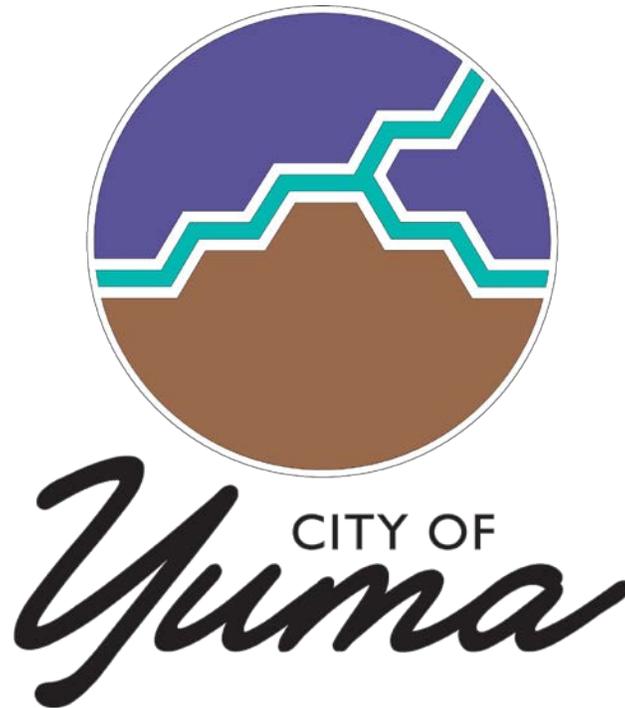


Arizona Pollutant Discharge Elimination System (AZPDES) Stormwater Phase II MS4 Permit Program



City of Yuma Stormwater Management Program (SWMP)

**In Compliance with the
Arizona Pollutant Discharge Elimination System (AZPDES)
General Permit (Permit No. AZG2016-002) for Discharge from
Small Municipal Separate Storm Sewer Systems (MS4s)
to Waters of the United States**

Last Updated: June 28, 2018

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Introduction

The City of Yuma Stormwater Management Program (SWMP) was last revised on June 30, 2018 to satisfy the following:

1. Remarks sent by the Arizona Department of Environmental Quality (ADEQ) in a letter dated September 20, 2009
2. Comments sent by ADEQ in an audit letter dated April 5, 2013
3. All meetings held between the City of Yuma and ADEQ in October 2015, December 2015 and April 2017 to discuss and address the issue of impairment of the Colorado River.
4. Comments sent by ADEQ in a letter dated June 29, 2017 as well as the need to prevent or reduce discharges of pollutants to Waters of the United States. The Program specifically considers the six Minimum Control Measures (MCMs) outlined in the ADEQ General Permit AZG2016-002 for Small Municipal Separate Storm Sewer Systems (MS4s) and an Additional Control Measure (ACM) to address the prevention of introduction of 303(d) listed pollutants to the Colorado River.
5. Resolution of nine program deficiencies identified during an ADEQ audit inspection conducted on May 1, 2018 that constitute violation of the MS4 permit.

The best management practices (BMPs) presented herein have been proposed because they address the MCMs, are appropriate for the City of Yuma's stormwater system, are measurable, are anticipated to make improvements in the City's stormwater quality, and are achievable. For each BMP, the appropriate measurable goals are delineated along with a schedule that includes an indicated frequency of planned actions, interim milestones, and a date by which the BMP implementation was/will be established. Standard Operating Procedures (SOPs) have been added to MCM No. 3 (Illicit Discharge Detection and Elimination), MCM No. 4 (Construction Site Runoff Control), MCM No. 5 (Post-Construction Runoff Control) and ACM No. 1.

Listing of Receiving Waters:

- 1- Colorado River
- 2- East Main Canal

Process & Schedule for Maintaining up to date Stormwater Atlas:

The City maintains a record of its stormwater collection system (digital and hardcopy) that shows all components of the MS4. This document, known as the City of Yuma Stormwater Atlas, is available to the public. The Atlas shows the Waters of the United States and is updated annually to reflect changes to the system resulting from development and capital improvement program construction.

Listing of Discharges that Cause Exceedance of Selenium and Dissolved Oxygen:

The City developed Additional Control Measure number 1 (ACM No. 1) to address the issue of impairment of the Colorado River (River) for low dissolved oxygen (low DO) and exceedance of selenium as determined by the 2008 ADEQ 303(d) list. Part of ACM No. 1 is the Analytical Monitoring Program or Plan (AMP) that addresses testing of stormwater collected at the Colorado River, visual monitoring of outfalls, and listing of discharges that cause exceedance of selenium of depletion of DO.

Description of Practices to Achieve Compliance with Water Quality Based Effluent Limitations or Surface Water Quality Standards:

The six minimum control measures (MCMs) outlines how the City will reduce discharges from its MS4 to the Waters of the United States to the maximum extent practicable. The AMP details the comprehensive plan that the City is implementing as not to cause or contribute to exceedance of selenium and depletion of DO.

Limitations of Surface Water Quality Standards:

The City's SWMP, including the ACM No. 1, outlines how the City reduces discharges from its MS4 to the Waters of the United States to the maximum extent practicable. The AMP details the comprehensive plan that the City has implemented so as to not cause or contribute to exceedance of water quality standards.

Description of Practices to Achieve Requirements of Reducing Pollutants to the Maximum Extent Practicable (MEP):

The City's SWMP outlines control measures and best management practices with the measurable goals to achieve the requirement of reducing pollutants, to the MEP, from reaching the Waters of the United States.

Description of Practices to Achieve Compliance with Applicable TMDL and Surface Water Analytical Monitoring Program for Impaired Waters:

The ACM No. 1, through its AMP, outlines all steps required to comply with the applicable TMDL and surface water quality standards for the impairment of low dissolved oxygen and selenium as set by ADEQ 2008 303(d) list. The purpose of the AMP is to develop a water quality monitoring plan to prevent and reduce the discharge of stormwater pollutants, and in particular, any discharges that cause reduction in dissolved oxygen or exceedance in selenium levels from the City's MS4 based on the latest surface water quality standards (SWQS) provided by ADEQ.

Protocol of Annual Program Evaluation:

The City has developed a protocol to evaluate the success of the best management practices implementation. Each year as part of the annual report process a cross-jurisdictional team of City staff reviews the SWMP in accordance with the checklist in Appendix B. This checklist is then submitted to ADEQ for review along with the City's annual report.

Identification of City Personnel Responsible for SWMP Implementation:

Each control measure of this SWMP identifies the responsible department and staff member/position responsible for implementation of the corresponding control measure.

MCM 1: Public Education and Outreach

Public education and outreach is an important MCM for which the City of Yuma has extensive resources and experience. The City has a long history of designing and implementing active education and outreach programs. In order to reach its citizens with targeted messages regarding the City's SWMP and their role in it, the City has employed print media, cable television, radio, posting regular stormwater articles in English and Spanish language newspapers, and the City's website.

Targeted pollutants are floatables including trash, sewage, and illicit discharges including oil and grease. These pollutants were selected because an informed public can make a significant reduction in these pollutants. The City will assess other pollutants during the permit period and will address them in the City's education program as appropriate. The target audience is both the City's resident and transient populations. It is estimated that this education program will reach approximately 50,000 full time residents of the City of Yuma over the 5-year program period. This represents about 40% of the City's current population.

Responsible Department: Engineering Department

Responsible Position: Jeffrey Kramer, City Engineer

MCM 1: Public Education and Outreach

BMP 1: Distribute educational materials about stormwater

The City, as part of its public education and outreach activities, has distributed and is continuing to distribute printed educational materials to City residents. These materials, which are an effective medium for educating the general public about stormwater pollution in construction sites and illicit discharges and illegal dumping into the MS4.

Permit Requirement Citation: Section 6.4.1.1

Activity: Distribute bilingual educational materials about stormwater to City residents.

Objective: Educate the general public on the City’s SWMP; provide contact numbers and addresses for any questions. In addition, this approach is to raise a general level of awareness of actions the public can take to help protect overall water quality and specifically limit impacts on stormwater runoff.

Interim Steps and Schedule:

Make educational materials available to public	January 2008, ongoing throughout the permit period. Last updated June 2017.
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Measurable Goals: Printed educational materials about construction site runoff, illicit discharges and illegal dumping into the MS4 have been available to the public since December 2012, and are distributed using existing outlets at City buildings, meetings attended by the general public and by request.

MCM 1: Public Education and Outreach

BMP 2: Disseminate educational stormwater messages on cable television

The City of Yuma telecasts the program City Outlook and is using this program to inform City residents of stormwater issues.

Permit Requirement Citation: Section 6.4.1.2

Activity: Produce and telecast Public Service Announcements (PSAs) about stormwater issues for the City News program on local cable television.

Objective: Inform the general public about stormwater pollution prevention methods and issues via cable television.

Implementation Steps and Schedule:

Develop PSAs	July 2003 – July 2004
Telecast PSAs	August 2004; ongoing throughout the permit period. Message updated in July 2013.
PSA running at least twice a day	March 2017

Measurable Goals: Produce one stormwater PSA for telecast annually and run each month, varying times and days of the week to ensure reaching as broad an audience as possible. Include in overall assessment of the cable television programming to evaluate whether the message has been received and if the subject matter is effective.

MCM 1: Public Education and Outreach

BMP 3: Disseminate stormwater messages in local newspaper(s)

In the past, the City has included public interest information on the City Page in the Yuma Sun. The City can easily and cost-effectively include educational information about stormwater for inclusion in the City Page and reach a broad cross-section of the public.

Permit Requirement Citation: Section 6.4.1.3

Activity: Produce and print stormwater pollution prevention educational message in local newspaper.

Objective: Inform the general public about stormwater issues via the newspaper.

Implementation Steps and Schedule:

Prepare stormwater messages for newspaper	September 2013
Print stormwater message in newspaper	November 2016 and ongoing throughout the permit period.

Measurable Goals: Publish a message about stormwater in the Yuma Sun and Baja Del Sol by November 2013. Stormwater messages will be printed at least annually. Information regarding the SWMP and NOI will be included.

MCM 1: Public Education and Outreach

BMP 4: Disseminate stormwater message with links on the City’s website

The City maintains a website. Adding stormwater program information is practical and cost-effective for the City.

Permit Requirement Citation: Section 6.4.1.4

Activity: Implement, maintain, and update as necessary stormwater educational messages on the City of Yuma website with links to appropriate web pages (such as those of the EPA and ADEQ) and with a link to the e-mail of the City’s contact person.

Objective: Provide useful information about the SWMP to the public via the City of Yuma website.

Implementation Steps and Schedule:

Coordinate and produce a draft of the website	April 2004 – June 2004
Public information added to the website	August 2004
Update the website	June 2009; ongoing throughout the permit period.
Update the website	Updated on June 2017.

Measurable Goals: Stormwater information, including copies of the SWMP and NOI, with links to other resources, has been available on the City of Yuma website since August 2004. The City updates the information to keep it current and changes the methods of publicizing, if necessary, to increase website utilization as appropriate. Website was last updated on 05/01/2018.

MCM 2: Public Involvement/Participation

To meet the requirements of the General Permit, prior to submitting its first annual report to ADEQ, the City of Yuma held a public hearing at a regular City Council meeting, complying with public notice requirements offering an opportunity for the public to give advice and guidance on BMPs and the overall SWMP. Also, during the renewal of this permit in the future, or on the schedule for renewal as established by ADEQ, the City will provide an opportunity for the public to provide input into the SWMP for the next permit cycle and will meet all public notice requirements. For public accessibility, the City has posted a copy of its SWMP and Notice of Intent (NOI) on its website and in City Hall. Annual reports are also available to the public and the City will follow all public notice requirements as required by permit.

The City of Yuma recognizes the benefits of direct involvement in the City's SWMP by its citizens. It is the City's experience that many residents are dedicated to providing input to the City on a wide range of issues and willing to serve as volunteers.

Responsible Department: Engineering Department

Responsible Position: Jeffrey Kramer, City Engineer

MCM 2: Public Involvement/Participation

BMP 1: Continue compliance with state and local public notice requirements

The City complies with state and local public notice requirements.

Permit Requirement Citation: Section 6.4.2.1

Activity: Comply with public notice requirements for any newly created or revised ordinances; public discussion of the SWMP and NOI with the City Council or any other opportunity for public input into the program.

Objective: Make the public aware of new ordinances and allow the public to participate in adoption of ordinances that affect the implementation of the SWMP.

Implementation Steps and Schedule:

Continue compliance with applicable public notice requirements	Ongoing throughout the permit period
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Measurable Goals: Continued compliance with public notice requirements throughout the permit period, documenting public meetings, notices provided and comments or input received, reporting in an annual summary of activities to the State.

MCM 2: Public Involvement/Participation

BMP 2: Conduct Annual Stormwater Catch Basin cleanup Program at Priority Area

City of Yuma forces began conducting an annual cleanup program for catch basins at the Priority Area (PA) in April-June 2015. Three areas in the PA have been identified in the monitoring program. The program started in fiscal year (2014-2015) with the target of cleaning all catch basins in the PA at least every three years. The current cycle started in May 2018 and last through May 2021.

Permit Requirement Citation: Section 6.4.2.2

Activity: Conduct annual stormwater storm water collection system cleanup program at Priority Area.

Objective: In the past, the City has coordinated with volunteers to conduct cleanup events with the assistance of other public agencies. Attempts to get volunteers through the Yuma Clean and Beautiful Commission to clean outfalls at the River were not successful due to safety concerns. The City Engineering and Utilities Departments implemented a plan to cleanup stormwater catch basins at the Priority Area over a period of three years.

Implementation Steps and Schedule:

Clean 134 catch basins in the 17 th Ave and 19 th Ave contributing areas	Complete in June 2017
Clean 111 catch basins in the Madison Ave and 9 th Ave contributing areas	Completed in June 2016
Clean 56 catch basins in the Pacific Ave storm drain contributing area	Completed in early June 2015
Clean 111 catch basins in the Madison Ave and 9 th Ave contributing areas	To be completed in September 2018

Measurable Goals: Cleaning all manholes and catch basins with potential to discharge into the Colorado River. Goal is to minimize and eliminate the introduction of pollutants into the MS4 and the Colorado River. The Utilities Department cleaned 56 catch basins in 2015, 111 catch basins in 2015-2016, and 134 catch basins in 2017.

MCM 2: Public Involvement/Participation

BMP 3: Hold a public hearing on the SWMP and NOI

The City held a public hearing to gather comments on the SWMP after it was submitted to ADEQ. ADEQ will be notified of any changes or modifications to the SWMP coming from public comments.

Permit Requirement Citation: Section 6.4.2.3

Activity: Allow the public to provide input on the initial SWMP.

Objective: Involve the public in implementing the SWMP, receiving comments and amending the SWMP if appropriate.

Implementation Steps and Schedule:

Develop the SWMP and submit it to ADEQ	March 10, 2003
Hold public hearing	April 2004
Receive and incorporate the public's comments into the SWMP as appropriate; notify the ADEQ of modifications	June 2004
New public hearing will be held with the new permit	After ADEQ adopted the new municipal permit on 9/30/2016

Measurable Goals: Held a public hearing in April 2004 and gathered public input. No comments were received for the permit. City did not hold a public hearing for the new permit.

MCM 2: Public Involvement/Participation

BMP 4: Update the City Council on the City’s SWMP annually

City staff updates the City Council, after filing of the Annual Report to ADEQ, in an effort to educate the Council and maintain program support.

Permit Requirement Citation: Section 6.4.2.4

Activity: Update the City Council annually on the status of the SWMP’s development and implementation and when permit is renewed (or based on a schedule set by ADEQ).

Objective: Educate and involve the Council and the public in developing and implementing the SWMP.

Implementation Steps and Schedule:

Provide a Council update on the SWMP	September 2004
Provide a Council update on the SWMP	September 2005
Provide a Council update on the SWMP	September 2006
Provide a Council update on the SWMP	September 2007
Council update on permit renewal	November 2007 or based on renewal schedule from ADEQ.
Provide a Council update on the SWMP	Annually in October/November timeframe.
Provide a Council update on the SWMP	Expected in the second quarter of 2018

Measurable Goals: Update the City Council annually to provide input into the annual report for the following year and for any amendments to the SWMP. Document comments from the general public and report on input received in each annual report.

MCM 3: Illicit Discharge Detection and Elimination Program

Content of IDDE Program:

Introduction

Program Elements

Program Evaluation

Detection Methods

Allowable non-Stormwater Discharges

Unpermitted Discharges to the MS4

Staff Training

Responsible Departments and Personnel

Enforcement Response Plan

Standard Operating Procedure

Introduction:

The City of Yuma recognizes the potential for illicit discharges to its MS4 and is committed to addressing this concern. The BMPs are targeted toward known and potential illicit discharges. The Yuma City Code contains many references to garbage, refuse, and nuisances, but no disposal ordinances are specific to the City's MS4.

Program Elements:

The City has implemented this Illicit Discharge Detection and Elimination Program (IDDE Program) to systematically find and eliminate sources of non-stormwater to its MS4. Procedures of the IDDE program will be implemented to prevent illicit connections and discharges to the MS4. As a minimum this program will include the following elements:

1. **Visual Dry Weather Monitoring:** The dry weather monitoring inspection program inspects all outfalls at least once annually. This monitoring is conducted at least 72 hours after a storm event that resulted in a discharge from the MS4. Table at the end of this document provides documentation and findings of dry weather monitoring in the annual report.
2. **Visual Stormwater Discharge Monitoring:** The City has five stormwater outfalls at the Colorado River; Madison Ave outfall, 9th Ave outfall, 17th Ave outfall, 19th Ave outfall and Pacific Ave outfall. These outfalls are representative of stormwater discharges from the City's MS4 to conduct visual stormwater discharges. Visual monitoring will be performed at each outfall twice during each wet season per Section 6.4.3.8(b) and in accordance with the Analytical Monitoring Program (AMP).
3. The City will follow its Enforcement Response Plan (ERP) to schedule follow-up monitoring to identify suspected illicit discharges to ensure that they do not recur.

Program Evaluation:

The City will utilize the ERP and the protocol of annual SWMP evaluation per Section 5.1.h to evaluate indicators of functionality of this program and track its success. Indicators of program success are outlined in this IDDE program detailing actions required to locate and remove illicit discharges.

Because of the annual influx of winter visitors, the City has experienced issues with improper disposal of sewage from recreational vehicles (RVs). The City also has experienced illegal dumping of other materials, such as used oil and grease, in some areas of the City.

For purposes of permit compliance, the City has developed and implemented an ordinance, with enforcement strategies, that has prohibited the discharge of non-stormwater substances into the public drainage system and identified incidental non-stormwater discharges that are allowable.

Detection Methods:

The City is utilizing the following detection methods:

1. Dry weather monitoring of outfalls
2. Wet weather monitoring of outfalls
3. A complaint hotline (928-373-4520) and email (storm@yumaaz.gov) to receive reports from the public to detect illicit discharges.
4. During their field inspections, Public Works crews and Community Development building Inspectors will report any illicit discharge or illegal dumping to the MS4. (Opportunistic Inspections).
5. The City keeps registers to document its dry-weather monitoring program, hotline complaints, complaints received at storm@yumaaz.gov and complaints reported by staff. The City also has an investigation system for tracing illicit discharges and illegal dumping with full coordination of Code Enforcement staff in Public Works and Community Development Departments. If required, the City will send samples of any non-stormwater substance detected in its MS4 to a State-approved laboratory for testing.

Allowable non-Stormwater Discharges:

Through the public education minimum control measure, the City will educate the public and City employees on the hazards of illegal discharges and dumping in the drainage system. The City considers the following discharges, which are listed in Part I, Section C.2. of the AZPDES Small MS4 General Permit to be allowable non-stormwater discharges:

1. Water line flushing,
2. Landscape irrigation,
3. Diverted stream flows,
4. Rising ground water,

5. Uncontaminated ground water infiltration,
6. Uncontaminated pumped ground water,
7. Discharges from potable water sources,
8. Foundation drains,
9. Air conditioning condensate,
10. Irrigation water,
11. Springs,
12. Water from crawl space pumps,
13. Footing drains,
14. Lawn watering,
15. Individual residential car washing,
16. Discharges from riparian habitats and wetlands
17. De-chlorinated swimming pool discharges
18. Street wash water, and
19. Discharges or flows from emergency firefighting activities.

Unpermitted Discharges to the MS4

The City of Yuma developed this procedure, as part of the IDDE Program, to actively identify industrial facilities and activities that discharge to the MS4 without an MSGP current permit coverage.

This procedure started by targeting the Priority Area (P.A.) as identified in the Analytical Monitoring Plan (AMP). The P.A. is the area in the City of Yuma with drainage connection to the Colorado River. The River has been designated since 2008 as impaired for low dissolved oxygen and selenium. The City utilizes the list in Appendix C to achieve the goal of identifying unpermitted industrial discharges to the MS4.

This procedure includes the following:

1. Number of facilities contacted each year in the annual report
2. Facility name and location
3. Type of activity and SIC code to the extent know
4. Proof of MSGP coverage
5. Connection to the MS4
6. Affected stormwater outfall
7. City of Yuma Pretreatment Information
8. City of Yuma Staff involved

Staff Training

The City provides annual training for all staff involved in identifying, reporting and mitigating illicit discharges into the MS4 system. This includes, but is not limited to, Public Works staff, Building Safety Inspectors, Engineering Inspectors and Utilities staff. Frequency and type of employee training is reported in the annual report.

Responsible Departments and Personnel:

Responsible Departments: Department of Public Works and Engineering Department

Responsible Positions: Joel Olea, Director of Public Works & Jeffrey Kramer, City Engineer

Enforcement Response Plan (ERP)

The Enforcement Response Plan is a standalone document available on the City of Yuma website at <http://www.yumaaz.gov/city-engineering/engineering-documents--references-.html>.

Standard Operating Procedure (SOP)

This SOP describes the procedures that can be used to support Chapter 194 of Yuma City Code “Illicit Discharge Detection and Elimination (IDDE)”. The IDDE program is intended to protect the City Municipal Separate Storm Sewer System (MS4) from illicit discharges and illegal dumping. This SOP offers the below steps to identify, locate and eliminate or reduce the illicit discharge and dumping into the City MS4. This SOP will be revised with the SWMP as necessary. The City is implementing the following steps:

1. Locate important areas and locations likely to have illicit discharges with proximity to the City MS4 and surface waters. The following will be classified as priority areas:
 - a) All stormwater outfalls at the Colorado River. This area includes all drainage areas that contribute to outfalls at the River. Use of previous drainage studies and land use will be utilized to better identify drainage areas.
 - b) Commercial and industrial facilities north of 8th Street, east of Avenue B and west of Main Street including but not limited to areas of public assemblies such as parks, hotels, churches, movie theaters etc.
 - c) Shopping malls, educational facilities, exposed areas with proximity to Colorado River or with potential of discharging into the River.
 - d) Areas within 2.5 miles of the Colorado River.
 - e) Areas with historical or previous citizen complaints of dumping and littering; and
 - f) As designated by the Director of Public Works.
2. Perform annual inspections of all stormwater outfalls at the surface waters per the Dry Weather Outfall Inspection Form.
3. Perform selenium and sediment monitoring per approved Analytical Monitoring Program, for any illicit discharge incident or during dry weather monitoring at outfalls at the Colorado River.
4. All important areas mentioned above have been included in the current stormwater map/atlas.
5. Review and consider information collected when illicit discharge was initially identified in a previous incident or dry weather inspection.
6. Use visual inspections of upstream points as a second step (first step is the dry weather monitoring inspection) and document all results for future references.
7. Review procedures to remove the source of an illicit discharge.
8. Refer potential septic system failures to the local health office for enforcement.
9. Suspend public access to storm drain if threats to public health or serious physical harm to the public or the environment are possible.
10. Perform opportunistic inspections by Public Works and Utilities staff crews while they are conducting their regular duties in and around the stormwater collection system. Staff is encouraged to contact dispatcher, supervisor, or code enforcement if they see evidence of an illicit discharge or illegal dumping into the storm drain.

- 11 Perform inspections by Building Safety staff, take photos and send email to storm@yumaaz.gov documenting the case. This email is monitored by the Engineering Inspection Supervisor, with backup monitoring by the Development Engineering Manager and City Engineer.
- 12 Hotline at 928-373-4520 (Engineering front desk) is available to receive reports of illicit discharges and illegal dumping into the MS4.
- 13 When a complaint is received it is dispatched to Engineering Inspections or the Engineering Development Manager. Engineering staff will contact the appropriate City staff for follow-up until the case is resolved per the Enforcement Response Plan. Engineering will document the case per table in Appendix E.
- 14 Evaluate the IDDE program effectiveness and update the SWMP, as needed.
- 15 Plan, coordinate and perform a campaign to clean the Priority Area with City and public participation.

MCM 3: Illicit Discharge Detection and Elimination

BMP 1: Develop an illicit-discharge ordinance

The City has developed and adopted an illicit-discharge ordinance that addressed all of the requirements outlined in the AZPDES requirements. The ordinance forms the basis for the overall illicit-discharge-elimination program.

Permit Requirement Citation: Section 6.4.3

Activity: Develop, finalize, and adopt a City ordinance that prohibits illicit discharges to the City of Yuma stormwater system, defining enforcement strategies and inspection procedures.

Objective: Empower the City to seek out and eliminate illicit discharges to the stormwater system. Define and prohibit illicit discharges to the City of Yuma’s stormwater system. Allow for right of entry and inspection to find illicit discharges. Establish penalties for dumping, spills, and willful illicit connections.

Implementation Steps and Schedule:

Develop the illicit-discharge ordinance	January 2004 – November 2004
Adopted IDDE ordinance (Ordinance Number O2005-15)	March 2005
Added new SOP & new forms for inspections	Added in September 2013. Updated October 2014.
Review SOP for effectiveness	Throughout Permit period. Last updated April 2016
New IDDE program with proposed Enforcement Response Plan (ERP). Enforcement component of Ordinance O2005-15 will be revised to be consistent with the ERP.	Expected by end of September 2018

Measurable Goals: Implementation of ordinance O2005-15 with enforcement strategies, as revised by the proposed ERP, that prohibit illicit discharges to the City’s MS4, empowers the City to take appropriate action to detect and eliminate illicit discharges and to address illegal dumping into the MS4 and provides for corrective actions, since March 2005. Proposed ERP will provide faster response and better enforcement.

MCM 3: Illicit Discharge Detection and Elimination

BMP 2: Create an outfall inspection program

The City inspects all stormwater outfalls during dry weather as a part of the overall program to detect and eliminate illicit discharges. Illicit discharges found during inspections will be investigated and eliminated.

Permit Requirement Citation: Section 6.4.3

Activity: Visually inspect stormwater outfalls during dry weather to identify the possible existence of illicit discharges or illegal dumping activities.

Objective: Identify possible illicit discharges to the City's stormwater system and investigate the source of such discharges for the purpose of eliminating them.

Implementation Steps and Schedule:

Inspect 25% of the City's jurisdictional boundary for stormwater outfalls	May 2009 – June 2010
Inspect 25% of the City's jurisdictional boundary for stormwater outfalls	May 2010 – June 2011
Inspect 25% of the City's jurisdictional boundary for stormwater outfalls	May 2011 – June 2012
Inspect 25% of the City's jurisdictional boundary for stormwater outfalls	May 2012 – June 2013
Inspect Priority Area as identified in MCM No. 3 of the SWMP	May 2013-June 2014
Inspect Priority Area as identified in MCM No. 3 of the SWMP	Completed June 2015
Inspect Priority Area as identified in MCM No. 3 for 111 catch basins in Madison Avenue area	Completed in June 2016
Inspect Priority Area as identified in MCM No. 3 for all catch basins	Completed in June 2017
Inspect all stormwater outfalls and surface waters including Colorado River outfalls	Scheduled in May-June 2018

Measurable Goals: Dry weather inspection of all known stormwater system outfalls performed at least once annually, and initiate investigation of illicit discharges and illegal dumping activities within 15 working days of discovery. Evaluate inspection program annually to ensure that procedures are effective and make adjustments to inspection protocols as needed. Per the SOP for MCM No. 3 inspection of outfalls at priority area and all outfalls at surface waters will be conducted annually using the new Dry Weather Visual Monitoring Form. Program started in 2015 and finished by June 2017 with all stormwater collection system in the P.A cleaned. Goal is to minimize the introduction of pollutants from precipitants into stormwater collection system to the Colorado River.

MCM 3: Illicit Discharge Detection and Elimination
BMP 3: Develop a stormwater map that shows all outfalls

The City has developed an outfall map that noted the locations of stormwater system outfalls. The mapping effort was coordinated with the outfall inspection effort.

Permit Requirement Citation: Section 6.4.3

Activity: Update the City of Yuma stormwater map, with all outfalls per the new CIP projects and names and locations of Waters of the United States.

Objective: Create a complete and current map of stormwater facilities in the City of Yuma that supports the program to detect and eliminate illicit discharges.

Implementation Steps and Schedule:

Update the current stormwater map for 50% of the jurisdictional boundary	January 2008 – June 2010
Update the current stormwater map for 50% of the jurisdictional boundary	July 2010 – July 2012
Complete an outfall map with all new locations	August 2012- December 2012
Update Stormwater map for accurate inventory	Completed in July 2014
Update Stormwater map to show priority areas per SOP of MCM No. 3	Next updating cycle (2014-2015)
Update Stormwater map for accurate inventory	Expected by 2 nd quarter of 2018

Measurable Goals: Update City of Yuma stormwater system map showing all outfalls to Waters of the United States annually. The stormwater system map has been updated effective July 2014. The Map will be modified to show the priority areas mentioned in the SOP of MCM No. 3, and annually to reflect changes resulting from CIP-constructed projects and new development. New atlas will be updated by end of 2018.

MCM 3: Illicit Discharge Detection and Elimination

BMP 4: Develop and distribute educational materials about illicit discharges

The City has developed and distributed educational materials to the public. The educational materials target the residential population and cover topics such as how to correctly maintain septic systems and dispose of household hazardous waste.

Permit Requirement Citation: Section 6.4.3

Activity: Educational materials regarding the hazards of illegal discharges to the stormwater system have been produced and distributed to the public, utilizing the public education tools developed in MCM 1. Distribute educational materials to City employees via informational letter or other means.

Objective: Inform the public of the hazards associated with illegal discharges to the stormwater system.

Implementation Steps and Schedule:

Develop and produce the materials	July 2004 – January 2005
Distribute the materials	January 2008; ongoing throughout the permit period. Last distribution in July 2013.
Educational letter about stormwater industrial pollution to businesses in the Priority Area	Sent by the end of 2016. New letter is scheduled by end of 2018.

Measurable Goals: Generate, revise, produce or procure educational materials regarding illegal discharges as needed and distribute these materials utilizing methods identified in MCM 1. Increase the awareness of stormwater pollutants from illicit discharges among business owners and the public.

MCM 3: Illicit Discharge Detection and Elimination

BMP 5: Develop and implement complaint-receipt procedures

The City realizes that once the public awareness of illicit discharges is raised, citizen complaints are likely to increase. The City has developed a comprehensive complaint-receipt program that includes all aspects of the City's SWMP. The complaint phone number has been advertised in public education materials noted in MCM 1, and a newly implemented email address will be incorporated as materials are updated.

Permit Requirement Citation: Section 6.4.3

Activity: Develop complaint-tracking system to log and follow up in response to public inquiries and complaints concerning illicit discharges and dumping.

Objective: Effectively enforce the illicit discharge and illegal dumping ordinance through receipt of public input on potential hazards and problem sites.

Implementation Steps and Schedule:

Develop written procedures for handling complaints	January 2004 – December 2004
Implement a program to receive and follow up on complaints	January 2008; ongoing throughout the permit period
New complaint-receipt record	Developed in September 2013. Will be updated after creation of inventory in the Priority Area. Inventory of P.A on-going

Measurable Goals: In September 2013 a complaint-receipt program tracking the nature of concern and investigation follow-up for each complaint was in place. Analyze nature, location, and frequency of complaints to determine if procedures and outreach program is effective in addressing such hazards.

MCM 4: Construction Site Runoff Controls

Content of Construction Site Runoff Control Program

Introduction

Program Elements

Program Evaluation

Responsible Departments and Personnel

Standard Operating Procedure

SWPPP Plan Review Checklist

Introduction:

The City of Yuma recognizes the potential for construction site runoff into its MS4 and is committed to addressing this concern. The BMPs are targeted toward construction sites that disturb one or more of acres including sites less than one acre that are part of a common plan of development or sale. The Yuma City Code contains many references to erosion control and sediment transportation from construction sites, construction waste, and debris or dust generated from construction sites, therefore the City developed the construction site control runoff program.

Program Elements:

The City has implemented this program to systematically reduce stormwater generated from construction sites to the MS4 or the Waters of the United States. Procedures of this program are intended to prevent and reduce discharges of stormwater runoff from construction sites to the MS4. As a minimum this program includes the following elements:

1. City Ordinance Number O2006-38 (Yuma City Code Chapter 156). This ordinance provides mechanism that requires the use of sediment and erosion control practices.
2. An inventory of all construction activities is maintained by the Engineering Department in the form of a spreadsheet under the control of the Development Engineering Division. This inventory is updated weekly to ensure current information is maintained. The inventory includes at least the following information:
 - a. Project name
 - b. Project location and confirmation if within Priority Area or not
 - c. Disturbed area in acres
 - d. Presence of SWPPP plans
 - e. Verification of ADEQ NOI
3. Procedures for site inspections and enforcement of sediment and erosion control measures. Procedures of inspections and enforcement are detailed in Sections 156-08 and 156-09 of the Yuma City Code. Site inspection checklists are provided as appendix of this program. It is required that owners of construction projects or contractors are the responsible parties to perform site inspections. The City has the enforcement authority per Section 156-09 of the Yuma City Code. Section 4 of the SWMP also documents regulatory authority.

4. City Ordinance requires inspection of construction sites every 14 calendar days, or for sites within 0.25 miles of the Colorado River every 7 calendar days, and after any storm that drops 0.5” of precipitation. The inspection checklist provided as a part of this program includes the following:
 - a. Phase of construction
 - b. Proximity to Colorado River
 - c. Size of construction activity; and
 - d. History of non-compliance of site operator
5. The Enforcement Response Plan (ERP) describes all follow-up actions such as re-inspection and enforcement) to ensure compliance.
6. Construction operators are required to implement sediment and erosion control best management practices (BMPs). In addition to the design requirements mentioned in Section 156-07 of the Yuma City Code, construction operators are required include the following:
 - a. Minimize the amount of disturbed area and protect natural resources;
 - b. Stabilize sites when projects are complete, or operations have temporarily ceased;
 - c. Protect slopes on the site of the construction activity;
 - d. Protect storm drain inlets and armor all newly-constructed outlets;
 - e. Use perimeter controls at the site;
 - f. Inspect stormwater controls and BMPs every 14 calendar days or after 0.5” of precipitation. For construction sites within 0.25 miles from the Colorado River inspection frequency is every 7 calendar days and after 0.5” of precipitation.
7. Construction operators are required to implement measures to control waste from construction sites falling under the umbrella of this program. Waste generated from construction sites includes but not limited to discarded building materials, paints, fertilizers, concrete wash out, chemicals, litter, and sanitary wastes. Construction waste shall be removed or retained on the construction sites without exposure to stormwater for a period not exceeding 14 calendar days.
8. Written procedures for plan review is available as part of this program.

Program Evaluation:

The City will utilize the ERP and the protocol of annual SWMP evaluation per Section 5.1.h to evaluate indicators of functionality of this program and track its success.

Responsible Departments and Personnel:

Responsible Departments: Engineering Department and Department of Community Development

Responsible Positions: Jeffrey Kramer, City Engineer & Randall Crist Assistant Director of Community Development and Building Official.

Standard Operating Procedures (SOP)

This SOP describes the procedures that will be used to support Chapter 156 of Yuma City Code “Erosion and Sediment Control.” This SOP offers procedures for inspections and enforcement of control measures at construction sites that fall under the umbrella of Ordinance O2006-38. This SOP will be revised with the SWMP as necessary. For construction sites located within ¼ mile of the impaired segment of Colorado River, refer to AMC No. 1 on this SWMP. The City will start implanting the following steps:

1. Prior to inspection, the City inspector will:
 - a) Contact owner/contractor superintendent or project manager.
 - b) Bring camera, project file, and Personal Protective Equipment in accordance with City Policy.
 - c) Bring the SWPPP Construction Site Inspection Checklist for private development or CIP projects.
 - d) Review previous inspection reports to determine reoccurring problems.
 - e) Identify if the project is located within ¼ mile of the Colorado River’s impaired segment.
2. At the construction site, and before starting inspection, the City inspector will:
 - a) Ensure that the project information sign is installed per City Construction Standard No. 8-100 (Work Zone Identification Sign) with the AZPDES approval number and date.
 - b) Verify that SWPPP plans and narrative report, NOI and Permit No. AZG2013-001, as updated, are on site and accessible.
 - c) Verify that all routine inspections required by Contractor are conducted with reports available on site and accessible. Routine inspections are conducted per Section 156-08 of the Yuma City Code (every 14 calendar days, every 7 calendar days if within 0.25 miles of the Colorado River, and within 24 hours of a storm providing 0.5” or more precipitation).
 - d) Review previous inspection reports to determine reoccurring problems.
 - e) Review SWPPP changes or modifications from last inspection and whether such changes and modifications are updated in the SWPP report and plans.
 - f) Review status of any corrective actions or deficiencies by, State or City, listed in the latest inspection report.
 - g) Discuss with the owner representative, Contractor superintendent or project manager any complaint or incident that has occurred after the latest inspection.
3. At the construction site the City inspector will, at minimum, perform the following:
 - a) Record time that inspection of BMPs starts and weather information such as temperature, rainfall within the last 72 hours, wind and clearness or cloudiness of sky.
 - b) Determine if the site has evidence of release of any discharge from its boundaries.
 - c) Determine if all BMPs are installed correctly and maintained adequately per the SWPPP report and plans. BMPs include erosion control measures, sediment control measures and good housekeeping measures.
 - d) Take photographs BMPs. The photo must indicate date and time of inspection and comment on the BMP.

4. Before leaving the site, the City inspector will:
 - a) Discuss with the owner, contractor or project manager of the SWPPP the effectiveness of current controls and if modifications are needed.
 - b) Identify a time frame for making modifications on site and SWPPP report and plans.
 - c) Discuss with the owner, contractor or project manager any compliance or enforcement issues.
5. As a follow up after inspection, the City inspector will:
 - a) Check the adequacy of SWPPP Construction Site Inspection Checklist for private development.
 - b) Send documents to building inspectors for certificate of occupancy coordination.
 - c) City Engineering inspectors will conduct SWPPP inspections per CIP projects' Checklist. Records will be sent to City Engineer.
 - d) Follow up on corrective actions and SWPPP report and plans modifications; and
 - e) Contact City code enforcement and State for compliance and enforcement if needed.
6. City Engineer will evaluate the SOP and program effectiveness and update the SWMP, as needed.

**STORMWATER POLLUTION PREVENTION PLAN REVIEW
CHECKLIST
CITY OF YUMA ENGINEERING DEPARTMENT**

155 W. 14th Street
Yuma, Arizona 85364
Phone (928) 373-4500 Fax: (928) 373-4501

City Reference Ordinance Number O2006-38

Project Name _____

Application No. _____

Review Date _____

By: _____

<i>Ordinance No. O2006-38 Reference</i>	<i>Description</i>	<i>Location in SWPPP</i>	<i>For City Use</i>
156-04 C	Each application shall bear the name and address of the owner or developer of the site		
156-04 C	Identify the name of the consulting firm retained to design the SWPPP		
156-04 D	Each application shall include a statement any land clearing, construction, or development is in accordance with ESCP.		
156-05 A	Other types of water quality permits required.		
156-06 C	The ESCP shall include:		
	1. A map identifying soil type, vegetation cover and resources protected under this ordinance.		
	2. Temporary sediment basins if needed.		
	3. Temporary sediment basins shall be designed to contain the higher of either $V = CPA$ or $V = 3600 \times \text{Area}$		
	4. Construction schedule.		
	5. All erosion and sediment control measures necessary to meet this ordinance.		
	6. Sediment calculations		
	7. Soil conditions.		
	8. Provisions for maintenance of control facilities.		
	9. Statement that the ESCP is a part of the SWPPP required by the City.		
156-07 A	Grading, erosion and sediment control practices, and waterway crossings shall be constructed in accordance with the design criteria.		

156-07 B	Clearing and grading of natural resources shall be dealt with as per design criteria.		
156-07 C	Clearing shall not begin until all sediment control devices have been installed and have been stabilized.		
156-07 D	Phasing shall be required on all sites disturbing greater than 40 acres, with the size of each phase to be established as a part of the plan review process and as approved by the City Engineer.		
156-07 E	Erosion control requirements shall include:		
	1. Soil stabilization shall be completed within 14 days of clearing.		
	2. If seeding or another vegetative erosion control method is used, such erosion control method shall become established within 3 weeks.		
	3. Special techniques on steep slopes or in drainage ways shall be used to ensure stabilization. The techniques must meet the design criteria.		
	4. Soil stockpiles must be stabilized or covered at the end of each workday if a major storm is expected.		
	5. The entire site must be stabilized.		
	6. Techniques shall be employed to prevent dust blowing at the site.		
	7. Techniques that retard and divert upland runoff shall be employed.		
156-07 F	Sediment control requirements may include:		
	1. Sediment basins, traps or tanks.		
	2. Provision of long term stormwater management, if required.		
	3. Protection for site adjacent properties.		
156-07 G	Waterway and watercourse protection requirements shall include:		
	1. Temporary stream crossing must be installed.		
	2. Stabilization of the watercourse channel throughout construction.		
	3. All on-site stormwater conveyance channels must be designed as per requirements.		
	4. Techniques to prevent erosion at all outlets.		
156-07 H	Construction site access requirements shall include:		
	1. Temporary stabilized access road provided at all sites.		
	2. Other measures to ensure that sediment is not tracked onto public streets during construction.		

156-08 A	Site inspections for SWPPP compliance will be conducted.		
156-08 A	Plans for grading, stripping, excavating and filling work shall be maintained at the site during the progress of the work.		
156-08 B	Regular inspections in writing of all control measures as per approved SWPPP.		
156-08 D	An approved copy of SWPPP must be maintained at site always.		

**CITY OF YUMA
ENGINEERING DEPARTMENT**

Construction Site Inspection Checklist
Per City of Yuma Ordinance Number O2006-38

Project Name: _____

C.I.P. Number: _____

City PPR Number _____ for Private Development

AZCON Number: _____

Date & Time of Inspection: _____

Inspected By: _____

Inspection Frequency: Once every: (circle one) 7days 14 days After-storm

Weather at time of inspection: _____

Phase of Construction: _____

Proximity to Colorado River: _____ miles

Size of Construction: _____ acres

History of non-compliance of site operator: _____

No.	Description	Yes	No	N/A
1	Has there been an absence of rain since the last inspection?			
2	Are all significant erodible slopes protected from erosion through acceptable practices?			
3	Are all work areas reasonably clean and free from spills, leaks, or other deleterious materials?			
4	Are all BMPs identified in the SWPPP report installed in the proper location and according to specifications?			
5	Are all BMPs in good repair and maintained in functional order?			
6	Are all on-site traffic routes restricted to areas designated in the SWPPP for those uses?			

7	Is sediment, debris, or mud being cleaned from public roads at intersections with site access roads?			
8	SWPPP reflects current site conditions?			
9	Is entrance/exit maintaining the specified dimensions in the SWPPP and reasonably clean from sediment?			
10	Are storm drain inlets within the project's area properly protected from stormwater or any construction-related discharges?			
11	Is there any potential of discharge in the COY stormwater collection system or any other publicly-owned system?			
12	Is trash/litter from work areas collected and disposed of in covered dumpsters?			
13	Are storm drains inlet protection devices in good working order and being properly-maintained?			
14	Is there any evidence of illicit discharges or illegal dumping at the project's site?			
15	Do you suspect that discharges may have occurred since last inspection?			
16	Area additional BMPs required			
17	Are there any discharges at the time of the inspection?			

Description of Required Corrective Actions:

Recommendations:

MCM 4: Construction Site Runoff Controls

BMP 1: Develop and adopt an erosion and sediment control ordinance

The City adopted an erosion and sediment control ordinance that has formed the basis of the City's construction site runoff control program. The ordinance addresses construction site waste management as well as the other components listed in the AZPDES municipal permit language.

Permit Requirement Citation: Section 6.4.4

Activity: Establish an enforceable City ordinance to require erosion and sediment runoff controls at construction sites that disturb one acre or more. Include construction site waste management requirements in the ordinance.

Objective: Reduce polluted stormwater runoff from construction sites that disturb one acre or more as described in General Permit Part V, Section B.4.

Implementation Steps and Schedule:

Draft ordinance language	January 2004 – May 2005
Have the group of stakeholders review the draft ordinance language	June 2004 – May 2006
Adopted the final ordinance (Ordinance Number O2006-38)	June 2006
Implement ordinance requirements	October 2006
Implement ordinance at private development	On-going
New Enforcement Response Plan underway. Enforcement component of Ordinance O2006-38 will be revised to be consistent with the ERP.	Expected by end of September 2018

Measurable Goals: Adoption of a construction site management control program including necessary ordinance, with inspection and enforcement strategies such as fines not to exceed \$1000 or by maximum imprisonment for ten days or both.

MCM 4: Construction Site Runoff Controls
BMP 2: Develop policies and procedures for plan review

After adoption of the construction ordinance, City staff began reviewing plans for sites which result in a land disturbance or one acre or more complying with the ordinance. The City developed SOP and procedures that addressed plan reviews and trained plan review staff.

Permit Requirement Citation: Section 6.4.4

Activity: Develop and implement policies and procedures for stormwater runoff control plan review and integrate them into existing plan review process.

Objective: Ensure that construction site runoff is addressed before the City issues a construction permit.

Implementation Steps and Schedule:

Develop policies and procedures for plan review	September 2005 – December 2005
Train staff	December 2005 – February 2006; as needed for new staff
Begin plan reviews	October 2006; ongoing throughout the permit period
Developed new SWPPP Plan Check Review List	January 2013
Proof of SWPPP inspections	City implements since January 2015

Measurable Goals: SWPPP plans and reports to be reviewed by staff to achieve the goal of reducing construction site runoff into the City MS4. City has SOPs for CIP and private projects with inspection records for private and CIP construction projects for 2016-2017.

MCM 4: Construction Site Runoff Controls
BMP 3: Develop and adopt technical guidance materials

The City adopted Standard Construction Specifications and the Erosion Control Drainage Design Manual for Maricopa County, Arizona, as amended as technical guidance materials that define the design requirements for stormwater runoff control measures as well as construction site pollution prevention. The materials have been made available to the development community.

Permit Requirement Citation: Section 6.4.4

Activity: Update the technical guidance materials for designing and maintaining stormwater runoff control plans in coordination with the implementation of the City construction site runoff program.

Objective: Reduce the potential for stormwater pollutant discharge from construction sites.

Implementation Steps and Schedule:

Research other technical guidance materials	January – March 2005
Develop materials specific to Yuma	April 2005 – July 2005
Adopt the technical guidance materials and distribute to them development community	October 2006

Measurable Goals: Assist architects, engineers and designers in designing and selecting effective BMPs for construction SWPPP plans.

MCM 4: Construction Site Runoff Controls***BMP 4: Develop a construction site inspection and enforcement program***

The City developed an SOP, written policies and procedures for inspecting construction sites and enforcing stormwater runoff controls. This includes implementing inspection checklists or reports, and enforcement tools. City inspectors receive regular training for inspection of site BMPs.

Permit Requirement Citation: Section 6.4.4

Activity: Prepare standard procedures for inspecting sites and enforcing stormwater runoff controls; train inspectors for these procedures; conduct inspections.

Objective: Effectively inspect construction sites for compliance with stormwater runoff controls.

Implementation Steps and Schedule:

Develop policies and procedures	July 2006– September 2006
Train inspector	January 2006 – February 2006
Ongoing inspection and enforcement program	October 2006; ongoing throughout the permit period
Update inspection and enforcement program by adding Standard Operating Procedures (SOP)	Update by September 2013
Review SOP for effectiveness and modify as necessary	June 2015

Measurable Goals: Evaluate as part of the overall program review prior to permit renewal, recommending and adopting changes as appropriate. To help achieving the implementation of construction site runoff control ordinance an SOP was added to improve inspection and enforcement of construction sites.

MCM 4: Construction Site Runoff Controls

BMP 5: Develop and implement complaint-receipt procedures

The City developed a comprehensive complaint-receipt program that includes all aspects of the City’s SWMP. The monitored complaint hotline number, (928) 373-4520, is advertised in public education materials noted in MCM 1. A monitored complaint email address, storm@yumaaz.gov, has recently been created and will be added to education and information materials as they are updated.

Permit Requirement Citation: Section 6.4.4

Activity: Respond to public inquiries and complaints concerning stormwater runoff controls on construction sites that disturb one acre or more.

Objective: Effectively enforce the stormwater runoff control ordinance.

Implementation Steps and Schedule:

Develop written procedures for handling complaints	December 2005 – July 2006
Implement a program to receive and follow-up on complaints	October 2006; ongoing throughout the permit period
Opportunistic Inspections by Public Works crews encouraged. All City staff involved in inspections and code enforcement are trained annually.	Last training in June 2017. Next training May 2018.

Measurable Goals: Creating a complaint record and implementation system for construction site is an essential component in the implementation of construction site runoff control. Complaints from the public and through city crew can help reduce pollutants from construction site runoff.

MCM 4: Construction Site Runoff Controls

BMP 6: Develop educational materials for the development community

To better inform the development community about the stormwater development requirements, the City developed training materials that detailed the stormwater requirements. An educated development community about stormwater pollution will be more likely to comply with the ordinance.

Permit Requirement Citation: Section 6.4.4

Activity: Prepare educational materials for the Yuma development community regarding the construction site runoff control ordinance and technical guidance materials; distribute these materials to developers and contractors. Inform the general public of construction site runoff management program to engage them in reporting concerns.

Objective: Inform developers and construction contractors about construction site runoff controls and City ordinances as well as engage the general public in reporting potential problems or concerns.

Implementation Steps and Schedule:

Develop stormwater educational materials.	June 2005 – November 2005
Distribute them to the development community and the public.	December 2008, ongoing throughout the permit period

Measurable Goals: To educate development community to become a helpful factor in achieving the goals or reducing construction site runoff and the ultimate goals of the SWMP.

MCM 5: Post-Construction Site Runoff Control

The Yuma City Code contains ordinances about retaining stormwater for new construction. These ordinances establish methods and standards for retention basins for new construction within the City, and were adopted to control post-construction flooding rather than the quality of stormwater runoff. This MCM addresses the effects of post-construction and re-development into the MS4 from a water quality perspective.

Responsible Department: Engineering Department

Responsible Position: Jeffrey Kramer, City Engineer

Standard Operating Procedure (SOP)

This SOP describes the procedures used to support Chapter 195 of Yuma City Code “Post-Construction Stormwater Runoff.” and to ensure that post-construction and developed sites that fall under this Section are:

1. Having SWPPP designed per the Plan Review Checklist; and
2. Being inspected to ensure that the measures indicated in the SWPPP are installed adequately and meeting their intended design goals.

This SOP will be revised with the SWMP as necessary. For post-construction and developed sites located within ¼ mile of the impaired segment of Colorado River, refer to AMC No. 1 in this SWMP.

Below are the required procedures for inspections and enforcement of BMP control measures at post-construction and developed sites that fall under the umbrella of Section 195 of Yuma City Code:

1. Prior to inspection, the City inspector will:
 - a) Contact owner/contractor superintendent or project manager
 - b) Bring camera, project file and PPE to the site
 - c) Bring the SWPPP post-construction inspection Checklist
 - d) Review previous inspection reports to determine reoccurring problems
2. At the post-construction site the City inspector will, at minimum, inspect the following:
 - a) Record starting time, ambient temperature, rainfall within the last 72 hours, wind and clearness or cloudiness of sky
 - b) Ensure that the site does not have evidence of releasing any discharge from its boundaries
 - c) Take photographs of effective BMPs and BMPs that need evaluation or replacement. The photo must indicate date and time of inspection and comment on the BMP.
3. Before leaving the site, the City inspector will:
 - a) Discuss with the owner the effectiveness of current controls and if modifications are needed in the SWPPP
 - b) Identify a time frame for making modifications on site and SWPPP report and plans
 - c) Discuss with the owner any compliance or enforcement issues needed
 - d) Ensure that all BMPs are installed correctly and performing their intended goals
4. After conducting the inspection, the City inspector will:
 - a) Fill the SWPPP checklist and fax or email to the owner within 3 working days
 - b) Follow up on corrective actions and SWPPP report and plans modifications
 - c) Contact City code enforcement for compliance and enforcement if needed, and
 - d) Evaluate the SOP and program effectiveness and update the SWMP

MCM 5: Post-Construction Site Runoff Control

BMP 1: Develop and adopt a post-construction stormwater runoff ordinance

The City developed a post-construction stormwater runoff program that includes several education components. A cornerstone of this program is development and adoption of an ordinance to form the basis for the post-construction stormwater runoff program.

Permit Requirement Citation: Section 6.4.5

Activity: Create and adopt an ordinance that addresses post-construction runoff from new development and redevelopment projects, identifying approved BMPs for structural and non-structural controls that impact new and redevelopment projects as defined in General Permit Part V, Section B.5.

Objective: Minimize impacts of new or redevelopment projects on stormwater quality through effective controls for stormwater discharge management.

Implementation Steps and Schedule:

Identify the program's goals, including BMPs appropriate for the City, BMP design goals, and BMP maintenance policies; Develop draft ordinance language	August 2006 – June 2007
Allow the public to have input on the ordinance and revise, if necessary	July – August 2007
Adopted the ordinance (Ordinance Number O2007-78)	September 2007. adopted in September 2007 and went into effect on 2/18/2008.
New Enforcement Response Plan underway. Enforcement component of Ordinance O2006-38 will be revised to be consistent with the ERP.	Expected by end of June 2018

Measurable Goals: Adoption of a post-construction site and re-development site management control program including the necessary ordinance, with inspection and enforcement strategies. In September 2007, the City adopted the final post-construction stormwater runoff ordinance to address new and redevelopment projects as defined in the AZPDES Small MS4 General Permit Part V, Section B.5. The adoption of this ordinance meets the requirements of SWMP by reducing runoff from post-construction and re-development sites.

MCM 5: Post-Construction Site Runoff Control
BMP 2: Develop and adopt technical guidance materials

The City adopted Standard Construction Specifications and the Erosion Control Drainage Design Manual for Maricopa County, Arizona, as amended, as technical guidance materials that define the design requirements for post-stormwater runoff control measure. The materials are available to the development community and on the City website.

Permit Requirement Citation: Section 6.4.5

Activity: Develop and adopt technical guidance materials that address the design, installation, and maintenance of structural post-construction stormwater runoff BMPs.

Objective: Reduce the pollutants in post-construction site runoff to the maximum extent practicable.

Implementation Steps and Schedule:

Draft the technical guidance materials	May 2007 – August 2007
Adopt the technical guidance materials	October 2007

Measurable Goals: Assist architects, engineers and designers in designing and selecting effective BMPs for post-construction SWPPP plans.

MCM 5: Post-Construction Site Runoff Control
BMP 3: Develop policies and procedures for plan review

The City established an SOP and written policies and procedures for plan review of new development projects for post-construction BMPs. These policies and procedures are utilized in the plan review process. The SOP was developed in June 2013; and an updated SWPPP plan check review was also developed to ensure achieving the goals of this MCM.

Permit Requirement Citation: Section 6.4.5

Activity: Develop an SOP and policies and procedures for post-construction stormwater runoff plan review for all new development and redevelopment projects that affect one acre or more as defined in the General Permit Part V, Section B.5.

Objective: Effectively implement a program to reduce pollutants in post-construction stormwater runoff to the maximum extent practicable for new or redevelopment projects as defined in the General Permit Part V, Section B.5.

Implementation Steps and Schedule:

Develop policies and procedures for plan review	June 2007 – October 2007
Train the plan review staff	October 2007
Implement the plan review program	April 2008; ongoing throughout the permit period
Develop SOP and SWPPP plan review checklist	Completed in June 2013 and reviewed annually, last updated April 2016.

Measurable Goals: Assist city plan review staff to review post-construction SWPPP to achieve the goals of the SWMP.

MCM 5: Post-Construction Site Runoff Control
BMP 4: Develop an inspection and enforcement program

The City developed an SOP and written policies and procedures for inspecting post-construction stormwater systems and enforcing the City’s post-construction site runoff control ordinances. This includes creating inspection checklists/reports and enforcement tools. The City is in the process of developing a long-term structural BMP inspection and maintenance program to ensure the longevity of measures. In September 2013, an updated SWPPP inspection checklist and related SOP were developed to ensure achieving the goals of this MCM. The SOP is reviewed and updated annually.

Permit Requirement Citation: Section 6.4.5

Activity: Develop an ongoing post-construction BMP inspection program in support of BMP 1 to ensure effective construction and long-term performance of controls.

Objective: Ensure the longevity of the post-construction BMPs and ensure compliance with the ordinance.

Implementation Steps and Schedule:

Develop inspection and enforcement program policies and procedures, including as-built inspections and ongoing inspections	June 2007 – September 2007
Train the inspection staff	Last conducted in June 2017
Create an ongoing inspection and maintenance program	April 2008; ongoing throughout the permit period
Update inspection and enforcement program by adding Standard Operating Procedures (SOP)	Update by September 2013
Review effectiveness of SOP and modify if necessary	On-going
Development of long-term structural BMP inspection and maintenance program	June 2016 and underway. Expected by end of 2018

Measurable Goals: To help reduce pollutants from post-construction and re-developed sites and in particular to areas connected to the MS4. Inspection and enforcement will enhance implementation of post-construction runoff and water quality.

MCM 5: Post-Construction Site Runoff Control

BMP 5: Create educational materials for the development community

To better inform the development community about the new development requirements, the City created training materials that detail the new requirements. If the development community is educated about this issue, it will be more likely to comply with the ordinance.

Permit Requirement Citation: Section 6.4.5

Activity: Create educational materials that outline the requirements of the post-construction stormwater runoff control program.

Objective: Educate the development community including architects, engineers and the general public on the stormwater runoff control program.

Implementation Steps and Schedule:

Develop the educational materials	July 2007 – November 2007
Distribute the materials to the development community	November 2007; ongoing throughout the permit period
Develop informative letter to development community	Draft prepared in May 2016. Sent in December of 2016. Similar letter will go by end of 2018.

Measurable Goals: To assist in design and implementation of post-construction SWPPP and in coordination with BMP 1 of this MCM, the City developed education and guidance materials including information about project designs which minimizes water quality impacts on approved structural or non-structural BMPs for new or redevelopment projects as defined in General Permit Part V., Section B.5.

MCM 6: Pollution Prevention/Good Housekeeping

The City of Yuma recognizes that to be successful any stormwater management plan requires diligent good housekeeping and pollution prevention. The Yuma City Code already contains many pollution prevention components, and the City is committed through policy and procedure to good housekeeping for stormwater management.

The City also realizes that evaluating and refining good housekeeping and pollution prevention is beneficial, and the City is committed to the BMPs and schedules described as follows:

Waste from operations and facilities will be collected and disposed properly to an approved landfill unless a hazardous waste is detected. Hazardous waste such as oil, fuel, antifreeze, chemicals, pesticides, paint or other non-stormwater or street-related debris will be handled and disposed of appropriately as per Federal, State and local environmental regulations.

The City has updated its operations and maintenance program to include:

1. Inventory of municipal streets operations
2. Facilities located in the Priority Area (P.A) have higher priority due to its hydraulic connection to an impaired surface water (Colorado River). Stringent requirements are detailed in Additional Control Measure No. 1 (ACM No. 1) for preventing and reducing pollutants in stormwater from getting into the River from illicit discharges, construction site runoff, and post-construction site runoff control.
3. The City has developed Stormwater Pollution Prevention Plans (SWPPP) for all its MSGP covered facilities with emphasis for facilities within the P.A.:
 - a. Figueroa Waste Water Treatment Plant
 - b. Fleet Maintenance Shop
 - c. Desert Dunes Waste Water Treatment Plant
 - d. Desert Hills Golf Course Maintenance Facility.
 - e. Police Department Evidence Facility at Kyla Avenue

In 2011 the City of Yuma performed an assessment, in the P.A., to determine which City owned facilities had the potential to discharge stormwater. The above listed facilities were the only City facilities determined to require coverage under the AZPDES programs. The above listed facilities currently manage their SWPPP with the following activities:

1. All facilities are inspected quarterly, with a comprehensive annual inspection and testing.
2. SWPPP for these facilities are updated annually, with priority status updated and inspection frequency modified as required.
3. SWPPP plans contain the appropriate best management practices (BMPs) and control measures. The intent of the BMPs and control measure is to reduce and eliminate the discharge of pollutants from the facility into the MS4 or the Waters of the US.
4. Annual training is provided to the staff at these facilities to incorporate pollution prevention and good housekeeping techniques into daily operations and maintenance activities.

5. All SWPPPs for these facilities include maintenance schedules, long-term inspections procedures for structural control such as retention basins and storm underground structure. Non-structural controls are revised and maintained for the same goal.

Responsible Departments: Public Works Department

Responsible Position: Joel Olea, Director of Public Works

MCM 6: Pollution Prevention/Good Housekeeping

BMP 1: Evaluate street sweeping practices

An important activity in keeping floatables and sediment out of the stormwater system is street sweeping. The City evaluates its street sweeping practices from the standpoint of stormwater runoff and makes changes if necessary.

Permit Requirement Citation: Section 6.4.6

Activity: Evaluate street sweeping practices and schedule to determine effectiveness in addressing public street runoff impacts on stormwater quality.

Objective: Evaluate the City’s street sweeping program to determine if operations should be revised in order to minimize pollutant discharges to the MS4. Develop new schedule or equipment changes if necessary to achieve performance goals established in the evaluation.

Implementation Steps and Schedule:

Review the street sweeping program	December 2008 – May 2009
Develop recommended changes for street sweeping program if appropriate	June 2009; continue street sweeping through permit period. Last Review completed in June 2015. Training done in May 2017. 2018 training will be done on May 2018

Measurable Goals: Review of City street sweeping program; recommendations on changes or modifications to street sweeping procedures, equipment, schedules and priorities, completed by May 2009. Latest review of street sweeping was completed with staff training in May 2017.

MCM 6: Pollution Prevention/Good Housekeeping
BMP 2: Train City employees about pollution prevention

The SWMP contains regular training programs staff training on pollution prevention.

Permit Requirement Citation: Section 6.4.6

Activity: Train City of Yuma employees regarding general water quality issues as well as on the City's pollution prevention program.

Objectives: Inform City employees of water quality issues related to City operations; reduce pollution from municipal operations and empower employees to carry out their responsibilities day to day with the goal of minimizing impacts on water quality.

Implementation Steps and Schedule:

Develop a training program	December 2004 – June 2005
Begin training of staff	June 2005
Complete all staff training based on BMP 3 outcomes	November 2007
Train staff	Last done April 2017. 2018 training expected in May 2018

Measurable Goals: Develop and implement employee training program; train employees twice annually. Evaluation of training is required to assess achieving the goals of the SWMP.

MCM 6: Pollution Prevention/Good Housekeeping

BMP 3: Develop and implement a municipal pollution prevention program

The City implemented this BMP in a staged approach. The City identified all municipal maintenance and operations activities and municipal facilities and then evaluated each for its potential to contribute to pollutant loading. To reduce the potential for pollutant loading, pollution prevention plans and activities were specified where needed.

Permit Requirement Citation: Section 6.4.6.

Activity: Evaluate City operations and maintenance activities and as well as City-owned facilities to determine if stormwater pollutants are being reduced to the maximum extent practicable.

Objective: Reduce the potential for pollutant discharge from municipal operations and maintenance activities as well as City-owned facilities.

Implementation Steps and Schedule:

Identify City operations and maintenance activities and facilities and prioritize for evaluation	January 2008 – August 2008
City Street Operations and Cleaning of 56 catch basins in the Pacific Ave at Priority Area	June 30, 2015
BMPs for Priority Area and Cleaning of the second catch basins segment at the Priority Area	June 30, 2016

Measurable Goals: Evaluate a minimum of eight City operations and maintenance activities and facilities over the permit period. Modify procedures for operations and maintenance activities as appropriate. Develop pollution prevention plans for City-owned facilities evaluated, as appropriate, providing employee training on pollution prevention plans. Catch basins at Colorado River were cleaned over three years program that finished by the end of 2017. New cycle of stormwater collection system at P.A started in May 2018. New construction standards for BMPs at the P.A will be introduced.

Additional Control Measure (ACM) No. 1: Specific BMPs for Reducing the Discharge of 303 (d)-Listed Pollutants

In its 2010 303 (d) Impaired Waters list, ADEQ designated the Colorado River segment from Main Canal (All American Canal) to Mexico border (a total of 32.2 mile segment) as impaired for low dissolved oxygen and selenium. The impairment has been categorized as “Impaired surface waters where a Total Maximum Daily Load (TMDL) analysis is required”. The TMDL was scheduled, by ADEQ, to be initiated during year (2010). No TMDL is established up to June 30, 2012.

In January 2013 ADEQ conducted an audit of the City. A letter dated 4/5/2013 summarized the requirements of the audit visit. Part of the requirements from ADEQ was for the City to perform monitoring of 303(d) listed receiving water; provide sampling data collected from the Colorado River and to submit this data to ADEQ.

To meet the requirements of Part V.A.4 of General Permit Number AZG2002-002, and the 4/5/2013 ADEQ letter, the SWMP was modified by adding this measure with its BMPs and measurable goals, to address reducing the discharge of 303(d)-listed pollutants from the City’s MS4 to the waters of the U.S.

The City of Yuma recognizes the benefits of prevention and reduction of the discharge of 303 (d)-listed pollutants on scarce water resources, environment and health.

The City will implement the following BMPs to achieve this ACM:

1. Delineation of drainage areas and preparation of inventory of all stormwater collection system elements that contribute stormwater runoff to impaired waters. from City’s MS4.
2. Incorporate BMPs that will capture discharges that may contribute to lower dissolved oxygen contents and/or higher concentrations of selenium from construction sites with potentials of discharge into impaired waters.
3. Incorporate post-construction design BMPs in the newly-constructed stormwater collection system to capture discharges that may contribute to lower dissolved oxygen contents and/or higher concentrations of selenium.
4. Educate development community about reduction of discharges from construction and developed sites to impaired waters.
5. Develop and implement surface water quality Monitoring Program that will perform visual monitoring, to the maximum extent practicable, of discharges of any storm that drops 0.1” of rain with potential of reaching the River. Monitoring is performed for selenium and any pollutants that will contribute to less dissolved oxygen.
6. Monitoring Plan approved by ADEQ on 6/30/2017.
7. The City began testing in August 2017.

Responsible Department: Engineering Department

Responsible Position: Jeffrey Kramer, City Engineer

Standard Operating Procedure (SOP)

The intent of this SOP is to describe the procedures that can be used to reduce the contribution of 303 (d) listed-pollutants from the City Municipal Separate Storm Sewer System (MS4) to Colorado River (River). This SOP offers the below steps to achieve this goal:

1. Require owners with construction sites that disturb one or more acres and located within ¼ mile of the River to develop and submit SWPPP and Monitoring Plan to the City. Owners must submit the same to ADEQ and obtain approval prior to start of construction.
2. Require owners to inspect construction sites that disturb one or more acres within ¼ mile of the River per the AZG 2013-001.
3. Perform selenium and sediment, temperature monitoring and any possible element or compound that may reduce dissolved oxygen.
4. Require owners with post-construction discharge potential to install BMPs that will reduce selenium and pollutants that will lower dissolved oxygen.
5. Add areas within ¼ mile of the River to the stormwater map.
6. Use visual inspections of upstream points as a second step and document all results for future references.
7. Create a new Monitoring Program, containing its own SOP that utilizes visual monitoring to the maximum extent practicable. Testing will be required for all 303 (d) listed pollutants in the River after ADEQ establishes the TMDLs.
8. Conduct inspections during dry weather periods using the Dry Weather Outfall Inspection Form.
9. Add new BMPs to reduce the introduction of the 303 (d) –listed pollutants to the Erosion Control Drainage Design Manual for Maricopa County, Arizona, as amended and to City Standards, and
10. Evaluate the program effectiveness and update the SWMP.

ACM 1: Specific BMPs for Reducing the Discharge of 303 (d)-Listed Pollutants
BMP 1: Delineation of Drainage Areas & Preparation of Inventory of Stormwater Collection System Elements with Discharge Potentials to Impaired Waters

This BMP is for delineating areas that may contribute runoff to impaired waters to identify the elements of the MS4 that may contribute to further deterioration of impaired waters. The City is delineating drainage areas with stormwater collection system connecting to the Colorado River outfalls. An inventory will be prepared of such affected collection system. The stormwater map will be updated with the same information.

Permit Requirement Citation: Section 1.4.5 (a)

Activities:

1. Delineate area (Priority Area) with potential to discharge into the River through City MS4,
2. Identify, in the Priority Area, elements of the stormwater collection system;
3. Create new inventory for above elements; and
4. Update the stormwater map taking into consideration newly-constructed CIP projects.

Objective: Delineate drainage areas that contribute to stormwater runoff, identify stormwater collection system at these areas, create inventory and update all elements of the stormwater collection system with potentials of discharging into Colorado River to prevent and reduce the discharge of 303 (d)-listed pollutants and other pollutants from the MS4 to the affected segment of Colorado River.

Implementation Steps and Schedule:

Delineate drainage areas that contribute runoff to the Colorado River	90% complete by 6/30/2014
Identify elements of MS4 emptying into the Colorado River	100% complete by 6/30/2014
Create new inventory for MS4 emptying into the Colorado River	June 2015
Update stormwater map including new CIP projects in the same area	Completed on 06/30/2014
Update stormwater map to include priority areas	75% completed on 06/30/2014. 100% completed by 06/2015
Create an inventory for P.A	Created starting in June 2015. 100% expected by end of 2018

Measurable Goals: Prepare an updated written inventory of all stormwater collection system that contributes stormwater runoff to the Priority Area of the Colorado River by the end of December 2015. P.A is added to the stormwater map with more details expected in the stormwater atlas of 2015. Inventory will be reflected in stormwater map of 2015 with the latest constructed CIP, private projects and priority areas in these areas. Work in progress with City Engineering Department until issuance of new atlas in 2018.

ACM 1: Specific BMPs for Reducing the Discharge of 303 (d)-Listed Pollutants
BMP 2: Reduce and Prevent Discharges of 303(d)-listed Pollutants from Construction Sites into Impaired Waters:

This BMP requires construction sites under the umbrella of the stormwater regulations to design and install BMPs that will prevent and reduce, to the maximum extent practicable, the introduction of 303(d)-listed pollutants from construction sites to the Colorado River or the MS4 with connection to the River.

Permit Requirement Citation: Section 1.4.5 (a)

Activities:

1. Delineate Priority Area (P.A.)
2. Require projects within P.A. that disturb one or more acres to submit SWPPP for approval,
3. Provide BMP plan for any construction, regardless of the area, that is located within 50 or less from the City stormwater collection system and in particular catch basins in the P.A.
4. Incorporate inspection requirement for at least 7 calendar days and within 24 hours of any 0.1 inch rain event
5. Apply requirements for both private and public projects
6. Monitoring Program to include recommended BMPs for construction sites

Objective: Delineate drainage areas that contribute to construction stormwater runoff, incorporate plan review requirements in the pre-development meetings, review SWPPP by City and get ADEQ approval for the same, include regular inspections requirements per AZPDES requirements. Requirements apply for both private and public projects.

Implementation Steps and Schedule:

Delineate areas within ¼ mile from the Colorado River	100% completed by 6/30/2014
Plan review requirements (SWPPP)	Went into effect since July 2012
Regular Inspection Program	December 2012
Require monitoring of any discharge results from 0.1” storm.	Visual monitoring to City stormwater outfalls at River started July 2014.
Requirements to apply for both public and private projects	In effect since July 2012. On-going throughout permit period.
Include BMPs for construction sites in the Monitoring Program	Complete recommended BMPs by end of 2018

Measurable Goals: Prepare and implement BMPs to reduce the introduction of selenium and elements that cause lower dissolved oxygen in the Colorado River as a result of Construction site activities. BMPs will utilize in-place City standard and new recommended BMPs will be selected per Analytical Monitoring Program.

ACM 1: Specific BMPs for Reducing the Discharge of 303 (d)-Listed Pollutants
BMP 3: Reduce and Prevent Discharges of 303(d)-listed Pollutants from Post-Construction Sites into Impaired Waters:

This BMP requires newly-developed sites under the umbrella of the stormwater regulations to design and install BMPs to prevent and reduce, to the maximum extent practicable, the introduction of 303(d)-listed pollutants from post-construction and re-development to the River or the MS4 with connection to the River.

Permit Requirement Citation: Section 1.4.5 (a)

Activities:

1. Delineate Priority Area (P.A.)
2. Incorporate plan review requirements in the building permit process for sites that disturb one or more acres,
3. Provide BMP plan for any post-construction discharge, regardless of the area, that is located within 50 or less from the City stormwater collection system and in particular catch basins in the P.A.
4. Specify permanent BMPs in the Monitoring Program for new facilities; and
5. Make Requirement consistent with AZPDES current post construction regulations

Objective: Delineate Priority Area (P.A.) that contributes to stormwater runoff from newly-developed sites and sites with potential of discharging into the River. Identify stormwater collection system at these areas, create inventory and update all elements of the stormwater collection system with potentials of discharging into the River to prevent and reduce the discharge of 303 (d)-listed pollutants and other pollutants from the MS4 to the River.

Implementation Steps and Schedule:

Delineate drainage areas that contribute runoff to the Colorado River	June 2014
Identify elements of MS4 connected to the Colorado River	June 2014
Create new inventory for MS4 connected to the Colorado River	December 2014
Update stormwater map including new CIP projects in the same area	December 2014
Create new BMPs in the Monitoring Program	Complete recommended BMPs by end of 2018

Measurable Goals: Create a post-construction program through plan review and implementation of other City post-stormwater regulations to reduce and prevent pollutants from stormwater runoff to the River. BMPs will depend on type of monitoring adopted in the Monitoring Program.

ACM 1: Specific BMPs for Reducing the Discharge of 303 (d)-Listed Pollutants

BMP 4: Educate Businesses, Development Community, Business Owners and Residents about Reduction of Stormwater Pollution to Impaired Waters:

This BMP increases the awareness of business owners, the development community and residents within the Riverfront area to reduce, to the maximum extent practicable, the introduction of stormwater pollutants and 303(d)-listed pollutants from locations with drainage potentials to the River.

Permit Requirement Citation: Section 1.4.5 (a)

Objective: Increase the awareness among residents and business owners about the reduction and prevention of stormwater pollutants at the area with potentials of draining into the River.

Implementation Steps and Schedule:

Delineate drainage areas that contribute runoff to the Colorado River through stormwater collection system	July 2014
Identify elements of MS4 emptying into the Colorado River	June 2015
Send educational letter to residents and businesses	Annually
Educational letters to development community and business owners about stormwater pollution effect on the impaired waters	Sent June 2013 and expected to continue once annually
Training session for City staff about stormwater pollution in the P. A	Three training sessions for Building Safety, Utilities, Public Works and Engineering were completed through June 2017

Measurable Goals:

Educate residents, development community and business owners about the reduction and prevention of stormwater pollution into impaired waters. Legal issues will also be addressed in the education.

ACM 1: Specific BMPs for Reducing the Discharge of 303 (d)-Listed Pollutants
BMP 5: Introduction of Surface Water Quality Monitoring Program for Colorado River at Riverfront

In its 2006/2008 303 (d) Impaired Waters list, ADEQ designated the Colorado River (River) segment from the Main Canal to Mexico border (a 32.2 mile segment) as impaired due to low dissolved oxygen and high selenium levels. The impairment has been categorized as “Impaired surface waters where a Total Maximum Daily Load (TMDL) analysis is required”. The TMDL was scheduled, by ADEQ, to be initiated during 2010. No TMDL has been established as of the date of this plan.

In January, 2013 ADEQ conducted a site visit audit review of the City’s SWMP. (A letter dated 4/5/2013 has summarized the requirements of the audit visit). During the audit visit ADEQ required the City to establish a monitoring program and perform testing for 303(d) listed pollutants that discharge into the Colorado River (River) impaired segment; provide sampling data collected from the River and to submit this data to ADEQ.

To meet the requirements of Part V.A.4 of the Permit the City modified its SWMP by adding Additional Control Measure No. 1 (ACM No. 1) to address the issue of the impaired segment of the River as designated by ADEQ. Also, to address the 4/8/2013 ADEQ letter, the City added this Monitoring Program to prevent the exceedance of the 303(d)-listed pollutants to the River from the City’s MS4.

As defined in Section 1.4.5 (a) of the Permit if a municipality discharges to a water for which a TMDL has been established then the municipality must monitor to determine if the stormwater controls are adequate to maintain compliance with the Permit’s waste load allocation or load allocation. Since 2013 and in a cooperative effort with ADEQ, the City started developing a water quality monitoring plan to assess the effect of discharges of selenium and dissolved oxygen into the River. On June 29, 2017 and after rounds of review comments and meetings, ADEQ approved the Analytical Monitoring Plan (AMP) submitted by the City.

Permit Requirement Citation: Section 1.4.5 (a)

Activities: Create water quality monitoring program to reduce the discharge of selenium and reduce decrease dissolved oxygen demand in the affected segment of Colorado River.

Objective: The purpose of this Program is to develop a water quality monitoring plan to prevent and reduce the discharge of stormwater pollutants, and in particular, the 303(d) listed pollutants (dissolved oxygen and selenium) from the City’s MS4. The City has multiple stormwater outfalls within the limited area that has a physical connection to the River. These 4 stormwater outfalls at the River: Madison Avenue, 9th Avenue, 17th Avenue and 19th Avenue.

The City recognizes its stewardship as a municipality to protect surface water resources; however, guidance from higher jurisdictions, such as ADEQ and EPA, is essential to satisfy such a role. Therefore, and per 40 CFR 122.34 and Section 1.4.5 (a) of the Permit, the City has chosen to conduct analytical monitoring based on testing by methods approved by EPA.

Implementation Steps and Schedule:

Develop water quality monitoring program	Part of the 2013-2014 Annual Report to ADEQ
Start Monitoring at River designated outfalls	July 2017 and on-going
Document and report to ADEQ	By 11/30/2017 and annually
Update monitoring program as needed	Update BMPs by evaluation or guidance by ADEQ
Update stormwater map to include detailed priority area information on each panel of the stormwater atlas	Atlas currently includes P.A. Parts of P.A added during 2015-2016 reporting period. Expect to cover all P.A by 2018

Measurable Goals: Reduce the discharge of selenium and pollutants that contribute to low dissolved oxygen by conducting regular monitoring at river outfalls.

ANNEXED LANDS TO THE MS4 WITHIN THE URBANIZED AREA

Per Permit Section 12 (a), the City must implement the SWMP in all new areas within the urbanized area, per the 2000 census, added to the City portion for the MS4 not later than one year from addition of the new areas. MCM No. 1 through MCM No. 6 including ACM No. 1 are being implemented in annexed areas each year. Since all of these areas are county islands inside the City no new MCM or change in the MCMs is needed.

Also per Section V.G.1 (e) of the Permit no BMP is needed as of today to be implemented to address issues in the newly annexed lands. This statement is being provided each annual report. The similarity of land use and the common requirements within the City and Yuma County that requires on-site retention of all stormwater generated on site to infiltrate and percolate into the ground combine to make the quality of stormwater in the City and county islands quite similar. This will reflect no or minimal impact on the MS4.

Reporting Period 2003-2004

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Fruit Growers Supply	8.62	Commercial/light industrial	Stormwater on-site retention. No BMP required.
8th Street ESCH Properties	1.96		
YRMC 24th Street apartments east of Avenue C	18.86	Residential	Stormwater is retained on site through onsite and local retention basis. No BMP required. Development can be considered part of Ave C drainage system with no potential of discharging into Ave C.
Gila Ridge Road	6.4	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Avenue 3 ½ E and 36 th Street	20.1	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Schoenherr Trust	30.0	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Produce & Marine Industrial Park	314.3	Commercial/light industrial	Stormwater on-site retention. No BMP required.

Hall Brothers	17.42	Residential	Stormwater on-site retention. No BMP required.
Avenue 9E and I-8	47.1	Commercial/ industrial	Stormwater on-site retention. No BMP required.
First Assembly of God Church	2.7	Commercial	Stormwater on-site retention. No BMP required.
American Cooling	9.1	Commercial	Stormwater on-site retention. No BMP required.

Reporting Period 2004-2005

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Trail Estates Unit # 4	20.0	Residential subdivision	Stormwater on-site retention. No BMP required.
Savant Estates	40.1	Residential subdivision	Stormwater on-site retention. No BMP required.
Barkley Property	28.3	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Trail Estates Units 5 & 6	93.1	Residential subdivision	Stormwater on – site retention. No. BMP required.
Pacific Avenue	10.1	Commercial	Stormwater on site retention. No BMP required.
40 th Street and Avenue C	206.8	Residential subdivision	Stormwater is retained on site through onsite and local retention basis. No BMP required. Development can be considered part of Ave C drainage system with no potential of discharging into Ave C.

Reporting Period 2005-2006

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Yuma Storage	2.9	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Gila Ridge Road	107.3	Commercial/light industrial	Stormwater on-site retention. No BMP required.
1421 S. Avenue B	5.5	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Gila Ridge Road & Ave 4E	108.5	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Dr. Flores	1.7	Commercial	Stormwater on-site retention. No BMP required.
Castle Dome Avenue	232.8	Commercial	Stormwater on-site retention. No BMP required.
Avenue C and 12 th Street	3.9	Residential	Stormwater on-site retention. No BMP required.
Marine Corps Air Station Boundary No. 2	75.5	Military	Stormwater on-site retention. No BMP required.
Marine Corps Air Station Boundary No. 2	948.1	Military	Stormwater on-site retention. No BMP required.
3 rd Street subdivision	10.2	Residential subdivision	Stormwater on-site retention. No BMP required.
Country Lane (36 th Street and 4 th Avenue Extension)	36.9	Commercial	Stormwater on-site retention. No BMP required.
16 th Street and Pacific Avenue (Kjar)	9.0	Commercial	Stormwater on-site retention. No BMP required.
Strenitzke Property at 32 nd Street between Avenue 3 ½ E and Avenue 5E	12.3	Light industrial	Stormwater on-site retention. No BMP required.

Reporting Period 2006-2007

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
East of Avenue 8E, west of Avenue 8 ½ E, north of 44 th Street and south of 42 nd Street	104.0	Light industrial/commercial	Stormwater on-site retention. No BMP required.

Reporting Period 2007-2008

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
County island bounded by Arizona Avenue on west, Pacific Avenue on east between 34 th Street and 36 th Street	11.0	Light industrial	Stormwater on-site retention. No BMP required.
County island bounded by 10 th Street on north, 12 th Street on south, 1 st Avenue on west and railroad track on the east	48.6	Commercial	Area drains to Pacific Avenue drainage area. Pacific Avenue discharges into the River and is being addressed into the Additional Control Measure No. 1
Area bounded by railroad track on north, 28 th Street on south between Avenue 4 ½ E and Avenue 4 ¾ E	26.2	Light industrial	Stormwater on-site retention. No BMP required.
Area at the southeast intersection of 48 th Street and Avenue 6E bounded on east by Avenue 6 ¼ E and at the south by 52 nd Street	80.1	Light industrial	Stormwater on-site retention. No BMP required.

Reporting Period 2008-2009

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Northeast corner of the intersection of 16th Street & Arizona Avenue.	17.00	Commercial/light industrial	Stormwater on-site retention. No BMP required.
East of Arizona Avenue and south of 20th Street	34.28	Commercial/light industrial	Stormwater on-site retention. No BMP required.

East and west of the intersection of 8th Street and Avenue B	28.02	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Southwest corner of the intersection of 36th Street and Avenue C	19.34	Livingstone Ranch Residential subdivision	Stormwater is retained on site through onsite and local retention basis. No BMP required. Development can be considered part of Ave C drainage system with no potential of discharging into Ave C.
Northwest corner of the intersection of 48th Street and Avenue 6E	37.96	Residential subdivisions	Stormwater is retained on site through onsite and local retention basis. No BMP required. Development is located in the Mesa area where good hydrology exists.
North of 8th Street between Avenue C and Avenue D	61.0	Residential/Commercial	Stormwater on-site retention. No BMP required.
West of Avenue B and south of 1st Street	0.34	Residential	Stormwater on-site retention. No BMP required.

Reporting Period 2009-2010

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area bounded by Pacific Ave on east, 22nd Street on south, railroad track on north and Arizona Ave on west	3,812.5	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Area bounded by Ave 5E on west, Ave 6E on east, railroad track on south and 24th Street on north	282.3	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Area bounded by Maple Ave on east, one block to the west, 16th Street on north	20.0	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Area bounded by Arizona Ave on west, Pacific Ave on east, 18th Street on north	162.2	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Area between Ave 3E and Ave 4E at 24th Street	70.9	Commercial/light industrial	Stormwater on-site retention. No BMP required.

Area between Pacific Ave and Maple Avenue north of 18th Street	63.4	Commercial/light industrial	Stormwater on-site retention. No BMP required.
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Reporting Period 2010-2011

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area bounded by 32nd Street on north at Avenue 3 ½ E	43.6	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Area bounded by 40th Street on north at Avenue 4 ½ E	5.0	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Area bounded by Avenue B on west and 30th Street on south	6.40	Residential	Stormwater on-site retention. No BMP required.
Area located at the southeast corner of the intersection of 16th Street and Pacific Avenue	2.0	Commercial	Stormwater on-site retention. No BMP required.
Area bounded by 32nd Street on north and Avenue 8 ½ E on west	16.0	Commercial	Stormwater on-site retention. No BMP required.
Area bounded by Union Pacific Rail Road right of way on north at Pacific Avenue	6.7	Commercial	Stormwater on-site retention. No BMP required.

Reporting Period 2011-2012

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area bounded by railroad track on north and by Arizona Avenue on east and 20th Street on west	27.0	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Southwest corner of the intersection of Avenue 4E and 32nd Street	27.7	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Triangular area at the north side of the intersection of Pacific Avenue and 22nd Street	6.7	Commercial/light industrial	Stormwater on-site retention. No BMP required.

Reporting Period 2012-2013

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area bounded by Ave B on east, 31st Drive on west and 27th Street on north	2.1	Commercial/light industrial	Stormwater on-site retention. No BMP required.
Southwest corner of the intersection of Avenue C and 24th Street bounded by Ave C ½ on west and 28th Street on south	155.3	Commercial/light industrial	Stormwater on-site retention. No BMP required.

Reporting Period 2013-2014

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area bounded by 45th Ave and 46th Drive on east, Ave D on west, 8th Street and 12th Street on south, and 5th Street on north	142.0	Commercial/light industrial	Stormwater on-site retention. No BMP required.

Reporting Period 2014-2015

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area bounded by Ave 10E at east, Salida Del Sol Ave on west, 40th Street on south, and 36th Street on north	64.0	Commercial/light industrial	Stormwater on-site retention. No BMP required.

Reporting Period 2015-2016

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area bounded by Ave B at west, north of Sonic Restaurant, south of Tuscany Plaza	5.0	Commercial	Stormwater on-site retention. No BMP required.

Reporting Period 2016-2017

Description of Land Annexed	Total Area in Acres	Land Use	Need for Implementation of New BMP
Area at the northeast corner of the intersection of Ave B and 15th Street	25.0	Commercial	Stormwater on-site retention. No BMP required.
Area at the intersection of Pima Lane and 8th Street	0.5	Residential	Stormwater on-site retention. No BMP required.

APPENDIX A

STANDARD OPERATING PROCEDURES

Appendix A1

Standard Operating Procedure for Illicit Discharge Detection and Elimination Program

This SOP describes the procedures that can be used to support Chapter 194 of Yuma City Code “Illicit Discharge Detection and Elimination (IDDE)”. The IDDE program is intended to protect the City Municipal Separate Storm Sewer System (MS4) from illicit discharges and illegal dumping. This SOP offers the below steps to identify, locate and eliminate or reduce the illicit discharge and dumping into the City MS4. This SOP will be revised with the SWMP as necessary. The City is implementing the following steps:

1. Locate important areas and locations likely to have illicit discharges with proximity to the City MS4 and surface waters. The following will be classified as priority areas:
 - a) All stormwater outfalls at the Colorado River. This area includes all drainage areas that contribute to outfalls at the River. Use of previous drainage studies and land use will be utilized to better identify drainage areas.
 - b) Commercial and industrial facilities north of 8th Street, east of Avenue B and west of Main Street including but not limited to areas of public assemblies such as parks, hotels, churches, movie theaters etc.
 - c) Shopping malls, educational facilities, exposed areas with proximity to Colorado River or with potential of discharging into the River.
 - d) Areas within 2.5 miles of the Colorado River.
 - e) Areas with historical or previous citizen complaints of dumping and littering; and
 - f) As designated by the Director of Public Works.
2. Perform annual inspections of all stormwater outfalls at the surface waters per the Dry Weather Outfall Inspection Form.
3. Perform selenium and sediment monitoring per approved Analytical Monitoring Program, for any illicit discharge incident or during dry weather monitoring at outfalls at the Colorado River.
4. All important areas mentioned above have been included in the current stormwater map/atlas.
5. Review and consider information collected when illicit discharge was initially identified in a previous incident or dry weather inspection.
6. Use visual inspections of upstream points as a second step (first step is the dry weather monitoring inspection) and document all results for future references.
7. Review procedures to remove the source of an illicit discharge.
8. Refer potential septic system failures to the local health office for enforcement.

9. Suspend public access to storm drain if threats to public health or serious physical harm to the public or the environment are possible.
10. Perform opportunistic inspections by Public Works and Utilities staff crews while they are conducting their duties in and around the stormwater collection system. Staff is encouraged to contact dispatcher, supervisor, or code enforcement if they see evidence of an illicit discharge or illegal dumping into the storm drain.
11. Perform inspections by Building Safety staff, take photos and send email to storm@yumaaz.gov documenting the case. This email is monitored by the Engineering Inspection Supervisor, with backup monitoring by the Development Engineering Manager and City Engineer.
12. Hotline at 928-373-4520 (Engineering front desk) and email at storm@yumaaz.gov are available to receive reports of illicit discharges and illegal dumping into the MS4.
13. When a complaint is received it is dispatched to Engineering Inspections or the Engineering Development Manager. Engineering staff will contact the appropriate City staff for follow-up until the case is resolved per the Enforcement Response Plan. Engineering will document the case per table in Appendix E.
14. Evaluate the IDDE program effectiveness and update the SWMP, as needed.
15. Plan, coordinate and perform a campaign to clean the Priority Area with City and public participation.

Appendix A2

Standard Operating Procedure for Construction Site Runoff Control Program

This SOP describes the procedures that will be used to support Chapter 156 of Yuma City Code “Erosion and Sediment Control.” This SOP offers procedures for inspections and enforcement of control measures at construction sites that fall under the umbrella of Ordinance O2006-38. This SOP will be revised with the SWMP as necessary. For construction sites located within ¼ mile of the impaired segment of Colorado River, refer to AMC No. 1 on this SWMP. The City will start implanting the following steps:

1. Prior to inspection, the City inspector will:
 - a) Contact owner/contractor superintendent or project manager
 - b) Bring camera, project file, and Personal Protective Equipment in accordance with City Policy.
 - c) Bring the SWPPP Construction Site Inspection Checklist for private development or CIP projects.
 - d) Review previous inspection reports to determine reoccurring problems
 - e) Identify if the project is located within ¼ mile of the Colorado River’s impaired segment.
2. At the construction site, and before starting inspection, the City inspector will:
 - a) Ensure that the project information sign is installed per City Construction Standard No. 8-100 (Work Zone Identification Sign) with the AZPDES approval number and date.
 - b) Verify that SWPPP plans and narrative report, NOI and Permit No. AZG2013-001, as updated, are on site and accessible,
 - c) Verify that all routine inspections, required by Contractor, are conducted with reports available on site and accessible. Routine inspections are conducted every 14 calendar days and within 24 hours of a previous storm 0.5 inches or more
 - d) Review previous inspection reports to determine reoccurring problems,
 - e) Review SWPPP changes or modifications from last inspection and whether such changes and modifications are updated in the SWPP report and plans,
 - f) Review status of any corrective actions or deficiencies by State or City listed in the latest inspection report,
 - g) Discuss with the owner representative, Contractor superintendent or project manager any complaint or incident that has occurred after the latest inspection,

3. At the construction site the City inspector will, at minimum, perform the following:
 - a) Record time that inspection of BMPs starts and weather information such as temperature, rainfall within the last 72 hours, wind and clearness or cloudiness of sky.
 - b) Determine if the site has evidence of release of any discharge from its boundaries,
 - c) Determine if all BMPs are installed correctly and maintained adequately per the SWPPP report and plans. BMPs include erosion control measures, sediment control measures and good housekeeping measures
 - d) Take photographs of BMPs. The photo must indicate date and time of inspection and comment on the BMP.

4. Before leaving the site, the City inspector will:
 - a) Discuss with the owner, contractor or project manager of the SWPPP the effectiveness of current controls and if modifications are needed.
 - b) Identify a time frame for making modifications on site and SWPPP report and plans,
 - c) Discuss with the owner, contractor or project manager any compliance or enforcement issues.

5. As a follow up after inspection, the City inspector will:
 - a) Check the adequacy of SWPPP Construction Site Inspection Checklist for private development.
 - b) Send documents to building inspectors for certificate of occupancy coordination.
 - c) City Engineering Inspectors will conduct SWPPP inspections per the CIP project Checklist. Records will be sent to City Engineer.
 - d) Follow up on corrective actions and SWPPP report and plans modifications; and
 - e) Contact City code enforcement and State for compliance and enforcement if needed.

6. City Engineer will evaluate the SOP and program effectiveness and update the SWMP, as needed.

Appendix A3

Standard Operating Procedure for Post-Construction Site Runoff Control Program

This SOP describes the procedures used to support Chapter 195 of Yuma City Code “Post-Construction Stormwater Runoff.” and to ensure that post-construction and developed sites that fall under this Section are:

1. Having SWPPP designed per the Plan Review Checklist; and
2. Being inspected to ensure that the measures indicated in the SWPPP are installed adequately and meeting their intended design goals.

This SOP will be revised with the SWMP as necessary. For post-construction and developed sites located within ¼ mile of the impaired segment of Colorado River, refer to AMC No. 1 in this SWMP. Below are the required procedures for inspections and enforcement of BMP control measures at post-construction and developed sites that fall under the umbrella of Section 195 of Yuma City Code:

1. Prior to inspection, the City inspector will:
 - a) Contact owner/contractor superintendent or project manager
 - b) Bring camera, project file and PPE to the site
 - c) Bring the SWPPP post-construction inspection Checklist
 - d) Review previous inspection reports to determine reoccurring problems
2. At the post-construction site the City inspector will, at minimum, inspect the following:
 - a) Record starting time, ambient temperature, rainfall within the last 72 hours, wind and clearness or cloudiness of sky
 - b) Ensure that the site does not have evidence of releasing any discharge from its boundaries
 - c) Take photographs of effective BMPs and BMPs that need evaluation or replacement. The photo must indicate date and time of inspection and comment on the BMP.
3. Before leaving the site, the City inspector will:
 - a) Discuss with the owner the effectiveness of current controls and if modifications are needed in the SWPPP
 - b) Identify a time frame for making modifications on site and SWPPP report and plans
 - c) Discuss with the owner any compliance or enforcement issues needed
 - d) Ensure that all BMPs are installed correctly and performing their intended goals
4. After conducting the inspection, the City inspector will:
 - a) Fill the SWPPP checklist and fax or email to the owner within 3 working days
 - b) Follow up on corrective actions and SWPPP report and plans modifications
 - c) Contact City code enforcement for compliance and enforcement if needed, and
 - d) Evaluate the SOP and program effectiveness and update the SWMP

Appendix A4

Standard Operating Procedure for Reducing the Discharge of 303 (d) Listed Pollutants

The intent of this SOP is to describe the procedures that can be used to reduce the contribution of 303 (d) listed-pollutants from the City Municipal Separate Storm Sewer System (MS4) to Colorado River (River). This SOP offers the below steps to achieve this goal:

1. Require owners with construction sites that disturb one or more acres and located within ¼ mile of the River to develop and submit SWPPP and Monitoring Plan to the City. Owners must submit the same to ADEQ and obtain approval prior to start of construction.
2. Require owners to inspect construction sites that disturb one or more acres within ¼ mile of the River per the AZG 2013-001.
3. Perform selenium and sediment, temperature monitoring and any possible element or compound that may reduce dissolved oxygen.
4. Require owners with post-construction discharge potential to install BMPs that will reduce selenium and pollutants that will lower dissolved oxygen.
5. Add areas within ¼ mile of the River to the stormwater map.
6. Use visual inspections of upstream points as a second step and document all results for future references.
7. Create a new Monitoring Program, containing its own SOP that utilizes visual monitoring to the maximum extent practicable. Testing will be required for all 303 (d) listed pollutants in the River after ADEQ establishes the TMDLs.
8. Conduct inspections during dry weather periods using the Dry Weather Outfall Inspection Form.
9. Add new BMPs to reduce the introduction of the 303 (d) –listed pollutants to the Erosion Control Drainage Design Manual for Maricopa County, Arizona, as amended and to City Standards, and
10. Evaluate the program effectiveness and update the SWMP.

APPENDIX B

ANNUAL SWMP EVALUATION CHECKLIST

**City of Yuma Stormwater Management Program
Annual Evaluation Checklist**

Permit Reference & Requirement		Permit Target Date	Status	Projected/Actual Achievement Date	Comments
2.1	Obtaining Permit Coverage (NOI)	3/29/2017	Completed	3/16/2017	
2.2	Permit Fees	w/ Annual Rpt	3/29/2017		
3.1	Establish Enforcement Procedures	9/30/2018	Completed	9/30/2018	
3.2	Enforcement Requirements	9/30/2018	In-place	Already in Place	
3.3	Enforcement Response Plan (ERP)	9/30/2018	Completed	6/28/2018	
4.0	Storm Sewer System Mapping				
4.1	Develop Storm Sewer System Mapping	9/30/2017	In-place		Updated Annually
4.2	Update Storm Sewer System Mapping	9/30/2017	In-place		Updated Annually
4.4	Include Narrative Description of Mapping	9/30/2018	In-progress	9/30/2018	In Each Annual Report
5.0	StormWater Management Program (SWMP)	3/30/2017	Completed		in-place, updated regularly
5.1	Contents of the Stormwater Management Program	3/30/2018			
5.1a	Listing of all Receiving Waters		Completed	6/28/2018	
5.1b	Update Map w/system, outfalls, receiving waters		Completed	6/28/2018	
5.1c	List of discharges to surface water quality		In-progress	9/30/2018	With AMP & Annual Report
5.1d	Description of practice for compliance 6.1 & 6.2		Completed	6/28/2018	
5.1e	Description of practice for compliance 6.3 & 6.4		Completed	6/28/2018	Six MCMs
5.1f	Description of practices w/TMDL's or allocations		Completed	6/28/2018	With AMP and Annual Report
5.1g	Analytical Monitoring Program for impaired water		Completed	6/28/2018	With AMP and Annual Report
5.1h	Protocol for annual program evaluation		Completed	6/28/2018	with Annual Report
5.1i	Identification of City personnel responsible for the program			6/28/2018	
5.2	Stormwater Management Plan Availability at City Engineering Department and website	3/30/2017	Completed	3/30/2017	Updated regularly
6.0	Develop and Implement Effluent Limitations to the MEP	3/30/2017			in-place for all MCMs
6.1	Water Quality Based Effluent Limitations	3/30/2017	Completed	6/28/2018	in-place, AMP
6.2	Surface Water Quality Standards	3/30/2017	Completed	6/28/2018	in-place, AMP

**City of Yuma Stormwater Management Program
Annual Evaluation Checklist**

Permit Reference & Requirement		Permit Target Date	Status	Projected/Actual Achievement Date	Comments
6.3	Reduce discharge of pollutants by implementation of the six minimum control measures	3/30/2017	Completed	6/28/2018	in-place, updated regularly
6.4	Minimum Control Measures (MCMs)	3/30/2017		3/30/2017	
6.4a	Permitees to make updates according to permit				
6.4b	Implementation of MCMs may be shared				
6.4.1	MCM1 - Public Education and Outreach	3/30/2017	Completed	3/30/2017	in-place, updated regularly
6.4.1.1	BMP1 - Distribute educational material				
6.4.1.2	BMP2 - Disseminate Msg on City access cable TV				
6.4.1.3	BMP3 - Disseminate Msg thru Local Newspaper				
6.4.1.4	BMP4 - Disseminate Msg w/links on City Website				
6.4.2	MCM2 - Public Involvement and Participation				Within 1 Year
6.4.2.1	BMP1 - Comply w/state & local public notice requirements	3/30/2018			Within 6 Months
6.4.2.2	BMP2 - Provide public participation opportunities-Council Update	3/30/2018		7/30/2018	Expected 2nd Qtr 2018
6.4.2.3	BMP3 - Provide public opportunity to review the SWMP and NOI	3/30/2018		9/30/2018	Annually - last in June 2017
					Annually
6.4.3	MCM3 - Illicit Discharge Detection and Elimination (IDDE) Program	3/30/2017	In-progress	10/15/2018	Linked to ERP
6.4.3.1	Definitions & Prohibitions	3/30/2017	In-progress	10/15/2018	
6.4.3.2	IDDE Program with adequate enforcement	3/30/2017	In-progress	10/15/2018	
6.4.3.3	Statement of IDDE Program Responsibilities	3/30/2017	In-progress	10/15/2018	
6.4.3.3	Statement of IDDE Prgm Responsibilities	3/30/2017	In-progress	10/15/2018	
6.4.3.4	Illicit Discharge Prevention & Reporting	3/30/2017	In-progress	10/15/2018	
6.4.3.5	Eliminating Illicit Discharges	3/30/2017	In-progress	10/15/2018	
6.4.3.6	Non-Stormwater Discharges	3/30/2017	In-progress	10/15/2018	
6.4.3.8	Visual Monitoring for both wet and dry weather	3/30/2017	In-progress	10/15/2018	
6.4.3.8a	Visual Dry Weather Outfall Monitoring with SOPs	3/30/2017	In-progress	10/15/2018	
6.4.3.8b	Develop Visual Stormwater Discharge Monitoring	3/30/2017	In-progress	10/15/2018	

**City of Yuma Stormwater Management Program
Annual Evaluation Checklist**

Permit Reference & Requirement		Permit Target Date	Status	Projected/Actual Achievement Date	Comments
6.4.3.8c	Develop Follow-up Screening Schedule	3/30/2017	In-progress	10/15/2018	
6.4.3.9	Develop Indicators for Tracking IDDE Program Progress	3/30/2017	In-progress	10/15/2018	
6.4.3.10	Staff Training	3/30/2017	In-progress	10/15/2018	
6.4.3.11	Develop, implement and enforce a program to actively identify industrial/ construction activities that discharge into the MS4 without an AZPDES/NPDES permit	3/30/2017	In-progress	10/15/2018	Annual Report
6.4.4	MCM4 - Construction Site Runoff Control Program	3/30/2017	Completed	6/28/2018	
6.4.4.1	Construction Activity SW Runoff Implementation	3/30/2017	Completed	6/28/2018	
6.4.4.2	Construction Activity SW Runoff Program Components	3/30/2017	Completed	6/28/2018	
6.4.4.2a	Ordinance for Erosion & Sediment Control				
6.4.4.2b	Inventory of construction disturbances to 1+acres				
6.4.4.2c	Written procedure for inspection & enforcement				
6.4.4.2d	Construction Inspection Frequency				
6.4.4.2d1	Phase of Construction				
6.4.4.2d2	Proximity to impaired, not-attaining water				
6.4.4.2d3	Size of acreage disturbed by construction activity				
6.4.4.2d4	History of non-compliance (site or operator)				
6.4.4.2e	Follow-up actions (reinspections/enforcement)				
6.4.4.2f	Requirements for construction operators				
6.4.4.2f1	Min. amt of disturbed area & protect resources				
6.4.4.2f2	Stabilize site upon completion or temp closure				
6.4.4.2f3	Protect slopes				
6.4.4.2f4	Protect storm drain inlets & new outlets				
6.4.4.2f5	Use perimeter controls on site				
6.4.4.2f6	Stabilize entrances & exits to prevent tracking				
6.4.4.2f7	Inspect stormwater controls at consistent intervals				
6.4.4.2g	Control wastes on sites				

**City of Yuma Stormwater Management Program
Annual Evaluation Checklist**

Permit Reference & Requirement		Permit Target Date	Status	Projected/Actual Achievement Date	Comments
6.4.4.2h	Written procedure for site plan review				
6.4.4.3	Personal Qualifications				
6.4.4.4	Construction Operator Education & Public Involve				
6.4.4.5	Tracking & Recordkeeping				
6.4.5	MCM5 - Post-Construction Stormwater Management for New & Redevelopment	3/30/2017	Completed	9/1/2007	in-place, updated regularly
6.4.5.1	BMP1 - Ordinance for Post Construction Runoff	3/30/2017	Completed	9/1/2007	
6.4.5.2	BMP3 - Site Plan Review	3/30/2017	Completed	9/1/2007	
6.4.5.3	Post-Construction Stormwater Control Inventory	9/30/2017	In-progress	9/30/2018	
6.4.5.4	Operation & Maintenance of Post-Construction BMPs	9/30/2017	In-progress	9/30/2018	
6.4.6	MCM6 - Pollution Prevention & Good Housekeeping for Municipal Operations	3/30/3017	Completed	6/28/2018	in-place, updated regularly
6.4.6a-g	Develop, implement and maintain operations and maintenance program	3/30/3017	Completed	6/28/2018	in-place, updated regularly
7.0	ACM1 - Analytical Monitoring Program	3/30/2017		6/28/2017	City began testing in 08/2017
7.1	General Monitoring Requirements				
7.1a	Meet purpose of the permit monitoring section				
7.1a1	Assess impact from Small MS4 outfalls				
7.1a2	Characterize stormwater discharges				
7.1a3	Identify sources of elevated & specific pollutants				
7.1a4	Assess overall health/evaluate long term trends				
7.1b	Identify discharges in SWMP & annual reports	ASAP		9/30/2018	with Annual Report
7.1b1	Waters listed on AZ 303(d) Cat (5) list & non-Cat (4) on WQA report				
7.1b2	Discharges to OAWs listed in AAC R18-11-112				
7.1b3	Additional monitoring required by ADEQ				
7.1c	Annual Reporting for outfall monitoring included part 8.3			6/30/2017	with Annual Report
7.1d	Analytical Monitoring Schedule				

**City of Yuma Stormwater Management Program
Annual Evaluation Checklist**

Permit Reference & Requirement	Permit Target Date	Status	Projected/Actual Achievement Date	Comments	
7.1d1 & 2	Must be fully implemented no later than 6/1/2017				
7.1d3	Alternative Schedule specified by ADEQ				
7.2	Discharges to Impaired & Not-Attaining Water	3/30/2017	Completed	6/28/2017	in-place, updated regularly
7.3	Analytical Monitoring Discharge to OAW	Not Applicable			
7.4	Tracking testing documentation	9/30/2017	Completed	6/28/2017	in-place, updated regularly
7.4a	Assess compliance with this permit				
7.4b	Measure effectiveness of SWMP				
7.4c	Assess chemical, physical, biological impacts				
7.4d	Characterize stormwater discharges				
7.4e	Identify sources of specific pollutants				
7.4f	Detect & eliminate illicit discharges/illegal connect				
7.4g	Assess overall health & long term trends				
8.0	Program Assessment, Recordkeeping & Reporting	9/30/2018		9/30/2018	
8.1	Program Evaluation				
8.1.1	Annually self evaluate/maintain documentation				
8.1.2	Evaluate BMPs				
8.1.2a	Adding (not subtracting or replacing) controls				
8.1.2b	Changes replacing BMP identified in SWMP				
8.1.3	BMP modifications documneted in SWMP				
8.1.3a	Analysis of ineffective or infeasible BMPs				
8.1.3b	Expectations on replacement BMP				
8.1.3c	Analysis of replacement & goals				
8.1.4	ADEQ may require modifications to BMPs				
8.1.4a	Impacts to MS4				
8.1.4b	To satisfy conditions of permit				
8.1.4c	More stringent to comply w/state or federal req's				
8.1.4d	Attainment of surface water quality standards				
8.2	Recordkeeping				
8.2.1	Keep all records for at least (3) three years				
8.2.2	Records shall be submitted upon request				
8.2.3	Records made available to the public				

**City of Yuma Stormwater Management Program
Annual Evaluation Checklist**

Permit Reference & Requirement		Permit Target Date	Status	Projected/Actual Achievement Date	Comments
8.3	Discharge Monitoring Report				
8.4	Annual Report to ADEQ	9/30/2018			
8.4a	Status of compliance with the permit				
8.4b	Update of mapping req. including % complete				
8.4c	Evaluation of efficiency of BMPs				
8.4d	Assessment of progress toward achieving goals & objectives				
8.4e	Activities used to promote public participation				
8.4f	Description of activities for implementation of IDDE Program				
8.4f1	Status & results of Illicit discharge/Parts 6.4.3.4				
8.4f2	Number/identifier of assets inspected or evaluated				
8.4f3	Number/identifier of outfalls screened				
8.4f4	Number of illicit discharges located				
8.4f5	Number of illicit discharges removed				
8.4f6	Employee training				
8.4g	All outfall screening & monitoring data collected				
8.4h	Status of plans or activities required by Part 6.4.3 & Part 7.1				
8.4h1	Identification of all discharges				
8.4h2	Identify specific BMPs for discharges TMDLs				
8.4i	Status of construction runoff program				
8.4i1	Number of project plans reviewed				
8.4i2	Number of inspections				
8.4i3	Number of enforcement actions				
8.4j	Status of stormwater management for new & redevelopment (incl. ordinance)				
8.4k	Status of operation & maintenance programs				
8.4l	Description of any changes to BMPs or goals				
8.4m	Additional reporting reqd. specified in Part 1-7				
8.4n	Activities to be conducted next reporting cycle				

APPENDIX C

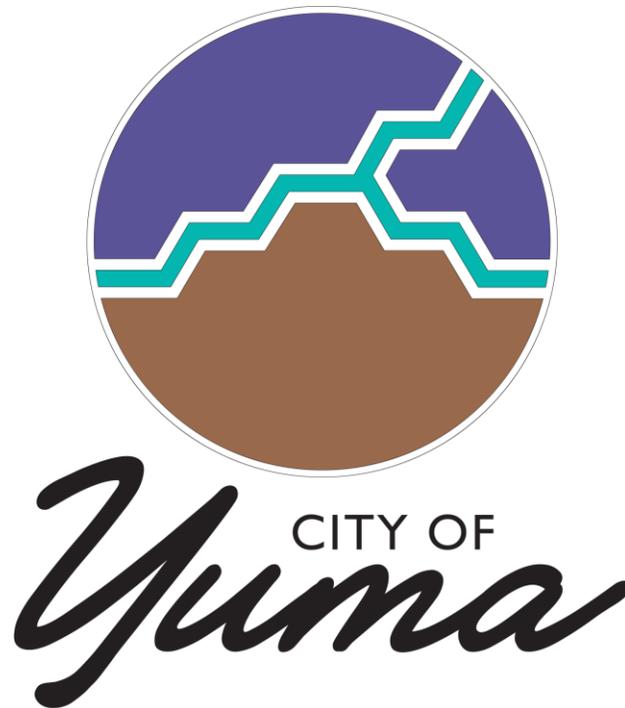
**UNPERMITTED INDUSTRIAL & CONSTRUCTION DISCHARGES
TO THE MS4**

List of Industrial Unpermitted Discharges to the MS4 Priority Area

Number	Facility Name and Location	Facility Type	Type of Industrial Activity - SIC Code	MSGP Approval Number	Connection to COY MS4 System	MS4 Component and Outfall	City Staff
1		Agricultural chemicals facilities	2873				
2		Local and Highway Passenger Transportation facilities	4111				
3		Asphalt paving and roofing facilities	2951				
4		Scrap Recycling Facilities	5093				
5		Printing and Publishing Facilities	2711				
6		Automobile salvage yards	5015				
7		Hazard waste Facilities	HZ				

APPENDIX D

ANALYTICAL MONITORING PLAN



City of Yuma

Surface Water Analytical Monitoring Plan (AMP)
for Stormwater Discharges into the Colorado River

Revised: June 28, 2018

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1.0 Acronyms:

- 1.1 ACM: Additional Control Measure
- 1.2 ADEQ: Arizona Department of Environmental Quality
- 1.3 A&WW: Aquatic and wildlife warm water
- 1.4 AZPDES: Arizona Pollutant Discharge Elimination System
- 1.5 BMP: Best Management Practice
- 1.6 CFR: Code of Federal Regulations
- 1.7 City: City of Yuma, Arizona
- 1.8 CWA: Clean Water Act
- 1.9 DO: dissolved oxygen
- 1.10 MS4: Municipal Separate Storm Sewer System
- 1.11 NOI: Notice of Intent
- 1.12 NPDES: National Pollutant Discharge Elimination System
- 1.13 NURP: Nationwide Urban Runoff Program
- 1.14 SOP: Standard Operating Procedures
- 1.15 SWMP: Stormwater Management Program
- 1.16 SWPPP: Stormwater Pollution Prevention Plan
- 1.17 SWQS: Surface Water Quality Standards
- 1.18 TMDL: Total Maximum Daily Load

2.0 Definitions:

- 2.1 Additional Control Measure (ACM): means, as used in this plan, an additional part of the SWMP that describes how the SWMP will control the discharges of 303(d) listed pollutants and to ensure to the maximum extent practicable that discharges from the MS4 will not cause or contribute to the exceedances of surface water quality standards. The ACM must also identify BMPs to control discharges and include monitoring of their effectiveness.
- 2.2 Aquatic and wildlife warm water (A&Ww): means the use of surface water by animals, plants, or other warm-water organisms, generally occurring at an elevation less than 5,000 feet or habitation, growth or propagation.
- 2.3 Arizona Pollutant Discharge Elimination System (AZPDES): means the point source discharge permitting program established under 18A.A.C9, Article 9.

- 2.4 Arizona Surface Water Quality Standards: are state regulations or rules that protect lakes, rivers, streams and other surface water bodies from pollution. These rules contain beneficial use designations; numeric levels and narrative statements (water quality criteria) that are protective of the use designations; and procedures for applying the water quality criteria to wastewater discharges and other sources of pollution. Arizona's surface water quality standards apply to all surface waters within the state (A.A.C. R18-11-101(41)), with the exception of those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. Surface waters include rivers, lakes, streams, wetlands, and reservoirs.
- 2.5 Backfill: earth used to fill a trench or excavation. A backfill can be compacted or not compacted.
- 2.6 BMP: Best Management Practice: Means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent and reduce the discharge of pollutants to the waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- 2.7 Biochemical oxygen demand (BOD): BOD is the quantity of oxygen needed by microorganisms in a water body to decompose the organic matter present. BOD is an index of pollution. High levels indicate polluted surface water bodies.
- 2.8 Canal: an artificial open channel.
- 2.9 Catch Basin: a drainage structure that collects water. A catch basin maybe either a structure where water enters from the side or through a grating.
- 2.10 Chemical oxygen demand (COD): as it relates to BOD, COD is a measure of the maximum oxidizable substance in a water body. High levels of COD indicate good quality of stormwater flow for aquatic life.
- 2.11 Clean Water Act (CWA): The Federal Water Pollution Control Act enacted in 1972 by Public Law 92-500 and amended by the Water Quality Act of 1987. The CWA prohibits the discharge of pollutants to Waters of the United States unless said discharge is in accordance with an NPDES permit. The 1987 amendments include guidelines for regulating municipal, industrial, and construction stormwater discharges under the NPDES program.
- 2.12 Coefficient of Runoff: percentage of gross rainfall that appears as runoff.
- 2.13 Construction Activity: includes clearing, grading, or excavation and contractor activities that result in soil disturbance.
- 2.14 Debris: any material including floating woody materials and other trash, suspended sediment, or bed load moved by a flowing stream.

- 2.15 Degradation: general and progressive lowering of the longitudinal profile of a channel by erosion.
- 2.16 Design Storm: that particular storm that contributes runoff that the drainage facilities were designed to handle. This storm is selected for design based on its probability of exceedance or average recurrence interval.
- 2.17 Detention: the process of temporarily collecting and holding back stormwater for later release to receiving waters.
- 2.18 Discharge: when used without qualification means the discharge of pollutant.
- 2.19 Dissolved Oxygen (DO): is the amount of oxygen dissolved, and hence available to sustain marine life, in a water body such as a river or lake. DO is the most important indicator of the health of a water body and its capacity to support a balanced aquatic ecosystem of plants and animals.
- 2.20 Disturbed Areas: areas that have been purposefully cleared, grubbed, excavated, or graded; ground surface that has been disrupted by construction activities, including construction access/roads, staging, and storage sites producing significant areas of exposed soil and soil piles.
- 2.21 Ditch: small artificial channel, usually unlined.
- 2.22 Drainage: (1) the process of removing surplus ground or surface water by artificial means. (2) The system by which the waters of an area are removed.
- 2.23 Drainage Area: a geographical area that drains to a specified point, such as an outfall, on a water body.
- 2.24 Dry Weather Flows: a small amount of water that flows almost continually due to lawn watering, irrigation or springs.
- 2.25 Erosion: The wearing away of land surface by running water, wind or other geological agents. Often the eroded debris (silt or sediment) becomes a pollutant via stormwater runoff. Erosion occurs naturally but can be intensified by human-made activities such as development, farming and agriculture.
- 2.26 Erosion Control: a measure or activity that prevents erosion.
- 2.27 Excavation/Grading: the process of removing earth, stone, or other materials and/or fill placement of material upon a land surface to create a desired slope or elevation.
- 2.28 Existing Vegetation: any vegetated areas that have not been cleared and grubbed.
- 2.29 Filter: a porous article or mass (such as fabric or even-graded mineral aggregate) through which water will freely pass but that will block the passage of soil particles.

- 2.30 General Permit: a general permit for stormwater discharges associated with industrial or construction activity issued by EPA or a delegated state under the NPDES stormwater regulations.
- 2.31 Groundwater: all water that is underground as opposed to on the surface of the ground. Usually refers to water in saturated zones below the water table.
- 2.32 Hydraulic: pertaining to fluid in motion and the mechanics of the motion.
- 2.33 Hydrologic: pertaining to the cyclic phenomena of waters of the earth; successively as precipitation, runoff, storage and evaporation, and quantitatively as to distribution and concentration.
- 2.34 Hydrology: the science dealing with the occurrence and movement of water upon and beneath the earth. Overlaps and includes portions of other sciences such as meteorology and geology.
- 2.35 Impaired Water: waters that have been assessed by ADEQ, under the Clean Water Act, as not attaining a water quality standard for at least one designated use, and are listed in Arizona's current 303(d) List or on the 305(b) Category 4 list.
- 2.36 Impervious: a surface that cannot be easily penetrated; for instance, rain does not readily penetrate asphalt or concrete surfaces.
- 2.37 Infiltration: the passage of water through the ground surface into the soil.
- 2.38 Inlet: an entrance into a ditch, storm drain, or other water conveyance system.
- 2.39 Municipal Separate Storm Sewer System that is:
 - 2.39.1 Owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body created by or pursuant to state law having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges to the waters of the United States; or
 - 2.39.2 Not defined as large or medium municipal separate storm sewer systems.
- 2.40 National Pollutant Discharge Elimination System "NPDES": the US Environmental Protection Agency's program to control the discharge of pollutants to waters of the U.S. NPDES is part of the Federal Clean Water Act which requires point and non-point dischargers to obtain permits. These permits are referred to as NPDES permits.
- 2.41 Nationwide Urban Runoff Program (NURP). NURP is the most comprehensive study for urban stormwater runoff, conducted by US EPA during the period from 1978 to 1983. It was conducted in order to examine the characteristics of urban stormwater runoff and

similarities or differences between urban land uses, the extent to which this runoff is a significant contributor to water quality problems nationwide and the performance characteristics and effectiveness of management practices to control pollution loads from urban stormwater runoff.

- 2.42 Non-point source Pollution: Pollution from any source other than from any discernible, confined and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvi-cultural, mining, construction, subsurface disposal and urban runoff sources.
- 2.43 Notice of Intent (NOI): a formal notice to EPA or ADEQ that a municipality, construction site or industrial facility seeking coverage under a General Permit is about to begin.
- 2.44 Notice of Termination (NOT): a formal notice to the EPA or ADEQ that the work under a General Permit is complete and site is stabilized.
- 2.45 Off-Site Drainage: flow of water that originates outside a certain drainage area.
- 2.46 Outfall: discharge or point of discharge of a drainage system into a water body (see definition of drainage system above). For the purpose of this plan, it refers to City of Yuma stormwater outfalls at the Colorado River.
- 2.47 Percolating Waters: waters that have infiltrated the surface of the land and moved slowly downward through groundwater aquifers until they reach water table.
- 2.48 Permeability: the property of soils that permits the passage of any fluid. Permeability depends on grain size, void ratio, shape and arrangement of pores.
- 2.49 Permeable: open to the passage of fluids, as for (1) previous soils and (2) bank-protection structures.
- 2.50 Permit: means the 2016 Arizona Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems to the Waters of the United States (Permit No. AZG2016-002).
- 2.51 Phase II Community: is a municipality that is located in an area that serves 10,000 or more people or located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census.
- 2.52 Point Source Pollution: means any discernible, confined, or discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft from which pollutants are or may be discharged. This definition does not include return flows from irrigated agriculture or agricultural stormwater runoff.
- 2.53 Pollutant: means fluids, contaminants, toxic wastes, toxic pollutants, dredged spoil, solid waste, substance and chemicals, pesticides, herbicides, fertilizers, and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum

- products, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and mining, industrial, municipal and agricultural wastes and any other liquid, solid or gaseous, or hazardous substance.
- 2.54 Practicable: capable of being done within reasonable natural, social, and economic constraints.
- 2.55 Precipitation: discharge of atmospheric moisture as rain, snow or hail, measured in depth of fall or in terms of intensity of fall in unit time.
- 2.56 Receiving waters: 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 all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds.
- 2.57 Retention: the holding of runoff in a basin without release except by means of evaporation, infiltration, or emergency bypass.
- 2.58 Riprap: a layer, facing, or protective mound of broken concrete, sacked concrete, rock, rubble, or stones placed to prevent erosion, scour, or sloughing of a structure or embankment; also, the stone used for this purpose.
- 2.59 Runoff: (1) the surface waters that exceed soil's infiltration rate and retention areas. (2) The portion of precipitation that appears as flow in streams. Drainage or flood discharge that leaves an area as surface flow or a pipeline flow, having reached a channel or pipeline by either surface or subsurface routes.
- 2.60 Sediment: soil particles, both mineral and organic, that are in suspension, are being transported, or have been removed from its site of origin by air, water, and gravity and have come to rest on the earth's surface.
- 2.61 Sedimentation: gravitational deposit of transported material in flowing or standing water.
- 2.62 Storm: a disturbance of the ordinary, average conditions of the atmosphere that, unless specifically qualified, may include any or all meteorological disturbances, such as wind, rain, snow, hail, or thunder.
- 2.63 Storm Drain: that portion of a drainage system expressly for collecting and conveying runoff in an enclosed conduit. Often referred to as a "storm sewer", storm drains include inlet structures, conduit, junctions, manholes, outfalls and other appurtenances.
- 2.64 Stormwater: Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting solely from such precipitation.
- 2.65 Stormwater Pollution Prevention Plan (SWPPP): A plan that is required by the City or the State and includes site map(s), an identification of construction/contractor activities that could cause pollutants in the stormwater, and a description of measures or practices to

control these pollutants. The SWPPP must include an Erosion and Sediment Control Plan per (ESCP) Section 156 of Yuma City Code.

- 2.66 Stormwater Management Program (SWMP): means a comprehensive program to manage the quality of stormwater discharged from the municipal separate storm sewer system. For the purposes of this plan, the SWMP is considered a single document, but may actually consist of separate programs (e.g. "chapters") for each permittee.
- 2.67 Total Maximum Daily Load (TMDL): means an estimation of the total amount of a pollutant from all sources that may be added to a surface water body while still allowing the water to achieve and maintain applicable surface water quality standards. Each total maximum daily load shall include allocations for sources that contribute the pollutant to the water, as required by section 303(d) of the Clean Water Act and regulations implementing that statute to achieve applicable surface water quality standards.
- 2.68 Total Suspended Solids (TSS): are the particles of soil that remain suspending in the stormwater. As levels of TSS increase a water body starts to lose its ability to support aquatic life. TSS absorbs heat from sunlight, which increases water temperature and subsequently decreases levels of dissolved oxygen.
- 2.69 Turbidity means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.
- 2.70 Urban Runoff: a substance, such as rain, that runs off of surfaces in a watershed in excess of the amount absorbed by the surfaces (usually the ground). Urban runoff can contain sediments and contaminants (non-point source pollution) that can add to water quality degradation in the watershed. Increases in impervious surface area usually result in increased urban runoff.
- 2.71 Waters of the United States: means 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 all interstate waters and interstate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds.
- 2.72 Watershed: see definition of drainage area.
- 2.73 303 (d) List: Section 303 "Water Quality Standards and Implementation Plans" of the Clean Water Act. This section of the CWA authorizes each state to identify waters within its boundaries for which the effluent limitations required by the CWA are not stringent enough to implement any water quality standard applicable to such waters.

3.0 Background & Introduction:

Since March, 2003 the City of Yuma (City) has been regulated by the Arizona Department of Environmental Quality (ADEQ) and the US Environmental Protection Agency (EPA) as a Phase II community. Phase II communities must comply with the State and Federal stormwater regulations known as the Arizona Pollutant Discharge Elimination System (AZPDES). The AZPDES program is a multiple permits package stemming from the Clean Water Act (CWA). The intent of the program is to prevent and reduce the introduction of pollutants into surface waters from different sources. The City, as a small municipality, is covered under the Small Municipal Separate Storm Sewer System (MS4) Permit No. AZG2016-002 and will continue to be covered under the 2016 MS4 permit (hereafter called the Permit). ADEQ and EPA have specified six minimum control measures that the City must implement through its Stormwater Management Program (SWMP) to ensure compliance with the Permit.

In Arizona's 2012/14 Impaired Waters list, ADEQ designated the Colorado River (River) segment from the Main Canal to the Mexico border (a 32.2-mile segment) as impaired due to low dissolved oxygen and high total selenium levels. The impairment was first listed in 2006. The impairment has been designated as Category 5. ADEQ defines Category 5 as "Impaired surface waters where a Total Maximum Daily Load (TMDL) analysis is required". Despite ADEQ scheduling the initiation of a TMDL during 2010, no TMDL has been established as of the date of this plan.

In January, 2013 ADEQ conducted an audit visit to review the City's SWMP and subsequently summarized the audit findings in a letter to the City dated April 5, 2013. During the audit visit ADEQ required the City to establish a monitoring program and perform testing for 303(d) listed pollutants that discharge into the Colorado River (River) impaired segment; provide sampling data collected from the River and to submit this data to ADEQ. In response to ADEQ's requirements and in the absence of approved TMDLs for dissolved oxygen (DO) and selenium, the City prepared and implemented a visual monitoring program.

To meet the requirements of Section 1.4.5 of the Permit the City modified its SWMP by adding Additional Control Measure No. 1 (ACM No. 1) to address the impairment of the River.

As stated in Section 1.4.5 of the Permit if a municipality discharges to a water for which a TMDL has been established then the SWMP must identify Best Management Practices (BMPs) to meet waste load allocations or load allocations and include monitoring for associated pollutants; however; if a municipality discharges to a 303 (d)-listed water with no TMDL has been established and the SWMP includes an additional control measure

(ACM) as defined above, the ACM must also identify BMPs to control discharges and include monitoring of their effectiveness. On December 9, 2015 ADEQ met with City to discuss the type of monitoring required by the City. Subsequent to that meeting through additional discussions between ADEQ and the City, the City has agreed to implement a monitoring plan that includes testing and sampling.

The City of Yuma recognizes the benefits of prevention and reduction of the discharge of 303 (d)-listed pollutants on the River, as well as to the environment. The City will implement this monitoring plan while recognizing no previous data has been established, by the City, to assess water quality for DO and selenium in this segment of the River. Land uses of the areas contributing discharges of stormwater to the River are limited to residential, commercial and light industrial.

The knowledge gained by implementation of this monitoring plan will be used by ADEQ and the City to design effective BMPs to prevent and reduce depletion of DO and exceedance of selenium to the maximum extent practicable.

4.0 Purpose & Determination:

The purpose of this plan is to develop a water quality monitoring plan to prevent and reduce the discharge of stormwater pollutants, and in particular, any discharges that cause reduction in dissolved oxygen or exceedance in selenium levels from the City's MS4 based on the latest surface water quality standards (SWQS) provided by ADEQ. A limited area has a physical connection to the River with five stormwater outfalls: Madison Avenue, 9th Avenue, 17th Avenue, 19th Avenue and stormwater drain of the East Mesa Drainage that comes from Pacific Avenue. The Pacific Avenue outfall is located outside the impaired segment of the River and therefore will not be included it in this plan.

The City and ADEQ adopted a cooperative approach that resulted in the City developing a monitoring plan that assesses the quality of the City's stormwater runoff. The purpose of this plan is to assess and investigate ways to improve water quality other than enforcement action by ADEQ should the City's discharges violate current SWQS for selenium or dissolved oxygen. Analytical monitoring will be performed based on latest SWQS; however, if a TMDL is established in the future the City and ADEQ will amend this document based on available data.

5. **Arizona's 2012/14 Impaired Waters list, Impaired Segment of Colorado River & Causes of Impairment:**

Dissolved Oxygen (DO):

The quantity of oxygen molecules dissolved in water is a major indicator of water quality. Like the air we breathe, the survival of aquatic life depends on a sufficient level of oxygen dissolved in water. When it drops below levels necessary for sustaining aquatic life, it becomes significant water quality impairment, often referred to as low DO.

Unlike air, which is normally about 21 percent oxygen, water contains only a fraction of a percentage of dissolved oxygen. In water DO is usually expressed in milligrams per liter (mg/L), parts per million (ppm), or percent of saturation. Typical DO concentrations in 100-percent saturated fresh water will range from 7.56 mg/L (or 7.56 parts oxygen in 1,000,000 parts water) at 86°F to 14.62 mg/L at 0°F.

Causes of Low DO:

Rapidly moving water and young rivers tend to contain higher levels of DO; whereas stagnant water contains less (such is the case in the Lower Colorado River). Bacteria in water also consume oxygen as organic matter decays. Thus, excess organic material in lakes and rivers can cause eutrophic conditions, which is an oxygen-deficient situation that can cause a water body to degrade and affect aquatic life.

The concentration of DO in surface water is affected by factors such as temperature, salinity, suspended solids (sediment), nutrients, and organic particles from decomposing materials. All these factors have both a seasonal and a daily cycle. Cold water can hold more dissolved oxygen than warm water. In winter and early spring, when the water temperature is low, the dissolved oxygen concentration is high. In summer and fall, when the water temperature is high, the dissolved-oxygen concentration is low.

Dissolved oxygen in surface water is used by all forms of aquatic life; therefore, this constituent typically is measured to assess the "health" of the water body. Oxygen enters a stream from the atmosphere and from ground-water discharge. The contribution of oxygen from ground-water discharge is significant, however, only in areas where ground water represents a large component of stream flow, such as in areas of glacial deposits, which is not the case in Yuma. One of the intents of this plan is to test, sample and monitor City stormwater discharges in reference to the latest SWQS, to identify sources that cause depletion of DO.

In the Yuma area, the critical conditions for stream DO usually occur during the late summer season when water temperatures are high for extended periods with normally high evaporation low stream flow rates.

The River at Yuma is located at the downstream end of the watershed. Before reaching Yuma the River is used upstream, by several municipal communities, for urban stormwater point sources, non-point sources and agricultural return discharges. Also the climate in Yuma is arid and characterized by long hot summers with high evaporation rates. This distinctive situation creates potentials of lack of DO in the River even without the stormwater discharges from the City.

Selenium:

Selenium is a metal found in natural deposits such as ores containing other elements. It is among the list of elements that lead to contamination in mining aqueous waste streams. It is a naturally occurring substance that is toxic at high concentrations in marine sedimentary rock formations but is also a nutritionally essential element that is widely distributed in the environment. The greatest use of selenium compounds is in electronic and photocopier components, but they are also widely used in glass, pigments, rubber, metal alloys, textiles, petroleum, medical therapeutic agents, and photographic emulsions.

At trace concentrations selenium is an essential nutrient for plants and animals and it is important to human health; however, higher concentrations of selenium in diet of plants, animals or humans and the concentrations that can cause toxicity or poisoning.

Short-term exposure to selenium by inhalation results primarily in negative health effects in the respiratory system and skin, hair loss, loss of finger/toe nails and tooth decay.

Causes of High Concentrations of Selenium:

In nature, selenium usually occurs combined with other compounds, such as sulfur and the ores of other metals such as silver, copper, lead and nickel. Average concentrations of selenium found in sediments and soils usually range from 0.01 to 0.02 mg/kg with most seleniferous soils containing less than 2 mg/kg. Enrichment of selenium in soils and groundwater commonly occurs in arid and semi-arid irrigated areas such as Yuma, where application of irrigation water accelerates weathering processes and mobilizes of selenium in the soil profile. Arid climate amplifies further evaporation related enrichment that takes place in water bodies resulting in selenium concentrations potentially reaching toxic levels. One of the intents of this plan is to test, sample and monitor City stormwater discharges in reference to the latest SWQS, to identify sources of selenium.

6.0 Analytical Monitoring Procedures:

6.1 Overview of Monitoring Requirements:

As agreed by the City and ADEQ, the City will perform analytical monitoring based on sampling and testing per the latest SWQS and reporting of those monitoring results to ADEQ. The City will conduct two types of Analytical Monitoring based on numeric testing of DO and selenium per ARS R18-905(B):

- 6.1.1 Wet-weather monitoring at outfalls for compliance with Arizona SWQS. This monitoring includes testing and performance of visual monitoring to identify, monitor and eliminate illicit discharges and to ensure compliance with the effluent limitations of the Permit. Wet weather Visual Monitoring form is part of the SWMP; and
- 6.1.2 Dry-weather field screening and visual monitoring, as part of the Illicit Discharge Detection and Elimination (IDDE) program in accordance with the Permit requirement and the SWMP, to detect and eliminate illicit discharges.

This plan identifies the following parameters:

6.1.3 Locations of Monitoring

Wet weather monitoring will be performed in Madison Avenue outfall, 9th Avenue, 17th Avenue and 19th Avenue. City will collect Samples from the following outfalls at the Colorado River:

Outfall Number 1: Madison Avenue

Outfall Number 2: 9th Avenue

Outfall Number 3: 17th Avenue

Outfall Number 4: 19th Avenue

6.1.4 Parameters and Frequency of Monitoring

A minimum of two sampling events per wet season at each outfall will be performed. Per Section 7.1.d.3 of the Permit the first wet season extends from June 1 to October 31 and the second wet season extends from November 1 to May 31. The City will collect samples during the first two hours of the discharge with the first 30 minutes of discharge (first flush) collected whenever possible. Three samples will be collected for each outfall during each discharge event, with the intention that the results be averaged. With four outfalls and the collection of three samples, the City is expected to perform 48 sampling events as a minimum per year. If conditions are not safe or possible to collect samples from a certain outfall, the

City will try collecting a sample to the maximum extent practicable or from a different outfall.

6.1.5 Tracking and Documentation requirements

The City will keep all records required by this plan for a period of at least three years. Records such as this plan, any monitoring results, copies of reports, records of screening, follow up and elimination of illicit discharges, maintenance documents, inspection records, data used in the development of the notice of intent, SWMP and annual reports and all other documents deemed necessary to support this plan or the SWMP.

6.1.6 Reporting of monitoring results

The City will report, as required and in its annual report the monitoring results at its outfalls. In addition, ADEQ will be notified if a SWQS exceedance occurs during a sampling event.

6.2 Outfall Wet Weather Monitoring:

Protection of a surface water body receiving discharges from an MS4 is often the ultimate goal of stormwater management. However, the City MS4 may not be the only non-point source discharge into the River and the achievement of the City monitoring goals may not eliminate the impairment of the River for DO and selenium. It may be crucial to identify other point-source discharge that contributes to the impairment of the River. This may include facilities covered under the Multi-Sector General Permit (MSGP) or other jurisdictions in the watershed such as the Bureau of Reclamation, Indian tribes, Yuma County, and local irrigation districts. The purpose of this plan is to monitor by sampling and testing all four of the stormwater outfalls to the River, per Sections 7.1 and 7.2 of the Permit, to:

- 6.2.1 Assess the impacts of the discharges of DO and selenium to the River from the City MS4.
- 6.2.2 Characterize stormwater discharges into the River.
- 6.2.3 Identify sources of discharges that contribute to depletion of DO and the exceedance of selenium beyond thresholds established by the SWQS.
- 6.2.4 Assess the overall health and evaluate long-term trends in water quality of the River.
- 6.2.5 Sampling and testing will be conducted according to test procedures approved in Arizona Revised Statutes R18-9-A905 (B).

6.3 Objectives of Monitoring:

The objective of this monitoring plan is to assess the City stormwater discharges from its MS4 to the River and evaluate the quality of such discharges in exceeding DO and selenium limits set by the current SWQS. Evaluation will be performed through testing DO and selenium by approved EPA methods.

DO will be tested by collection of samples and analysis at field while selenium will be tested, through the state-approved laboratory of TestAmerica Phoenix, using EPA test procedure No. 200.8; however, the City may use Method 1638 if laboratory tests report consistently below 2 µg/L. Refer to Appendices B and C for the Standard Operating Procedures for DO and selenium testing.

7.0 Method to Calculate Pollutants' Loads:

7.1 Introduction of the Simple Method:

This plan will utilize the Simple Method per NURP data of 1998 and Certified Professional in Stormwater Quality by the International Erosion Control Association, February 2005. The Simple Method estimates stormwater runoff pollutant loads for urban areas. This method is a constant concentration method (opposed to pollutant loading method) that is best used to evaluate short-term effects and to determine pollutants loads at outfalls. The Simple Method is a technique used for estimating stormwater pollutant export delivered from urban development sites. This method provides an easy yet reasonably accurate means of predicting the change in pollutant loadings in response to development. It is suitable for this plan since it helps making rational non-point source pollution decisions from areas discharging to the River. The method works better for drainage areas less than one square mile (the case in all areas under this plan); however, for larger drainage areas it may sacrifice precision for the sake of simplicity and generality.

7.2 Simple Method Equation and Parameters:

$$L = [(P \times P_j \times R_v)/12] \times C \times A \times 2.72$$

Where:

L = pollutant load, in pounds per year.

P = rainfall depth in inches for 2 year, 24-hour storm from Yuma City Code P = 0.98 inches.

P_j = Correction factor for storm that produces no runoff. Many of the storms that occur during the year are so minor that no runoff can be detected. A reasonable value of P_j can be taken as 0.9.

R_v = measure of site response to rainfall events = r/P , where r is the stormwater runoff. The primary influence for this factor is the site imperviousness. Also $R_v = 0.05 + 0.009 I$, where I is the percent of site imperviousness. "I" is defined as surfaces in the landscape of the drainage area that cannot infiltrate rainfall consisting of rooftops, pavement, sidewalks, driveway, etc. and will be estimated by area.

C = average flow-weighted pollutant concentration. Obtained from monitoring data or published land use information such as the NURP per section 8.

A = is the total contributing area in acres.

8.0 Area Contributing to Impaired Segment of River:

The area contributing stormwater drainage to the River is termed, per the City's SWMP, the "Priority Area" or the P.A. The P.A. is bounded at the north by the Colorado River, 8th Street at the south, Gila Street and 4th Avenue at the east and Avenue B at the west. From a zoning perspective, the P.A. has multiple land usages ranging from light industrial to residential (see attached zoning map). The total area is approximately 0.53 square miles (340 acres).

The P. A. can be divided into the following sub drainage areas:

1. Northeast area
2. Northwest area

8.1 Northeast Area

Boundaries: 3rd Street at south, the River at north, 4th Avenue at west, Gila Street at east.

Description: this area is developed and the ratio of imperiousness is more than 90% with extensive roof tops and parking lots. Businesses and some residential is the main zoning pattern. The drainage pattern is surface flow on streets collected by collection system (curb, gutter, inlets, catch basins, drains). Approximate total drainage area = 120 acres.

Stormwater drainage outfall at the River: Madison Avenue.

This area is subdivided into: south, southwest, northeast, and northwestern. Potential pollutants are:

1. Motor oil, hydrocarbons and brake pads from parking lots: 25% of pollutants' total load
2. Heavy metals from roof tops: 20% of pollutants' total load
3. Trash and floatable: 25% of pollutants' total load

4. Sediment from construction sites and redevelopment sites: 30% of pollutants' total load
5. Nutrient runoff from agricultural or residential fertilizer applications

Soil types Per USNRCS Soil Survey of Yuma and Wellton Area:

Soil Name	Location in Area	Classification Per USCS*	Hydrologic Soil Group	Runoff Potential	Permeability in/hr	Area in Acre	Max Slope (%)
Rositas Sand	South and Southwest	SP-SM Silty sand	A	Low	6-high infiltration rates	50	0.2
Carrizo Sand	Northeast	SM-GP	A	Low	20, very high rates	50	0.2
Indio Silt Loam	Northwestern	ML	B	Moderate	0.6, moderate rates	20	0.2

*USCS: Unified Soil Classification System

Pollutants Parameters:

Sub-Area	K factor	LS	C, Cover Management Factor	P
South and Southwest	0.15	0.06	0.2	0.9
Northeast	0.10	0.27	0.9	0.9
Northwest	0.10	0.27	0.9	0.9

Calculations of Q_p :

Formula Used: $Q_p = CIA$, and $T = 95 (V \cdot Q_p)^{0.56} K \cdot LS \cdot C \cdot P$

Design storm: 2 year, 24 hours and "C" values: reference Ordinances No. 1670 and No. 1836

Total rainfall of 2 year = 0.98 inch, I is the rainfall intensity = 0.98 inch/24 hours = 0.041 in/hr

Sub-Area	C	I, in/hour	A, acres	Q_p , cfs	V, acre-feet	T, tons per storm
South & Southwest	0.51	0.041	50	1.0412	2.065	0.237
Northeast	0.51	0.041	50	1.0412	2.065	0.237
Northwest	0.51	0.041	20	0.4165	0.830	1.146
Total						1.620

Volumes of Pollutants of Concern per Design Storm:

Area	Sediment, tons	High Temperature Runoff, acre-feet	Other (oil, hydrocarbons, trash and metals), tons
South and Southwest	0.079	0.830	0.211
Northeast	0.079	0.830	0.211
Northwest	0.017	0.332	0.046
Total	0.175	1.992	0.468

8.2 Northwest Area

Boundaries: West Main Canal at south, the River at north, 22nd Avenue at west, 4th Avenue at east.

Description: this area is developed and the ratio of imperiousness is more than 90% with extensive roof tops and streets. Residential and few commercial are the main zoning pattern. The drainage pattern is surface flow on streets collected by collection system (curb, gutter, inlets, catch basins, drains). Approximate total drainage area = 220 acres.

Stormwater drainage outfall at the River: 9th Avenue, 17th Avenue and 19th Avenue.

Potential pollutants are:

1. Motor oil, hydrocarbons and brake pads from parking lots: 20% of pollutants' total load
2. Heavy metals from roof tops: 20% of pollutants' total load
3. Trash and floatable: 30% of pollutants' total load
4. Sediment from construction sites and redevelopment sites: 30% of pollutants' total load
5. Nutrient runoff from agricultural or residential fertilizer applications

Soil Information per USNRCS Soil Survey of Yuma and Wellton Area:

Soil Name	Location in Area	Classification Per USCS*	Hydrologic Soil Group	Runoff Potential	Permeability in/hr	Area in Acre	Max Slope (%)
Indio Silt Loam	Area drains to 9 th Avenue	ML	B	Moderate	0.6, moderate rates	100	0.90
Indio Silt Loam	Area drains to 17 th Avenue	ML	B	Moderate	0.6, moderate rates	80	0.90
Indio Silt Loam	Area drains to 19 th Avenue	ML	B	Moderate	0.6, moderate rates	40	0.50

*USCS: Unified Soil Classification System

Pollutants Parameters:

Sub-Area	K factor	LS	C, Cover Management Factor	P
9 th Ave Area	0.80	0.06	0.2	0.9
17 th Ave Area	0.80	0.06	0.2	0.9
19 th Ave Area	0.80	0.06	0.2	0.9

Calculations of Q_p:

Formula Used: $Q_p = CIA$, and $T = 95 (V \cdot Q_p)^{0.56} K \cdot LS \cdot C \cdot P$

Design storm: 2 years, 24 hours and “C” values: reference Ordinances No. 1670 and No. 1836

Total rainfall of 2 years = 0.98 inch, I = 0.98 inch/24 hours = 0.041 in/hr

Sub-Area	C	I, in/hour	A, acres	Q _p , cfs	V, acre-feet	T, tons per storm
9 th Ave	0.51	0.041	100	2.091	4.147	13.76
17 th Ave	0.51	0.041	80	1.673	3.318	11.00
19 th Ave	0.51	0.041	40	0.836	1.659	5.50
Total						30.26

Volumes of Pollutants of Concern per Design Storm:

Area	Sediment, tons	High Temperature Runoff, acre-feet	Other (oil, hydrocarbons, trash and metals), tons
9 th Ave	4.128	1.659	9.632
17 th Ave	3.30	1.327	7.70
19 th Ave	1.650	0.664	3.85
Total	9.078	3.65	21.182

Sub-Area	K factor	LS	C, Cover Management Factor	P
East Area	0.15	0.06	0.2	0.9
Middle Area	0.15	0.06	0.2	0.9
South Area	0.15	0.06	0.2	0.9

Calculations of Q_p :

Formula Used: $Q_p = CIA$, and $T = 95 (V \cdot Q_p)^{0.56}$ K.L.S.C.P

Design storm: 2 years, 24 hours and “C” values: reference Ordinances No. 1670 and No. 1836

Total rainfall of 2 years = 0.98 inch

Sub-Area	C	I, in/hour	A, acres	Q_p , cfs	V, acre-feet	T, tons per storm
East Area	0.51	0.041	180	3.764	7.465	0.997
Middle Area	0.51	0.041	120	2.509	4.977	0.633
South Area	0.51	0.041	160	3.346	6.636	0.873
Total					19.078	2.503

Volumes of Pollutants of Concern per Design Storm:

Area	Sediment, tons	High Temperature Runoff, acre-feet	Other (oil, hydrocarbons, trash and metals), tons
East Area	0.299	2.986	0.698
Middle Area	0.1899	1.991	0.443
South Area	0.262	2.544	0.611
Total	0.751	7.631	1.752

9.0 Zoning Classification and Presence of Low DO and Selenium in City Discharges:

The City will conduct analytical monitoring on the four stormwater outfalls per Section 6 of this plan. If testing reveals exceedance of water quality standards for either DO or selenium, the City will follow the Standard Operating Procedures (SOP) described in the Enforcement Response Plan (ERP) with reporting to ADEQ.

Zoning classification of the areas drain to 9th, 17th and 19th Avenues outfalls are residential with less than 10% commercial and light industrial zoning classification. Zoning classification of the area that drains to the Madison Avenue outfalls is residential with approximately 15-20% commercial and light industrial zoning classification.

10. Hydrologic Data:

The Yuma area experiences 3-4 days with precipitation that results in discharge every year; however, several storm cells and minor precipitation events may occur that does not produce quantifiable discharges to the River. Below is a table that shows average monthly precipitation and average high temperature during period from January 2015 to December 2015:

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Average Precipitation, inches	0.85	0.89	0.61	0.24	0.12	0.00	0.37	0.49	0.47	0.24	0.35	0.61
Average High Temp, F°	70	74	81	87	94	103	107	106	101	91	78	69

Source: The Weather Underground Organization (WUO), commonly known as the Weather Underground, was founded on the Ann Arbor campus of the University of Michigan.

11. References:

1. Arizona Pollutant Discharge Elimination System Stormwater Municipal Permit, 2015 (MS4 2015).
2. City Ordinance Numbers 1670 & 1836 (Drainage Policy)
3. Chapter 192 of the Yuma City Code: Stormwater Runoff in New Developments
4. City Stormwater Management Program (SWMP)
5. West Yuma Mesa Storm Drainage Discharge System, by Cellar Barr & Associates
6. Hydrologic and Drainage Design Report: Avenue B Storm Drain: 16th Street to 1st Street
7. Soil Survey of the Yuma-Wellton Area, by Natural Resources Conservation Service
8. City Stormwater Collection System atlas March 2012 (stormwater atlas)
9. US Environmental Protection Agency website
10. ADEQ 2005, A Manual of Procedures for Sampling of Surface Waters
11. Weather Underground Organization
12. Nationwide Urban Runoff Program (NURP)
13. Certified Professional in Stormwater Quality by the International Erosion Control Association, February 2005.

12. Evaluation of Results, Need for Best Management Practices (BMPs) and Termination of Monitoring:

If average results of testing of DO or selenium show exceedance of SWQS, City in coordination with ADEQ will recommend the introduction of structural and non-structural BMPs at locations upstream of stormwater outfalls to improve stormwater quality runoff by reducing selenium, sediment and lower the temperature of runoff to reduce depletion of DO in the River.

Pollutant: Dissolved Oxygen, concentration in mg/L:

Outfall at River	Average Concentration in 1st Wet Season	Average Concentration in 2nd Wet Season	Annual Average Concentration	Arizona SWQS Limit	BMP Modification Required?
9 th Avenue					
17 th Avenue					
19 th Avenue					
Madison Avenue					

Pollutant: Dissolved Oxygen, percent of saturation:

Outfall at River	Average Percent in 1st Wet Season	Average Percent in 2nd Wet Season	Annual Average Percent	Arizona SWQS Limit	BMP Modification Required?
9 th Avenue					
17 th Avenue					
19 th Avenue					
Madison Avenue					

Pollutant: Selenium:

Outfall at River	Average Concentration in 1st Wet Season	Average Concentration in 2nd Wet Season	Annual Average Concentration	Arizona SWQS Limit	BMP Modification Required?
9 th Avenue					
17 th Avenue					
19 th Avenue					
Madison Avenue					

Selection of adequate BMPs, per City Standards No. 10-140 through 10-160 will depend on the following factors:

1. Volume of runoff contributing to point before the outfall
2. Design storm (flood control or water quality)
3. Time of concentration
4. Size, age, condition, type of existing stormwater infrastructure
5. Compatibility of recommended BMP with existing infrastructure
6. Targeted pollutants (DO, sediment) from zoning designation and site conditions
7. Durability of BMP, cost effectiveness and maintenance issues
8. Per selection matrix of Engineering Standards
9. Practicability of the BMP
10. Economic feasibility

City will develop regular inspection and maintenance programs for newly-installed BMP to assess efficiency.

If City testing and sampling show no exceedance of SWQS for DO and/or selenium for two consecutive years, the City will discuss the issue with ADEQ for termination of analytical monitoring.

Appendix A

Records of Analytical Monitoring

Outfall Number 1: Madison Avenue Stormwater Outfall Wet Season Monitoring:

General Information for Sampling and Testing Total Selenium:

Limit of total selenium set by page 6 of Table 1 of Appendix A (Numeric Water Quality Standards) of Arizona SWQS = 2 µg/L for Aquatic and wildlife warm water (A&Ww).

Description of outfall: 36” Reinforced Concrete Pipe with flap gate and screen bars. Age, condition & accessibility: More than fifty years old and partially clogged. Outfall is accessible.

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ

Date: January 9, 2018

MS4 Annual Reporting Date: September 30, 2018

Time when sample collected: 03:05 pm, January 9, 2018

Name of laboratory: TestAmerica

Address of laboratory: 4625 E Cotton Center Blvd, Suite 189
Phoenix, AZ 85040

Type of Monitoring (wet or dry): Wet

Wet Season of year (1st or 2nd): 2nd

Total precipitation: 0.17 inch

Ambient Temperature: 62°F

Average of selenium concentration: Total Selenium = 4.4 µg/L

Average of selenium concentration: Dissolved Selenium = 1.0 µg/L

Equipment used to collect sample: Containers provided by TestAmerica

EPA method used: 200.8 LL

Sample Number	Sample Collected During 1 st Flush?	Sample Physical Description: Clear/Turbid/Odor	Lab Test Result	ASWQS Limit	Other Visually Present Pollutants
1	Yes	Semi-clear, no odor	4.4 µg/L Total selenium	2 µg/L	None
2	Yes	Semi-clear, no odor	1.0 µg/L Dissolved selenium	2 µg/L	None

Outfall Number 1: Madison Avenue Stormwater Outfall Wet Season Monitoring:

General Information for Sampling and Testing DO:

Limit of DO set by Arizona SWQS R18-11-109(E) = 6 mg/L for Aquatic and wildlife warm water (A&Ww). Also, per Arizona SWQS R18-11-109(E-3): surface water meets the SWQS for DO if the percent saturation of DO equals to or greater than 90%.

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ
 Date: January 9, 2018
 MS4 Annual Reporting Date: September 30, 2018
 Time when sample collected: 03:08 pm, January 9, 2018
 Name of laboratory: None
 Type of Monitoring (wet or dry): Wet
 Wet Season of year (1st or 2nd): 2nd
 Total precipitation: 0.17 inch
 Ambient Temperature: 65-66°F
 Average of DO concentration: 12.4 mg/L
 Average DO percent saturation: Not available
 Equipment used to collect sample: EXTECH Dissolved Oxygen Meter 407510

Sample No.	Sample Collected During 1 st Flush?	Physical Description: Clear/Turbid/Odor	DO Field Concentration, mg/L	DO Field Percent Saturation	ASWQS Limit, mg/L	ASWQS Limit in %age of saturation
1	Yes	Semi-clear, no odor	8.4 mg/L	N/A	6 mg/L	90%
2						
3						
4						

Outfall Number 2: 9th Avenue Stormwater Outfall Wet Season Monitoring:

Description of outfall: 42” Reinforced Concrete Pipe without a gate or screen bars. Age, condition & accessibility: More than fifty years old and partially clogged. Outfall is accessible.

General Information for Sampling and Testing Total Selenium:

Limit of total selenium set by page 6 of Table 1 of Appendix A (Numeric Water Quality Standards) of Arizona SWQS = 2 µg/L for Aquatic and wildlife warm water (A&Ww).

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ

Date: _____

MS4 Annual Reporting Date: _____

Time when sample collected: _____

Name of laboratory: _____

Address of laboratory: _____

Type of Monitoring (wet or dry): _____

Wet Season of year (1st or 2nd): _____

Total precipitation: _____

Ambient Temperature: _____

Average of selenium concentration: _____

Equipment used to collect sample: _____

EPA Method Used: _____

Sample Number	Sample Collected During 1 st Flush?	Sample Physical Description: Clear/Turbid/Odor	Lab Test Result	ASWQS Limit	Other Visually Present Pollutants
1				2 µg/L	
2					
3					
4					

Outfall Number 2: 9th Avenue Stormwater Outfall Wet Season Monitoring:

General Information for Sampling and Testing DO:

Limit of DO set by Arizona SWQS R18-11-109(E) = 6 mg/L for Aquatic and wildlife warm water (A&Ww). Also, per Arizona SWQS R18-11-109(E-3): surface water meets the SWQS for DO if the percent saturation of DO equals to or greater than 90%.

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ

Date: _____

MS4 Annual Reporting Date: _____

Time when sample collected: _____

Type of Monitoring (wet or dry): _____

Wet Season of year (1st or 2nd): _____

Total precipitation: _____

Ambient Temperature: _____

Average of DO concentration: _____

Average DO percent saturation: _____

Equipment used to collect sample: _____

Sample No.	Sample Collected During 1 st Flush?	Physical Description: Clear/Turbid/Odor	DO Field Concentration, mg/L	DO Field Percent Saturation	ASWQS Limit, mg/L	ASWQS Limit in %age of saturation
1					6 mg/L	90%
2						
3						
4						

Outfall Number 3: 17th Avenue Stormwater Outfall Wet Season Monitoring:

Description of outfall: 36” Reinforced Concrete Pipe without a gate or screen bars. Age, condition & accessibility: More than fifty years old and exposed to clogging. Outfall is accessible.

General Information for Sampling and Testing Total Selenium:

Limit of total selenium set by page 6 of Table 1 of Appendix A (Numeric Water Quality Standards) of Arizona SWQS = 2 µg/L for Aquatic and wildlife warm water (A&Ww).

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ

Date: _____

MS4 Annual Reporting Date: _____

Time when sample collected: _____

Name of laboratory: _____

Address of laboratory: _____

Type of Monitoring (wet or dry): _____

Wet Season of year (1st or 2nd): _____

Total precipitation: _____

Ambient Temperature: _____

Average of selenium concentration: _____

Equipment used to collect sample: _____

EPA Method Used: _____

Sample Number	Sample Collected During 1 st Flush?	Sample Physical Description: Clear/Turbid/Odor	Lab Test Result	ASWQS Limit	Other Visually Present Pollutants
1				2 µg/L	
2					
3					
4					

Outfall Number 3: 17th Avenue Stormwater Outfall Wet Season Monitoring:

General Information for Sampling and Testing DO:

Limit of DO set by Arizona SWQS R18-11-109(E) = 6 mg/L for Aquatic and wildlife warm water (A&Ww). Also, per Arizona SWQS R18-11-109(E-3): surface water meets the SWQS for DO if the percent saturation of DO equals to or greater than 90%.

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ

Date: _____

MS4 Annual Reporting Date: _____

Time when sample collected: _____

Type of Monitoring (wet or dry): _____

Wet Season of year (1st or 2nd): _____

Total precipitation: _____

Ambient Temperature: _____

Average of DO concentration: _____

Average DO percent saturation: _____

Equipment used to collect sample: _____

Sample No.	Sample Collected During 1 st Flush?	Physical Description: Clear/Turbid/Odor	DO Field Concentration, mg/L	DO Field Percent Saturation	ASWQS Limit, mg/L	ASWQS Limit in %age of saturation
1					6 mg/L	90%
2						
3						
4						

Outfall Number 4: 19th Avenue Stormwater Outfall Wet Season Monitoring:

Description of outfall: 15” Reinforced Concrete Pipe without a gate or screen bars. Age, condition & accessibility: More than fifty years old and partially clogged. Outfall is accessible.

General Information for Sampling and Testing Total Selenium:

Limit of total selenium set by page 6 of Table 1 of Appendix A (Numeric Water Quality Standards) of Arizona SWQS = 2 µg/L for Aquatic and wildlife warm water (A&Ww).

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ

Date: _____

MS4 Annual Reporting Date: _____

Time when sample collected: _____

Name of laboratory: _____

Address of laboratory: _____

Type of Monitoring (wet or dry): _____

Wet Season of year (1st or 2nd): _____

Total precipitation: _____

Ambient Temperature: _____

Average of selenium concentration: _____

Equipment used to collect sample: _____

EPA Method Used: _____

Sample Number	Sample Collected During 1 st Flush?	Sample Physical Description: Clear/Turbid/Odor	Lab Test Result	ASWQS Limit	Other Visually Present Pollutants
1				2 µg/L	
2					
3					
4					

Outfall Number 4: 19th Avenue Stormwater Outfall Wet Season Monitoring:

Description of outfall: 15” Reinforced Concrete Pipe without a gate or screen bars. Age, condition & accessibility: More than fifty years old and partially clogged. Outfall is accessible.

General Information for Sampling and Testing DO:

Limit of DO set by Arizona SWQS R18-11-109(E) = 6 mg/L for Aquatic and wildlife warm water (A&Ww). Also, per Arizona SWQS R18-11-109(E-3): surface water meets the SWQS for DO if the percent saturation of DO equals to or greater than 90%.

Name of person collecting Sample: Ibrahim Osman, P.E., CPSWQ

Date: _____

MS4 Annual Reporting Date: _____

Time when sample collected: _____

Type of Monitoring (wet or dry): _____

Wet Season of year (1st or 2nd): _____

Total precipitation: _____

Ambient Temperature: _____

Average of DO concentration: _____

Average DO percent saturation: _____

Equipment used to collect sample: _____

Sample No.	Sample Collected During 1 st Flush?	Physical Description: Clear/Turbid/Odor	DO Field Concentration, mg/L	DO Field Percent Saturation	ASWQS Limit, mg/L	ASWQS Limit in %age of saturation
1					6 mg/L	90%
2						
3						
4						

Appendix B

Standard Operating Procedure (SOP) **Testing Dissolved Oxygen in Stormwater**

1. Scope and Application:

This method of testing dissolved oxygen is recommended for those samples containing materials, which affect the accuracy of the modified Winkler procedure (EPA Method 360.2) such as some salts, organic substances or sediment.

2. EPA Reference:

Method No. 360.1 is called the membrane electrodes method. This method provides an excellent tool for DO analysis in polluted waters caused by urban stormwater runoff. It is recommended as a substitute for the modified Winkler procedure in monitoring of streams, lakes, outfalls, etc., where it is desired to obtain a continuous record of the dissolved oxygen content of the water under observation.

3. Summary of Method:

The determination of dissolved oxygen in stormwater depends upon electrochemical reactions. Oxygen-sensitive membrane electrodes of the polarographic or galvanic type are composed of two solid metal electrodes in contact with supporting electrolyte separated from the test solution by a selective membrane.

3.2. Under steady-state conditions, the current or potential can be correlated with DO concentrations.

3.3. the "diffusion current" is linearly proportional to the concentration of molecular oxygen.

3.4. the current can be converted easily to concentration units (e.g., mg/L) by a number of calibration procedures.

4 Interfacial dynamics at the probe-sample interface are a factor in probe response and a significant degree of interfacial turbulence is necessary. For precision performance, turbulence should be constant.

5 Sample Handling and Preservation

5.1 Since membrane electrodes offer the advantage of analysis in situ they eliminate errors caused by sample handling and storage.

- 5.2 Where surface water samples are collected from shallow depths (less than 5 feet), use of an APHA-type sampler is recommended.
- 5.3 Use of a Kemmerer type sampler is recommended for surface water samples collected from depths of greater than 5 feet.
- 5.4 Care must be taken to prevent turbulence and the formation of bubbles when filling bottle.
- 5.5 At time of sampling, the sample temperature should be recorded as precisely as required.
- 5.6 Do not delay the determination of dissolved oxygen in the samples.

6. Interferences:

- 6.1 Dissolved organic materials are not known to interfere in the output from dissolved oxygen probes.
 - 6.2 Dissolved inorganic salts are a factor in the performance of dissolved oxygen probe.
 - 6.2 Probes with membranes respond to partial pressure of oxygen, which in turn is a function of dissolved inorganic salts.
 - 6.3 Conversion factors for brackish water may be calculated from dissolved oxygen saturation versus salinity data (Table I).
- 7 Prolonged use of membrane electrodes in waters containing gases such as hydrogen sulfide (H₂S) tends to lower cell sensitivity. This interference can be reduced or eliminated by frequently changing and calibrating the membrane electrode.
- 8 Dissolved oxygen probes are temperature sensitive, and the DO meter provides temperature compensation.
- 9 Plastic films used with membrane electrode systems are permeable to a variety of gases besides oxygen, although none is depolarized easily at the indicator electrode.
- 10 Apparatus:
- 10.1 VWR Scientific Dissolve Oxygen Meter, Model No. 4000
 - 10.2 Sample bottles-300 mL \pm 3 mL capacity BOD incubation bottles with tapered ground glass pointed stoppers and flared mouths.
 - 10.3 Reagent
 - 10.4 Reagent Water
 - 10.5 Compressed Air

10.6 Sodium Sulfite, Na_2SO_3

11 Instrument Check Out Procedure, Calibration and Operation:

Follow manufacturer's instructions for check out procedure, calibration, operation, maintenance and troubleshooting.

Appendix C

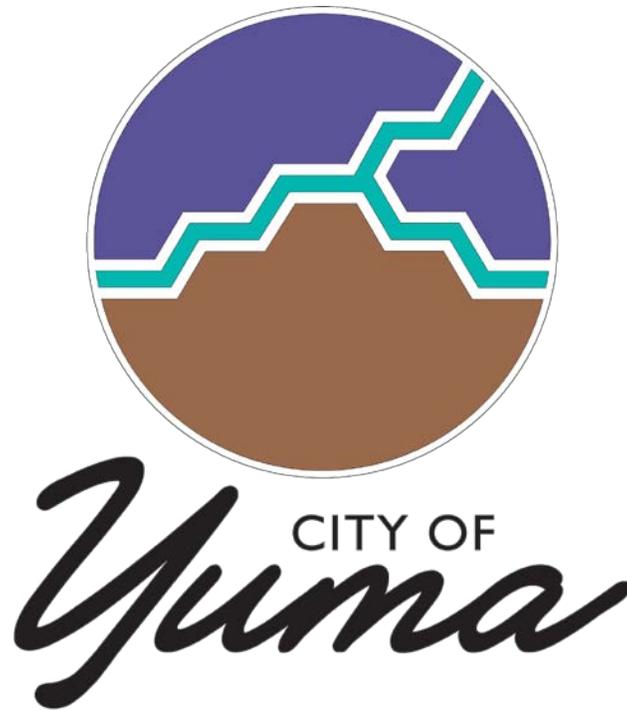
Standard Operating Procedure (SOP)

Testing Selenium in Stormwater

Testing to be performed by a state-licensed laboratory, per EPA method 200.8 and or Method 1638 if laboratory tests report consistently below 2 µg/L.

APPENDIX E

ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM



**City of Yuma Illicit Discharge Detection
and Elimination Program (IDDE)
for Compliance with the AZPDES MS4 Permit**

June 21, 2018

Table of Contents

1. Introduction
2. Program Elements
3. Program Evaluation
4. Detection Methods
5. Allowable non-Stormwater Discharges
6. Unpermitted Discharges to the MS4
7. Staff Training
8. Responsible Departments and Personnel
9. Standard Operating Procedure
10. Enforcement Response Plan

Introduction:

The City of Yuma recognizes the potential for illicit discharges to its MS4 and is committed to addressing this concern. The BMPs are targeted toward known and potential illicit discharges. The Yuma City Code contains many references to garbage, refuse, and nuisances, but no disposal ordinances are specific to the City's MS4.

Program Elements:

The City has implemented this Illicit Discharge Detection and Elimination Program (IDDE Program) to systematically find and eliminate sources of non-stormwater to its MS4. Procedures of the IDDE program will be implemented to prevent illicit connections and discharges to the MS4. As a minimum this program will include the following elements:

1. **Visual Dry Weather Monitoring:** The dry weather monitoring inspection program inspects all outfalls at least once annually. This monitoring is conducted at least 72 hours after a storm event that resulted in a discharge from the MS4. Table at the end of this document provides documentation and findings of dry weather monitoring in the annual report.
2. **Visual Stormwater Discharge Monitoring:** The City has five stormwater outfalls at the Colorado River; Madison Ave outfall, 9th Ave outfall, 17th Ave outfall, 19th Ave outfall and Pacific Ave outfall. These outfalls are representative of stormwater discharges from the City's MS4 to conduct visual stormwater discharges. Visual monitoring will be performed at each outfall twice during each wet season per Section 6.4.3.8(b) and in accordance with the Analytical Monitoring Program (AMP).
3. The City will follow its Enforcement Response Plan (ERP) to schedule follow-up monitoring to identify suspected illicit discharges to ensure that they do not recur.

Program Evaluation:

The City will utilize the ERP and the protocol of annual SWMP evaluation per Section 5.1.h to evaluate indicators of functionality of this program and track its success. Indicators of program success are outlined in this IDDE program detailing actions required to locate and remove illicit discharges.

Because of the annual influx of winter visitors, the City has experienced issues with improper disposal of sewage from recreational vehicles (RVs). The City also has experienced illegal dumping of other materials, such as used oil and grease, in some areas of the City.

For purposes of permit compliance, the City has developed and implemented an ordinance, with enforcement strategies, that has prohibited the discharge of non-stormwater substances into the public drainage system and identified incidental non-stormwater discharges that are allowable.

Detection Methods:

The City is utilizing the following detection methods:

1. Dry weather monitoring of outfalls
2. Wet weather monitoring of outfalls
3. A complaint hotline (928-373-4520) and email (storm@yumaaz.gov) to receive reports from the public to detect illicit discharges.
4. During their field inspections, Public Works crews and Community Development building Inspectors will report any illicit discharge or illegal dumping to the MS4. (Opportunistic Inspections).
5. The City keeps registers to document its dry-weather monitoring program, hotline complaints, complaints received at storm@yumaaz.gov and complaints reported by staff. The City also has an investigation system for tracing illicit discharges and illegal dumping with full coordination of Code Enforcement staff in Public Works and Community Development Departments. If required, the City will send samples of any non-stormwater substance detected in its MS4 to a State-approved laboratory for testing.

Allowable non-Stormwater Discharges:

Through the public education minimum control measure, the City will educate the public and City employees on the hazards of illegal discharges and dumping in the drainage system. The City considers the following discharges, which are listed in Part I, Section C.2. of the AZPDES Small MS4 General Permit to be allowable non-stormwater discharges:

1. Water line flushing,
2. Landscape irrigation,
3. Diverted stream flows,
4. Rising ground water,
5. Uncontaminated ground water infiltration,
6. Uncontaminated pumped ground water,
7. Discharges from potable water sources,
8. Foundation drains,
9. Air conditioning condensate,
10. Irrigation water,
11. Springs,

12. Water from crawl space pumps,
13. Footing drains,
14. Lawn watering,
15. Individual residential car washing,
16. Discharges from riparian habitats and wetlands
17. De-chlorinated swimming pool discharges
18. Street wash water, and
19. Discharges or flows from emergency firefighting activities.

Unpermitted Discharges to the MS4:

The City of Yuma developed this program as part of the IDDE Program to actively identify industrial facilities and activities that discharge to the MS4 without current MSGP permit coverage.

This program starts by targeting the Priority Area (P.A.) as identified in the Analytical Monitoring Plan (AMP). The P.A. is the area in the City of Yuma with drainage connection to the Colorado River (River). The River has been designated since 2008 as impaired for low dissolved oxygen and selenium. The City will utilize its business list to develop this list.

This program includes the following:

1. Number of facilities contacted each year in the annual report
2. Facility name and location
3. Type of activity and SIC code to the extent know
4. Proof of MSGP coverage
5. Connection to the MS4
6. Affected stormwater outfall
7. City of Yuma Pretreatment Information
8. City of Yuma Staff involved

Staff Training:

The City provides annual training for all staff involved in identifying, reporting and mitigating illicit discharges to the City's MS4 system. Staff involved in the IDDE program who receive this annual training includes, but is not limited to, Public Works staff, Building Safety Inspectors, Engineering Inspectors and Utilities staff. Frequency and type of employee training is reported in the annual report.

Responsible Departments and Personnel:

Responsible Departments: Department of Public Works and Engineering Department

Responsible Positions: Joel Olea, Director of Public Works & Jeffrey Kramer, City Engineer

Standard Operating Procedure (SOP):

This SOP describes the procedures that can be used to support Chapter 194 of Yuma City Code “Illicit Discharge Detection and Elimination (IDDE)”. The IDDE program is intended to protect the City Municipal Separate Storm Sewer System (MS4) from illicit discharges and illegal dumping. This SOP offers the below steps to identify, locate and eliminate or reduce the illicit discharge and dumping into the City MS4. This SOP will be revised with the SWMP as necessary. The City is implementing the following steps:

1. Locate important areas and locations likely to have illicit discharges with proximity to the City MS4 and surface waters. The following will be classified as priority areas:
 - A. All stormwater outfalls at the Colorado River. This area includes all drainage areas that contribute to outfalls at the River. Use of previous drainage studies and land use will be utilized to better identify drainage areas.
 - B. Commercial and industrial facilities north of 8th Street, east of Avenue B and west of Main Street including but not limited to areas of public assemblies such as parks, hotels, churches, movie theaters etc.
 - C. Shopping malls, educational facilities, exposed areas with proximity to Colorado River or with potential of discharging into the River.
 - D. Areas within 2.5 miles of the Colorado River.
 - E. Areas with historical or previous citizen complaints of dumping and littering; and
 - F. As designated by the Director of Public Works.
2. Perform annual inspections of all stormwater outfalls at the surface waters per the Dry Weather Outfall Inspection Form.
3. Perform selenium and sediment monitoring per approved Analytical Monitoring Program, for any illicit discharge incident or during dry weather monitoring at outfalls at the Colorado River.
4. All important areas mentioned above have been included in the current stormwater map/atlas.
5. Review and consider information collected when illicit discharge was initially identified in a previous incident or dry weather inspection.

6. Use visual inspections of upstream points as a second step (first step is the dry weather monitoring inspection) and document all results for future references.
7. Review procedures to remove the source of an illicit discharge.
8. Refer potential septic system failures to the local health office for enforcement.
9. Suspend public access to storm drain if threats to public health or serious physical harm to the public or the environment are possible.
10. Perform opportunistic inspections by Public Works and Utilities staff crews while they are conducting their duties in and around the stormwater collection system. Staff is encouraged to contact dispatcher, supervisor, or code enforcement if they see evidence of an illicit discharge or illegal dumping into the storm drain.
11. Perform inspections by Building Safety staff, take photos and send email to storm@yumaaz.gov documenting the case. This email is monitored by the Engineering Inspection Supervisor, with backup monitoring by the Development Engineering Manager and City Engineer.
12. Hotline at 928-373-4520 (Engineering front desk) is available to receive reports of illicit discharges and illegal dumping into the MS4.
13. When a complaint is received it is dispatched to Engineering Inspections or the Engineering Development Manager. Engineering staff will contact the appropriate City staff for follow-up until the case is resolved per the Enforcement Response Plan. Engineering will document the case per table in Appendix E.
14. Evaluate the IDDE program effectiveness and update the SWMP, as needed.
15. Plan, coordinate and perform a campaign to clean the Priority Area with City and public participation.

Enforcement Response Plan (ERP):

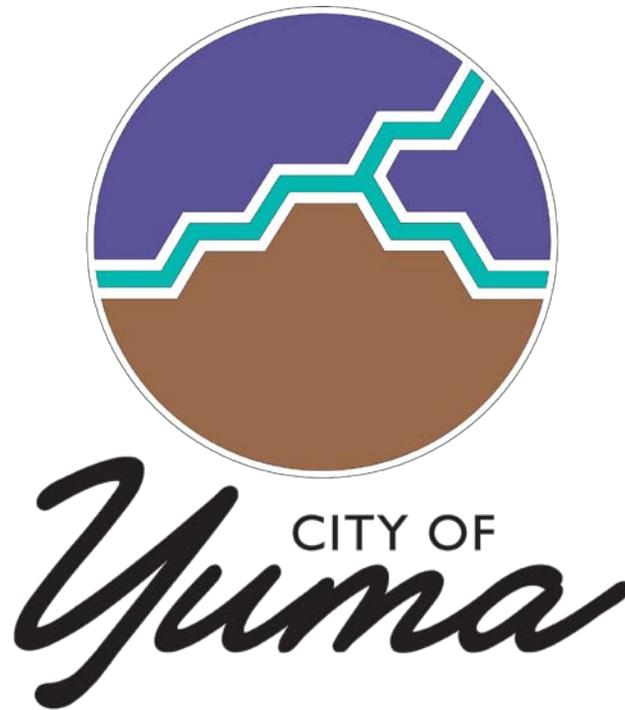
The City of Yuma Enforcement Response Plan is a stand-alone document that can be located on the City of Yuma website at <http://www.yumaaz.gov/city-engineering/engineering-documents--references-.html>

List of Industrial Unpermitted Discharges to the MS4 Priority Area

Number	Facility Name and Location	Facility Type	Type of Industrial Activity - SIC Code	MSGP Approval Number	Connection to COY MS4 System	MS4 Component and Outfall	City Staff
1		Agricultural chemicals facilities	2873				
2		Local and Highway Passenger Transportation facilities	4111				
3		Asphalt paving and roofing facilities	2951				
4		Scrap Recycling Facilities	5093				
5		Printing and Publishing Facilities	2711				
6		Automobile salvage yards	5015				
7		Hazard waste Facilities	HZ				

APPENDIX F

ENFORCEMENT RESPONSE PLAN



City of Yuma Enforcement Response Plan (ERP)

**For Compliance with the
2016 Arizona Discharge Elimination System
Stormwater MS4 Permit**

June 21, 2018

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1. Definitions
2. Introduction and Purpose
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5. Criteria to be used in Determining Proper Response
6. Levels of Violations and Enforcement

1.0 Definitions:

- 1.1 Additional Control Measure (ACM): an additional part of the Stormwater Management Program (SWMP) that describes how the SWMP will control the discharges of 303(d) listed pollutants and to ensure to the maximum extent practicable that discharges from the MS4 will not cause or contribute to the exceedances of surface water quality standards. The ACM must also identify BMPS to control discharges and include monitoring of their effectiveness. Refer for 303(d) definitions at the end of this section.
- 1.2 Analytical Monitoring Plan (AMP): a plan developed by the City of Yuma and approved by ADEQ with the intent of preventing the exceedance of concentrations of dissolved oxygen and selenium as set by the current Surface Water Quality Standards (SWQS). This AMP uses numerical testing by methods approved by the SWQS as numerical values not to be exceeded.
- 1.3 Arizona Pollutant Discharge Elimination System (AZPDES): the point source discharge permitting program established under 18A.A.C9, Article 9 of Arizona Administrative Code Title 18 Ch. 9.
- 1.4 Arizona Surface Water Quality Standards: are state regulations or rules that protect lakes, rivers, streams and other surface water bodies from pollution. These rules contain beneficial use designations; numeric levels and narrative statements (water quality criteria) that are protective of the use designations; and procedures for applying the water quality criteria to wastewater discharges and other sources of pollution. Arizona's surface water quality standards apply to all surface waters within the state (A.A.C. R18-11-101(41)), with the exception of those waters that are within Indian Country, as defined in 18 U.S.C. §1151. Surface waters include rivers, lakes, streams, wetlands, and reservoirs.
- 1.5 Best Management Practice (BMP): schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent and reduce the discharge of pollutants to the waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- 1.6 Canal: an artificial open channel.
- 1.7 Catch Basin: a drainage structure that collects water. A catch basin maybe either a structure where water enters from the side or through a grating.
- 1.8 Clean Water Act (CWA): The Federal Water Pollution Control Act enacted in 1972 by Public Law 92-500 and amended by the Water Quality Act of 1987. The CWA prohibits the discharge of pollutants to Waters of the United States unless said discharge is in accordance with an NPDES permit. The 1987 amendments include guidelines for regulating municipal, industrial, and construction stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program.

- 1.9 Construction: any repair, construction, reconstruction, upgrading or enhancing of a structure, grading or landscaping that disturbs one or more acres of land in public or private development; or, a City-owned linear project disturbing one-half acre or more of land.
- 1.10 COY: City of Yuma, Arizona.
- 1.11 Design Storm: that particular storm that contributes runoff that the drainage facilities were designed to handle. This storm is selected for design based on its probability of exceedance or average recurrence interval.
- 1.12 Detention: the process of temporarily collecting and holding back stormwater for later release to receiving waters.
- 1.13 Discharge: the discharge of pollutant into the MS4 or surface waters whether such discharge is a result of illicit discharge, illegal dumping, industrial activity, construction activity, post-construction activity or from a developed site.
- 1.14 Discharger: person or entity that causes discharge as defined above.
- 1.15 Disturbed Areas: areas that have been purposefully cleared, grubbed, excavated, or graded; ground surface that has been disrupted by construction activities, including construction access/roads, staging, and storage sites producing significant areas of exposed soil and soil piles.
- 1.16 Drainage: (1) the process of removing surplus ground or surface water by artificial means. (2) The system by which the waters of an area are removed.
- 1.17 Drainage Area: a geographical area that drains to a specified point, such as an outfall, on a water body.
- 1.18 Dry Weather Flows: a small amount of water that flows almost continually due to lawn watering, irrigation or springs.
- 1.19: Enforcement Response Plan (ERP): a plan that provides guidelines for COY to determine appropriate enforcement actions toward violations encountered in enforcing the provisions of the MS4 regulations and City ordinances.
- 1.20 Erosion: The wearing a way of land surface by running water, wind or other geological agents. Often the eroded debris (silt or sediment) becomes a pollutant via stormwater runoff. Erosion occurs naturally but can be intensified by human-made activities such as development, farming and agriculture.
- 1.21 Groundwater: all water that is underground as opposed to on the surface of the ground. Usually refers to water in saturated zones below the water table.
- 1.22 Impaired Water: waters that have been assessed by ADEQ, under the Clean Water Act, as not attaining a water quality standard for at least one designated use and are listed in Arizona's current 303(d) List or on the 305(b) Category 4 list.

- 1.23 Impervious: a surface that cannot be easily penetrated; for instance, rain does not readily penetrate asphalt or concrete surfaces.
- 1.24 Inlet: an entrance into a ditch, storm drain, or other water conveyance system.
- 1.25 Municipal Separate Storm Sewer System (MS4) that is:
- 1.25.1 Owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body created by or pursuant to state law having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under section the Clean Water Act that discharges to the waters of the United States; or
- 1.25.2 Not defined as large or medium municipal separate storm sewer systems.
- 1.26 Notice of Correction (NOC): a formal notice issued by the City for correction actions by a potential violator.
- 1.27 Notice of Violation (NOV): a formal notice of violation issued by the City.
- 1.28 Outfall: discharge or point of discharge of a drainage system into a water body (see definition of drainage system above). For the purpose of this plan it refers to City of Yuma stormwater outfalls at the Colorado River.
- 1.29 Percolating Waters: waters that have infiltrated the surface of the land and moved slowly downward through groundwater aquifers until they reach water table.
- 1.30 Point Source Pollution: any discernible, confined, or discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft from which pollutants are or may be discharged. This definition does not include return flows from irrigated agriculture or agricultural stormwater runoff.
- 1.31 Pollutant: fluids, contaminants, toxic wastes, toxic pollutants, dredged spoil, solid waste, substance and chemicals, pesticides, herbicides, fertilizers, and other agricultural chemicals, incinerator residue, sewage, garbage, sewage sludge, munitions, petroleum products, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and mining, industrial, municipal and agricultural wastes and any other liquid, solid or gaseous, or hazardous substance.
- 1.32 Precipitation: discharge of atmospheric moisture as rain, snow or hail, measured in depth of fall or in terms of intensity of fall in unit time.
- 1.33 Receiving Waters: 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 all interstate waters and intrastate

- lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds.
- 1.34 Retention: the holding of runoff in a basin without release except by means of evaporation, infiltration, or emergency bypass.
 - 1.35 Runoff: (1) the surface waters that exceed soil's infiltration rate and retention areas. (2) The portion of precipitation that appears as flow in streams. Drainage or flood discharge that leaves an area as surface flow or a pipeline flow, having reached a channel or pipeline by either surface or subsurface routes.
 - 1.36 Stop Work Order: Used for construction site control; an inspector issues a Stop Work Order when construction site operator is in violation with Chapter 156 of the Yuma City Code and is identified during an inspection and is not abated.
 - 1.37 Sediment: soil particles, both mineral and organic, that are in suspension, are being transported, or have been removed from its site of origin by air, water, and gravity and have come to rest on the earth's surface.
 - 1.38 Storm: a disturbance of the ordinary, average conditions of the atmosphere that, unless specifically qualified, may include any or all meteorological disturbances, such as wind, rain, snow, hail, or thunder.
 - 1.39 Storm Drain: that portion of a drainage system expressly for collecting and conveying runoff in an enclosed conduit. Often referred to as a "storm sewer", storm drains include inlet structures, conduit, junctions, manholes, outfalls and other appurtenances.
 - 1.40 Stormwater: Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation and resulting solely from such precipitation.
 - 1.41 Stormwater Collection System: Curbs and gutter, inlets, medians, roadways, catch basins, pump stations components such as force mains and wet wells, spillways, retention basins, detention basins, storm drain and any part of a street system that can be used to collect, convey, store or dispose of stormwater.
 - 1.42 Stormwater Management Program (SWMP): means a comprehensive program to manage the quality of stormwater discharged from the municipal separate storm sewer system. For the purposes of this plan, the SWMP is considered a single document, but may consist of separate programs (e.g. "chapters") for each permittee.
 - 1.43 Stormwater Pollution Prevention Plan (SWPPP): A plan that is required by the City and includes site map(s), an identification of construction/contractor activities that could cause pollutants in the stormwater, and a description of measures or practices to control these pollutants. The SWPPP must include an Erosion Control Plan (ECP).
 - 1.44 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 all interstate waters and interstate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds.

- 1.45 303 (d) List: Section 303 “Water Quality Standards and Implementation Plans” of the Clean Water Act. This section of the CWA authorizes each state to identify waters within its boundaries for which the effluent limitations required by the CWA are not stringent enough to implement any water quality standard applicable to such waters.

2.0 Introduction and Purpose:

2.1 Introduction

The Arizona Department of Environmental Quality (ADEQ) regulates discharges of stormwater to surface waters in Arizona to achieve the goals of the Clean Water Act. This plan contains procedures used by City of Yuma (City) to investigate and respond to instances of noncompliance discharge to surface waters or City’s MS4.

Since 2003, ADEQ designated the City of Yuma (City) as Phase II regulated community. All Phase II communities are regulated by the Arizona Discharge Pollutant Elimination System General Permit for Stormwater Discharges from Small Municipal Storm Sewer Separate Systems to Waters of the United States or the MS4 Permit. The current version went into effect on September 30, 2016 and will expire on September 29, 2021.

The 2016 MS4 Permit, hereafter called Permit, requires the development and implementation of an Enforcement Response Plan (ERP) that contains procedures to comply with this Permit and prioritization of schedule that establishes escalated enforcement for non-compliance of illicit discharges, industrial discharges, construction activities and developed sites. This ERP is an additional part of the City’s Stormwater Management Program (SWMP) that includes a prioritization schedule that establishes escalated enforcement and non-compliance of stormwater violations and will also address the following requirements:

- 2.1.1 Prohibit and eliminate illicit connections and discharges to the City Stormwater Drainage System or the City’s municipal separate storm sewer system (MS4).
- 2.1.2 Control the discharge of spills and prohibit dumping or disposal of materials other than stormwater into the MS4.
- 2.1.3 Require compliance with conditions in the City ordinances, permits, contracts, or orders.
- 2.1.4 Require owners/operators of construction activities, new or redeveloped land, and industrial and commercial facilities to minimize the discharge of pollutants to the

MS4 through the installation, implementation, and maintenance of stormwater control measures.

- 2.1.5 To the extent allowed under State law, and per Yuma City Code (YCC), the City has the right to enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine whether there is compliance with local stormwater control ordinances.
- 2.1.6 The City to promptly require violators cease and desist illicit discharges or discharges of stormwater in violation of any ordinance or standard and/or cleanup and abate such discharges.
- 2.1.7 To the extent allowable under federal, State laws, and YCC, the City will impose civil or criminal sanctions (including referral to City Prosecutor or City Attorney) and escalate corrective response, consistent with this ERP.
- 2.1.8 Identify departments within the City departments, as outlined in the City's Stormwater Management Program (SWMP), that are involved in the implementation of stormwater-related activities and their roles and responsibilities under the Permit.
- 2.1.9 Identify and evaluate current local administrative and ordinances available to mandate compliance with this Permit as relates to stormwater pollution; and
- 2.1.10 A description of how stormwater related-ordinances are implemented and appealed.
- 2.1.11 Guidelines for personnel in determining appropriate ERP action toward violations.

2.2 Purpose

This plan describes the measures available to the City to exercise its authority and identifies enforcement procedures designed to encourage a timely response by the discharger. Implementation of this plan will ensure a City compliance with the Permit, Citywide consistent response and avoid confusion, delays, and disputes over enforcement for stormwater pollution prevention.

3.0 **Legal and Enforcement Authority:**

The City owns and maintains most of the stormwater collection system within its jurisdiction. Other jurisdictions such as Yuma County and the United States Bureau of Reclamation also own and operate part of the stormwater collection system in the City jurisdiction. The YCC contains ordinances number O2005-15, O2006-38 and O2007-78 with other ordinances that regulate discharges of stormwater into the MS4 and the waters of the United States (waters of the US). The City is responsible for conducting stormwater

inspections for its own system and projects per aforementioned City ordinances. City Engineering Department, Public Works Departments, Department of Community Development and other departments such as Police, City Prosecutor and Attorney are responsible in the implementation and enforcement of this ERP. City Engineering is the lead department in the implementation of this ERP and related ordinances and can be reached at phone number (928) 373-4520. The City is not required to enforce compliance requirements of the industrial facilities under the AZ Multi-Sector General Permit (AZ MSGP) permit provided that such facility is not connected to the City MS4 and obtained coverage under current AZ MSGP stormwater permit. The City is not also required to enforce the requirements of the AZ Construction General Permit (AZ CGP); however, violators of industrial facilities and/or construction sites may be reported to ADEQ.

- 3.1 To document compliance with this ERP the City Engineer and his/her authorized personnel have the authority to enter and inspect the premises, processes, and records of any stormwater collection system, construction project or existing facility that falls under the current AZ CGP, AZ MSGP, or City Ordinances No. O2005-15, O2006-38. and O2007-78. All other conditions of YCC as related to City Ordinances No. O2005-15, O2006-38. and O2007-78 are applicable in this ERP.
- 3.2 This ERP provides guidelines on when to employ the range of regulatory responses from verbal warnings, written notices, citations, clean-up and cost recovery, to administrative or criminal penalties. For further information on the City SWMP, and compliance with the MS4 Permit, refer to the City website at www.YumaAz.gov.

4.0 Description of Investigation for instances of noncompliance:

- 4.1 City Engineering Department staff receive calls for potential violations in the MS4 that include illicit discharges, construction sites and developed sites. City projects, operations and facilities may be observed by City staff as they conduct regular activities and duties. This ERP classifies stormwater violations into four levels along with four levels of enforcement by the City. Potential violations and non-compliance issues include four components:
 - 4.1.1 Illicit Discharges or dumping into the MS4.
 - 4.1.2 Industrial Facilities: absence or ineffective best management practices (BMPs) of industrial facilities, with or without AZ MSGP coverage with connection to the MS4.
 - 4.1.3 Construction Sites: poor management of construction sites due to failed or ineffective or absence of BMPs that can discharge polluted stormwater runoff into the MS4; and

4.1.4 Developed Sites: discharge of polluted stormwater runoff from developed sites due to failed or ineffective best management practices into the MS4

4.2 Illicit Discharges or Dumping into the MS4 Violations:

Section § 194-07 of the YCC contains legal authorization for the City to regulate the introduction of non-stormwater substances to the MS4 or the waters of the US. The procedures in this plan are primarily focused on accelerating inspection and enforcement actions outlined in Chapter 194 of the YCC in a timely, consistent, fair and equitable procedure. The plan uses different measures in the priority area (P.A.) to ensure constituency with the City Analytical Monitoring Plan (AMP) and current Surface Water Quality Standards (SWQS).

4.3 Industrial Facilities Connections to the MS4:

Sections 194-08 and 194-09 of the YCC contain restrictions on industrial activities discharge and monitoring of such discharges into the MS4 or the waters of the US. The procedures in this plan are primarily focused on accelerating inspection and enforcement actions outlined in Chapter 194 of the YCC in a timely, consistent, fair and equitable procedure including suspension of industrial facility MS4 access or reporting facilities with no coverage of AZ MSGP to ADEQ. The plan uses different measures in the priority area (P.A.) to ensure constituency with the City Analytical Monitoring Plan (AMP) and current Surface Water Quality Standards (SWQS).

4.4 Construction Sites:

Chapter 156 of the YCC contain restrictions on construction site activities that may result in a discharge into the MS4 or the waters of the US. The procedures in this plan are primarily focused on accelerating inspection and enforcement actions outlined in Chapter 156 of the YCC in a timely, consistent, fair and equitable procedure including Stop-work order; revocation of permit, violation and penalties. The plan uses different measures in the priority in the P.A. to ensure constituency with the City Analytical Monitoring Plan (AMP) and current Surface Water Quality Standards (SWQS).

4.5 Developed Sites:

Chapter 195 of the YCC contain restrictions on post-construction and developed sites activities that may result in a discharge into the MS4 or the waters of the US. The procedures in this plan are primarily focused on accelerating inspection and enforcement actions outlined in Chapter 195 of the YCC in a timely, consistent, fair and equitable procedure including violation and penalties. The plan uses different measures in the P.A.

to ensure constituency with the City Analytical Monitoring Plan (AMP) and current Surface Water Quality Standards (SWQS).

5.0 Criteria to be used in Determining Severity of Violation:

The following criteria will be used to determine the severity of the violations and the appropriate response by the City:

- 5.1 Discharge with threat to human health
- 5.2 Potential of discharging into Colorado River impaired segment
- 5.3 Wet seasons
- 5.4 Proximity to City MS4 collection system or another MS4
- 5.5 Proximity to other surface waters
- 5.6 Discharge with potential of clogging the MS4
- 5.7 Repetitiveness of violation
- 5.8 Association with other surface water or groundwater quality permit

6.0 Levels of Violations and Enforcement:

The following section summarizes enforcement levels and classification of violations. This ERP specifies four levels of enforcement and four classifications of violations.

- 6.1 Levels of Enforcement:
 - 6.1.1 Level I Enforcement
 - 6.1.2 Level II Enforcement
 - 6.1.3 Level III Enforcement; and
 - 6.1.4 Level IV Enforcement
- 6.2 Classification of Violations. Refer to definition of discharge in Section 1:
 - 6.2.1 Potential of discharge
 - 6.2.2 Actual discharge into the MS4 outside the Priority Area (P.A.)
 - 6.2.3 Actual discharge into the MS4 inside the P.A. with no potential of reaching Colorado River
 - 6.2.4 Actual discharge into the P. A. with potential of reaching Colorado River

Classification of Violations and Levels of Enforcement

Enforcement Level	Classification of Violation	Action Required by Staff
Level I	Potential discharge to the MS4.	<ol style="list-style-type: none"> 1. Inform potential violator in writing with “a notice to correct a violation” within 20 calendar days and before the next storm event of time to correct. 2. Take photos and document the case. 3. Re-inspect location after 20 calendar days 4. Document potential violation and action taken with Engineering Department 5. Suspend the connection to the MS4 or suspend or revoke the building permit if necessary per Sections 194-08 of 156-09 of Yuma City Code.
Level II	Actual discharge into the MS4 outside the Priority Area	<ol style="list-style-type: none"> 1. Inform violator in writing with “a notice of violation” to correct within 15 calendar days and before the next storm event days. 2. Take photos to document the case 3. Re-inspect location after 15 calendar days 4. Document potential violation and action taken with Engineering Department 5. Issue a notice of violation or revoke the building permit if necessary per Sections 194-14 and 156-09 of the Yuma City Code.
Level III	Actual discharge into the MS4 within the P.A with no potential of reaching the Colorado River	<ol style="list-style-type: none"> 1. Inform violator in writing with “a notice of violation” to correct within 7 calendar days and before the next storm event. 2. Take photos to document the case 3. Re-inspect location after 7 calendar days 4. Document potential violation and action taken with Engineering Department 5. Issuing a class one misdemeanor per Sections 194-99 and 156-09 of the Yuma City Code.
Level IV	Actual discharge into the MS4 within the P.A with potential of reaching the Colorado River	<ol style="list-style-type: none"> 1. Inform violator in writing with “a notice of violation” to correct within 4 calendar days and before the next storm event. 2. Take photos to document the case 3. Re-inspect location after 4 calendar days 4. Document potential violation and action taken with Engineering Department 5. Close the case 6. Issuing a class one misdemeanor per Sections 194-99 and 156-09 of the Yuma City Code and reporting the case to Arizona Department of Environmental Quality.