction sites to the municipal storm sewer system." The County can use the State/EPA SWPPP as the mechanism to reduce pollutants in stormwater from construction sites to the MS4, but it would need to review, approve, and inspect sites based on this SWPPP.

  The County should identify the types of BMPs required at construction sites and review erosion and sediment control plans against that standard. For example, perimeter erosion controls, storm drain inlet protection, stabilized construction entrances, slope protection, and concrete washouts could be identified as the types of BMPs required at all sites, if applicable. These BMP standards should also be clearly communicated to the construction industry. As an example, the City of Coronado has developed a simple and clear BMP fact sheet available at (http://www.coronado.ca.us/stormwater/swconstrenglish.pdf).

- *The County should inspect all constructions sites more frequently.*
  The County's SWMP states that it will visit 25% of construction sites within the County permit area each year that are required to submit an NOI to EPA. In the 2005 annual report, the County stated that it inspected 19 of 55 sites, or 35%. Due to the relatively small number of active construction sites within the County's permit area (55 in 2005), the County should significantly increase the frequency of inspections at these sites. At an absolute minimum, each site should be inspected once per year, with the County prioritizing sites for more frequent inspections. The County should also conduct targeted inspections both before and after anticipated rain events.

2.2.5 Evaluation of Illicit Connections and Illicit Discharges

Positive Attribute:

- *The County has developed a sophisticated reporting and documentation system for tracking illicit discharges and illegal dumping complaints.*
  The County's system on tracking illegal dumping and illicit discharge complaints includes maps, reports, and photographs. These are all easily accessible to County staff and include full search capabilities. The County responds to complaints of illegal dumping, investigates and eliminates illegal dumping beyond the urbanized area and throughout the county. Detection methods include routine aerial inspections via helicopter.

Deficiency Noted:

- *The County should increase the number of outfalls inspected annually.*
  The County states in its SWMP that it will inspect 20% of outfalls per year and report any discharges found. In the 2005 annual report, the County conducted inspections at 11 outfalls (representing 31% of the total number of outfalls). Given the relatively small number of outfalls, the County should inspect all outfalls annually.

2.2.6 Evaluation of Industrial Facilities Program

Deficiencies Noted:

- *The County should inspect all industrial sites more frequently.*
  The County states in its SWMP that it will visit 20% of all industrial sites per year that located within the County permit area and covered by an industrial stormwater permit. In the 2005 annual report, the County stated that it inspected 14 businesses out of 67 total facilities covered by an industrial stormwater permit. Due to the relatively small number of industrial sites within the County's permit area (67 in 2005), the County should significantly increase the frequency of inspections at these sites. The County should prioritize the sites to inspect annually those facilities that are greater threats to water quality, or those facilities with compliance issues identified from past inspections.

- *The County should expand the types of facilities inspected to other priority businesses and should cross-train other inspectors.*
  As described in the previous finding, the County has a total of 67 industrial facilities in the permit area. The County should expand its stormwater program to include priority commercial businesses such as automobile repair shops in its education and inspection program. Based on past illicit discharge records, complaints and other information, the County should generate a list of commercial facilities and prioritize this list for targeted education and inspections. The County should also implement a strategy to identify and inspect unpermitted industrial facilities.

The County should also work with other County inspectors, such as Health inspectors, pretreatment inspectors, code enforcement and others to cross-train them on stormwater issues and investigate opportunities for these other inspectors to either add stormwater to their current inspection responsibilities, or report obvious violations to the County's stormwater program.

2.2.7 Evaluation of Municipal Maintenance Activities

Positive Attribute:

- *The County has developed SWPPPs for the Richey Road and Mission Road Maintenance facilities.*
  The County has developed, and annually updates, SWPPPs for the Richey Road and Mission Road maintenance facilities. In addition to the standard SWPPP elements, these SWPPPs also include copies of the facility's spill response plan and procedures for common activities to prevent stormwater pollution.

Deficiency Noted:

- *The County should develop a detailed list of municipal facilities and activities and designate BMPs to address these sources.*
  The County does not have a comprehensive list of municipal facilities and activities within the County's permit area. The County should develop a list of facilities within the permit area that includes municipal facilities such as parks, public pools, civic centers, maintenance facilities, and storage yards. In addition, the County should develop a list of municipal activities that could potentially impact stormwater quality, such as pesticide applications, street repairs, storm drain or basin cleaning, or other activities.

  The County should then designate specific BMPs for these facilities and activities, such as appropriate BMPs for storage yards, or BMPs for basin cleaning.

2.3   Town of Marana

2.3.1   Evaluation of Program Management and Effectiveness

Positive Attribute:

> • *The Town is implementing many stormwater program activities outside of the Phase II boundary.*

The SWMP only calls for implementing many of the programs in the Phase II area, about 10 percent of the Town. The Town is implementing much of the Program (except the outfall mapping and Illicit Discharge Detection and Elimination (IDDE) inspections) throughout the Town.

Deficiencies Noted:

> • *The Town should develop a specific plan to evaluate the effectiveness of its stormwater program.*

The Town should develop a specific plan to evaluate the effectiveness of its stormwater program. The current annual report summarizes past activities but does not provide a detailed analysis evaluating those activities. The Town should use the annual report preparation process to analyze past performance and to plan for the future to improve the Program. This plan will help the City direct resources in order to improve implementation of the Program as well as assisting the City with documenting water quality improvements.

For additional information on program effectiveness, the County should review the California Stormwater Quality Association's white paper on Stormwater Program Effectiveness Assessment at http://www.casqa.net/resources/CASQA%20White%20Paper_An%20Introduction%20to%20Stormwater%20Program%20Effectiveness%20Assessment.pdf. An additional resource is the information on program effectiveness assessments, including the effectiveness framework and baseline long-term effectiveness assessment developed by the San Diego Municipal Stormwater co-permittees available at http://www.projectcleanwater.org/html/wg_assessment.html.

• *The Town should review and update their SWMP annually.*
It is stated on page 115 that the "Town of Marana will review the SWMP annually." Although the Town reviews the SWMP monthly, the SWMP has not been updated to reflect changes in the program. Note that ADEQ does not allow the *removal* of BMPs from the SWMP, just *replacement* of unsuccessful BMPs with more appropriate BMPs. There are several areas where the SWMP should be updated, such as:

> o Page 21-22 of the SWMP states that the Web site will contain contact information where the public can "express concerns and report illegal dumping." Although there is an "Illicit Discharge and Dumping Concerns"

link, it has not been developed yet. The BMP Table should be updated to list when this activity will be completed.

- o Page 22 of the SWMP states that the Town will contact "major educational institutions, environmental interest groups, and governmental entities within the region" to provide links to the new Town stormwater Web site. This has not been conducted yet and the BMP Table should identify when this activity will be completed.
- o Page 28 of the SWMP states that "all known target-industry businesses will be directly contacted each year," yet the Table of BMP states that "75% of the construction/development community, 75% of the auto service facilities…75% of auto service facilities, and 75% of restaurants" were contacted. The table should be updated. Page 62, mentions the consideration of developing an illicit discharge ordinance. The Town, however, has already determined that they will address the regulatory requirements for IDDE in their new Stormwater Ordinance (due out October 2007).
- o Page 89 "During the permit period, the Town of Marana will review existing Code and determine if any additional provisions are necessary." It has been determined that a new Stormwater Ordinance is needed. Similar issue for post-construction on page 101.
- o Appendix E forms are out of date.
- o Update the SWMP BMP Tables with new activities, such as the new coloring book and stormwater calendar, and BMPs that are have been replaced (i.e., replace the unsuccessful Adopt-A-Neighborhood BMP with the potentially successful Neighborhood Clean Up and Adopt-A-Drain/Wash BMPs and replace the Employee Bulletin Board BMP with a more successful BMP— perhaps an online comment form to allow the public to comment on the program).
- o Update the distribution mechanisms of the different printed outreach products.
- o Update (if necessary) portions of the SWMP that are the responsibility of Parks and Recreation.

- *The Town should develop an organizational chart of all Town staff involved with implementing the SWMP.*
  Although the SWMP has a Table of Responsible Officials (Appendix A), it does not list staff that *will be* involved in the approval and enforcement of the stormwater pollution prevention plans (SWPPP) or the Parks and Recreation staff involved in fertilizer, pesticide, herbicide application; pool maintenance; etc. The Organizational Chart should list each staff person/job position responsible for each task in the SWMP and document this division of labor in a flow chart. This will alert each participating department and staff of their responsibilities, allow the Town to ensure that all tasks are being addressed, and can facilitate reassignment of tasks in the event of position vacancies and employee vacations.

- *The Town should update its stormwater Web site.*
  Update the Town's stormwater Web site to clearly list the phone number(s) to call to report an illicit discharge, file a complaint about an active construction site, and/or get more information about the Program.

2.3.2 Evaluation of Public Education/Involvement Program

Positive Attribute:

- *The Town is reaching out to challenging audiences using creative activities.*
  The Town is evaluating how to reach all target audiences, even challenging audiences, such as high school students. They are currently working on a project to have the high school students develop artwork for a coloring book for the younger school-aged children to use.

  In addition, the Town also developed a successful artwork contest for school-aged children and made calendars from the winning artwork. The Town successfully obtained a variety of prizes for the winners which helped create a successful activity.

2.3.3 Evaluation of Illicit Connections and Illicit Discharges

Potential Permit Violations:

- *The Town should remove "spills" as an allowable non-stormwater discharge from page 65 of the SWMP.*
  According to Arizona's MS4 General Permit, "spills" are not an allowable non-stormwater discharge. This should be removed from the SWMP as an allowable non-stormwater discharge.

Positive Attribute:

- *The Town inspects* all *outfalls in the Phase II area each year.*
  Many municipalities inspect a percentage of their outfalls each year, but the Town inspects every outfall annually.

Deficiencies Noted:

- *The Town should include the Illicit Discharge Detection and Elimination (IDDE) procedures in the SWMP.*
  Through an ADEQ grant, the Town was able to map each outfall in the Phase II area and develop procedures for inspecting outfalls, determining whether the discharge is illicit, and tracing an illicit discharge. The Town should document these IDDE procedures in the SWMP.

- *The Town should set a measurable goal for the "encourage local community groups to conduct volunteer monitoring" BMP and ensure it is listed in the Table of BMPs.*
  This is a BMP in the SWMP, but it is not listed in the Table of BMPs and there are no milestones or measurable goals. The Town has not yet started implementing this BMP.

- *The Town should complete the Code Enforcement Process for Citizen Complaint in Appendix C and add it to the Table of BMPs.*
  Citizen participation in the Town's IDDE and Construction program is important because citizens can alert the Town of illicit discharges and improperly functioning and nonexistent sediment and erosion controls on a construction site. The outline included in Appendix C is a good start toward completing this process, but the Town should follow through so that it is finished before the end of the permit term in December 2007. This BMP, along with milestones and measurable goal(s), should also be added to the Table of BMPs in the SWMP.

2.3.4 Evaluation of Construction Program

Positive Attributes:

- *The Town is implementing the SWMP Construction Program over a year before the required deadline.*
  According to the SWMP, the Town is not required to implement the new Stormwater Ordinance until October 2007. The Town is currently requiring, reviewing, and approving SWPPPs for projects disturbing one or more acres. They also make sure that the applicant has received their Notice of Intent authorization for Arizona's Construction General Permit before issuing Type II grading permits.

- *The Town's plan review staff uses technical references produced by other regional jurisdictions.*
  The Town is taking advantage of technical resources and references developed by Maricopa County, Arizona Department of Transportation, and California Department of Transportation. This will help the Town develop standards and protocols for plan review and approval that have been tested and accepted and reduce the burden for Town staff to develop new materials and protocols.

Deficiencies Noted:

- *The Town should address projects that disturb less than one acre but are part of a larger plan of development.*
  The new Stormwater Ordinance should apply to projects disturbing one acre or more *and* projects disturbing less that once acre, but are part of a larger common plan of development. This was a source of confusion for the Town's existing SWPPP reviewers. The Town should ensure that both project applicants and staff are aware of when projects are part of a "larger common plan of development."

- *The Town should provide sufficient education to Town sediment and erosion control inspectors.*
  Observations of inspectors in the field showed that several important erosion and sediment control problems were overlooked. It is recommended that all sediment and erosion control inspectors/supervisors (applicable Town employees, engineers-of record, and contractors) receive adequate training to understand BMP specifications

and determine if the controls are installed and maintained adequately. The Town should also consider conducting joint inspections with the Environmental Protection Agency, ADEQ, and local Phase I communities to help educate their inspection staff.

2.3.5 Evaluation of New Development and Significant Redevelopment

Deficiencies Noted:

Note that BMPs do not have to be implemented until 2007.

- *The Town should ensure that post-construction design standards are developed before the 2007 deadline described in the SWMP.*
  The general permit requires the Town to develop an ordinance (or other regulatory measure) to address post-construction runoff. The Town should review relevant post-construction standards and tools developed by other cities, such as Tucson's water harvesting manual, and adopt a post-construction design standard that best fits the type of development in Marana. Examples of post-construction standards developed for communities in drier climates include:
  - o Eastern Washington Stormwater Manual
    http://www.ecy.wa.gov/biblio/0410076.html
  - o North Central Texas Council of Governments integrated Stormwater Management (iSWM) Design Manual for Site Development
    http://iswm.nctcog.org/index.asp
  - o Standard Urban Stormwater Mitigation Plan (SUSMP) requirements developed in Los Angeles County
    http://www.lastormwater.org/WPD/businesses/susmp/susmpintro.htm

- *The Town should develop a mechanism to track maintenance of post-construction BMPs.*
  The Town is required to "ensure adequate long-term operation and maintenance of BMPs." The Town should evaluate different options for ensuring that maintenance of post-construction BMPs is being performed (whether by the Town or a private entity), which at a minimum would include developing a spreadsheet or database to track the location, ownership, and maintenance requirements of each new practice. Additionally, the Town could conduct periodic inspections of privately-owned facilities or require that the property owner submit proof of maintenance to the Town.

2.3.6 Evaluation of Pollution Prevention/Good Housekeeping Activities

Positive Attribute:

- *The Town sweeps streets, all not just the Phase II area, each month and cleans all catch basins at least once a year.*
  The Town goes beyond the requirements of the SWMP and contracts out street sweeping so that each street in Marana is swept once a month. All catch basins in Marana are cleaned out at least once a year.

Deficiency Noted:

- *Because of the size and extent of the activities occurring at the municipal corporation yard, the Town should develop SWPPP or similar document to be implemented at the site.*
  Although the yard was in excellent condition, numerous Town staff work at or visit the site regularly and all should be trained about stormwater pollution prevention practices, including spill response and control, proper storage of materials, vehicle maintenance and washing practices, and other topics. A SWPPP would describe such practices to be implemented at the site and would prescribe a training program for staff that use the yard.