

GLEND^ALE

**PART II
NPDES STORMWATER PERMIT
APPLICATION**

Prepared for:

City of Glendale
Engineering Division
5850 West Glendale Avenue
Glendale, Arizona

Prepared by:

Camp, Dresser & McKee Inc.
2633 East Indian School Road, Suite 370
Phoenix, Arizona

October 1998



Michael Alan Fleury

List of Tables and Map

<i>Section 1.0</i>	Legal Authority [40 CFR 122.26 (d) (2) (i)]	1-1
	1.1 Authority to Control Stormwater Discharges Associated with Industrial Activity	1-1
	1.2 Authority to Prohibit Illicit Discharge	1-3
	1.3 Authority to Control Improper Disposal	1-5
	1.4 Authority to Enter Into Interagency Agreements	1-8
	1.5 Authority to Require Compliance	1-8
	1.6 Authority to Determine Compliance	1-9
<i>Section 2.0</i>	Source Identification [40 CFR 122.26 (d) (2) (ii)]	2-1
	2.1 Location of Outfalls	2-1
	2.2 Inventory of Industrial Facilities that Discharge to the MS4	2-3
	2.3 Location of Landfills and Treatment, Storage, and Disposal (TSD) Facilities	2-3
<i>Section 3.0</i>	Characterization Data [40 CFR 122.26 (d) (2) (iii) (A) (1)]	3-1
	3.1 Quantitative Data From Representative Outfalls	3-1
	3.1.1 Wet Weather Monitoring Program (Performed During Part 2 NPDES Stormwater Permit Application Preparation)	3-1
	3.1.2 Rainfall Characteristics	3-4
	3.1.3 Quantitative Data	3-5
	3.2 Annual Pollutant Loads/Event Mean Concentrations Estimates	3-7
	3.3 Seasonal Loads/Additional EMC Estimates Schedule	3-11
	3.4 Proposed Monitoring Program (Performed During NPDES Stormwater Permit Term)	3-11
	3.4.1 Monitoring Program Goals	3-11
	3.4.2 Completion of Part 2 Permit Application Monitoring	3-12
	3.4.3 Additional Discharge Characterization	3-13
	3.4.3.1 Monitoring Locations	3-13
	3.4.3.2 Sampling Frequency	3-13
	3.4.3.3 Sample Parameters	3-13
	3.4.4 Illicit Discharge/Connection Monitoring	3-14
	3.4.4.1 Sampling Locations	3-14
	3.4.4.2 Sample Frequency	3-14
	3.4.4.3 Sample Parameters	3-14

	3.4.5	Priority Industry Discharge Monitoring	3-15
	3.5	Sampling Methods	3-15
	3.5.1	Wet Weather Samples for Monitoring Discharge Characterization	3-15
	3.5.2	Illicit Discharge/Dry Weather Sampling	3-15
<i>Section 4.0</i>		Proposed Management Program [40 CFR 122.26 (d) (2) (iv)]	4-1
	4.1	Proposed Management Program Commercial and Residential [40 CFR 122.26 (d) (2) (iv) (A)]	4-2
	4.1.1	Stormwater Facility Maintenance	4-3
	4.1.1.1	Street Inlets	4-4
	4.1.1.2	Drainage Channel Maintenance	4-4
	4.1.1.3 and 4.1.1.4	City-Owned Detention/Retention Basins - Inlets and Outlets	4-4
	4.1.1.5 and 4.1.1.6	City-Owned Detention/Retention Basins Sediment Removal	4-5
	4.1.1.7 and 4.1.1.8	City-Owned Detention/Retention Basins Dry Well Maintenance/Replacement	4-5
	4.1.1.9	Privately-Owned Detention/Retention Basins Inspection and Sediment Removal	4-5
	4.1.1.10	Recordkeeping	4-5
	4.1.1.11	Organizational Impacts	4-5
	4.1.2	Development/Redevelopment Planning	4-8
	4.1.2.1	Compliance with the General Plan and Various City Codes	4-9
	4.1.2.2	Storm Drainage Policy/Control Measures	4-10
	4.1.2.3	Development Permitting and Plan Review	4-10
	4.1.2.4	Organizational Impacts	4-11
	4.1.3	Roadway Operation and Maintenance	4-13
	4.1.3.1	Street Sweeping	4-14
	4.1.3.2	Road Maintenance	4-14
	4.1.3.3	Road Construction	4-14
	4.1.3.4	Runoff From Roads and Highways	4-14
	4.1.3.5	Field Operations Center (FOC)	4-15
	4.1.3.6	De-icing Activities	4-15
	4.1.3.7	Organizational Impacts	4-15
	4.1.4	Existing/Proposed Flood Management Facility Assessments ..	4-17
	4.1.4.1	Flood Control Facilities	4-18

4.1.4.2	Flood Control Facilities Assessment	4-18
4.1.4.3	Organizational Impacts	4-18
4.1.5	Municipal Waste Handling Facilities	4-20
4.1.5.1	Municipal Waste Handling Facilities	4-21
4.1.5.2	Recordkeeping	4-21
4.1.5.3	Organizational Impacts	4-21
4.1.6	Pesticide, Herbicide and Fertilizer Application	4-22
4.1.6.1	Municipal Use of Herbicides, Pesticides, and Fertilizers	4-23
4.1.6.2	Programs to Reduce Herbicide, Pesticide, and Fertilizer Use	4-23
4.1.6.3	Public Education	4-24
4.1.6.4	Organizational Impacts	4-24
4.2	Proposed Management Program Illicit Discharges/Improper Disposal [40 CFR 122.26 (d) (2) (iv) (B)].	4-26
4.2.1	Inspections and Enforcement	4-27
4.2.1.1	Ordinance Enforcement	4-28
4.2.1.2	Inspection for Illicit Discharges	4-28
4.2.1.3	Recordkeeping	4-28
4.2.1.4	Organizational Impacts	4-28
4.2.2	Field Screening	4-30
4.2.2.1	Dry Weather Field Screening Procedures	4-31
4.2.2.2	Locations to be Dry Weather Field Screened	4-31
4.2.2.3	Recordkeeping	4-31
4.2.2.4	Organizational Impacts	4-32
4.2.3	Storm Sewer Investigation Approach & Sanitary Seepage	4-34
4.2.3.1	Illicit Discharge Investigation Protocol	4-35
4.2.3.2	Sanitary Sewer System Evaluation Study	4-36
4.2.3.3	Current Procedures to Limit Sanitary Seepage	4-36
4.2.3.4	Recordkeeping	4-37
4.2.3.5	Organizational Impacts	4-37
4.2.4	Spill Prevention/Containment	4-39
4.2.4.1	Responsibility	4-40
4.2.4.2	Containment Controls	4-40
4.2.4.3	Training	4-41
4.2.4.4	Prevention	4-41

4.2.4.5	Recordkeeping	4-41
4.2.4.6	Organizational Impacts	4-41
4.2.5	Public Reporting & Used Oil/Toxic Materials	4-43
4.2.5.1	Public Education and Awareness Program for Illicit Discharges/Improper Disposal	4-44
4.2.5.2	City Facility Operations to Limit Illicit Discharges	4-45
4.2.5.3	Management and Disposal of Used Oil/Toxic Materials Generated by Businesses	4-45
4.2.5.4	Recordkeeping	4-46
4.2.5.5	Organizational Impacts	4-46
4.2.6	Used Oil/Toxic Materials	4-48
4.2.7	Sanitary Sewer Seepage	4-50
4.3	Proposed Management Program Industrial [40 CFR 122.26 (d) (2) (iv) (C)].	4-53
4.3.1	Inspections/Control Measures & Monitoring Program	4-54
4.3.1.1	Refinement of Industrial Facilities List	4-55
4.3.1.2	Prioritization of Industrial Facilities List	4-55
4.3.1.3	Education of Priority Industrial Facilities	4-56
4.3.1.4	Inspections	4-56
4.3.1.5	Monitoring and Reporting	4-57
4.3.1.6	Organizational Impacts	4-57
4.4	Proposed Management Program Construction Sites [40 CFR 122.26 (d) (2) (iv) (D)].	4-59
4.4.1	Site Planning	4-60
4.4.1.1	Revise Development Plan Review Procedures	4-61
4.4.1.2	Require Permit(s) for Construction Activities	4-61
4.4.1.3	Organizational Impacts	4-61
4.4.2	BMP Requirements	4-63
4.4.2.1	Modify City Grading and Drainage Requirements	4-64
4.4.2.2	Organizational Impacts	4-64
4.4.3	Inspection and Enforcement	4-66
4.4.3.1	Inspection and Enforcement	4-67
4.4.3.2	Recordkeeping	4-67
4.4.3.3	Organizational Impacts	4-67

	4.4.4	Education and Training	4-69
	4.4.4.1	Education and Training for City Employees	4-70
	4.4.4.2	Education and Training for Construction Industry	4-70
	4.4.4.3	Organizational Impacts	4-71
<i>Section 5.0</i>		Assessment of Controls [40 CFR 122.26 (d) (2) (v)]	5-1
	5.1	Estimated Reduction of Pollutants	5-1
	5.1.1	Effectiveness of Existing Best Management Practices (BMPs) ..	5-1
	5.1.2	Projected Effectiveness of Proposed Management Program ...	5-1
	5.1.2.1	Structural Controls	5-2
	5.1.2.2	Nonstructural Controls	5-2
	5.2	Assessment of Groundwater Impacts	5-5
<i>Section 6.0</i>		Fiscal Analysis [40 CFR 122.26 (d) (2) (vi)]	6-1
	6.1	Introduction	6-1
	6.2	Program Organization and Cost Summary	6-1
	6.3	Funding Sources	6-2
Attachment A		Example Brochures	4-52
<i>Appendix A</i>		Intergovernmental Agreement Between the City of Glendale and the FCDMC	
<i>Appendix B</i>		FCDMC Stormwater Sampling Management Plan	
<i>Appendix C</i>		Stormwater Wet Weather Monitoring Site Descriptions	
<i>Appendix D</i>		City of Glendale Spill Response Procedures	

List of Tables and Map

Table

2-1	Location of Additional City of Glendale Major Storm Sewer Outfalls/Discharge Points Not Included in City's Part 1 NPDES Permit Application	2-2
2-2	City of Glendale Major Storm Sewer Outfalls/Discharge Points	2-2
2-3	City of Glendale Industrial Facility Inventory	2-4
2-4	Sources Reviewed in the Identification of Industrial Discharges to the MS4	2-8
3-1	City of Glendale Wet Weather Monitoring Sites	3-2
3-2	City of Glendale Mean Wet Season Storm Event Characteristics	3-5
3-3	City of Glendale Part 2 Application Storm Event Data	3-5
3-4	Wet Weather Monitoring Analytical Results	3-6
3-5	Event Mean Concentrations Used for City of Glendale Total Annual Pollutant Loading Estimate	3-8
3-6	City of Glendale Annual Pollutant Load Model Inputs	3-9
3-7	Retention Basin Percent Removal Rates	3-10
3-8	City of Glendale Estimated Total Annual Pollutant Loading	3-10
3-9	Part 2 Permit Application Wet Weather Monitoring to be Performed During First Year of Permit	3-12
3-10	Permit Term Additional Discharge Characterization Parameters	3-13
3-11	Typical Test Kit Range and Accuracy Information	3-14
4-1	Commercial and Residential Management Program Schedule Stormwater Facility Maintenance	4-6
4-2	Commercial and Residential Management Program Schedule Development/Redevelopment Planning	4-12
4-3	Commercial and Residential Management Program Schedule Roadway Operation and Maintenance	4-16

4-4	Commercial and Residential Management Program Schedule Existing/ Proposed Flood Management Facility Assessments	4-19
4-5	Commercial and Residential Management Program Schedule Pesticide, Herbicide and Fertilizer Application	4-25
4-6	Illicit Discharges/Improper Disposal Management Program Schedule Inspections and Enforcement	4-29
4-7	Illicit Discharges/Improper Management Program Schedule Field Screening	4-33
4-8	Illicit Discharges/Improper Disposal Management Program Schedule Storm Sewer Investigation Approach and Sanitary Sewer Seepage	4-38
4-9	Illicit Discharges/Improper Disposal Management Program Schedule Spill Prevention/ Containment	4-42
4-10	Illicit Discharges/Improper Disposal Management Program Schedule Public Reporting and Used Oil/Toxic Materials	4-47
4-11	Industrial Management Program Schedule Inspection/Control and Monitoring Program	4-58
4-12	Construction Management Program Schedule Site Planning	4-62
4-13	Construction Management Program Schedule BMP Requirements	4-65
4-14	Construction Management Program Schedule Inspection and Enforcement	4-68
4-15	Construction Management Program Schedule Education and Training	4-72
5-1	Assessment of BMP Effectiveness Preliminary Screening	5-3
6-1	NPDES Program Estimated Annual Costs in Addition to Existing Program Costs	6-3
Map 2-1	Source Identification Information	2-9

1

Section One

SECTION 1.0
LEGAL AUTHORITY [40 CFR 122.26 (d) (2) (i)]

A demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to:

This section of the application demonstrates that the City of Glendale (City) currently possesses the six minimum legal authorities defined in 40 CFR 122.26 (d) (2) (i). In addition, the City possesses adequate legal authority to implement additional statutes, ordinances, or contracts needed to adequately implement and enforce the stormwater management program that will be required under the City's National Pollutant Discharge Elimination System (NPDES) stormwater permit. Consequently, the City will not seek additional legal authorities prior to the issuance of the NPDES stormwater permit. As the requirements of the City's stormwater management program emerge, the City will consider whether any additional statutes, ordinances, or contracts are needed to effectively control stormwater and illicit discharges. Please note that the following discussion was presented in the City's Part 1 NPDES stormwater permit application. The U.S. Environmental Protection Agency (EPA) Region 9 concluded that this portion of the City's submittal met the Part 2 NPDES stormwater permit application requirements.

1.1 Authority to Control Stormwater Discharges Associated with Industrial Activity

- (A) *Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by stormwater discharges associated with industrial activity and the quality of stormwater discharged from sites of industrial activity;*

Glendale's Water, Sewer and Sewage Disposal code addresses the City's authorities to control pollution from industrial and commercial facilities, authorities that apply to stormwater as well as sanitary sewer discharges:

Sec. 33. Water, Sewers and Sewage Disposal

Sec. 33-240. Right of Entry for Inspection

- "(a) Any authorized employee of the public work department shall, upon presentation of his credentials, have free access at all reasonable hours to any commercial or industrial premises connected to the city sewer system for the purpose of making an inspection of the premises to determine the nature and quantity of wastes discharged to the city sewer system."

Sec. 33-256. Protection Required

"Each permittee under this article shall provide protection from accidental discharge of prohibited materials or other wastes regulated by this article."

Sec. 33-257. Notice to City

"For countermeasures to be taken by the city to minimize damage to the sanitary sewer system and/or degradation of the receiving waters, a permittee under this article shall notify the city immediately upon accidentally discharging wastes in violation of this article."

Sec. 33-259. Labels for Potential Accidental Discharge Points

"Any possible connection or entry point for a hazardous and/or prohibited substance to the permittee's plumbing or drainage system shall be appropriately labeled to warn operating personnel against discharge of such substances in violation of this article."

A second industrial activity under the NPDES stormwater program is construction. The City's grading and drainage requirements give the City authority to regulate construction and runoff from new development in a manner that controls stormwater pollution:

Chapter 18.5. Grading and Drainage

Sec. 18.5-5. Permits

- "(a) All grading and drainage permit requirements, limitations, conditions and fees shall be in accordance with the current edition of the city's "Design Guidelines for Site Development and Infrastructure Construction," which has been adopted by the city and is on file in the office of the city clerk. Grading plans and permits are required in all cases to include the stockpiling of earth materials for future operations and the temporary storage of earth materials for operations at other locations. The purpose of requiring plans and permits for these storage operations is to protect the general public welfare."
- "(b) When grading operations or other construction disturbs or affects an area of over five (5) acres, a national pollutant discharge elimination system (NPDES) permit may be required by the federal EPA in addition to permits required by the city."

Sec. 18.5-9. Design Standards for Drainage

- "(a) Existing drainage facilities. No person shall alter any natural drainage course or existing drainage facility in such a way as to damage or endanger by flooding, erosion, nuisance water or any other means, any public or private property or improvements. This includes altering surface sheet flow by the erection of fences, berms, curbs, or any other excavation, fill or structure, if such alteration will increase flow in any existing drainage course or facility without specific approval of the city engineer."
- "(c) Erosion prevention. Adequate provision shall be made to prevent precipitation, surface waters or wind from damaging the face of an excavation or fill. In order to retain a natural appearance, landscaping should be used for erosion protection of finished slopes wherever possible."
- "(e) Nuisance water. The creation of nuisance water should be avoided whenever possible and shall be addressed in a manner which will mitigate or minimize any negative impact(s)."

Sec. 18.5-10 Onsite Retention

"Onsite retention of stormwater shall be required for all developments unless the site is served by a storm sewer, channel or natural drainageway having an adequate outlet capacity ..."

"... the city's master stormwater management plan is based on the requirement that development is designed to retain or detain stormwater onsite from a one hundred-year, two-hour storm."

"In addition, all retention areas shall be designed to insure that the 'post-development' flow from the site will not exceed the flow that would have occurred had no development taken place."

Sec. 18.5-13. Inspection

"(c) If at any stage of the work the city inspector determines by inspection that further grading as authorized will endanger any property or result in the deposition of debris on any public way or interfere with any existing drainage course, the city may require, as a condition to allowing the work to be completed, that safety precautions be taken to avoid said damage."

1.2 Authority to Prohibit Illicit Discharge

(B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer;

Three sections of Glendale's existing code contain prohibitions of illicit discharges:

Chapter 33. Water, Sewers and Sewage Disposal

Sec. 33-219. Treatment of Polluted Wastes Required

"It shall be unlawful to discharge to any natural outlet within the city, or in any area under the jurisdiction of the city, any sewage, industrial wastes, or other polluted water, except where suitable treatment has been provided in accordance with the provisions of this article."

Chapter 19. Landscaping

Sec. 19-45. Irrigation Standards

"All irrigation systems and landscaped areas shall be designed, constructed, and maintained so as to promote water conservation and prevent water overflow or seepage into the street, sidewalk, or parking areas."

Chapter 30. Streets and Sidewalks

Sec. 30-4. Discharge of Water into Streets Prohibited

"It shall be unlawful for any person to permit or cause the escape or flow of domestic water or flood irrigation water from private property, public places and flood irrigation systems in or upon any street, sidewalk or alley in such quantity as to create flooding, to impede vehicular or pedestrian traffic, to create a hazardous condition to such traffic, to create a condition which constitutes a threat to the public health or safety, or to cause damage to the public streets, sidewalks or alleys of the City of Glendale."

In addition, several sections of the Uniform Codes, incorporated by reference into Glendale's code, serve to prohibit certain types of illicit discharges:

Uniform Building Code

- Sec. 902. Construction, Height and Allowable Area.
- (c) Spill Control.
- (d) Drainage.

These two passages support the provisions in the Uniform Fire Code regarding buildings which house hazardous materials, and discuss details such as liquid-tight raised sills, drainage systems, and containment systems which keep leakage away from, among other things, storm drains.

Uniform Plumbing Code

- Sec. 304. Damage to Drainage System or Public Sewer.
- Sec. 1102. Damage to Public Sewer or Private Sewage Disposal System.

Both of these passages prevent rainwater from being deposited into or directly connected to the drainage or sewer system.

- Sec. 612. Chemical Wastes.

Chemical wastes may not be discharged into the ground or local sewer.

- Sec. 710. Minimum Requirements for Auto Wash Rack.

All floors for cleaning autos and machine parts must be adequately protected against storm or surface water.

Uniform Fire Code

- Article 79. Flammable and Combustible Liquids
 - Sec. 79.113. Release and Discharge of Flammable and Combustible Liquids and Petroleum Waste Products.
 - Sec. 79.115. Spill Control, Drainage Control and Secondary Containment.
 - Sec. 79.907(a). Control and Connection to Sewer.
 - Sec. 79.1103(a). Discharge upon a Street or Water Channel.
 - Sec. 79.1103(b). Discharge and Combustible Materials on Ground.

All of these sections regulate flammable or combustible liquids, or liquids containing crude petroleum. They can not be discharged into streets, storm drains and other waterways, or on the ground.

- Article 80. Hazardous Materials
 - Sec. 80.104. Release of Hazardous Materials.
 - Sec. 80.105. Unauthorized Discharges.
 - Sec. 80.301(1). Spill Control, Drainage Control and Secondary Containment.

These sections, new in the 1988 edition, begin by stating that hazardous materials shall not be released into storm drains and other waterways, on the ground or in the air. They then set up guidelines for notification and cleanup, and detail building design consideration to aid in spill control and drainage such as liquid-tight raised sill, and drainage and containment systems which will keep leakage away from, among other things, storm drains.

1.3 Authority to Control Improper Disposal

- (C) *Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than stormwater;*

Numerous sections of Glendale's code address spills, dumping, or disposal of materials that may, if not controlled, enter the City's drainage system:

Chapter 6. Animals

Sec. 6-5.1. Animal Noise; Sanitation Requirements

- "(b) The maintaining or keeping of any animal regulated by the provisions of this chapter shall be allowed only so long as such animals do not cause, create, or contribute to or become a health nuisance due to noise, the presence of flies, mosquitoes, insects, vermin, rodent harborage, odors, dust, ponded water, accumulation of manure, garbage, refuse or other obnoxious or putrescible material or for any other like reason. Manure and droppings shall be removed from pens, kennels, stables, yards, and other enclosures at least twice weekly and shall be removed from the premises at least twice each week."

Chapter 17. Floodplain Management

Article III. Provisions for Flood Hazard Reduction

Sec. 17-41. Anchoring

- "(a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure."

Sec. 17-43. Elevation and Floodproofing

- "(a) New construction and substantial improvement of any structure shall have the lowest floor, including basement, elevated to or above the regulatory flood elevation."
- "(c) Nonresidential construction shall either be elevated..., or together with attendant utility and sanitary facilities:
- (1) Be floodproofed so that below the regulatory flood level the structure is watertight with walls substantially impermeable to the passage of water;
 - (2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy."

Sec. 17-45. Standards for Utilities

- "(a) All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters."
- "(b) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding."

"(c) Waste disposal systems shall not be installed wholly or partially in a floodway."

Chapter 18. Garbage and Trash

Sec. 18-9. Unauthorized Accumulation or Disposal; Violators Liable for Cost of Removal.

"(a) No owner, tenant, lessee or other occupier of property shall allow garbage, trash, refuse or other wastes to accumulate or exist on his property unless the same is kept in covered bins or other proper containers for collection which are approved by all applicable health codes and ordinances of the city, county, state and federal government."

"(b) No person shall discard or otherwise dispose of any garbage, trash, refuse, or other wastes, upon any street, sidewalk, alley, right-of-way or other city property or any private property, except in proper containers for collection or under express approval of the administrator."

Sec. 18-11. Refuse Containment in Transit

"No person shall collect, transport or receive any refuse or any other wastes within or upon any public or private streets in the city, or anywhere in the city, except in leakproof containers or vehicles so constructed that no refuse or any other wastes can leak or sift through, fall out, or be blown from such container or vehicle. Any person collecting or transporting any refuse or any other wastes shall immediately pick up all refuse or wastes which drops, spills, leaks, or is blown from the collecting or transporting container or vehicle, and shall otherwise clean the place onto which any such refuse or wastes was so dropped, spilled, blown or leaked."

Sec. 18-115. Vehicle Requirements

"(b) Vehicles shall be maintained and operated in a clean and neat manner so as to prevent refuse from spilling, leaking and blowing from the vehicle."

"(d) Any open-top roll-off container must have a cover which prevents refuse or contents from spilling or flowing onto the roadway."

Sec. 18-152. Storage

"No person shall store hazardous or medical waste within or upon any property or place within the city unless such storage complies with the Federal Resource Conservation and Recovery Act, Arizona Revised Statutes title 36, chapter 28, section 36-2821 et seq., and applicable statutes and rules and regulations promulgated by the department of health services or Maricopa County."

Chapter 25. Nuisances

Sec. 25.2. Specific Acts, Omissions, Conditions, and Places

"No person shall erect, maintain, use, place, deposit, cause, allow, leave or permit to be or remain in or upon any private lot, building, structure or premises, or in or upon any public right-of-way, street, avenue, alley, park, parkway or other public or private place, any condition, thing or act, to the prejudice, danger or annoyance of others, including but not limited to, the following:

- (a) Throwing, depositing, dumping or discharging into or about any ditch within the city anything injurious to the public health or offensive to the senses.
- (b) No owner, lessee, tenant or other person who keeps or controls any animal shall cause, allow or permit any manure or liquid discharge of such animal to accumulate on private property or to be unloaded, left or dumped in or upon any ditch, street, alley, sidewalk, place, vacant lot or public property within the city.
- (e) Storage of bottles, glass, cans, pieces of scrap metal, metal articles, paper or other abandoned material or items in unsheltered areas of private property, unless the same is kept in covered bins or metal receptacles approved by the county health officer or this Code or any other ordinances of the city.
- (g) No person shall place, deposit or leave in or upon any city right-of-way, street, alley, park or other city building or property any bottles, glass, cans, graffiti, handbills, posters, pieces of scrap metal, metal articles, paper or other abandoned material or items, except in proper containers for collection."

Sec. 25-27. Refuse Placement

"Any person who shall place any waste materials, trash, weeds, or other accumulation of filth or debris upon any public or private property not owned or under the control of such person, other than placement of refuse for collection in accordance with the city's sanitation regulations, shall be guilty of a misdemeanor."

Sec. 25-47. Unsheltered Storage Prohibited

"(a) The unsheltered storage of an abandoned vehicle for a period of fifteen (15) days or more on any private property within the corporate limits of this city is hereby declared to be a nuisance and dangerous to the public safety."

Sec. 26-1. Handbills, etc.

"(a) No person shall throw, place or scatter or in any manner deposit upon any of the streets, alleys, sidewalks or public grounds of the city any handbill, placard, poster, dodger or any advertising matter of a similar nature."

Chapter 30. Streets and Sidewalks

Sec. 30-116. Removal of Debris

"Materials consisting of earth, rubbish or debris produced by excavations, constructions or other projects shall not be stored either upon sidewalks, roadways or streets and shall be removed as quickly as produced."

Sec. 30-117. Chemical Substances Stored on Streets

"No person shall mix, make, place, pile or store any mortar, concrete plaster, lime, or any similar substance or mixture upon any surface of any paved street in such a manner that the same will be deposited upon the surface of any street, alley, sidewalk or parkway."

Chapter 33. Water, Sewers and Sewage Disposal

Sec. 33-218. Unsanitary disposal of wastes

"It shall be unlawful for any person to deposit, or permit to be deposited, in an unsanitary manner, upon public or private property within the city, or in any area under the jurisdiction of the city, any human or animal excrement or other objectionable waste."

1.4 Authority to Enter Into Interagency Agreements

(D) Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system;

Sec. 3 of Glendale's Charter, "Powers of City," allows the City:

"... to enter into contracts, cooperative and otherwise, with the government of the United States, the State of Arizona, Maricopa County, or any other municipal corporation of this state for the construction, maintenance and operation of roads, highways, parks, sewers, waterworks, public utilities, and buildings (when used for public purposes), all deemed for the best interest of the city."

1.5 Authority to Require Compliance

(E) Require compliance with conditions in ordinances, permits, contracts or orders; and

Sec. 7 of Glendale's Charter states:

"The violation of any provision of this charter, or any ordinance of the city, shall be deemed a misdemeanor, and may be prosecuted by the authorities of the city in the name of the state of Arizona, or may be redressed by civil action, at the option of the council."

Sec. 1-7 (a) of the City Code expands on the charter, declaring:

"Whenever in this Code or in any ordinance of the city any act is prohibited or is made or declared to be unlawful or an offense or a misdemeanor, or whenever in such Code or ordinance the doing of any act is required or the failure to do any act is declared to be unlawful, where no specific penalty is provided therefore, the violation of any such provision of this Code or any ordinance shall be a Class 1 misdemeanor under state law. Each day any violation of any provision of this Code or of any ordinance shall continue shall constitute a separate offense."

Sec. 13-22 (e) describes how enforcement actions may be taken by the City:

"Any city official or employee with responsibility to enforce or administer the particular area of the City Charter, city code or ordinance for which the enforcement action is brought, any peace officer, and the city attorney, may file an enforcement action on a civil code infraction and may serve the person or persons listed in the complaint by certified mail or by hand-delivery."

Sec. 13-24 states that violations of City codes are:

"... subject to a civil sanction of not less than twenty dollars (\$20.00) nor more than three hundred dollars (\$300.00) and, in addition to any monetary civil sanction, the court shall order the

defendant to abate the civil code infraction, unless it has been abated by the date of the hearing and that a civil sanction shall run with the land."

Violations of Code Chapter 18 Garbage and Trash carry an additional requirement under Sec. 18-9:

"The city may remedy the violation itself or request the violator to remedy the violation within one (1) hour after actual receipt of city's request to remedy the violation."

1.6 Authority to Determine Compliance

- (F) *Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.*

The City has specific authorities in addition to the City's general authorities under the "police powers" to take reasonable measures to ensure that the City's ordinances are observed:

Chapter 18. Garbage and Trash

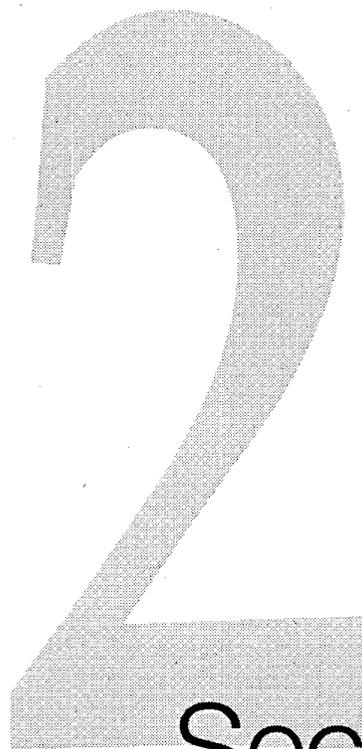
Sec. 18-38. Inspection of Containers; Notice of Violation

Provisions shall be made for regular inspection by the city to secure compliance with this chapter with reference to containment of refuse and maintenance of containers.

Chapter 18.5. Grading and Drainage

Sec. 18.5-13. Inspection

- (a) All grading and drainage operations shall be subject to inspection by the city.

A large, stylized number 2 with a halftone texture, positioned in the center-right of the page.

Section
Two

SECTION 2.0

SOURCE IDENTIFICATION [40 CFR 122.26 (d) (2) (ii)]

The location of any major outfall that discharges to waters of the United States that was not reported under paragraph (d)(1)(iii)(B)(1) of this section. Provide an inventory, organized by watershed of the name and address, and a description (such as SIC codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, stormwater associated with industrial activity;

2.1 Location of Outfalls

Comments received by EPA Region 9 on the City's Part 1 NPDES stormwater permit application requested clarification regarding the location of outfalls to the Grand Canal in the southern part of the City and to the Aqua Fria and New River in the western part of the City.

The area of the City between the Arizona Canal and Grand Canal generally slopes toward the Grand Canal but has no formalized drainage system. In general, stormwater in this area either:

- Ponds in/along roadways and/or roadside ditches until the water evaporates or infiltrates into the soil;
- Drains into retention basins with no outlet, where the water evaporates or infiltrates;
- Enters the Salt River Project's (SRP) Grand Canal through minor outfalls from the City's MS4 (e.g., a small pipe, ditch, curb cut at the end of a street); or
- Enters the SRP's irrigation water distribution system where varying hydrostatic gradients within this system may periodically allow stormwater to backflow into the Grand Canal.

The City is not aware of any major outfalls (as defined under 40 CFR 122.26) in the western part of the City that discharge stormwater to the Aqua Fria. (Note that the City is not required to locate minor outfalls in the Part 1 and Part 2 NPDES stormwater permit applications.)

The City of Glendale located a new major outfall on the New River that was not identified during the Part I application. In addition, two other outfalls discharging to Skunk Creek have been constructed since submitting the Part 1 application. These three new major outfalls are listed in Table 2-1. A complete list of all major storm sewer outfalls within the City of Glendale that includes these additions is found in Table 2-2 and on Map 2-1 located in the map pocket at the end of this section.

Table 2-1
Location of Additional City of Glendale Major Storm Sewer Outfalls/Discharge Points Not Included in City's
Part 1 NPDES Permit Application

Outfall ID	Diameter	Location	Discharges to
NEWR2	54 in RCP	Glen Harbor Boulevard and New River adjacent to Kay Bee Toys Distribution Center and Conair, Inc.	New River
SKCK8	36 in RCP	North of Skunk Creek and approximately 75 feet of 67th Avenue	Skunk Creek
SKCK9	36 in RCP	South of Skunk Creek and approximately 75 feet west of 67th Avenue	Skunk Creek

Table 2-2
City of Glendale Major Storm Sewer Outfalls/Discharge Points

Outfall ID	Diameter	Location	Discharges To
SKCK1	Grassy Swale	Between Beardsley Road and Union Hills Drive at approximately 55th Avenue	Skunk Creek
SKCK2	11 ft x 11 ft RCBC	55th Avenue and Skunk Creek	Skunk Creek
SKCK3	(2) 36 in RCPs	Union Hills and 71st Avenue	Skunk Creek
SKCK4	42 in RCP	Grovers and 71st Avenue	Skunk Creek
SKCK5	36 in RCP	Campo Bellow and 70th Avenue	Skunk Creek
SKCK6	72 in RCP	75th Avenue and Skunk Creek	Skunk Creek
SKCK7	96 in RCP	79th Avenue behind Peoria Sports Complex	Skunk Creek
SKCK8	36 in RCP	North of Skunk Creek and approximately 75 feet west of 67th Avenue	Skunk Creek
SKCK9	36 in RCP	South of Skunk Creek and approximately 75 feet west of 67th Avenue	Skunk Creek
ACDC1	90 ft spillway	ACDC at approximately Surrey Avenue	ACDC
ACDC2	86 ft spillway	ACDC at approximately Pershing Avenue	ACDC
ACDC3	36 in RCP	ACDC at approximately 59th Avenue	ACDC
ACDC4	36 in RCP	ACDC at approximately Willow Avenue	ACDC
ACDC5	36 in RCP	ACDC at approximately Eugie Avenue	ACDC
ACDC6	96 in RCP	Southeast of Thunderbird Road Bridge	ACDC
ACDC7	48 in RCP	Immediately northwest of Thunderbird Road Bridge	ACDC
ACDC8	100 ft spillway	ACDC at approximately Crocus Drive and Hearn	ACDC

Outfall ID	Diameter	Location	Discharges To
ACDC9	60 ft spillway	ACDC at approximately Acoma Road	ACDC
ACDC10	60 ft spillway	ACDC at approximately Acoma Road	ACDC
ACDC11	42 in RCP	ACDC at approximately 63rd Avenue	ACDC
ACDC12	14 ft spillway	ACDC at approximately 64th Avenue	ACDC
ACDC13	20 ft spillway	ACDC at approximately Montego Lane	ACDC
ACDC14	96 in RCP	67th Avenue and Greenway Road	ACDC
ACDC15	Spillway	ACDC at Greenway Road	ACDC
ACDC16	Spillway	ACDC at 71st Avenue	ACDC
ACDC17	Spillway	ACDC at approximately Patricia Ann Lane	ACDC
ACDC18	Spillway	ACDC at approximately Paradise Lane	ACDC
NEWR1	4 ft x 8 ft culvert to spillway	75th Avenue and Deer Valley Drive	New River
NEWR2	54 in RCP	Glen Harbor Boulevard and the New River adjacent to Kay Bee Toys Distribution Center and Conair, Inc.	New River

2.2 Inventory of Industrial Facilities that Discharge to the MS4

The industrial facility inventory list presented in Table 2-3 contains the names of those industries within the City of Glendale that may discharge to the City's MS4. Included in this list are NPDES permit holders (as requested by the EPA in comments regarding the City's Part 1 permit application) as well as municipal landfills, SARA Title III - Section 313 reporting industries, Significant Industrial Users (SIUs) that discharge to the sanitary sewer, and industrial facilities that may discharge to the MS4. Table 2-3 also lists the name of the watershed within which the industrial facility is located. Sources used in the development of this list are identified in Table 2-4.

2.3 Location of Landfills and Treatment, Storage, and Disposal (TSD) Facilities

In comments received regarding the City's Part 1 permit application, EPA requested clarification as to whether any RCRA Subtitle C TSD facilities exist within the City of Glendale. Research by the City has indicated that there are no RCRA Subtitle C TSD facilities for municipal wastes in the City, the only types of TSD facilities that are required to be included in the Part 1 permit application. However, the Luke Waste Annex is a TSD for industrial waste located on Luke Air Force Base at 7011 El Mirage. This facility is located on federal property and is subject to the NPDES permit for stormwater discharges from industrial activities.

**Table 2-3
City of Glendale Industrial Facility Inventory**

Business Name	Address	Telephone Number	SIC Code	SIC Code Description	Source	Watershed
A-Advance	5150 West Camelback		4226	Special Warehousing Not Elsewhere Classified	STW-NOI	Grand Canal
A & G Construction Inc.	5322 West Missouri Avenue	(602) 435-1177	1751	Carpentering	B&STL	Grand Canal
ABZ Equipment Inc., dba ABZ Rentals	5714 North 51th Avenue	(602) 931-0740	7394	Equipment Rental and Leasing	B&STL	Grand Canal
ACR Service Inc.	7838 North 68th Avenue	(602) 931-4669	5074	Plumbing & Heating-Air Conditioning	B&STL	Grand Canal
Action Aviation Ltd.	6801 North Glen Harbor Boulevard, Suite 100	(602) 979-0097	7394	Equipment Rental and Leasing	B&STL	New River
Aggregate Products Co. Inc.	5420 West Bethany Home Road	(602) 435-8271	3272	Concrete Products, Except Block & Brick, N.E.C.	B&STL, STW-NOI	Grand Canal
AMC 4x4 Salvage	6741 West Belmont Avenue	(602) 937-5899	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
American Builders & Contractors Sup	6137 North 55th Avenue	(602) 934-7320	5211	Lumber and Other Building Materials	B&STL	Grand Canal
Amerigas Propane LP	5140 West Bethany Home Road	(602) 937-9227	5982	Fuel and Ice Dealers, Not Elsewhere	B&STL	Grand Canal
Arrowhead Ranch Water	8180 West Union		TW, 4952	Treatment Works, Sewerage Systems	STW-NOI	Grand Canal
Associated Fence of Glendale Inc.	7630 North 67th Avenue	(602) 247-5896	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Associated Fence Specialists	7630 North 67th Avenue		1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Atko Building Materials	8132 North 67th Avenue		5211	Lumber and Other Building Materials	B&STL	Aqua Fria
Auto-Paradise	7639 North 67th Avenue		5015	Motor Vehicle Parts, Used	STW-NOI	Grand Canal
Avanti Industries Inc.	7138 North 110 Avenue	(602) 872-0560	5211	Lumber and Other Building Materials	B&STL	Grand Canal
Az Axle Products	5323 West Montebello Avenue	(602) 939-9963	5561	Recreation & Utility Trailer Dealer	B&STL	Grand Canal
B & M Bumpers-Hitches Inc.	4645 West Missouri Avenue	(602) 939-8240	7692	Steel Fabrication	B&STL	Grand Canal
Bedrock Stone Co. Inc.	7540 North 67th Avenue	(602) 939-7596	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Bergman Transport Inc.	5701 West Maryland Avenue	(602) 931-2200	4214	Local Trucking & Storage	B&STL	Grand Canal
Blo-Feed Natural Products, Inc.	7667 North 69th Avenue	(602) 930-7510	2875	Fertilizers, Mixing Only	B&STL	Grand Canal
Brown Evans Distributing Co.	5726 West Market Street	(602) 931-3641	5171	Petroleum & Petroleum Product Wholesalers	B&STL, STW-NOI	Grand Canal
Brownies Auto Parts Inc.	4418 Northwest Grand Avenue		5015	Motor Vehicle Parts, Used	STW-NOI	Grand Canal
Callaway Murphy Produce Co. Ltd.	5445 West Missouri Avenue	(602) 258-2180	5431	Fruit Stores and Vegetable Markets	B&STL	Grand Canal
Cans Recycling	5032 West Colter		5093	Scrap and Waste Materials	STW-NOI	Grand Canal
Carlson Design and Fabrication Inc.	6742 North 57th Avenue	(602) 915-2455	3499	Fabricated Metal Products, N.E.C.	B&STL	Grand Canal
Christian Brothers Plumbing Co. Inc.	6827 West Belmont Avenue	(602) 939-9421	1711	Plumbing, Heating, Air Conditioning	B&STL	Grand Canal
Condor Metals Inc.	5330 West Lamar Road	(602) 931-8483	3449	Miscellaneous Structural Metal Work	B&STL	Grand Canal
Coplin Mfg., Inc..	6022 West 56th Avenue				SARA	Grand Canal
Custom Fabricating Services	6015 North 57th Drive	(602) 931-4204	1761	Roofing and Sheet Metal Work	B&STL	Grand Canal
D & B Sheet Metal & A/C Inc.	6040 North 56th Avenue	(602) 937-4289	1711	Plumbing, Heating, Air Conditioning	B&STL	Grand Canal
D & M Iron Works Inc.	7229 North 62th Avenue	(602) 931-3651	3325	Steel Foundaries, N.E.C.	B&STL	Grand Canal
Direct Line Express, Inc.	5701 West Maryland		4210	Trucking and Courier Services	STW-NOI	Grand Canal
Door Company of America Inc, The	5348 West Luke Avenue	(602) 934-5235	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Dry Dock Marine Inc.	5324 West Luke Avenue	(602) 842-0898	3732	Boat Building & Repairing	B&STL	Grand Canal

**Table 2-3
City of Glendale Industrial Facility Inventory**

Business Name	Address	Telephone Number	SIC Code	SIC Code Description	Source	Watershed
Emco Glendale	6962 Northwest Grand Avenue		5093	Scrap and Waste Materials	STW-NOI	Grand Canal
Empire Roofing and Waterproofing	5725 North 55th Avenue	(602) 780-9858	1761	Roofing and Sheet Metal Work	B&STL	Grand Canal
Essco Electric Wholesale	6710 West Belmont Avenue	(602) 931-9237	5211	Lumber and Other Building Materials	B&STL	Grand Canal
Essex Group Inc.	6050 North 55th Avenue	(602) 939-6571	3315	Steel Wiredrawing & Steel Nails and Spikes	B&STL, SARA	Grand Canal
Excel Specialty Products Inc.	5861 North 55th Avenue, Suite 1A	(602) 995-1858	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
F.G. Mabante Masonry, Inc.	5742 West Maryland Avenue	(602) 931-7130	1741	Masonry and Other Stonework	B&STL	Grand Canal
Fleetwood Homes of Arizona, Inc., #21	6112 North 56th Avenue				SARA	Grand Canal
Federal Compress & Warehouse Co. Inc.	5851 North 51 Avenue	(602) 524-4038	6519	Real Property Lessors, N.E.C	B&STL	Grand Canal
Fortune Plastics of Arizona	5160 West Missouri Avenue	(602) 842-2236	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Gaylord Container Corp.	4932 West Colter Street	(708) 405-5500	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Gilbert Engineering Co. Inc.	5310 West Camelback Road		5065, 3451	Electronic Parts, Equipment, CB Rad	B&STL, SARA, STW-NOI	Grand Canal
Glendale Aviation L.L.C.	6841 North Glen Harbor Boulevard	(602) 872-1368	3721	Aircraft	B&STL	New River
Glendale Iron & Metal Inc.	6210 North 55th Avenue	(602) 931-3701	6512	Nonresidential Building Operators	B&STL	Grand Canal
Glendale Municipal	11480 West Glendale		LF	Landfill	STW-NOI	Grand Canal
Glendale Municipal	6801 North Glen Harbor		4581	Airports, Flying Fields, Airport Terminal Services	STW-NOI	Grand Canal
Glendale Municipal	6801 North Glen Harbor		4522	Air Transportation, Nonscheduled	STW-NOI	Grand Canal
Glendale Roofing & Material Co. Inc.	6130 West Myrtle Avenue	(602) 937-2540	1761	Roofing and Sheet Metal Work	B&STL	Grand Canal
Glendale Steel Supply	5743 West Bethany Home Road	(602) 937-5290	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Glendale Truss Ind.	6840 West Frier Drive	(602) 934-9144	1751	Carpentering	B&STL	Grand Canal
Glendale Welding Co.	6725 North 57th Drive		7692	Steel Fabrication	B&STL	Grand Canal
Hector Refrig & Heat Inc.	5624 North 54th Avenue	(602) 269-7060	1711	Plumbing, Heating, Air Conditioning	B&STL	Grand Canal
Honeywell, Inc.	5353 West Bell Road				SARA	Grand Canal
Honeywell, Inc.	19019 North 59th Avenue				SARA	Grand Canal
In-Terminal Services Corporation	5281 West Tom Murray Avenue	(602) 382-5855	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
J & J Auto Salvage & Used Cars	6424 West Orangewood Avenue	(602) 931-7181	5521	Used Car Dealers	B&STL	Grand Canal
J B Hunt Transport Inc.	5151 West Tom Murray Avenue	(602) 915-3317	4712	Freight Forwarding	B&STL	Grand Canal
J E Kreger Plumbing Inc.	5632 North 54th Avenue	(602) 842-4200	1711	Plumbing, Heating, Air Conditioning	B&STL	Grand Canal
JMC Mechanical Inc.	6616 West State Avenue	(602) 934-3206	1711	Plumbing, Heating, Air Conditioning	B&STL	Grand Canal
Joe Conway Trucking Co.	6509 West Orangewood Avenue	(602) 937-1684	4712	Freight Forwarding	B&STL	Grand Canal
KBK Mechanical Inc.	7603 North 73rd Drive		1711	Plumbing, Heating, Air Conditioning	B&STL	Grand Canal
Knipp Brothers Inc.	6840 West Frier Drive	(602) 931-3717	1751	Carpentering	B&STL	Grand Canal
L & M Building Materials, Inc.	6638 North 58th Drive	(602) 934-7219	5211	Lumber and Other Building Materials	B&STL	Grand Canal
Laidlaw Transit Inc.	7710 North 68th Avenue	(602) 842-9606	4121	Taxicabs	B&STL	Grand Canal
Lee Fabricating Inc.	6803 West Belmont Avenue	(602) 931-8156	3499	Fabricated Metal Products, N.E.C.	B&STL	Grand Canal

**Table 2-3
City of Glendale Industrial Facility Inventory**

Business Name	Address	Telephone Number	SIC Code	SIC Code Description	Source	Watershed
Lory Ventures	5119 West Bethany Home Road 5830-40 North 51st Avenue		6512	Nonresidential Building Operators	B&STL	Grand Canal
Metal Management Arizona, Inc.	6962 Northwest Grand Avenue	(602) 915-0311	5093	Scrap & Waste Materials	B&STL	Grand Canal
Metric Roofing Inc.	5200 West Bethany Home Road	(602) 242-5254	1761	Roofing and Sheet Metal Work	B&STL	Grand Canal
Mountain States Contracting	6813 West Frier Drive	(602) 842-0743	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Mungarro's Pool Service	6527 West State Avenue	(602) 931-2403	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Navajo Western Asphalt Co.	7110 West Northern Avenue	(505) 7483-311	1442	Construction Sand and Gravel	B&STL	Grand Canal
Pacific Cement and Concrete Inc.	5732 West Market Street	(602) 915-1813	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Parker Hannifin Corp.	7777 North Glen Harbor Boulevard				SARA	Grand Canal
Pearce Distributing Co.	5032 West Colter Street	(602) 939-9416	5181	Beer and Ale	B&STL	Grand Canal
Pendergast Concrete Inc.	6615 West State Avenue	(602) 937-6905	1771	Concrete Work	B&STL	Grand Canal
Peoria Fiberlass Inc.	6962 Northwest Grand Avenue	(602) 939-8704	5211	Lumber and Other Building Materials	B&STL	Grand Canal
Prado & Sons Pool Plastering Inc.	5732 West Market Street	(602) 930-7430	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Presto Casting Company	5440 West Missouri Avenue	(602) 939-9441	3361, 3365	Aluminum Foundries	B&STL, SARA, STW-NOI	Grand Canal
Pritchett Metal Products	4524 Northwest Grand Avenue	(602) 934-0695	1711	Plumbing, Heating, Air Conditioning	B&STL	Grand Canal
RDS Electric Inc.	6618 North 58th Drive		1731	Electrical Work	B&STL	Grand Canal
Red Rock Curb Inc.	5316 West Missouri Avenue	(602) 256-0956	1771	Concrete Work	B&STL	Grand Canal
Richard's Used Pickup	6851 Belmont Avenue		5015	Motor Vehicle Parts, Used	STW-NOI	Grand Canal
Robertson Trucking Landscape Materials	5732 West Maryland Avenue	(602) 934-5785	1440	Sand and Gravel	B&STL	Grand Canal
Roofing Supply of Arizona Inc.	5307 West Missouri Avenue	(602) 253-3662	1761	Roofing and Sheet Metal Work	B&STL	Grand Canal
Royce Walls of Phoenix Inc.	5612 West Bethany Home Road	(602) 256-0006	1741	Masonry and Other Stonework	B&STL	Grand Canal
Ryder Truck Rental	6666 West Bell Road	(602) 878-0771	7513	Truck Rental and Leasing	B&STL	ACDC
Salvage Depot Inc., The	6516 Northwest Grand Avenue	(602) 931-4115	5211	Lumber and Other Building Materials	B&STL	Grand Canal
Schuck Compont System Inc.	8205 North 67th Avenue		5211	Lumber and Other Building Materials	B&STL	Grand Canal
SCP Construction	5340 West Luke Avenue	(602) 931-9131	1771	Concrete Work	B&STL	Grand Canal
Southwest Components Inc.	5404 West Montebello Avenue	(602) 934-1100	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Standard Roofing of Arizona Inc.	6610 West Orangewood Avenue	(602) 246-8661	1761	Roofing and Sheet Metal Work	B&STL	Grand Canal
STO Corp.	6504 West Northern Avenue	(602) 931-6548	5231	Paint, Glass, and Wallpaper Stores	B&STL	Grand Canal
Stone Container Corporation	6902 West Northern Avenue	(602) 264-4655	2653	Corrugated & Solid Boxes	B&STL, STW-NOI	Grand Canal
Sunbelt Wood Components	5139 West Tom Murray Avenue	(602) 937-5464	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Sunshine Redi-Mix Inc.	5725 North 55th Avenue		5211	Lumber and Other Building Materials	B&STL	Grand Canal
Sunward Materials	4515 El Mirage		1442	Construction Sand and Gravel	STW-NOI	Grand Canal
Sunwest Airline	6801 North Glen Harbor Blvd	(801) 399-1941	4500	Transportation by Air	B&STL	New River
Superior Roofing Inc.	6344 West Orangewood Avenue	(602) 866-1611	1761	Roofing and Sheet Metal Work	B&STL	Grand Canal

**Table 2-3
City of Glendale Industrial Facility Inventory**

Business Name	Address	Telephone Number	SIC Code	SIC Code Description	Source	Watershed
TDK Custom Construction Co.	7818 North 68th Avenue	(602) 435-5209	1742	Plastering, Drywall and Insulation	B&STL	Grand Canal
TLC Transportation Services LLC	5808 West Maryland Avenue	(602) 937-2227	4121	Taxicabs	B&STL	Grand Canal
Trac Modular Manufacturing Inc.	4440 West Tom Murray Avenue	(602) 930-7919	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Triange Wire & Cabe	6050 North 55th Avenue		3496	Misc. Fabricated Wire Products	STW-NOI	Grand Canal
Triple S Fence Company	5444 West Luke Avenue	(602) 931-4679	5211	Lumber and Other Building Materials	B&STL	Grand Canal
Triple R Trucking	7831 North 67th Avenue		4212	Local Trucking Without Storage	STW-NOI	Grand Canal
Trombley Elec Contrs Inc. dba TECI	6534 North 57th Avenue	(602) 939-2901	1731	Electrical Work	B&STL	Grand Canal
U.S. Air Force	56 CES/CEV				SARA	Grand Canal
U.S.P. S. - Arrowhead Station	19801 North 59th Avenue	(602) 572-0294	4311	United States Postal Service	B&STL	Skunk Creek
U.S.P. S. - Downtown Station	6537 North 55th Avenue	(602) 842-5863	4311	United States Postal Service	B&STL	Grand Canal
U-Haul	5024 West Glendale Avenue	(602) 238-9841	7394	Equipment Rental and Leasing	B&STL	Grand Canal
U-Haul	6001 North 67th Avenue	(602) 238-9851	7394	Equipment Rental and Leasing	B&STL	Grand Canal
Universal White Cement Co.	5732 West Market Street	(602) 915-1813	3272	Concrete Products, Except Block & Brick, N.E.C.	B&STL	Grand Canal
U.S. Prefab Inc	6525 West State Avenue	(602) 278-1800	1799	Special Trade Contractors, N.E.C	B&STL	Grand Canal
Van Waters & Rogers Inc.	4909 West Pasadena Avenue	(602) 934-0106	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Vickers/Harl Contracting Inc.	6312 West Oranewood Avenue	(602) 931-2336	1741	Masonry and Other Stonework	B&STL	Grand Canal
Western Packaging, Inc.	6051 North 56th Avenue	(602) 934-7271	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal
Western Stucco Products Co. Inc.	6101 North 53rd Drive	(602) 939-9455	6512	Nonresidential Building Operators	B&STL	Grand Canal
Zellerbach, A Mead Co.	4710 West Camelback Road	(602) 934-3431	5999	Miscellaneous Retail Stores, N.E.C	B&STL	Grand Canal

Abbreviations:

B&STL = Business and Sales Tax License Database

SARA = SARA Title III - Section 313 Industry from Toxics Release Inventory and EPA website

STW-NOI = Industry covered under NPDES stormwater regulations; list of NOIs obtained from ADEQ on August 12, 1998

Note:

This list contains SARA Title III - Section 313 industries, industries covered under EPA's NPDES General Stormwater Permit, and industries with SIC codes that are referenced in the stormwater regulations that the City of Glendale Engineering Department considers may contribute pollutant loading to the MS4.

This list does not currently contain SICs or other industries identified by the City of Glendale Pretreatment Group that may be contributing pollutants to the MS4.

Table 2-4
Sources Reviewed In the Identification of Industrial Dischargers to the MS4

Source	Information Provided
Arizona Department of Environmental Quality	Facilities within the City of Glendale that have filed a Notice of Intent (NOI) and are authorized to discharge to the MS4 by a General NPDES Stormwater Permit and list of Treatment, Storage, and Disposal facilities
City of Glendale's Municipal Database of Business and Sales Tax Licenses	A list of all industrial facilities and all other businesses within the City of Glendale
Exhibit 4-1: Industry Categories Cited in the Definition of Stormwater Associated with Industrial Activity, found in the EPA Guidance Manual for the Preparation of Part 2 of the NPDES Permit Application for Discharges from MS4	An inventory of each facility within the City of Glendale that may discharge to the MS4 stormwater associated with industrial activity
Field inspection of industries classified under SIC codes not addressed in any of the sources above	Verification of any other industrial activities where materials, machinery and/or products may introduce pollutants to stormwater
Toxic Release Inventory	SARA Title III - Section 313 Industries
City of Glendale Utilities Department, Water Quality	SIUs

City of Glendale, Arizona

NPDES Stormwater Part 2 Permit Application

Source Identification Information

Legend

Outfalls

- Municipal Storm Sewer System Major Outfall to a "waters in the U.S." (eg. NEWR1 represents outfall #1 on the New River)
- Other Monitoring Point
- ▲ Outfall from Glendale Municipal Airport to a "waters of the U.S."

Selected NPDES Stormwater Permitted Facilities

- Arrowhead Waste Water Treatment Facility
- Cholla Water Treatment Plant
- Glendale Municipal Airport
- Luke Air Force Base
- Glendale Municipal Landfill

Major Structural Controls

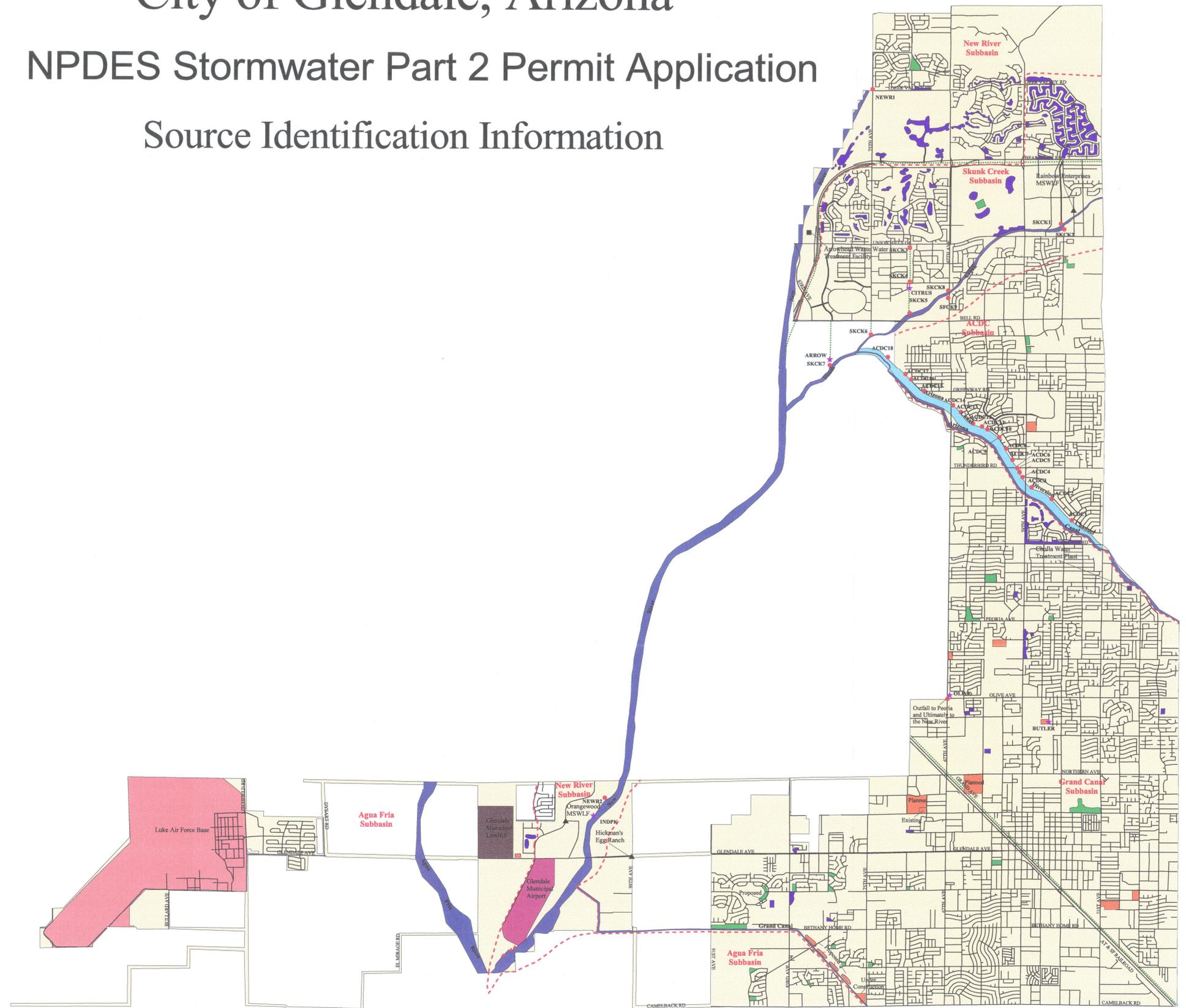
- City-Owned Retention Basin
- Privately Owned Retention Basin
- City-Owned Detention Basin

Monitoring Locations

- ★ Part 2 & Permit Term Wet Weather Sites

Other

- ▲ Closed Solid Waste Facilities
- Road
- Rail
- - - Sewer Subbasin Boundary
- Drainage Channel
- Overflow Channel
- Glendale City Limits



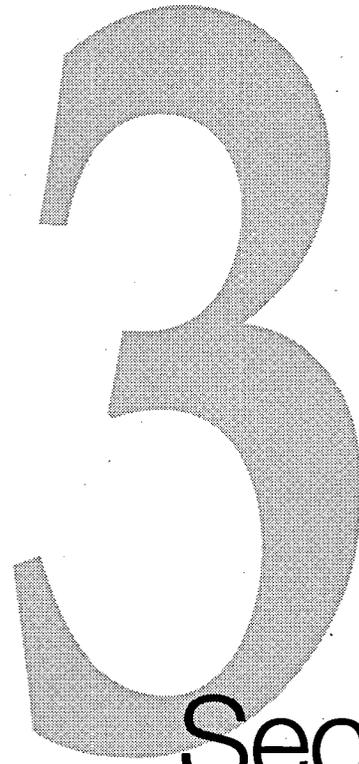
Map 2-1

August, 1998

Scale 1:36,000

3000 0 3000 6000 Feet

CDM Camp Dresser & McKee Inc.



Section
Three

SECTION 3.0

CHARACTERIZATION DATA [40 CFR 122.26(d) (2) (iii) (A) (1)]

When "quantitative data" for a pollutant are required under paragraph (d) (2) (iii) (A) (3) of this paragraph, the applicant must collect a sample of effluent in accordance with 40 CFR 122.21(g)(7) and analyze it for the pollutant in accordance with analytical methods approved under 40 CFR part 136. When no analytical method is approved the applicant may use any suitable method but must provide a description of the method. The applicant must provide information characterizing the quality and quantity of discharges covered in the permit application, including:

3.1 Quantitative Data From Representative Outfalls

(A) *Quantitative data from representative outfalls designated by the Director (based on information received in Part 1 of the NPDES stormwater permit application, the Director shall designate between five and ten outfalls or field screening points as representative of the commercial, residential and industrial land use activities of the drainage area contributing to the system or, where there are less than five outfalls covered in the application, the Director shall designate all outfalls) developed as follows:*

3.1.1 Wet Weather Monitoring Program (Performed During Part 2 NPDES Stormwater Permit Application Preparation)

(1) *For each outfall or field screening point designated under this subparagraph, samples shall be collected of stormwater discharges from three storm events occurring at least one month apart in accordance with the requirements at §122.21(g)(7) (the Director may allow exemptions to sampling three storm events when climatic conditions create good cause for such exemptions);*

Program Objectives

The main intent of the wet weather monitoring program conducted as part of the Part 2 NPDES stormwater permit application is to obtain discharge characterization data representative of the typical land uses found within the City of Glendale. The data derived from the wet weather monitoring program will be used by the City to estimate stormwater pollutant discharges from areas of similar land use type that are not monitored and to design a monitoring plan to be implemented during the permit term.

Sampling Location Criteria

Wet weather monitoring sites were selected based on three principal criteria:

- Representative drainage area (30 to 300 acres)
- Homogeneous land use (at least 90 percent of a single land use category)
- Adequate hydraulic characteristics to allow accurate flow monitoring

Several possible wet weather monitoring sites were identified based on the drainage area and homogeneous land use and located on 1-inch equals 1,200 feet scale aerial photographs. Each site was visited in the field to identify possible security, safety, access, or hydraulic problems. Stations were selected for monitoring stormwater discharges from the following land use categories representative of the predominant land uses in Glendale:

- Residential (three sites)
- Commercial (one site)
- Industrial (one site)

Land use data included in the Part 1 NPDES stormwater permit application showed that 44 percent of Glendale is composed of single family residential land use. Therefore, three of the five sites are devoted to monitoring residential runoff. The other two sites are dedicated to the other two predominant land uses - commercial and industrial.

Selected Stations

The five sites listed in Table 3-1 and shown in Map 2-1 (the latter being located in a map pocket at the end of Section 2.0 of this document) were chosen for wet weather monitoring in accordance with 40 CFR 122.26 (d) (2) (iii). The residential site located at 67th and Olive Avenues has already been established by a joint urban runoff monitoring program being conducted by the Flood Control District of Maricopa County (FCDMC) and the U.S. Geological Survey (USGS).

<i>Table 3-1 City of Glendale Wet Weather Monitoring Sites</i>			
<i>Major Land Use Type</i>	<i>Location</i>	<i>Description</i>	<i>ID</i>
Residential (older development)	Downstream of 4' x 1' box culvert at intersection of Orchid Lane and 56th Drive	This site drains residential land uses (estimated 100 percent) in an older part of the city.	BUTLER
Residential (newer development)	Outfall located at the corner of Grovers Avenue and the 71st Avenue drainage channel	This outfall (SKCK4) is shown on Map 1 of this application. The site drains a new residential area largely completed during the summer of 1997.	CITRUS
Residential (trailer park)	Northeast corner of 67th and Olive Avenues	This station is owned and operated by the USGS and is part of the FCDMC's existing monitoring program. It receives runoff from an adjacent residential trailer park.	OLIVE
Commercial (Arrowhead Towne Center)	Located between 75th and 83rd Avenues, adjacent to the Greenway Sports Complex in Peoria	This site monitors commercial runoff at an outlet to Skunk Creek that receives runoff from the Arrowhead Towne Center parking lots (located within the City of Glendale) via a drainage channel.	ARROW
Industrial (Industrial park)	Located in the Glen Harbor Industrial Park north of Glendale Avenue between Glen Harbor Boulevard and the New River.	This site monitors runoff at the inlet to a storm drain that receives runoff from the industrial park located east of the Glendale Municipal Landfill.	INDPK

Sampling Program Methods

In order to respond most effectively to the monitoring requirements of the EPA NPDES stormwater regulation, several cities within the Phoenix metropolitan area have entered into a joint agreement with FCDMC to obtain stormwater samples and provide the water quality related data required by the stormwater regulation. The City of Glendale has joined these cities in this regional effort through its own intergovernmental agreement with the FCDMC, a copy of which is found in Appendix A. The agreement states that the FCDMC will collect stormwater samples during the Part 2 NPDES stormwater permit application process and during the 5-year permit term at stations identified and established by the City in

Table 3-1. In addition, the FCDMC will provide hydrologic, runoff, water quality, and any other monitoring site information that is necessary to meet the federal requirements as determined by the City of Glendale. The FCDMC will maintain the stations over the agreement period.

Sampling methods and field protocol to be followed by the FCDMC are outlined in the FCDMC document entitled, "Stormwater Sampling Management Plan" which is included in Appendix B. Sample collection and handling procedures will be performed in accordance with 40 CFR 122.21(g)(7) and analyzed for the required pollutants in accordance with analytical methods approved under 40 CFR part 136. Samples will be analyzed by Bolin Laboratories located in Phoenix.

Sampling Period and Frequency

EPA Region 9 approved the City's wet weather monitoring program in May 1998. The approved plan as stated in the May 18, 1998, letter from the EPA to the City included wet weather sampling of two storms during summer 1998, and a third storm event during the 1998-1999 winter season. Because station equipment procurement and station design are site specific, the late approval did not provide the City with adequate time to procure, establish the monitoring stations, and collect samples from summer storm events. As of October 19, 1998, all stormwater monitoring stations have been constructed and are operational. In addition, the City has entered into an intergovernmental agreement with the FCDMC to operate and maintain the stormwater monitoring stations.

The City was, however, able to obtain wet weather samples from the OLIVE station, the existing USGS station located in Glendale. These samples were collected in December of 1997 and February of 1998, and are therefore representative of winter runoff conditions. It should be noted that these samples were collected prior to formalizing the intergovernmental agreement between the City of Glendale and the FCDMC. The analyses performed by the FCDMC consequently did not include the organic toxic pollutants listed in Table II of Appendix D of 40 CFR Part 122, the complete list of toxic inorganic pollutants found in Table III of Appendix D of 40 CFR Part 122, or all of the required conventional pollutants/parameters listed in the regulation.

It is the City's intent to fulfill its remaining Part 2 application wet weather monitoring requirements during the first year of the City's permit term by conducting the following:

- Collect wet weather samples from two storm events at the OLIVE station and analyze for: the organic toxic pollutants listed in Table II of Appendix D of 40 CFR Part 122; total antimony, total thallium, cyanide, and total phenols from the list of toxic inorganic pollutants found in Table III of Appendix D of 40 CFR Part 122; and the conventional pollutants 5-day biochemical oxygen demand, fecal coliform and fecal streptococcus bacteria.
- Collect wet weather samples from one storm event at the OLIVE station and analyze for the full suite of required parameters. (This includes the toxic organic pollutants listed in Table II of Appendix D of 40 CFR Part 122, the toxic inorganic pollutants listed in Table III of Appendix D of 40 CFR Part 122, and the following conventional pollutants/parameters:

- Total Suspended Solids
- Total Dissolved Solids
- Chemical Oxygen Demand
- 5-Day Biochemical Oxygen Demand
- Oil and Grease
- Fecal Coliform
- Fecal Streptococcus

pH
Total Kjeldahl Nitrogen
Nitrate plus Nitrite
Total Phosphorus
Dissolved Phosphorus)

- Collect wet weather samples from three storm event at the other four monitoring stations listed in Table 3-1 (BUTLER, CITRUS, ARROW, and INDPK) and analyze for the full suite of required parameters as listed above.

Analytical results from these samples will be reported in the City's second annual report which will be submitted to the EPA as required during the second year of the permit term.

3.1.2 Rainfall Characteristics

- (2) *A narrative description shall be provided of the date and duration of the storm event(s) sampled, rainfall estimates of the storm event which generated the sampled discharge and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event;*

Historical Rainfall Characteristics

Precipitation data in the Glendale vicinity are collected at the Phoenix Weather Service Office (WSO) Airport station (Sky Harbor Airport) located approximately 10 to 15 miles to the southeast of the City. Analysis of the Sky Harbor Airport data available from the National Climatic Data Center (NCDC) for the period from 1948 to 1995 indicates that the average annual precipitation in the Glendale vicinity is equal to 7.75 inches. Average monthly precipitation at this station is equal to 0.65 inch. The dry season typically occurs during April, May, and June, with precipitation during the remaining months of the year equaling or exceeding the average monthly precipitation of 0.65 inch. Summer rainfall begins early in July and extends through November with the greatest amount of precipitation occurring in July, August, and September. During this period, moisture-bearing winds sweep across the area from the southeast from their source region in the Gulf of Mexico. Summer rains occur in the form of short duration thundershowers (the "monsoon" season) which are caused primarily by excessive heating of the ground and the lifting of moisture-laden air. Cyclonic frontal storms from the Pacific Ocean are the source of winter storms occurring from November through March.

Storm Event Sampling Criteria

Regulatory criteria governing the selection of storm events eligible for wet weather sampling require that a 72-hour dry period (defined as a time period with less than or equal to 0.10-inch measurable rainfall), must precede a storm sampling event within the prescribed drainage area. Secondly, each storm event sample must be obtained from a rainfall event that exceeded 0.10 inch of measurable precipitation from within the sampled drainage area.

In addition to meeting the required storm event criteria outlined above, NPDES guidelines recommend that applicants attempt to select storms, where feasible, such that the total rainfall amount and duration of sampled storm events are not more than 50 percent of the historical average values in the general vicinity of the drainage area. U.S. Department of Transportation's Synoptic Rainfall Analysis Program (*SYNO*P) was run to analyze representative rainfall amounts and durations based upon minimum inter-event times. These results were reviewed by the FCDMC who, as stated above, will collect stormwater samples for the City of Glendale. The FCDMC found that the City's mean seasonal storm event characteristics were very

similar to those used by the other cities in the Phoenix metropolitan area for NPDES stormwater sampling purposes. In order to simplify sample collection for the FCDMC, the City modified it's proposed storm event criteria to be consistent with that used by the other cities. This criteria is listed in Table 3-2.

Table 3-2 City of Glendale Mean Wet Season Storm Event Characteristics		
Storm Event	Volume (inches)	Duration (minutes)
Summer	0.20 - 0.80	132 - 390
Winter	0.20 - 0.70	312 - 936

Narrative Descriptions - Sampled Storm Events

Narrative descriptions of all of the rainfall events sampled for the City's discharge characterization purposes are presented in Table 3-3. As required by federal guidelines, each narrative description includes, at a minimum, a summary of the following information:

- Date(s) and duration of the rainfall event that was sampled for discharge characterization
- The amount of rainfall collected
- The official NWS total from Sky Harbor International Airport
- Inter-event time since the last rainfall event that exceeded 0.10 inch of precipitation

Table 3-3 City of Glendale Part 2 Application Storm Event Data					
Station ID: OLIVE			Major Land Use Type: Residential, Trailer Park		
Date	Duration (hours)	Total Precipitation (inches)	Average Precipitation (inches/hour)	NWS Precipitation at Sky Harbor Airport (inches)	Dry Days Before Precipitation Event (days)
December 22, 1997	9.4	0.50	0.05	0.35	14.0
February 4, 1998	7.0	0.56	0.08	0.28	24.0

3.1.3 Quantitative Data

- (3) For samples collected and described under paragraphs (d)(2)(iii)(A)(1) and (A)(2) of this section, quantitative data shall be provided for: the organic pollutants listed in Table II; the pollutants listed in Table III (toxic metals, cyanide, and total phenols) of Appendix D of 40 CFR part 122, and for the following pollutants:

Total suspended solids (TSS)
 Total dissolved solids (TDS)
 Chemical Oxygen Demand
 5-Day Biochemical Oxygen Demand
 Oil and grease
 Fecal coliform
 Fecal streptococcus
 pH
 Total Kjeldahl nitrogen
 Nitrate plus nitrite
 Dissolved phosphorus
 Total ammonia plus organic nitrogen
 Total phosphorus

The intent of the City of Glendale's stormwater discharge characterization program during the NPDES Part 2 application period was to capture three storm events from five wet weather monitoring sites, or a minimum of 15 storm event samples. As stated above, at the time of filing with EPA Region 9 of the Part 2 NPDES stormwater permit application, 2 storm events have been sampled at the OLIVE station which receives runoff from a drainage area developed primarily in residential land use. Laboratory analysis of the analytical parameters was performed by Bolin Laboratory. The results are summarized in Table 3-4.

Table 3-4 Wet Weather Monitoring Analytical Results		
Station: OLIVE	Predominant Land Use: Residential	
Parameter	Date	
	December 22, 1997	February 4, 1998
Chemical Oxygen Demand (mg/L)	65	45
Total Suspended Solids (mg/L)	20	54
Total Dissolved Solids (mg/L)	55	53
Total Phosphorus (mg/L)	0.190	0.250
Dissolved Phosphorus (mg/L)	0.120	0.150
Oil and Grease (mg/L)	5	3
pH (su)	7.5	5.6
Total Kjeldahl Nitrogen (mg/L)	1.8	1.6
Total Nitrogen (mg/L)	2.67	2.52
Arsenic, Total (ug/L)	2	<1
Beryllium, TREC (ug/L)	<10	<10
Cadmium, Total (ug/L)	<1	1
Chromium, TREC (ug/L)	3	4
Copper, TREC (ug/L)	10	12
Lead, TREC (ug/L)	8	11

<i>Table 3-4 Wet Weather Monitoring Analytical Results</i>		
<i>Station: OLIVE</i>	<i>Predominant Land Use: Residential</i>	
<i>Parameter</i>	<i>Date</i>	
	<i>December 22, 1997</i>	<i>February 4, 1998</i>
Mercury, TREC (ug/L)	<0.10	<0.10
Nickel, TREC (ug/L)	4	5
Selenium, total (ug/L)	<1	<1
Silver, TREC (ug/L)	<1	<1
Zinc, TREC (ug/L)	70	80

TREC = Total Recoverable

Analytical results from the samples to be collected during the first year of the permit term which will fulfill the remaining NPDES Part 2 permit application monitoring requirements will be submitted in the City's second annual report to the EPA.

3.2 Annual Pollutant Loads/Event Mean Concentration Estimates

(B) Estimates of the annual pollutant load of the cumulative discharges to waters of the United States from all identified municipal outfalls and the event mean concentration of the cumulative discharges to waters of the United States from all identified municipal outfalls during a storm event (as described under §122.2(c)(7)) for BOD₅, COD, TSS, dissolved solids, total nitrogen, total ammonia plus organic nitrogen, total phosphorus, dissolved phosphorus, cadmium, copper, lead, and zinc. Estimates shall be accompanied by a description of the procedures for estimating constituent loads and concentrations, including any modeling, data analysis, and calculation methods.

Average annual pollutant loads were initially estimated for the City of Glendale utilizing the Watershed Management Model (WMM), a non-proprietary model developed by CDM for the following 12 constituents:

- 5-Day Biochemical Oxygen Demand
- Chemical Oxygen Demand
- Total Suspended Solids
- Dissolved Solids
- Total Phosphorus
- Dissolved Phosphorus
- Total Nitrogen
- Total Ammonia plus Organic Nitrogen
- Total Cadmium
- Total Copper
- Total Lead
- Total Zinc

WMM calculates annual per-acre pollutant loadings discharged to receiving waters in a watershed based upon land use types, and their associated percent impervious and Event Mean Concentration (EMC) values. Specific capabilities of the model include the ability to:

- Calculate annual runoff pollution load based upon EMCs, land use, associated annual runoff coefficient, percent imperviousness, and annual rainfall for nutrients, heavy metals, oxygen demand and sediment
- Calculate annual weighted EMC values on a watershed/subbasin basis
- Calculate runoff pollutant load reduction due to partial or full scale implementation of site or regional best management practices (BMPs)
- Calculate reduction in runoff pollutant load due to uptake or removal in stream courses
- Calculate annual pollutant loads from stream baseflow

The model is based upon nonpoint pollution loading factors (expressed as lb/yr) that vary by land use and percent imperviousness associated with each land use. The pollution loading factor M_L is computed for land use L by the following equation:

$$M_L = EMC_L * R_L * K * A_L$$

Where: M_L = Loading factor for land use L (lb/yr)
 EMC_L = Event mean concentration of runoff from land use L (mg/L): EMC_L varies by land use and by pollutant
 R_L = Total average annual surface runoff from land use L
 K = 0.2266, a unit conversion constant
 A_L = Area of land use L (acres)

An average annual precipitation of 7.75 inches was used in the model. The pervious and impervious runoff coefficients used are 0.2 and 0.95, respectively. Other inputs to the model are summarized in Tables 3-5 and 3-6. Residential EMC data from the OLIVE station collected during the Part 2 application was used for all parameters except 5-day Biochemical Oxygen Demand, which was not available for the two storms monitored. EMC data from the Phoenix area, as obtained from the FCDMC's regional monitoring program between 1991 and 1993, were used for constituents and land uses where it was available. This included chemical oxygen demand, total suspended solids, lead, copper, and cadmium for industrial and commercial land uses. The National Urban Runoff Program (NURP) EMC data was used for other constituents and land uses where it existed, and data collected from the Denver metropolitan area during NPDES municipal stormwater permitting was used for the remaining constituents and land uses.

	<i>Residential</i>	<i>Light Industrial</i>	<i>Commercial</i>	<i>Undeveloped</i>
Oxygen Demand and Sediment				
- Biochemical Oxygen Demand (BOD ₅) mg/L	10.8	22.9	9.7	5.0
- Chemical Oxygen Demand (COD) mg/L	55	120	150	51
- Total Suspended Solids (TSS) mg/L	37	250	120	216
- Total Dissolved Solids (TDS) mg/L	54	82	100	293

Table 3-5 Event Mean Concentrations Used for City of Glendale Total Annual Pollutant Loading Estimate				
	<i>Residential</i>	<i>Light Industrial</i>	<i>Commercial</i>	<i>Undeveloped</i>
Nutrients				
- Total Phosphorus (TP) mg/L	0.22	0.42	0.24	0.23
- Dissolved Phosphorus (DP) mg/L	0.14	0.2	0.10	0.06
- Total Kjeldahl Nitrogen (TKN) mg/L	1.70	1.8	1.28	1.36
- Total Nitrogen (TN) mg/L	2.60	2.8	1.91	2.09
Heavy Metals				
- Total Lead (Pb) mg/L	0.010	0.038	0.012	0.05
- Total Copper (Cu) mg/L	0.011	0.043	0.02	0.04
- Total Zinc (Zn) mg/L	0.080	0.52	0.33	0.23
- Total Cadmium (Cd) mg/L	0.001	0.0008	0.0007	0.0003

Sources:

1. Residential EMCs for all parameters except BOD₅ are from the City of Glendale's OLIVE station collected during Part 2 permit application preparation.
2. COD, Pb, Cu, and Cd EMCs for land uses other than residential reflect data collected between 1991 and 1993 by the FCDMC and USGS.
3. EMCs for residential and undeveloped BOD₅, undeveloped Cu and Cd, and TDS for all land use categories except residential were developed by cities within the Denver metropolitan area as part of the NPDES Municipal Stormwater permitting process.
4. All other EMCs are mean values from the NURP study.

Table 3-6 City of Glendale Annual Pollutant Load Model Inputs		
	<i>Percent Impervious</i>	<i>Runoff Coefficients</i>
Residential	59.14	0.5862
Light Industrial	86.24	0.8275
Commercial	65	0.64
Undeveloped	3.621	0.078

Note: Impervious values and runoff coefficients are weighted averages of several land use categories that were collapsed into the four categories used in the WMM model.

Also included in the model is the provision to incorporate the reduction of annual loading attributable to structural BMPs. The predominant structural BMP within the City of Glendale is the retention basin. While retention and some detention basins are employed throughout the City primarily for the purpose of flood control, some water quality benefits are obtained. This is achieved by slowing and detaining flow and thus promoting settling out of sediments to which many stormwater pollutants are attached. Since 1986, all detention/retention basins have been required to have capacity sufficient to contain a volume of stormwater greater than or equal to the 100-year storm of 2-hour duration. Prior to 1986, the design guidelines were total retention of greater than or equal to the volume expected from a 10-year storm of 2-hour duration. Approximately 10,686 acres of residential and non-residential land uses (commercial, industrial, schools, churches, and public buildings) have been developed within the city between 1979 and 1995, all of which contain detention/retention basins with at least a 10-year 2-hour retention capacity. This represents approximately 30 percent of the City's total area. The pollutant load reduction realized from retention basins was modeled by assuming a 30 percent coverage for the City at percent removal rates listed in Table 3-7.

<i>Parameter</i>	<i>Percent Removal</i>
5-Day Biochemical Oxygen Demand	90
Chemical Oxygen Demand	90
Total Suspended Solids	90
Total Dissolved Solids	90
Total Phosphorus	90
Dissolved Phosphorus	90
Total Kjeldahl Nitrogen	90
Total Nitrogen	90
Total Lead	90
Total Copper	90
Total Zinc	90
Total Cadmium	90

Sources: Federal Highway Administration, "Pollutant Loadings and Impacts from Highway Stormwater Runoff, Volume III: Analytical Investigation and Research Report, "FHWA-RD-88-008, McLean, Virginia, April 1990.

EPA, "Chesapeake Bay: A Framework for Action," Chesapeake Bay Program, Annapolis, Maryland, September 1983a.

The model results are presented in Table 3-8. The low and high pollutant loads are computed from the mean EMC and coefficient of variation estimated for each pollutant and land use category based on a 5 and 95 percent probability of exceedance. These results indicate that the City's requirements for on-site retention/detention since 1986 has reduced the medium/mean annual sediment load discharged to the City's MS4 by 27 percent or by a total of 2,647,206 lbs/year. Refined estimates of both BMP coverage and load reduction will be made over the 5-year permit term.

	<i>Estimated Annual Pollutant Loads</i>						<i>Load Reduction From Retention Basins(%)</i>
	<i>Low</i>		<i>Medium</i>		<i>High</i>		
	<i>Load without BMPs (lb/yr)</i>	<i>Load with BMPs (lb/yr)</i>	<i>Load without BMPs (lb/yr)</i>	<i>Load with BMPs (lb/yr)</i>	<i>Load without BMPs (lb/yr)</i>	<i>Load with BMPs (lb/yr)</i>	
Biochemical Oxygen Demand	210,000	150,000	390,000	290,000	650,000	480,000	27
Chemical Oxygen Demand	1,100,000	800,000	2,500,000	1,900,000	4,900,000	3,600,000	27
Total Suspended Solids	970,000	710,000	3,700,000	2,700,000	9,200,000	6,700,000	27
Total Dissolved Solids	940,000	680,000	3,300,000	2,400,000	7,700,000	5,600,000	27
Total Phosphorus	2,460	1796	8,484	6,193	19,641	14,338	27

Table 3-8 City of Glendale Estimated Total Annual Pollutant Loading							
	Estimated Annual Pollutant Loads						Load Reduction From Retention Basins(%)
	Low		Medium		High		
	Load without BMPs (lb/yr)	Load with BMPs (lb/yr)	Load without BMPs (lb/yr)	Load with BMPs (lb/yr)	Load without BMPs (lb/yr)	Load with BMPs (lb/yr)	
Dissolved Phosphorus	1,549	1,131	4,345	3,172	9,177	6,699	27
Total Kjeldahl Nitrogen	19,249	14,052	52,084	38,021	110,000	79,424	27
Total Nitrogen	37,606	27,453	102,909	75,123	220,000	157,632	27
Total Lead	126	92	460	335	1,092	798	27
Total Copper	120	88	540	395	1,398	1,021	27
Total Zinc	1,053	769	5,986	4,370	16,840	12,293	27
Total Cadmium	5	4	25	18	65	48	27
Total Load	3,282,168	2,385,385	10,064,833	7,417,627	22,828,213	16,652,253	

3.3 Seasonal Loads/Additional EMC Estimates Schedule

(C) A proposed schedule to provide estimates for each major outfall identified in either paragraph (d)(2)(ii) or (d)(1)(iii)(B)(1) of this section of the seasonal pollutant load and of the event mean concentration of a representative storm for any constituent detected in any sample required under paragraph (d)(2)(iii)(A) of this section; and

As described in Section 3.4 below, the City of Glendale will continue to gather storm event sampling data during the 5-year permit term. Seasonal EMCs will be estimated at the end of the five-year permit term at which time the City will have captured approximately 2 storms per year from each of the five wet weather monitoring locations in addition to those sampled as part of the Part 2 application wet weather monitoring. The City will employ either the modeling techniques described in Section 3.2 that were used to estimate annual loading from the City prior to collection of wet weather data or, if available, the regression equations on regional stormwater quality currently being prepared for the greater Phoenix area by the FCDMC.

3.4 Proposed Monitoring Program (Performed During NPDES Stormwater Permit Term)

(D) A proposed monitoring program for representative data collection for the term of the permit that describes the location of outfalls or field screening points to be sampled (or the location of in-stream stations), why the location is representative, the frequency of sampling, parameters to be sampled, and a description of sampling equipment.

3.4.1 Monitoring Program Goals

This section presents a proposed monitoring program to be instituted during the 5-year permit term whose purpose is to provide data necessary to accomplish the following goals:

- Completion of Part 2 Permit Application Monitoring
Fulfill remaining Part 2 permit application wet weather monitoring requirements
- Additional Discharge Characterization
Augment the wet weather discharge characterization data collected as part of the Part 2 NPDES stormwater permit application preparation to further refine event mean concentration data from uniform representative land uses and consequently annual/seasonal pollutant load estimates.
- Monitor illicit discharges/connections
Perform follow-up dry weather inspections to verify Part 1 NPDES stormwater permit results.
- Monitor discharges from priority industries identified in Section 4.3 of this Part 2 NPDES stormwater permit application
Monitor industrial discharges to forewarn the City of any problem industries that could cause a violation of the City's stormwater permit.

3.4.2 Completion of Part 2 Permit Application Monitoring

The City will complete it's NPDES Part 2 permit application wet weather monitoring during the first year of the permit term. Analytical results from the samples to be collected during the first year of the permit term which will fulfill the NPDES Part 2 permit application monitoring requirements will be submitted in the City's second annual report to the EPA. A summary of the remaining monitoring required to fulfill the City's Part 2 permit application wet weather monitoring is presented in Table 3-9.

Station ID	Number of Storms	Parameters
BUTLER	3	A, B, C
CITRUS	3	A, B, C
OLIVE	1	A, B, C
	2	A, D
ARROW	3	A, B, C
INDPK	3	A, B, C

A = Organic toxic pollutants listed in Table II of Appendix D of 40 CFR Part 122

B = Toxic inorganic pollutants listed in Table III of Appendix D of 40 CFR Part 122

C = TSS, TDS, COD, BOD₅, oil and grease, fecal coliform, fecal streptococcus, pH, TKN, nitrate plus nitrite, total and dissolved phosphorus

D = BOD₅, oil and grease, fecal coliform and fecal streptococcus, total antimony, total thallium, cyanide, and total phenols

3.4.3 Additional Discharge Characterization

Additional wet weather monitoring will be performed by the City during the permit term to further refine event mean concentration and consequently pollutant load estimates that are required by the NPDES regulations. By capturing more storm events, a sample population will be developed that will more fully characterize different types of storm events and antecedent conditions that reach the City's MS4.

3.4.3.1 Monitoring Locations

During each year of the 5-year permit term, the City will collect samples at the five locations established during wet weather monitoring conducted during preparation of the Part 2 NPDES stormwater permit application (Table 3-1). A detailed description of each site is contained in Appendix C. Included in this description are site photographs, the drainage area of the monitoring site, and land uses within the drainage area being monitored.

3.4.3.2 Sampling Frequency

Samples will be collected from one winter and one summer storm event at each of the five wet weather monitoring locations for each year of the 5-year permit term.

3.4.3.3 Sample Parameters

The two annual samples from each of the monitoring locations will be analyzed for temperature, pH, and the 12 conventional pollutants for which seasonal pollutant load estimates are required. Also included will be any pollutants detected in the Part 2 NPDES permit application wet weather monitoring that is to be completed during the first year of the permit term. Sample parameters for additional wet weather characterization are presented in Table 3-10.

<i>Table 3-10 Permit Term Additional Discharge Characterization Parameters</i>	
<i>Parameter</i>	
<i>Biochemical Oxygen Demand</i>	
<i>Chemical Oxygen Demand</i>	
<i>Total Suspended Solids</i>	
<i>Total Dissolved Solids</i>	
<i>Total Phosphorus</i>	
<i>Dissolved Phosphorus</i>	
<i>Total Kjeldahl Nitrogen</i>	
<i>Total Nitrogen</i>	
<i>Total Lead</i>	
<i>Total Copper</i>	
<i>Total Zinc</i>	
<i>Total Cadmium</i>	

3.4.4 Illicit Discharge/Connection Monitoring

3.4.4.1 Sample Locations

All major outfalls within the City listed in Table 2-2 will be included in the illicit discharge/connection monitoring. Additional major outfalls that are constructed during the permit term will also be included in this part of the monitoring program. Outfalls will also be sampled in response to observations/reports of illicit discharges.

3.4.4.2 Sample Frequency

All major outfalls within the City will be revisited at least once over the five-year permit term. Field screening and/or sampling may also be performed based upon notification of illicit discharges from both the public and from City inspectors while performing pretreatment inspections. A 72-hour time period must have elapsed from the previously measurable (greater than 0.1 inch rainfall) storm event prior to sample collection.

3.4.4.3 Sample Parameters

As was done during the Part 1 permit application, dry weather/illicit discharge sampling will be performed for pH, temperature, total phenols, total copper, total chlorine, and detergents using a field test kit. Typical types and accuracy information for field test kits are shown in Table 3-11.

Parameter	Range	Incremental Accuracy	Type of Test
pH	0 - 14	0.1 pH	Ion-selective electrode
Total chlorine	0 - 3.5 mg/L	0.1 mg/L	N,N-diethyl-p-phenylenediamine
Total copper	0 - 5 mg/L	0.1 mg/L	Bicinchoninate hydrosulfite reduction
Phenol	0 - 5 mg/L	0.1 mg/L	4-aminoantipyrine
	0 - 1 mg/L	0.05 mg/L	4-aminoantipyrine
Detergents	0 - 1 mg/L	0.05 mg/L	Tolvidine blue-O

Details regarding sample collection and analysis, time elapsed since the last rainfall greater than 0.1 inches, site description, flow measurement and method used to estimate flow will be documented on the dry weather field inspection form. Visual observations, such as odor, color and clarity of discharge, and the structural and biological conditions of the site will also be noted.

Additional parameters may be selected for analysis at any outfall where dry weather flow is observed based on the inspectors observations of the site and knowledge of the activities upstream of the outfall. In this case, extra sample volume would be collected and returned to the City's laboratory where analysis would either be performed in-house or sent to a contract laboratory. Additional parameters and possibly follow-up analyses could include:

- All pollutants listed in Table III (Toxic metals, Cyanide, and Total Phenol) of Appendix D of 40 CFR Part 122
- All volatile organic analytes listed in Table II of Appendix D of 40 CFR Part 122

- All acid compounds listed in Table II of Appendix D of 40 CFR Part 122
- All base/neutral compounds listed in Table II of Appendix D of 40 CFR Part 122

3.4.5 Priority Industry Discharge Monitoring

The City will track priority industry discharges to the MS4 on a biannual basis beginning in the third year of the permit term by reviewing monitoring data collected by the industry as part of their NPDES General Stormwater permit. (Please see Section 4.3.1 of this document for description of industrial facilities management program.) The City's goal will be to review the data to evaluate the quality of discharges to the MS4. This information will help to forewarn the City of any problem industries that could cause a violation of the City's stormwater permit. This information will be kept by the City as part of its record keeping to monitor and document compliance with the City's permit.

3.5 Sampling Methods

3.5.1 Wet Weather Samples for Monitoring Discharge Characterization

All wet weather samples will be collected by FCDMC/USGS through use of automatic samplers. The sample collection, sample handling, and quality control procedures to be followed by the FCDMC/USGS are described in the FCDMC document entitled, "Stormwater Sampling Management Plan" that is reproduced here in Appendix B.

3.5.2 Illicit Discharge/Dry Weather Sampling

Samples of dry weather flow from the City's major outfalls will be collected from a point mid-depth in the flow, if possible, or wherever the flow is well mixed. During sample collection, bottom sediments will not be disturbed in order to avoid introduction of sediments into the sample volume. If a pouring beaker is used to collect the effluent prior to pouring it into the sample bottle, the beaker should be double rinsed with effluent. Care will be taken in selecting a beaker made of material which will not interfere with the analysis of the sample.

All handling of opened grab sample containers containing preservatives or reagents used in test kit analyses shall be conducted in an open, well-ventilated area. Material safety data sheets (MSDS) for all preservatives used to precharge sample containers will be provided to sampling personnel.

Safety goggles and new, clean disposable gloves shall be worn by all personnel while filling sample containers. Sample handling, field procedures, and quality assurance and control procedures used will be those outlined in the City of Glendale's Part 1 NPDES permit application.



4

Section
Four

SECTION 4.0
PROPOSED MANAGEMENT PROGRAM [40 CFR 122.26 (d) (2) (iv)]

A proposed management program covers the duration of the permit. It shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. Separate proposed programs may be submitted by each coapplicant. Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. Proposed programs will be considered by the Director when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Proposed management program shall describe priorities for implementing controls.

Planning Process

In preparing this proposed management program, meetings were held with senior city staff to develop an approach and focus for this plan. Public concerns that the City was aware of were expressed at these meetings. Interviews were held with staff of each major city department. Existing programs were described which, either directly or indirectly, control pollutants to the storm drain system.

Overall Program Activities

The following fact sheets describe the City of Glendale's stormwater management program. The fact sheets are organized in the order of the federal regulation. Generally, each fact sheet deals with a particular aspect of the management program and presents the proposed BMPs. The program fact sheets provide information on the specific regulation and program, who is responsible for the program, a description of each program element, and any additional staff/equipment needs.

SECTION 4.1
PROPOSED MANAGEMENT PROGRAM
COMMERCIAL AND RESIDENTIAL
[40 CFR 122.26(d) (2) (iv) (A)]

SECTION 4.1.1 - 40 CFR 122.26(d)(2)(iv)(A)(1)

(A) COMMERCIAL AND RESIDENTIAL

(1) STORMWATER FACILITY MAINTENANCE

4.1.1 Stormwater Facility Maintenance

(A) *A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:*

(1) *A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers;*

Proposed Program

4.1.1.1 Street Inlets

The Streets Department will continue to inspect and clean street inlets at a frequency of two times per year. Inlets will also be inspected during or immediately after a storm event to remove any debris that may obstruct flow to the MS4. The Streets Department will delegate to the Utilities Department to perform sediment and other debris removal from the street inlets utilizing its VACTOR vacuum trucks (the Streets Department does not have its own VACTOR truck). The sediment and other debris will be taken to Lions Park field operations parcel where the debris is deposited in a pit and allowed to dry. The dried debris is then hauled to the Glendale Municipal Landfill for disposal.

During the first year of the 5-year permit term, the Streets and Engineering Department will develop an inventory of all street inlets within the City. This inventory will include the identification of inlets especially prone to flooding during storm events. Based on the information contained in the inventory, the City will re-evaluate its street inlet inspection/cleaning program and modify it as needed to prevent pollutants from entering the MS4 through the street inlets and more efficiently allocate City resources to accomplish this goal.

4.1.1.2 Drainage Channel Maintenance

The Right-of-Way (ROW) Division within the Streets Department will continue to maintain drainage channels located within the City right-of-way easements and City property, as well as undeveloped properties owned by the City. Most right-of-ways within the City are landscaped using materials such as granite boulders, small rocks and gravel, trees, and shrubs. The channels will be inspected two times per year for erosion-related problems. Erosion control and sediment removal in these locations will be performed as needed. In addition, removal of litter and other debris will be done in coordination with these inspections. Where weed control using herbicides is necessary, care will be taken to apply the chemicals according to the manufacturer's prescribed rates and under appropriate weather conditions. Use of herbicides is discussed in more detail in Section 4.1.6.

4.1.1.3 and 4.1.1.4 City-Owned Detention/Retention Basins - Inlets and Outlets

Inlet and outlet structures within the City-owned detention/retention basins located in right-of-ways will continue to be checked on a quarterly basis and before a forecasted rain event by the Streets Department. Inlet and outlet structures within the City-owned detention/retention basins located in parks will continue to be checked on a quarterly basis and before a forecasted rain event by the Parks Department. In addition, the Parks Department will inspect the inlet and outlet structures and remove any floatables (such as paper and plastic products, leaves and grass clippings, glass and metal containers, and tires) or other obstructing materials while at these facilities performing weekly mowing operations.

4.1.1.5 and 4.1.1.6 City-Owned Detention/Retention Basins - Sediment Removal

Sediment from the City-owned detention/retention basins located in right-of-ways will be removed by the Streets Department on an as-needed basis. Sediment from the City-owned detention/retention basins located in parks will be removed by the Parks Department on an as-needed basis. The same procedure for sediment removal and disposal as described in Section 4.1.1.1 for street inlets, will be followed for sediment removal from the detention/retention basins.

4.1.1.7 and 4.1.1.8 City-Owned Detention/Retention Basins - Dry Well Maintenance/ Replacement

The City is required by the Maricopa County Health Department to release stormwater runoff contained in its detention/retention basins within 36 hours or provide vector control. This runoff is directed to dry well(s) or other outlet structures located adjacent to the basins. The City will replace drywells about once every 20 years and maintain existing drywells as needed.

4.1.1.9 Privately-Owned Detention/Retention Basins - Inspection and Sediment Removal

Privately-owned detention/retention basins will be required to have sediment removed periodically. The City will modify its existing grading and drainage ordinance to give the City the authority to require maintenance of privately-owned basins. These privately-owner detention/retention basins will not be inspected by the City on a regular basis but obvious violations will be brought to the attention of Code Enforcement.

4.1.1.10 Recordkeeping

The City will document and record all information related to inlet, channel and detention/retention basin inspections including cleaning, maintenance and debris and sediment removal.

4.1.1.11 Organizational Impacts

Operation and maintenance, including regular inspection, of existing inlets, drainage basins, drywells and drainage channels are covered under existing procedures and no additional impact is anticipated. However, additional funds will be budgeted for inspections conducted by the NPDES stormwater coordinator to evaluate the effectiveness of the management program. In addition, the inventory of inlets and drywells will require considerable manpower and additional equipment in the first year of the program to inventory all inlets and drywells. Subsequent years will require a minimal amount of time to keep information current.

Table 4-1 Commercial and Residential Management Program Schedule Stormwater Facility Maintenance								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.1.1.1 Street Inlets - Inspection and Cleaning - Maintenance - Develop and Update Street Inlet Inventory - Re-evaluate Inlet Inspection and Cleaning	2 times/yr and before storms As needed Develop once and update as needed Once	Streets Streets Engineering Streets	X X X 	X X X X	X X X 	X X X 	X X X 	Streets Superintendent Streets Superintendent Engineering GIS Coordinator Streets Superintendent
4.1.1.2 Drainage Channel Maintenance - Inspect non-turfed channels in ROWs	2 times/yr	Streets	X	X	X	X	X	Streets Superintendent
4.1.1.3 City-Owned Detention/Retention Basins - Inlets and Outlets within Parks - Inspection - Debris Removal	Quarterly and before storms Quarterly, before storms and weekly during summer mowing	Parks Parks	X X	X X	X X	X X	X X	Parks Maintenance Superintendent Parks Maintenance Superintendent
4.1.1.4 City-Owned Detention/Retention Basins - Inlets and Outlets within Right-of-Way - Inspection - Debris Removal	Quarterly and before storms Quarterly and before storms	Streets Streets	X X	X X	X X	X X	X X	Streets Superintendent Streets Superintendent
4.1.1.5 City-Owned Detention/Retention Basins - Sediment Removal within Parks	As needed	Parks	X	X	X	X	X	Parks Maintenance Superintendent
4.1.1.6 City-Owned Detention/Retention Basins - Sediment Removal within Right-of-Way	As needed	Streets	X	X	X	X	X	Streets Superintendent

Table 4-1 Commercial and Residential Management Program Schedule Stormwater Facility Maintenance								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.1.1.7 City-Owned Detention/Retention Basins - Drywells in Parks - Maintenance - Replacement - Develop and Update Inventory of Drywells	Annual or as needed Once every 20 years Develop once and update as needed	Parks Parks Engineering	X X X	X X X	X X X	X X X	X X X	Parks Maintenance Superintendent Parks Maintenance Superintendent Engineering GIS Coordinator
4.1.1.8 City-Owned Detention/Retention Basins - Drywells in Right-of-Ways - Maintenance - Replacement - Develop and Update Inventory of Drywells	Annual or as needed Once every 20 years Develop once and Update as needed	Streets Streets Engineering	X X X	X X X	X X X	X X X	X X X	Streets Superintendent Streets Superintendent Engineering GIS Coordinator
4.1.1.9 Privately-Owned Detention/Retention Basins - Inspection and Sediment Removal - Modify existing grading and drainage ordinance	Once during permit term	Engineering		X				Land Development Engineer
4.1.1.10 Recordkeeping	On-going	Streets and Parks	X	X	X	X	X	Streets and Park Maintenance Superintendents

SECTION 4.1.2 - 40 CFR 122.26(d) (2) (iv) (A) (2)

(A) COMMERCIAL AND RESIDENTIAL

(2) DEVELOPMENT/REDEVELOPMENT PLANNING

4.1.2 Development/Redevelopment Planning

- (A) *A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:*
- (2) *A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed. (Controls to reduce pollutants in discharges from municipal separate storm sewers containing construction site runoff are addressed in paragraph (d)(2)(iv)(d) of this section;*

Proposed Program

The City's Development Services Center, Economic Development Department, and Planning Department are responsible for development/redevelopment planning within the City. The existing programs within these departments adequately address stormwater quality issues as outlined in the stormwater regulations. Therefore, no additional actions are necessary on the part of the City to comply with the NPDES stormwater regulations. A summary of the programs and processes/procedures followed by these departments as they specifically relate to the management of urban stormwater runoff was presented in Section 5.1.1.2 of the City of Glendale's Part 1 NPDES permit application. The key elements of these programs are outlined in the following paragraphs.

4.1.2.1 Compliance with the General Plan and Various City Codes

The Glendale General Plan - Development Guide, adopted by the City on January 24, 1989, is the guide addressing long range land use within the City of Glendale. This Plan supersedes previously-adopted land use plans including the City of Glendale General Plan 1980-2005, Downtown Development Plan - A Supplemental to the General Plan 1980-2005, Bell Road Corridor Plan, Western Community Plan, and the West Glendale Area Plan. The General Plan incorporates, by reference, all non-land use plans such as the Fire Master Plan, Parks Master Plan, Water Master Plan, and Sewer Master Plan. The General Plan also incorporates the City of Glendale Downtown Redevelopment Plan. The Glendale General Plan does not provide the City with the direct legal authority to regulate stormwater, however the City has existing ordinances and policies throughout its City Codes to implement and enforce stormwater control. The General Plan will be continually updated to reflect the community's changing values and goals regarding growth and development and their effect on stormwater quality.

An informal policy within the General Plan that relates to stormwater quality is the designation of lands adjacent to streams and other receiving waters to be free from development. These lands, many of which have been dedicated to the City, are to remain as unimproved open space. Throughout the City, including the high growth areas, such as in the north part of the City north of Bell Road and in the west part of the City between 67th and 99th Avenues, stormwater quality concerns are incorporated into the various types of new development within the City. The Landscape Ordinance describes what type of landscaping is required for street frontage and buffering from adjacent land uses. This landscape requirement is in addition to the on-site retention requirement of the 100-year, 2-hour storm event which captures virtually all stormwater pollutants generated within their tributary areas. In addition to enhancing the aesthetic

quality of the development, these requirements have the effect of decreasing the percent of impervious surface areas and allowing for stormwater infiltration.

Infill development is occurring throughout the City. Within the downtown area of the City where redevelopment has been in progress during the past several years, stormwater is directed into the storm sewer system. Currently, all areas within the City greater than 1/4-acre in size, except for areas within the downtown redevelopment district, can not be redeveloped unless the new development is able to retain the 100-year, 2-hour storm event.

4.1.2.2 Storm Drainage Policy/Control Measures

It is City policy that all developments within the City provide sufficient stormwater retention or detention to minimize the adverse impact of that development on its downstream neighbors. The policy states that all new development shall provide sufficient on-site retention or detention to contain, at the least, the runoff generated by a 100-year, 2-hour storm falling on that property. Historically, retention facilities are required because few existing drainage systems in the City are adequate to convey additional flows. In addition to their intended flood control benefits, retention facilities for the 100-year, 2-hour storm retain over 90 percent of the average annual stormwater pollutant load.

Retention/detention facilities are built on distinct parcels within the development. In single-family developments, these facilities may be deeded to the City for operation and maintenance, presuming they meet those requirements as indicated in the Subdivision and Grading and Drainage Ordinances and in the appropriate sections of the policy guidelines. It is the City's policy that all developments provide adequate drainage facilities to convey runoff generated both on and off the project, around, or through the project in such a manner as to ensure that the structures will be free from flooding and that there is reasonable access for emergency and public service vehicles.

The developer must also install storm sewers, channels and/or other physical improvements necessary to carry runoff to retention/detention facilities and/or adequate outlets. The Site Development Policy further establishes appropriate standards for site development to include: public and/or private access for general and special uses; public water and sewerage systems; on-site and off-site drainage; and stormwater retention as required. The structures are to be constructed in accordance with the Zoning Ordinance, the Subdivision Ordinance, the current adopted Uniform Building Code, Standard Specifications, and the Design Guidelines for Site Development and Infrastructure Construction. These regulations include provisions that effectively prohibit illicit connections and discharges to the MS4 and control the use of potential pollutant sources that may be exposed to stormwater.

The City will review its current stormwater drainage policy and control measures and recommend changes to improve stormwater quality management. This will be conducted during the second year of the permit term.

4.1.2.3 Development Permitting and Plan Review

The first step in the development review process is a pre-application meeting scheduled with the Planning Department which includes representatives from several City departments and the developer. The purpose of the meeting is to review draft plans and provide guidance for compliance with all City regulations and ordinances, and to identify any special needs of the project.

Once the development application has been prepared, it is submitted to the Development Services Center. Next the design application is distributed to the appropriate City Departments for review and comment. All comments are compiled and consolidated by the project manager and returned to the developer. All

comments supplied to the developer by the City must be incorporated into the plans and reports by the developer prior to resubmittal.

Once the development application has been approved, the construction plans are submitted to the Development Services Center for distribution to the Engineering, Building Safety, Fire and other departments for construction plan review and comment. As with the design review process, comments are consolidated and returned to the developer for incorporation into the construction plans. These final plans are resubmitted for a second round of review by the various City departments. The Development Services Center then notifies the developer of the construction plan approval. If either the design application or construction plans are not approved after two reviews, a meeting is held to discuss any shortcomings that might exist. This meeting is followed by a third review.

When construction begins, the Development Services Center issues construction permits. Building Safety oversees building construction (e.g., plumbing, sewer, electrical) and Engineering performs on-site inspection (e.g., grading and drainage).

The City will modify its development plan review process on an as-needed basis as stormwater quality issues emerge.

4.1.2.4 Organizational Impacts

Work under this task will require some additional funds in the first two years of the permit to incorporate stormwater related issues. Once incorporated, these tasks will be covered under existing procedures and no additional impact is anticipated.

Table 4-2 Commercial and Residential Management Program Schedule Development/Redevelopment Planning								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.1.2.1 Compliance with the General Plan and Various City Codes - Update General Plan to reflect changes in community values and goals; including effective stormwater management	Reviewed annually and updated as needed	Engineering & Planning	X	X	X	X	X	Civil Engineer/NPDES Stormwater Coordinator and Senior Planner
4.1.2.2 Storm Drainage Policy/ Control Measures - Require retention of 100 yr, 2-hr storm for all new development - Review and develop recommended changes to improve stormwater quality management	On going Once	Engineering Engineering and Environmental Resources	X	X X	X	X	X	Land Development Engineer Civil Engineer/NPDES Stormwater Coordinator and Environmental Resources Administrator
4.1.2.3 Development Plan Review	As needed	Engineering	X	X	X	X	X	Land Development Engineer

SECTION 4.1.3 - 40 CFR 122.26(d)(2)(iv)(A)(3)

(A) COMMERCIAL AND RESIDENTIAL

(3) ROADWAY OPERATION AND MAINTENANCE

4.1.3 Roadway Operation and Maintenance

- (A) *A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:*
- (3) *A description of practices for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of deicing activities;*

Proposed Program

4.1.3.1 Street Sweeping

Street sweeping will continue to be performed at least once per month. Solid materials contained in the street sweepers will be taken to the Lions Field complex where the materials will be allowed to dry. The pit is constructed such that runoff from the area is contained on site. When the pit into which the materials are placed reaches capacity, the materials will be hauled to the City of Glendale Landfill. If illicit discharges are observed during street sweeping operations, a report will be made to the Code Enforcement Department. A copy of this report will be submitted to the NPDES stormwater coordinator for recordkeeping.

4.1.3.2 Road Maintenance

The Streets Department conducts all City road maintenance projects. In cases where potential pollutant-causing repair work must be done during the rainy season, the Streets Department will not conduct asphalt paving operations during rain events or when there is a high chance of rain.

4.1.3.3 Road Construction

The Engineering Department manages all City paving projects on new roads and conducts inspections to ensure that the paving contractor uses asphalt and concrete which meet the design criteria. In addition, in cases where potential pollutant-causing repair work must be done during the rainy season, the Engineering Department inspectors will not allow asphalt paving operations to be performed during rain events or when there is a high chance of rain.

4.1.3.4 Runoff From Roads and Highways

As part of planning and design of drainage systems for new roadways and highways, the City will evaluate the feasibility of incorporating stormwater pollutant controls such as infiltration trenches, detention/retention basins, or evaporative channels in the adjacent right-of-ways. The City has already begun implementation of the practice as seen in the constructed evaporative and concrete channels adjacent to the New River that collect runoff from the highway. During low intensity storm events, these channels collect stormwater runoff and provide some opportunity for settling prior to discharge to the New River.

4.1.3.5 Field Operations Center (FOC)

The current FOC, which is currently located in the vicinity of 63rd Avenue and Myrtle Avenue, will be evaluated during the first year of the permit term to determine the adequacy of its protection of stormwater quality. This evaluation will include a review of the outdoor material and storage areas, trash containment and storage, heavy vehicle and equipment storage areas, and good housekeeping practices associated with the recycling facility. In addition, a review will be completed to ensure that buildings in which hazardous materials are used or stored contain floor drains that are not connected to the MS4. Corrective measures will be completed prior to the expiration of the stormwater permit.

The City is in the initial stages of developing a Master Plan for the FOC. When completed, the facility will consolidate activities presently operating at this site and others throughout the City. This consolidation will include storage and warehousing of equipment and materials for all City Departments, as well as the mechanic shops, the recycling facility, and office space for several departments. Proper procedures for materials management, good housekeeping, and spill prevention will be incorporated into the Master Plan, which is expected to be completed within 10 years.

4.1.3.6 De-icing Activities

The City does not and will not use any de-icing materials or conduct deicing activities.

4.1.3.7 Organizational Impacts

Work under this task will require considerable manpower and additional equipment to clean and maintain the streets and field operation center.

Table 4-3 Commercial and Residential Management Program Schedule Roadway Operation and Maintenance								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.1.3.1 Street Sweeping	1 time/ month	Streets	X	X	X	X	X	Streets Superintendent
4.1.3.2 Road Maintenance	As needed	Streets	X	X	X	X	X	Streets Superintendent
4.1.3.3 Road Construction	As needed	Engineering	X	X	X	X	X	Assistant City Engineer
4.1.3.4 Runoff from Roads and Highways - Design	As needed during project planning and design	Engineering	X	X	X	X	X	Assistant City Engineer/Land Development Engineer
4.1.3.5 Field Operations Center - Evaluation	Once	Environmental Resources and Field Operations	X					Environmental Resources Administrator and Field Operations Director
-Implement Corrective Measures	As needed	Environmental Resources and Field Operations		X	X	X	X	Environmental Resources Administrator and Field Operations Director
- Prepare Master Plan	Once	Field Operations			X			Field Operations Director

SECTION 4.1.4 - 40 CFR 122.26(d)(2)(iv)(A)(4)

(A) COMMERCIAL AND RESIDENTIAL

(4) EXISTING/PROPOSED FLOOD MANAGEMENT FACILITY ASSESSMENTS

4.1.4 Existing/Proposed Flood Management Facility Assessments

- (A) *A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:*
- (4) *A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from stormwater is feasible;*

Proposed Program

4.1.4.1 Flood Control Facilities

The City, in conjunction with the FCDMC, manages both natural and manmade channels and flood control structures within the City. These flood control structures are constructed by the City, Arizona Department of Transportation (ADOT), Maricopa County Department of Transportation (MCDOT), and/or FCDMC. Some flood control structures the City and the FCDMC currently manage include the ACDC and several retention basins owned and operated by the City. Portions of the ACDC within the City, specifically that portion referred to as Paseo Park, are grassed and serve as recreational/open space facilities when not conveying flood flows. Under low flows, the grassed areas provide flow rate reduction and allow settling of the heavier portions of the stormwater pollutant load.

Currently, the following flood control projects are under design within the City:

- Channelization project on Skunk Creek
- Storm drain installation in Glendale Avenue

Another flood control project currently under study is the future installation of a storm drain in Bethany Home Road.

4.1.4.2 Flood Control Facilities Assessment

The City has investigated the possibility of any City-owned detention facilities to detain stormwater runoff from small storms and "first flush" events for a longer period of time. However, the Maricopa County Health Department requires that stormwater must be discharged within 36 hours of the end of a storm event.

The City will conduct on-going assessments on other flood control facilities as they pertain to stormwater quality.

4.1.4.3 Organizational Impacts

The assessment of the existing and proposed flood management facilities will require considerable manpower during the first year. Subsequent years will require a minimum amount of manpower to keep information current.

<p align="center">Table 4-4 Commercial and Residential Management Program Schedule Existing/Proposed Flood Management Facility Assessments</p>								
<i>Program Element</i>	<i>Frequency</i>	<i>Dept. In Charge</i>	<i>Period of Implementation</i>					<i>Responsible Staff Personnel</i>
			<i>Permit Year 1</i>	<i>Permit Year 2</i>	<i>Permit Year 3</i>	<i>Permit Year 4</i>	<i>Permit Year 5</i>	
4.1.4.1 Flood Control Facilities - Existing	On going	Streets and Field Operations	X	X	X	X	X	Streets Superintendent and Field Operations Director
- Proposed	On going	Engineering	X	X	X	X	X	Civil Engineer/NPDES Stormwater Coordinator
4.1.4.2 Flood Control Facilities Assessment	On going	Engineering	X					Civil Engineer/NPDES Stormwater Coordinator

SECTION 4.1.5 - 40 CFR 122.26(d)(2)(iv)(A)(5)

(A) COMMERCIAL AND RESIDENTIAL

(5) MUNICIPAL WASTE HANDLING FACILITIES

4.1.5 Municipal Waste Handling Facilities

(A) *A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:*

(5) *A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges (this program can be coordinated with the program developed under paragraph (d)(2)(iv)(C) of this section); and*

Proposed Program

4.1.5.1 Municipal Waste Handling Facilities

The City of Glendale's program to inspect, monitor, and enforce the reduction of pollutants in runoff from municipal waste facilities is found in Section 4.3, Proposed Management Programs for Industrial Activities, of this document. This program addresses runoff from the following facilities that exist within the City:

- Arrowhead Wastewater Treatment Plant
- Cholla Water Treatment Plant
- Pyramid Peak Water Treatment Plant
- Municipal Landfill

In addition, this program will also address stormwater runoff from a wastewater treatment plant under design near the Glendale Airport as well as the industrial facilities identified.

4.1.5.2 Recordkeeping

The City will maintain records of inspections, monitoring data and any enforcement actions at the municipal waste facilities.

4.1.5.3 Organizational Impacts

The work under this task is covered under existing procedures. Additional funds are allocated for recordkeeping.

SECTION 4.1.6 - 40 CFR 122.26(d)(2)(iv)(A)(6)

(A) COMMERCIAL AND RESIDENTIAL

(6) PESTICIDE, HERBICIDE AND FERTILIZER APPLICATION

4.1.6 Pesticide, Herbicide And Fertilizer Application

- (A) *A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:*
- (6) *A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.*

Proposed Program

4.1.6.1 Municipal Use of Herbicides, Pesticides, and Fertilizers

Within the City, the two principal municipal users of fertilizers, herbicides, and pesticides are the Streets/ROW and Parks Departments. Each department uses a variety of EPA approved herbicides, primarily for weed control.

Chemicals used by the Parks Department at City parks include Round-Up and Surflan. When directed by Maricopa County, the City applied an EPA-approved insecticide, usually Dursban, for mosquito control at public parks. While the Parks Department has five certified applicators which are trained and certified annually, 90 percent of all herbicide application is performed by contractors. Fertilizer is also applied by contractors at a frequency of two times/year.

The Streets/ROW Department uses only EPA-approved herbicides in the ROWs it maintains. The chemicals used include Sulfuran, which is used for pre-emergent weed control; Roundup, used for post emergent weed control during the summer months; and 24D, used for broadleaf weed control during the winter months. The undeveloped city-owned parcels that the Streets/ROW Department maintains are not sprayed and are controlled by mowing only.

The Streets/ROW Department and Parks Department will maintain records of the quantity of chemicals dispensed.

By the end of the first year of the 5-year permit term, the City will have completed guidelines for fertilizer, herbicide, and pesticide usage. These guidelines will be incorporated into the standard operating procedures of the Streets/ROW and Parks Departments beginning in the second year of the permit term.

4.1.6.2 Programs to Reduce Herbicide, Pesticide, and Fertilizer Use

The City will promote the use of low water plants in site landscaping through the City's Water Conservation Program. These practices include promotion of xeriscape-type vegetation as well as the use of landscaping materials such as decomposed granite that allow for infiltration of stormwater runoff. These practices will reduce stormwater pollution as these plants require less fertilizers, herbicides and pesticides to thrive in Glendale's climate. In addition, low water use plants will lower the potential for irrigation waters to wash fertilizers, pesticides and herbicides into the MS4.

4.1.6.3 Public Education

The City of Glendale will promote public education of the proper use of fertilizer, herbicides, and pesticides through informational brochures distributed along with utility bills on a biannual basis. Proper storage and disposal of these materials will also be included in the informational brochures together with schedules for household hazardous waste collection events.

4.1.6.4 Organizational Impacts

The work under this task will require considerable manpower and additional equipment to prepare the public training and education materials during the first year of the permit. Subsequent years will require manpower and materials to keep the program current, maintain a continuing education procedure, and perform recordkeeping.

Table 4-5 Commercial and Residential Management Program Schedule Pesticide, Herbicide and Fertilizer Application								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.1.6.1 Municipal Use of Herbicides, Pesticides, and Fertilizers - Follow approved application procedures - Revise City Guidelines	On going Once during permit term	Streets and Parks Streets (Field Operations) and Parks	X X	X X	X X	X X	X X	Streets and Park Maintenance Superintendents Field Operations Director and Park Maintenance Superintendent
4.1.6.2 Programs to Reduce Herbicide, Pesticide and Fertilizer Use - Promote use of low water plants - Design and use of low water plants	On going On going	Water Conservation Engineering	X X	X X	X X	X X	X X	Water Conservation Coordinator Landscape Architect
4.1.6.3 Public Education - Provide public education materials	Biannual	Marketing, Environmental Resources and Water Conservation	X	X	X	X	X	Marketing Director, Environmental Resources Administrator and Water Conservation Coordinator

SECTION 4.2

PROPOSED MANAGEMENT PROGRAM

ILLICIT DISCHARGES/IMPROPER DISPOSAL

[40 CFR 122.26(d)(2)(iv)(B)]

SECTION 4.2.1 - 40 CFR 122.26(d)(2)(iv)(B)(1)

(B) ILLICIT DISCHARGES/IMPROPER DISPOSAL

(1) INSPECTIONS AND ENFORCEMENT

4.2.1 Inspections and Enforcement

(B) *A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:*

- (1) *A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program description shall address all types of illicit discharges, however the following category of non-stormwater discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to water of the United States: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (program description shall address discharges or flows from fire fighting only where such discharges or flows are identified as significant sources of pollutants to waters of the United States);*

Proposed Program

4.2.1.1 Ordinance Enforcement

Section 1.0 Legal Authority [40 CFR 122.26(d)(2)(I)] of this document describes the implementation and enforcement aspects of the stormwater management program to prevent illicit discharges to the municipal separate storm sewer system. This section demonstrates that the City currently possesses adequate legal authority to enforce existing ordinances and implement additional statutes or contracts to adequately implement and enforce the stormwater management program required under the City's NPDES stormwater permit. As the requirements of the City's stormwater management program emerge, the City will consider whether any additional statutes, ordinances or contracts are needed to effectively control illicit discharges.

4.2.1.2 Inspection for Illicit Discharges

Please refer to Sections 4.2.2 [40 CFR 122.26(d)(2)(iv)(B)(2)], 4.2.3 [40 CFR 122.26(d)(2)(iv)(B)(3)], and 4.3.1 [40 CFR 122.26(d)(2)(iv)(C)(1)] of this document for a description of inspection procedures for illicit discharges.

4.2.1.3 Recordkeeping

The City will keep records of all inspections and enforcement actions taken. All departments will report violations to the Code Enforcement Department which will issue citations.

4.2.1.4 Organizational Impacts

The work under this task will require considerable manpower during the first year of the program to inventory and inspect for illicit discharges. Subsequent years will require manpower to conduct inspections.

**Table 4-6
 Illicit Discharges/Improper Disposal Management Program Schedule
 Inspections and Enforcement**

<i>Program Element</i>	<i>Frequency</i>	<i>Dept. In Charge</i>	<i>Period of Implementation</i>					<i>Responsible Staff Personnel</i>
			<i>Permit Year 1</i>	<i>Permit Year 2</i>	<i>Permit Year 3</i>	<i>Permit Year 4</i>	<i>Permit Year 5</i>	
4.2.1.1 Ordinance Enforcement	As needed	Code Enforcement	X	X	X	X	X	Code Compliance Manager
4.2.1.2 Inspection for Illicit Discharges	See sections 4.2.2, 4.2.3 and 4.3.1 of this document							
4.2.1.3 Recordkeeping	Ongoing	Code Enforcement and Utilities (Pretreatment)	X	X	X	X	X	Code Compliance Manager and Pretreatment Officer

SECTION 4.2.2 - 40 CFR 122.26(d)(2)(iv)(B)(2)

(B) ILLICIT DISCHARGES/IMPROPER DISPOSAL

(2) FIELD SCREENING

4.2.2 Field Screening

(B) A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:

- (2) A description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens;*

Proposed Program

4.2.2.1 Dry Weather Field Screening Procedures

The procedures and equipment the City used for its initial dry weather field screening were submitted as Appendix A, Dry Weather Field Screening Plan, of the Part I NPDES stormwater permit application. This plan will be utilized as a guide to conduct additional dry weather field screening to detect and eliminate illicit discharges to the storm sewer system.

4.2.2.2 Locations to be Dry Weather Field Screened

In Section 4.4 [40 CFR 122.26(d)(1)(iv)] of the Part I NPDES stormwater permit application, the City detailed its initial dry weather field screening conducted on the major outfalls from the storm sewer system. The results of this dry weather field screening indicated that the observed flows were most likely potable water and not a source of pollution. In addition, visual observations made during field screening of outfalls did not provide evidence of illicit discharges.

The results of the initial dry weather field screening conducted for the Part I NPDES stormwater permit application demonstrated that illicit discharges are not common in Glendale, and when they occur, seldom contain significant amounts of pollutants. Therefore, the City will only conduct dry weather field screening at each major outfall once over the 5-year permit term. However, as a follow-up to its initial dry weather field screening program, the City will conduct dry weather field screening on the major outfalls identified since the submittal of its Part I NPDES permit application, and the major outfalls that will be constructed after the submittal of the City's Part 2 NPDES permit application. These major outfalls will then be field screened once more over the 5-year permit term.

The City will also conduct additional dry weather field screening and/or sampling based on reports of possible illicit discharges from the public, City personnel while performing street maintenance and City inspectors while performing pretreatment inspections.

Please refer to Section 3.4.4 [40 CFR 122.26(d) (2) (iii) (A) (1)] of this document for a discussion of the specific sample locations to date and the sample parameters for illicit discharge monitoring.

4.2.2.3 Recordkeeping

City personnel will document all field activities conducted at the major outfalls and/or other locations on a field data sheet. The field data sheet is provided as Table 2-2 in Appendix A, Dry Weather Field Screening Plan, of the Part I NPDES stormwater permit application.

4.2.2.4 Organizational Impacts

The work under this task will require considerable manpower and additional equipment to locate outfalls and revise the dry weather field screening procedures for the new and existing outfalls during the first and all subsequent years of the permit.

Table 4-7
Illicit Discharges/Improper Disposal Management Program Schedule
Field Screening

Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.2.2.1 Revisions to Dry Weather Field Screening Procedures	As needed	Engineering	X	X	X	X	X	Civil Engineer/NPDES Stormwater Coordinator
4.2.2.2 Locations to be Dry Weather Field Screened								
- Additional Major Outfalls Located Since Part I NPDES Submittal	Once during first year of permit term	Engineering	X					Civil Engineer/NPDES Stormwater Coordinator
- All Existing Major Outfalls	Once during permit term	Engineering	X	X	X	X	X	Civil Engineer/NPDES Stormwater Coordinator
- Major Outfalls Constructed After Submittal of Part II NPDES	Once during permit term	Engineering	X	X	X	X	X	Civil Engineer/NPDES Stormwater Coordinator
4.2.2.3 Recordkeeping	As needed	Engineering	X	X	X	X	X	Civil Engineer/NPDES Stormwater Coordinator

SECTION 4.2.3 - 40 CFR 122.26(d)(2)(iv)(B)(3,7)

(B) ILLICIT DISCHARGES/IMPROPER DISPOSAL

(3) STORM SEWER INVESTIGATION APPROACH

(7) SANITARY SEWER SEEPAGE

4.2.3 Storm Sewer Investigation Approach & Sanitary Sewer Seepage

(B) *A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:*

(3) *A description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-stormwater (such procedures may include: sampling procedures for constituents such as fecal coliform, fecal streptococcus, surfactants (MBAS), residual chlorine, fluorides and potassium; testing with fluorometric dyes; or conducting in storm sewer inspections where safety and other considerations allow. Such description shall include the location of storm sewers that have been identified for such evaluation);*

(7) *A description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary;*

Proposed Program

4.2.3.1 Illicit Discharge Investigation Protocol

The primary goal of the storm sewer investigation program is to eliminate illicit discharges and improper disposal activities detected within the storm sewer system. The City will implement the following procedures for investigating portions of the storm sewer system where dry weather field screening or other information indicates a reasonable potential for illicit discharges:

- Review the results of the initial and on-going dry weather field screening program detailed in Section 4.2.2 [40 CFR 122.26(d)(2)(iv)(B)(2)] of this document to determine if any illicit discharges are occurring in the storm sewer system.
- City personnel will identify and attempt to contact facility owner(s) located in the immediate upgradient vicinity of the storm sewer system problem.
- If a particular industry can not be identified, the City will conduct additional sampling based on the dry weather field screening results to pinpoint pollutant sources. The same sampling procedures utilized for the initial field screening will be utilized.
- If additional sampling does not aid in the identification of the responsible party, the City will utilize television camera inspection, smoke testing, dye testing and/or confined-space entry inspection at priority or suspect facilities to verify illicit discharges or connections.
- Once the responsible party has been identified, the City will conduct a site visit and interview to discuss corrective actions to be taken to remove the illicit discharge.
- City personnel will perform verification testing and inspection, or follow-up field screening after a corrective action response has removed the illicit discharge. This procedure should confirm or deny that the correction of the problem was successful and should determine whether further enforcement action is required. Please refer to Section 4.2.1 [40 CFR 122.26(d)(2)(iv)(B)(1)] of this document for a description of the enforcement aspects of the stormwater management programs to prevent illicit discharges to the municipal separate storm sewer system.

4.2.3.2 Sanitary Sewer System Evaluation Study

The primary goal of the sanitary seepage detection program is to remove the inflow and overflow discharges of sanitary sewage to the storm sewer system. The City will implement procedures to detect sanitary sewage infiltration to the storm sewer system during current and future evaluation studies of the sanitary sewer system. A study to perform a complete inventory and evaluation of the City's sanitary sewer system with the goal of developing a systematic program for maintenance, rehabilitation, replacement and/or augmentation of the sanitary sewer system is scheduled to be completed over the next 5-years. Of particular concern are those sanitary sewer facilities that are in poor physical condition and/or hydraulically overloaded.

4.2.3.3 Current Procedures to Limit Sanitary Seepage

The Utility Operations Department currently maintains water and sewer lines within the City. The Wastewater Collection Division within this group is responsible for the wastewater collection system maintenance, repair and operation. This department currently repairs and documents any problems associated with the wastewater collection systems. Additionally, this department conducts television camera inspection, usually inspection of manholes, and hydro cleaning of sewer mains. The City will continue to maintain the wastewater collection system on a regular basis through inspection and cleaning. The City will pay particular attention to the interaction between sanitary sewers and separate storm sewers which may occur at manholes and where sanitary sewer laterals and storm sewer trenches cross. The City will investigate causes of wastewater spills and repair any faulty lines as necessary.

The major region within the City that still utilizes septic systems is the area between Union Hills Drive and Bell Road west of the Skunk Creek. Septic systems are also found in small amounts scattered throughout the City. The procedures for siting septic systems within the City is as follows:

- First a request is made in writing to the City Engineering Department to either connect to the existing sanitary sewer system or install a septic system.
- The Engineering Department reviews the request and decides if it is more economically feasible to install a septic system on the residential lot or connect to the existing sanitary sewer system. For the most part, the City usually decides to connect the residential lot to the existing sanitary sewer system.
- If the Engineering Department decides that a septic system is more suitable for the site, it issues a waiver letter.
- Even though the septic system will be within City limits, it is the responsibility of the Maricopa County Department of Engineering, Water and Waste Management Division to decide on the exact siting requirements.
- Once the septic system is sited and installed, the Water and Waste Management Division provides the homeowner with an operating manual for the septic system recommending preventive maintenance measures such as frequency of pumping. It is the responsibility of the homeowner to maintain the system.
- Currently there is no regular inspection program by the Water and Waste Management Division for septic systems. ADEQ is currently considering some regulations to more closely monitor septic systems in the future. At this time the Water and Waste Management Division will coordinate with ADEQ regarding septic system inspection.

4.2.3.4 Recordkeeping

The City will track and document activities related to storm sewer investigation and sanitary seepage detection. Activities to be documented include the following:

- Field maintenance
- Site inspections
- Additional dry weather field screening and sampling
- Recommended corrective actions
- Enforcement actions taken

4.2.3.5 Organizational Impacts

The work under this task will require some manpower to investigate and eliminate sanitary sewer seepage during the first and all subsequent years of the permit.

Table 4-8 Illicit Discharges/Improper Disposal Management Program Schedule Storm Sewer Investigation Approach and Sanitary Sewer Seepage								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.2.3.1 Illicit Discharge Investigation Protocol	As needed	Utilities (Wastewater Collection), Environmental Resources and Engineering	X	X	X	X	X	Utilities Superintendent, Environmental Resources Administrator and Civil Engineer/NPDES Stormwater Coordinator
4.2.3.2 Sanitary Sewer System Evaluation Study	On-going	Engineering	X	X	X	X	X	Will vary
4.2.3.3 Current Procedures to Limit Sanitary Seepage	On-going	Utilities (Wastewater Collection)	X	X	X	X	X	Utilities Superintendent
4.2.3.4 Recordkeeping	On-going	Utilities (Wastewater Collection), Engineering and Code Enforcement	X	X	X	X	X	Utilities Superintendent, Civil Engineer/NPDES Stormwater Coordinator and Code Compliance Manager

SECTION 4.2.4 - 40 CFR 122.26(d)(2)(iv)(B)(4)

(B) ILLICIT DISCHARGES/IMPROPER DISPOSAL

(4) SPILL PREVENTION/CONTAINMENT

4.2.4 Spill Prevention/Containment

(B) *A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:*

(4) *A description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer;*

Proposed Program

4.2.4.1 Responsibility

The Glendale Fire Department is currently responsible for the response and containment of spills that may discharge into the municipal separate storm sewer system. In particular, the EMS/HAZMAT division of the Fire Department manages responses to emergency spills and hazardous waste releases. The Police Department provides support as required during emergency response operations.

As noted above, the primary responsibility of the Fire Department is the response and containment, rather than the clean-up and removal, of spilled materials to ensure that the public is protected. When a spill is determined to be hazardous or a danger, the Fire Department EMS/HAZMAT division will notify the City's Materials Control Department to contact the City's hazardous waste disposal company for an emergency clean-up. If a spill is determined to be non-hazardous, the Fire Department will direct the responsible party to contact an outside licensed contractor for clean-up and disposal of the spill. In the event that the responsible party cannot be identified, the Fire Department will coordinate the disposal of the spill as well. In some instances, the ADEQ will assist the Fire Department in an advisory capacity with the clean-up procedure.

For a further discussion of the City of Glendale's spill response procedures, see Appendix D of this document.

4.2.4.2 Containment Controls

When necessary, the Fire Department will utilize stormwater management controls and techniques to contain any leak or spill. The controls and techniques implemented will reflect the nature of the identified sources of pollutants. Example techniques and controls to be utilized to protect stormwater inlets include the following:

- Placing tarp(s) over storm sewer inlet in conjunction with dirt to weight the tarp
- Creating a dike around an inlet with a large diameter hose in conjunction with dirt
- Construction of temporary diversion channels to protect storm sewer inlets
- Use of absorbent booms and pillows, neutralizing agents, activated carbon, sand, etc.

Once the spill has been contained, the soaked sand or neutralizing agent is transported by an outside contractor to an authorized facility outside of the City for proper disposal.

4.2.4.3 Training

The Fire Department's Training Division provides internal training for all ranks within the department for the supervision of the hazardous materials management program. This training is provided at different times throughout the year and is sometimes coordinated regionally with the fire departments in other cities in the greater Phoenix area.

The Fire Department will assist the Environmental Resources Division in providing hazardous waste awareness training to personnel in various City departments. This training will be included as part of the City's overall environmental awareness training program.

4.2.4.4 Prevention

The Glendale Fire Department has the responsibility of enforcing the provisions of the Uniform Fire Code (UFC). The UFC addresses flammable and combustible liquids and hazardous materials, and includes provisions such as secondary containment, enclosures and other measures that will reduce the potential for contamination of stormwater. The Fire Department staff reviews construction plans and inspects new and existing facilities for compliance with the UFC. For those industrial facilities with large and diverse amounts of hazardous materials, the Fire Department sometimes requires a hazardous materials management plan and/or a hazardous inventory statement providing information on the presence, location and quantities of materials which could be of concern in a spill situation.

Please refer to Section 4.2.5 [40 CFR 122.26(d)(2)(iv)(B)(5,6)] of this document for a description of other measures to be implemented to prevent the release of illicit discharges to the municipal separate storm sewer system.

4.2.4.5 Recordkeeping

The Fire Department will maintain records of incidences of leaks, spills and improper dumping. The records contain information on the activities conducted, the clean-up procedure and the volume of the spill. The records will be made available for investigations to determine program effectiveness.

4.2.4.6 Organizational Impacts

The work under this task will require considerable manpower and additional equipment to modify procedures for containment of spills as needed, as well as for the training of city personnel during the first year and each subsequent year of the permit. In addition, the City will allocate funds to cover costs for disposal in the event the responsible party cannot be identified.

Table 4-9
Illicit Discharges/Improper Disposal Management Program Schedule
Spill Prevention/Containment

Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.2.4.1 Responsibility	Ongoing	Fire	X	X	X	X	X	EMS Battalion Chief
4.2.4.2 Utilization of Containment Controls	As needed	Fire	X	X	X	X	X	EMS Battalion Chief
4.2.4.3 Training	Ongoing	Fire and Environmental Resources	X	X	X	X	X	EMS Battalion Chief and Environmental Resources Administrator
4.2.4.4 Prevention	Ongoing	Fire	X	X	X	X	X	Fire Marshal
4.2.4.5 Recordkeeping	Ongoing	Fire	X	X	X	X	X	EMS Battalion Chief

SECTION 4.2.5 - 40 CFR 122.26(d)(2)(iv)(B)(5,6)

(B) ILLICIT DISCHARGES/IMPROPER DISPOSAL

(5) PUBLIC REPORTING

(6) USED OIL/TOXIC MATERIALS

4.2.5 Public Reporting & Used Oil/Toxic Materials

- (B) *A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:*
- (5) *A description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers.*
- (6) *A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; and*

Under the Proposed Management Program, participants are required to propose a program that promotes public reporting of illicit discharges to and water quality impacts on the municipal separate storm sewer system. An integral part of this involves educational and public awareness activities to facilitate the proper management and disposal of used oil, toxic materials and other potential pollutants in hopes of reducing the amount of illicit discharges.

Proposed Program

4.2.5.1 Public Education and Awareness Program for Illicit Discharges/Improper Disposal

- The City will continue to utilize the ADEQ Recycling hotline number at 253-2687 or 1-800-CLEANUP to provide information to private individuals on recycling and disposal of hazardous materials.
- The Glendale Fire Department currently has a hazardous materials hotline number at 930-3040 that provides private individuals with a method of reporting any illicit discharges or illegal dumpings that may pose a threat to the municipal separate storm sewer system. There is an additional hotline number at 930-3410 that provides information on the proper storage and handling of used oil, toxic materials and household hazardous wastes.
- The City is considering establishing a catch basin/storm sewer inlet stenciling program to increase public awareness of the connection between storm sewers and the local environment. An example stencil could read: "No Dumping - Leads to Washes/Canal."
- The City will inventory all facilities that accept used oil/toxic materials and distribute flyers and pamphlets to the general public listing the locations of these collection facilities.
- The City will continue to develop programs with area schools educating students on such topics as household hazardous wastes and the effects on the surrounding environment through speaking and activity engagements.
- The City will utilize its cable channel as well as its Internet web site at www.ci.glendale.az.us as tools to promote public education regarding stormwater issues.
- The City will distribute various brochures to educate and inform the public regarding issues related to prevention of illicit discharges and management of hazardous materials. (Please see attached example brochures.) It is anticipated that educational brochures and advertisements will continue to evolve over time with emphasis on water quality impacts and environmental controls.

Topics for these brochures may include storm sewer and sanitary systems, management and disposal of used oil, toxic materials and household hazardous wastes, fertilizer and pesticide use, recycling and other topics related to water quality. Informational inserts addressing improper disposal and illegal dumping will be developed to promote and publicize this stormwater program. These inserts will be included in household utility bills, the local newspaper, and/or at public buildings. Some example brochures are found in Attachment A at the end of Section 4.2.

- The City will continue its once per year Household Hazardous Waste Collection Day. In addition, the City currently has a Spring Clean-up Program in which additional household hazardous waste is collected. Public notification of these programs will be accomplished using informational leaflets distributed as a stuffer with household water bills.

4.2.5.2 City Facility Operations to Limit Illicit Discharges

The City currently performs many of its day-to-operations at its Field Operations Center. Some of the operations conducted at the FOC include heavy equipment and sanitation truck repair and preventative maintenance (indoor), fuel dispensing and storage (diesel, gasoline, propane and CNG), vehicle painting, vehicle and equipment washing and cleaning operations, welding and repair, and tire repair services. The Field Operations - Equipment Management Department, in conjunction with the Environmental Resources Division, have developed programs to minimize the potential for illicit discharges at the FOC through the use of structural and non-structural best management practices. Current programs include:

- A used motor oil recycling program whereby waste oils are placed in drums at several locations and subsequently tested and removed by a licensed contractor for recycling purposes.
- Redistillation and recycling of used antifreeze through a contractor.
- Freon recovery machines.
- Storage of chemicals and hazardous waste products including oils, greases, solvents, and used oils in a covered and bermed area to limit exposure to stormwater and reduce the potential for illicit discharges.
- An environmental awareness training program for City personnel that addresses stormwater related issues.

Please refer to Section 5.2.6.3 [40 CFR 122.26(d)(1)(v)] of the Part I NPDES stormwater permit application for a detailed discussion of these existing management programs.

4.2.5.3 Management and Disposal of Used Oil/Toxic Materials Generated by Businesses

In the State of Arizona, ADEQ has adopted the provisions consistent with EPA's Federal Used Oil Regulations (Senate Bill No. 1354, 40 CFR Part 279) to establish regulations for the statewide industrial used oil programs. ADEQ has two divisions that are responsible for administering the used oil program within the state: Inspections and Compliance Enforcement, and Quality Assurance and Control. The Compliance Enforcement Department inspects generators and/or transporters to ensure they have the correct equipment and federal identification numbers necessary to handle used oil correctly. The Quality Assurance department ensures that the used oil meets testing and characterization requirements necessary for used oil recycling, burning and/or disposal into a certified hazardous waste landfill.

ADEQ works directly with private industrial used oil generators, transporters and haulers, and does not interact directly with municipalities and their city-designated used oil programs. ADEQ Used Oil Enforcement Division will respond to public complaints regarding spilled oils or reported illicit discharges within municipalities. Beginning July 20, 1997, ADEQ issued criteria classification for used oil generators whereby they will be required to register as one of the following: (a) used oil collection centers, (b) do-it-yourself facilities, or (c) aggregation collection facilities.

It is the ADEQ's view that all oil is assumed to be recyclable and that it is up to the individual used oil generator(s) to prove otherwise. The EPA requires that a used oil handler can store unlimited amounts of used oil, but as a used oil shipper, they are will not be allowed to ship quantities greater than 55 gallons unless they apply for an EPA Identification Number to become a listed hazardous waste hauler.

4.2.5.4 Recordkeeping

The City will maintain records of the number of brochures distributed, training seminars conducted, etc. as an indirect method of evaluating the effectiveness of the stormwater management program.

4.2.5.5 Organizational Impacts

The work under this task will require considerable manpower and additional materials to prepare the public education and awareness materials during the first and all subsequent years of the permit.

Table 4-10 Illicit Discharges/Improper Disposal Management Program Schedule Public Reporting & Used Oil/Toxic Materials								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.2.5.1 Public Education and Awareness Program for Illicit Discharges/Improper Disposal	On going	Environmental Resources, Utilities (Pretreatment) and Marketing	X	X	X	X	X	Environmental Resources Administrator, Pretreatment Officer and Marketing Director
4.2.5.2 City Operations to Limit Illicit Discharges	On going	Field Operations and Environmental Resources	X	X	X	X	X	Field Operations Director and Environmental Resources Administrator
4.2.5.3 Management and Disposal of Used Oil/Toxic Materials Generated by Businesses	On going	Code Enforcement	X	X	X	X	X	Code Compliance Manager
4.2.5.4 Recordkeeping	On going	Environmental Resources, Utilities (Pretreatment)	X	X	X	X	X	Environmental Resources Administrator and Pretreatment Officer

SECTION 4.2.6 - 40 CFR 122.26(d)(2)(iv)(B)(6)

(B) ILLICIT DISCHARGES/IMPROPER DISPOSAL

(6) USED OIL/TOXIC MATERIALS

4.2.6 Used Oil/Toxic Materials

(B) *A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:*

(6) A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; and

Please refer to 40 CFR 122.26(d)(2)(iv)(B)(5) where a description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials is addressed.

SECTION 4.2.7 - 40 CFR 122.26(d)(2)(iv)(B)(7)

(B) ILLICIT DISCHARGES/IMPROPER DISPOSAL

7) SANITARY SEWER SEEPAGE

4.2.7 Sanitary Sewer Seepage

(B) *A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:*

(7) *A description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary;*

Please refer to 40 CFR 122.26(d)(2)(iv)(B)(3) where a description of the controls to limit infiltration of seepage from municipal sanitary sewers to the municipal separate storm sewer system is addressed.

ATTACHMENT A
EXAMPLE BROCHURES

Housing Rehabilitation	930-3670
Neighborhood Watch (Block)	930-3380
Neighborhood Partnership Office	930-2868
Noise	
At time of occurrence only - construction, parties, stereos	9-1-1, if busy 930-3040
Ordinance/Construction	930-3630
Ordinances	
Zoning	930-2800
Enforcement	930-3610
Parade Requests	930-2961
Parking Tickets	930-2400
Parks	
Administration	930-2820
Beer Permits	930-2820
Maintenance	930-2650
To reserve ballfields, ramadas, buildings	930-2820
*Passports	506-3369
Permits	
Building, Mobile Home	930-2800
Beer/Parks	930-2820
Parade, Special Event	930-2820
*Septic Tank	506-6666
Planning & Zoning	930-2800
Police	
Accident Investigation	930-3200
Accident Reports	930-3100
Administration	930-3050
Citizen Academy	930-3380
Community Services	930-3380
Emergency	9-1-1, if busy 930-3000
Graffiti Hotline	930-3080
Noise	930-3040
Non-Emergency Number	930-3000
Reserve Program	930-3157
Safety & Security for Businesses	930-3380
Speeding Hotline	930-2005
Traffic Citations	930-2400
TDD	930-3000
Volunteer Program	930-3255
Pool Backwashing or Draining	930-3908
Pools, City	930-2820
Apollo, 8045 N. 47th Ave.	915-2713
Cactus, 15500 N. 63rd Ave.	412-5532

Cardinal, 6350 W. Glendale Ave.	915-1679
Community, 6000 W. Olive Ave.	915-2775
Ironwood, 12603 N. 61st Ave.	412-5868
O'Neil, 6448 W. Missouri Ave.	915-2803
Rose Lane, 5003 W. Marlette Ave.	930-7905
Property	
*Ownership	506-3406
Public Information - see Marketing	
Public Works (After Hours)	934-7551
Recreation	930-2820
Aquatics	930-2836
Ballfields/Facility Rentals	930-2820
Leagues/Teams	930-2820
Recreation Centers	930-2820
Senior Programs	930-2196
Special Needs Programs	930-2842
Sports	930-2842
Teen & Youth Programs	930-2842
Recycling Information	930-2681
*Red Cross	336-6660
Roach Hotline	930-2741
Sanitation Services - see Garbage	
Sewer	
*Billing	930-3190
Missing Manhole Lids	930-2740
Overflowing	930-2740
Roach problems	930-2741
Signs	
Business	930-2800
Street, Traffic	930-2940
Sister Cities Program	930-2960
Smoking Ordinance	930-3610
Social Services	
Community Action Program	930-2854
Housing Authority	930-2180
*Referral of social agencies	263-8856
Victim Assistance	930-3030
Special Interest Classes	930-2820
Special Events	
City-Sponsored	930-2960

Hotline	930-2299
Private Property Permits	930-3190
Storm	
Drains	930-3630
Flood	930-3630
Streets	
Lights	930-2940
Pavement Damage, Debris	930-2670
Swim Lessons	930-2836
Taxes	
*AZ Dept. of Revenue (Income)	255-3381
City Retail Sales and Use	930-3190
*I.R.S.	1-800-829-1040
*Maricopa County (Property)	506-3406
*Tenant/Landlord Law Booklet	542-4086
Tennis Center	
Paseo Racquet Center (Public)	979-1234
Traffic	
Signals & Signs	930-2940
Trash - see Garbage	
Trees (Right-of-Way Only)	
Trimming/Diseased/Fallen	930-2656
Utilities	
*Electricity	
APS Emergency/Power Out	371-7171
SRP Emergency/Power Out	236-8811
*Gas	
Southwest Gas Emergency	271-4277
*Telephone	
U.S. West Repair	1-800-573-1311
Water and Sewer	
City of Glendale Billing Info	930-3190
Payment Boxes - 5850 W. Glendale Ave. Drive-up box on Glendale Ave. entrance to Municipal Parking Garage and walk-up box at City Hall lobby entrance.	
Vehicles, Abandoned	
On Private Property	930-3610
Victim Assistance	930-3030
Volunteers	
General	930-2284

Library	930-3571
Police	930-3255
Recreation	930-2820
Voter Registration	
*County	506-1511
Water	
Billing	930-3190
Conservation Rebate Info	930-2710
Emergency Turn Off	930-2730
Irrigation	930-2207; 930-2228
Low Pressure, Main Leaks, Meters	930-2700
Turn On/Off (weekdays)	930-2700
Turn On/Off (after hours)	934-7551
Weeds (commercial, residential)	930-3610
Woodburning Restrictions/Information	506-6400
World Wide Web	http://www.ci.glendale.az.us
Xeriscape Botanical Garden	
Main Library, 5959 W. Brown St.	930-2710
*Youth Center, Glendale	934-0419
5401 W. Ocotillo Rd.	
Youth Services/Sports	930-2820
Zoning	
Ordinances	930-2800
Rezoning Applications, Use Permits, Variances	930-2800
Violations	930-3610



Glendale Guide to Frequently-Called Phone Numbers

Don't know where to call to get information or help with a problem? This listing of city telephone numbers is meant to guide you quickly to the department that can best answer your questions.



Mayor Elaine M. Scruggs

Councilmembers:
 Thomas R. Eggleston - Barrel District
 David M. Goulet - Ocotillo District
 H. Philip Lieberman - Cactus District
 Manuel D. Martinez - Cholla District
 James C. McAllister - Sahuaro District
 Martin Samaniego - Yucca District

City Manager Martin Vanacour



Published by:
 City of Glendale Marketing Dept.
 5850 W. Glendale Ave.
 Glendale, AZ 85301

8228 7/98

Numbers subject to change without notice



HOW TO TRANSPORT HOUSEHOLD HAZARDOUS WASTE

Carefully transport the products to the collection facility. Please bring materials in sturdy boxes lined with plastic bags. Keep them in original containers, securely sealed, with contents clearly labeled. Follow these instructions for packaging and transporting the materials:

1. Leave materials in their original containers, and make sure caps and/or lids are securely closed. Protect your children and pets; do not place waste in the same part of your vehicle with them. If your children are in the back seat, place the waste in the trunk.
2. If the original container is leaking or damaged, place the entire container in a larger container such as a clean paint can, plastic bucket, or wrap securely with newspaper or plastic. If you wrap up a container so that the original label cannot be seen, mark the contents to the best of your ability, and be sure to tell the collection staff.
3. If the material is not in its original container, such as used motor oil, place it in a sturdy, leakproof container such as a plastic milk carton, glass jar, or metal can and make sure the cap and/or lid is securely closed. ***Do not use an open container such as a bucket!*** Make sure to bring the original container or label to help identify the waste.
4. ***Never Mix Different Chemicals***
5. If labels are missing or obliterated, or if products are not in their original containers, identify the contents to the best of your ability. Be specific - do not just write "pesticide" if you know you have chlordane.
6. Separate different types of waste, such as paints, motor oil, batteries, pesticides, acids, etc. Place containers upright in sturdy cardboard boxes or plastic trays, and pad with newspaper. You may also want to line your car with newspaper or plastic before you pack the car.
7. Do not eat, drink, or smoke while handling hazardous materials. After you have finished packing the waste, wash your hands before handling food or children's products.





WHAT SHOULD YOU BRING TO THE FACILITY?

These are examples of the items that
WILL be accepted at the facility:

- aerosol cans
- antifreeze
- batteries (household and car)
- car cleaner/waxes
- degreasers
- deodorizers
- drain cleaners
- flea powder
- floor cleaners/waxes
- furniture polish
- herbicides
- insecticides
- lacquers
- laundry products
- mothballs
- oven cleaners
- paints
- paint thinners/removers
- photographic chemicals
- pesticides
- radiator flushes
- rodent poison
- rug cleaner
- rust removers
- silver cleaners
- spot removers
- toilet bowl cleaners
- used motor oil
- weed killers
- window cleaners
- wood preservatives

NOTE: Household Hazardous Waste is any discarded household materials which contain chemical constituents (see label on the product).





HAZARDOUS WASTE!...IN MY HOME???

When you think of “*hazardous waste*,” you think of chemicals discarded by business or industries. But there are also hazardous wastes in your house and garbage can. Many common household products contain the same chemicals found in industrial hazardous wastes.

Modern household chemicals do make life easier. These household chemical products require proper use, storage, and disposal. However, unwanted household chemicals such as paint thinners, household pesticides, cleaners and solvents, and some aerosols can contain hazardous waste, especially when they are disposed of improperly. Household chemical waste products placed in the trash may leach out and contaminate surface and groundwater supplies. Those poured down the drain or into storm sewers may also eventually discharge from sewer systems into public waters.

The threat to the environment or your health is based on the specific chemical characteristics of the substances you use. When determining whether a substance is considered a hazardous waste, you must ask yourself:



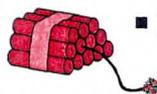
- How easily does it catch fire?
(*example: gasoline*)



- How acidic or caustic is it?
(*example: oven cleaners*)



- How toxic is it to humans, animals or plants?
(*example: pesticides*)



- How explosive or reactive is it?
(*example: aerosol cans*)

This event will be open *only* to *City of Glendale residents*. Proof of residency will be required (i.e., driver's license, voter identification, tax certificate, lease agreement, etc.)





WHAT HAPPENS TO MATERIAL COLLECTED AT THE HOUSEHOLD HAZARDOUS WASTE FACILITY?

There is no single method which can safely handle all the different types of waste collected. The wastes must be sorted by treatment or disposal category, and any laboratory analysis or regulatory requirements completed. Wastes are then shipped to facilities in several states. The following table gives examples of handling methods for a variety of waste products.

Method	Waste Type
Recycling	Some solvents, lead/acid (automobile) batteries, and some mercury may be reprocessed into useful products.
Fuel Blending	This is a method for recovering energy value from wastes. Solvents not suitable for recycling, some paints, kerosene, used motor oil, gasoline, and other flammable or combustible liquids will be blended to make a fuel for industrial kilns or boilers.
Chemical Treatment	Cyanides may be detoxified, acids and bases neutralized, or toxic metals removed by various chemical procedures.
Incineration	Most pesticides, herbicides, aerosol cans, cleaners, waxes, and flammable materials not suitable for recycling or fuel use will be burned in special high temperature incinerators equipped with monitoring instruments and air pollution control devices.
Fixation/Stabilization	Some liquids will be treated to make their hazardous constituents immobile.
Secure Chemical Landfill	This method is used for materials which are not suitable for other types of disposal, and for residues produced by the above methods. For example, a solvent such as paint thinner may go to a recycler, where clean product is separated from impurities called "still bottoms". The still bottoms are then incinerated, producing harmless gases and a small amount of ash which goes to secure chemical landfill. Alternate technologies are gradually replacing landfills for untreated wastes. Most untreated hazardous wastes are already prohibited from landfills. EPA is now phasing in regulations which will assure that no untreated hazardous wastes will be sent to landfills - only residues from waste treatment.

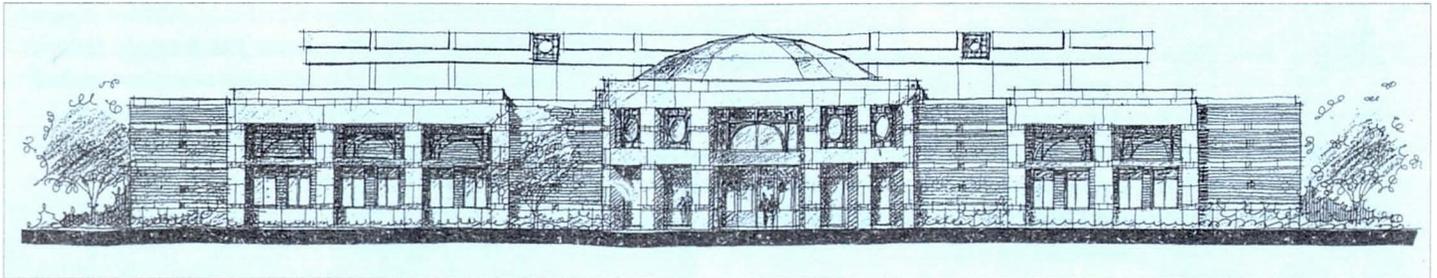


Glendale Connection

A Newsletter for the Citizens of Glendale

July/August 1998

Downtown's Exciting, New Civic Center to Open in 2000



Banquets for 800, high school class reunions, proms, trade shows, car shows, major exhibitions and weddings.

Finally, in the Year 2000, Glendalians will be able to hold all of the above events in their very own 29,000-square-foot Civic Center in downtown Glendale.

This exciting new landmark will straddle 57th Drive between Palmaire Avenue and Glenn Drive. The facade consists mostly of reddish brick accented with light colored stone at the main entrance and windows and highlighted by a champagne-colored metal dome over the entrance.

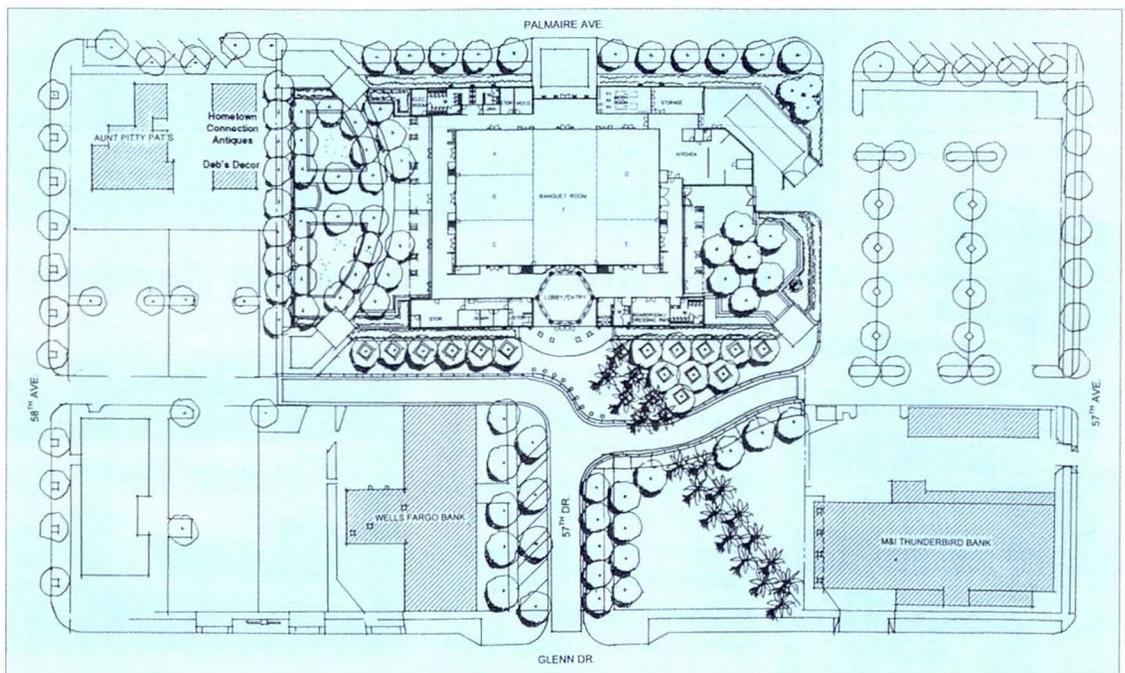
A beautiful rotunda with columns and a domed ceiling will grace the lobby of the Civic Center and lead to the 13,000-square-foot carpeted exhibit hall. Movable walls can divide the hall into five separate spaces: a central banquet room, three equally-sized breakout rooms, a smaller breakout room, and a smaller banquet room.

Another configuration will allow a conference for 500 people to be set up with two-thirds of the hall for banquet space and the other one-third for breakout rooms.

Administrative offices, a boardroom that can be converted to a wedding dressing room, a hospitality room and restrooms line the south corridor. On the east side of the building are the loading dock, kitchen and serving area, and a 3,600-

square-foot outdoor courtyard. Along the north corridor is a large entrance; storage, mechanical, electrical room and audio/visual rooms; and restrooms.

The corridor to the west of the exhibit hall is lined with glass and leads outside to a 15,000-square-foot courtyard featuring a fountain, a canopy of trees and walkways. It can be used for one large group or several smaller groups simultaneously.



As shown on this Civic Center site plan, the building will share the block with the Wells Fargo Bank, M & I Thunderbird Bank, Aunt Pitty Pat's restaurant, Hometown Connection Antiques and Deb's Decor.



City Documents and Records Available On-line

A Message from the Mayor

As you can imagine, the city receives numerous phone calls from citizens and others inquiring about or requesting copies of official city documents and records. In an effort to provide the best service possible in responding to these requests, the City Clerk's Office has come up with a great idea of putting the most frequently-requested public documents on the city's Internet web site. This enables citizens to have quick and convenient access to this information 24 hours a day, seven days a week.

Many of the inquiries we receive from citizens often relate to city ordinances (laws and regulations). Through the city's enhanced web site, citizens now have access to the complete 2,900-page Glendale Code Book. *City Codes On-line* is very easy to use and also includes the city's sales tax code and city charter documents. The city charter contains information on the functions and powers of Glendale city government. Prior to putting our code book on the Internet, the cost to citizens of obtaining a copy of the book was \$150, plus an annual supplement fee of \$100. Now,

portions of the large document can easily be printed or downloaded instantaneously from a computer.

City Council meeting and workshop minutes, as well as Planning Commission meeting minutes, are also now available on our web site. These official meeting minutes enable residents to keep informed, firsthand, on the latest Council actions, issues and city projects.

Beginning in September, the same information packets that the council members and I receive in preparation of our regular meetings and workshop sessions will be available on our web site. This will allow citizens to learn more about and become better informed on the specific agenda items going to Council, such as planning and zoning cases and new ordinances and resolutions being considered for approval. Glendale will be the first city in Arizona to regularly provide this type of information to Internet users.

We know that not all citizens have their own computers, but we also realize that as we move into the 21st century more and more of us will rely on and have access to personal computers in our everyday lives. I encourage all of you to check out our web site at www.ci.glendale.az.us and see for yourself the vast array of official city documents and records available right at your fingertips.

Elaine M. Scruggs

Elaine M. Scruggs
Mayor

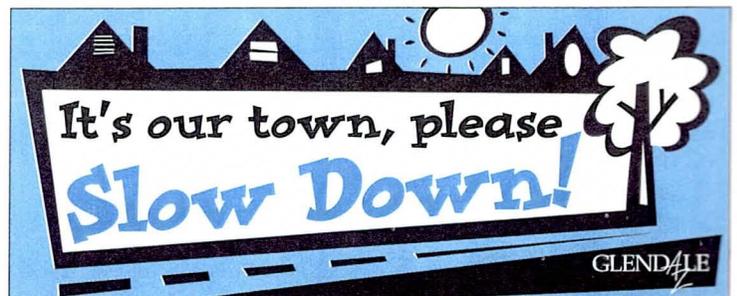
On-Line Information Easily Accessible at Several Locations

Even if you don't have a home computer, you can access the city's Internet web site by visiting the Glendale Main Library, 5959 W. Brown St.; Velma Teague Branch Library, 7010 N. 58th Ave.; Glendale Adult Center, 7121 N. 57th Ave., and City Hall, 5850 W. Glendale Ave, basement level.

What is the #1 Community Concern in Glendale?

The answer:
Speeding.

Crews recently blanketed Glendale's 80,000 households with doorhangers reminding residents of the dangers and consequences of speeding as part of Glendale's Speed Reduction Campaign. The bottom line: **Speed kills!**



What is the #1 Community Concern in Glendale?
(answer) ... check your speedometer the next time you get behind the wheel!

Speed-Related Facts

- 1,000 motor vehicles are involved in speed-related crashes every day.
- 84% of speed-related crashes involve a single vehicle.
- 80% of all speed-related crashes occur at night (8 p.m. to 8 a.m.).
- More than 50% of all drivers involved in speed-related crashes are under the influence of alcohol.

Youth and Speeding

- Of all drivers 16 to 24 years of age involved in fatal crashes, 33 percent of the male drivers and 24 percent of the female drivers were speeding.

The Message... Speed Kills

The probability of death, dismemberment, or disabling injuries doubles to seven to 11 times over 30 mph that a vehicle travels. Many drivers don't realize this. So there, it's time to turn down the speed dial. It's not just a statistic. It's real. It's the reality of what happens to you when you're speeding. Check the way you're driving. It's not just for you.

Check your speedometer the next time you get behind the wheel. It could save your life.

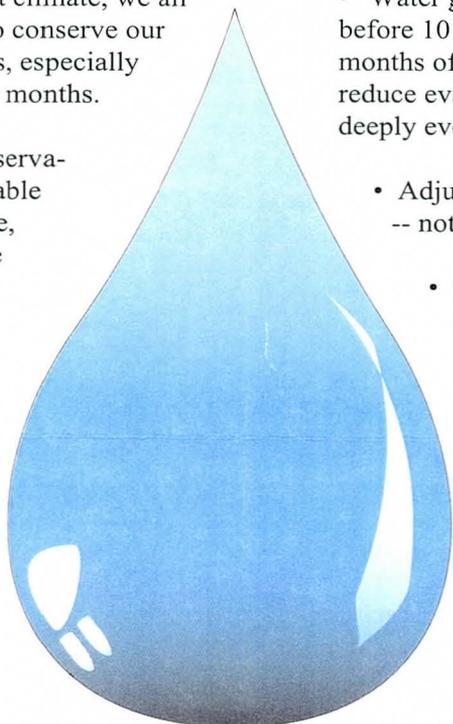
Traffic Enforcement Hotline 930-2005

Use These Valuable Conservation Tips to Save Water During Hot Summer Months

As residents of a desert climate, we all have a responsibility to conserve our limited water resources, especially during the hot summer months.

Glendale's Water Conservation Office offers valuable tips to reduce water use, both inside and outside your home. In addition, the city offers free landscape consulting services to residents.

Also, visit the Xeriscape Garden at the Glendale Main Library, 5959 W. Brown St., for low-water-use landscaping ideas. Call 930-2710 for more information.



- Water grass early or late in the day -- before 10 a.m. or after 9 p.m. during the months of May through September -- to reduce evaporation. Water summer grass deeply every third day.
- Adjust sprinklers so they water grass -- not the sidewalk.
- Check all faucets, showerheads and toilets regularly for leaks.
- Turn off the water faucet while shaving, washing hands or brushing teeth.
- Use the clothes washer and dishwasher only when there is enough for a full load.
- Take shorter showers.
- Install a water-saving shower head.

A Green Thumb in the Desert

Learn to be "water-wise" while you learn the secrets of developing a green thumb in the desert Southwest.



A free xeriscape class covering design, installation, irrigation and maintenance tips will be held at 7 p.m., Thursday, Aug. 13 at the Glendale Main Library, 5959 W. Brown St.

The main library will also host a free class on drip irrigation systems at 7 p.m., Tuesday, Aug. 18.



Keeping Children Safe Around Water

The Glendale Fire Department reminds you to watch your children around water! In addition to backyard swimming pools, kids can drown in other places too. Here are just a few safety tips for both adults and children to follow:

- Children should *always* be supervised by an adult around pools or other water sources.
- Children should *always* swim with a buddy.
- Inflatable toys should *not* be used as lifesaving devices. They are only pool toys and should not be depended upon for keeping children safe in the water. After swimming, be sure to remove all toys from the pool to keep youngsters from being attracted to the water.
- Fences with locked gates or self-closing, self-locking doors provide additional safety around a pool but *are not* substitutes for adult supervision.



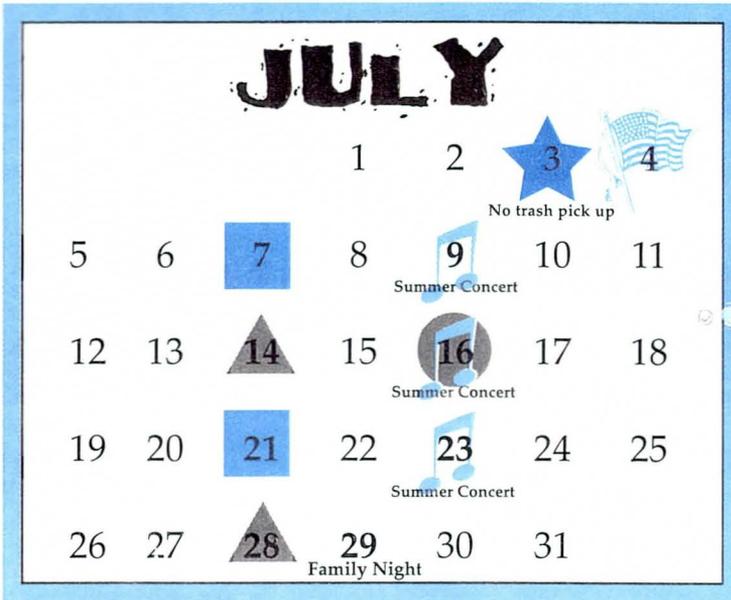
- Watch toddlers around water buckets, toilets and bathtubs.
- Always supervise children while bathing them in the bathtub or sink. Have towels, soap, shampoo and toys on hand before starting the bath.
- Never run inside your home to answer the telephone when children are playing around water. Bring a cordless telephone outside with you.
- Never allow children to play around canals.
- **The best drowning prevention tip: Always know where your children are, especially when around water.**

Save Water, Save \$\$\$

Earn cash rebates for becoming more "water-wise" at home.

Residents can receive \$100 for installing or converting 50 percent of their yard into xeriscape landscaping and \$35 for installing an automatic timer on an underground irrigation system.

To receive an application or for more information, call the Water Conservation Office at 930-2710.



Teen Splash Party/
 Aug. 8 & 22
 Call 930-2841 for info.

- Holiday**
City offices closed.
No sanitation service.
 - Gaslight Antique Walk**
6 - 9 p.m.,
Old Towne & Catlin Court
 - CC Workshop**
1:30 p.m.
 - CC Meeting**
7 p.m.
- CC stands for City Council.
 CC Workshops are held in room B-3 on the lower level of the Council Chambers building. CC Meetings are held in the Council Chambers. CC schedule is subject to change.
- City Meeting Hotline -- 930-3034**

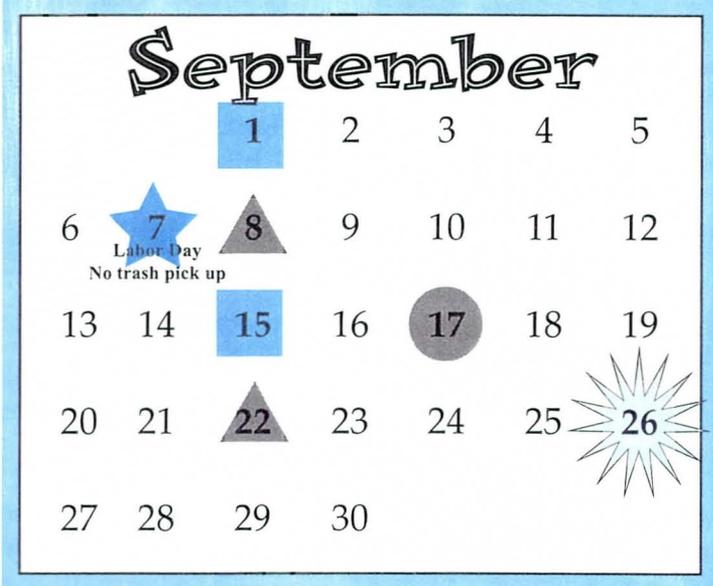
No August Council Meetings
 No City Council meetings or workshops will be held in August due to the summer council recess. The regular meeting and workshop schedule will resume in September.

Fire Prevention Parade Oct. 3
 Come to Glendale's 16th Annual Fire Prevention Day Parade Saturday, Oct. 3! It begins at 9:30 a.m. at 52nd and Glendale avenues and travels west to Murphy Park at 58th Avenue. The park will feature a variety of fun family activities from 11 a.m. to 3 p.m. as well as fire department team competitions. Call 930-3401 for more information about entering a float in the parade. See you there!



Printed on Recyclable Paper

Coming Next Month...
 Instead of the *Connection* newsletter, next month's water bill will include the "Glendale Guide to Frequently-Called Phone Numbers." The brochure guides you to the city department that can best answer your questions. The *Connection* will return with the September/October issue.



Marty Robbins Tribute
 Sept. 26, 7 p.m.,
 Murphy Park Amphitheater
 Call 841-2881 for more information.

Front Porch Fest
 Sept. 26,
 Catlin Court
 Call 435-0556 for more information.



Vol.11, Issue 1
 Mayor Elaine M. Scruggs - 930-2260
 Vice Mayor Thomas R. Eggleston Barrel - 931-1032

Councilmembers:
 H. Philip Lieberman - Cactus - 934-1648
 Manuel D. Martinez - Cholla - 561-8263
 James C. McAllister - Sahuaro - 412-5940
 Martin Samaniego - Yucca - 930-2249
 David M. Goulet - Ocotillo - 930-2248

City Manager Martin Vanacour - 930-2870



Published by the City of Glendale, Arizona
 Marketing/Communications Department
 Editor: Jerry McCoy - 930-2960
 Writer: Margaret Wagner
<http://www.ci.glendale.az.us>

SECTION 4.3

PROPOSED MANAGEMENT PROGRAM

INDUSTRIAL

[40 CFR 122.26(d)(2)(iv)(C)]

SECTION 4.3.1 - 40 CFR 122.26(d)(2)(iv)(C)(1)

(C) INDUSTRIAL

(1) INSPECTIONS/CONTROL MEASURES

(2) MONITORING PROGRAM

4.3.1 Inspection/Control Measures & Monitoring Program

(C) *A description of a program to monitor and control pollutants in stormwater discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system. The program shall:*

- (1) *Identify priorities and procedures for inspections and establishing and implementing control measures for such discharges;*
- (2) *Describe a monitoring program for stormwater discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD₅, TSS, total phosphorus, total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).*

Proposed Program

4.3.1.1 Refinement of Industrial Facilities List

The industrial facility inventory list presented in Table 2-3 contains the names of those industries within the City of Glendale that may discharge to the City's MS4. Included in this list are industries that are called out in the regulations to be subject to this program. These are: NPDES permit holders; municipal landfills; hazardous waste treatment, storage, and disposal facilities; and SARA Title III - Section 313 reporting industries, as well as other industries that may be subject to this program if the City determines that they are discharging substantial pollutant loading, such as Significant Industrial Users (SIUs) that discharge to the sanitary sewer. During the first year of the permit term, the list will continue to be refined by the City's Engineering Department and Pretreatment Group (within the Utilities Department - Water Quality Division) through field checks and by cross referencing the City's Tax and License database with the water billing database.

4.3.1.2 Prioritization of Industrial Facilities List

From this list, the City will, at the end of the second year of the permit term, prioritize the industries by identifying those which contribute substantial pollutant loading to the MS4 using the following criteria:

- Proximity to inlet/other entries to the City's MS4
- Stormwater monitoring data collected by the industry indicating a significant pollutant discharge from the industrial activities
- Proximity to a receiving water
- Nature of the industrial activities and materials exposed to stormwater

- Size of areas associated with industrial activities that are exposed to stormwater
- History of previous pollutant releases to the MS4

These industries will then be subject to the requirements of 40 CFR 122.26(d) (2) (iv) © (1) and (2) that address the inspection, enforcement, control, and monitoring of stormwater discharges associated with selected types of industrial facilities.

The list will be kept current during the permit term by performing the following at the end of the third, fourth, and fifth year of the permit:

- Requesting from ADEQ a current list of industries which have filed NOIs under the stormwater regulations and stormwater monitoring data provided by these industries
- Obtaining current lists of industries on the Toxics Release Inventory
- Querying the EPA web site for current SARA Title III - Section 313 reporters and RCRA subtitle C industries
- Modifying the list to reflect changes in the current SIUs and those industries on the Pollution Prevention (P2) list being developed by the Pretreatment Group

An industry will be dropped from the list if, after having been field checked and inspected, the City inspectors find that the facility does not pose the potential to introduce pollutants into stormwater runoff and eventually into the MS4.

4.3.1.3 Education of Priority Industrial Facilities

The City will send a notification letter by the end of the second year of the permit to all of the priority industries to make them aware that the City is permitted under the NPDES stormwater program. According to the regulation, all industries that are required to file NOIs to the regulatory agency (EPA Region 9, in the case of Arizona) are also required to send a copy to the municipality in which they are located. The notification letter from the City will serve to remind these industries of this requirement and to make them aware that the City will be inspecting their facilities for stormwater related practices and controls. The City will also include in the letter a pamphlet focusing on the storage and handling of toxic chemicals, a generalized list of nonstructural/operational best management stormwater practices, or other educational materials related to stormwater management. This type of material is already generated by the Pretreatment Division and will be expanded with assistance from the Environmental Resources Division.

4.3.1.4 Inspections

The prioritized list of industries will be used to establish an inspection schedule, which will extend from the third through the fifth year of the permit. Each facility will be inspected twice during the permit term. Additional inspections by the Engineering Department and Pretreatment Division will be conducted of industrial facilities where illegal discharges, spills, or other such problems are either reported or indicated by water quality data from the City's wet weather/characterization monitoring program.

Inspections of P2 and SIU industries will be performed by the Industrial Pretreatment Division while on the premises for either their annual inspection or during biannual monitoring. Other industries will be inspected by either the Industrial Pretreatment Division or the Engineering Department as work loads allow. A typical stormwater inspection will include an examination of surface drainage and pathways by

which chemicals and other potential pollutants could contaminate stormwater runoff; the operational condition of structural BMPs (if any exist); the adequacy of maintenance of the structural BMPs; the availability of maintenance, stormwater monitoring, and employee training records; procedural documents related to nonstructural/operational BMPs; and the procedures by which stormwater samples are collected and handled (if applicable). All inspectors will receive training specific to stormwater related issues. Inspections will be documented and submitted to the NPDES stormwater coordinator.

4.3.1.5 Monitoring and Reporting

This portion of the regulation requires that a monitoring program be developed that will include submission of quantitative data on stormwater discharges associated with the priority industries considered by the City to be releasing pollutants to the MS4 or to have the potential to do so. As stated above, many of the priority industries identified by the City are covered under the EPA's NPDES general permit with associated stormwater monitoring requirements. This monitoring information will be used by the City to establish a database beginning in the third year of the permit term from which possible noncompliance of the City's permit due to priority industry discharges can be evaluated. Under the stormwater regulation, a city may request copies of all discharge monitoring reports prepared by the regulated industry that are normally submitted to the appropriate agency as part of the industry's NPDES stormwater permit terms. The request for monitoring data will be made by the City in its notification letter to the priority industries, as described above in Section 4.3.1.3.

Upon review of inspection results and/or monitoring data, the City will make an assessment of the facility's impact on the MS4 and its effect on the City's ability to meet its own NPDES stormwater permit. If a determination is made that corrective action is required, the course of action will be based upon the type of industry associated with the problem. If the industry is already covered by its own NPDES stormwater permit, the matter will be reported to the EPA for further action. For those industries whose operations are not covered under the NPDES stormwater regulation, the City may petition the EPA to require a NPDES stormwater permit with structural/nonstructural BMPs controls and discharge monitoring requirements.

4.3.1.6 Organizational Impacts

During the first through third years of the 5-year permit term, work to be completed under this task will require considerable manpower. However, once the list of industries has been refined and prioritized, an inspection schedule established, and monitoring and reporting requirements determined, the majority of the work to be completed in the fourth and fifth years of the permit will be included under existing programs.

Table 4-11 Industrial Management Program Schedule Inspection/Control Measures and Monitoring Program								
Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.3.1.1 Refinement of Industrial Facilities List	Permit Year 1	Utilities (Pretreatment) and Engineering	X					Pretreatment Officer and Engineering GIS Coordinator
4.3.1.2 Prioritization of Industrial Facilities List	End of Permit Year 2	Utilities (Pretreatment) and Engineering		X				Pretreatment Officer and Engineering GIS Coordinator
4.3.1.3 Education	During permit Year 2 and annually as info. is available	Utilities (Pretreatment), Environmental Resources, Marketing		X	X	X	X	Pretreatment Officer, Environmental Resources Administrator and Marketing Director
4.3.1.4 Inspections	Twice after permit Year 2	Utilities (Pretreatment)			X	X	X	Pretreatment Officer
4.3.1.5 Monitoring and Reporting	Data reviewed annually after permit Year 2	Utilities (Pretreatment)			X	X	X	Pretreatment Officer

SECTION 4.4
PROPOSED MANAGEMENT PROGRAM
CONSTRUCTION SITES
[40 CFR 122.26(d) (2) (iv) (D)]

SECTION 4.4.1 - 40 CFR 122.26(d) (2) (iv) (D) (1)

(D) CONSTRUCTION SITES

(1) SITE PLANNING

4.4.1 Site Planning

(D) *A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in stormwater runoff from construction sites to the municipal storm sewer system, which shall include:*

(1) *A description of procedures for site planning which incorporate consideration of potential water quality impacts;*

Proposed Program

4.4.1.1 Revise Development Plan Review Procedures

Section 1.12 of Glendale's Design Guidelines For Site Development And Infrastructure Construction describes development plan review procedures. Once development plans have been prepared, they are submitted to the City's Development Services Center. From there they are distributed to the appropriate City departments for review and comment. The City will modify the existing Design Guidelines For Site Development And Infrastructure Construction to ensure that potential water quality impacts are considered during the development plan review phase for all construction activities. Modified guidelines will require developers to address stormwater discharges from construction activities early in the project design so that potential water quality impacts can be eliminated or minimized. Stormwater quality controls shall be incorporated during the site plan review process before the developer of the construction site submits detailed engineering plans to the City for review and approval.

4.4.1.2 Require Permit(s) for Construction Activities

Section 1.15 of the Design Guidelines For Site Development And Infrastructure Construction describes construction permits required. Construction permits are required for all construction within the City. All contractors must possess an official set of approved plans and a current permit during project work, otherwise the contractor shall discontinue work. Prior to the issuance of a construction permit, the developer must provide an appropriate letter of assurance or other guarantee for the off-site improvements if required by the City Code. All construction must be in accordance with the approved plans and the Uniform Standard Details and Specifications published by Maricopa Association of Governments (M.A.G.). The Development Services Center will maintain a record of all construction permits issued.

Section 2, Construction Plan Preparation, of the Design Guidelines For Site Development And Infrastructure Construction further describes that there are general responsibilities for the developer during grading and drainage construction, such as acquiring on-site grading permits, obtaining separate permits for any off-site construction, notifying the City's Grading and Drainage Inspector 24 hours prior to commencing work, and designating the location for wasting spoil materials prior to on-site construction.

4.4.1.3 Organizational Impacts

The City will allocate funds to revise the development plan review procedures in the first year. In subsequent years, work under this task will be covered under existing procedures and no additional impact is anticipated.

**Table 4-12
Construction Management Program Schedule
Site Planning**

Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.4.1.1 Revise Development Plan Review Procedures	Once	Engineering		X				Land Development Engineer Land Development Engineer
- Revise Design Guidelines for Site Development Infrastructure Construction - Require Developers to Incorporate Stormwater Quality Controls into Site Development Plans	As needed	Engineering			X	X	X	
4.4.1.2 Require Permit(s) for Construction Activities	Ongoing	Development Services	X	X	X	X	X	Senior Representative
- Issuance - Inspection/Enforcement	Ongoing	Engineering	X	X	X	X	X	Assistant City Engineer

SECTION 4.4.2 - 40 CFR 122.26(d) (2) (iv) (D) (2)

(D) CONSTRUCTION SITES

(2) BMP REQUIREMENTS

4.4.2 BMP Requirements

(D) *A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in stormwater runoff from construction sites to the municipal storm sewer system, which shall include:*

(2) *A description of requirements for nonstructural and structural best management practices;*

Proposed Program

4.4.2.1 Modify City Grading and Drainage Requirements

The City will modify its existing Grading and Drainage Requirements found in Chapter 18.5 of the City Code to require minimum standards for excavations, cuts, fills, clearing, earthmoving, grading, and erosion and sediment control to reduce potential environmental impacts during construction. The EPA currently requires that developers submit a Stormwater Pollution Prevention Plan (SWPPP) meeting certain criteria, including a description of what BMPs will be utilized at the construction site and a program detailing when and how these controls will be implemented. A combination of the City's modification of the existing Grading and Drainage Requirements and EPA's requirement of a SWPPP will reduce the potential for pollutants to enter the stormwater during construction.

4.4.2.2 Organizational Impacts

The City will allocate funds to modify the City grading and drainage ordinance in the second year. In subsequent years, work under this task will be covered under existing procedures and no additional impact is anticipated.

**Table 4-13
Construction Management Program Schedule
BMP Requirements**

<i>Program Element</i>	<i>Frequency</i>	<i>Dept. In Charge</i>	<i>Period of Implementation</i>					<i>Responsible Staff Personnel</i>
			<i>Permit Year 1</i>	<i>Permit Year 2</i>	<i>Permit Year 3</i>	<i>Permit Year 4</i>	<i>Permit Year 5</i>	
4.4.2.1 Modify City Grading and Drainage Requirements	Once	Engineering		X				Land Development Engineer

SECTION 4.4.3 - 40 CFR 122.26(d)(2)(iv)(D)(3)

(D) CONSTRUCTION SITES

(3) INSPECTION AND ENFORCEMENT

4.4.3 Inspection and Enforcement

(D) *A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in stormwater runoff from construction sites to the municipal storm sewer system, which shall include:*

(3) *A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality; and*

Proposed Program

The Engineering Department is responsible for construction inspections and oversight of capital improvement projects and private development (off-site construction) within the City. The inspectors focus on capital projects and city-funded work. The utility inspectors coordinate with local utility groups including Arizona Public Service (APS), Salt River Program (SRP), Cox Communications, SW Gas and USWEST for utility issues within the right-of-way. The City also inspects the grading and drainage on private development to insure compliance with the approved plans.

4.4.3.1 Inspection and Enforcement

Key responsibilities of the Engineering Department inspectors include "pre-job to end of construction" quality control for on-going City projects and developments (redline and drawing inspections), and oversight and field inspections to ensure the projects are built according to design plans and construction guidelines. Inspections will be made during grading and backfill operations, utility installation, asphalt and concrete placement, implementation of erosion control measures and other milestones in the project as time permits. The Engineering Department works very closely with other City departments including, but not limited to, Design/Survey, Code Enforcement, Parks Maintenance and Recreation, Streets, Environmental, and Utilities.

If through the above activities or from other means or sources, the City learns or believes that the Contractor is not following the approved design plans and construction guidelines, the City may refuse to approve further work until approval is obtained for a revised plan which will conform to the existing condition(s).

4.4.3.2 Recordkeeping

The City will maintain records of inspections conducted and enforcement actions taken at construction sites.

4.4.3.3 Organizational Impacts

The work under this task is covered under existing procedures. However, the City will allocate funds for the NPDES stormwater coordinator to inspect and evaluate the effectiveness of the program.

**Table 4-14
Construction Management Program Schedule
Inspection and Enforcement**

Program Element	Frequency	Dept. In Charge	Period of Implementation					Responsible Staff Personnel
			Permit Year 1	Permit Year 2	Permit Year 3	Permit Year 4	Permit Year 5	
4.4.3.1 Inspection and Enforcement - Public Right-of-Way - Private Sites	As needed As needed	Engineering Building Safety and Engineering	X X	X X	X X	X X	X X	Assistant City Engineer Building Inspection Manager and Land Development Inspector
4.4.3.2 Recordkeeping	Ongoing	Engineering and Building Safety	X	X	X	X	X	Assistant City Engineer, Land Development Engineer and Building Inspection Manager

SECTION 4.4.4 - 40 CFR 122.26(d)(2)(iv)(D)(4)

(D) CONSTRUCTION SITES

(4) EDUCATION AND TRAINING

4.4.4 Education and Training

(D) *A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in stormwater runoff from construction sites to the municipal storm sewer system, which shall include:*

(4) *A description of appropriate educational and training measures for construction site operators.*

Proposed Program

Construction site operators as well as City inspectors often need training and education about the sources, controls and impacts of pollutants in stormwater runoff. Implementation of erosion and sediment controls have historically been major problems even with many programs that may be otherwise exemplary.

A training program for contractors, engineers, City site inspectors, and other field personnel associated with construction activities will be developed. The training program will focus on the sources of stormwater pollution from construction sites and control methods to minimize the impact of pollutants on receiving waters. Existing materials, resources and groups will be utilized to the greatest extent possible.

4.4.4.1 Education and Training for City Employees

The Engineering and Construction Department has actively participated in on-the-job training programs and has taken steps in providing appropriate educational and training measures for construction site operators and/or inspectors. Most of the senior inspectors have several years of professional experience and often mentor entry or junior-level construction inspectors in the department. Additionally, the departmental supervisor attempts to involve staff members in City-issued seminars, classes, and development seminars when possible. Also, most of the Construction Department inspectors are certified through the National Institute for Certification in Engineering Technologies.

The City will continue to develop its training program for city employees. City employees attending the training will consist of construction inspectors as well as plan reviewers, and others as determined appropriate. The existing training measures will be modified to include:

- Overview of purpose and goals of the NPDES stormwater regulations for construction sites
- General review of City's stormwater management program for construction sites
- Discussion of BMP requirements for construction sites
- Mechanisms for reporting violations
- Legal authority for enforcement actions

It is anticipated that training sessions for City employees will be held on an annual basis, or as often as determined necessary for new employees.

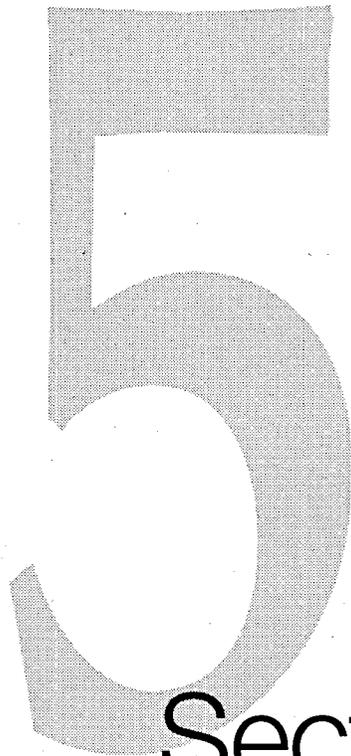
4.4.4.2 Education and Training for Construction Industry

An education and training program will be developed for members of the construction industry. Videos, workshops, seminars, demonstrations or field trips will be considered. It is anticipated that this program would include workshops similar to those conducted in other areas of the State. The City will work with local organizations who sponsor workshops for the construction industry. In addition, the City will develop guidance materials on construction activities for distribution to contractors applying for

construction permits. These guidance materials will be based on similar materials developed by other stormwater programs in the state.

4.4.4.3 Organizational Impacts

Education and training of employees will require considerable manpower to meet the program requirements.



Section
Five

SECTION 5.0

ASSESSMENT OF CONTROLS [40 CFR 122.26 (d) (2) (v)]

Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal stormwater quality management program. The assessment shall also identify known impacts of stormwater controls on groundwater.

5.1 Estimated Reduction of Pollutants

5.1.1 Effectiveness of Existing Best Management Practices (BMPs)

Most of the city's existing stormwater retention facilities as well as the City's retention requirements for new development prevent the discharge of various stormwater pollutants from all storms equal to and less than the 100-year, 2-hour storm event. In Section 3.2 of this document the average annual pollutant loads were estimated for the City of Glendale utilizing the Watershed Management Model (WMM) for the following 12 constituents:

- 5-Day Biochemical Oxygen Demand
- Chemical Oxygen Demand
- Total Suspended Solids
- Dissolved Solids
- Total Phosphorus
- Dissolved Phosphorus
- Total Nitrogen
- Total Ammonia plus Organic Nitrogen
- Total Cadmium
- Total Copper
- Total Lead
- Total Zinc

Specifically, the pollutant loads were estimated for two scenarios: (1) the first scenario included an estimate of the pollutant loads without the use of retention basins as a best management practice; (2) the second scenario included an estimate of the pollutant load reductions resulting from the existing retention basins.

As seen in Table 3-8 of this document, the current requirement for on-site retention within the City reduces the average annual loads for many of the above mentioned pollutants. For example, the reduction in the median/mean annual pollutant load of total suspended solids (TSS) to the MS4 is 27% or a total of 1,000,000 lbs/yr. The City can expect to obtain pollutant load reductions similar to those illustrated in Table 3-8 as open space is developed with retention BMPs.

5.1.2 Projected Effectiveness of Proposed Management Program

The City's assessment of proposed stormwater control effectiveness includes both quantitative and qualitative estimates of expected load reductions realized from implementing the BMPs in the stormwater management program described in Section 4.0. Quantitative estimates are provided where information is available on removal efficiencies of specific BMPs and the extent to which those BMPs are to be implemented. It should be noted that these are **estimates** only and should not be considered as the basis of any permit compliance goal. The City's Stormwater Management Program also includes many non-

structural, source-oriented, pollution prevention BMPs that do not lend themselves to being field monitored by typical sampling techniques. At the present time, there is a limited body of data on the assessment of these non-structural, source-oriented stormwater quality controls. Many of these measures are not intended to reduce average annual pollutant loads; rather, they prevent the intermittent and/or accidental release of significant pollutant concentrations for a short time period. Therefore, only a partial estimate of the reduction efficiency can be provided at this time. Table 5-1 represents a preliminary screening based on constituent loading for each element of the proposed management program detailed in Section 4.0. A check mark is used to indicate if a BMP addresses a constituent that is contributing to the pollutant loading in the stormwater runoff.

5.1.2.1 Structural Controls

Structural controls include the physical interception and separation of pollutants from stormwater usually through detention, retention, sedimentation, and/or filtration. Quantitative studies of BMP performance are available for most treatment controls.

Development/Redevelopment Planning

The City currently requires on-site retention to contain, at the least, the runoff generated by a 100-year, 2-hour storm event. As noted above, retention facilities for the 100-year, 2-hour storm event retain a percentage of the average annual stormwater pollutant loads for stormwater pollutants in addition to their intended flood control benefits.

Construction Site BMP Requirements

The EPA currently requires control measures used on construction sites to be detailed in a Stormwater Pollution Prevention Program (SWPPP). These measures include the use of sediment basins and traps, straw bales, dikes, silt fences and utilization of inlet protection for area drains and curb inlets. Based on a literature search, it appears that several of these measures average 70 percent effectiveness in removing total suspended solids.¹

5.1.2.2 Nonstructural Controls

Source controls include ongoing programs or practices intended to keep pollutants from entering the storm drain system. Examples of source controls include hazardous waste collection, waste oil collection and recycling and illegal discharge prevention. Source controls are generally implemented through legislation, policies, planning procedures, public education, training or administrative orders. While the effect of source controls on reducing pollutants in stormwater discharges are difficult to quantify, these controls are essential to the success of any stormwater management program.

Stormwater Facility Maintenance and Roadway O&M

Glendale's stormwater management plan provides for the inspection of its drainage structures annually. As noted in the stormwater management programs, the City will inventory its street inlets, detention/retention basins and dry wells during the first year of the permit.

¹ Schueler. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs. July 1987.

**Table 5-1
Assessment of BMP Effectiveness Preliminary Screening**

Element of Stormwater Management Program	Constituent											
	BOD ₅	COD	TSS	TDS	NO ₃ +NO ₂	TKN	Total-P	Diss-P	Cd	Cu	Pb	Zn
COMMERCIAL/RESIDENTIAL												
Stormwater Facility Maint.			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Development/Redevelopment Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Roadway Operation & Maint.			✓	✓								
Existing/Proposed Flood Mgmt. Facility Assessments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Municipal Waste Handling Facilities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pesticide, Herbicide and Fertilizer Application					✓	✓	✓	✓				
ILLCIT DISCHARGE												
Inspections and Enforcement	✓	✓			✓	✓	✓	✓				
Field Screening	✓	✓			✓	✓	✓	✓				
Storm Sewer Investigation	✓	✓			✓	✓	✓	✓				
Spill Prevention/Containment									✓	✓	✓	✓
Public Reporting	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
Used Oil/Toxic Materials		✓							✓	✓	✓	✓
Sanitary Seepage	✓	✓			✓	✓	✓	✓				
INDUSTRIAL												
Inspections/Control Measures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Monitoring Program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CONSTRUCTION												
Site Planning			✓	✓								
BMP Requirements			✓	✓								
Inspection and Enforcement			✓	✓								
Education and Training			✓	✓								

The goal of this element of the stormwater management plan is to ensure continued, proper operation of the stormwater drainage system resulting in enhanced stormwater quality. In addition, the street sweeping of the central business district, major thoroughfares and residential streets at least two times per year

contributes to the reduction of pollutant loading to the storm sewer system. The City will keep records as an indirect method of measuring the effectiveness of the stormwater management program.

Pesticide, Herbicide and Fertilizer Application

The City plans to address this element of the Stormwater Management Program through improved management of municipal applicators (both City staff and contractors) utilizing revised guidelines for fertilizer, herbicide and pesticide usage. All City personnel involved with pesticide and fertilizer application will receive in-house training regarding proper pesticide and fertilizer management techniques in addition to pesticide alternatives. Measures will be taken to more closely monitor the quality of service provided by pesticide contractors to the City. In addition, the City will promote public education of the proper use of fertilizer, herbicides and pesticides.

Field Screening

The results of the Dry Weather Field Screening Program conducted in preparation of the Part 1 Permit Application on the major outfall from the storm sewer system indicated that the observed flows were most likely potable water and not a source of pollution. The City will utilize this initial Dry Weather Field Screening Program as a guide to conduct additional dry weather field screening during the 5-year permit term. If significant pollutant levels are detected in dry weather discharges, the City will try to pinpoint illicit discharges or connections.

Storm Sewer Investigation Approach and Sanitary Seepage

The City of Glendale currently has a storm sewer maintenance program in place. The City will augment this program with an illicit discharge inspection program, which will involve visual inspection of all major outfalls within the City. If the source of dry weather flow observed is due to the City sanitary sewer system, then removal of such unwarranted connections will be the responsibility of City personnel. The City will maintain records of all maintenance activities, inspections, enforcement actions taken, etc. in order to measure the effectiveness of the stormwater management program. The City currently has no documented cases of infiltration from the sanitary sewer system to the storm sewer system.

Prevent/Contain Spills

With the assistance of agencies such as police, fire and the ADEQ, the City will continue its coordination of emergency response including hazardous materials release. Once again, the City will document all leaks, spills, and clean-up procedures.

Public Reporting and Used Oil/Toxic Materials

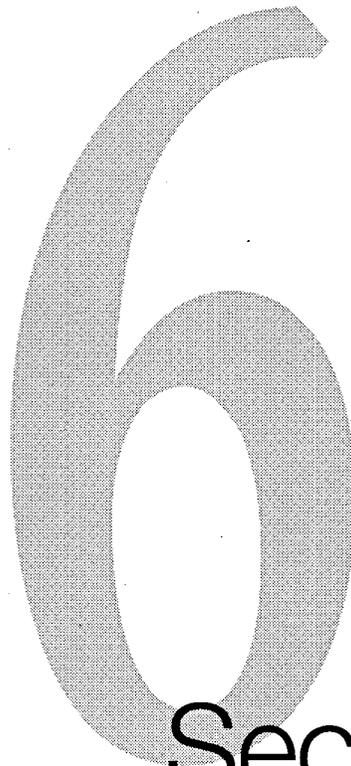
To facilitate public information dissemination and reporting of improper disposal and illegal dumping, the City will utilize a 24-hour hotline. Callers can access this number and leave messages concerning illegal disposal and dumping information. In addition, monthly newspaper articles in the *Glendale Connection* will be filed and bi-annual informational inserts will be added to utility bills. Currently the City distributes approximately 52,000 copies of the *Glendale Connection* on a monthly basis. Advertisements regarding household hazardous wastes and other topics will be broadcast on the City's cable channel or Internet web address. The City will promote the household hazardous waste collection program, coordinate training programs for City employees, manage the development and dissemination of stormwater related information such as the utility bill stuffers and facilitate the City's involvement in community activities such as city and county fairs where information can be made readily available to City residents.

Industrial

Since most material handling practice controls are specific to each industry or commercial establishment, it is difficult to develop an assessment program that will address every industry or commercial group. However, the City will establish a program in which monitoring and inspection data collected on the City's industries through the NPDES stormwater permitting program will be obtained. Inspections of Significant Industrial Users by the City while on pre-treatment site visits will further augment this data. Additional inspections by the City will be conducted of industrial facilities where illegal discharges, spills, or other such problems are indicated by water quality data collected from the City's wet weather monitoring program. Records of inspections will be maintained.

5.2 Assessment of Groundwater Impacts

The City's proposed management program focuses on nonstructural controls which reduce the amount of pollutants in stormwater before it enters receiving waters. Source controls (especially the City's pesticide/herbicide/fertilizer and household hazardous waste programs) will reduce the levels of toxic materials in stormwater that could potentially enter the groundwater table. The household hazardous waste program proposed by the City additionally provides an obvious beneficial impact to groundwater quality by reducing the amounts of household toxic materials delivered to landfills that may eventually threaten groundwater quality through leaching. Lastly, the depth to groundwater throughout most of the City of Glendale is at least 200 feet. Therefore, the potential for pollutants to adversely effect groundwater is very limited.

A large, stylized number 6 with a halftone texture, positioned in the center-right of the page.

Section
Six

SECTION 6.0

FISCAL ANALYSIS [40 CFR 122.26 (d) (2) (vi)]

For each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs 40 CFR 122.26 (d) (2) (iii) Characterization Data and 40 CFR 122.26 (d) (2) (iv) Proposed Management Programs. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

6.1 Introduction

The NPDES regulation requires an identification of the anticipated expenditures necessary to implement the stormwater monitoring and management programs. The regulation also requires the identification of the source of funds which will be used to meet the required expenditures. The City of Glendale is under severe funding constraints and has many competing needs for the municipal general funds. Therefore, the City must have a cost-effective phased program to meet the NPDES requirements.

6.2 Program Organization and Cost Summary

To satisfy the regulation and develop a cost-effective stormwater management program, the existing City programs were first evaluated. Many of the required tasks of the regulations are currently being completed by the City at this time and the work is covered under the existing budget. However, some additional tasks and resources not covered under current City programs are needed to satisfy the regulations.

In order to quantify the additional NPDES program requirements, costs were identified for various departments within the City. The departments included Engineering, Building Safety, Planning, Streets, Environmental Resources, Utilities, Pre-Treatment, Parks and Recreation, and Fire. Activities were analyzed relative to their support functions identified in the EPA regulation, and the additional manpower and equipment needs were determined. No attempt has been made to quantify the costs for those existing tasks currently being completed to meet other City goals as well as the NPDES regulation.

The data presented in Table 6-1 represents the results of the City's review of the proposed stormwater management plan to meet the NPDES Part II stormwater permit application requirements and the additional resources required. It should be noted that any new initiatives requiring additional staff, equipment, or ordinances are subject to approval by the City of Glendale Mayor and Council. Therefore, the proposed management plan can only be implemented to the extent that funds are available and approved each year.

As a result of clearly identifying the City's objectives in performing the activities specified in the management plan, resources have been estimated. The estimated costs shown in Table 6-1 represent the best judgment of the level of effort necessary to initiate each of the specified objectives. Assuming the permit application package is approved by EPA without substantial alterations, the City has obtained Mayor and Council approval to fund the first year program through the City's general fund and can implement the first year program contained within this application.

6.3 Funding Sources

To date, the City of Glendale has spent approximately \$500,000 to prepare the NPDES Part I and Part II stormwater permit applications. This cost includes the cost for a consultant and staff time and the cost to construct the stormwater monitoring stations as required by the permit. All costs to date have been funded through the City's general fund operating budget.

Although an approximate estimate has been made of the costs necessary to implement the management program as outlined in Sections 3.0 and 4.0, no assurances can be made concerning the timing, quantity, or source of funds available for the program beyond the first year of the permit. As with many municipalities, the City of Glendale is experiencing a serious budget shortfall and is subject to input by all other departments within the City and the final approval of the Mayor and Council. To provide a long-term, stable funding source in subsequent years, the City is looking into several alternative funding methods including a stormwater utility tax or other stormwater user fees.

Table 6.1

NPDES Program Estimated Annual Costs in Addition to Existing Program Costs

Program	Year 1		Year 2		Year 3		Year 4		Year 5		Organizational Impacts	
	Labor	Material	Labor	Material	Labor	Material	Labor	Material	Labor	Material		
4.1 Commercial and Residential												
4.1.1 Stormwater Facility Maintenance												
4.1.1.1 Street Inlets												
Cleaning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Note: Organizational impacts address 4.1.1.1 through 4.1.1.10. Operation and maintenance, including regular inspection, of existing inlets, drainage basins, drywells, and drainage channels are covered under existing procedures and no additional impact is anticipated. However, additional funds will be budgeted for inspections by the NPDES Coordinator to evaluate the effectiveness of the management program. In addition, inventory of inlets and drywells will require considerable manpower and additional equipment in the first year of the program to inventory all inlets and drywells. Subsequent years will require a minimal amount of time to keep information current.	
Inspection	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -		
Inventory	\$ 22,400	\$ 18,000	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -		
4.1.1.2 Drainage Channel Maintenance												
Inspection	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -		
Debris Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.1.3 City Detention/Retention Basins within Parks												
Inspection of Inlets and Outlets	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -		
Debris Removal in Inlets and Outlets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.1.4 City Detention/Retention Basins within ROW												
Inspection of Inlets and Outlets	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -		
Debris Removal in Inlets and Outlets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.1.5 City Detention/Retention Basins within Parks												
Sediment Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.1.6 City Detention/Retention Basins within ROW												
Sediment Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.1.7 City Detention/Retention Basins within Parks												
Drywell Inventory	\$ 16,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -		
Drywell Inspection	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -		
Drywell Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.1.8 City Detention/Retention Basins within ROW												
Drywell Inventory	\$ 16,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -		
Drywell Inspection	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -		
Drywell Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.1.9 Private Detention/Retention Basins												
Modify Ordinance	\$ 2,800	\$ -	\$ 5,600	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -		
4.1.1.10 Recordkeeping												
	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -		
4.1.2 Development / Redevelopment Planning												
4.1.2.1 General Plan Compliance												
	\$ 1,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.2.2 Storm Drain Policy/Control Measures												
	\$ 1,400	\$ -	\$ 5,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.2.3 Development Plan Review												
	\$ 5,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
4.1.3 Roadway Operation and Maintenance												
4.1.3.1 Street Sweeping												
	\$ 5,600	\$ 6,000	\$ 5,600	\$ 3,000	\$ 5,600	\$ 3,000	\$ 5,600	\$ 3,000	\$ 5,600	\$ 3,000		
4.1.3.2 Road Maintenance												
	\$ 2,800	\$ 2,000	\$ 1,400	\$ 2,000	\$ 1,400	\$ 2,000	\$ 1,400	\$ 2,000	\$ 1,400	\$ 2,000		
4.1.3.3 Road Construction												
	\$ 2,800	\$ 3,000	\$ 1,400	\$ 3,000	\$ 1,400	\$ 3,000	\$ 1,400	\$ 3,000	\$ 1,400	\$ 3,000		
4.1.3.4 Road Runoff Controls												
	\$ 4,200	\$ 2,000	\$ 1,400	\$ 2,000	\$ 2,800	\$ 2,000	\$ 1,400	\$ 2,000	\$ 2,800	\$ 2,000		
4.1.3.5 Field Operations Center												
	\$ 2,800	\$ 2,000	\$ 1,400	\$ 2,000	\$ 1,400	\$ 2,000	\$ 1,400	\$ 2,000	\$ 1,400	\$ 2,000		

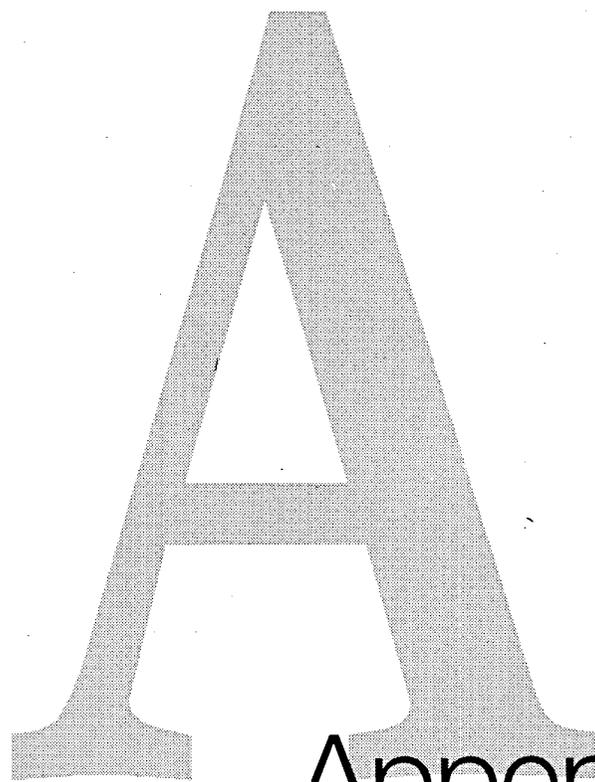
Program	Year 1		Year 2		Year 3		Year 4		Year 5		Organizational Impacts
	Labor	Material	Labor	Material	Labor	Material	Labor	Material	Labor	Material	
4.1.4 Existing/Proposed Flood Mgmt. Facility Assessment											
4.1.4.1 Flood Control Facilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Note: Organizational impacts address 4.1.4.1 through 4.1.4.2. The assessment of the existing and proposed flood management facilities will require considerable manpower during the first year. Subsequent years will require a minimum amount of manpower to keep information current.
4.1.4.2 Flood Control Facilities Assessment	\$ 16,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.1.5 Municipal Waste Handling Facilities											
4.1.5.1 Municipal Waste Handling Facilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Note: Organizational impacts address 4.1.5.1 through 4.1.5.2. The work under this task is covered under existing procedures. Additional funds are allocated for recordkeeping.
4.1.5.2 Recordkeeping	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.1.6 Pesticide, Herbicide, and Fertilizer Application											
4.1.6.1 City use of Herbicides, Pesticides, etc.	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	Note: Organizational impacts address 4.1.6.1 through 4.1.6.3. The work under this task will require considerable manpower and additional equipment to prepare the public training and education materials during the first year of the permit. Subsequent years will require manpower and materials to keep the program current, maintain a continuing education procedure, and perform recordkeeping.
4.1.6.2 Program to Reduce City Chemical Use	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.1.6.3 Public Education	\$ 2,800	\$ 3,500	\$ 1,400	\$ 10,000	\$ 1,400	\$ 10,000	\$ 1,400	\$ 10,000	\$ 1,400	\$ 10,000	
4.2 Illicit Discharges/Improper Disposal											
4.2.1 Inspections & Enforcement											
4.2.1.1 Ordinance Enforcement	\$ 5,600	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	Note: Organizational impacts address 4.2.1.1 through 4.2.1.3. The work under this task will require considerable manpower during the first year of the program to inventory and inspect for illicit discharges. Subsequent years will require manpower to conduct inspections.
4.2.1.2 Inspection for Illicit Discharges	\$ 16,800	\$ -	\$ 5,600	\$ -	\$ 5,600	\$ -	\$ 5,600	\$ -	\$ 5,600	\$ -	
4.2.1.3 Recordkeeping	\$ 5,600	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	
4.2.2 Field Screening											
4.2.2.1 Dry Weather Field Screening Procedures	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	Note: Organizational impacts address 4.2.2.1 through 4.2.2.3. The work under this task will require considerable manpower to locate outfalls and revise the dry weather field screening procedures for the new and existing outfalls during the first and all subsequent years of the permit.
4.2.2.2 Locations to be Dry Weather Field Screens											
Existing Outfalls	\$ 2,800	\$ -	\$ -	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 5,000	
New Outfalls	\$ 2,800	\$ -	\$ 2,800	\$ 5,000	\$ 2,800	\$ 5,000	\$ 2,800	\$ 5,000	\$ 2,800	\$ 5,000	
4.2.2.3 Recordkeeping	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	
4.2.3 Storm Sewer Investigation Approach & Sanitary Sewer Seepage											
4.2.3.1 Illicit Discharge Investigation Protocol	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	Note: Organizational impacts address 4.2.3.1 through 4.2.3.4. The work under this task will require some manpower to investigate and eliminate sanitary sewer seepage during the first and all subsequent years of the permit.
4.2.3.2 Sanitary Sewer system Evaluation Study	\$ 1,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
4.2.3.3 Current Procedures to Limit Sanitary Seepage	\$ 1,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
4.2.3.4 Recordkeeping	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	
4.2.4 Spill Prevention / Containment											
4.2.4.1 Responsibility	\$ -	\$ 13,000	\$ -	\$ 13,000	\$ -	\$ 13,000	\$ -	\$ 13,000	\$ -	\$ 13,000	Note: Organizational impacts address 4.2.4.1 through 4.2.4.5. The work under this task will require considerable manpower and additional equipment to modify procedures for containment of spills, as needed, as well as for the training of city personnel during the first year and each subsequent year of the permit. In addition, the City will allocate funds to cover costs for disposal in the event the responsible party cannot be identified.
4.2.4.2 Containment Controls	\$ -	\$ -	\$ -	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 5,000	\$ -	\$ 5,000	
4.2.4.3 Training	\$ 5,600	\$ 10,000	\$ 1,400	\$ 12,000	\$ 1,400	\$ 12,000	\$ 1,400	\$ 12,000	\$ 1,400	\$ 12,000	
4.2.4.4 Prevention	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
4.2.4.5 Recordkeeping	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	

Program	Year 1		Year 2		Year 3		Year 4		Year 5		Organizational Impacts
	Labor	Material	Labor	Material	Labor	Material	Labor	Material	Labor	Material	
4.2.5 Public Reporting & Used Oil/Toxic Materials											
4.2.5.1 Public Education & Awareness Program	\$ 8,400	\$ -	\$ 1,400	\$ 5,000	\$ 1,400	\$ 5,000	\$ 1,400	\$ 5,000	\$ 1,400	\$ 5,000	Note: Organizational impacts address 4.2.5.1 through 4.2.5.4. The work under this task will require considerable manpower and additional materials to prepare the public education and awareness materials during the first and all subsequent years of the permit.
4.2.5.2 City Facility Operations to Limit Illicit Discharges	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.2.5.3 Management & Disposal of Used Oil etc.	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.2.5.4 Recordkeeping	\$ 2,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.2.6 Used Oil/Toxic Materials	Covered as part of Section 4.2.5										
4.2.7 Sanitary Sewer Seepage	Covered as part of Section 4.2.3										
4.3 Industrial											
4.3.1 Inspections/Control Measures & Monitoring Program											
4.3.1.1 Refinement of Industrial Facilities List	\$ 5,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Note: Organizational impacts address 4.3.1.1 through 4.3.1.5. During the first through third year of the 5-year permit term, work to be completed under this task will require considerable manpower. However once the list of industries has been refined and prioritized, an inspection schedule established, and monitoring and reporting requirements determined, the majority of the work to be completed in the fourth and fifth years of the permit will be included under existing programs.
4.3.1.2 Prioritization of Industrial Facilities List	\$ 1,400	\$ -	\$ 5,600	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.3.1.3 Education of Priority Industrial Facilities	\$ -	\$ -	\$ 5,600	\$ 1,000	\$ 1,400	\$ 1,000	\$ 1,400	\$ 1,000	\$ 1,400	\$ 1,000	
4.3.1.4 Inspections	\$ -	\$ -	\$ -	\$ -	\$ 7,000	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	
4.3.1.5 Monitoring and Reporting	\$ -	\$ -	\$ -	\$ -	\$ 9,800	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	
4.4 Construction Sites											
4.4.1 Site Planning											
4.4.1.1 Revise Development Plan Review Procedures	\$ 1,400	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Note: Organizational impacts address 4.4.1.1 through 4.4.1.2. The City will allocate funds to revise the development plan review procedures in the first year. In subsequent years work under this task will be covered under existing procedures and no additional impact is anticipated.
4.4.1.2 Require Permit(s) for Construction Activities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
4.4.2 BMP Requirements											
4.4.2.1 Modify City Grading & Drainage Ordinance	\$ -	\$ -	\$ 4,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	Note: Organizational impacts address 4.4.2.1. The City will allocate funds to modify the city grading and drainage ordinance in the second year. In subsequent years, work under this task will be covered under existing procedures and no additional impact is anticipated.
4.4.3 Inspection & Enforcement											
4.4.3.1 Inspection & Enforcement	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	Note: Organizational impacts address 4.4.3.1 through 4.4.3.2. The work under this task is covered under existing procedures. However, the City will allocate funds for the NPDES coordinator to inspect and evaluate the effectiveness of the program.
4.4.3.2 Recordkeeping	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	\$ 2,800	\$ -	
4.4.4 Education & Training											
4.4.4.1 Education & Training for City Employees	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	Note: Organizational impacts address 4.4.4.1 through 4.4.4.2. Education and training of employees will require considerable manpower to meet the program requirements.
4.4.4.2 Education & Training for Construction Industry	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	\$ 1,400	\$ -	

Program	Year 1		Year 2		Year 3		Year 4		Year 5		Organizational Impacts
	Labor	Material	Labor	Material	Labor	Material	Labor	Material	Labor	Material	
Other Expenses Related to NPDES Program											
Stormwater Monitoring Stations O & M	\$ 1,400	\$ 40,000	\$ 1,400	\$ 40,000	\$ 1,400	\$ 40,000	\$ 1,400	\$ 40,000	\$ 1,400	\$ 40,000	Funds to conduct ongoing recordkeeping to be incorporated in the annual report have been budgeted above in various program elements. The funds budgeted to prepare the annual report are for collection and organization of records and preparation of the report.
Prepare Annual Report	\$ 2,800	\$ 3,000	\$ 2,800	\$ 3,000	\$ 2,800	\$ 3,000	\$ 2,800	\$ 3,000	\$ 2,800	\$ 3,000	
Total Costs	\$ 218,400	\$ 102,500	\$ 107,800	\$ 111,000	\$ 105,000	\$ 111,000	\$ 91,000	\$ 111,000	\$ 92,400	\$ 111,000	

Notes:

- (1) Labor estimates were developed by estimating the number of manweeks to complete each task and multiplying by the relevant labor rate.
- (2) Material estimates include costs for outside consultants, needed equipment and other miscellaneous materials.
- (3) A "\$ - " indicates that a particular task in the stormwater management program is part of the City's existing programs and will be funded by an existing source.



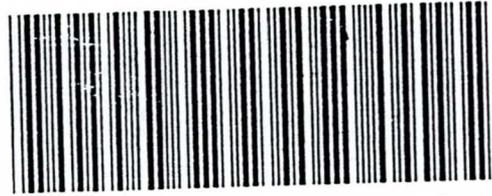
Appendix
A

Appendix A

Intergovernmental Agreement
for the
Design, Construction, Operation, and Maintenance
of the
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
AGREEMENT FOR A REGIONAL STORMWATER SAMPLING PLAN
MARICOPA COUNTY, ARIZONA
Between
The Flood Control District of Maricopa County
and
The City of Glendale

IGA FCD-98009

HOLD FOR PICK UP
CLERK OF THE BOARD
~~COUNTER~~ PICK UP



OFFICIAL RECORDS OF
MARICOPA COUNTY RECORDER
HELEN PURCELL

98-0711232 08/13/98 02:26

LILIAN 36 OF 37

C-3740

Intergovernmental Agreement
for the
Design, Construction, Operation and Maintenance
of the
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
AGREEMENT FOR A REGIONAL STORMWATER SAMPLING PLAN
MARICOPA COUNTY, ARIZONA

Between
The Flood Control District of Maricopa County
and
The City of Glendale

IGA FCD-98009

C 69.99.012.2

This Agreement is entered into by and between the Flood Control District of Maricopa County, a municipal corporation, and political subdivision of the State of Arizona, acting by and through its Board of Directors, hereinafter called the DISTRICT and the City of Glendale, a municipal corporation, hereinafter called GLENDALE.

This Agreement shall become effective as of the date it has been executed by all parties.

DATE FILED WITH MARICOPA COUNTY RECORDER _____

STATUTORY AUTHORIZATION

1. The DISTRICT is empowered by A.R.S. §48-3603, as revised, to enter into this Agreement and has authorized the undersigned to execute this Agreement on behalf of the DISTRICT.
2. GLENDALE is empowered by A.R.S §48-3603 (C) and §11-952 to enter into this Agreement.

When Recorded Return to:
Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

C. 3740

Intergovernmental Agreement
for the
Design, Construction, Operation and Maintenance
of the
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
AGREEMENT FOR A REGIONAL STORMWATER SAMPLING PLAN
MARICOPA COUNTY, ARIZONA

Between
The Flood Control District of Maricopa County
and
The City of Glendale

IGA FCD-98009

C 69.99. 012.2

This Agreement is entered into by and between the Flood Control District of Maricopa County, a municipal corporation, and political subdivision of the State of Arizona, acting by and through its Board of Directors, hereinafter called the DISTRICT and the City of Glendale, a municipal corporation, hereinafter called GLENDALE.

This Agreement shall become effective as of the date it has been executed by all parties.

DATE FILED WITH MARICOPA COUNTY RECORDER _____

STATUTORY AUTHORIZATION

1. The DISTRICT is empowered by A.R.S. §48-3603, as revised, to enter into this Agreement and has authorized the undersigned to execute this Agreement on behalf of the DISTRICT.
2. GLENDALE is empowered by A.R.S §48-3603 (C) and §11-952 to enter into this Agreement.

BACKGROUND

3. Section 402 of the Water Quality Act (WQA) of 1987 requires municipalities with populations of 100,000 population or greater and certain industrial facilities to obtain federal permits to control the quality of their stormwater discharges. The U.S. Environmental Protection Agency (EPA) has promulgated regulations that require formal permit applications by local governments to EPA Region IX in a two-step process. The regulations are intended to minimize pollution from stormwater discharges through the National Pollutant Discharge Elimination System (NPDES) which requires targeted cities and industrial facilities to obtain a permit before allowing them to discharge stormwater lawfully into Waters of the United States. These EPA regulations also require NPDES permits for discharges from municipal stormwater sewers on a system-wide or jurisdictional-wide basis. Additionally, EPA rules require permittees to collect representative stormwater samples to determine stormwater quality on a periodic basis.
4. The parties recognize that a coordinated regional effort is the most effective response to the significant federal and state requirements for monitoring stormwater quality. Therefore, the DISTRICT and GLENDALE intend to develop a joint program to obtain samples of stormwater and test them as part of their effort to maintain and improve water quality in Maricopa County, and to assist the parties in implementing their respective duties imposed pursuant to federal law with respect to monitoring stormwater quality, to the extent allowed by Flood Control District Resolution, FCD 91-07.

PURPOSE OF THE AGREEMENT

5. The purpose of this Intergovernmental Agreement (IGA) is to establish the responsibilities of each party in a joint program to sample stormwaters and aid in compliance with the NPDES Stormwater Permit Regulations administered by the EPA under authority granted by the Clean Water Act (CWA) and its 1987 amendments, the WQA. Additionally, this IGA will aid in establishing a regional water quality database.

TERMS OF AGREEMENT

6. The DISTRICT shall:
 - 6.1. Attempt to locate illicit discharge(s) into the DISTRICT stormwater systems that interact with GLENDALE stormwater systems, or portions thereof within the jurisdiction of GLENDALE, and coordinate the removal of any illicit discharge with GLENDALE.
 - 6.2. Coordinate an illicit discharge investigation program for DISTRICT stormwater systems within the jurisdictional boundaries of GLENDALE and attempt to eliminate such discharges from the interconnecting stormwater systems, should any exist.

- 6.3. Serve as a central repository for GIS information as pertinent new data becomes available.
- 6.4. Provide all required operation, sampling, laboratory analyses, maintenance and repair including labor, supplies, replacement parts, equipment and laboratory contracts for stormwater monitoring stations installed pursuant to this Agreement. Seasonal rainfall permitting, water quality samples will be collected and analyzed pursuant to GLENDALE NPDES permit terms from at least four (4) representative rainfall events each water year (October 1 through September 30), two (2) each representing winter and summer storms, from the date the stations become fully operational.
- 6.5. Approve any and all monitoring equipment and station set-up provided by GLENDALE prior to construction.
 - 6.5.1. Station(s) must, (a) receive written EPA approval, or (b) be included in an EPA-approved plan under the guidelines outlined in the Characterization Plan of the Part I NPDES application requirements, prior to DISTRICT operation and maintenance activities.
 - 6.5.2. Station(s) shall demonstrate complete system operation according to specifications referenced in stormwater sampling guidance developed by EPA.
- 6.6. Invoice GLENDALE for one-half of the cost of all required operation, sampling, laboratory analyses, maintenance and repair including labor, supplies, replacement parts, equipment and laboratory contracts for stormwater monitoring stations installed pursuant to this Agreement.

The DISTRICT will invoice GLENDALE semi-annually during the term of the Agreement. Invoicing will detail all labor, supplies, replacement parts, equipment, vehicle usage, and laboratory analytical costs directly related to the operation or maintenance of the stations. Invoicing will exclude any personnel or administrative costs not directly related to station operation or maintenance and referred to in paragraph 12 of this Agreement. The CHIEF ENGINEER AND GENERAL MANAGER of the DISTRICT and the CITY MANAGER of GLENDALE will establish and mutually agree to an acceptable schedule of reimbursement for each of these items and the process for periodically revising the schedule.

- 6.7. Obtain copies of the project report and signed contract between GLENDALE and its contractor for monitoring station construction and equipment installation and testing under GLENDALE Project No. 967027.
- 6.8. Provide hydrologic, runoff, water quality and any other monitoring site data to GLENDALE with separate laboratory performance standards. Such standards will be supplied to GLENDALE for their review.
- 6.9. Maintain and operate DISTRICT-certified and EPA-approved stormwater monitoring

stations for a period of five (5) years from the date of execution of this Agreement by the DISTRICT's Board of Directors and GLENDALE's City Council, or a period equal to GLENDALE's NPDES terms, whichever is less.

7. GLENDALE shall:

7.1. Provide monitoring equipment and station configuration for no more than five (5) stormwater monitoring stations as outlined in this Agreement. The monitoring equipment must satisfy the minimum standards as set forth in Attachment A of this Agreement titled *Minimum Specifications for District NPDES Stormwater Monitoring Stations* and all subsequent addenda agreed to by both parties, and subject to approval by both the DISTRICT Board of Directors and GLENDALE City Council.

7.1.1. Station equipment and configuration includes all required equipment, design, engineering, construction and installation for samplers, supplies and setup, calibration of sensors, discharge curve development, site specific software setup, telemetry, construction and connection, and system initialization and laboratory analyses.

7.1.2. Engineering costs are defined as those services or tasks performed that require the seal of a registered professional engineer or are performed under contract to a registered professional engineer.

7.2. Invoice the DISTRICT for one-half the cost of the sampling equipment, design, engineering, construction and installation for samplers, supplies and setup, calibration of sensors, discharge curve development, site specific software setup, telemetry, construction and connection, and system initialization and laboratory analyses after installation for stormwater monitoring stations installed pursuant to this Agreement.

GLENDALE will invoice the DISTRICT during the first fiscal year of the Agreement term. Invoicing will exclude any personnel or administrative costs not directly related to station design, construction or installation as referred to in paragraph 12 of this Agreement.

7.3. Be responsible for the consultant's total cost for the location of GLENDALE's NPDES stormwater monitoring stations represented by the contract price between GLENDALE and its contractor as part of GLENDALE's phase I stormwater compliance plan.

7.4. Construct and install initial monitoring site preparation and construction including, but not limited to utility hook-ups, concrete installation, equipment housing, conduits, excavation and backfill, installation and initial testing of equipment. The District shall inspect, approve and accept the equipment upon completion of construction. Subsequent modifications to the monitoring stations shall be the DISTRICT's responsibility.

7.5. Provide any water quality sampling software (including licenses) necessary for

operation and maintenance of monitoring stations.

- 7.6. Coordinate with the DISTRICT information or hardware (i.e., keys, passwords, and codes) needed to access stations and monitoring equipment.
 - 7.7. Be responsible for the rights-of-way acquisitions and design of the gauging station.
 - 7.8. Provide available GLENDALE information to the DISTRICT, to aid the DISTRICT in estimating County-wide annual pollutant loads and establishing regional water quality data base including:
 - 7.8.1. Location and characterization of storm sewer outfalls and stormwater conveyances either discovered or constructed within GLENDALE subsequent to the date of this Agreement.
 - 7.8.2. Drainage basin delineation for each outfall under paragraph 7.8.1.
 - 7.8.3. Hydrologic information for each basin under paragraph 7.8.2 including estimated percent impervious area, total basin area, basin slope, runoff coefficient, and any other relevant data that is known or can be reasonably ascertained.
 - 7.8.4. Location of major structural drainage controls along with areas within each drainage basin under paragraph 7.8.2 contributing to outfall discharge during a representative storm event.
 - 7.9. Locate, identify, and delineate stormwater-monitoring basins as required under the Characterization Plan of Part I NPDES permit application.
 - 7.10. Use its legal authority to attempt to locate and remove illicit discharges into DISTRICT structures and/or Waters of the United States located within GLENDALE, and notify the DISTRICT in writing no later than fifteen (15) days subsequent to discovery of such a discharge, and in accordance with the provisions of paragraphs 6.1 and 6.2 of this Agreement.
 - 7.11. Provide the DISTRICT with updates of mapping information as required by the GLENDALE NPDES permit.
 - 7.12. Submit copies of signed project reports and contracts between GLENDALE and its consultant regarding monitoring station construction, and documentation for the cost of engineering, equipment installation, site selection, and station development.
8. Use of Data: Decommissioning
GLENDALE agrees that data from this program may be used by the DISTRICT to petition the EPA regarding the reduction of monitoring requirements. Should the EPA approve the DISTRICT's petition, GLENDALE further agrees to the decommissioning of the site(s). Equipment from decommissioned GLENDALE stormwater site(s) remains the property of

GLENDALE, as does the responsibility of properly closing the site(s).

9. Any party to this Agreement may with mutual written agreement of all parties delegate responsibilities to another party. Any delegation, however, shall not relieve the delegating party of its original responsibilities as defined herein.
10. In the case of any dispute over any items in this Agreement, the parties agree to use their best efforts and enter into good faith negotiations to resolve the disputed matters. However, this shall not limit the rights of the parties to seek any remedies provided by law.
11. All parties to this Agreement shall take reasonable and necessary actions within their authority to assure that any water discharged through their storm drain facilities comply at the point of discharge with any applicable requirements of the Clean Water Act, National Pollutant Discharge Elimination System (NPDES), or any other applicable discharge requirements, including any permit requirements.
12. Each party to this Agreement will pay for and not seek reimbursement for its own personnel and administrative costs associated with this program except as identified in paragraphs 6.6 and 7.2 of this Agreement.
13. If either party is found by any regulating agency to be in non-compliance with the conditions of its stormwater discharge permit responsibilities, that party shall be solely liable for any lawfully assessed penalties.
14. Each party to this agreement (indemnitor) shall, to the extent permissible by law, indemnify, defend and save harmless the others (indemnitees) including, agents, officers, directors, governors and employees thereof, from and against any loss or expense incurred as a result of any claim or suit of any nature whatsoever, which arises out of indemnitor's negligent or wrongful acts or omissions pursuant to this agreement. Such indemnification obligation shall encompass any personal injury, death or property damages resulting from the indemnitor's acts or omissions, as well as reasonable attorney's fees, court costs, and other expenses relating to the defense against claims or litigation, incurred by the indemnitee. Indemnitee shall be liable for their own negligence or wrongful acts as provided by law.
15. All notices or demands upon any party to this agreement shall be in writing and shall be delivered in person or sent by mail addressed as follows:

Flood Control District of Maricopa County
Chief Engineer and General Manager
2801 West Durango Street
Phoenix, Arizona 85009

City of Glendale
City Attorney's Office
5850 West Glendale Avenue
Glendale, Arizona 85301

16. This Agreement shall continue for five (5) years, or a period equal to GLENDALE's NPDES permit term, whichever is less; however, upon mutual written agreement of all parties, this Agreement may be amended, terminated or extended.
17. This Agreement is subject to cancellation by any party pursuant to the provisions of A.R.S. §38-511.
18. In the event of either party's withdrawal from this Agreement, ownership of the sampling stations constructed and operated under this Agreement, including all equipment, shall be transferred to GLENDALE forthwith in accordance with a separate Agreement.
19. Attached to this Agreement or contained herein are the written determinations by the appropriate attorneys for the parties to this Agreement, that these agencies are authorized under the laws of the State of Arizona to enter into this Agreement and that it is in proper form.
20. If legislation is enacted after the effective date of this Agreement which changes the relationship or structure of one or more parties to this Agreement, the parties agree that this Agreement shall be renegotiated at the written request of any party.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
a Municipal Corporation

Recommended by:

115911 / 4/30/98
Michael S. Ellegood, P.E. Date
Chief Engineer and General Manager

Approved and Accepted:

By: Jan Brewer
Chairman, Board of Directors

Attest:

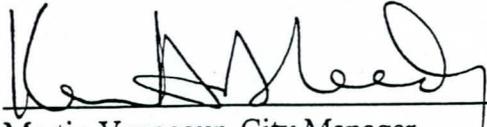
By: Janet McCandless AUG 05 1998
Clerk of the Board Date

The foregoing Intergovernmental Agreement, IGA FCD-98009, has been reviewed pursuant to Arizona Revised Statutes §11-952, as amended, by the undersigned General Counsel, who has determined that it is in proper form and within the powers and authority granted to the Flood Control District of Maricopa County under the laws of the State of Arizona.

Julie M. Lemmon 6/24/98
General Counsel Date

CITY OF GLENDALE

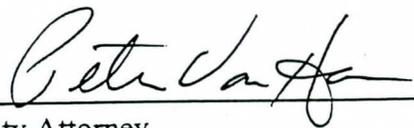
City Manager:


for Martin Vanacour, City Manager Date 5/27/98

Attest:


By: City Clerk Date 5/27/98

The foregoing Intergovernmental Agreement, IGA FCD-98009, has been reviewed pursuant to Arizona Revised Statutes §11-952, as amended, by the undersigned attorney who has determined that it is in proper form and within the power and authority granted to the City of GLENDALE under the laws of the State of Arizona.


City Attorney Date 5/27/98

**Minimum Specifications
for
District NPDES Stormwater Runoff Monitoring Stations**

1. Precipitation Measurement
2. Flow Measurement
3. Automatic Sample Collection
4. Data Storage and Retrieval Capabilities
5. Remote Communiation Capabilities
6. Power Supply
7. Computer Storage and Down-loading
8. Site Selection
9. Laboratory Considerations

Section 1: Precipitation Measurement

Stormwater monitoring stations shall be capable of:

- A. Measuring rainfall with a minimum accuracy of 0.01 inch.
- B. Recording incremental rainfall measurements at 60 second intervals.
- C. Recording cumulative rainfall measurements at 60 second intervals.

Section 2: Flow Measurement

Stormwater monitoring stations shall be capable of calculating and recording at 60 second intervals:

- A. Instantaneous flow.
- B. Total cumulative volume.
- C. Incremental volume.

Section 3: Automatic Sample Collection

Stormwater monitoring stations shall:

- A. Be capable of collecting individual sample aliquots at pre-programmed runoff flow volumes.
- B. Have sufficient capacity for 24 liters of sample.

Section 4: Data Storage and Retrieval Capabilities

Stormwater monitoring stations shall incorporate a means of storing and accessing via remote communication:

- A. Total accumulated rainfall.
- B. Incremental rainfall.
- C. Total accumulated runoff volume.
- D. Number of samples collected.
- E. Instantaneous discharge.
- F. Time.
- G. Stage reading at sampling device.
- H. Battery voltage (if battery is used for primary power source).

Section 5: Remote Communication Capabilities

Stormwater monitoring stations shall either have, or be capable of being upgraded to have the following remote communication capabilities:

Notify the agency responsible for O&M at the station when sampling conditions have occurred at the monitoring site.

Section 6: Power Supply

Stormwater monitoring stations will fulfill the following power requirements:

- A. Be connected to or have access to an existing continuous A/C power supply and A/C power supply adequate solar panels such that sampler and flow monitoring equipment batteries can be fully recharged within 24 hours of the previously sampled event.
- B. Have a power supply for computer storage such that data recorded prior to power loss is saved.
- C. Provide backup battery power for a 24-hour period.
- D. Be equipped with a surge protection device or board.

Section 7: Computer Storage and Down-loading

Stormwater monitoring stations shall have the capability of:

- A. Storing 5 days of stormwater data recorded at 60 second intervals.
- B. Down-loading data in ASCII or comma delineated format(s).
- C. Down-loading data either remotely via modem, or locally with an IBM compatible lap-top computer, and/or Data Transfer Unit.

Section 8: Site Selection

Stormwater monitoring station site selection is the responsibility of the implementing agency and requires EPA approval. Due to concerns over OSHA's confined-space entry protocol, the implementing agency is encouraged to locate the monitoring stations in a manner that does not require personnel to enter confined spaces for maintenance purposes or to obtain grab samples. If a confined space cannot be avoided, Confined-Space Entry Protocols must be established. In addition, it is recommended that the District be included in the site selection process.

Section 9: Laboratory Considerations

Stormwater monitoring station sample analysis shall be provided by Laboratories capable of:

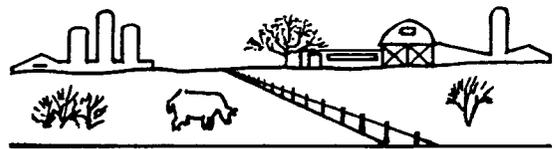
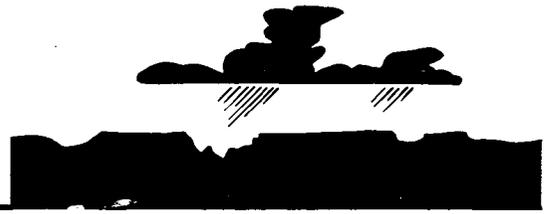
- A. Analyzing for the NPDES-regulated compounds using EPA-approved and State of Arizona certified methods.
- B. Providing test results within a minimum of 6 weeks from the time the test samples are submitted.

B

Appendix
B

Appendix B

Flood Control District of Maricopa County
Stormwater Sampling Management Plan



FLOOD CONTROL
DISTRICT OF
MARICOPA COUNTY

Stormwater Sample Management Plan

July 1, 1998

Version 2.0



**Stormwater Sampling
Management Plan**

Version 2.0
July 1, 1998

Purpose:

This stormwater sample management plan is written to show the methods and guidelines that the District will use in stormwater sampling and data management. The Field Sampling Protocol will remain a separate document designed for the field technicians' use. However, it is part of the overall Sample Management Plan.

The Stormwater Sample Management Plan will include the following items:

- Sample Plan
- QA/QC Program
- Sampling Protocol/SOPs
- Analyses, detection limits
- Procedures
- QC sampling
- QA/QC Program
- Chain of custody
- Maintenance / calibration logs
- Description of sampling sites
- EPA sampling guidance for grab and composite samples
- Cleaning

Table of Contents

1.0	Purpose, Background	1
2.0	Locations and Site Descriptions.....	2
2.1	Site Locations.....	2
2.2	Site Specific Information	5
2.3	Field Equipment.....	6
3.0	Sampling Program.....	7
3.1	Sampling	7
3.2	Representative Storms	9
3.3	Analyses.....	9
3.4	Detection Limits	10
3.5	Surface Water Quality Standards.....	10
4.0	Quality Assurance / Quality Control	11
4.1	Lab QA/QC Procedures.....	11
4.2	Sample QA/QC Procedures	11
4.3	Cleaning	12
4.4	Calibrations	13
4.5	Chain of Custody.....	14
4.6	Field Records	14
4.7	Laboratory Data Review	14
4.8	Data Collection	15
4.9	Preventative Maintenance.....	16
4.10	Recordkeeping	16
4.11	Equipment Replacement.....	17

1.0 PURPOSE

The purpose of the Stormwater Sample Management Plan is to provide information about the District's stormwater sampling program and about the methods and procedures used for the collection of samples.

In 1999, the EPA will notify the District and Maricopa County that we are required to obtain an NPDES stormwater permit to discharge during Phase II of the stormwater program. It is expected that the permit will be effective in 2002. The requirements for the permit have not yet been finalized, but may be similar to the requirements in the 1990 Phase I regulation. Upon issuance of the permit requirements, this Plan will be revised to reflect any new sampling activities. This document summarizes the current program in 1998.

2.0 LOCATIONS AND SITE DESCRIPTIONS

2.1 Site Location

Currently the District monitors ten fixed land-based sites. (The Dreamy Draw site will be added later in 1998.) Three sites will be acquired from USGS on October 1, 1998 and four Glendale sites will be sampled beginning in summer 1998.

Phoenix SR-03

Located approximately 1/4 mile north of the Salt River on 35th Avenue. The contributing sub basin is approximately 1363 acres, and the outlet is a 75-inch concrete pipe. The drainage basin is mainly industrial.

Phoenix SR-45

Located on the south bank of the Salt River at 40th Street. The contributing sub basin is approximately 120 acres, and the outlet is a 54-inch concrete pipe. The drainage basin is mainly industrial.

Phoenix SR-49

Located on the north bank of the Salt River at 67th Avenue. The contributing sub basin is approximately 5,000 acres, and the outlet is a 96-inch concrete pipe. The drainage basin is mainly undeveloped.

Phoenix IB-08

Located on the north bank of Indian Bend Wash on the east side of 40th Street. The contributing sub basin is approximately 609 acres, and the outlet is a 66-inch concrete pipe. The drainage basin is mainly residential.

Phoenix ACDC and 43rd Avenue

Located on the north side of the Arizona Canal Diversion Channel, just west of 43rd Avenue. The contributing sub-basin is 3.4 acres and the outlet is a gutter depression that discharges over the top wall and into the ACDC. The drainage basin is commercial. This site will be the District's Responsibility on October 1, 1998.

Phoenix Salt River and 27th Avenue

Located on the south bank of the Salt River along the 27th Avenue alignment. The contributing sub-basin is 44.8 acres and the outlet is a 96-inch corrugated pipe. The drainage basin is industrial. This site will be the District's responsibility on October 1, 1998.

Mesa 1

Located on Horne and Sixth Streets. The contributing sub basin is approximately 193 acres, and the outlet is a 36-inch concrete pipe. The drainage basin is an older residential area with irrigated lots.

Mesa 2

Located on Broadway Road approximately 1/8 mile west of Lindsay Road. The contributing sub basin is approximately 145 acres, and the outlet is a 72-inch concrete pipe. The drainage basin is mainly a mobile home park located north of Broadway Road and east of the Consolidated Canal.

Mesa 3

Located on Fighter Aces Drive, approximately 1/4 mile north of McKellips Road on Falcon Drive, which is located approximately 1/2 mile east of Greenfield Road. The contributing sub basin is approximately 171 acres, and the outlet is a 48-inch concrete pipe. The drainage basin is developed and undeveloped parts of Falcon Field Airport.

Mesa 4

Located on Horne and Grandview Avenue just before discharge into a large retention basin. The contributing drainage area is approximately 66 acres, and the outlet is a 54-inch concrete pipe. The drainage basin is a housing subdivision built after 1980.

Mesa 5

Located on Dobson Road approximately 1/4 mile south of Broadway Road. The contributing drainage area is approximately 63 acres, and the outlet is a 30-inch concrete pipe. The drainage basin is mainly commercial business.

Glendale 1 – OLIVE

Located on 67th Avenue just north of Olive Avenue. The contributing drainage area is approximately 18 acres, with an outlet channel controlled by a weir. The drainage basin is mainly residential. This site will be the District's responsibility on October 1, 1998.

Glendale 2 – INDUSTRIAL PARK

Located between Glen Harbor Boulevard and New River channel, approximately one-half mile north of Glendale Avenue. Drainage area is unknown at this time. The outlet is a 54-inch concrete pipe. The drainage basin is mainly industrial.

Glendale 3 – BUTLER

Located on 56th Drive south of Olive Avenue. Drainage area is unknown at this time. The outlet is a small channel. The drainage basin is mainly residential.

Glendale 4 – ARROW

Located on the north bank of Skunk Creek near 79th Avenue alignment. Drainage area is unknown at this time. The outlet is a 54-inch concrete pipe. The drainage basin is mainly commercial.

Glendale 5 – CITRUS

Located on the east bank of the 71st Avenue Drainage Channel at the Grovers Avenue alignment. The drainage area is unknown at this time. The outlet is a 42-inch corrugated pipe. The drainage basin is mainly residential.

South Mountain

Located on Central Avenue in South Mountain Park past the park offices. The drainage area is approximately 1120 acres, and the outlet is a 72-inch corrugated metal pipe. The drainage area is undeveloped parkland.

Dreamy Draw

Located in Dreamy Draw Park in the outlet from the dam. The drainage area is 832 acres. The sampling point has not yet been chosen. The drainage area is mainly undeveloped mountain preserve.

Five additional sites in Scottsdale will be added during Fiscal Year 1998-1999. Tempe's three sites likely will be added during calendar year 1999. Future updates of this document will reflect any additions.

2.2 Site Specific Information

Site	Drainage Area (acres)	Pipe Diameter (inch)	Pipe Slope (ft/ft)	Roughness Coefficient
Phoenix SR-03	1363	75	0.0009 ¹	0.013
Phoenix SR-49	5000	90	0.0024 ¹	0.013
Phoenix SR-45	794	54	0.0023 ¹	0.013
Phoenix IB-08	609	66	0.0032 ¹	0.013
Phoenix ACDC/43rd Ave	3.4	N/A	N/A	N/A
Phoenix Salt/27th Ave	42	96	N/A	N/A
Mesa 1	193	36	0.0029 ²	0.013
Mesa 2	145	72	0.0011 ²	0.013
Mesa 3	171	48	0.0014 ²	0.013
Mesa 4	66	54	0.0040 ²	0.013
Mesa 5	62	30	0.0014 ²	0.013
Glendale 1	27	N/A	N/A	0.013
Glendale 2	N/A	54	N/A	0.013
Glendale 3	N/A	N/A	N/A	N/A
Glendale 4	N/A	96	N/A	0.013
Glendale 5	N/A	42	N/A	0.013
South Mountain	1120	72	0.040	0.014
Dreamy Draw	832	N/A	N/A	N/A
¹ City of Phoenix Stormdrain As-Built				
² City of Mesa				

2.3 Field Equipment

NPDES Water Quality Sites

The NPDES sites maintained by the District use Sigma automatic sampling equipment. Equipment in Mesa is the Sigma 800SL Sampler with integral flowmeter. A dialout alarm and modem are exclusive from the sampler unit. Equipment in Phoenix is the Sigma 900 MAX Sampler with integral flowmeter, modem, and dialout alarm.

The five sites in Mesa have electric power supplied by Salt River Project and telephone service provided by US West. The four sites in Phoenix do not have commercial power, but are powered by battery charged by solar panel. The sites have telephone service provided by US West.

Non NPDES Water Quality Sites

Automatic sampling equipment used in non-NPDES compliance situations use the Isco 3230/4230 flowmeter and Isco 3700 sampler.

Currently, Isco samplers are in use at the Phoenix SR-45 and Phoenix IB-08 NPDES locations to capture grab samples to evaluate first flush pollution.

3.0 SAMPLING PROGRAM

3.1 Sampling

A sampling event occurs when rainfall and flow are detected at a sample site. The parameters for sampler initiation are presented in the following table.

SITE	RAINFALL (inch)	LEVEL (inch)
Mesa 1	0.05	0.5
Mesa 2	0.05	0.5
Mesa 3	0.05	0.5
Mesa 4	0.05	0.5
Mesa 5	0.05	0.5
Phoenix SR-03	0.05	0.5
Phoenix SR-45	0.05	0.5
Phoenix SR-49	0.05	0.5
Phoenix Salt/27th Ave	0.05	0.5
Phoenix ACDC/43rd Ave	0.05	0.5
Phoenix IB-08	0.05	0.5
Glendale 1	0.05	0.5
Glendale 2	0.05	0.5
Glendale 3	0.05	0.5
Glendale 4	0.05	0.5
Glendale 5	0.10	NA
South Mountain	0.05	1.0
Dreamy Draw Dam	0.05	1.0

Grab samples, composite samples, and quality control samples are taken by the technicians and the automatic equipment.

3.1.1 Grab Samples

Grab sampling is a technique used to collect samples that are not amenable to collection through the composite sample. Pollutants such as oil and grease, volatile organic compounds, and fecal bacteria are best taken as grab samples. It is best to collect samples for these analyses directly from the discharge where the sampler intake tubing is located.

In four of the Mesa samplers and in some of the Phoenix samplers, the sample collection points are in manholes in busy streets, making it difficult if impossible to collect grab samples directly.

When feasible, grab samples will be collected from the point where the sampler intake tubing is located. Any deviation from this procedure will be noted on the stormwater sampling report.

Grab sample procedures are continually evolving. Any changes to the grab sample procedure will be noted in future additions of this document.

3.1.2 Composite Samples

A flow-weighted composite sample is also collected for each site. The flow-weighted sample is collected via the automatic sampling equipment. In the Sigma sampling equipment, the composite sample is collected in jars three through eight.

Four individual samples are collected in each jar, for a total of 24 aliquots collected. Each aliquot is collected based on a pre-set amount of flow passing across the flow sensor.

Each of the 24 aliquots in the six jars is placed in a large vessel for compositing. Once the individual aliquots are together, individual pre preserved bottles are filled. This procedure is most often done at the contract laboratory, but is sometimes done by the sampling technicians at the Instrumentation Lab.

3.1.3 Quality Control Samples

Quality control (QC) samples are taken to measure contamination of samples and equipment that may have been introduced by sampling techniques, and to check the accuracy of the contract laboratory. Four types of QC samples are taken: travel blanks, field duplicates, equipment blanks, and field blanks.

Travel blanks assess contamination during transport of the volatile organic samples to the laboratory. Field duplicates assess the accuracy of the laboratory analyses. Equipment blanks measure the effectiveness of cleaning of the sampling equipment. Field blanks measure contamination during the sampling process.

3.2 Representative Storm

A representative storm has the following characteristics:

	Rainfall (inch)	Duration (hours)
SUMMER (June - Sept.)	0.2 - 0.8	2.2 - 6.5
WINTER (Oct. - May)	0.2 - 0.7	5.2 - 15.6

with no rainfall 72 hours prior to the representative event.

Sampling equipment is setup to begin sampling if the 0.05 inches of rain is received within 60 minutes. This plan works well because sometimes equipment fails and sampling opportunities are missed.

3.3 Analyses of Samples

Since the sampling program began in 1993, the District has sampled for the same general set of constituents, with analyses being updated as necessary. Each sample is currently analyzed for approximately 160 analytes or compounds.

The following is a list of the analyses/methods:

BOD5, Fecal Coliform, Fecal Streptococci, Oil & Grease, EPA 624 (purgeables), COD, Chloride, TDS, TSS, Ammonia, Nitrates, Nitrites, Organic Nitrogen, Kjeldahl Nitrogen, Phosphorous total/dissolved/ortho, Total Organic Carbon, Alkalinity, Hardness, Sulfate, Metals total/dissolved

(Sb, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, Zn), EPA 608 (organochlorine pesticides), EPA 625 (Base/Neutral/Acid compounds).

3.4 Detection Limits

The detection limits for the analyses have been determined from the State Surface Water Quality Standards. Limits are based on the most stringent requirement for all applicable water uses.

3.5 Surface Water Quality Standards

The reader is referred to Title 18, Chapter 11 of the Arizona Administrative Code, "Department of Environmental Quality, Water Quality Standards," for Arizona State Surface Water Quality Standards.

Surface water quality standards are developed by ADEQ. Standards differ and are based on the designated uses of a water course or water body.

4.0 QUALITY ASSURANCE / QUALITY CONTROL

The Quality Assurance / Quality Control (QAQC) program for the District's sampling is designed to ensure that the samples collected are of high quality and that the laboratory analyzing the samples is producing quality results. The program consists of sampling procedures, quality control samples, data review and validation, and equipment maintenance.

4.1 Lab QA/QC Procedures

The contract laboratory has a full set of Quality Assurance procedures that cover all aspects of operations from building maintenance, sample log in, sample tracking, and sample analysis. A copy of the document is available at the District.

4.2 Sample QA/QC Procedures

The sample QAQC procedures include aspects of preparedness and sampling.

4.2.1 Preparedness

Sample equipment, bottles, and forms are all set up at each sampling site prior to a storm event. This helps to ensure that the proper laboratory bottles and sampler jars are at each site before a storm event occurs. By preparing for an event ahead of time, the possibility of filling incorrect bottles or mislabeled bottles can be avoided. All equipment is readied within five days after the previous storm event.

Readying a site includes:

- Placing clean, labeled sample jars in the sampling unit.
- Placing clean, labeled grab sample bottles at each site.
- Setting the sampler program in a ready position for the next event.
- Cleaning the intake tubing.
- Checking for hardware problems.
- Correcting hardware problems that surfaced during a previous event.

4.2.2 Field QAQC Samples

Four types of QAQC samples are taken: Travel Blanks, Field Duplicates, Equipment Blanks, and Field Blanks.

Travel Blanks are samples that accompany EPA 624, Volatile Organics samples. One set of travel blanks is placed in each cooler that contains VOC samples. The lab supplies the travel blanks and they are not opened during the sampling process. Travel blanks measure contamination that may occur during transportation to the lab.

The frequency for this sample will be one travel blank for each cooler containing other VOC samples.

Field Duplicates are samples taken when a normal sample is taken. The Field Duplicate and Normal sample results are compared to measure errors introduced by the laboratory. Because most of the sample volume collected by the automatic equipment is required for a full analysis, Field Duplicates will be split from one composite sample and analyzed for the minimum NPDES parameters.

The frequency of this sample will be one per rain event or ten percent, whichever is greater.

Equipment Blanks are samples taken immediately after the equipment has been cleaned. The Equipment Blanks will be taken on the sample intake tubing and the glass sampler jars used in the automatic sampler equipment. Deionized water is used as the medium. Deionized water is poured into the glassware or pumped through the intake tubing directly into laboratory sample containers. Samples will be analyzed for all NPDES pollutants.

The frequency of this sample will be ten percent per rain event.

Field Blanks are samples taken with the other samples during a sampling event. The procedure for completing a field blank is the fill prepared and preserved sample bottles and filling each with deionized water. The samples are submitted as any other sample and analyzed for the entire NPDES suite.

The frequency of this sample will be one per municipality, (one in Phoenix, one in Mesa, one in Glendale, and one in Scottsdale.)

4.3 Cleanliness

The cleanliness of the equipment is vital to ensuring that contamination is not introduced from a controllable factor. Both the intake tubing and the sample jars are cleaned to ensure no sample contamination.

Equipment cleaning consists of the following steps:

1. Disconnect intake tubing on sampling unit
2. Pump tap water through the tubing.
3. Pump Liquinox® mixed with tap water through the line.
4. Pump copious amounts of tap water through line.
5. Pump nitric acid through line.
6. Pump deionized water through line.
7. Pump methanol through line.
8. Rinse deionized water through line.

NOTE: See the Field Sampling Protocol for the necessary volumes.

Glassware cleaning consists of the following steps:

1. Wash the container with Liquinox® solution using a wire brush to clean sides.
2. Thoroughly rinse containers with tap water.
3. Rinse the container with nitric acid.
4. Rinse the container with deionized water.
5. Rinse with methanol.
6. Thorough final rinse with deionized water.

NOTE: See the Field Sampling Protocol for the necessary volumes.

4.4 Calibrations

Equipment calibrations will be conducted periodically to ensure that the automatic sampling equipment is operating properly. Calibrations of the flow measuring devices (pressure transducers) and sample intake volume are conducted at least twice per year.

For reference, a log of the calibration will be kept. The information to be kept in the log should include at least the following:

Date of the calibration
Time of calibration
Person(s) doing calibration
Depth of water to which PT probe is submerged
Volume of water pumped to calibrate sampler delivery volume

A log sheet is in the Field Sampling Protocol manual for recording maintenance and calibration information. One sheet is completed for each site, each time it is visited.

4.5 Chain of Custody

A Chain of Custody form is completed for each sample collection event. The contract laboratory provides the form. All individuals in whose physical possession the samples fall sign the form.

4.6 Field Records

A field notebook is kept to record all activities at each site. Information such as sampling events times and dates, calibration activities, and maintenance activities are recorded in the book.

4.7 Data Review and Validation

Data review and validation uses all of the sampling data received for an event. Checks of the holding times, proper chain of custody procedures, preservation, sample data, QC sample data, and lab QC data are made to determine the validity of the data.

An attached Laboratory Data Review sheet shows the steps involved in verifying data. A review sheet will be completed and attached to each data set. For stormwater sampling, a data set would include first flush grab and composite samples at one site.

Any circumstances in which the data does not meet the criteria on the review sheet or data that seems questionable is reported to the laboratory for resolution.

4.7.1 Data Qualifiers

Beginning with samples taken after July 1, 1998, data qualifiers will be used in the data and database when data are reviewed. The following qualifiers will be used.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

4.8 Data Retrieval and Storage

There are two primary types of data collected in the stormwater monitoring program: Water Quality and Discharge/Ambient Conditions.

4.8.1 Water Quality Data

The water quality data is a direct result of the samples collected during a storm from grab and composite samples. The samples are analyzed for the pollutants listed previously in section 3.3. Data is reported from the contract laboratory as hard copy and electronic file on disk.

All reports from the contract laboratory are reviewed when received as described in Section 4.7 above.

The numerical data is currently entered into a Microsoft Excel spreadsheet. Electronic data is provided on disk in the Excel format. The hard copies of the laboratory reports are retained at the District offices. Attached to all reports is a Quality Control Report, which is kept separately at the District offices.

4.8.2 Discharge/Ambient Data

Along with the water quality data, a number of parameters are collected and retained as part of the overall storm data. Data collected in this category includes:

Rainfall
Maximum 5-minute rainfall intensity

Runoff quantity sampled
Total storm runoff
Peak discharge
Days since last measurable rain
Storm Duration
Land use characteristics
Basin size

Flow and rainfall data is downloaded by telephone line or direct connection with field equipment. Data is checked to ensure integrity.

4.9 Preventative Maintenance

Maintenance of the equipment will be on a scheduled, periodic basis. A regular six-month and annual maintenance will be done.

The six-month maintenance will consist of:

1. Calibrate the depth sensor.
2. Calibrate the pumped sample volume.
3. Check and clean raingages of debris.
4. Inspect sample intake line, connections, cables, pump tubing, batteries, solar panels, and battery charging system.

The annual maintenance will include the six month maintenance, and:

1. Replace sample intake tubing.
2. Replace sampler pump tubing.
3. Rinse new intake tubing with deionized water.

Since equipment failures tend to increase with time, more frequent maintenance may be required. Any repairs and replacements will be made as necessary. In addition, an Equipment Blank sample may indicate the need for tubing replacement before scheduled replacement.

4.10 Record Keeping

All records will be kept at the District offices, except for the field notebook kept at each site. Calibration and field records are kept in the Instrumentation Lab. Chains of custody, laboratory reports, and flow data are kept in the District Administration Building.

4.11 Equipment Replacement

As mentioned previously, equipment failures increase with age. It is the District's policy to replace equipment that is no longer functional. All equipment is first repaired for reuse. If a problem persists, the equipment will be replaced.

References

Environmental Sampling and Analysis for Technicians, Csuros, Maria, Lewis Publishers, 1994

NPDES Storm Water Sampling Guidance Document, U.S. Environmental Protection Agency, Document number EPA 833-B-92-001, July 1992.

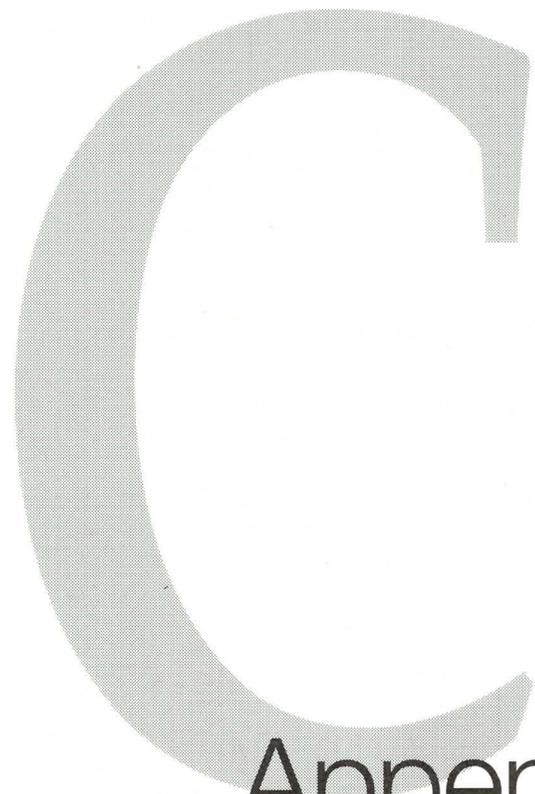
City of Phoenix Part II NPDES Permit Application, Woodward Clyde Consultants, 1992.

LABORATORY DATA REVIEW

Date of Review:		By:	
Sample Location:			
Sample Date:		Sample Time:	
FCD Sample ID Number(s)			
Laboratory Sample ID Number(s)			
Does this review include other samples at this or other locations?	Y	N	
If YES, list the sites and Sample IDs included			
Laboratory Used:			
Lab Contact:		Phone:	

Preservation				
Sample Type:	NPDES	Surface Water	Soil	Other: (Specify)
Samples Cooled to 4°C:		Y	N	
Samples at proper pH:		Y	N	
Chain of Custody Followed:		Y	N	

Laboratory Handling		Extraction / Digestion / Preparation	
Method	Extraction Date	Limit	Within Limit?
EPA 608 / Pesticides		14 days	
EPA 625 / BNA		14 days	
Metals			
Bacterial Samples			

A large, light grey, sans-serif capital letter 'C' is centered on the page. It has a slightly textured appearance, possibly due to the scanning process or the paper's grain.

Appendix
C

Appendix C

Stormwater Wet Weather Monitoring Site Descriptions

Glendale, Arizona
Stormwater Wet Weather Monitoring Site

ID: BUTLER

Land Use Classification: Residential (Older Development)

Drainage Area: Approximately 30 Acres



The BUTLER monitoring site is located downstream of a 4' x 1' box culvert at the intersection of Orchid Lane and 56th Drive. This site drains residential land uses (estimated 100 percent) in an older part of the City.

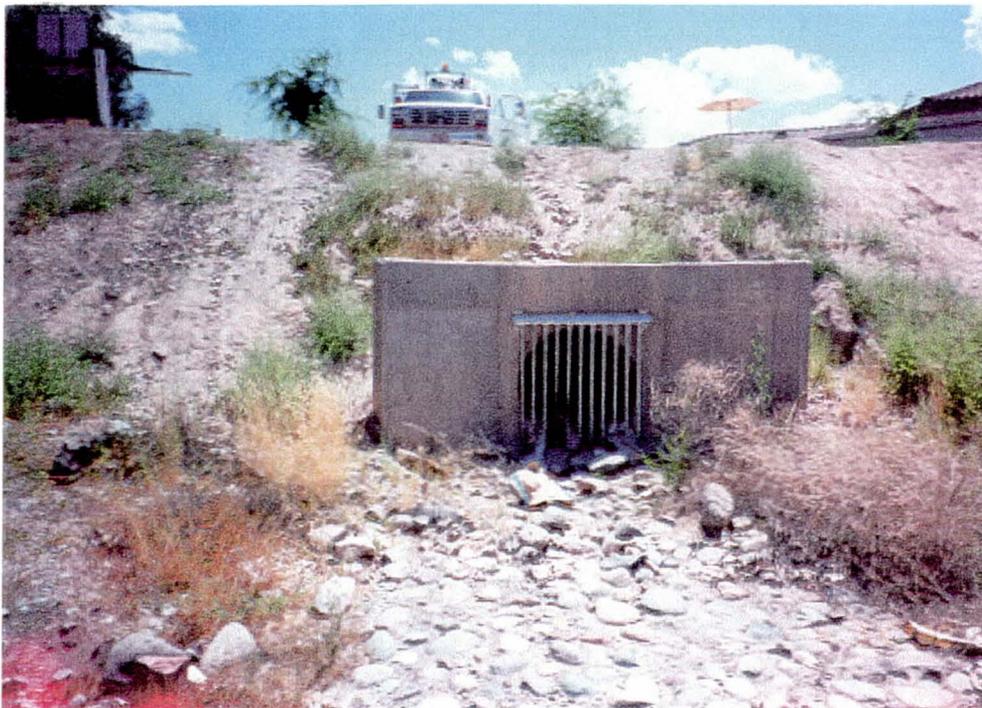
Glendale, Arizona

Stormwater Wet Weather Monitoring Site

ID: CITRUS

Land Use Classification: Residential (Newer Development)

Drainage Area: Approximately 60 Acres



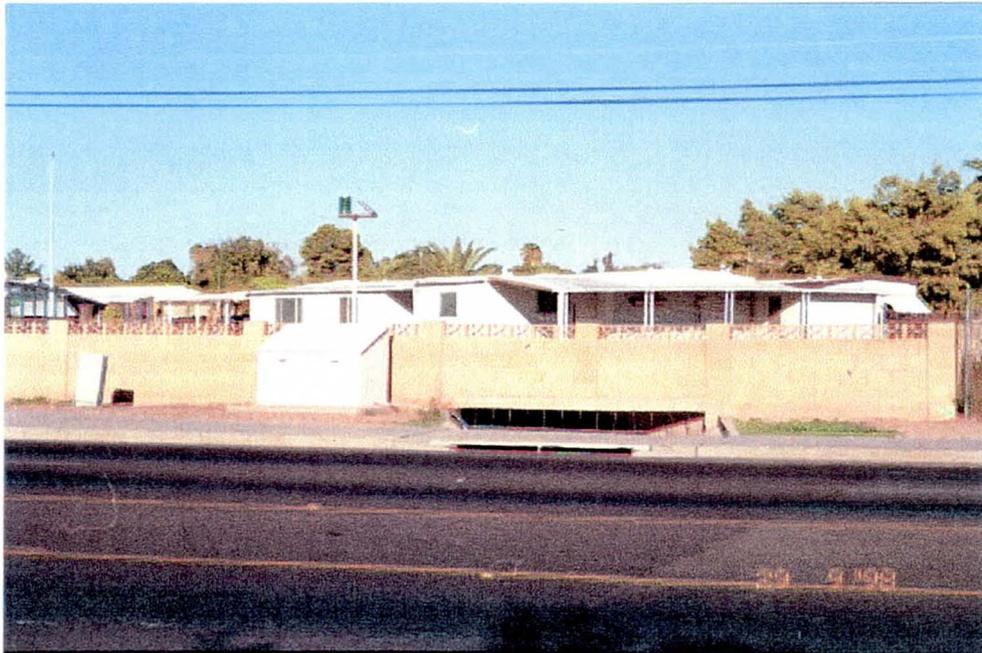
The CITRUS monitoring site is an outfall located at the corner of Grovers Avenue and the 71st Avenue drainage channel. This outfall (SKCK5) is shown on Map 1 of this application. The site drains a new residential area largely completed during the summer of 1997.

Glendale, Arizona
Stormwater Wet Weather Monitoring Site

ID: OLIVE

Land Use Classification: Residential (Trailer Park)

Drainage Area: Approximately 30 Acres



The OLIVE monitoring site is located on the northeast corner of 67th and Olive Avenues. This station is currently owned and operated by the USGS and is part of the FCDMC's existing monitoring program. This site receives runoff from an adjacent residential trailer park.

Glendale, Arizona Stormwater Wet Weather Monitoring Site

ID: ARROW

Land Use Classification: Commercial (Arrowhead Towne Center)

Drainage Area: Approximately 180 Acres



The ARROW monitoring site is located between 75th and 83rd Avenues, adjacent to the Greenway Sports Complex in Peoria. This site monitors commercial runoff at an outlet to Skunk Creek that receives runoff from the Arrowhead Towne Center parking lots (located within the City of Glendale) via a drainage channel.

Glendale, Arizona
Stormwater Wet Weather Monitoring Site

ID: INDPK

Land Use Classification: Industrial (Industrial Park)

Drainage Area: Approximately 30 Acres



The INDPK monitoring site is located in the Glen Harbor Industrial Park north of Glendale Avenue between Glen Harbor Boulevard and the New River. This site monitors runoff at the inlet to a storm drain that receives runoff from the industrial park located east of the Glendale Municipal Landfill.

D

Appendix
D

Appendix D

City of Glendale
Spill Response Procedures

**City of Glendale
Spill Response Procedures**

1.) YOU HAVE SPILLED A POTENTIALLY HAZARDOUS MATERIAL.

Call the Glendale Fire Department (931 -5600)
Call Environmental Resources (930 -2583)

2.) SECURE SITE

Environmental Resources

- Notify County
- Notify ADEQ
- Notify EPA (if necessary)

Glendale Fire Department

- Notify ADEQ
- Notify AZ Attorney General's Office (if necessary)

Glendale Police Department

- Notify DEA (if appropriate)

3.) DOES IT POSE AN IMMINENT HAZARD OR DANGER?

If answer is **YES** go to step 4.

If answer is **NO** go to step 5.

4.) IS IT ON CITY PROPERTY?

Yes

- Call City of Glendale Materials Control Department (930 - 2690) After hours call 934 7551. They will contact the city's hazardous waste disposal company.
- Request emergency clean up.
- Environmental Resources or Fire Department will seek reimbursement from DEA, EPA, ADEQ, or Glendale Fire Department

No

- Identify property owner/operator
- Require property owner/operator to dispose of the hazardous waste immediately.
- Allow property owner/operator to call a certified hazardous waste disposal company.
- **If the property owner/operator cannot be contacted or identified, call the call the City of Glendale Materials Control (930 2690) and Environmental Resources (930 2583). After hours call 934 7551 They will contact the city's hazardous waste disposal company.**
- Environmental Resources or Fire Department will seek reimbursement from either the property owner/operator, DEA, ADEQ, or EPA

5.) IS IT ON CITY PROPERTY?

Yes

- Call City of Glendale Materials Control Department (930 - 2690) After hours call 934 7551. They will contact the city's hazardous waste disposal company.
- Request emergency clean up.
- Environmental Resources or Fire Department will seek reimbursement from DEA, EPA, ADEQ, or Glendale Fire Department

**City of Glendale
Spill Response Procedures**

No

- Identify property owner/operator
- Require property owner/operator to dispose of the hazardous waste immediately.
- Allow property owner/operator to call a certified hazardous waste disposal company.
- **If the property owner/operator cannot be contacted or identified, call the call the City of Glendale Materials Control (930 2690) and Environmental Resources (930 2583). After hours call 934 7551 They will contact the city's hazardous waste disposal company.**
- Environmental Resources or Fire Department will seek reimbursement from either the property owner/operator, DEA, ADEQ, or EPA

Glendale Police/Fire Department Spill Response Procedures(04/15/96) Revised (09/30/98)