# CITY OF TEMPE
# 2012 MS4 AUDIT

City of Tempe
PUBLIC WORKS

# Chain of Events

- 2-3 Week Notification (PGEnv, ADEQ)
- Internal Meetings and Preparation
- 2 Day Audit / Informal Findings
- Formal Findings
- Response to Findings and Proposed Corrective Action
- Response to Corrective Action
- Total Time - Feb. 15, 2012 – Jan. 18, 2013

# Proposed Schedule for MS4 Program Evaluation of the City of Tempe, AZ March 7-8, 2012

(Subject to modification)

| Day | Time | Program Area/ Agenda Item |
|---|---|---|
| **Wednesday March 7, 2012** | 8:30 am - 9:00 am | Kick-off Meeting & Program Management Overview |
| | 9:00 am - 9:30 am | Public Awareness and Public Involvement Activities (e.g., STORM, City and Regional) |
| | 9:30 am - 11:00 pm | IDDE and Industrial/Commercial<br>Specifically, outfall inspections, select infrastructure inspections, and industrial/commercial facility inspections (Office) |
| | 11:00 am - 12:00 pm | Municipal Facility Pollution Prevention and Good Housekeeping<br>Specifically, municipal facility inspection program; Retention, Common, Recreation, and Open Areas Program; and Streets (Office) |
| | 12:00 pm - 1:00 pm | Lunch Break |
| | 1:00 pm - 4:00 pm | Team A – Municipal Facilities; Retention, Common, Recreation, and Open Areas Program; and Streets (possibly ARCA) (Field)<br>Team B – Industrial/Commercial Facility Inspections and Outfall Inspections (Field) |
| **Thursday Mar 8, 2012** | 8:30 am - 10:30 am | Construction/Post-Construction (Office) |
| | 10:30 am - 12:00 pm | Team A - Construction (Field)<br>Team B – Post Construction (Field) |
| | 12:00 pm - 1:00 pm | Lunch Break |
| | 1:00 pm - 3:30 pm | Team A - Construction/Post-Construction, or Follow-up on Prior Day 1 Items (Field)<br>Team B – Monitoring and Measuring Program Effectiveness, or Follow-up on Prior Day 1 Items |
| | 3:30 pm - 4:00 pm | Closing Conference[1]<br>Tentative time slot |

[1] The City is encouraged to invite representatives from all applicable organizational divisions/departments.

MS4 PROGRAM EVALUATION
CITY OF TEMPE, AZ
MARCH 7 — 8, 2012

*Records requested to be available onsite:*

**Program Management/ Kick-off Meeting**

1. Current Storm Water Management Program document—written description of your current MS4 Program/Program Area.
2. Program organizational chart and/or a description of the departments involved in the implementation of your MS4 program and their responsibilities.
3. Current MS4 permitted area, land use, and receiving waters map—City background, demographics, and context
4. Any formal agreements with other local governments for implementation of your MS4 programs (e.g., memoranda of understanding)

**Public Education, Outreach, Participation, Involvement**

5. Examples of program materials, outreach plans, target audiences and approaches, news paper articles, agreements with effort partners (e.g., STORM), data demonstrating program achievements and measureable goals
6. Surveys or tangible examples of improved awareness and behaviors) changes

**Illicit Discharge and Elimination**

7. Storm drain system map and onsite demonstration of any associated mapping tools. Emphasis (overs/mapping that informs the MS4 program activities (e.g., storm drain system, structural controls, outfalls, receiving waters, etc.)
8. A representative schedule, map, or description of the outfall inspection program, infrastructure inspections, or other methods used to identify illicit discharges and/or connections.
9. An inventory of businesses, entities, or areas inspected, visited, or observed as part of the illicit discharge program. Also provide a copy of the inspection form(s) used by city inspectors.
10. Onsite demonstration of the database or system used to report and record illicit discharge incident information and/or call outs. As part of this effort, 2 -3 hardcopy examples of a completed illicit discharge incident that includes identification, response, and remedy. At least one of the examples should include an example/case file of an incident where enforcement was used (ideally full extent of enforcement authority).
11. If available, the most current list or map of priority areas/areas of concern within the MS4 and/or areas receiving increased surveillance and/or points within the MS4 where dry weather flows are intercepted/directed into the sanitary sewer for treatment, if any.

**Construction Site Storm Water Runoff Control**

12. All ordinances pertaining to land disturbing activities (e.g., erosion and sediment control)
13. All other construction-related regulatory mechanisms (e.g., land disturbance or grading permit)
14. Erosion and Sediment (E&S) Control Plan/SWPPP review checklist
15. Construction site plan review procedures
16. Construction BMP Manual
17. Construction inspection and enforcement procedures
18. Construction inspection field checklist
19. Construction inspection records (most recent Reporting Year)—EPA Inspection Team will select specific sites at the time of the inspection
20. Inventory/map of current active construction sites with location
21. Example/case file of a construction site issue where enforcement of local ordinance was used (ideally full extent of enforcement authority)
22. Records of follow up actions to citizen/employee complaints regarding construction site issues (most recent Reporting Year)
23. Training records and syllabus (i.e., training content) for educating construction site operators and municipal operations staff (most recent Reporting Year)

**Post-Construction Storm Water Management**

24. All post-construction related ordinances and regulatory mechanisms pertaining to development and redevelopment
25. Example post-construction BMP plan
26. Post-construction plan review checklist
27. Post-construction BMP Manual and design standards
28. Database/map of post-construction BMPs with location and maintenance status (differentiating municipally owned and operated from private).
29. Records of post-construction BMP completion and/or maintenance inspections (most recent Reporting Year)—EPA Inspection Team will select specific sites at the time of the inspection
30. Requirements for long-term operation and maintenance of post-construction BMPs

**Municipal Facilities Pollution Prevention/Good Housekeeping**

31. Inventory/map of municipal facilities/corporate yards
32. Example Storm Water Pollution Prevention Plan for those facilities regulated under the MSGP—EPA Inspection Team may select additional sites at the time of the inspection.
33. Municipal employee training records and syllabus (i.e., training content) on pollution prevention and IDDE
34. Standard operating procedures (SOPs) and checklists used for conducting municipal facility inspections
35. Records (i.e., completed checklists) for municipal facility inspections (most recent Reporting Year)—EPA Inspection Team will select specific sites at the time of the inspection
36. Example of the use of Intelex system operated by the City.

**Industrial/ Commercial Facilities Program**

37. Inventory/map of industrial and commercial facilities
38. Industrial/commercial facility inspection and enforcement procedures
39. Industrial/commercial facility inspection field checklist
40. Industrial/commercial facilities inspection records (most recent Reporting Year)—EPA Inspection Team will select specific sites at the time of the inspection
41. Example/case file of a industrial/commercial site issue where enforcement of local ordinance was used (ideally full extent of enforcement authority)

**Measuring Effectiveness and Monitoring**

42. Onsite presentation and discussion of the City's efforts to measure program effectiveness.
43. Records pertaining to ongoing monitoring including: monitoring locations; QAPPs; monitoring program documents or SOPs; field data collection and chain-of-custody forms; analytical results; databases or processes for data compilation, analysis, and reporting; and data interpretation and reports.

*Note: In addition to the numbered items requested, also provide any other documents or tools that you believe demonstrate program development and direction.

# Audit Emphasis

- **General Program Evaluation (SWMP)**
- Public Outreach
- **IDDE**
- **Construction**
- Post Construction
- **Municipal Facilities**
- Industrial Commercial Programs

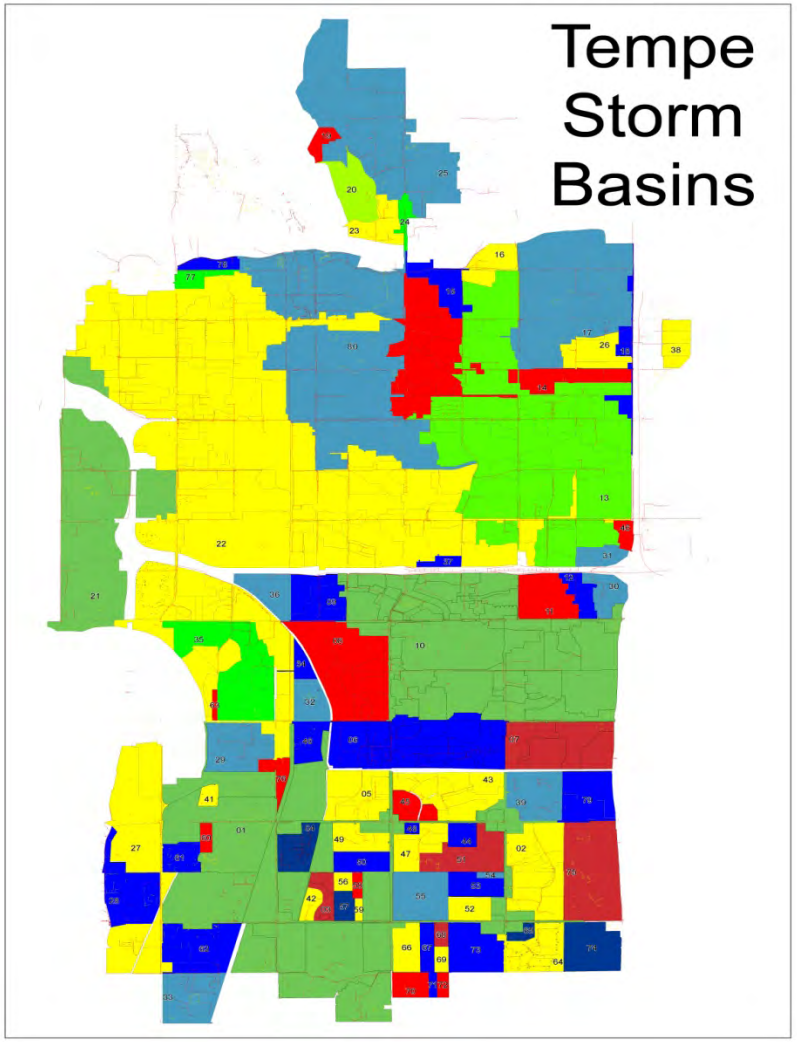
City of Tempe, Arizona

# STORMWATER MANAGEMENT PLAN

Prepared by the City of Tempe
Public Works Department, Water Utilities Division,
Environmental Services Section

As prescribed by
AZPDES Permit No. AZS000005-2010 Appendix C

January 2012
Updated December 2012



# Program Findings

## 11 "Notable" Program Elements

- Effective program with management support
- Inspection program (pretreatment approach)
- Appropriate delegation of responsibilities
- Household Product Center
- Fats, oil, grease programs
- Program SOPs
- Etc.

## 4 Program Deficiencies

- Dry Weather Screening Triggers
- Municipal facilities ranking criteria
- Private construction BMP adequacy and appropriateness
- Municipal facilities pollution prevention

# Dry Weather Screening


# Dry Weather Screening

**Dry Weather Screening Deficiency**

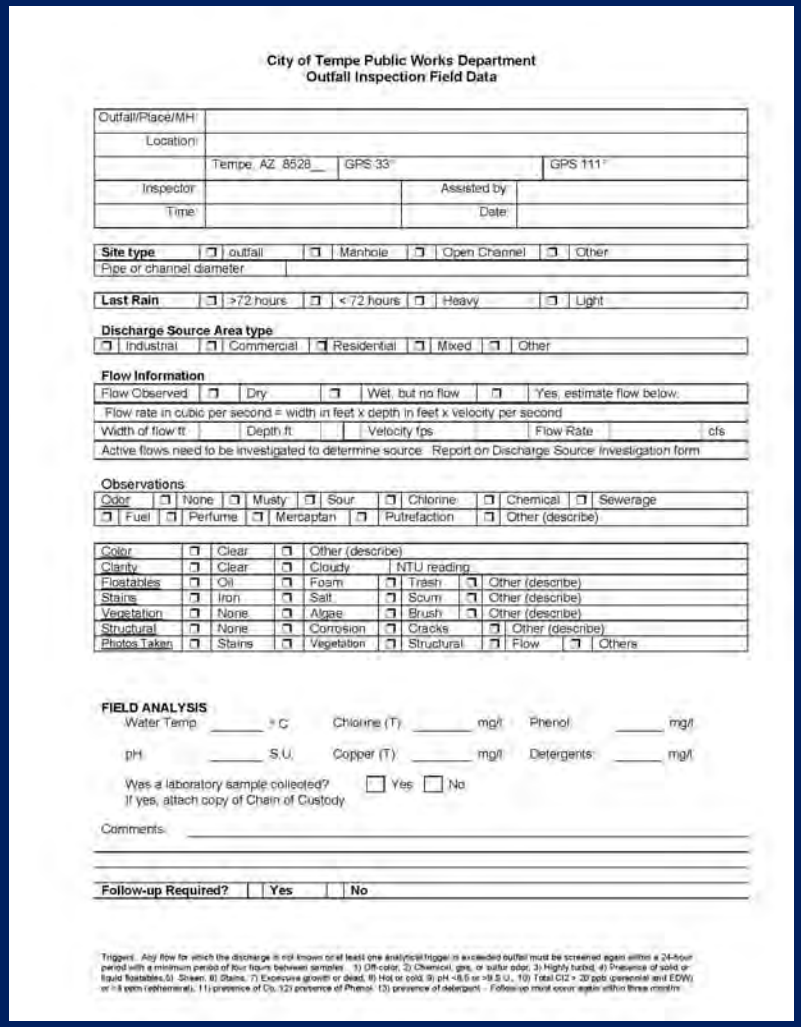
- Disconnect between triggers and forms
- Lack of detailed SOPs

**Corrective Action**

- Development of IDDE Manual
  - Clear, concise, comprehensive, relevant.
- Training

# Dry Weather Screening

| Field Screening | | |
|---|---|---|
| **Parameter/ Analyte** | Method* | Trigger* |
| **Color** | Visual | "Off-Color" |
| **Odor** | Olfactory | Chemical, gas, sulfur, etc. |
| **Clarity** | Visual or Field | Highly Turbid |
| **Floatables/Oil** | Visual | Presence of solid or liquid floatables or sheen |
| **Stains/Deposits** | Visual | Presence |
| **Biological Growth** | Visual | Excessive growth, death, etc. |
| **Temperature** | Field | Hot or cold compared to ambient |
| **pH** | Field | < 6.5 or >9 S.U. |
| **Total Chlorine** | Field | >0.02 ppm, >4 ppm, depending on SWQS |
| **Copper** | Field | Presence |
| **Phenol** | Field | Presence |
| **Detergents** | Field | Presence |
| ***Methods and Triggers are detailed in Tempe program guidance documents.** | | |



**City of Tempe Public Works Department**
**Outfall Inspection Field Data**

Outfall/Place/MH:
Location:
Tempe, AZ 8528__ GPS 33° GPS 111°
Inspector: Assisted by:
Time: Date:

**Site type** ❒ outfall ❒ Manhole ❒ Open Channel ❒ Other
Pipe or channel diameter

**Last Rain** ❒ >72 hours ❒ <72 hours ❒ Heavy ❒ Light

**Discharge Source Area type**
❒ Industrial ❒ Commercial ❒ Residential ❒ Mixed ❒ Other

**Flow Information**
Flow Observed ❒ Dry ❒ Wet, but no flow ❒ Yes, estimate flow below:
Flow rate in cubic per second = width in feet x depth in feet x velocity per second
Width of flow ft Depth ft Velocity fps Flow Rate cfs
Active flows need to be investigated to determine source. Report on Discharge Source Investigation form

**Observations**
Odor ❒ None ❒ Musty ❒ Sour ❒ Chlorine ❒ Chemical ❒ Sewerage
❒ Fuel ❒ Perfume ❒ Mercaptan ❒ Putrefaction ❒ Other (describe)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Color | ❒ | Clear | ❒ | Other (describe) | | | | | |
| Clarity | ❒ | Clear | ❒ | Cloudy | NTU reading | | | | |
| Floatables | ❒ | Oil | ❒ | Foam | ❒ | Trash | ❒ | Other (describe) | |
| Stains | ❒ | Iron | ❒ | Salt | ❒ | Scum | ❒ | Other (describe) | |
| Vegetation | ❒ | None | ❒ | Algae | ❒ | Brush | ❒ | Other (describe) | |
| Structural | ❒ | None | ❒ | Corrosion | ❒ | Cracks | ❒ | Other (describe) | |
| Photos Taken | ❒ | Stains | ❒ | Vegetation | ❒ | Structural | ❒ | Flow | ❒ Others |

**FIELD ANALYSIS**
Water Temp _____ °C Chlorine (T) _____ mg/l Phenol _____ mg/l
pH _____ S.U. Copper (T) _____ mg/l Detergents _____ mg/l
Was a laboratory sample collected? ☐ Yes ☐ No
If yes, attach copy of Chain of Custody

Comments: _____

**Follow-up Required?** **Yes** **No**

Triggers: Any flow for which the discharge is not known or at least one analytical trigger is exceeded outfall must be screened again within a 24-hour period with a minimum period of four hours between samples. 1) Off-color, 2) Chemical, gas, or sulfur odor, 3) Highly turbid, 4) Presence of solid or liquid floatables,5) Sheen, 6) Stains, 7) Excessive growth or dead, 8) Hot or cold, 9) pH <6.5 or >9 S.U., 10) Total Cl2 > 20 ppb (perennial and EDW) or >4 ppm (ephemeral), 11) presence of Cu, 12) presence of Phenol, 13) presence of detergent. Follow-up must occur again within three months.

# Construction

| Construction Program Deficiency | Corrective Action |
| --- | --- |
| Inadequate, inappropriate, inconsistent use of BMPs | Design Criteria Manual revised |
| Lack of BMP Design Standards (erosion and sediment control) | Reference to FCDMC Drainage Design Manual |
| | Training |
| | Internal drainage channels to maximize on-site retention |
| | Review SWPPP for consistency with Tempe controls |

# Construction

# Municipal Facilities

**Ranking Criteria Deficiency**

- Lack of focus on:
  - material location
  - pollutant load from sediment
  - runoff from equipment storage or material
  - housekeeping

**Corrective Action**

- Updated program criteria
- Specific BMPs for like facilities (permanent and temp.)
- Increased inspections
- Significant facility upgrades
- Emphasis on housekeeping
- Training

# Staining


# Staining


Waste Oil Funnel

Oil Pan

**BMPs**

*Dedicated Equipment Storage*

*Posted Spill Procedures*

*Use of Oil Pans*

*Immediate Spill Clean-Up*

*Training*

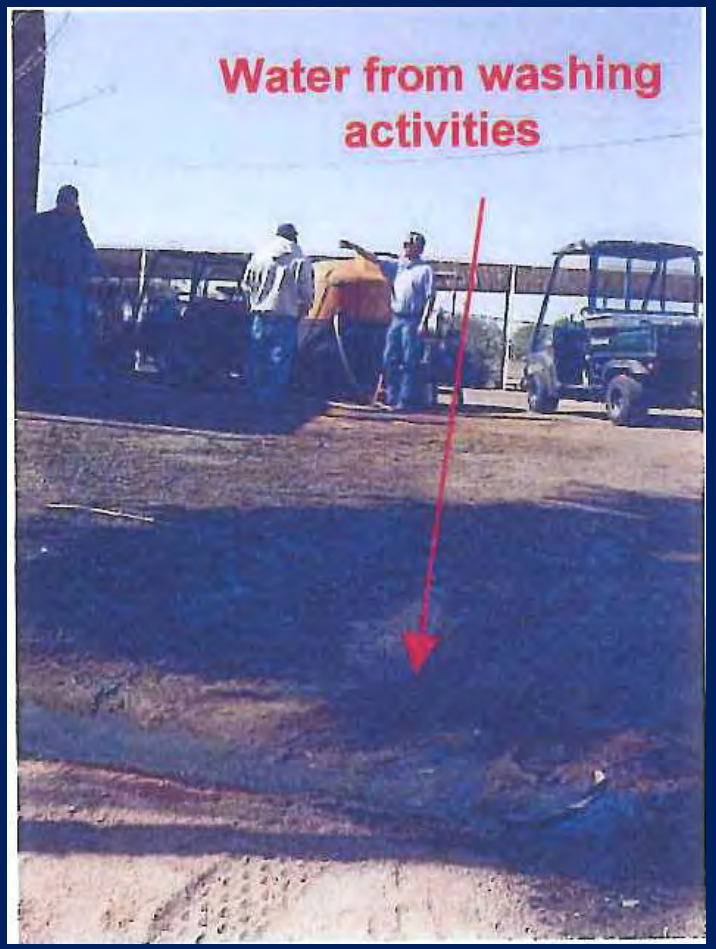
*Inspections*

*Removal of Old Equipment*

*Usable Spill Kits*

*Vehicle / Equipment O&M*

# Washing Activities

# Washing Activities



**BMPs**

*Drainage to Sanitary Sewer*

*Dedicated Washing Area*

*Signage*

*Use of Non-Water Alternatives*

*Eliminate Run-off*

*Training*

# Material Storage

# Material Storage





**BMPs**

*Use of Containment Berms*

*Routine Sweeping*

*Signage*

*Immediate Cleanup of Spills*

*Dedicated Storage Bins*

*Training*

# Housekeeping


# Housekeeping



BMPs

*Dedicated and Covered Storage*

*Remove Waste Products and Old Equipment*

*Sweeping* *Immediate Spill Clean-up*

*Routine Facility Inspections* *Training*

*Proper Chemical Storage* *Routine Facility Cleaning*

# Conclusion

- Work toward deficiency prevention
- Preparation
- Recognize resource needs (time, financial, and staffing)
- Internal (and external) dialogue and support required
- Work with ADEQ
  - Audit and subsequent correspondence with ADEQ provide value to Tempe's program
  - Corrective action focus vs. enforcement


Questions?
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