

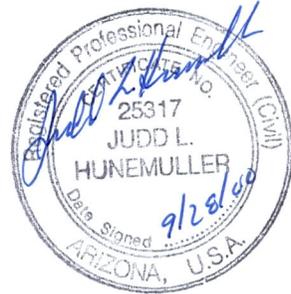
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**MUNICIPAL SEPARATE STORM
SEWER SYSTEM
ANNUAL REPORT
YEAR ENDING JUNE 30, 2000**

Prepared for:

City of Glendale
Engineering Division
5850 West Glendale Avenue
Glendale, Arizona 85301



Prepared by:

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September 2000
NPDES PERMIT NUMBER AZS000019



September 28, 2000

Mr. Eugene Bromley
United States Environmental Protection Agency
Region IX (WTR-5)
Water Division
75 Hawthorne Street
San Francisco, CA 94105-3901

Subject: NPDES Stormwater Permit Number AZS000019
Annual Report Permit Year 1: July 1, 1999 to June 30, 2000

Dear Mr. Bromley:

We are pleased to submit the first Annual Report for the City of Glendale's NPDES Stormwater Permit Number AZS000019 covering the period from July 1, 1999 to June 30, 2000.

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

If you have any questions feel free to call Mr. Grant Anderson, P.E., City Engineer at (623) 930-3630.

Sincerely,
CITY OF GLENDALE


Tim Ernster
Deputy City Manager

cc: Edward C. Sanderson, CDM
Grant I. Anderson, P.E., City of Glendale
Dan Sherwood, P.E., City of Glendale



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Section 1

Introduction

On August 26, 1999, the United States Environmental Protection Agency (USEPA), in compliance with the provisions Section 402(p) of the Federal Water Pollution Control Act, issued a National Pollutant Discharge Elimination System (NPDES) permit to the City of Glendale, Arizona for discharges from the City's municipal separate storm sewer system (MS4). This Annual Report describes activities and programs implemented by the City of Glendale (City) for permit compliance to protect the quality of stormwater for Permit Year 1: July 1, 1999, through June 30, 2000. The report has been prepared pursuant to the requirements of the NPDES Stormwater Permit Number AZS000019.

This annual report is organized to provide information on the following:

- Section 2 provides a discussion of the implementation status of the stormwater management program for Permit Year 1.
- Section 3 presents a summary of the data collected under the stormwater monitoring plans, including the wet weather and dry weather sampling. A description of the various stations is included as well as the sampling results obtained from each of the monitoring stations.
- Section 4 includes a discussion of the overall evaluation and effectiveness of the stormwater management program (SWMP). This includes a summary status table of all Permit Year 1 tasks and a discussion of strengths and weaknesses of the City's SWMP during Permit Year 1.
- Section 5 presents recommendations or any proposed changes for improvement to the SWMP and monitoring plans.
- Section 6 provides a summary of the City's expenditures for stormwater management related activities during Permit Year 1. In addition, a fiscal analysis for Permit Year 2 stormwater management tasks is presented.
- Section 7 includes a summary of program activities for Permit Year 2.



Section 2

Stormwater Management Program Implementation Status

The SWMP consists of activities designed to maintain or improve the quality of stormwater runoff in the City of Glendale. The SWMP is divided into four sections organized in the order of the NPDES regulations:

- Commercial and Residential Program
- Illicit Discharges/Improper Disposal Program
- Industrial Program
- Construction Site Program

The implementation status of the programs for Permit Year 1 is discussed in Sections 2.1 through 2.4.

2.1 Commercial and Residential Management Program

The Commercial and Residential Management Program consists of six major elements:

- Stormwater Facility Maintenance
- Development/Redevelopment Planning
- Roadway Operation and Maintenance
- Existing and Proposed Flood Management Facilities
- Municipal Waste Handling Facilities
- Pesticide, Herbicide and Fertilizer Use

Each of these elements is made up of various activities. The implementation status of these activities is summarized in Table 4-1 in Section 4 and discussed in greater detail in the remainder of this section.

2.1.1 Stormwater Facility Maintenance

This section of the SWMP includes maintenance of structural controls to reduce pollutants in discharges to the MS4. It includes maintenance of nine different types of structural controls during Permit Year 1.

2.1.1.1 Street Inlets

The SWMP requires inspection/cleaning, maintenance, and inventory of the street inlets during Permit Year 1.

Inspection/Cleaning The City Streets Department inventoried and inspected 2,200 street inlets between March and June 2000. All inlets were cleaned at least once and before the summer monsoon storms. The SWMP requires inspection and cleaning twice per year and as-needed before storms. The City was approximately 50 percent compliant with this requirement. The development of the Geographic Information

Systems (GIS)-based street inlet inventory, scheduled for completion in October 2000, will improve compliance with this requirement in the future.

Maintenance The Streets Department conducted maintenance on street inlets as-needed during the inspections and cleaning performed between March and June 2000.

Inventory The City has completed the initial field survey for all identified street inlets within the City and has compiled a Microsoft Access database for the inlet inventory. The Street Inlet Inventory database contains a total of 2,171 inlets. As part of the physical inventory, the location of each inlet was also identified on a City map. By the end of October 2000, the City will develop a GIS database for the inventory data with the mapped inlet locations in ArcView GIS. This GIS Street Inlet Database will be used to track the inlet maintenance program in the future.

2.1.1.2 Drainage Channel Maintenance

The SWMP requires the City to inspect non-turfed channels in City right-of-way (ROW) easements and City property. ROW non-turf channels were inspected 156 separate times during Permit Year 1.

2.1.1.3 City-Owned Detention/Retention Basins –Inlets/Outlets in Parks

The SWMP requires the City to inspect and remove debris from inlets and outlets to retention basins in City-owned parks quarterly, before storms, and weekly during summer mowing. During Permit Year 1, the Parks Department staff inspected 86 parks with retention basins of which 23 had inlets and outlets. Of these 23, five required cleaning. The number of inspections does not fully meet the requirements of the SWMP, however, the results of the inspections conducted indicate that more frequent inspection and cleaning is not necessary. The SWMP will be revised to reflect the results of these inspections.

2.1.1.4 City-Owned Detention/Retention Basins –Inlets/Outlets within Right-of-Way

The SWMP requires the City to inspect and remove debris from inlets and outlets to retention basins within City-owned ROW quarterly and before storms. During Permit Year 1, the City inspected 21 such areas at least once. Half of the locations were inspected quarterly or more frequently. Eleven locations required maintenance including weed control, mowing, tree pickup/hauling or chipping, illegal dump cleanup, litter control, and general maintenance. The City was approximately 50 percent compliant with this SWMP requirement. The proposed reduction in inspections required at inlets and outlets to City parks (Section 2.1.1.3 above) will provide additional manpower to complete the required inspections of inlets and outlets to retention basins within the City-owned ROW.

2.1.1.5 City-Owned Detention/Retention Basins –Sediment Removal within Parks

The SWMP requires the City to remove sediment retention basins within City-owned parks as-needed. During Permit Year 1, the City conducted sediment removal at four retention basins in parks. Approximately 46 tons of sediment were removed from the four retention basins. The City was fully compliant with this requirement.

2.1.1.6 City-Owned Detention/Retention Basins – Sediment Removal within Right-of-Way

The SWMP requires the City to remove sediment from retention basins within City-owned ROW as-needed. During Permit Year 1, the City conducted cleaning and maintenance at four retention basins in City-owned ROW. The City was fully compliant with this requirement.

2.1.1.7 City-Owned Detention/Retention Basins – Drywells in Parks

The SWMP requires the City to conduct the following activities for drywells in parks:

- Annual maintenance
- Replace every 20 years
- Develop an inventory

The City has instituted a policy moving away from drywells. No drywells were replaced in Permit Year 1. In the future, drywells will be decommissioned rather than replaced. The SWMP will be revised to reflect this change.

The City has completed the initial field inventory, mapping and preliminary data collection for all identified dry wells within City parks. The drywell inventory currently contains 71 drywells. The next step will be to develop a GIS database for the drywell inventory in ArcView GIS.

2.1.1.8 City-Owned Detention/Retention Basins – Drywells in Right-of-Way

The SWMP requires the City to conduct the following activities for drywells in ROWs:

- Annual maintenance
- Replace every 20 years
- Develop an inventory

No ROW drywell maintenance was performed during Permit Year 1. The City plans to inventory and begin regular maintenance of ROW drywells in Permit Year 2.

The City has instituted a policy moving away from drywells. No drywells were replaced in Permit Year 1. In the future, drywells will be decommissioned rather than replaced. The SWMP will be revised to reflect this change.

2.1.1.9 Recordkeeping

The SWMP requires the City to maintain records of inspections, maintenance and cleaning at retention basins, inlets/outlets, and drywells. The City Streets, Parks and ROW Departments had sufficient records of the activities that were conducted during Permit Year 1. In Permit Year 2, the departments will improve recordkeeping methods to reduce the amount of time required for documentation collection.

2.1.2 Development/Redevelopment Planning

This section of the SWMP concerns the City's activities affecting development and redevelopment planning within the City to adequately address stormwater quality issues. The Part II NPDES Permit determined that the current activities of the City's Development Services Center, Economic Development Department, and Planning Department adequately address these issues and no additional actions are necessary. The remainder of this section discusses the City's activities being conducted to assure development and redevelopment activities do not adversely impact stormwater quality.

2.1.2.1 Update General Plan

The SWMP requires the City to review and update the General Plan annually to reflect changes in community values and goals, including effective stormwater management. During Permit Year 1, the General Plan was reviewed and amended eight times. No amendments concerning stormwater were deemed necessary during this time.

2.1.2.2 Storm Drainage Policy/Control Measures

The SWMP requires the City to require all new development to retain the 100-year, two-hour storm. The private development plans are reviewed by the office of the Land Development Engineer and must follow the City's Design Guidelines. During Permit Year 1 all new development plans reviewed by the office of the Land Development Engineer met the requirements to retain the 100-year, two-hour storm.

2.1.2.3 Development Plan Review

The SWMP requires the City to make changes to the Development Plan Review process as-needed. No changes to the process were deemed necessary during Permit Year 1.

2.1.3 Roadway Operation and Maintenance

The SWMP requires the City to have practices for operating and maintaining public streets, roads, and highways and procedures for improving the quality of runoff to the MS4.

2.1.3.1 Street Sweeping

The SWMP requires the City to conduct street sweeping monthly. The City currently sweeps streets once a month.

2.1.3.2 Road Maintenance, Construction, and Design

The SWMP requires the City to conduct road maintenance and construction as-needed and to ensure that the City incorporate appropriate stormwater pollutant controls. These activities are conducted on a regular basis by the City Streets and Engineering Departments.

2.1.3.3 Field Operations Center

The SWMP requires the City to evaluate and document stormwater protection practices at the Field Operations Center (FOC) facilities. The FOC evaluation was not conducted during Permit Year 1. The City will conduct the evaluation October 2000 and begin implementation of corrective measures during Permit Year 2, as required.

2.1.4 Existing/Proposed Flood Management Facilities

The SWMP requires the City to have procedures assuring that flood management projects appropriately assess stormwater quality, and that existing structural flood controls are assessed for effectiveness. During Permit Year 1, the City, with the cooperation of the Flood Control District of Maricopa County (FCDMC), completed construction on the following projects:

- Skunk Creek channelization
- Glendale Avenue storm drain from Loop 101 to 83rd Avenue
- Orangewood storm drain from 83rd Avenue to 67th Avenue
- Regional detention basins at 65th Avenue and Northern, and at 71st Avenue and Orangewood
- Camelback Ranch and Airport Levee on the New River

In addition to the completed projects, the Cities of Glendale and Phoenix and the FCDMC have completed routing analyses and preliminary design for a major storm drain adjacent to the Grand Canal from Indian School Road to the Loop 101. A large storm drain in Bethany Home Road from 83rd Avenue to 59th Avenue is also being designed at this time for construction in the future.

2.1.5 Municipal Waste Handling Facilities

The SWMP requires the City to have a program to monitor pollutants in runoff from municipal waste handling facilities. The City's program addresses runoff from the following facilities:

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

The facilities were inspected during August 2000 and the results are presented in Appendix A. Monitoring at these facilities occurs according the NPDES permit requirements for the individual facilities.

2.1.6 Pesticide, Herbicide and Fertilizer Application

The City is required to have programs to reduce pollutant levels in stormwater associated with the application of pesticides, herbicides and fertilizers on public and private lands.

2.1.6.1 Municipal Use

The SWMP requires the City Streets/ROW and Parks Departments to maintain records of the quantity of chemicals dispensed and to use approved application procedures. The City departments adhere to all Arizona Structural Pest Control Commission policies and procedures regarding the handling, application, and disposal of all pesticides, herbicides and fertilizers.

Quantities are summarized in Table 2-1:

Chemical	Amount
Roundup	2,633 gallons
Gallery	13,760 gallons
Mecamine	8,785 gallons
Barricade	9,150 gallons
Reward	175.5 gallons
Maintain	250 gallons
Blue Dye	34,820 gallons
LI 700	26,115 gallons
Surflan	2 gallons

Material Safety Data Sheets (MSDS) for these chemicals are included in Appendix B.

2.1.6.2 Programs to Reduce Pesticide, Herbicide and Fertilizer Use

The SWMP requires the City to promote the use of low water plants in site landscaping through the City's Water Conservation Program. The City offers residents a \$100 landscape rebate and a \$35 automatic timer rebate to encourage the use of xeriscape plants and automatic timers. During Permit Year 1, 93 residents qualified for the landscape rebate and 28 for the automatic timer rebate.

The Water Conservation Coordinator, David Schultz, gave five talks to approximately 200 people and performed four water use audits during Permit Year 1. In addition to these activities, the City installed the first phase of a demonstration Xeriscape Botanical Garden at the Main Library, maintained a web page with landscaping tips, and developed guides and catalogs on xeriscaping and low water use plants, available at the Main Library.

2.1.6.3 Public Education

The SWMP requires the City to promote public education in the proper use of fertilizer, herbicides and pesticides through informational brochures to be distributed with utility bills. In Permit Year 1, the City prepared a draft of the brochure. It will be translated into Spanish and printed in English and Spanish and included in utility bills when finalized. See Appendix C for a sample brochure.

2.2 Illicit Discharges/Improper Disposal Management Program

The City of Glendale's Illicit Discharges/Improper Disposal Management Program includes procedures and best management practices to prevent illicit discharges to the City's MS4. The program consists of the following seven major elements:

- Inspections and Enforcement
- Field Screening
- Storm Sewer Investigation Approach
- Spill Prevention/Containment
- Public Reporting
- Used Oil/Toxic Materials
- Sanitary Sewer Seepage

Each of these elements is made up of various activities. The implementation status of these activities is summarized in Table 4-1 and discussed in greater detail in the remainder of this section.

2.2.1 Inspections and Enforcement

The SWMP requires the City to implement a program of inspection and enforcement to prevent illicit discharges to the MS4.

The City's existing legal authority allows the City's Code Compliance Division to control stormwater discharges associated with industrial activity as well as from residential sources. The City's ordinances and statutes provide authority to inspect for spills, dumping or other improper disposal of materials into the City's stormwater drainage system and issue citations or perform other methods of enforcement as-needed. During Permit Year 1, inspection and enforcement of illicit discharges and improper disposal were completed on an as-needed basis. Approximately 30 illicit discharges occurred into the City ROW from September 1999 through July 2000. A summary of these discharges and enforcement actions is provided in Appendix D. The City will continue to assess its legal authority as necessary to perform the inspection and enforcement components of the SWMP.

2.2.2 Field Screening

The SWMP requires the City to conduct on-going field screening activities during each year of the permit.

The City completed dry weather screening pursuant to the procedures outlined in Part I of the City's NPDES Permit. The City's Engineering Department along with its consultant completed dry weather field screening on 20 percent of the City's major outfalls during Permit Year 1. The results of dry weather sampling are discussed in more detail in Section 3.2. In addition, the City's Code Compliance Division conducted dry weather inspections based on reports from the public of possible discharges. A description of these inspections is found in Appendix D.

The City will continue to conduct dry weather screening at 20 percent of the major outfalls each year and at other locations on an as-needed basis.

2.2.3 Storm Sewer Investigation Approach

The SWMP requires the City to investigate the MS4 based on results of field screening or other information that indicate a potential for illicit discharges.

The City's NPDES Permit provides an investigation protocol to be followed when dry weather field screening and/or other information indicates a reasonable potential for illicit discharges to the MS4. In addition to this protocol, the Pretreatment Division of the City's Utilities Department conducts yearly grease interceptor inspections at approximately 550 restaurants and interceptor inspections at approximately 364 automotive and related businesses. City personnel inspected these sites for stormwater related concerns such as illegal discharge to the City's storm drainage system, including identification of potential hazardous waste or other pollutants stored outside in open drums, runoff containing automotive fluids and intentional dumping of waste materials into storm drainage channels. A memorandum summarizing the work completed in Permit Year 1 is included in Appendix E.

2.2.4 Spill Prevention/Containment

The SWMP requires the City to establish procedures to prevent, contain and respond to any spills that may enter the MS4. These include training of various City personnel in spill prevention as well as specific response and containment training for Fire Department personnel.

2.2.4.1 Responsibility and Recordkeeping

The Glendale Fire Department is responsible for response and containment of spills that may discharge into the MS4. The Fire Department EMS/HAZMAT division will notify the City's Materials Control Department when the spill is determined to be hazardous. The Part II Permit application provided the City's spill response procedures.

The Glendale Fire Department maintains records of hazardous materials spills for a minimum of five years. The records are maintained by the Fire Marshall's Office.

There were no major or significant spills of contaminants that entered the storm sewer system from September 1999 through July 2000.

2.2.4.2 Training

The Glendale Fire Department received four hours of Environmental Awareness Training in April 2000. Topics discussed in this training included: Generator categories/requirements, accumulation point management, and satellite accumulation.

The Environmental Resources Department developed Environmental Awareness Training for City employees. The courses were designed to be interactive using games, quizzes, hands-on training, visual aids and competition. Several topics discussed in the Environmental Awareness Training course included: the City's environmental awareness policy, hazardous waste purchasing, MSDS for commonly used chemicals, personnel safety and stormwater NPDES facility training. The goal is for the employees to have an increased environmental awareness and move the City's Environmental Awareness Program forward.

See Appendix F for a complete list of topics covered by the Environmental Awareness Training for the City employees and the Fire Department.

2.2.5 Public Reporting

The City is required to promote and facilitate public reporting of any potential illicit discharges.

The City will continue its Public Education and Awareness Program as outlined in the Part II NPDES Permit. During Permit Year 1, the City utilized the ADEQ recycling hotline number to provide information on recycling and disposal of hazardous materials to City residents. In addition, the Fire Department's hotline for public reporting of illicit discharges or illegal dumping was provided to residents. The City's web site is used to promote public education regarding many stormwater issues and will be continually updated to reflect changes in the SWMP.

2.2.6 Used Oil/Toxic Materials

The SWMP requires the City to provide information to the public, including businesses and residents, to facilitate the proper management and disposal of used oil and toxic materials.

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

The City has developed best management practices (BMPs) for businesses that engage in activities that may allow runoff to enter the storm sewer. The BMPs include recommended options for exterior surface washing, engine/equipment degreasing, masonry efflorescence, and many others. See Appendix G for a complete description of the BMPs for businesses.

2.2.6.2 Management and Disposal of Used Oil/Toxic Materials Generated by Residents

The City of Glendale distributes various brochures to educate and inform the public on oil/toxic materials recycling. Topics for these brochures include management and disposal of used oil, toxic materials and household hazardous wastes, fertilizer and pesticide use, recycling and other topics related to water quality. The City will continue to develop new brochures throughout the permit term.

2.2.7 Sanitary Sewer Seepage

The SWMP requires the City to establish procedures and controls to limit any sanitary sewer seepage into the MS4.

The City limits the amount of pollutants that enter the MS4 through its sanitary seepage detection program outlined in Appendix H. These procedures build upon the procedures discussed in the Part II NPDES Permit. The City's Wastewater Collection Division conducts ongoing television inspections of the sanitary sewer system and repairs segments of pipe requiring point repairs. The Engineering Department is contacted if a pipe requires numerous repairs.

Sanitary sewer overflows are responded to within 30 minutes of the initial call. The Environmental Resources Compliance Coordinator will report to ADEQ if necessary. Cleanup is conducted immediately after the problem is resolved. The segment of pipe undergoes television inspections to identify why/what caused the problem. If grease is determined to be the cause of a stoppage, Pretreatment is notified to do follow-up inquiry.

The City's Wastewater Collection Division will improve recordkeeping in Permit Year 2 to document all television inspections, pipe repairs and sanitary sewer overflows.

2.3 Industrial Management Program

Under this part of the SWMP, the City monitors and controls pollutants to the MS4 from industrial facilities, including municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and any other industries the City determines are discharging pollutants to the MS4. The City's inspection and control measures and monitoring program for industrial facilities is coordinated by the Pretreatment Division of the City's Utilities Department.

2.3.1 Refinement of Industrial Facilities List

The NPDES Permit submitted in 1998 by the City included a list of industrial facilities that may discharge pollutants to the MS4 and are called out under 40 CFR 122.26(d)(2)(iv)(C) of the NPDES regulations. During Permit Year 1, the City's Pretreatment Division combined this industrial facility list with a second Pretreatment Division database, which contained a list of businesses that use and/or discharge

stormwater pollutants of concern. The Pretreatment Division has begun inspecting the industries on the combined list and at the end of Permit Year 2 will further refine the list and prioritize the industries that contribute substantial pollutant loading to the MS4.

2.4 Construction Site Management Program

The City of Glendale's Construction Site Management Program includes procedures and best management practices to reduce pollutants in stormwater runoff from construction sites to the MS4. The program consists of the following four major elements:

- Site Planning
- BMP requirements
- Inspection and Enforcement
- Education and Training

The implementation status of these activities is summarized in Table 4-1 and discussed in greater detail in the remainder of this section.

2.4.1 Site Planning

The SWMP requires the City to address the potential for stormwater quality impacts in the site planning stages of development.

2.4.1.1 Revise Development Plan Review Procedures

As indicated in the SWMP, the City has development plan review procedures in place for construction within the City. The City will reevaluate these plan review procedures during Permit Year 2 if necessary to ensure that stormwater quality issues are addressed during the development plan review phase.

2.4.1.2 Permits for Construction Activities

The City continued issuing permits for all construction within the City during Permit Year 1 and will continue this procedure for the length of the permit.

2.4.2 BMP Requirements

The City will allocate funds to modify the City grading and drainage ordinance in Permit Year 2, as stated in the Part II Permit Application.

2.4.3 Inspection and Enforcement

The SWMP requires the City to inspect construction sites and enforce the approved construction plans and City construction guidelines.

The Engineering Department inspectors are responsible for inspecting the grading and drainage for on-going City projects. A comprehensive list of all the grading and

drainage inspections conducted between July 1, 1999 and June 30, 2000 is shown in Appendix I.

Construction inspections were conducted to meet the plans and specifications both for the City and for the private development. Appendix J shows a comprehensive list of all the construction site inspections conducted between July 1, 1999 and June 30, 2000.

The majority of the City projects were not large enough (less than 5 acres) or of a type that required a NPDES permit for construction.

For those projects greater than 5 acres, developers were required to have their own NPDES permit. The storm water pollution prevention programs (SWPPP) required under the NPDES regulations for construction activities were not inspected by the City for specific compliance.

2.4.4 Education and Training

The City's Environmental Awareness Course is given annually to all City employees. The course is described in Section 2.2.4 of this document. During the annual course, City employees were made aware of the City's NPDES Permit requirements and standard operating procedures (SOPs) to comply with stormwater requirements.

The City conducted thirty-eight training sessions and trained 456 City employees. The training was targeted to City employees who may come into contact with chemicals, deal with environmental issues, respond to emergencies, or perform inspection work.

At this time the City has not completed an education and training program for members of the construction industry. However, the City will continue to provide guidance and enforce its design guidelines through its *Design Guidelines for Site Development and Infrastructure Construction*. The City requests a modification to its SWMP to eliminate the requirement to coordinate with regional construction industry training programs.



Section 3

Stormwater Monitoring Plans

A requirement of the NPDES Permit includes sampling of both wet weather and dry weather conditions at various outfall locations within the City of Glendale. The objectives of the stormwater monitoring plans include:

- Characterizing stormwater discharges from monitoring sites representative of different land uses
- Identifying pollutant sources based on analysis of monitoring data, inspection of businesses, and investigation of illicit discharges
- Defining overall stormwater management plan effectiveness using data collected before and after implementation of pollution prevention programs

This section includes a description of wet and dry weather sampling locations and a summary of the data collected at each location.

3.1 Wet Weather Monitoring Plan

The NPDES Permit requires the City to collect stormwater discharges from three representative storm events at each of the City's five wet weather monitoring stations. A representative storm is defined by the City of Glendale NPDES Permit Number AZS000019 as:

...a storm event of greater than 0.1 inch of rainfall and at least 72 hours after the previously measurable (greater than 0.1 inch rainfall) storm event. Where feasible, the variance in the duration of the event and the total rainfall of the event should not exceed 50 percent from the average or median rainfall event in the area.

As discussed in the City's Part II Permit application, the climate for the City of Glendale and vicinity is warm and arid with a mean annual precipitation of only 7.75 inches. A representative summer storm for the City of Glendale has a volume of 0.20 inches to 0.80 inches and lasts between 2.2 and 6.5 hours. A representative winter storm has a volume between 0.20 inches and 0.70 inches and duration of 5.2 to 15.6 hours.

3.1.1 Wet Weather Station Descriptions

The City of Glendale has a total of five stormwater wet weather monitoring sites representing stormwater discharges from residential, industrial and commercial areas within the City. The five sites were chosen as part of the NPDES Permit application process. The intent of the wet weather monitoring program is to obtain discharge characterization data representative of the typical land uses found within the City. Pictures and descriptions of the five wet weather monitoring stations can be found in the Part II NPDES Permit application.

3.1.2 Wet Weather Monitoring Results

The City of Glendale entered into an intergovernmental agreement with the Flood Control District of Maricopa County (FCDMC) in 1998. Under this agreement, the FCDMC obtains stormwater samples at the City's five wet weather monitoring stations and provides water quality related data required by the NPDES stormwater regulations. The FCDMC sampled each station according to its Stormwater Sampling Management Plan outlined in the City's Part II NPDES Permit application.

The wet weather samples taken at the five monitoring stations were sampled for the following parameters pursuant to the requirements of the City's NPDES Permit:

- Organic toxic pollutants listed in Table II of Appendix D of 40 CFR Part 122
- Inorganic toxic pollutants listed in Table III of Appendix D of 40 CFR Part 122
- The following conventional pollutants listed in Section 122.26(d)(2)(iii)(A)(3)
 - 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
- Dichlorodiphenyldichoroethylene (DDE) as required by City of Glendale NPDES Permit Number AZS000019, Appendix 1 (Additional Permit Requirements).

For Permit Year 1, the City was required to obtain three storm events at each of the five monitoring stations during the time period from July 1, 1999 to June 30, 2000. In addition to these requirements, the City is providing the results of all qualifying storms from the period from October 1998 through June 1999 to fulfill its remaining NPDES Part II Permit application wet weather monitoring requirements. As discussed in the Part II permit application submitted in October 1998, the City proposed the following in order to satisfy the requirements of the Part II permit application:

- 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 inorganic toxic 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 events at the other four monitoring stations (BUTLER, CITRUS, ARROW, and INDPK) and analyze for the full suite of required parameters as listed above.

Descriptions of the representative storm events occurring from October 1998 through June 2000 are presented in Table 3-1. For each storm event the table lists:

- Date of storm event
- Wet weather monitoring stations impacted by the storm event
- Duration of the rainfall event in hours at each station
- Total rainfall in inches measured at each station
- Average precipitation in inches per hour at each station
- Inter-event time since the last rainfall event that exceeded 0.10 inch of precipitation

The water quality related data obtained from the FCDMC for these storms is provided in Appendix K. Appendix K also includes storm event hydrographs from each station impacted by the three storm events that occurred during the reporting period.

As shown in Table 3-1, only three storm events in the period from October 1998 through June 2000 met the requirements of representative storm events as defined by

Date	Station ID	Duration of Rainfall Event (hours)	Total Rainfall (inches)	Average Precipitation per Storm Event (inches/hour)	Dry Days Before Storm Event (days)
February 4, 1999	ARROW	6.2	0.26	0.04	49
	INDPK	5.85	0.31	0.05	49
	BUTLER	6.2	0.37	0.06	49
September 19, 1999	ARROW	4.2	0.67	0.16	3
	CITRUS	4.8	0.63	0.13	3
July 15, 1999	INDPK	2.8	0.48	0.17	4

the City of Glendale NPDES Permit Number AZS000019. This is consistent with data obtained by the FCDMC for other cities in the arid Phoenix valley.

The data collected falls short of the required three storm events at each of the five wet weather monitoring stations for Permit Year 1. As seen in Table 3-1, for the period from July 1, 1999 through June 30, 2000, data was collected from only three stations during two separate storm events. However, an insufficient number of representative storm events is not unlikely in an arid region such as Glendale and in a dry year such as occurred during Permit Year 1.

Furthermore, the data collected does not satisfy the outstanding data needs to complete the requirements of the Part II Permit application to calculate baseline pollutant loading rates. As seen in Table 3-1, for the period from October 1998 through June 1999, data was collected from only three stations during one storm event. Collection of this data will continue into Permit Year 2. The still outstanding sampling data includes:

- 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 inorganic toxic 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 at the other four monitoring stations below and analyze for the full suite of required parameters as listed above.
- ARROW – two representative rain events
 - INDPK – two representative rain events
 - BUTLER – two representative rain events
 - CITRUS – three representative rain events

As discussed in the City's NPDES Part II Permit application, analytical results from the representative storm events, which will include revised annual pollutant load and event mean concentration estimates, will be developed and reported in the City's second annual report which will be submitted to the EPA in September 2001. It is anticipated that the City will use the data collected from all representative storm events collected during Permit Year 1 and Permit Year 2 to develop revised annual pollutant load and event mean concentration estimates. At this time, the limited data makes it very difficult to assess the significance of the pollutant loads.

3.2 Dry Weather/Illicit Discharge Sampling

The City of Glendale NPDES Permit Number AZS000019, Appendix 1 (Additional Permit Requirements) requires the following in regards to dry weather/illicit discharge sampling:

...the permittee shall implement an ongoing program to re-evaluate major outfalls for illicit discharges. At a minimum, this program shall include rescreening of 60 percent of the major outfalls once during the three year term of this permit. Not fewer than twenty percent of the outfalls shall be screened in each year. The screening procedures shall be as set forth at 40 CFR 122.26(d)(1)(iv)(D).

3.2.1 Dry Weather Station Descriptions

The City chose six (6) outfalls in various locations throughout the City to re-evaluate for possible illicit discharges and satisfy the 20 percent per year rescreening requirement as outlined in the City's NPDES Permit. The sample locations are listed

in Table 3-2. In addition, a picture and description of each of the six (6) outfalls is found in Appendix L.

Table 3-2 Dry Weather/Illicit Discharge Sample Locations			
Outfall ID	Diameter	Location	Discharges To
ACDC3	36 in RCP	ACDC at approximately 59 th Avenue	ACDC
ACDC6	96 in RCP	Southeast of Thunderbird Road Bridge	ACDC
ACDC14	96 in RCP	67 th Avenue and Greenway Road	ACDC
SKCK9	36 in RCP	South of Skunk Creek and approximately 75 feet west of 67 th Avenue	Skunk Creek
SKCK2	11 ft x 11 ft RCBC	55 th Avenue and Skunk Creek	Skunk Creek
SKCK8	36 in RCP	North of Skunk Creek and approximately 75 feet west of 67 th Avenue	Skunk Creek

3.2.2 Dry Weather Monitoring Results

Of the six sample locations, only two exhibited flow. The flow at these two stations was minimal, making sampling extremely difficult. Samples were obtained utilizing the procedures outlined in Part I of the City's NPDES Permit.

Field data sheets were completed at each sample location and can be found in Appendix M. Summaries of the results from each sample location are shown in Tables 3-3 through 3-8 below.

ACDC3

At ACDC3, there was a trickle of water. The amount of flow was not substantial enough to collect a sample. A significant amount of debris was observed in the outfall. The only observed fauna around the area was a jackrabbit.

Table 3-3 Dry Weather/Illicit Discharge Sampling Results ACDC 3		
Parameter	Type of Test	Result
PH	Ion-selective electrode	N/A
Total chlorine	N,N-diethyl-p-phenylenediamine	N/A
Total copper	Bicinchoninate hydrosulfite reduction	N/A

Table 3-3 Dry Weather/Illicit Discharge Sampling Results ACDC 3		
Phenol	4-aminoantipyrine	N/A
Detergents	Tolvidine blue-O	N/A
Temperature (C)		N/A
Details		
Location	East of 59th Ave, South of Thunderbird	
Description	36" RCP	
Time since last rain event	>72 hrs	
Quantity of last rain event	-	
Dominant watershed land uses	Commercial, Residential	
Flow observation	Yes, too small to measure/sample	
Approximate flow velocity	-	
Odor	Musty	
Color	Insufficient sample	
Clarity	Insufficient sample	
Floatables	None	
Deposits/Stains	None	
Vegetation Condition	Normal	
Biological	-	

N/A = Not Applicable

ACDC6

ACDC6 exhibited enough flow to collect a sample. There was minimal debris found in the outfall. Algae were found to be covering the bottom of the pipe. Fauna observed around this site included pigeons, dragonflies, and hummingbirds.

Table 3-4 Dry Weather/Illicit Discharge Sampling Results ACDC 6		
Parameter	Type of Test	Result
PH	I0on-selective electrode	7.2
Total chlorine	N,N-diethyl-p-phenylenediamine	0 mg/L
Total copper	Bicinchoninate hydrosulfite reduction	0 mg/L
Phenol	4-aminoantipyrine	0.0 mg/L
Detergents	Tolvidine blue-O	0 mg/L
Temperature (C)		29
Details		
Location	West of 59th Ave, South of Thunderbird	
Description	96" RCP	
Time since last rain event	>72 hrs	

**Table 3-4
Dry Weather/Illicit Discharge Sampling Results
ACDC 6**

Quantity of last rain event	-
Dominant watershed land uses	Commercial, Residential
Flow observation	Yes
Approximate flow velocity	0.1 ft/sec
Odor	Musty/damp
Color	Clear
Clarity	Clear
Floatables	None
Deposits/Stains	None
Vegetation Condition	Normal
Biological	Bacteria/algae

ACDC14

There was observable flow at ACDC14, and a sample was collected. There was minimal debris found in the outfall. Algae were observed in the middle of the channel. Fauna around this site included dragonflies.

**Table 3-5
Dry Weather/Illicit Discharge Sampling Results
ACDC 14**

Parameter	Type of Test	Result
PH	Ion-selective electrode	7.5
Total chlorine	N,N-diethyl-p-phenylenediamine	0 mg/L
Total copper	Bicinchoninate hydrosulfite reduction	0 mg/L
Phenol	4-aminoantipyrine	0.0 mg/L
Detergents	Tolvidine blue-O	0 mg/L
Temperature (C)		25
Details		
Location	East of 67th Ave, South of Greenway Rd	
Description	96" RCP	
Time since last rain event	>72 hrs	
Quantity of last rain event	-	
Dominant watershed land uses	Commercial, Residential	
Flow observation	Yes	
Approximate flow velocity	0.433 ft/sec	
Odor	Decaying leaves	
Color	Clear	
Clarity	Clear	
Floatables	None	

Table 3-5 Dry Weather/Illicit Discharge Sampling Results ACDC 14	
Deposits/Stains	Sediments
Vegetation Condition	Normal
Biological	Bacteria/algae, snails

SKCK9

At SKCK9 there was insufficient flow to measure. There was no drainage point to obtain a sample, and access to the outfall was very limited. No fauna was observed around this site.

Table 3-6 Dry Weather/Illicit Discharge Sampling Results SKCK 9		
Parameter	Type of Test	Result
PH	Ion-selective electrode	N/A
Total chlorine	N,N-diethyl-p-phenylenediamine	N/A
Total copper	Bicinchoninate hydrosulfite reduction	N/A
Phenol	4-aminoantipyrine	N/A
Detergents	Tolvidine blue-O	N/A
Temperature (C)		N/A
Details		
Location	West of 67th Ave, North of Skunk Creek	
Description	36" RCP	
Time since last rain event	>72 hrs	
Quantity of last rain event	-	
Dominant watershed land uses	Commercial, Residential	
Flow observation	Yes	
Approximate flow velocity	-	
Odor	None	
Color	Clear	
Clarity	-	
Floatables	-	
Deposits/Stains	-	
Vegetation Condition	Normal	
Biological	Bacteria/algae	

N/A = Not Applicable

SKCK2

The SKCK2 sample site was found to be completely dry, no sample was collected. No fauna was observed around this site.

Table 3-7		
Dry Weather/Illicit Discharge Sampling Results		
SKCK 2		
Parameter	Type of Test	Result
PH	Ion-selective electrode	N/A
Total chlorine	N,N-diethyl-p-phenylenediamine	N/A
Total copper	Bicinchoninate hydrosulfite reduction	N/A
Phenol	4-aminoantipyrine	N/A
Detergents	Tolvidine blue-O	N/A
Temperature (C)		N/A
Details		
Location	55th and Skunk Creek, North of Union Hills	
Description	11' x 11'	
Time since last rain event	>72 hrs	
Quantity of last rain event	-	
Dominant watershed land uses	Commercial, Residential	
Flow observation	No	
Approximate flow velocity	-	
Odor	None	
Color	-	
Clarity	-	
Floatables	None	
Deposits/Stains	-	
Vegetation Condition	Normal	
Biological	-	

N/A = Not Applicable

SKCK8

The SKCK8 sample site was found to be completely dry, no sample was collected. No fauna was observed around this site.

Table 3-8		
Dry Weather/Illicit Discharge Sampling Results		
SKCK 8		
Parameter	Type of Test	Result
PH	Ion-selective electrode	N/A
Total chlorine	N,N-diethyl-p-phenylenediamine	N/A
Total copper	Bicinchoninate hydrosulfite reduction	N/A
Phenol	4-aminoantipyrine	N/A
Detergents	Tolvidine blue-O	N/A

**Table 3-8
Dry Weather/Illicit Discharge Sampling Results
SKCK 8**

Temperature (C)	N/A
Details	
Location	North of Skunk Creek, West of 67 th
Description	-
Time since last rain event	>72 hrs
Quantity of last rain event	-
Dominant watershed land uses	Commercial, Residential
Flow observation	No
Approximate flow velocity	-
Odor	None
Color	-
Clarity	-
Floatables	None
Deposits/Stains	None
Vegetation Condition	Normal
Biological	-

N/A = Not Applicable



Section 4

Overall Evaluation and Effectiveness of Stormwater Management Program

The overall evaluation of the Stormwater Management Program is based primarily on program accomplishments and compliance discussed in Sections 2 and 3 of this report. As the SWMP progresses and additional monitoring data is collected, potential pollution trends can be more fully recognized and assist in the overall evaluation of the SWMP.

Section 4.1 Major Findings

After the first year of compliance, the City determined that the majority of compliance activities required by the NPDES permit are being accomplished by one Department or another. A summary of the status of all program activities for Permit Year 1 is presented in Table 4-1 at the end of this section. The table provides the following:

- The permit item number from the Part II Permit application
- The program element and overall requirement
- The specific activity required by the permit
- The implementation status of the activity

Section 4.2 Overall Strengths and Weaknesses

The major strengths of the SWMP for the City of Glendale generally lie in the increased awareness by all government staff of the need for stormwater pollution control. The NPDES permit education and training requirements have increased the municipal understanding of stormwater pollution and its management and how these activities can improve stormwater quality. This information has been particularly pertinent to the City's maintenance crews who, of all City personnel, may have the greatest opportunity to protect stormwater quality from pollutants within the City's MS4.

Two areas of the City's SWMP implementation have been identified as needing improvement during Permit Year 2. First, as with many other municipalities, some members of the City staff believe that the NPDES permit was issued to the City's Engineering Department stormwater management section only and not to the municipality as a whole. It is hoped that this perception will be changed by working with department and division managers to increase awareness regarding the NPDES Permit. Along with awareness of the permit as it applies to the whole City is the understanding of responsibilities by disparate divisions within the City.

The other aspect of the SWMP implementation requiring improvement relates to documentation. While compliance activities were completed, documentation of those actions was not uniformly performed, making assessment of program compliance difficult in some cases. The City is making strides to electronically document NPDES

achievements with NPDES-oriented databases and maps. The databases will allow annual reporting of most of the compliance requirements of the NPDES permit. The City will work to improve documentation and facilitate annual reporting.

Table 4-1
Implementation Status of Permit Year 1 Tasks

PROGRAM ELEMENT		REQUIREMENT	STATUS OF PROGRAM ELEMENT AT FIRST YEAR
4.1 COMMERCIAL AND RESIDENTIAL MANAGEMENT PROGRAM			
4.1.1 Stormwater Facility Maintenance			
4.1.1.1 Street Inlets		Inspection & Cleaning recording dates of inspection and cleaning by inlet	50% Compliant
		Maintenance documented by date and description of maintenance by inlet	✓
		Develop an inventory list of inlets by location	✓
4.1.1.2 Drainage Channel Maintenance		Inspect non-turf channels in ROW; document date of inspection	✓
City-Owned Detention/ Retention Basins	4.1.1.3 & 4.1.1.4 Inlets and Outlets		Inspect inlets & outlets within Parks; document date of inspection by inlet and outlet
			Debris removal from inlets & outlets (turfed); document date of inspection by inlet and outlet
			Inspect inlets and outlets in ROW document date of inspection by inlet and outlet
			Debris removal from inlets & outlets (non-turf); document date of removal by inlet and outlet
	4.1.1.5 & 4.1.1.6 Sediment Removal		Sediment removal from basins in Parks; document date of removal by basin by park
			Sediment removal from basins in ROW; document date of removal by basin
	4.1.1.7 & 4.1.1.8 Dry Well Maintenance/ Replacement		Maintenance of drywells in Parks; document date of maintenance and number of dry wells maintained by Parks
			Replacement of drywells in Parks; document date and number of dry wells replaced
			Develop & maintain drywell inventory list in Parks
			Maintenance of drywells; document date of maintenance by ROW
		Replacement of drywells; document date and number of dry wells replaced in ROW	
4.1.1.10 Recordkeeping		Maintain records of inspections, maintenance and cleaning at retention basins, inlets/outlets, and drywells	✓

Table 4-1
Implementation Status of Permit Year 1 Tasks

PROGRAM ELEMENT	REQUIREMENT	STATUS OF PROGRAM ELEMENT AT FIRST YEAR
4.1.2 Development/ Redevelopment Planning		
4.1.2.1 Compliance with the General Plan	Update General Plan to reflect changes in community values and goals	✓
4.1.2.2 Storm Drainage Policy/ Control Measures	Require retention of 100 yr, 2-hr storm for all new development documented in new storm drain policy	✓
	Review & develop changes to the storm water program documented by new storm drain policy or written evaluation justifying existing system	✓
4.1.2.3 Development Plan Review	Make changes to the development plan review process as-needed	✓
4.1.3 Roadway Operation and Maintenance		
4.1.3.1 Street Sweeping	Street sweeping documented by City's street sweeping policy	✓
4.1.3.2 Road Maintenance	Maintenance of roads on an as-needed basis	✓
4.1.3.3 Road Construction	Asphalt paving inspections	✓
4.1.3.4 Runoff from Roads and Highways	Limiting stormwater runoff from new roads and highways	✓
4.1.3.5 Field Operations Center	Prepare written evaluation of the Field Operations Center	Noncompliant; to be completed in October 2000 and submitted in Permit Year 2 Annual Report
4.1.4 Existing/ Proposed Flood Management Facility Assessments		
4.1.4.1 Existing and Proposed Flood Control Facilities	Assessment of existing facilities, storm drains; document	✓
	Assessment of proposed facilities, storm drains; document	✓
4.1.4.2 Other Flood Control Facilities	Assessment of other flood control facilities pertaining to storm water document in written report	✓
4.1.5 Municipal Waste Handling Facilities		
4.1.5.1 Municipal Waste Handling Facilities	Inspections of Municipal facilities with a SW Individual NPDES permit documented by copies of inspections, monitoring data, and enforcement actions	✓
4.1.6 Pesticide, Herbicide and Fertilizer Use		
4.1.6.1 Municipal Pesticide Use	Follow approved application procedures; provide copy of operating procedures and list amount of pesticide used by type	✓

Table 4-1
Implementation Status of Permit Year 1 Tasks

PROGRAM ELEMENT	REQUIREMENT	STATUS OF PROGRAM ELEMENT AT FIRST YEAR
4.1.6.2 Programs to Reduce Pesticide & Fertilizer Use	Promote use of low water use plants; document with copies of brochures, date and number of classes, consultations, and other events held	✓
	Design and use of low water use plants; document	✓
4.1.6.3 Public Education	Public education program on using less pesticides and water; document with copy of educational materials and citizen newsletters	✓
4.2 ILLICIT DISCHARGES/ IMPROPER DISPOSAL MANAGEMENT PROGRAM		
4.2.1 Inspections and Enforcement		
4.2.1.1 and 4.2.1.3 Ordinance Enforcement and Recordkeeping	Code compliance inspections for illicit discharges; document number of inspections by type and list enforcement actions taken	✓
4.2.2 Field Screening		
4.2.2.1 Revisions to Field Screening Procedures	Revise as needed	✓
4.2.2.2 and 4.2.2.3 Dry Weather Field Screening and Recordkeeping	Dry weather field inspection of 20% of major outfalls for illicit discharges; document date of inspections by major outfall and provide field notes	✓
4.2.3 Storm Sewer Investigation Approach & Sanitary Seepage		
4.2.3.1 and 4.2.3.4 Illicit Discharge Investigation and Recordkeeping	Illicit Discharge Investigation; develop written SOP and conduct inspections; documented by date and list actions taken	✓
4.2.3.2 Sanitary Sewer System Evaluation	Evaluate sanitary sewer system for seepage problems and document in a report including field notes, corrective actions, and additional dry weather screening and sampling	✓
4.2.3.3 and 4.2.3.4 Current Procedures to Limit Sanitary Seepage and Recordkeeping	Identify current SOP to limit sanitary seepage; document problems and actions taken	Current SOP were identified; Recordkeeping was non-compliant; recordkeeping to improve in Permit Year 2
4.2.4 Spill Prevention/ Containment		
4.2.4.1, 4.2.4.2, 4.2.4.3 & 4.2.4.4 Responsibilities, Containment Controls, Training, & Prevention	Document spill containment program with a copy of the SOP and training summaries including dates, number trained and training recordkeeping procedures. (Fire Dept and Environmental Resources)	✓
4.2.4.5 Recordkeeping	Maintain spill log including activities conducted for each incident, clean-up procedure, type/size/volume of spill, date, location. Summary of number of vehicular accidents on City streets.	✓

Table 4-1
Implementation Status of Permit Year 1 Tasks

PROGRAM ELEMENT	REQUIREMENT	STATUS OF PROGRAM ELEMENT AT FIRST YEAR
4.2.5 Public Reporting & Used Oil/ Toxic Materials		
4.2.5.1 Public Education and Awareness Program for Illicit Discharges/ Improper Disposal	Develop & implement public information or awareness program document with copies of educational materials and summary of when, where, how and to whom (number) the materials were disseminated	✓
4.2.5.2, 4.2.5.3 Management and Disposal of Used Oil/Toxic Materials Generated by Businesses and City Operations	Development of BMPs	✓
4.3 INDUSTRIAL MANAGEMENT PROGRAM		
4.3.1 Inspections/ Control Measures & Monitoring Program		
4.3.1.1 Refinement of Industrial Facilities List	Develop Industrial Facilities List	✓
4.4 CONSTRUCTION SITE MANAGEMENT PROGRAM		
4.4.1 Site Planning		
4.4.1.1 Revise Development Plan Review Procedures	Revise Development Plan Review procedures as necessary	✓
4.4.1.2 Require Permits for Construction Activities	Inspection and enforcement of grading and drainage permits; document with list of site inspected by date and the number of inspections and enforcement actions	✓
4.4.3 Inspection and Enforcement		
4.4.3.1 and 4.4.3.2 Inspection, Enforcement and Recordkeeping	Inspect and enforcement at construction sites documented with list of constructions sites inspected by date and the number of inspections and enforcement actions (by type)	✓
4.4.4 Education and Training		
4.4.4.1 City Employees	Training for City Employees documented by date of training, number of employees trained and summary of training materials	✓
4.4.4.2 Construction Industry	Training & guidance materials for the construction industry	Partial compliance; The City proposes modifications to this element; See Section 5 of this document

✓ = 100% Compliant



Section 5

Stormwater Management Program & Monitoring Plan Modifications

5.1 SWMP Modifications

Based upon the implementation of the SWMP during the first year of compliance, the City of Glendale requests the minor modifications of the SWMP defined below. The existing SWMP element from the NPDES Part II Permit application, modification requested, and reasons for modification are provided for each requested change in Table 5-1 below.

Modification Number	SWMP Element	Modification Request	Reason for Request
1	4.1.1.3 City-Owned Detention/Retention Basins – Inlets/Outlets in Parks	Eliminate the weekly inspections/debris removal of inlets and outlets at parks during the summer mowing period	Results of inspections conducted indicate that quarterly and before storm inspection/debris removal should be sufficient to protect stormwater quality
2	4.1.1.7 City-Owned Detention/Retention Basins – Dry Wells in Parks	Eliminate the requirement to replace drywells in Parks every 20 years	The City plans to decommission rather than replace drywells in the future
3	4.1.1.8 City-Owned Detention/Retention Basins – Dry Wells in Right-of-Way	Eliminate the requirement to replace drywells in Right-of-Way every 20 years	The City plans to decommission rather than replace drywells in the future
4	4.4.4.2 Education and Training for Construction Industry	Eliminate the requirement to provide workshops, seminars, demonstrations, etc. to the construction industry; instead the City will continue to enforce its existing design guidelines and develop additional guidelines as necessary	The City does not want the responsibility of training the construction industry

5.2 Monitoring Plan Modifications

At this time the City proposes no modifications to the wet weather monitoring or dry weather screening plans.



Section 6

Fiscal Analysis

6.1 Overview

Each Annual Report for the NPDES Stormwater Permit is required to include the following information related to fiscal expenditures necessary to implement the stormwater monitoring plans and management programs:

- Any revisions to the fiscal analysis reported in the Part II Permit application
- Projected annual expenditures and budget for the year following each annual report

Table 6-1 shown in the City of Glendale NPDES Part II Permit application summarizes the funding requirements for the NPDES permitting program within the City.

6.2 Fiscal Analysis for Year 1

The expenditures budgeted for Permit Year 1 included \$218,400 for labor and \$102,500 for materials for a total of \$320,900. Many of the required tasks of the SWMP and monitoring plans for Permit Year 1 such as routine maintenance, enforcement, and inspection activities were completed by the City Departments under the existing City budget and accounted for in other budget reports. However, some additional tasks and resources not covered under current City programs were needed to satisfy the SWMP requirements of Permit Year 1. As discussed in the Part II NPDES Permit application, the \$320,900 is the budget dedicated to separate NPDES MS4 activities. At this time, the City has not attempted to quantify the costs for those existing tasks currently being completed to meet other City goals as well as the NPDES regulations.

All costs for Permit Year 1 have been funded through the City's general fund operating budget.

6.3 Fiscal Analysis for Year 2

The expenditures budgeted for Permit Year 2 include \$107,800 for labor and \$111,000 for materials for a total of \$218,800. At this time, it is anticipated that all costs will be 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 in Permit Year 2, 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 its budget 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 fee.



Section 7

Program Activities for Permit Year 2

7.1 Overview

This section provides a summary of the activities to be completed in Permit Year 2 to satisfy the requirements of the SWMP and monitoring plans. Appendix N provides a list of these activities and City contacts to assist the City in completion of the activities.

7.2 Stormwater Facility Maintenance

- Inspect and clean street inlets
- Maintain documentation of street inlet maintenance
- Update Street Inlet Inventory list as necessary
- Re-evaluate inlet inspection and cleaning procedures
- Inspect non-turf channels in ROW
- Inspect inlets and outlets within parks
- Remove debris from inlets and outlets within parks
- Inspect inlets and outlets in ROW
- Remove debris from inlets and outlets in ROW
- Sediment removal from basins in ROW
- Maintenance of drywells in parks
- Replacement of drywells in parks
- Develop and maintain drywell inventory list
- Maintenance of drywells in ROW
- Replacement of drywells in ROW
- Modify existing grading and drainage ordinance for private basins

7.3 Development/Redevelopment Planning

- Evaluate and update compliance with General Plan and city codes
- Require retention of 100-year, two-hour storm for all new development
- Review and develop changes to improve stormwater quality management; includes review of storm drainage policy/control measures and development plan review procedures

7.4 Roadway Operation and Maintenance

- Document street sweeping operations
- Continue road maintenance, construction and runoff control in new road and highway design
- Implement corrective actions at Field Operations Center from evaluation conducted in October 2000

7.5 Existing/Proposed Flood Management Facility Assessments

- Continued assessment of existing facilities (storm drains)
- Continued assessment of proposed facilities (storm drains)

7.6 Municipal Waste Handling Facilities

- Inspections of municipal facilities

7.7 Pesticide, Herbicide and Fertilizer Use

- Follow approved application procedures
- Promote use of low water use plants
- Design and use low water use plants in City landscaping
- Continue developing public education program to limit use of pesticides

7.8 Inspections and Enforcement

- Continue ordinance enforcement with code compliance inspections for illicit discharges; document all enforcement actions

7.9 Field Screening

- Dry weather field inspections of 20 percent of the major outfalls in the City
- Dry weather field inspections of major outfalls constructed after submittal of Part II NPDES
- Revise dry weather screening procedures as necessary

7.10 Storm Sewer Investigation Approach and Sanitary Seepage

- Conduct illicit discharge investigations and document results
- Evaluate sanitary sewer system for seepage problems
- Revise current SOP to limit sanitary seepage as necessary; document all sanitary seepage events

7.11 Spill Prevention/Containment

- Document spill containment program including SOP and training
- Maintain spill log including activities conducted for each incident
- Continue training and prevention programs

7.12 Public Reporting and Used Oil/Toxic Materials

- Continue developing and implementing public awareness program
- Continue existing programs and ensure compliance with applicable regulations

7.13 Inspections/Control Measures and Monitoring Program

- Prioritize industrial facilities list created in Permit Year 1 and identify which facilities contribute substantial pollutant loading to MS4
- Inform industries of NPDES program and their requirements

7.14 Site Planning

- Revise design guidelines for site development infrastructure construction
- Inspections and enforcement of grading and drainage permits

7.15 BMP Requirements

- Modify existing grading and drainage requirements to reduce potential environmental impacts during construction

7.16 Inspection and Enforcement

- Inspection and enforcement at construction sites

7.17 Education and Training

- Continue training for City employees
- Continue to enforce the *Design Guidelines for Site Development and Infrastructure Construction* on the construction industry and develop additional guidelines as necessary to limit stormwater pollution during construction

7.18 Wet Weather Monitoring

- Stormwater sampling of three storms at each of the five wet weather monitoring stations
- Complete the remainder of stormwater wet weather sampling required as part of the Part II Permit application as discussed in Section 3 of this document
- Submittal of analytical results from the storm events, including revised annual pollutant loadings and event mean concentration estimates.



Appendix A

Results of Inspections at Municipal Waste Handling
Facilities

City of Glendale Facility Stormwater Inspection

Facility Name: Southwest Water Reclamation Facility

Location: 5901 N. Glen Harbor Blvd.

Facility Contact: Sam Barnes, Wastewater Supervisor, 623-930-3951

Inspection Date: 8-22-2000

Inspected By: J. Watkins, M. Lina,

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

General Areas	Yes	No
1. Does this facility have a stormwater pollution prevention plan (SWPPP) ?		X
2. Did you review the SWPPP ?	NA	
3. Is this facility following the SWPPP ?	NA	
4. Are employees trained in stormwater pollution prevention practices		X
5. Are common areas of the yard clean and free of litter and debris ?	X	
6. Is runoff prevented from flowing onto or across any of the following areas ?		
Vehicle fueling areas	NA	
Material delivery areas	X	
Material storage areas	X	
Chemical handling areas	X	
Waste handling, storage or disposal areas	X	
7. Is water from offsite prevented from running onto any portion of the yard ?	X	
8. Is runoff from within the yard collected in or directed to any of the following devices		
Catch basin with a filter(rock)	X	
Detention basin	X	
Oil/water separator		X
Vegetated swale		X

Comments:

New facility opened June 2000, 80 acres total with 23 acres within 'facility boundary'
 Most stormwater runoff from within facility routed to underground retention at stormwater pump station
 One rock outlet on west side goes to open vegetated area within property boundary

Chemical Handling Areas

	Yes	No
1. Are chemical handling areas clean and organized ?	X	
2. Are spill containment and cleanup kits clearly marked and located in chemical handling areas ?		X
3. Is chemical handling done indoors or under cover ?		X
4. Is water from surrounding area prevented from running onto chemical handling areas ?	X	
5. Is runoff from within chemical handling areas collected in or directed to any of the following devices ?		
Catch basin with a filter		X
Detention basin		X
Oil / Water separator		X
Vegetated swale		X

Comments:

City of Glendale Facility Stormwater Inspection

Facility Name: Southwest Water Reclamation Facility

Location: 5901 N. Glen Harbor Blvd.

Inspection Date: 8-22-2000

Inspected By: J. Watkins, M. Lina,

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Material Delivery Areas / Loading Dock

	Yes	No
1. Are material delivery areas free of litter and debris ?	X	
2. Are storm drain inlets in the area protected from potential spills during deliveries ?	NA	
3. Are material deliveries received in a designated area protected from runoff from surrounding areas ?	X	
4. Are designated material delivery areas covered overhead ?	X	

Comments:

Bulk chemical loading ports located over spill containment basins

Material Storage Areas

	Yes	No
1. Are material storage areas clean ?	X	
2. Are materials which are stored outside covered with a tarp ?	NA	
3. Are materials which are stored outside stored on pallets ?	NA	
4. Are materials which are stored outside covered overhead ?	NA	
5. Are materials which are stored outdoors kept in storage bins ?	NA	
6. Are materials which are stored outdoors kept in an area protected from runoff from surrounding areas ?	NA	
7. Is runoff from within material storage areas collected in or directed to any of the following devices:		
Catch basin with a filter	NA	
Detention basin	NA	
Oil/water separator	NA	
Vegetated swale	NA	

Comments:

Facility material storage contained inside main building

City of Glendale Facility Stormwater Inspection

Facility Name: Southwest Water Reclamation Facility

Location: 5901 N. Glen Harbor Blvd.

Inspection Date: 8-22-2000

Inspected By: J. Watkins, M. Lina

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Vehicle Fueling Areas NA

	Yes	No
1. Are fueling areas clean of dirt and accumulated fuel and oil drips ?		
2. Are spill containment and cleanup kits clearly marked and located in fueling areas ?		
3. Are fuel areas paved and covered overhead ?		
4. Are fuel areas protected from runoff from surrounding areas ?		
5. Is runoff from within fueling areas collected in or directed to any of the following devices:		
Catch basin with a filter		
Detention basin		
Oil/water separator		
Vegetated swale		

Comments:

Waste Handling , Disposal & Storage Areas

	Yes	No
1. Are trash cans and garbage bins kept covered ?	X	
2. Are waste handling, disposal and storage areas uncluttered and clear of loose debris?	X	
3. Are waste handling, disposal and storage areas protected from runoff from surrounding areas ?	X	
7. Is runoff from within waste handling, disposal and storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin	X	
Oil/water separator		X
Vegetated swale		X

Comments:

City of Glendale Facility Stormwater Inspection

Facility Name: Arrowhead Water Reclamation Facility

Location: 8180 W. Union Hills Rd.

Facility Contact: Richard Billman, Senior Plant Operator, 623-930-3952

Inspection Date: 8-21-2000

Inspected By: J. Watkins, M. Lina, M. Bou

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

General Areas	Yes	No
1. Does this facility have a stormwater pollution prevention plan (SWPPP) ?	X	
2. Did you review the SWPPP ?	X	
3. Is this facility following the SWPPP ?		X
4. Are employees trained in stormwater pollution prevention practices		X
5. Are common areas of the yard clean and free of litter and debris ?	X	
6. Is runoff prevented from flowing onto or across any of the following areas ?		
Vehicle fueling areas	NA	
Material delivery areas	X	
Material storage areas	X	
Chemical handling areas	X	
Waste handling, storage or disposal areas	X	
7. Is water from offsite prevented from running onto any portion of the yard ?	X	
8. Is runoff from within the yard collected in or directed to any of the following devices		
Catch basin with a filter		X
Detention basin	X	
Oil/water separator		X
Vegetated swale		X

Comments:

Reviewed SWPPP. Facility employees not aware of document, no current training. Plan needs to be updated because the plant has been significantly upgraded since the original plan was completed in 1994

Chemical Handling Areas

	Yes	No
1. Are chemical handling areas clean and organized ?	X	
2. Are spill containment and cleanup kits clearly marked and located in chemical handling areas ?		X
3. Is chemical handling done indoors or under cover ?		X
4. Is water from surrounding area prevented from running onto chemical handling areas ?	X	
5. Is runoff from within chemical handling areas collected in or directed to any of the following devices ?		
Catch basin with a filter		X
Detention basin		X
Oil / Water separator		X
Vegetated swale		X

Comments:

Peroxide Dosing Station NOT contained, spill would go direct to ground
 Scrubbers 2,3 Caustic in 850 gal w/ spill containment, drains to head of plant
 Ferric chloride stored outside in 55gal drum on containment pallets
 Polymer gazebo contained w/ center drain
 New clarifier has HTH in 5-gallon buckets (3X) outside in an unprotected area

City of Glendale Facility Stormwater Inspection

Facility Name: Arrowhead Water Reclamation Facility

Facility Location: 8180 W. Union Hills Rd.

Inspection Date: 8-21-2000

Inspected By: J. Watkins, M. Lina, M. Bou

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Material Delivery Areas / Loading Dock

	Yes	No
1. Are material delivery areas free of litter and debris ?	X	
2. Are storm drain inlets in the area protected from potential spills during deliveries ?	NA	
3. Are material deliveries received in a designated area protected from runoff from surrounding areas ?	X	
4. Are designated material delivery areas covered overhead ?		X

Comments:

Material Storage Areas

	Yes	No
1. Are material storage areas clean ?	X	
2. Are materials which are stored outside covered with a tarp ?		X
3. Are materials which are stored outside stored on pallets ?	X	
4. Are materials which are stored outside covered overhead ?		X
5. Are materials which are stored outdoors kept in storage bins ?		X
6. Are materials which are stored outdoors kept in an area protected from runoff from surrounding areas ?	X	
7. Is runoff from within material storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin	X	
Oil/water separator		X
Vegetated swale		X

Comments:

At NonPotable Pump Station, Sodium Bisulfite empty 55-gallon drums sitting on ground (7 pcs)
 Bleach Bulk Storage in 4,000-gallon tank w/ 3 ft containment wall, bulk load is over containment basin
 Chlorine Bldg. inside covered storage of Chlorine bulk tank, Bisulfide, Ferric chloride; Polymer empties (55gal drums) sitting outside building, no pallets
 Carbon Stack runoff to unvegetated open areas
 Diesel Bulk 2 -55-gallon drums unmarked on containment pallets

City of Glendale Facility Stormwater Inspection

Facility Name: Arrowhead Water Reclamation Facility

Facility Location: 8180 W. Union Hills Rd.

Inspection Date: 8-21-2000

Inspected By: J. Watkins, M. Lina, M. Bou

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Vehicle Fueling Areas NA

	Yes	No
1. Are fueling areas clean of dirt and accumulated fuel and oil drips ?		
2. Are spill containment and cleanup kits clearly marked and located in fueling areas ?		
3. Are fuel areas paved and covered overhead ?		
4. Are fuel areas protected from runoff from surrounding areas ?		
5. Is runoff from within fueling areas collected in or directed to any of the following devices:		
Catch basin with a filter-		
Detention basin		
Oil/water separator		
Vegetated swale		

Comments:

Waste Handling , Disposal & Storage Areas

	Yes	No
1. Are trash cans and garbage bins kept covered ?	X	
2. Are waste handling, disposal and storage areas uncluttered and clear of loose debris?	X	
3. Are waste handling, disposal and storage areas protected from runoff from surrounding areas ?	X	
7. Is runoff from within waste handling, disposal and storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin	X	
Oil/water separator		X
Vegetated swale		X

Comments:

Lube Storage Waste on pallets uncovered
 Dumpster area drains to retention basins

City of Glendale Facility Stormwater Inspection

Facility Name: Glendale Municipal Landfill

Facility Location: 11480 W. Glendale Avenue

Facility Contact: Jon Kawaguchi, Landfill Inspector

Inspection Date: 8-22-2000

Inspected By: J. Watkins, M. Lina

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

General Areas	Yes	No
1. Does this facility have a stormwater pollution prevention plan (SWPPP) ?	X	
2. Did you review the SWPPP ?	X	
3. Is this facility following the SWPPP ?	X	
4. Are employees trained in stormwater pollution prevention practices	X*	
5. Are common areas of the yard clean and free of litter and debris ?	X	
6. Is runoff prevented from flowing onto or across any of the following areas ?		
Vehicle fueling areas	X	
Material delivery areas	X	
Material storage areas	X	
Chemical handling areas	X	
Waste handling, storage or disposal areas	X	
7. Is water from offsite prevented from running onto any portion of the yard ?	X	
8. Is runoff from within the yard collected in or directed to any of the following devices		
Catch basin with a filter (rock)	X	
Detention basin	X	
Oil/water separator		X
Vegetated swale	X	

Comments:

SWPPP developed by RUST Environmental (Earth Tech) in April 1997

Training for facility personnel provided by Ben Johnson, City of Glendale Environmental Resources

Catch Basin on both sides of entrance gate w/ no outlets designed to handle 100 year flood; Catch basin / detention basin along entire east perimeter of property, BLM 'pit' along west side

Municipal Recycling Facility (MRF) located on this site on raised area designed to drain to low end of old rock quarry w/ APP permit.

Chemical Handling Areas (within Maintenance Yard)	Yes	No
1. Are chemical handling areas clean and organized ?	X	
2. Are spill containment and cleanup kits clearly marked and located in chemical handling areas ?		X
3. Is chemical handling done indoors or under cover ?		X
4. Is water from surrounding area prevented from running onto chemical handling areas ?	X	
5. Is runoff from within chemical handling areas collected in or directed to any of the following devices ?		
Catch basin with a filter		X
Detention basin		X
Oil / Water separator		X
Vegetated swale		X

Comments:

Foam Storage Tank (7000-gallon) single walled on bare ground w/ no containment

Diesel Fuel Storage (5000-gallon?) on bare ground w/ signs of spillage, no containment

City of Glendale Facility Stormwater Inspection

Facility Name: Glendale Municipal Landfill

Facility Location: 11480 W. Glendale Avenue

Inspection Date: 8-22-2000

Inspected By: J. Watkins, M. Lina

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Material Delivery Areas / Loading Dock (within Maintenance Yard)

	Yes	No
1. Are material delivery areas free of litter and debris ?	X	
2. Are storm drain inlets in the area protected from potential spills during deliveries ?	NA	
3. Are material deliveries received in a designated area protected from runoff from surrounding areas ?	X	
4. Are designated material delivery areas covered overhead ?		X

Comments:

Material Storage Areas (within Maintenance Yard)

	Yes	No
1. Are material storage areas clean ?	X	
2. Are materials which are stored outside covered with a tarp ?		X
3. Are materials which are stored outside stored on pallets ?	X	
4. Are materials which are stored outside covered overhead ?		X
5. Are materials which are stored outdoors kept in storage bins ?	Some	
6. Are materials which are stored outdoors kept in an area protected from runoff from surrounding areas ?	X	
7. Is runoff from within material storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin		X
Oil/water separator		X
Vegetated swale		X

Comments:

Battery Storage in covered plastic boxes
 Storage Shed w/ Flammable Liquids Storage Cabinet inside
 Tire Storage Containers (2) 40 yd. each uncovered

City of Glendale Facility Stormwater Inspection

Facility Name: Glendale Municipal Landfill

Facility Location: 11480 W. Glendale Avenue

Inspection Date: 8-22-2000

Inspected By: J. Watkins, M. Lina

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Vehicle Fueling Areas (within Maintenance Yard)

	Yes	No
1. Are fueling areas clean of dirt and accumulated fuel and oil drips ?		X
2. Are spill containment and cleanup kits clearly marked and located in fueling areas ?		X
3. Are fuel areas paved and covered overhead ?		X
4. Are fuel areas protected from runoff from surrounding areas ?	X	
5. Is runoff from within fueling areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin		X
Oil/water separator		X
Vegetated swale		X

Comments:

Diesel Fuel Storage (5000-gallon?) on bare ground w/ signs of spillage, no containment

Waste Handling , Disposal & Storage Areas (within Maintenance Yard)

	Yes	No
1. Are trash cans and garbage bins kept covered ?	X	
2. Are waste handling, disposal and storage areas uncluttered and clear of loose debris?	X	
3. Are waste handling, disposal and storage areas protected from runoff from surrounding areas ?	X	
7. Is runoff from within waste handling, disposal and storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin		X
Oil/water separator		X
Vegetated swale		X

Comments:

City of Glendale Facility Stormwater Inspection

Facility Name: Cholla Water Treatment Plant

Facility Location: 4805 W. Cholla St

Inspection Date: 8-15-2000

Inspected By: G. Michael, J. Watkins, M. Lina, M. Bou

Inspection Type: Yearly Routine Post-Storm Complaint Other

Material Delivery Areas / Loading Dock at Maintenance Bldg.

	Yes	No
1. Are material delivery areas free of litter and debris ?	X	
2. Are storm drain inlets in the area protected from potential spills during deliveries ?	NA	
3. Are material deliveries received in a designated area protected from runoff from surrounding areas ?	X	
4. Are designated material delivery areas covered overhead ?	X	

Comments:

Material Storage Areas

	Lube Storage	UF Bldg	Fluoride Bldg.
1. Are material storage areas clean ?	yes	yes	yes
2. Are materials which are stored outside covered with a tarp ?	no	no	no
3. Are materials which are stored outside stored on pallets ?	no	yes	NA
4. Are materials which are stored outside covered overhead ?	no	no	NA
5. Are materials which are stored outdoors kept in storage bins ?	no	no	NA
6. Are materials which are stored outdoors kept in an area protected from runoff from surrounding areas ?	yes	yes	NA
7. Is runoff from within material storage areas collected in or directed to any of the following devices:			
Catch basin with a filter	no	no	no
Detention basin	no	no	no
Oil/water separator	no	no	no
Vegetated swale	no	yes	no

Comments:

UF Bldg.: Copper sulfate bags unprotected outside on west end
Citric Acid drum w/ open top, label not visible

Lube Storage Bldg.: Barn w/ shingle roof; pesticides, herbicides, citric acid stored inside

City of Glendale Facility Stormwater Inspection

Facility Name: Cholla Water Treatment Plant

Facility Location: 4805 W. Cholla St

Inspection Date: 8-15-2000

Inspected By: G. Michael, J. Watkins, M. Lina, M. Bou

Inspection Type: Yearly Routine Post-Storm Complaint Other

Vehicle Fueling Areas None on site

	Yes	No
1. Are fueling areas clean of dirt and accumulated fuel and oil drips ?		
2. Are spill containment and cleanup kits clearly marked and located in fueling areas ?		
3. Are fuel areas paved and covered overhead ?		
4. Are fuel areas protected from runoff from surrounding areas ?		
5. Is runoff from within fueling areas collected in or directed to any of the following devices:		
Catch basin with a filter		
Detention basin		
Oil/water separator		
Vegetated swale		

Comments:

Waste Handling , Disposal & Storage Areas

	Yes	No
1. Are trash cans and garbage bins kept covered ?	X	
2. Are waste handling, disposal and storage areas uncluttered and clear of loose debris?	X	
3. Are waste handling, disposal and storage areas protected from runoff from surrounding areas ?		X
7. Is runoff from within waste handling, disposal and storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin		X
Oil/water separator		X
Vegetated swale		X

Comments:

Booster Station Zone 1B : Runoff goes to street
 Zone 1 : Runoff goes to street
 Zone 2 - Sump actively pumping to street

Dumpster drain near canal gate at headworks piped to outside property fence

City of Glendale Facility Stormwater Inspection

Facility Name: Pyramid Peak Water Treatment Plant

Location: 28101 North 63rd Avenue

Inspection Date: 08/21/00

Inspected By: Mark Lina, John Watkins, Michael Bou

Inspection Type: Yearly Routine Post-Storm Complaint Other

Material Delivery Areas / Loading Dock

	Yes	No
1. Are material delivery areas free of litter and debris ?	X	
2. Are storm drain inlets in the area protected from potential spills during deliveries ?	X	
3. Are material deliveries received in a designated area protected from runoff from surrounding areas ?	X	
4. Are designated material delivery areas covered overhead ?		X

Comments:

1. **Chemical Bulk Loading areas—any spills drain to an underground storage tank which can be emptied using a pneumatic pump and hauled off-site.**
2. **Loading ports to bulk chemical storage tanks have spill containment directly under them.**

Material Storage Areas

	Yes	No
1. Are material storage areas clean ?	X	
2. Are materials which are stored outside covered with a tarp ?		X
3. Are materials which are stored outside stored on pallets ?		X
4. Are materials which are stored outside covered overhead ?		X
5. Are materials which are stored outdoors kept in storage bins ?		X
6. Are materials which are stored outdoors kept in an area protected from runoff from surrounding areas ?		X
7. Is runoff from within material storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin		X
Oil/water separator		X
Vegetated swale		X

Comments:

1. **Some items in back storage yard are not stored on pallets. No cover is provided for these stored items.**
2. **Batteries behind maintenance building near loading dock are not under cover and not on a spill containment pallets.**
3. **Empty drums stored under traveling water screen not on pallets.**

City of Glendale Facility Stormwater Inspection

Facility Name: Pyramid Peak Water Treatment Plant

Location: 28101 North 63rd Avenue

Inspection Date: 08/21/00

Inspected By: Mark Lina, John Watkins, Michael Bou

Inspection Type: Yearly Routine Post-Storm Complaint Other

Vehicle Fueling Areas

	Yes	No
1. Are fueling areas clean of dirt and accumulated fuel and oil drips ?	<input checked="" type="checkbox"/>	
2. Are spill containment and cleanup kits clearly marked and located in fueling areas ?		<input checked="" type="checkbox"/>
3. Are fuel areas paved and covered overhead?		<input checked="" type="checkbox"/>
4 Are fuel areas protected from runoff from surrounding areas?	<input checked="" type="checkbox"/>	
5 Is runoff from within fueling areas collected in or directed to any of the following devices:		
Catch basin with a filter		<input checked="" type="checkbox"/>
Detention basin		<input checked="" type="checkbox"/>
Oil/water separator		<input checked="" type="checkbox"/>
Vegetated swale		<input checked="" type="checkbox"/>

Comments:

1. Fueling area--diesel fuel port has no "catch bucket" under drain. Area is paved but not covered.

Waste Handling , Disposal & Storage Areas

	Yes	No
1. Are trash cans and garbage bins kept covered ?	<input checked="" type="checkbox"/>	
2. Are waste handling, disposal and storage areas uncluttered and clear of loose debris?	<input checked="" type="checkbox"/>	
3 Are waste handling, disposal and storage areas protected from runoff from surrounding areas ?		<input checked="" type="checkbox"/>
7. Is runoff from within waste handling, disposal and storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		<input checked="" type="checkbox"/>
Detention basin		<input checked="" type="checkbox"/>
Oil/water separator		<input checked="" type="checkbox"/>
Vegetated swale		<input checked="" type="checkbox"/>

Comments:

1. Storage yard contains no chemicals. Equipment parts new and used are stored in this area.
2. Runoff from trash dumpster area flows off-site via a concrete drainage ditch.

City of Glendale Facility Stormwater Inspection Form

Facility Name: Glendale Municipal Airport

Facility Location: 6801 North Glen Harbor

Inspection Date: 08/23/00

Inspected By: M. Lina

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

	Yes	No
1. Does this facility have a stormwater pollution prevention plan (SWPPP) ?	X	
2. Did you review the SWPPP ?	X	
3. Is this facility following the SWPPP ?	X	
4. Are employees trained in stormwater pollution prevention practices	X*	
5. Are common areas of the yard clean and free of litter and debris ?	X	
6. Is runoff prevented from flowing onto or across any of the following areas ?		
Vehicle fueling areas		X
Material delivery areas	X	
Material storage areas		
Chemical handling areas	X	
Waste handling, storage or disposal areas	X	
7. Is water from offsite prevented from running onto any portion of the yard ?	X	
8. Is runoff from within the yard collected in or directed to any of the following devices		
Catch basin with a filter		X
Detention basin	X	
Oil/water separator		X
Vegetated swale		X

Comments:

1. Glendale Aviation provides most of the aircraft services offered at the airport. These services include fueling, washing, rental, flight school, and aircraft maintenance services. Life Net and Air Evac also provide emergency air lift helicopter services.
2. Stormwater runoff from the new hanger area in the north part of the property flows through an oil and grit interceptor. Runoff from hanger areas in the south part of the property do not.
3. Drainage flows from the facility south to catch basins. There are three outfalls from the airport, each emptying into a catch basin.
4. Ben Johnson (City of Glendale Environmental Resources) provides annual training to airport personnel.
5. Camp, Dresser McKee developed this sites SWPPP in March 1995.
6. Facility contact: Steve Speer, Airport Operations Crew Leader, (623) 930-2188

Chemical Handling Areas

	Yes	No
1. Are chemical handling areas clean and organized ?	X	
2. Are spill containment and cleanup kits clearly marked and located in chemical handling areas ?	X	
3. Is chemical handling done indoors or under cover ?	X	
4. Is water from surrounding area prevented from running onto chemical handling areas ?	X	
5. Is runoff from within chemical handling areas collected in or directed to any of the following devices ?		
Catch basin with a filter		X
Detention basin		X
Oil / Water separator		X
Vegetated swale		X

Comments:

1. All chemicals are handled indoors and stored indoors as well. A solvent cleaning system is located inside maintenance hanger area. Small amounts of chemicals are stored outside in covered storage sheds.

City of Glendale Facility Stormwater Inspection Form

Facility Name: Glendale Municipal Airport

Facility Location: 6801 North Glen Harbor

Inspection Date: 08/23/00

Inspected By: M. Lina

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Material Delivery Areas / Loading Dock

	Yes	No
1. Are material delivery areas free of litter and debris ?	X	
2. Are storm drain inlets in the area protected from potential spills during deliveries ?	X	
3. Are material deliveries received in a designated area protected from runoff from surrounding areas ?	X	
4. Are designated material delivery areas covered overhead ?		X

Comments:

1. Fuel deliveries are the only major supply delivered service at the airport.
2. Underground storage tank areas are not covered but are fenced. This area is located on the south part of the property.

Material Storage Areas

	Yes	No
1. Are material storage areas clean ?	X	
2. Are materials which are stored outside covered with a tarp ?		X
3. Are materials which are stored outside stored on pallets ?		X
4. Are materials which are stored outside covered overhead ?	X	
5. Are materials which are stored outdoors kept in storage bins ?		X
6. Are materials which are stored outdoors kept in an area protected from runoff from surrounding areas ?	X	
7. Is runoff from within material storage areas collected in or directed to any of the following devices:		
Catch basin	X	
Detention basin	X	
Oil/water separator		X
Vegetated swale		X

Comments:

1. Most materials stored outdoors are covered overhead. A materials/parts yard located at the south part of the property is not.

City of Glendale Facility Stormwater Inspection Form

Facility Name: Glendale Municipal Airport

Facility Location: 8601 North Glen Harbor

Inspection Date: 08/23/00

Inspected By: M. Lina

Inspection Type: Yearly Routine Post-Storm Complaint Other _____

Vehicle Fueling Areas

	Yes	No
1. Are fueling areas clean of dirt and accumulated fuel and oil drips ?	X	
2. Are spill containment and cleanup kits clearly marked and located in fueling areas ?	X	
3. Are fuel areas paved and covered overhead ?		X
4. Are fuel areas protected from runoff from surrounding areas ?		X
5. Is runoff from within fueling areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin		X
Oil/water separator		X
Vegetated swale		X

Comments:

1. Glendale Aviation (private company): No specific area is designated as a fueling area for aircraft. (Planes and Helicopters) Fueling trucks travel out to parked aircraft and service them. Fueling can take place near storm drains which flow directly to basin areas away from runway.
2. The trucks themselves are parked under cover in a designated area until needed. Trucks have spill kits on board.
3. Underground fuel storage tanks are located to the far south of the property. The tanks and pumping equipment are not covered but enclosed by a perimeter fence.
4. Drip pans are used under engines being repaired. Spill containment materials are available for use if needed.
5. Two plastic drums holding aviation fuel, although under cover, need to be labeled properly and placed on a spill containment pallet. (Fueling truck parking area)
6. Used batteries need to be stored on pallet and contained. (Fueling truck parking area)
7. Three types of aircraft fuels are available on site. (Jet A fuel, Av Gas and Regular Unleaded)

Waste Handling , Disposal & Storage Areas

	Yes	No
1. Are trash cans and garbage bins kept covered ?	X	
2. Are waste handling, disposal and storage areas uncluttered and clear of loose debris?	X	
3. Are waste handling, disposal and storage areas protected from runoff from surrounding areas ?	X	
7. Is runoff from within waste handling, disposal and storage areas collected in or directed to any of the following devices:		
Catch basin with a filter		X
Detention basin		X
Oil/water separator	X	
Vegetated swale		X

Comments:

1. In the Glendale aircraft wash rack area, waste wash water is directed to a drain grate which flows through a triple lid oil and grit interceptor before disposal to the sanitary sewer system.
2. Areas are provided for waste oil disposal in the Glendale wash rack area. Used oil is collected in two underground tanks on either side of the wash rack. Spill absorbents are provided for spills.
3. Glendale Aviation (private company) also has a wash rack area which directs used wash water through a three lid oil and grit interceptor.



Appendix B

MSDS for Municipal Chemical Use

MONSANTO INDUSTRIAL CHEMICALS -- 5035 ROUNDUP READY-TO-USE WEED & GRASS KILLER - HERBICIDE, ISOPROPYLAMINE SALT
MATERIAL SAFETY DATA SHEET
NSN: 6840011089578
Manufacturer's CAGE: 50522
Part No. Indicator: A
Part Number/Trade Name: 5035 ROUNDUP READY-TO-USE WEED & GRASS KILLER

=====
General Information
=====

Item Name: HERBICIDE, ISOPROPYLAMINE SALT OF GLYPHOSPHATE
Company's Name: MONSANTO INDUSTRIAL CHEMICALS CO *
Company's Street: 755 PAGE MILL RD *
Company's P. O. Box: 5008
Company's City: PALO ALTO *
Company's State: CA *
Company's Country: US *
Company's Zip Code: 94303 *
Company's Emerg Ph #: 800-454-2333
Company's Info Ph #: 800-225-2883
Distributor/Vendor # 1: ABC SUPPLY CO (847-459-7788)
Distributor/Vendor # 1 Cage: 1EV32
Distributor/Vendor # 2: TIMBERLINE
Distributor/Vendor # 2 Cage: 1BH45
Safety Data Action Code: C
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 007
Status: SE
Date MSDS Prepared: 21MAR95
Safety Data Review Date: 19JUN98 *
Supply Item Manager: CX *
MSDS Preparer's Name: UNKNOWN
MSDS Serial Number: CBSGQ
Specification Number: NONE
Spec Type, Grade, Class: NONE
Hazard Characteristic Code: T5
Unit Of Issue: BX
Unit Of Issue Container Qty: 2 X 2.5 GL/BX
Type Of Container: BOX
Net Unit Weight: 21.9 LBS

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: GLYPHOSATE, ISOPROPYLAMINE SALT OF N-(PHOSPHOMETHYL) GLYCINE
OR N-(PHOSPHOMETHYL)GLYCINE, MONOISOPROPYLAMINE SALT
Ingredient Sequence Number: 01

Percent: 0.96
NIOSH (RTECS) Number: MC1080000
CAS Number: 38641-94-0
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: INERT INGREDIENTS (INCLUDES INGREDIENT 3)
Ingredient Sequence Number: 02
Percent: 99.04
NIOSH (RTECS) Number: 1000082II
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: POTASSIUM HYDROXIDE (CERCLA)
Ingredient Sequence Number: 03
Percent: UNKNOWN
NIOSH (RTECS) Number: TT2100000
CAS Number: 1310-58-3
OSHA PEL: C 2 MG/M3
ACGIH TLV: C 2 MG/M3; 9596
Other Recommended Limit: NONE RECOMMENDED

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: YELLOW OR OFF-WHITE HAZY LIQUID.
Boiling Point: UNKNOWN
Melting Point: UNKNOWN
Vapor Pressure (MM Hg/70 F): UNKNOWN
Vapor Density (Air=1): UNKNOWN
Specific Gravity: 1.0055
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: UNKNOWN
Solubility In Water: UNKNOWN
Viscosity: UNKNOWN
pH: 6.5-7
Corrosion Rate (IPY): UNKNOWN

=====
Fire and Explosion Hazard Data
=====

Flash Point: >200F/93C
Flash Point Method: TCC
Lower Explosive Limit: UNKNOWN
Upper Explosive Limit: UNKNOWN

Extinguishing Media: WATER FOG, CARBON DIOXIDE, DRY CHEMICAL, FOAM OR ANY CLASS B EXTINGUISHING AGENT.

Special Fire Fighting Proc: USE A SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE EQUIPMENT. THOROUGHLY CLEAN EQUIPMENT AFTER USE.

Unusual Fire And Expl Hazrds: NONE SPECIFIED BY MANUFACTURER.

Reactivity Data

Stability: YES

Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.

Materials To Avoid: NONE SPECIFIED BY MANUFACTURER.

Hazardous Decomp Products: NONE.

Hazardous Poly Occur: YES

Conditions To Avoid (Poly): NONE SPECIFIED BY MANUFACTURER.

Health Hazard Data

LD50-LC50 Mixture: ORAL RAT LD50 >5000 MG/KG

Route Of Entry - Inhalation: YES

Route Of Entry - Skin: YES

Route Of Entry - Ingestion: NO

Health Haz Acute And Chronic: ESSENTIALLY NON-IRRITATING TO EYES.

PRACTICALLY NON-TOXIC ON SKIN CONTACT, NON-ALLERGENIC. MAY CAUSE IRRITATION IF INHALED. MAY CAUSE GI TRACT IRRITATION IF INGESTED.

Carcinogenicity - NTP: NO

Carcinogenicity - IARC: NO

Carcinogenicity - OSHA: NO

Explanation Carcinogenicity: NO INGREDIENT OF A CONCENTRATION OF 0.1% OR GREATER IS LISTED AS A CARCINOGEN OR SUSPECTED CARCINOGEN.

Signs/Symptoms Of Overexp: INHALED-IRRITATION. INGESTED-GI TRACT IRRITATION, NAUSEA, VOMITING, DIARRHEA.

Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.

Emergency/First Aid Proc: EYES-FLUSH WITH WATER FOR 15 MINUTES. REMOVE CONTACT LENSES IF WORN. SKIN-REMOVE CONTAMINATED CLOTHES. WASH WITH SOAP & WATER. IMMEDIATELY CALL POISON CONTROL CENTER OR PHYSICIAN FOR ADVICE. DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY MEDICAL PERSONNEL. IF CANNOT CONTACT POISON CONTROL CENTER, TAKE VICTIM & PRODUCT CONTAINER TO TO EMERGENCY TREATMENT CENTER. INHALED-REMOVE TO FRESH AIR.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: CONTAIN OR DIKE SPILL. ABSORB WITH ATTAPULGITE, BENTONITE OR OTHER ABSORBENT CLAYS. COLLECT AND PLACE IN PLASTIC-LINED METAL DRUM AND DISPOSE OF IAW LOCAL, STATE AND FEDERAL REGULATIONS.

Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Method: DISPOSE I/A/W FEDERAL, STATE, LOCAL REGULATIONS.

DISPOSE AS PESTICIDE. DO NOT CONTAMINATE WATER SUPPLIES. EPA REG.NO.524-308. DO NOT ALLOW TO CONTAMINATE WATER, FOODSTUFF, FEED OR SEED DURING DISPOSAL.

Precautions-Handling/Storing: KEEP PESTICIDE IN ORIGINAL CONTAINER. STORE IN A SECURE, PREFERABLY LOCKED, STORAGE AREA. PROTECT CONTAINER FROM FREEZING.

Other Precautions: DO NOT ALLOW TO CONTAMINATE WATER, FOODSTUFF, FEED OR SEED DURING STORAGE OR HANDLING.

Control Measures

Respiratory Protection: IF ENGINEERING CONTROLS FAIL OR NON-ROUTINE USE OR AN EMERGENCY OCCURS; WEAR AN MSHA/NIOSH APPROVED RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE OR AN AIR-SUPPLIED RESPIRATOR OR SCBA, AS REQUIRED. USE IAW 29 CFR 1910.134.

Ventilation: NO SPECIAL VENTILATION RECOMMENDED. *

Protective Gloves: NONE NORMALLY REQUIRED.

Eye Protection: NONE NORMALLY REQUIRED.

Other Protective Equipment: NONE SPECIFIED BY MANUFACTURER. DLA-HMIS: EYE WASH STATION & SAFETY SHOWER.

Work Hygienic Practices: WASH HANDS AFTER HANDLING AND BEFORE EATING, DRINKING, OR SMOKING. LAUNDRER CONTAMINATED CLOTHES BEFORE REUSE.

Suppl. Safety & Health Data: MFR I.D. FOR MSDS: 6045.

Transportation Data

Trans Data Review Date: 96283

DOT PSN Code: ZZZ

DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

IMO PSN Code: ZZZ

IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION

IATA PSN Code: ZZZ

IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

AFI PSN Code: ZZZ

AFI Prop. Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

MMAC Code: NR

Additional Trans Data: PER MSDS, ITEM NOT REGULATED FOR TRANSPORTATION. SURFACE FREIGHT CLASSIFICATION, WEED KILLING COMPOUND, NOI.

Disposal Data

Label Data

Label Required: NO

Technical Review Date: 09OCT96

Label Status: X *

Common Name: 5035 ROUNDUP READY-TO-USE WEED & GRASS KILLER
Label Name: THE SOLARIS GROUP OF MANSANTO COMPANY
Label Street: UNKNOWN
Label P.O. Box: 5008
Label City: SAN RAMON
Label State: CA
Label Zip Code: 94583-0808
Label Country: US
Label Emergency Number: 800-454-2333

ELANCO PRODUCTS DIV LILLY ELI AND -- GALLERY 75 DRY FLOWABLE HERBICIDE - ISOXABEN, HERBICIDE
ELANCO PRODUCTS DIV LILLY ELI AND -- GALLERY 75 DRY FLOWABLE HERBICIDE - ISOXABEN, HERBICIDE
MATERIAL SAFETY DATA SHEET
NSN: 684000F030319
Manufacturer's CAGE: 21626
Part No. Indicator: A
Part Number/Trade Name: GALLERY 75 DRY FLOWABLE HERBICIDE

=====
General Information
=====

Item Name: ISOXABEN, HERBICIDE
Company's Name: ELANCO PRODUCTS CO DIV LILLY ELI AND CO
Company's Street: 3901 W 86TH ST
Company's City: INDIANAPOLIS
Company's State: IN
Company's Country: US
Company's Zip Code: 46268-1702
Company's Emerg Ph #: 317-276-2000
Company's Info Ph #: 317-276-3000
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SE
Date MSDS Prepared: 03SEP93
Safety Data Review Date: 09JUN94
Supply Item Manager: AF
Preparer's Company: ELANCO PRODUCTS CO DIV LILLY ELI AND CO
Preparer's St Or P. O. Box: 3901 W 86TH ST
Preparer's City: INDIANAPOLIS
Preparer's State: IN
Preparer's Zip Code: 46268-1702
MSDS Serial Number: BRYBF

Specification Number: NONE
Spec Type, Grade, Class: NONE
Hazard Characteristic Code: T5

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: ISOXABEN
Ingredient Sequence Number: 01
Percent: 75%
NIOSH (RTECS) Number: CV4370300
CAS Number: 82558-50-7
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE SPECIFIED BY M.

Proprietary: NO
Ingredient: INERT INGREDIENTS SEE INGRED # 3, 4 AND 5.
Ingredient Sequence Number: 02
Percent: 25%
NIOSH (RTECS) Number: 1000082II

Proprietary: NO
Ingredient: SRFACTANTS
Ingredient Sequence Number: 03
NIOSH (RTECS) Number: 1001310SA
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO

Ingredient: KAOLIN
Ingredient Sequence Number: 04
NIOSH (RTECS) Number: GF1670500
CAS Number: 1332-58-7
OSHA PEL: 15 MG/M3 TDUST
ACGIH TLV: 2 MG/M3 TDUST; 9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: SILICA, CRYSTALLINE - QUARTZ
Ingredient Sequence Number: 05
Percent: <0.3
NIOSH (RTECS) Number: VV7330000
CAS Number: 14808-60-7
OSHA PEL: SEE TABLE Z-3
ACGIH TLV: 0.1 MG/M3 RDUST;9394
Other Recommended Limit: NONE RECOMMENDED

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: LIGHT TAN WATER DISPERSIBLE GRANULE, MILD AROMATIC
ODOR.
Solubility In Water: DISPERSES IN WATER
pH: 8.5-10

=====
Fire and Explosion Hazard Data
=====

Extinguishing Media: WATER, CO2, OR DRY CHEMICALS.
Special Fire Fighting Proc: WEAR FULL PROTECTIVE CLOTHING & SCBA. EVACUATE
AREA. DON'T ALLOW WATER RUN-OFF FROM FIRE SITE TO ENTER NEARBY
STREAMS/PONDS/LAKES. KEEP CONTAINERS COOL W/WATER.

Unusual Fire And Expl Hazrds: WILL EMIT TOXIC FUMES AS IT BURNS.

=====
Reactivity Data
=====

Stability: YES

Cond To Avoid (Stability): HEAT OR FLAME, DIRECT SUNLIGHT, TEMPS >120F.

Materials To Avoid: NONE KNOWN.

Hazardous Decomp Products: TOXIC VAPORS AS IT BURNS

Hazardous Poly Occur: NO
=====

Health Hazard Data
=====

LD50-LC50 Mixture: ORAL LD50 (RAT) IS 5000 MG/KG

Route Of Entry - Inhalation: YES

Route Of Entry - Skin: NO

Route Of Entry - Ingestion: NO

Health Haz Acute And Chronic: ACUTE-DUST MAY CAUSE IRRITATION TO THE EYES AND SKIN. INHALATION OF DUST MAY CAUSE PULMONARY TRACT PROBLEMS. AVOID BREATHING DUST. TARGET ORGANS:LIVER AND KIDNEY.

Carcinogenicity - NTP: YES

Carcinogenicity - IARC: YES

Carcinogenicity - OSHA: NO

Explanation Carcinogenicity: CONTAINS CRYSTALLINE SILICA WHICH IS LISTED AS A POTENTIAL CARCINOGEN BY IARC AND NTP.

Signs/Symptoms Of Overexp: IRRITATION, COUGHING, RED EYES.

Med Cond Aggravated By Exp: PULMONARY DISORDERS.

Emergency/First Aid Proc: INHALATION:REMOVE TO FRESH AIR, PROVIDE CPR/OXYGEN IF NEEDED. EYE CONTACT:FLUSH WITH WATER FOR 15 MINUTES. GET MEDICAL HELP. SKIN CONTACT:WASH WITH SOAP AND WATER. GET MED ATTENTION IF SYMPTOMS PERSIST. INGESTION: DRINK 1-2 GLASSES OF WATER. GET MEDICAL HELP IMMEDIATELY.

=====

Precautions for Safe Handling and Use

=====

Steps If Matl Released/Spill: WEAR DUST MASK. SEEP UP OR VACUUM UP AND SAVE IN PLASTIC BAGS FOR DISPOSAL. DON'T CONTAMINATE WATERWAYS. AVOID DUSTING.

Waste Disposal Method: DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

Precautions-Handling/Storing: DON'T STORE NEAR HEAT OR FLAME. STORE IN ORIGINAL CONTAINERS. DON'T STORE IN DIRECT SUNLIGHT OR AT TEMPERATURES >120F.

Other Precautions: KEEP OUT OF REACH OF CHILDREN. AVOID BREATHING DUST OR SPRAY MIST & CONTACT W/SKIN, EYES OR CLOTHING. DON'T CONTAMINATE WATER, FOOD OR FEED BY STORAGE OR DISPOSAL.

=====

Control Measures

=====

Respiratory Protection: USE A NIOSH APPROVED DUST RESPIRATOR.

Ventilation: GENERAL

Protective Gloves: IMPERMEABLE

Eye Protection: GOGGLES

Other Protective Equipment: COVERALLS, LONG-SLEEVED SHIRT

Work Hygienic Practices: WASH THOROUGHLY W/SOAP & WATER AFTER HANDLING. REMOVE CONTAMINATED CLOTHING & WASH BEFORE REUSE.

Suppl. Safety & Health Data: DON'T CONTAMINATE WATER. DON'T APPLY DIRECTLY TO WATER OR WETLANDS. DRIFT MAY RESULT IN REDUCED GERMINATION OR EMERGENCE OF NONTARGET PLANTS ADJACENT TO TREATED AREA.

=====

Transportation Data

=====

Trans Data Review Date: 94160

DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
AFI PSN Code: ZZZ
AFI Prop. Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

=====
Disposal Data
=====
=====
Label Data
=====

Label Required: NO
Label Status: X
Common Name: LABEL COVERED UNDER EPA REGS - HAZCOM LABEL NOT AUTHORIZED

H&S: MALATHION 121-75-5NTP CHEMICAL REPOSITORY
MALATHION

-IDENTIFIERS

=====

*CATALOG ID NUMBER: 000680

*CAS NUMBER: 121-75-5

*BASE CHEMICAL NAME: MALATHION

*PRIMARY NAME: MALATHION

*CHEMICAL FORMULA: C10H19O6PS2

*STRUCTURAL FORMULA: (CH3O)2P(S)SCH(COOC2H5)CH2COOC2H5

*WLN: 2OV1YVO2&SPS&O1&O1

*SYNONYMS:

MERCAPTOSUCCINIC ACID, DIETHYL ESTER, S-ESTER WITH O,O-DIMETHYL PHOSPHORO-
DITHIOATE

DIETHYL MERCAPTOSUCCINATE, O,O-DIMETHYL PHOSPHORODITHIOATE

O,O-DIMETHYL-S-(1,2-DICARBETHOXYETHYL)PHOSPHORODITHIOATE

1,2-DI(ETHOXYCARBONYL)ETHYL O,O-DIMETHYL PHOSPHORODITHIOATE

S-(1,2-DICARBETHOXYETHYL) O,O-DIMETHYLDITHIOPHOSPHATE

CHEMATHION

CYTHON

CARBOPHOS

EMMATOS
FORMAL
FOSFOTHION
FYFANON
KARBOFOS
KOP-THION
MALACIDE
MALAGRAN
MALAMAR
MALATHON
MLT
PHOSPHOTHION
SADOFOS
NCI-C00215
ENT 17,034
S-(1,2-BIS(CARBETHOXY)ETHYL) O,O-DIMETHYL DITHIOPHOSPHATE
S-(1,2-BIS(ETHOXYCARBONYL)ETHYL O,O-DIMETHYLPHOSPHORODITHIOATE
S-1,2-BIS(ETHOXYCARBONYL)ETHYL-O,O-DIMETHYL THIOPHOSPHATE
CALMATHION
CARBETOX
CARBETHOXY MALATHION
CARBETOVUR
CARBOFOS
CELTHION
CIMEXAN
COMPOUND 4049
DETMOL MA
DETMOL MA 96%
DICARBOETHOXYETHYL O,O-DIMETHYL PHOSPHORODITHIOATE
S-(1,2-DI(ETHOXYCARBONYL)ETHYL) DIMETHYLPHOSPHOROTHIOLOTHIONATE
DIETHYL (DIMETHOXYPHOSPHINOTHIOYLTHIO) BUTANEDIOATE

TURFGO® MEC AMINE-D® TURF HERBICIDE

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC—DAY OR NIGHT 1-800-424-9300

SECTION I - IDENTIFICATION OF PRODUCT

MANUFACTURER'S NAME:

UNITED HORTICULTURAL SUPPLY

150 So. Main Street

Fremont, NE 68025

EMERGENCY TELEPHONE NO.: (303) 356-4400 or

CHEMTREC (800) 424-9300

TRADE NAME AND SYNONYMS: TURFGO® MEC AMINE-D® TURF HERBICIDE

CHEMICAL NAME AND SYNONYMS: Dimethylamine Salt of 2,4-Dichlorophenoxyacetic acid; Dimethylamine Salt of 2,4-D; Dimethylamine Salt of 2-(2-methyl-4-chlorophenoxy) propionic acid; Dimethylamine Salt of MCPP; Dimethylamine Salt of (3,5-dichloro-o-anisic acid); Dimethylamine Salt of Dicamba.

CHEMICAL FAMILY: Phenoxy herbicide mixture

SARA TITLE III HAZARD CATEGORY:

IMMEDIATE: Y

FIRE: N

DELAYED: N

REACTIVE: N

SUDDEN RELEASE OF PRESSURE: N

SECTION II - HAZARDOUS INGREDIENTS OF MIXTURES

COMPONENT:	%	THRESHOLD LIMIT VALUE (Units):
Dimethylamine salt of 2,4-D (CAS: 2008-39-1)	30.56*	For 2,4-D Acid: ACGIH TLV, TWA: 10mg/m ³
Dimethylamine salt of MCPP (CAS: 11791-82-9)	16.34**	MSHA STD. 91d, TWA: 10mg/m ³ OSHA PEL FINAL: AH TWA: 10mg/m ³
Dimethylamine salt of Dicamba (CAS: 2300-66-5)	2.77***	
Inert Ingredients	50.33	

* Equivalent to 25.28% or 2.64 pounds per gallon 2,4-D Acid.

** Equivalent to 13.50% or 1.30 pounds per gallon MCPP Acid.

*** Equivalent to 2.30% or 0.22 pounds per gallon Dicamba.

THIS PRODUCT CONTAINS THE FOLLOWING SUBSTANCES WHICH ARE REGULATED UNDER SARA, TITLE III, SECT. 313:

2,4-D (Acid equivalent) (CAS: 94-75-7)	< 26.0%	Diatsinolamine (CAS: 111-12-2)	0.5%
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SECTION III - PHYSICAL DATA

APPEARANCE AND ODOR: Clear, light amber-colored liquid with typical phenoxy herbicide odor.

BOILING POINT (°F): 212°F (100°C)

BULK DENSITY: 9.42 lbs./gal.

PERCENT VOLATILE (BY VOLUME): < 50% (water)

EVAPORATION RATE (BUTYL ACETATE = 1): Not available; lower than Butyl Acetate

pH: 8.5-9.0

SPECIFIC GRAVITY (WATER = 1): 1.13

VAPOR PRESSURE (MM. OF MERCURY): Approx. 21 mm Hg (Reid-ASTM D323)

VAPOR DENSITY (AIR = 1): Approx. 0.021 (Hauser HCR TM007)

SOLUBILITY IN WATER: Miscible in water

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (SPECIFY METHOD/°F): Does not flash; not applicable.

FLAMMABLE LIMITS (PERCENT BY VOLUME): Not applicable

FIRE EXTINGUISHING MEDIA: Considered non-combustible; use medium appropriate to surrounding fire. Dry Chemical, CO₂, Foam, Water Spray or Fog.

SPECIAL FIRE FIGHTING PROCEDURES: Smoke and fumes from fire may contain hazardous components. Use self-contained breathing apparatus and full protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS: If water is used to fight fire or cool containers, contain run-off by diking to prevent contamination of water supplies.

SECTION V - REACTIVITY DATA

STABILITY: Stable.

CONDITIONS TO AVOID: Excessive heat.

INCOMPATIBILITY (Materials to avoid): Strong oxidizers and acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen Chloride (HCl), other chlorine-containing compounds, oxides of nitrogen and other unknown hazardous materials may be formed in a fire situation. Incomplete combustion may lead to formation of carbon monoxide and/or other asphyxiants.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None known.

SECTION VI - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

Routes of Entry: Ingestion, inhalation, eyes and skin contact. Most likely Route of Entry: Dermal. Product is considered to be of low to moderate toxicity. May be harmful or fatal if swallowed. Corrosive to eyes; may cause irreversible eye damage. Signs and symptoms may include loss of appetite, loss of weight, nausea, vomiting, depression, general tenseness and muscular weakness. Severe exposure may lead to central nervous system symptoms. May cause irritation of eyes, nasal passages, throat and skin. Prolonged or repeated exposure may lead to reddening of skin, rash, dermatitis or other skin reactions.

For 2,4-D Acid: Acute Oral LD₅₀ (rat): 375 mg/kg; Acute Dermal LD₅₀ (rabbit): 1400 mg/kg.

EMERGENCY AND FIRST AID PROCEDURES: Call a physician immediately in all cases of suspected poisoning.

Ingestion: Drink 1 to 2 glasses of water and induce vomiting. Never induce vomiting or give anything by mouth to an unconscious person. Keep head lower than chest to avoid aspiration into lungs. Call physician immediately.

Eyes: Flush with running water for at least 15 minutes while holding eyelids open to help flush out material. Get medical attention.

Skin: Remove all contaminated clothing. Wash skin and hair thoroughly with soap and water. Wash clothing before reuse. If irritation persists, get medical attention.

Inhalation: Remove to fresh air. If irritation persists, get medical attention.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known. Preexisting skin or respiratory disorders may be aggravated by excessive exposure to this material.

POTENTIAL CARCINOGEN STATUS: Not known. None of the components in this product is listed by IARC, NTP or OSHA as a potential carcinogen.

For 2,4-D Acid:

IARC CANCER REVIEW:

: HUMAN LIMITED EVIDENCE: I MEMDT 41,357,86;

IARC Monogr Eval Carcinog Risk Chem Man.

: ANIMAL INADEQUATE EVIDENCE: I MEMDT 15,11,77; (ibid)

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Contain spill; absorb liquids by covering with clay or other absorbent material; then vacuum or scoop and sweep up wastes and place in container for disposal. Wash spill area with detergent solution and rinse with water.

WASTE DISPOSAL METHOD: Material which cannot be used at the site should be disposed of in an approved waste disposal facility following all applicable Federal, State and Local regulations. Triple rinse empty containers and offer for recycling or reconditioning, or puncture and dispose of in an approved sanitary landfill. Do not contaminate water supplies by disposal of wastes or containers.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Not normally required. If vapors may exceed acceptable levels, wear MSHA/NIOSH-approved respirator or mask to protect against pesticide mists and vapors.

VENTILATION:

LOCAL EXHAUST: Not normally required.

MECHANICAL (General): Use if ventilation is not adequate.

SPECIAL: Not normally required.

OTHER: Work in a well-ventilated area.

PROTECTIVE GLOVES: Rubber or impervious gloves recommended.

EYE PROTECTION: Face shield or goggles.

OTHER PROTECTIVE EQUIPMENT: Wear clothing consistent with good practices for handling and applying pesticides. Protective clothing includes face shield or goggles, long pants, long-sleeved shirt, shoes and chemical resistant gloves when mixing, loading or applying this product.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in cool, dry place away from children, domestic animals, food and feed products. Do not contaminate other stored products or the storage area by handling or storage of this product. Immediately clean up any spills which occur during handling and storage. Protect from freezing.

OTHER PRECAUTIONS: Do not contaminate water supplies by handling or storage of product, cleaning of equipment or disposal of wastes. Keep work and storage areas clean. Toxic to fish and other aquatic organisms. Read and follow precautionary measures on product label.

SECTION X - DATE

DATE OF ISSUE: 07/01/92

SUPERSEDES: New

TURFGO® MEC-AMINE BG TURF HERBICIDE

wastes. Keep work and storage areas clean. Toxic to fish and other aquatic organisms. Read and follow precautionary measures on product label.

SECTION I - DATE

DATE OF ISSUE: 07/15/92

SUPERSEDES: New

All information contained in this Material Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion the information is, as of the date of this Material Safety Data Sheet, reliable, however, it is your responsibility to determine the suitability of the information

for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you, and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee expressed or implied is made by United Horticultural Supply as to the results to be obtained based upon your use of the information, nor does United Horticultural Supply assume any liability arising out of your use of the information.

33088

SANDOZ AGRO -- BARRICADE 65 WG HERBICIDESANDOZ AGRO -- BARRICADE 65 WG HERBICIDE
MATERIAL SAFETY DATA SHEET

NSN: 684000F049272

Manufacturer's CAGE: 00P59

Part No. Indicator: A

Part Number/Trade Name: BARRICADE 65 WG HERBICIDE

=====
General Information
=====

Company's Name: SANDOZ AGRO INC

Company's Street: 1300 E TOUHY AVE

Company's City: DES PLAINES

Company's State: IL

Company's Country: US

Company's Zip Code: 60018-5000

Company's Emerg Ph #: 708-699-1616/708-390-3705

Company's Info Ph #: 708-390-3705/708-699-1616

Record No. For Safety Entry: 001

Tot Safety Entries This Stk#: 001

Status: SE

Date MSDS Prepared: 01JAN92

Safety Data Review Date: 01AUG96

Preparer's Company: SANDOZ AGRO INC

Preparer's St Or P. O. Box: 1300 E TOUHY AVE

Preparer's City: DES PLAINES

Preparer's State: IL

Preparer's Zip Code: 60018-5000

MSDS Serial Number: BZVQF

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: PRODIAMINE
Ingredient Sequence Number: 01
NIOSH (RTECS) Number: ST2200000
CAS Number: 29091-21-2

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: YELLOW GRANULES W/BLAND ODOR.
Melting Point: 255F
Vapor Pressure (MM Hg/70 F): <1
Solubility In Water: DISPERSABLE

=====
Fire and Explosion Hazard Data
=====

Flash Point: NONE
Extinguishing Media: WATER SPRAY, FOAM, DRY CHEMICAL.
Special Fire Fighting Proc: NONE
Unusual Fire And Expl Hazrds: NONE

=====
Reactivity Data
=====

Stability: YES
Materials To Avoid: OXIDIZING AGENTS
Hazardous Poly Occur: NO

=====
Health Hazard Data
=====

LD50-LC50 Mixture: ORAL LD50(RAT): >5000 MG/KG
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO

Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: EYES: IRRITATION.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NONE
Signs/Symptoms Of Overexp: IRRITATION & SENSITIZATION.
Emergency/First Aid Proc: EYES: FLUSH W/WATER UNTIL CLEAR. SKIN: WASH
W/SOAP & WATER. RINSE THOROUGHLY. INGESTION: DRINK 2 GLASSES OF WATER.
INDUCE VOMITING BY TOUCHING BACK OF THROAT W/FINGER/BLUNT OBJECT.
INHALATION: REMOVE THE PERSON TO CLEAR AIR. OBTAIN MEDICAL ATTENTION IN ALL
CASES. NOTE TO PHYSICIAN: TREAT SYMPTOMATICALLY.

=====
Precautions for Safe Handling and Use
=====

Steps If Matl Released/Spill: CAREFULLY SWEEP UP SPILLED MATERIAL & PUT
INTO A CONTAINER & CLOSE IT. AVOID BREATHING THE DUST.
Waste Disposal Method: DISPOSE OF AT A CHEMICAL WASTE FACILITY IAW/
FEDERAL, STATE & LOCAL REGULATIONS.
Precautions-Handling/Storing: STORE IN ORIGINAL CONTAINER, IN A COOL, DRY
AREA FOR HERBICIDES. WEAR PROTECTIVE CLOTHING WHILE HANDLING.

=====
Control Measures
=====

Ventilation: NATURAL VENTILATION SHOULD SUFFICE STORAGE.
Other Protective Equipment: WEAR COVERALLS & GLOVES.

=====
Transportation Data
=====

=====
Disposal Data
=====

=====
=====
Label Data
=====

Label Required: NO

Label Status: X

Common Name: LABEL COVERED UNDER EPA REGS - HAZCOM LABEL NOT
AUTHORIZED

ICI AMERICAS AGRICULTURAL CHEMICAL DIV -- REWARD AQUATIC AND NON-CROP HERBICIDE, DIQUAT - HERBICIDE, DIQUAT
MATERIAL SAFETY DATA SHEET
NSN: 6840008152799
Manufacturer's CAGE: 7W772
Part No. Indicator: A
Part Number/Trade Name: REWARD AQUATIC AND NON-CROP HERBICIDE, DIQUAT
HERBICIDE

=====
General Information
=====

Item Name: HERBICIDE, DIQUAT
Company's Name: ICI AMERICAS INC AGRICULTURAL CHEMICAL DIV
Company's Street: NEW MURPHY RD AND CONCORD PIKE
Company's City: WILMINGTON
Company's State: DE
Company's Country: US
Company's Zip Code: 19897
Company's Emerg Ph #: 302-887-3000/800-424-9300 (CHEMTREC)
Company's Info Ph #: 302-886-1000/800-228-5635 XTN 181
Distributor/Vendor # 1: ZENECA AG PRODUCTS (302-886-1000)
Distributor/Vendor # 1 Cage: ZENEC
Distributor/Vendor # 2: GOURMET INQUE LTD (708-296-6192)
Distributor/Vendor # 2 Cage: OTNN7
Distributor/Vendor # 3: EHRLICH J C CHEMICAL CO INC
Distributor/Vendor # 3 Cage: 8C885
Record No. For Safety Entry: 002
Tot Safety Entries This Stk#: 002
Status: SE
Date MSDS Prepared: 01APR94
Safety Data Review Date: 27MAY98
Supply Item Manager: CX
MSDS Preparer's Name: UNKNOWN
MSDS Serial Number: BRKTC
Specification Number: NONE
Spec Type, Grade, Class: NONE
Hazard Characteristic Code: T6
Unit Of Issue: BX
Unit Of Issue Container Qty: 2 X 2.5 GALS
Type Of Container: 2JUGS/BX
Net Unit Weight: 50.9 LBS

=====
Ingredients/Identity Information
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Proprietary: NO
Ingredient: DIQUAT DIBROMIDE (SARA III)
Ingredient Sequence Number: 01

Percent: 36.4
NIOSH (RTECS) Number: JM5690000
CAS Number: 85-00-7
OSHA PEL: 0.5 MG/M3
ACGIH TLV: 0.5 MG/M3 TDUST;9394
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: INERT (PROPRIETARY & NON-HAZ PER MSDS)
Ingredient Sequence Number: 02
Percent: 64.7
NIOSH (RTECS) Number: 1000314NH
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

=====

Physical/Chemical Characteristics

=====

Appearance And Odor: DARK BROWN LIQUID. ODORLESS.
Boiling Point: UNKNOWN
Melting Point: UNKNOWN
Vapor Pressure (MM Hg/70 F): UNKNOWN
Vapor Density (Air=1): UNKNOWN
Specific Gravity: 1.22-1.27 @20C
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: UNKNOWN
Solubility In Water: COMPLETE
Viscosity: UNKNOWN
pH: 6-7.5
Corrosion Rate (IPY): UNKNOWN

=====

Fire and Explosion Hazard Data

=====

Flash Point: DOES NOT FLASH
Lower Explosive Limit: UNKNOWN
Upper Explosive Limit: UNKNOWN
Extinguishing Media: USE WATER FOG, CARBON DIOXIDE, DRY CHEMICAL, HALOGENATED AGENTS.
Special Fire Fighting Proc: WEAR SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE & PROTECTIVE CLOTHING.
Unusual Fire And Expl Hazrds: POSSIBLE TOX SMOKE/VAP/FALLOUT/RUNOFF WATER CAN RESULT FROM FIRES DEPENDING EXTENT OF COMBUST & PRESENCE OF OTHER COMBUST MATL. DECONTAMIN BUILD/EQPMT BEF REUSE.

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Reactivity Data

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Stability: YES

Cond To Avoid (Stability): HIGH HEAT, OPEN FLAMES.
Materials To Avoid: STRONG ALKALIS, AND ANIONIC WETTING AGENTS SUCH AS ALKYL AND ALKYLARYL SULFONATES. CORROSIVE TO ALUMINUM.
Hazardous Decomp Products: CARBON MONOXIDE, CARBON DIOXIDE, TOXIC OR IRRITANT VAPORS.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT APPLICABLE

Health Hazard Data

LD50-LC50 Mixture: LD 50 ORAL RAT IS 600 MG/KG (FEMALE)
Route Of Entry - Inhalation: NO
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: ACUTE: CONTACT WITH EYES MAY CAUSE IRRITATION AND PROLONGED (WEEKS) IMPAIRED VISION. MODERATELY TOXIC BY ABSORPTION, HOWEVER ABSORPTION RATE IS SLOW. MODERATELY TOXIC TO INTERNAL ORGANS IF INHALED, HOWEVER VAPOR PRESSURE IS LOW AND INHALATION HAZARD IS SMALL. SLIGHTLY TOXIC BY INGESTION. CHRONIC: IRRITATION, DERMATITIS
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: PRODUCT CONTAINS A CHEMICAL KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.
Signs/Symptoms Of Overexp: EYES: PAIN, TEARS, SWELLING, REDNESS, BLURRED VISION. SKIN: PROLONGED CONTACT MAY CAUSE IRRITATION, SENSITIZATION, SKIN NAUSEA, VOMITING, ABDOMINAL PAIN, SEVERE IRRITATION OF MOUTH, THROAT AND ESOPHAGUS. THESE CAN BE FOLLOWED BY KIDNEY FAILURE.
Med Cond Aggravated By Exp: INDIVIDUALS WITH DAMAGED SKIN MAY BE AT INCREASED RISK FROM EXPOSURE. A SENSITIZED INDIVIDUAL SHOULD NOT BE EXPOSED TO THIS PRODUCT.
Emergency/First Aid Proc: EYES: FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. IF IRRITATION PERSISTS, SEE DOCTOR. SKIN: WASH WITH SOAP AND WATER WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. INHALATION: REMOVE VICTIM TO FRESH AIR. GIVE OXYGEN/CPR IF NEEDED. SEE DOCTOR. INGESTION: GIVE 1 OR 2 GLASSES OF WATER IF CONSCIOUS. DO NOT INDUCE VOMITING. SEE DOCTOR IMMEDIATELY.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: WEAR AIRSUPPLIED RESP/PPE/ADEQ VENTI. PREVENT ENTERING SEWER/WATERWAYS. USE ABSORBENT (CLAY). SHOVEL INTO OPEN DRUM. COVER AREA W/HOUSEHOLD DETERGENT MAKING SLURRY W/WATER. SPREAD AGAIN ABSORBENT MATL. RINSE W/WATER & COLLECT W/ABSORBENT. SEAL DRUM & DISPOSE
Neutralizing Agent: NOT APPLICABLE
Waste Disposal Method: PROD TOXIC BY INHAL/SKIN ABSORPTION & TOXIC TO FISH/WILDLIFE. DO NOT CONTAMIN WATERWAYS BY CLEANING EQMPT/DISPOSAL OF

IATA Proper Shipping Name: CORROSIVE LIQUID, N.O.S. *
IATA UN Class: 8
IATA Label: CORROSIVE
AFI PSN Code: HKW
AFI Symbols: *
AFI Prop. Shipping Name: CORROSIVE LIQUID, N.O.S.
AFI Class: 8
AFI ID Number: UN1760
AFI Pack Group: III
AFI Special Prov: P5
AFI Basic Pac Ref: A12.3
MMAC Code: NR
N.O.S. Shipping Name: DIQUAT DIBROMIDE, 36.4%.
Additional Trans Data: THIS MATERIAL IS CORROSIVE TO ALUMINUM.RQ FOR
DIQUAT IS 1000 LBS.CARGO AIRCRAFT ONLY.EPA NO 10182-404.

=====
Disposal Data
=====

=====
Label Data
=====

Label Required: NO
Technical Review Date: 16MAR98
Label Status: X *
Common Name: LABEL COVERED UNDER EPA REGS - HAZCOM LABEL NOT
AUTHORIZED
Year Procured: 1994

H&S: SUCCINIC ACID 2,2-DIMETHYLHYDRAZIDE 1596-84-5NTP CHEMICAL REPOSITORY
SUCCINIC ACID 2,2-DIMETHYLHYDRAZIDE

-IDENTIFIERS

=====

*CATALOG ID NUMBER: 000267

*CAS NUMBER: 1596-84-5

*BASE CHEMICAL NAME: SUCCINICACIDDIMETHYLHYDRAZIDE,2,2-

*PRIMARY NAME: SUCCINIC ACID 2,2-DIMETHYLHYDRAZIDE

*CHEMICAL FORMULA: C6H12N2O3

*STRUCTURAL FORMULA: (CH3)2NNHCO(CH2)2COOH

*WLN: QV2VMN1&1

*SYNONYMS:

2,2-DIMETHYLHYDRAZIDE SUCCINIC ACID

AMINOZIDE

B-NINE

SADH

B 995

DAMINOZIDE

N-DIMETHYL AMINO-BETA-CARBAMYL PROPIONIC ACID

N-(DIMETHYLAMINO)SUCCINAMIC ACID

MONO(2,2-DIMETHYLHYDRAZIDE)SUCCINIC ACID

SUCCINIC 1,1-DIMETHYL HYDRAZIDE
ALAR
DIAMINOZIDE
DIMAS
ALAR-85
DMASA
DMSA
KYLAR
BUTANEDIOIC ACID MONO(2,2-DIMETHYLHYDRAZIDE)
DIMETHYLAMINOSUCCINAMIC ACID
NCI-C03827
B-9

-PHYSICAL CHEMICAL DATA

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*PHYSICAL DESCRIPTION: LITERATURE: White crystals or powder
REPOSITORY: White powder

*MOLECULAR WEIGHT: 160.17

*SPECIFIC GRAVITY: Not available

*DENSITY: Not available

*MP (DEG C): 154-155 C [031,047,169,205]

*BP (DEG C): Not available

*SOLUBILITIES:

WATER : 1-10 mg/mL @ 24 C (RAD)

DMSO : 50-100 mg/mL @ 19 C (RAD)

95% ETHANOL : <1 mg/mL @ 24 C (RAD)

METHANOL : 50 g/kg @ 25 C [031,169,172,205]

ACETONE : <1 mg/mL @ 19 C (RAD)

TOLUENE : Not available

OTHER SOLVENTS:

Simple hydrocarbons: Insoluble [062,169]

*VOLATILITY:

Vapor pressure: <0.0000750 mm Hg @ 20 C [169]

Vapor density : Not available

*FLAMMABILITY(FLASH POINT):

Flash point data for this chemical are not available; however, it is probably combustible. Fires involving this compound can be controlled with a dry chemical, carbon dioxide or Halon extinguisher.

*UEL: Not available

LEL: Not available

*REACTIVITY:

This compound is incompatible with strong oxidizing agents, strong acids and bases [269]. It is also incompatible with wetting agents, alkaline materials, oils and copper-containing compounds. It may be corrosive to metals [169].

*STABILITY:

This compound may be heat sensitive [058]. NMR stability screening indicates that solutions of this material in water are stable for at least 24 hours (RAD).

*OTHER PHYSICAL DATA:

pH: 3.8 [062]

Odorless [058]

Melting point also reported as 162-164 C [269,275]

-TOXICITY

=====

*NIOSH REGISTRY NUMBER: WM9625000

*TOXICITY: (abbreviations)

typ. dose	mode	specie	amount	units	other
LD50	orl	rat	8400	mg/kg	
LD50	orl	mus	6300	mg/kg	
LD50	ipr	mus	1325	mg/kg	
LD50	unr	mam	8400	mg/kg	

*AQTX/TLM96: Not available

*SAX TOXICITY EVALUATION:

THR: Poison by intraperitoneal route. Moderately toxic by ingestion and possibly other routes. An experimental carcinogen, tumorigen and teratogen.

*CARCINOGENICITY:

Tumorigenic Data:

TDLo: orl-rat 182 gm/kg/2Y-C

TDLo: orl-mus 2600 gm/kg/62W-C

TD : orl-mus 873 gm/kg/2Y-C

Status: NCI Carcinogenesis Bioassay (Feed); Negative: Male Rat and Female Mouse [620]

NCI Carcinogenesis Bioassay (Feed); Positive: Female Rat [620]

NCI Carcinogenesis Bioassay (Feed); Equivocal: Male Mouse [620]

*MUTATION DATA:

test	lowest dose		test	lowest dose
-----	-----		-----	-----
mma-mus:lym	1650 mg/L		msc-mus:lym	156 mg/L

*TERATOGENICITY: Not available

*STANDARDS, REGULATIONS & RECOMMENDATIONS:

OSHA: None

ACGIH: None

NIOSH Criteria Document: None

NFPA Hazard Rating: Health (H): None

Flammability (F): None

Reactivity (R): None

*OTHER TOXICITY DATA:

Review: Toxicology Review-2

Status: EPA Genetox Program 1988, Inconclusive: B subtilis rec assay; E coli polA without S9

Meets criteria for OSHA Proposed Medical Records Rule

-OTHER DATA (Regulatory)

=====

*PROPER SHIPPING NAME (IATA): Not restricted

*UN/ID NUMBER:

*HAZARD CLASS: SUBSIDIARY RISK: PACKING GROUP:

*LABELS REQUIRED:

*PACKAGING: PASSENGER: PKG. INSTR.: MAXIMUM QUANTITY:
 CARGO : PKG. INSTR.: MAXIMUM QUANTITY:

*SPECIAL PROVISIONS:

*USES:

This compound is used to increase flower development, control fruit size, increase the color (red varieties), synchronize maturity, maintain fruit firmness in storage and to produce more compact plants of chrysanthemums, azaleas, hydrangeas, poinsettias and other ornamentals. It is also used to regulate ripening and prevent premature fruit fall in pears, cherries, peaches and nectarines; to reduce vegetative growth, to increase yields of groundnuts, to increase fruit set, to increase the yield of grapes, melons and watermelons; and to retard stem elongation in transplanted tomatoes.

*COMMENTS: Not available

-HANDLING PROCEDURES

=====

*ACUTE/CHRONIC HAZARDS:

This compound is harmful if swallowed, inhaled or absorbed through the skin [269]. It may cause irritation to the gastrointestinal tract and respiratory tract [301]. When heated to decomposition it may emit toxic fumes of CO, CO₂ and NO_x [269].

*MINIMUM PROTECTIVE CLOTHING: Not available

*RECOMMENDED GLOVE MATERIALS:

GlovES+ Expert System Glove Types For The Neat (Undiluted) Chemical:

This chemical has not been tested for permeation by Radian Corporation; however, the GlovES+ expert system was used to extrapolate permeation test information from compounds in the same chemical class. The GlovES+ system uses permeation data from literature sources; therefore, extra safety margins should be used with the estimated protection time(s). If this chemical makes direct contact with your glove, or if a tear, puncture or hole develops, replace them at once.

The GlovES+ expert system is a tool that can help people better manage protection from chemicals, however this tool cannot replace sound judgment nor make technical decisions. Our GlovES+ expert system is designed to offer initial advice and assistance in glove selection while the final glove selection should be made by knowledgeable individuals based on the specific circumstances involved.

Glove Type	Model Number	Thickness	Estimated Protection Time
Natural Rubber	Ansell Canner 304	0.18 mm	240 min
Neoprene	Edmont 29-870	0.45 mm	240 min
Nitrile	Edmont 37-155	0.35 mm	240 min
PVC	Edmont 34-100	0.18 mm	240 min

*RECOMMENDED RESPIRATOR:

Where the neat test chemical is weighed and diluted, wear a NIOSH-approved half face respirator equipped with a combination filter cartridge, i.e. organic vapor/acid gas/HEPA (specific for organic vapors, HCl, acid gas, SO₂ and a high efficiency particulate filter).

*OTHER:

Since this chemical is a known or suspected carcinogen you should contact a physician for advice regarding the possible long term health effects and potential recommendation for medical monitoring. Recommendations from the physician will depend upon the specific compound, its chemical, physical and toxicity properties, the exposure level, length of exposure, and the route of exposure.

*STORAGE PRECAUTIONS:

You should store this material in a refrigerator.

*SPILLS AND LEAKAGE:

If you spill this chemical, you should dampen the solid spill material with water, then transfer the dampened material to a suitable container. Use absorbent paper dampened with water to pick up any remaining material. Seal your contaminated clothing and the absorbent paper in a vapor-tight plastic bag for eventual disposal. Wash all contaminated surfaces with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

*DISPOSAL AND WASTE TREATMENT: Not available

-EMERGENCY PROCEDURES

=====

*SKIN CONTACT:

IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water.

If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.

*INHALATION:

IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop.

Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation.

*EYE CONTACT:

First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center.

Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician.

IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

*INGESTION:

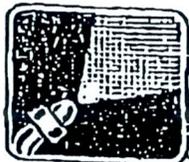
DO NOT INDUCE VOMITING. If the victim is conscious and not convulsing,

give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. Be prepared to transport the victim to a hospital if advised by a physician.

If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital.

***SYMPTOMS:**

Symptoms of exposure to this compound may include convulsions, coma, liver and kidney damage and irritation to the gastrointestinal tract and respiratory tract [301].



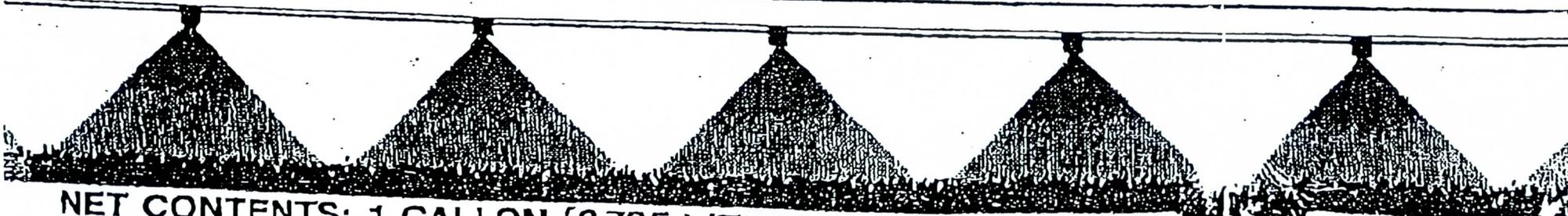
TURF MARK[®]

BLUE SPRAY INDICATOR FOR TURF USE

- See where you spray
- Indicates skips and overlaps
- Dissipates under sunlight or moisture
- Environmentally safe

Flat fan spraying lips are recommended when applying TURF MARK[®]. Increased volumes of spray solution should be used when TURF MARK[®] is applied to those harder to mark areas. Longer or thinner stands of turf or sod may be more difficult to mark due to the non-uniform marking surface. Increasing the total volume of spray solution applied to those areas should reduce marking difficulty.

Experimentation with the volume of spray solution and rate of TURF MARK[®] applied per acre or area should allow each applicator to establish a rate that is economical and feasible for each application. The more TURF MARK[®] you use, the darker your spray pattern.



NET CONTENTS: 1 GALLON (3.785 LITRES)

PRODUCT NAME: TURF MARK LIQUID
PRODUCT CODE: TM

1 1 0 E

SECTION I - MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME: BECKER-UNDERWOOD, INC.
ADDRESS: 801 DAYTON AVENUE, AMES, IOWA 50010
EMERGENCY PHONE: CHEMTREC 800-424-9300
DATE REVISED: NOVEMBER 1, 1993

INFORMATION PHONE: 515-252-5907
NAME OF PREPARER: JOHN C. HREN

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

HAZARDOUS COMPONENTS	CAS NUMBER	OCCUPATIONAL EXPOSURE LIMITS OSHA PEL	ACGIH TLV	WEIGHT PERCENT
NO REPORTABLE QUANTITIES OF HAZARDOUS INGREDIENTS ARE PRESENT ***No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372 are present***				

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 100° C
VAPOR DENSITY: HEAVIER THAN AIR
SOLUBILITY IN WATER: SOLUBLE

SPECIFIC GRAVITY (H₂O=1): 1.06
EVAPORATION RATE: SLOWER THAN ETHER
APPEARANCE AND ODOR: DARK BLUE LIQUID, NO ODOR

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: >200° F
FLAMMABLE LIMITS IN AIR BY VOLUME :
EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO₂, DRY CHEMICAL, WATER FOG
SPECIAL FIREFIGHTING PROCEDURES: FIRE FIGHTERS SHOULD WEAR BUTYL RUBBER BOOTS, GLOVES, AND BODY SUIT AND A NIOSH/MSHA SELF-CONTAINED BREATHING APPARATUS.
USUAL FIRE AND EXPLOSION HAZARDS: NOT A FIRE OR EXPLOSION HAZARD WHEN STORED UNDER NORMAL CONDITIONS. USE WATER SPRAY TO KEEP FIRE EXPOSED CONTAINERS COOL.

METHOD USED: TCC
LOWER: N/A UPPER: N/A

SECTION V - REACTIVITY DATA

STABILITY: STABLE
CONDITIONS TO AVOID: NONE
INCOMPATIBILITY (MATERIALS TO AVOID): MINERAL ACIDS (I.E. SULFURIC, PHOSPHORIC, ETC.); ALKALIS (I.E. SODIUM OR POTASSIUM HYDROXIDE ETC.) STRONG OXIDIZING AGENTS, HIGH HEAT SOURCES, SPARKS, OPEN FLAMES. STRONG REDUCING AGENTS.
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: WHEN INVOLVED IN A FIRE BURNING ORGANIC PIGMENTS, DYES, AND RESIN MAY EVOLVE NOXIOUS FUMES WHICH MAY INCLUDE CARBON MONOXIDE, NITROUS OXIDES, ACETIC ACID, FREE AROMATIC AMINE, OR OTHER TOXIC COMPOUNDS DEPENDING ON THE CHEMICAL COMPOSITION AND COMBUSTION CONDITIONS. HOWEVER, ALL OF THE WATER MUST BE DRIVEN OFF FIRST FOR THIS TO OCCUR.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION VI - HEALTH HAZARD DATA

INHALATION HEALTH RISKS AND SYMPTOMS OF EXPOSURE: PROLONGED INHALATION MAY LEAD TO RESPIRATORY TRACT IRRITATION.
SKIN AND EYE CONTACT HEALTH RISKS AND SYMPTOMS OF EXPOSURE: PROLONGED OR REPEATED CONTACT MAY RESULT IN MECHANICAL IRRITATION.
SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE: NONE EXPECTED. TEMPORARY DISCOLORATION OF SKIN MAY OCCUR.
INGESTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE: INGESTION OF LARGE QUANTITIES MAY BE HARMFUL.
HEALTH HAZARDS (ACUTE AND CHRONIC): NONE KNOWN.
CARCINOGENICITY: NTP? NO IARC MONOGRAPHS? NO
EXISTING MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: MAY PROVOKE ASTHMATIC RESPONSE IN PERSONS WITH ASTHMA WHO ARE SENSITIVE TO AIRWAY IRRITANTS.
EMERGENCY AND FIRST AID PROCEDURES:
EYES: FLUSH WITH FLOWING WATER FOR AT LEAST 30 MINUTES CALL A PHYSICIAN.
SKIN: WASH AFFECTED AREA WITH SOAP AND WATER. IF IRRITATION DEVELOPS CONSULT A PHYSICIAN. REMOVE AND LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.
INHALATION: IF INHALED, MOVE TO FRESH AIR. IF DIFFICULTY IN BREATHING PERSISTS, ADMINISTER OXYGEN AND GET IMMEDIATE MEDICAL ATTENTION.

The following rate chart is given so the applicator will have an estimated range of TURF MARK® rates to apply per acre. Generally, 8-16 ounces (.23-.47 liters) per acre or .25 to .75 ounces (.03 liters) per 1,000 square feet. The listed rates also account for turf color. The intersecting point for the area to be applied and the turf color of that area should give the applicator the estimated rates for each application.

TARGET AREA	Dormant	TURF COLOR	
		Light	Dark
Greens	8 oz. (.23 L)	12 oz. (.35 L)	16 oz. (.47 L)
Fairways and Lawns	12 oz. (.35 L)	16 oz. (.47 L)	20 oz. (.59 L)
Roughs, etc.	16 oz. (.47 L)	20 oz. (.59 L)	24 oz. (.71 L)

Many spot or handgun applications of TURF MARK® are performed utilizing back pack, shoulder carried, or other handgun equipment. Special rates may be required for low and high volume applications:

- Low volume handgun - 18-24 ounces (.23-.71 liters) per acre
- High volume handgun - 30-32 ounces (.71-.95 liters) per acre

To assist the applicator in establishing personally preferred rates for small tank use a suggested mix rate listing is provided below.

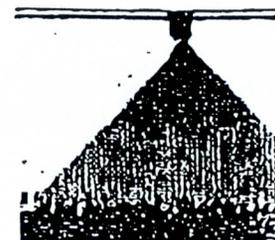
TANK SIZE	SUGGESTED RATES
3 Gallon Backpack Sprayer (10 L)	2-3 oz. (.06-.09 L)
30 Gallon (110 L)	5-10 oz. (.17-.59 L)
100 Gallon (380 L)	16-24 oz. (.47-.71 L)

BECKER-UNDERWOOD, INC.

801 DAYTON AVE • AMES, IOWA 50010 • 1-800-232-5907

047

NOTICE: The statements on this label are believed to be true and accurate, but because use conditions are beyond our control, Becker-Underwood, Inc. does not make, nor does it authorize any agent or representative to make any warranty, guarantee, or representation, express or implied, concerning this material or the use thereof, except in conformity with the statements of the label. Neither Becker-Underwood, Inc. nor the seller shall be held responsible in any manner for any personal injury or property damage or loss resulting to the buyer or any other person from handling, storage, or use of this material not in accordance with directions. The buyer assumes all risk and liability resulting from improper handling, storage, or use, and accepts and uses this material on these conditions.



DIETHYL (DIMETHOXYPHOSPHINOTHIOYLTHIO)SUCCINATE
DIETHYL MERCAPTOSUCCINATE, O,O-DIMETHYL DITHIOPHOSPHATE, S-ESTER
DIETHYL MERCAPTOSUCCINATE, O,O-DIMETHYL THIOPHOSPHATE
DIETHYL MERCAPTOSUCCINATE S-ESTER WITH O,O-DIMETHYLPHOSPHORODITHIOATE
DIETHYL MERCAPTOSUCCINIC ACID O,O-DIMETHYL PHOSPHORODITHIOATE
((DIMETHOXYPHOSPHINOTHIOYL)THIO)BUTANEDIOIC ACID DIETHYL ESTER
O,O-DIMETHYL-S-(1,2-BIS(ETHOXYCARBONYL)ETHYL)DITHIOPHOSPHATE
O,O-DIMETHYL-S-(1,2-DICARBETHOXYETHYL) DITHIOPHOSPHATE
O,O-DIMETHYL-S-(1,2-DICARBETHOXYETHYL)PHOSPHORODITHIOATE
O,O-DIMETHYL-S-(1,2-DICARBETHOXYETHYL) THIOETHIONOPHOSPHATE
O,O-DIMETHYL S-1,2-DI(ETHOXYCARBAMYL)ETHYL PHOSPHORODITHIOATE
O,O-DIMETHYLDITHIOPHOSPHATE DIETHYLMERCAPTOSUCCINATE
MERCAPTOSUCCINIC ACID DIETHYL ESTER
MERCAPTOTHION
PHOSPHORODITHIOIC ACID, O,O-DIMETHYL ESTER, S-ESTER WITH DIETHYL
MERCAPTOSUCCINATE

-PHYSICAL CHEMICAL DATA

=====

*PHYSICAL DESCRIPTION: LITERATURE: Deep brown to yellow liquid
REPOSITORY: Clear gold liquid

*MOLECULAR WEIGHT: 330.36

*SPECIFIC GRAVITY: 1.23 @ 25/4 C [027,031,043,172]

*DENSITY: 1.2076 g/mL @ 20 C [017,047]

*MP (DEG C): 2.85 C [055,169,172,395]

*BP (DEG C): 156-157 C @ 0.7 mm Hg (decomposes) [017,027,047,421]

*SOLUBILITIES:

WATER : <1 mg/mL @ 21.5 C (RAD)

DMSO : >=100 mg/mL @ 22 C (RAD)

95% ETHANOL : >=100 mg/mL @ 22 C (RAD)

METHANOL : Not available

ACETONE : >=100 mg/mL @ 22 C (RAD)

TOLUENE : Not available

OTHER SOLVENTS:

Many organic solvents: Miscible [031,062,172,395]

Esters: Miscible [031,169,421]

Ketones: Miscible [031,169,421]

Ethers: Miscible [031,169,421,430]

Aromatic and alkylated aromatic hydrocarbons: Miscible [031]

Vegetable oils: Miscible [031,430]

Petroleum ether: Soluble to 35% [031]

Benzene: Soluble [017,047]

Chloroform: Miscible [455]

Some types of mineral oil: Slightly soluble [169]

Alcohols: Miscible [031,169,430,455]

Certain paraffin hydrocarbons: Limited solubility [031]

Petroleum oils: Limited solubility [172,173,395]

Hexane: Miscible [421]

*VOLATILITY:

Vapor pressure: 0.00004 mm Hg @ 30 C [031,051,395,430]

Vapor density : Not available

*FLAMMABILITY(FLASH POINT):

This chemical has a flash point of >163 C (>325 F) [051,058,371]. It is probably combustible. Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. A water spray may also be used [051,058,371].

*UEL: Not available

LEL: Not available

*REACTIVITY:

This chemical is incompatible with strong oxidizers [058,102,346]. It is also incompatible with alkaline materials [058,169,173,395]. It is decomposed by acids [169]. It may also be decomposed by prolonged contact with iron or iron-containing material, Raney nickel and sodium or lithium in liquid ammonia [051]. It is corrosive to copper, iron, lead and tin [421,455]. It will also attack some forms of plastics, rubber and coatings [102].

*STABILITY

This chemical hydrolyzes readily at a pH of greater than 7 or less than 5 [031,173,395,421]. It is stable in aqueous solutions if buffered to a pH of 5.26 [031,173]. It starts to decompose @ 49 C [051,371].

*OTHER PHYSICAL DATA:

Density: 1.2315 g/mL @ 25 C [062,430]

log P octanol: 2.89 @ 20 C [055]

Refractive index: 1.4960 @ 20 C [017,047]; 1.4985 @ 25 C [025,031,169,172]

Mercaptan odor [058]
Technical grade has a garlic-like odor [051]
Freezing point: 2.9 C [051,371]
Evaporation rate (butyl acetate = 1): Negligible [058]

-TOXICITY

=====

*NIOSH REGISTRY NUMBER: WM8400000

*TOXICITY: (abbreviations)

typ.	dose	mode	specie	amount	units	other
LDLo	orl	man	471	mg/kg		
LDLo	orl	wmn	246	mg/kg		
LD50	skn	rat	4444	mg/kg		
LDLo	iat	cat	1820	ug/kg		
LD50	scu	rat	1000	mg/kg		
LD50	ivn	rat	50	mg/kg		
LC50	ihl	rat	84600	ug/m3/4H		
LD50	ipr	mus	193	mg/kg		
LD50	scu	mus	221	mg/kg		
LD50	ivn	mus	184	mg/kg		
LD50	ipr	ham	2400	mg/kg		
LD50	ipr	rat	250	mg/kg		
LD50	ipr	dog	1857	mg/kg		
LCLo	ihl	cat	10	mg/m3/4H		
LDLo	orl	rbt	1200	mg/kg		
LD50	orl	rbt	250	mg/kg		
LD50	orl	bwd	400	mg/kg		
LD50	orl	mus	190	mg/kg		

LD50	orl	rat	290	mg/kg
LD50	skn	rbr	4100	mg/kg
LD50	orl	gpg	570	mg/kg
LD50	skn	gpg	6700	mg/kg
LD50	ipr	gpg	550	mg/kg
LD50	orl	ckn	600	mg/kg
LD50	orl	dck	1485	ug/kg
LD50	orl	dom	500	mg/kg
LD50	orl	ctl	53	mg/kg
LD50	unr	ctl	53	mg/kg
LD50	unr	mam	500	mg/kg
LD50	unr	mus	375	mg/kg
LD50	unr	rat	450	mg/kg

*AQTX/TLM96: Not available

*SAX TOXICITY EVALUATION:

THR: A human poison by ingestion. An experimental poison by ingestion, inhalation, intraperitoneal, intravenous, intraarterial, subcutaneous and possibly other routes. Human systemic effects by ingestion. Human mutagenic data. An organic phosphate cholinesterase inhibitor-type insecticide.

*CARCINOGENICITY:

Review: IARC Cancer Review: Animal Inadequate Evidence

IARC: Not classifiable as a human carcinogen (Group 3) [015,395,610]

Status: NCI Carcinogenesis Bioassay (Feed); Negative: Male and Female Rat, Male and Female Mouse [620]

*MUTATION DATA:

test	lowest dose		test	lowest dose
------	-------------	--	------	-------------

dnd-esc	100 mg/L		mno-sat	10 mg/L
oms-hmn:leu	200 mg/L		mno-bcs	1 nmol/plate
sce-hmn:fbr	5 mg/L		mno-omi	100 mg/L
cyt-ham-ipr	240 mg/kg		cyt-mus-ipr	230 mg/kg
cyt-mus-orl	18 gm/kg/50D-I		cyt-ham:lng	76 mg/L
sce-ham:lng	40 mg/L		sce-ham:ovr	300 umol/L
cyt-ofs-mul	200 nL/L		oms-hmn:lym	70 mg/L
oms-mus-skn	1 gm/kg		cyt-mus-skn	500 mg/kg
cyt-ham:ovr	303 mg/L			

*TERATOGENICITY:

Reproductive Effects Data:

TDLo: orl-rat 5550 mg/kg (91D pre/1-20D preg)
 TDLo: orl-rat 43920 mg/kg (MGN)
 TDLo: orl-rat 191 mg/kg (9D preg)
 TDLo: orl-rat 283 mg/kg (9D preg)
 TDLo: unr-rat 80 mg/kg (2D male)

*STANDARDS, REGULATIONS & RECOMMENDATIONS:

OSHA: Federal Register (1/19/89) and 29 CFR 1910.1000 Subpart Z

Transitional Limit: PEL-TWA 15 mg/m³ (skin) (total dust) [610]

Final Limit: PEL-TWA 10 mg/m³ (skin) (total dust) [610]

ACGIH: TLV-TWA 10 mg/m³ (skin) [015,415,421,610]

NIOSH Criteria Document: Recommended Exposure Limit to this compound-air:

TWA 15 mg/m³ [610]

NFPA Hazard Rating: Health (H): None

Flammability (F): None

Reactivity (R): None

*OTHER TOXICITY DATA:

Review: Toxicology Review-6
Standard and Regulations: DOT-Hazard: ORM-A; Label: None
Status: NIOSH Analytical Methods: see EPN, Malathion, and Parathion, 5012
EPA Genetox Program 1988, Positive/dose response: In vitro SCE-human
EPA Genetox Program 1988, Negative: D melanogaster Sex-linked lethal
EPA Genetox Program 1988, Negative: In vitro UDS-human fibroblast;
TRP reversion
EPA Genetox Program 1988, Negative: S cerevisiae-homozygosis
EPA Genetox Program 1988, Negative: Carcinogenicity-mouse/rat;
Histidine reversion-Ames test
EPA Genetox Program 1988, Inconclusive: B subtilis rec assay; E coli
polA without S9
EPA TSCA Test Submission (TSCATS) Data Base, January 1989
Meets criteria for proposed OSHA Medical Records Rule

-OTHER DATA (Regulatory)

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*PROPER SHIPPING NAME (IATA): Organophosphorus pesticides, liquid, toxic, n.o.s.

*UN/ID NUMBER: UN3018

*HAZARD CLASS: 6.1 SUBSIDIARY RISK: None PACKING GROUP: III

*LABELS REQUIRED: Keep away from food

*PACKAGING: PASSENGER: PKG. INSTR.: 611, Y611 MAXIMUM QUANTITY: 60 L, 2 L
CARGO : PKG. INSTR.: 618 MAXIMUM QUANTITY: 220 L

*SPECIAL PROVISIONS: None

*USES:

This compound is used as an insecticide for fruits, vegetables, ornamentals, household and livestock use. It is also used as an acaricide, in the control of flies and other insect pests in animal and poultry houses, in the control of adult mosquitoes in public health programs, in the control of human body and head lice and in flea and tick dips. It is used in veterinary medicine as an ectoparasiticide.

*COMMENTS:

This compound is less toxic to humans than other anticholinesterase agents because it is metabolized in the liver to an inactive form [102]. Humans may be more susceptible to the toxic effects of this compound than rats [151].

-HANDLING PROCEDURES

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*ACUTE/CHRONIC HAZARDS:

This compound may be an irritant of the skin, eyes and nose [051,102]. It may be absorbed through the skin [062,102,451,406]. It may cause lachrymation [051,421]. It is a CHOLINESTERASE INHIBITOR [151,169,301,430]. When heated to decomposition it emits toxic fumes of carbon dioxide, carbon monoxide, sulfur oxides, hydrogen sulfide, phosphorous oxides and organic sulfide [043,051,058,371].

*MINIMUM PROTECTIVE CLOTHING:

If Tyvek-type disposable protective clothing is not worn during handling of this chemical, wear disposable Tyvek-type sleeves taped to your gloves.

*RECOMMENDED GLOVE MATERIALS:

Permeation Test Results For The Neat (Undiluted) Chemical:

The permeation test results for the neat (undiluted) chemical are given below. The breakthrough times of this chemical are given for each glove type tested. The table is a presentation of actual test results, not specific recommendations or suggestions. Avoid glove types which exhibit breakthrough times of less than the anticipated task time plus an adequate safety factor. If this chemical makes direct contact with your glove, or if a tear, puncture or hole develops, replace them at once.

Glove Type	Model Number	Thickness	Breakthrough Time
Nitrile	Edmont 37-155	0.41 mm	480 min

*RECOMMENDED RESPIRATOR:

When working with this chemical, wear a NIOSH-approved full face chemical cartridge respirator equipped with the appropriate organic vapor cartridges. If that is not available, a half face respirator similarly equipped plus airtight goggles can be substituted. However, please note that half face respirators provide a substantially lower level of protection than do full face respirators.

*OTHER: Not available

*STORAGE PRECAUTIONS:

You should store this chemical at ambient temperatures, and keep it away from oxidizing materials.

*SPILLS AND LEAKAGE:

If you spill this chemical, FIRST REMOVE ALL SOURCES OF IGNITION. Then, use absorbent paper to pick up all liquid spill material. Your contaminated clothing and absorbent paper should be sealed in a vapor-tight plastic bag for

eventual disposal. Solvent wash all contaminated surfaces with 60-70% ethanol followed by washing with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

*DISPOSAL AND WASTE TREATMENT: Not available

-EMERGENCY PROCEDURES

=====

*SKIN CONTACT:

IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water.

IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop.

IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.

*INHALATION:

IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop.

Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation.

*EYE CONTACT:

First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center.

Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician.

IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

***INGESTION:**

DO NOT INDUCE VOMITING. If the victim is conscious and not convulsing, administer a slurry of activated charcoal in water and simultaneously call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.

If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital.

***SYMPTOMS:**

This compound is a CHOLINESTERASE INHIBITOR [062,151,186,430]. Symptoms resulting from this action include tightness of the chest, wheezing, laryngeal spasms, excessive salivation, miosis, aching in and behind the eyes (attributed to ciliary spasm), blurring of distant vision, tearing, rhinorrhea and frontal headache following inhalation of extremely high concentrations. After ingestion, symptoms such as anorexia, nausea, vomiting, abdominal cramps, diarrhea, giddiness, confusion, ataxia and slurred speech may occur [102]. Other effects on the eyes may include hyperemia of conjunctiva, constriction of the pupils and spasm of accommodation. Saku disease may also result from exposure to an anticholinesterase agent causing myopia, reduced vision from corneal astigmatism, narrowing of peripheral visual fields (with or without central scotoma), congestion or atrophy of optic nerves, difficulty with

ocular pursuit movements and abnormality of ERG's [099]. Other symptoms of exposure to this compound may include irritation of the eyes and nose, bluish discoloration of the skin and runny nose. After skin absorption it may cause sweating and twitching in the area of absorption within 15 minutes to 4 hours. Severe intoxication by all routes may cause weakness, generalized twitching, paralysis, arrested breathing, dizziness, staggering, slurred speech, generalized sweating, irregular or slow heartbeat, convulsions and coma. Repeated exposure may result in increased susceptibility to this and other chemicals [102]. Other symptoms may include skin irritation, allergic sensitization of the skin, rhinitis, ataxia, lacrimation, dyspnea, slow pulse, tremors and muscular pain of the lower limbs [051]. It may also cause sensitivity to light, marked flaccidity of the limbs and unconsciousness [173]. It may cause a stinging sensation when in contact with the skin [371,455]. It may also cause reddening of the skin [371]. Hypersecretion has also been reported [295]. Other symptoms may include bronchorrhea, bradycardia, bronchoconstriction, muscle fasciculations and possible death from respiratory failure. Arrhythmia, atrioventricular block and fatal aplastic anemia may occur [395]. Exposure may cause blood pressure depression [043]. It may also cause lightheadedness, loss of accommodation and sphincter factor [058].

DOW ELANCO A JOINT VENTURE -- SURFLAN A S HERBICIDE, 20121 - HERBICIDE, ORYZALIN
MATERIAL SAFETY DATA SHEET
NSN: 6840013187417
Manufacturer's CAGE: 0TNR0
Part No. Indicator: A
Part Number/Trade Name: SURFLAN A S HERBICIDE, 20121

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General Information
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Item Name: HERBICIDE, ORYZALIN
Company's Name: DOW ELANCO, A JOINT VENTURE
Company's Street: QUAD IV, 9002 PURDUE RD
Company's City: INDIANAPOLIS
Company's State: IN
Company's Country: US
Company's Zip Code: 46268
Company's Emerg Ph #: 517-636-4400/800-424-9300 (CHEMTREC)
Company's Info Ph #: 317-875-8618/517-636-4400
Distributor/Vendor # 1: ELANCO PRODUCTS CO DIV LILLY ELI AND CO
Distributor/Vendor # 1 Cage: 21626
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 002
Status: SE
Date MSDS Prepared: 02JUL90
Safety Data Review Date: 28NOV94
Supply Item Manager: CX
MSDS Preparer's Name: UNKNOWN
MSDS Serial Number: BVVFZ
Specification Number: NONE
Spec Type, Grade, Class: NONE
Hazard Characteristic Code: T5
Unit Of Issue: GL
Unit Of Issue Container Qty: 1 GAL
Type Of Container: BOTTLE
Net Unit Weight: 9.5-10.3LBS
NRC/State License Number: NOT RELEVANT

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Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: 3,5-DINITRO-N4,N4-DIPROPYLSULFANILAMIDE (ORYZALIN)
Ingredient Sequence Number: 01
Percent: 40.4
NIOSH (RTECS) Number: W09350000
CAS Number: 19044-88-3
OSHA PEL: NOT ESTABLISHED

ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: OTHER INGREDIENTS
Ingredient Sequence Number: 02
Percent: 59.6
NIOSH (RTECS) Number: 10055540I
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED
Other Recommended Limit: NONE RECOMMENDED

=====

Physical/Chemical Characteristics

=====

Appearance And Odor: BRIGHT ORANGE OPAQUE LIQUID - SLIGHT AROMATIC ODOR
Boiling Point: 212F,100C
Melting Point: UNKNOWN
Vapor Pressure (MM Hg/70 F): 23 @ 77F
Vapor Density (Air=1): 1.178
Specific Gravity: 1.138 - 1.239
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: UNKNOWN
Solubility In Water: MISCIBLE
Viscosity: UNKNOWN
pH: 5.0
Corrosion Rate (IPY): UNKNOWN

=====

Fire and Explosion Hazard Data

=====

Flash Point: NONE UP TO 200F
Extinguishing Media: WATER SPRAY, CARBON DIOXIDE, FOAM OR DRY CHEMICAL FOR SURROUNDING FIRE. USE WATER SPRAY TO COOL FIRE EXPOSED CONTAINERS.
Special Fire Fighting Proc: WEAR PROTECTIVE CLOTHING AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS. SURFLAN A.S. IS A WATER BASED SUSPENSION AND WILL NOT BURN.
Unusual Fire And Expl Hazrds: WILL NOT BURN.

=====

Reactivity Data

=====

Stability: YES
Cond To Avoid (Stability): UNKNOWN
Materials To Avoid: NONE KNOWN.
Hazardous Decomp Products: IF PRODUCT IS ALLOWED TO DRY, WILL EMIT TOXIC VAPORS AS IT BURNS.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT

=====

Health Hazard Data

=====
LD50-LC50 Mixture: LD50 (ORAL, RAT) 10,000MG/KG (ORYZALIN) RTECS
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: TARGET ORGANS:EYE, SKIN, RESPIRATORY TRACT.
ACUTE- EYES:MAY CAUSE IRRITATION. SKIN:MAY CAUSE CONTACT DERMATITIS OR
RASH. INHALATION/INGESTION:MAY BE HARMFUL. HARMFUL IF ABSORBED THROUGH THE
SKIN. MAY CAUSE SKIN SENSITIZATION REACTIONS IN CERTAIN INDIVIDUALS.
CHRONIC- DERMATITIS.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NONE
Signs/Symptoms Of Overexp: EYES, SKIN IRRITATION; DERMATITIS, RASH
Med Cond Aggravated By Exp: PRE-EXISTING SKIN DISORDERS MAY BE MORE
SUSCEPTIBLE TO THIS MATERIAL.
Emergency/First Aid Proc: GET MEDICAL HELP IF SYMPTOMS PERSIST.
INHALED:REMOVE TO FRESH AIR. PROVIDE CPR/OXYGEN IF NEEDED. EYE:FLUSH WITH
DON'T INDUCE VOMITING. CALL A PHYSICIAN/POISON CONTROL CENTER. IF
AVAILABLE, ADMINISTER ACTIVATED CHARCOAL (6-8 HEAPING TEASPOONFULS) WITH
LARGE AMOUNT OF WATER. DON'T GIVE ANYTHING BY MOUTH TO UNCONSCIOUS PERSON.
=====

Precautions for Safe Handling and Use

=====
Steps If Matl Released/Spill: USE ABSORBENT MATERIAL TO CONTAIN AND CLEAN
UP SMALL SPILLS. LARGE SPILLS REPORT TO CHEMTREC AND DOWELANCO FOR
ASSISTANCE. PREVENT RUNOFF. DO NOT CONTAMINATE WATER, FOOD OR FEED.
Neutralizing Agent: NOT RELEVANT
Waste Disposal Method: DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND
FEDERAL REGULATIONS. PESTICIDE WASTES ARE TOXIC.
Precautions-Handling/Storing: STORE AT ROOM TEMPERATURE, IN CLOSED
CONTAINER, OUT OF REACH OF CHILDREN.
Other Precautions: AVOID CONTACT WITH EYES AND SKIN. AVOID BREATHING
VAPORS/MISTS. WASH THOROUGHLY AFTER HANDLING MATERIAL AND BEFORE EATING OR
DRINKING..
=====

Control Measures

=====
Respiratory Protection: IN ENCLOSED SPACES, WEAR NIOSH APPROVED RESPIRATOR
FOR ORGANIC SOLVENT VAPORS.
Ventilation: GOOD GENERAL VENTILATION IS SUFFICIENT FOR MOST CONDITIONS
(10 ROOM VOLUMES PER HOUR).
Protective Gloves: RUBBER
Eye Protection: CHEMICAL GOGGLES/FACE SHIELD
Other Protective Equipment: EYE WASH STATION, EMERGENCY SHOWER,
=====

APPROPRIATE LABORATORY COAT TO COVER EXPOSED SKIN
Work Hygienic Practices: DO NOT PERMIT EATING, DRINKING OR SMOKING NEAR
THIS MATERIAL.

=====
Transportation Data
=====

Trans Data Review Date: 94332
DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
AFI PSN Code: ZZZ
AFI Prop. Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
Additional Trans Data: DOT SHIPPING NAME: NOT REGULATED, PER MSDS.

=====
Disposal Data
=====

=====
Label Data
=====

Label Required: NO
Label Status: X
Common Name: LABEL COVERED UNDER EPA REGS - HAZCOM LABEL NOT
AUTHORIZED



Appendix C

Public Education Brochure on Fertilizer Use

DRAFT CONCEPTS: PUBLIC AWARENESS STORMWATER BROCHURE
(6/1/00)

(English & Spanish?)

WHERE DOES IT ALL GO?

Have you ever wondered where all the storm runoff goes after it rains in Glendale? Rain water from storms that does not soak into the ground or evaporate carries contaminants from our streets and homes into washes, rivers and lakes. Storm water originating from Glendale drains into Skunk Creek, New River, and the Arizona Canal Diversion Channel. The Glendale storm water combines with storm water from other areas and ultimately makes its way to the Painted Rock Reservoir via the Gila River. In fact, most of the storm water that drains from the Phoenix Area flows into the Painted Rock Reservoir located near Gila Bend.

The Painted Rock Reservoir is currently classified as polluted. Its waters are not suitable for swimming and fish caught in the reservoir are not suitable for eating.

STORM WATER...WHY SHOULD YOU OR I CARE?

Shouldn't we try our best to make our rivers and lakes safe for fishing and swimming? Clean water is essential in providing a healthy environment where fish, birds and other wildlife can thrive. It's better to avoid a problem than be left with cleaning it up.

DID YOU KNOW THAT...?

- Commonly used household chemicals are potentially harmful to the environment. Paints, pesticides, fertilizers, polishes, cleaners, pool chemicals, and automobile fluids are all potential pollutants that need to be used and disposed of properly.
- Outdoor use or disposal of detergents outdoors are a major cause of pollution. Detergents for outdoor uses, such as those used for washing cars, boats, sidewalks, carports and driveways are often toxic to plants and animals. Detergents designed for indoor use, such as for dishes, clothes, upholstery, carpet, tile, wood floors and walls are also potentially toxic to plants and animals if disposed of outdoors.
- Little drips can add up to a big environmental problem. Seemingly minor drips of fluids (such as oil, gasoline, diesel and antifreeze) from your vehicle can add up to tons of pollution per year when you consider your vehicle is not the only one dripping. Just a little pollution, such as a quart of used motor oil can contaminate 250,000 gallons of drinking water. Animals, including your pets can die if they drink antifreeze that is left on the pavement or that contaminates a puddle of water. Cats, dogs and birds drink antifreeze because of its sweet flavor.

- Disposing of certain household chemicals in your sink is often better than pouring it into a storm drain or onto the ground. However, before you do check the label of the container. The label should provide instructions as to the proper disposal of the chemical product in question. It is illegal to dispose of certain chemical products (those classified as a hazardous waste) in a sink, storm drain or onto the ground. These chemical products come in containers that are usually are labeled "warning", "poison" or "dangerous".
- It is illegal to dump anything into the storm drains. Storm drains are for storm water only. It is important to remember that chemicals, including household chemicals dumped into a storm drain are directly introduced into the environment and are often toxic to plant and animal life.

HOW CAN YOU HELP?

1. Become more aware of the do's and don'ts of storm water
2. Care about the health of those around you, including the environment
3. Do the right things, e.g., buy household products labeled "non-toxic" or "non-hazardous" and always store products in their original containers in order to have instructions as to proper use, storage and disposal
4. Talk to your friends about how they can help too
5. Report any illegal (or suspected illegal) disposal of chemicals

WHO TO CALL FOR HELP OR TO RECEIVE MORE INFORMATION?

To report a potential City Code violation, please call Glendale's Code Compliance Office (623) 930-3610.

To report a major violation of state law, such as a person dumping large amounts of chemicals on the ground or in a river bed, please call the Arizona Department of Environmental Quality (602) xxx-xxxx or Glendale's Environmental Resources Office (623) 930-2580, Police Department?, Fire Department? Code Compliance Office?.

To receive more information on household hazardous waste collection days sponsored by Glendale, please call Glendale's Field Operations Center (623) 930-2600

To receive more information on what you can dispose of in your sanitary sewer drain, please call Glendale's Pretreatment Office (623) 930-3900.

To receive more information on flood control and protection, please call Glendale's Engineering Department (623) 930-3630.

To receive more information on the City's Storm water Program or for additional tips/advice, please call Glendale's Environmental Resources Office (623) 930-2580.

COMMON ACTIVITIES: DO AND DON'T

ACTIVITY	DO	DON'T
Draining your swimming pool	Drain your pool into a sanitary sewer drain (use sewer clean-out) or keep the water contained on your property	Drain your pool onto the street or alley. (This is a City Code violation)
Draining your carpet cleaning solution	Drain the used solution in your bathtub Request that the professional carpet cleaner dispose of the used solution in the sanitary sewer.	Drain the used solution onto the street or curb/gutter. (This is a City Code violation)
Washing your vehicle or boat	Use water and try not to use any detergent. If you need to use a detergent, go to a commercial car wash.	Use a detergent when washing your vehicle or boat at home. (This introduces toxins into the environment) Wash a car or boat on a public street. (This is a City Code violation)
Cleaning your driveway, sidewalk or carport	Use a dry cleanup method, e.g., absorbents for oil/gas drippings. Use a broom and dust pan, then dispose in trash bin.	Use a degreaser. Use water to wash/hose down. (This introduces toxins into the environment)
Changing your oil or antifreeze	Collect all drained fluids in a container that can be capped (e.g., an empty plastic milk jug). Keep oil separated from antifreeze. Take used oil and antifreeze to a household hazardous waste event or to an auto parts store that accepts such wastes for safe recycling or disposal Have your vehicle serviced by a commercial operation. Repair leaks as soon as possible.	Let fluids drain or dispose of fluids on the ground. (This is a City Code violation) Mix used oil with antifreeze, gasoline, diesel, brake fluid, etc. (This makes recycling of those wastes impractical) Wash out the radiator with water and let it drain on the ground. (This is a City Code violation)
Using fertilizers	Follow product use, storage and disposal instructions.	Apply fertilizer before a storm. (This increases the chance for toxins to enter the environment)

	<p>Apply only recommended amounts.</p> <p>Store fertilizers indoors, under a roof</p> <p>Use slow-release, natural fertilizers</p>	<p>Overuse fertilizers (This increases the amount of toxins that can enter the environment)</p> <p>Store fertilizers outdoors, exposed to the sun and rain (This increases the chance for toxins to enter the environment)</p> <p>Pour fertilizer solution down the drain, any drain. (This is a City Code violation)</p>
Using herbicides and pesticides	<p>Use low toxic herbicides and pesticides.</p> <p>Follow product use, storage and disposal instructions. Apply recommended amounts.</p> <p>Use Diazinon only as a last resort</p> <p>Store herbicides and pesticides indoors, under a roof.</p> <p>Mix small amounts of solution. Prepare only what you will immediately use, so you do not have left over solution</p>	<p>Apply herbicides and pesticides before a storm (This increases the chance for toxins to enter the environment)</p> <p>Overuse herbicides and pesticides (This increases the amount of toxins that can enter the environment)</p> <p>Use Diazinon as the first choice. (This is a highly toxic product)</p> <p>Store herbicides and pesticides outdoors, exposed to the sun and rain (This increases the chance for toxins to enter the environment)</p> <p>Pour a herbicide or pesticide solution down the drain, any drain. (This is a City Code violation)</p>
When you see a person disposing of drum of a chemical on the ground or	<p>Call the Arizona Department of Environmental Quality at (602) xxx-xxxx.</p> <p>You may also call Glendale's Environmental Resources Office (623)-930-2580 or the Glendale Police Department?</p>	<p>Ignore the problem, hoping someone else will report the incident. (Dumping or abandoning chemicals is a violation of federal, state and local laws).</p>

abandoning a
drum on the
street, park or
riverbed

Fire Department? Code Compliance Office?



Appendix D

Summary of Discharges

CITY OF GLENDALE
 CODE COMPLIANCE DIVISION
 STORM WATER MANAGEMENT PLAN REPORT

ILLICIT DISCHARGE INTO STREETS					
September 1, 1999 thru July 31, 2000					
	SPRINKLERS	BACKWASHING/ DRAINING POOL	DISCHARGE		TOTALS
			DIRTY WATER	CEMENT	
NUMBER OF COMPLAINTS	11	10	8	1	30
CITATIONS WRITTEN	5	7	3		15
NO VIOLATIONS	1	1	3		5
SPOKE WITH RESIDENT/MNGT	5	2	2	1	10
ABATED AND/OR NO VIOLATION	11	10	8	1	30



Appendix E

Summarization of Storm Sewer Investigation



Industrial Pretreatment Program

MEMORANDUM

To: Ms. Lisa Spahr, Camp Dresser & McKee
From: John Watkins
Date: August 29, 2000
Re: City of Glendale NPDES Stormwater Permit Information
Sections 4.1.5.1, 4.2.3.1, 4.3.1.1

4.1.5.1 Municipal Waste Handling Facilities

Inspections at Arrowhead Water Reclamation Facility, Southwest Water Reclamation Facility, Cholla Water Treatment Plant, Pyramid Water Treatment Plant, Municipal Landfill, and City Airport were conducted in August, 2000, with the results previously sent to CDM for inclusion in the first year NPDES Stormwater Report.

4.2.3.1 Illicit Discharge Investigation

The City of Glendale Pretreatment Program conducts yearly grease interceptor inspections at approximately 550 restaurants and interceptor inspections at 364 automotive and related pollutant of concern businesses. During these inspections stormwater related concerns are addressed, such as, illegal discharge to storm drainage areas, roof drainage, identification of materials stored outside and open drum storage, hazardous materials regulations, runoff containing automotive fluids and other unknowns, and intentional dumping of waste materials onto drainage areas.

The above stormwater related concerns are also addressed during our annual inspections at three permitted significant industrial users and four other industrial facilities.

4.3.1.1 Refinement of Industrial Facilities List

Table 2-3 industrial facility inventory list is currently being compared to our existing list of pollutant of concern database businesses and will be refined, as information is field verified. This will include on-site inspections at these facilities within year two of our NPDES Stormwater Permit and a prioritization of these facilities according to Section 4.3.1.2.



Appendix F

Environmental Awareness Training Topics



GLENDALÉ



GLENDALÉ FIRE DEPARTMENT SPECIAL OPERATIONS DIVISION

Date: August 21, 2000
To: Liza Spahr
From: James P. Higgins *JPH*
Subject: NPDES Permit Report

NPDES Permit Stormwater Management Plan Requirements for Year One City of Glendale July 1, 1999- June 30, 2000

4.2.4 Spill Prevention/ Containment

The first line supervisors (30) of the Glendale Fire Department received four hours of Environmental Awareness Training on the following three dates, April 19, April 26 and May 3, 2000. The following block of text is an excerpt from the class outline which is department / job specific to the fire department.

Generator categories/requirements
Accumulation point management
Secondary containment
Labeling
Compatibility
Inspections

Satellite Accumulation
Approach

The course outlined below are the key environmental compliance topics that Environmental Resources will offer City of Glendale employees. This course will be designed in a the following format:

Classroom: Topics are covered in departments with their staff in 3-4 hour segments. This approach will accommodate the variety of work environments within the City.

The training will represent a group of progressive topics in Environmental Awareness, and at the completion of all the courses the employee will "graduate". Environmental



Resources will be developing appropriate recognition for the employees who complete the entire curricula. It may be appropriate to repeat the classes after two years. Courses will be designed to be interactive using games, quizzes, hands on training, visual aids and competition.

The goal is for employees to have a clear understanding of how the training works to move the City's Environmental Program forward. It is intended to complement but not duplicate Safety training being conducted by the Employee Safety Division. While regulatory requirements will be covered, they will not be the focus of most of the courses. However, training will be tracked in order to have appropriate documentation for regulators.

Environmental Awareness Training

Welcome

Environmental Awareness Overview

What is environmental awareness?

The city's environmental awareness policy

Success stories.

Hazardous Materials Purchasing

How to read MSDS's for environmental awareness and hazards

Reviewed Product List/database

What do I do with this stuff?

Hazardous Waste Management Identification

Profiles...Personnel Safety

Generator categories/requirements

Accumulation point management

Secondary containment

Labeling

Compatibility

Inspections

Dilution is NOT a solution

Stormwater NPDES facility training

The Glendale Fire Department maintains records of hazardous materials spills (in the city of Glendale) for a minimum of five years. The records are maintained and filed in the Fire Marshal's Office by two methods, one by address and secondly in a separate file titled "Spill Records".

This report took twelve hours to create, this included researching the calls and reports and compiling the report. In effort to reduce the amount of time in compiling this report a procedure has been put in place to reduce this time next year. The projected time frame should be six hours or less.

The data researched by the Hazardous Materials Team and the Fire Marshal's Office have shown that in the city of Glendale there were no major or significant spills with no contaminants entering the storm sewer system, that the fire department has record of.



Appendix G

BMPs for Businesses

DRAFT 8/15/00
STORM WATER BEST MANAGEMENT PRACTICES FOR BUSINESSES

I. WASHING AUTOMOBILES, TRUCKS, BOATS AND SMALL AIRCRAFT

Wash water cannot enter the street or storm drain. You should discuss wash water disposal options with the facility owner/operator prior to washing.

- A. **Exterior Surface Washing.** Using water only or water with soap. This activity is usually associated with fleet washing.

Recommended Option #1

Use a special wash area (e.g., a wash rack/pad) that is designed to capture the wash water. Some facilities have a wash rack/pad that is designed with oil water separators and drain into the sanitary sewer. Contract cleaners may also establish a temporary wash area, where the wash water is collected and pumped to the sanitary sewer system via a sewer clean out, sink or drain.

Recommended Option #2

Before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Wash water needs to be collected (pumped) and disposed of in the sanitary sewer system via a sewer clean out or sink.

Recommended Option #3

Prevent wash water from entering the street or storm drain using either Options #1 or #2. Dispose of the wash water onto an unpaved (dirt) or landscaped area. All of the wash water must be contained on-site at the facility. Caution: routine disposal of wash water on a landscaped area or a dirt area can cause damage to vegetation or contaminate the soil, and is therefore, not advisable.

- B. **Mobile Auto Detailing.** Using water only or water with soap.

If the volume of water used is minimal (will not cause wash water runoff to enter a street or storm water inlet) the runoff may remain on a paved or concrete surface and allowed to evaporate.

Recommended Option #1

If sufficient wash water runoff is expected, establish a temporary wash area where the wash water is collected and pumped to the sanitary sewer system via a sewer clean out, sink or drain.

Recommended Option #2

If sufficient wash water runoff is expected and before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Wash water needs to be collected (pumped) and disposed of in the sanitary sewer system via a sewer clean out or sink.

Recommended Option #3

Prevent wash water from entering the street or storm drain using either Options #1 or #2. Dispose of the wash water onto an unpaved or landscaped area. Caution: routine disposal of wash water on a landscaped area or a dirt area can cause damage to vegetation or contaminate the soil, and is therefore, not advisable.

C. Car Lot Rinsing

If the rinsing of exterior surfaces is done using water only, runoff of the rinse water may go to the storm drain if the runoff does not flow over oil deposits on the pavement or gutter.

If the rinse water contains soap, then the rinse water needs to be handled in a manner recommended for exterior surface washing for fleet vehicles.

D. Acid Wash Unpainted Metal Surfaces

Contact the City of Glendale Pretreatment Program (623)-xxx-xxxx for additional information and guidance.

Recommended Option #1

Use a special wash area (e.g., a wash rack/pad) that is designed to capture the acid wash water. Prevent acid wash water from entering the street, storm drain and landscaped or dirt surface. Acid runoff must be neutralized to a pH between 6 and 10 before pumping to the sanitary sewer, via sink or sewer clean out.

E. Engine/Equipment Degreasing

Recommended Option #1

Use a special wash area (e.g., a wash rack/pad) that is designed to capture the wash solution from the degreasing operation. Prevent the wash solution from entering the street, storm drain, sanitary sewer and landscaped or dirt surface. The wash solution is likely to be classified as a hazardous waste or petroleum contaminated waste. There are special requirements for the proper disposal of a hazardous or petroleum contaminated waste. Contact the Arizona Department of Environmental Quality (602) xxx-xxxx for additional information and guidance for the disposal of a hazardous waste.

If you have determined that the wash solution is not a hazardous or petroleum contaminated waste you will still be required to conduct some type of pretreatment before discharging the wash solution in the sanitary sewer. Contact the City of Glendale Pretreatment Program (623)-xxx-xxxx for additional information and guidance.

F. Truck Trailer Interior Cleaning

Recommended Option #1 (trailer used to transport food-related)

Sweep, collect and dispose of debris from the interior of the trailer. Avoid washing down the trailer. If washing down is required, the wash water can not be discharged into the street or storm drain. Use a special wash area (rack/pad) that is designed to capture the wash water. The wash water should be contained, collected and pumped into the sanitary sewer.

Recommended Option #2 (to clean a chemical spill on trailer used to transport toxic substances)

Do not wash down the interior of the trailer. Refer to the Materials Safety Data Sheets for spill clean-up procedures and appropriate disposal methods. In most cases, absorbents should be used to contain and collect spilled chemicals. The spilled chemical and the absorbents used are likely to be classified as a hazardous or petroleum contaminated waste. The spill cannot be discharged into the street, storm drain or sanitary sewer.

G. Boat Cleaning (power washing in preparation for painting)

If paint chips are being removed in preparation for painting. Old paint chips and particles are likely to be a hazardous waste if the paint is lead-based, copper-based, contains tributyl tin or PCBs. Contact the Arizona Department of Environmental Quality (602) xxx-xxxx for additional information and guidance for the disposal of a hazardous waste. Otherwise, dispose of the paint particles in the trash.

Recommended Option #1

Use a special wash area (e.g., a wash rack/pad) that is designed to capture the wash water. Some facilities have a wash rack/pad that drains into the sanitary sewer. Filter the wash water prior to it entering the sanitary sewer. Dispose of paint chips according to paint type.

Recommended Option #2

Before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Wash water needs to be collected (pumped) and the

paint chips and particles filtered out prior to disposed in the sanitary sewer system via a sewer clean out or sink. Dispose of paint chips according to paint type.

II. WASHING BUILDINGS, PARKING LOTS, SIDEWALKS, DRIVEWAYS AND PLAZAS

A. Sidewalks and Plazas

Recommended Option #1 (for areas with no oil spots)

Sweep, collect and dispose of debris in trash. If water is used, the wash water may go to storm drains. No oil sheen should be visible on the water flowing to the storm drain.

Recommended Option #2 (for areas with oil spots using no soap)

Sweep, collect and dispose of debris in trash. Clean oil spots with an absorbent and dispose of the absorbent in the trash. If water is used, the wash water may go to storm drains. No oil sheen should be visible on the water flowing to the storm drain.

Recommended Option #3 (for areas with oil spots using soap)

Sweep, collect and dispose of debris in trash. Clean oil spots with an absorbent and dispose of the absorbent in the trash. If water and soap (degreaser/detergent) is used, place an oil absorbent boom around the storm drain. Wash water may go to the storm drain if it goes through an oil absorbent boom. No oil sheen should be visible on the water flowing into the storm drain.

B. Drive-throughs, Driveways, Drive-through Window Areas (areas with considerable oil deposits, not frequently cleaned.

Recommended Option #1 (with or without using soap)

Before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Sweep, collect and dispose of debris in trash. Clean oil spots with an absorbent and dispose of the absorbent in an appropriate manner. The used absorbent might be classified as a hazardous or petroleum contaminated waste that can not be disposed of in the trash. Collect (vacuum) wash water and pump to a sanitary sewer through an oil/water separator. Caution: do not use a grease interceptor intended to capture cooking oil.

C. Exterior Building Cleaning

If soap (detergent/degreaser) is used, wash water can not enter the street or the storm water system. Wash water must be contained, collected and disposed of in the sanitary sewer. In addition, all debris must be kept out of the storm drain.

Recommended Option #1 (for Glass and Steel Buildings, using no soap)

Direct the wash water runoff to landscaped areas or dirt surfaces on-site at the facility.

Recommended Option #2 (for Glass and Steel Buildings, using no soap)

Discharge the wash water runoff directly to the storm drain.

Recommended Option #3 (for painted buildings with paint in good shape, using no soap)

Direct the wash water runoff to landscaped areas or dirt surfaces on-site at the facility.

Recommended Option #4 (for painted buildings with paint in good shape, using no soap)

Prior to washing, place a filter/fabric on the storm water intake to prevent paint particles from entering the storm drain. Wash water may be disposed of in the storm drain only if it is first filtered. Dispose of the collected paint chips and particles in the trash.

Recommended Option #5 (for buildings painted with lead-based or mercury-additive paint, with or without soap)

Caution: The wash water and paint chips or particles may be classified as a hazardous waste. There are special requirements for the proper disposal of a hazardous waste. It may be to your benefit if you filter out the paint chips or particles from the wash solution. Contact the Arizona Department of Environmental Quality (602) xxx-xxxx for additional information and guidance for the disposal of a hazardous waste.

Before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Wash water and paint chips or particles should be contained and pumped (vacuumed) to a tank. If you have determined that the wash solution is not a hazardous waste you may dispose of the wash water in the sanitary sewer. Determine whether the paint chips or particles you have filtered out from the wash solution are a hazardous waste. If so, dispose of the paint chips and particles as a hazardous waste. If deemed not a hazardous waste, discard the paint chips and particles in the trash.

Recommended Option #6 (to remove paint and clean in preparation for painting, with or without soap)

Determine whether the old paint to be removed is lead-based or mercury-additive paint. If so or if you are not sure, before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Wash water and paint chips or particles should be contained and pumped (vacuumed) to a tank. If you have determined that the wash solution is not a hazardous waste you may dispose of the wash water in the sanitary sewer. (You may dispose of the wash water onto a landscaped area or dirt

surface on-site if the wash water is not a hazardous waste and if you do not use soap.) Determine whether the paint chips or particles you have filtered out from the wash solution are a hazardous waste. If so, dispose of the paint chips and particles as a hazardous waste. If deemed not a hazardous waste, discard the paint chips and particles in the trash.

D. Graffiti Removal

Minimize the amount of sand-blasting water used.

Recommended Option #1 (for wet sand-blasting)

Direct sand-blasting runoff water to a landscaped area or dirt surface. Contain sand-blasting water on-site.

Recommended Option #2 (for wet sand-blasting)

If the sand-blasting runoff water cannot be contained on-site, filter the sand-blasting water through a boom to keep sand out of the storm water drain.

Recommended Option #3 (using high pressure washing and a cleaning compound)

Direct the runoff water to a landscaped area or dirt surface. Contain runoff water on-site.

Recommended Option #4 (using high pressure washing and a cleaning compound)

Before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Determine whether the cleaning compound in the runoff causes the runoff to become a hazardous waste. If the runoff is a hazardous waste, dispose the runoff as a hazardous waste. If the runoff is not a hazardous waste, pump the contained runoff into the sanitary sewer.

D. Masonry Efflorescence (using acid wash to remove mineral deposits on masonry)

Recommended Option #1

Before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Rinse the treated area with alkaline soap and direct rinse water to a landscaped area or dirt surface on-site.

Recommended Option #2

Before washing begins, seal the storm water intakes to prevent the wash water from entering the storm water system. Contain and collect rinse water. Acid runoff must be

neutralized to a pH between 6 and 10 before pumping to the sanitary sewer, via sink or sewer clean out.

III. WASHING FOOD-RELATED FACILITIES AND EQUIPMENT

A. Restaurant Alleys and Grocery Dumpster Areas (outdoors)

Recommended Option #1 (water only, no soap)

No wash water can enter the street or storm drain. First, clean area using brooms, rags or absorbents. Contain wash water on-site and divert flow to landscaped area or dirt area. Caution: routine disposal of wash water on to a landscaped area or dirt surface may cause damage to vegetation or contaminate the soil, and is therefore, not advisable.

Recommended Option #2 (water with soap/detergent/degreaser)

No wash water can enter the street or storm drain. First, clean area using brooms, rags or absorbents. Contain and collect wash water. Pump wash water to sanitary sewer.

B. Restaurant Cleaning of Floor Mats, Exhaust Filters

Recommended Option #1 (inside the building)

No wash water can enter the street or storm drain. Clean mats, etc. inside a building and dispose of the wash water to the sanitary sewer, via a floor drain or sink.

Recommended Option #2 (outside the building)

No wash water can enter the street or storm drain. Clean mats, etc. outside a building in a bermed area with a drain that is connected to the sanitary sewer system.

C. Kitchen Grease

Recommended Option #1 (recyclable oil, grease and fat)

Save oil, grease or fat in a tallow bin or other sealed container. Do not contaminate recyclable fats with waste grease from an interceptor or trap. Do not pour recyclable oil, grease or fat into a sink, floor drain or storm drain.

Recommended Option #2 (waste grease from an interceptor or trap)

Do not dispose of waste grease in the street, alley or a storm drain. If you must, collect waste grease in a sealed container for temporary storage. It would be best if you did not handle trap waste at all. Periodically, dispose of waste grease through a professional disposal service company.

D. Grocery Carts

Recommended Option #1 (if no soap/detergent/degreaser is used)

Wash water may be discharged to a storm drain.

Recommended Option #2 (if soap/detergent/degreaser is used)

No wash water can enter the street or storm drain. Contain and collect wash water. Pump wash water to sanitary sewer.

E. Lunch Wagons

Recommended Option #1

Waste and wash water must be discharged at a commissary equipped to accept and discharge wastewater to the sanitary sewer system.

Trucks, carts and related equipment should be cleaned on a properly equipped wash pad at a commissary.

IV. MISCELLANEOUS CLEANING

A. Mobile Carpet/Draperies Cleaners

Recommended Option #1

No wash water can enter the street or storm drain. Wash water must be discharged to a sanitary sewer or landfill. Use a lint trap or filter when discharging to a sanitary sewer. Ask your customer if you can discharge the wash water into the sanitary sewer, via a sink or bathtub at the job-site. If wash water is transported from the wash site make arrangements with the City of Glendale Pretreatment Division? (623) xxx-xxxx for proper disposal into a sanitary sewer.



Appendix H

Sanitary Seepage Detection Procedures

To: Ms. Lisa Spahr, Camp Dresser & McKee
From: Henry F. Alcaraz
Date: September 6, 2000
Re: City of Glendale NPDES Stormwater Permit Information

4.2.3.3 Current Procedures to Limit Sanitary Seepage

The City of Glendale Wastewater Collection Division conducts ongoing televising of the sanitary collection system. This division repairs segments of pipe requiring point repairs. Segments of pipe requiring numerous repairs are referred to the Engineering Department so that they can contract the work out. The City of Glendale also has a contract for having our sewer system evaluated (Sanitary Sewer Evaluation Project). The Engineering Department should have provided information on this project to you.

Sanitary sewer overflows are responded to within 30 minutes after the initial call. Any reportable amounts are referred to the Environmental Resources Compliance Coordinator who then reports it to ADEQ. The police and Fire Departments are called when needed for traffic control and for cording off the area(s). Cleanup efforts are conducted immediately after the problem/sewer stoppage has been resolved. Our combination vacuum and jetter trucks vacuum any ponding of wastewater up when possible, and granular chlorine is used for disinfecting the wastewater. The affected area is then flush with potable water. Televising the segment of line where the stoppage occurred to help identify why or what caused the stoppage follows up all sewer stoppages. If the stoppage is caused by grease in the sewer line, the Pretreatment division is notified so that they can do a follow up.



Appendix I

Comprehensive List of Grading and Drainage Inspections

Grading and Drainage Inspections Conducted in Permit Year One

Appendix I			
Grading and Drainage Inspections Conducted in Permit Year One			
<i>Permit No.</i>	<i>Date Issued</i>	<i>Date Completed</i>	<i>Project Address</i>
907469	12-Apr-99	26-Jul-00	6422 N. 75th (Cobblefield)
908038	12-Apr-99	26-Jul-00	7201 W. Bell Road
914762	6-May-99	26-Jul-99	5403 W. Hayward
916635	14-May-99	26-Jul-00	5610 W. Talavi Boulevard
918227	20-May-99	26-Jul-00	18400 N. 51st Avenue
930180	13-Jul-99		7020 W. Ocotillo (Desert Garden School)
930297	13-Jul-99		5535 N. 67th Avenue
930669	13-Jul-99		19555 N. 59th Avenue (Mid Western University)
933002	23-Jul-99		5901 W. Behrend (Apartments)
934570	13-Sep-99		7801 N. 44th Drive
938951	13-Aug-99		7105 W. Maryland Avenue
940379	19-Aug-99		6807 W. Olive
941559	23-Aug-99		7200 W. Bell Road
942086	24-Aug-99		7200 W. Bell Road
942433	24-Aug-99		21000 N. 75th Avenue
946186	9-Sep-99		6702 W. Camelback Road
947531	17-Sep-99		20250 N. 59th Avenue
948455	22-Sep-99		5907 W. Kings (Social Security Building)
960849	30-Nov-99		21150 N. Arrowhead Loop
961482	2-Dec-99		17204 N. 67th Avenue
963678	14-Dec-99	30-Aug-00	6632 W. Myrtle Avenue
963744	14-Dec-99		17500 N. 67th Avenue
964171	17-Dec-99		7030 W. Glendale Avenue
967976	3-Jan-00		6233 W. Behrend
968339	6-Jan-00		8002 N. 43rd. Avenue
968552	6-Jan-00		7201 W. Beardsley
968735	6-Jan-00		17235 N. 75th Avenue
968875	7-Jan-00		7637 N. 67th Avenue
969568	11-Jan-00		5510 W. Cholla
969923	12-Jan-00		5511 W. Bell Road
970384	13-Jan-00		7260 W. Bell Road
970897	18-Jan-00		6363 W. Bell Road
971820	21-Jan-00		17235 N. 75th Avenue
972182	25-Jan-00		6615 W. Thunderbird Road
973701	2-Feb-00		20000 N.57th Drive
976902	10-Feb-00		5555 W. Thunderbird Avenue
979120	22-Feb-00		8611 N. 67th Avenue
980052	24-Feb-00		20209 N. 59th Avenue
981167	29-Feb-00		11480 W. Glendale Avenue
981902	3-Mar-00		7101 W. Orangewood
984062	13-Mar-00		4932 W. Myrtle
984427	14-Mar-00		5823 W. Eugie
985887	22-Mar-00		6901 W. Bell Road
985903	22-Mar-00		7902 W. Union Hills Drive
990853	10-Apr-00		6755 N. 83rd Avenue
990853	22-May-00		6755 N. 83rd Avenue
991273	12-Apr-00		17510 N. 75th Avenue
991612	13-Apr-00		7201 W. Beardsley

Grading and Drainage Inspections Conducted in Permit Year One

Appendix I			
Grading and Drainage Inspections Conducted in Permit Year One			
992537	17-Apr-00		7025 W. Bell Road
993071	19-Apr-00		6901 W. Bell Road
994624	27-Apr-00		7475 N. Glen Harbor
996454	5-May-00		7291 W. Bell Road
997494	9-May-00		5932 W. Behrend
997692	10-May-00		5607 W. Lamar
998989	15-May-00		6701 W. Union Hills Drive
999862	17-May-00		12160 N. 59th Avenue
1003128	5-Jun-00		7310 N. 67th Avenue
1004324	8-Jun-00		5082 NW Grand
1004929	13-Jun-00		5821 W. Beverly Lane
1006832	23-Jun-00		19000 N. 63rd Avenue
1007483	23-Jun-00		20389 N. 59th Avenue
1007665	29-Jun-00		6040 W. Behrend



Appendix J

Comprehensive List of Construction Site Inspections

Construction Site Inspections Conducted in Permit Year One

Appendix J

Construction Site Inspections Conducted in Permit Year One

<i>Permit No.</i>	<i>Date Issued</i>	<i>Date Complete</i>	<i>Subdivision</i>	<i>Address</i>
11295	3-Aug-99	3-Feb-00	Midwestern University	19555 N. 59th Avenue
11300	8-Jul-99	24-May-00	Eagle Pass	5701 N. 75th Avenue
11352	8-Jul-99	23-May-00	Fry's Food Stores	20220 N. 59th Avenue
11355	8-Jul-99	28-Oct-99	Fry's Food Stores	20220 N. 59th Avenue
11392	12-Jul-99	30-Mar-00	Talavi Street Extension	5819 W. Beverly
11393	12-Jul-99	30-Mar-00	Talavi Street Extension	5819 W. Beverly
11404	19-Jul-99	3-Mar-00	Shadow Run	7333 W. Glendale Avenue
11406	29-Jul-99	Open still	West Glenn Estates	7421 N. 83rd Avenue
11410	19-Aug-99	Open still	Arrowhead Creekside	7200 W. Bell Road
11412	19-Aug-99	Open still	Cobblefield, Phase I	6422 N. 75th Avenue
11413	19-Aug-99	3-May-00	Cobblefield, Phase II	6422 N. 75th Avenue
11414	19-Aug-99	Open still	Cobblefield, Phase III	6422 N. 75th Avenue
11415	19-Aug-99	Open still	Cobblefield, Phase IV	6422 N. 75th Avenue
11422	13-Sep-99	Open still	Desert Mirage Estates	6302 N. 83rd Avenue
11423	13-Sep-99	Open still	Desert Mirage Estates	6302 N. 83rd Avenue
11424	8-Sep-99	Open still	Maryland Trails	7105 W. Maryland Avenue
11425	9-Sep-99	Open still	Manistee Ranch, Phase II	5149 W. Vista Avenue
11426	9-Sep-99	Open still	Manistee Ranch, Phase III	5265 W. Frier
11887	29-Sep-99	Open still	Arrowhead Highlands	5901 W. Behrend Drive
11888	29-Sep-99	Open still	Arrowhead Highlands	5901 W. Behrend Drive
11889	29-Sep-99	Open still	Arrowhead Highlands	5901 W. Behrend Drive
11893	7-Oct-99	Open still	Desert Mirage Estates	6302 N. 83rd Avenue
11894	7-Oct-99	Open still	Desert Mirage Estates	6302 N. 83rd Avenue
11901	21-Oct-99	30-May-00	Cortina	6946 W. Bethany Home Road
11902	20-Oct-99	3-Aug-00	Paradise Vistas	5616 W. Royal Palm Road
11904	26-Oct-99	Open still	Camelback Commercial Ctr. II	5411 W. Orange Drive
11907	27-Oct-99	Open still	Maryland Trails	7105 W. Maryland Avenue
11908	29-Oct-99	Open still	Social Security Building	5907 W. Kings Avenue
11909	29-Oct-99	Open still	Social Security Building	5907 W. Kings Avenue
11910	29-Oct-99	Open still	Social Security Building	5907 W. Kings Avenue
11911	2-Nov-99	4-Apr-00	Touchstone II	5401 W. Grovers Avenue
11914	12-Nov-99	Open still	Missouri Terrace	5510 N. 67th Avenue
11919	19-Nov-99	Open still	Arrowhead Market Place	20329 N. 59th Avenue
11957	16-Sep-99	Open still	Cobblefield	6422 N. 75th Avenue
11961	10-Aug-99	Open still	Cobblefield, Phase II	6422 N. 75th Avenue

Construction Site Inspections Conducted in Permit Year One

Appendix J				
Construction Site Inspections Conducted in Permit Year One				
11962	10-Aug-99	Open still	Cobblefield, Phase I	6422 N. 75th Avenue
11963	9-Aug-99	28-Dec-99	Cobblefield, Phase I	6422 N. 75th Avenue
11964	9-Aug-99	28-Dec-99	Cobblefield, Phase II	6422 N. 75th Avenue
11965	9-Aug-99	28-Dec-99	Cobblefield	6422 N. 75th Avenue
11966	9-Aug-99	28-Dec-99	Cobblefield, Phase IV	6422 N. 75th Avenue
11985	19-Aug-99	Open still	Manistee Ranch, Parcel II	5403 W. Hayward Avenue
11986	19-Aug-99	Open still	Manistee Ranch, Parcel II	5403 W. Hayward Avenue
11988	25-Aug-99	Open still	Manistee Ranch, Parcel II	5128 W. Orangewood
11990	25-Aug-99	Open still	Manistee Ranch, Parcel III	5128 W. Orangewood
11993	23-Jul-99	Open still	West Glenn Estates	7427 N. 83rd Avenue
11995	27-Jul-99	Open still	Cobblefield, Phase II	6422 N. 75th Avenue
11996	27-Jul-99	Open still	Cobblefield, Phase III	6422 N. 75th Avenue
11997	27-Jul-99	Open still	Cobblefield, Phase IV	6422 N. 75th Avenue
11998	27-Jul-99	Open still	Cobblefield, Phase IV	6422 N. 75th Avenue
11999	27-Jul-99	Open still	Cobblefield, Phase II	6422 N. 75th Avenue
1200	27-Jul-99	Open still	Cobblefield, Phase II	6422 N. 75th Avenue
12002	28-Jul-99	3-Apr-00	Touchstone II	5401 W. Grovers Avenue
12003	28-Jul-99	3-Apr-00	Touchstone II	5401 W. Grovers Avenue
12008	28-Jul-99	Open still	Cobblefield	6422 N. 75th Avenue
12013	12-Aug-99	Open still	Paradise Vistas	5616 W. Royal Palm Road
12018	3-Dec-99	Open still	West Glenn Estates	7421 N. 83rd Avenue
12019	9-Dec-99	30-May-00	Cortina	6946 W. Bethany Home Road
12020	18-Nov-99	Open still	Cobblefield	6422 N. 75th Avenue
12024	27-Jan-00	Open still	Maryland Trails	7105 W. Maryland Avenue
12025	9-Dec-99	Open still	Eagle Pass	5701 N. 75th Avenue
12033	15-Dec-99	Open still	Deer Valley Elem. #19	21150 N. Arrowhead Loop Road
12036	16-Dec-99	Open still	Eagle Pass, Phase I	5701 N. 75th Avenue
12038	22-Dec-99	4-Apr-00	Touchstone II	5401 W. Grovers Avenue
12041	11-Jan-00	Open still	Social Security Building	5907 W. Kings Avenue
12042	6-Jan-00	Open still	Maryland Trails	7105 W. Maryland Avenue
12046	6-Jan-00	Open still	Missouri Terrace	5510 N. 67th Avenue
12047	14-Jan-00	Open still	Missouri Terrace Office Park	5706 W. Missouri
12048	14-Jan-00	Open still	Missouri Terrace Office Park	5706 W. Missouri
12049	20-Jan-00	Open still	Missouri Terrace Office Park	5706 W. Missouri
12050	14-Jan-00	Open still	Manistee Ranch, Parcel II	5403 W. Hayward Avenue
12754	14-Jan-00	Open still	Paradise Views II	7030 W. Glendale Avenue

Construction Site Inspections Conducted in Permit Year One

Appendix J				
Construction Site Inspections Conducted in Permit Year One				
12755	14-Jan-00	2-Aug-00	Sonic	4302 W. Northern Avenue
12757	21-Jan-00	9-Aug-99	Arrowhead Lakes Marketplace	20329 N. 59th Avenue
12762	20-Jan-00	9-Aug-00	Touchstone II	5401 W. Grovers Avenue
12764	20-Jan-00	Open still	Sierra Canyon Apartments	17500 N. 67th Avenue
12765	25-Jan-00	Open still	Arrowhead Highlands	5901 W. Behrend Drive
12770	25-Jan-00	Open still	Arrowhead Highlands	5901 W. Behrend Drive
12774	31-Jan-00	31-May-00	Cortina	6946 W. Bethany Home Road
12971	28-Feb-00	7-Aug-00	Glen Arrow Apartments	6233 W. Behrend Drive
12792	28-Feb-00	Open still	Glen Arrow Apartments	6233 W. Behrend Drive
12793	28-Feb-00	Open still	Glen Arrow Apartments	6233 W. Behrend Drive
12801	5-Apr-00	Open still	Eagle Pass	5701 N. 75th Avenue
12855	16-Feb-00	Open still	Carmel Cove IV	5303 W. Taro Lane
12856	16-Feb-00	Open still	Carmel Cove IV	5303 W. Taro Lane
12868	6-Mar-00	Open still	Maryland Trails	7105 W. Maryland Avenue
12869	8-Mar-00	11-Aug-00	Arrowhead Promenade	6102 W. Behrend Drive
12870	8-Mar-00	Open still	Arrowhead Promenade	6102 W. Behrend Drive
12871	8-Mar-00	Open still	Arrowhead Promenade	6102 W. Behrend Drive
12873	8-Mar-00	11-Aug-00	Arrowhead Promenade	6102 W. Behrend Drive
12890	3-Apr-00	7-Aug-00	Arrowhead Promenade	6102 W. Behrend Drive
12893	5-May-00	Open still	Carmel Cove, II	5303 W. Taro Lane
12924	1-Mar-00	Open still	Manistee Ranch, Parcel II	5403 W. Hayward Avenue
12925	21-Mar-00	Open still	Manistee Ranch, Parcel II	5403 W. Hayward Avenue
12926	17-Mar-00	Open still	Sierra Vista Apartments	17500 N. 67th Avenue
12936	12-Apr-00	Open still	Arrowhead Highlands	5901 W. Behrend Drive
12940	11-Apr-00	9-Aug-00	Onsite Satellite and Security	6363 W. Bell Road
12947	4-May-00	Open still	Eugle Medical Building	5823 W. Eugle
12948	5-May-00	Open still	Carmel Cove, IV	5303 W. Taro Lane
12949	9-May-00	Open still	Eagle Pass, Phase II	5701 N. 75th Avenue
12953	19-May-00	Open still	Carmel Cove, IV	5303 W. Taro Lane
12954	12-Apr-00	Open still	Paradise Views II	7030 W. Glendale Avenue
13065	18-May-00	Open still	Paradise Views II	7030 W. Glendale Avenue
13066	18-May-00	Open still	Paradise Views II, Phase I	7030 W. Glendale Avenue
13067	18-May-00	Open still	Paradise Views II, Phase II	7030 W. Glendale Avenue
13068	18-May-00	Open still	Paradise Views II, Phase III	7030 W. Glendale Avenue
13072	7-Jun-00	Open still	Villas Solanas	6755 N. 83rd Avenue
13073	7-Jun-00	Open still	Villas Solanas, Phase II	6755 N. 83rd Avenue

Construction Site Inspections Conducted in Permit Year One

Appendix J				
Construction Site Inspections Conducted in Permit Year One				
13074	7-Jun-00	Open still	Villas Solanas, Phase II	6755 N. 83rd Avenue
13076	21-Jun-00	Open still	Carmel Cove, Phase II	5517 W. Utopia Avenue
13077	16-Jun-00	Open still	Park Paseo	16301 N. 75th Avenue
13078	20-Jun-00	Open still	Summerfield Place II	7310 N. 67th Avenue
13079	20-Jun-00	Open still	Summerfield Place III	7310 N. 67th Avenue
13082	20-Jun-00	Open still	Summerfield Place III	7310 N. 67th Avenue
13084	21-Jun-00	Open still	Carmel Cove, Phase II	5517 W. Utopia Avenue
13154	21-Jun-00	Open still	Arrowhead Promenade	5932 W. Behrend Drive
978012	19-Jul-99	11-Apr-00		Discovery Park
978014.1	18-Oct-99	Open still		Glendale WRF Aquifer Recharge Facility
STP-GLN-(O)	24-Apr-00	Open still		ADOT 51st and Olive
978032	6-Mar-00	Open still		67th Avenue - Bell Road - Union Hills
978033	25-Jan-99	25-Apr-99		Neighborhood Mini Park
978038	26-Jul-99	10-Jan-00		Glendale Avenue Medians - 67th -71st Avenues
978039	7-Sep-99	17-Apr-00		Greenway Road Right-of-Way Improvements
978040	19-Jul-99	17-Oct-99		59th Avenue - GCC Streetscape
989002	25-Jan-99	27-Mar-99		Alley S/L Rehab - 57th Drive - 58th Avenue
989003	7-Sep-99	6-Nov-99		West Gardenia Neighborhood Improvements
989006	12-Jun-00	Open still		Arrowhead Meadows Park
989010	23-Aug-99	21-Nov-99		1999-2000 Asphalt Overlay Program
989013.1	24-Jan-00	12-Mar-00		Manistee Ranch S/W Improvements
989020	1-Oct-99	15-Mar-00		Downtown Alley Improvements 57th Drive - 58th Avenue
989026	18-Oct-99	22-Mar-00		Downtown Alley Improvements 58th Avenue - 58th Drive
989029	27-Sep-99	25-Jan-00		Landfill Flood Control Levee
989030	1-Mar-00	Open still		Glendale Material Recovery Facility
989032	1-Oct-99	31-Dec-99		Catlin Court Phase IV Development
989034	23-Aug-99	21-Nov-99		59th Avenue W/L Replacement - Northern - Royal Palm
990003	19-Jan-00	4-Mar-00		75th Avenue and Medlock Street Improvements
990005	3-Apr-00	Open still		PM - 10 Road Surfacing



Appendix K

Representative Storm Data from FCDMC

ARROW Station	
Date of Sampling	02/04/99
Time	1750
Representative Storm Event	Y
Agency Collecting Sample	FCD
Agency Analyzing Sample	BOLIN
Drainage Area (acres) (DA)	180
Impervious Area (acres) (IA)	0
Land Use - Residential	0
Land Use - Commercial	180
Land Use - Industrial	0
Land Use - Undeveloped	0
Sampling Duration (minutes) (DRN)	981
Storm Duration (minutes)	373
Runoff Sampled (cubic feet) (RUN)	41,300
Total Storm Runoff (cubic feet)	44,000
Instantaneous Discharge (cfs)	10.4
Preceding Dry Period (days) (ANT)	49
Total Storm Rainfall (inch)	0.26
Rainfall Sampled (inch) (TRN)	0.26
Maximum 5-minute rain intensity (MAX5)	0.12
Sample Temperature (deg. C)	4
Effluent Temperature (deg. C)	13.8
Ambient Temperature (deg. C)	NM
Barometric Pressure (mm Hg)	NM
pH, Effluent (standard units)	8.7
pH, Lab (standard units)	--
Specific Conductance, FIELD (us/cm)	--
Specific Conductance, LAB (us/cm)	--
Oxygen Dissolved (% saturation)	--
Oxygen Dissolved (mg/L)	--
Electrical Conductivity (umhos/cm)	--
BOD5 (mg/L)	14
COD High Level (mg/L)	74
Chloride (mg/L as Cl)	8
Cyanide Total (mg/L as Cn)	<0.01
Fecal Coliform (MPN/100mL)	500
Fecal Streptococci (MPN/100mL)	16,000
Solids Residue at 180 Deg. C (TDS) (mg/L)	146
Residue, Total at 105 Deg. C (TSS) (mg/L)	106
Nitrogen No2 + No3, Total (mg/L as N)	0.25
TKN Nitrogen (mg/L as N)	5.19

Nitrogen, Ammonia + Organic, Total (mg/L as N)	5.19
Nitrogen Nitrate Total (mg/L as N)	0.18
Nitrogen Nitrite Total (mg/L as N)	0.07
Nitrogen Ammonia Total (mg/L as N)	2.63
Nitrogen Organic Total (mg/L as N)	2.56
Phosphorous Total (mg/L as P)	0.91
Phosphorous Dissolved (mg/L as P)	5.19
Phosphorous Ortho (mg/L as P)	0.17
Sulfate Dissolved (mg/L)	18
Hexavalent Chromium Total (mg/L)	--
Phenols Total Recoverable (ug/L)	13
Oil and Grease Total Recoverable (mg/L)	9
Organic Carbon, Total (mg/L)	5.12
Bicarbonate Whole Field (mg/L as HCO ₃)	--
Carbonate Water Field (mg/L as Co ₃)	--
Carbonate Water Dissolved, Field (mg/L as Co ₃)	--
Alkalinity Water Field Total (mg/L as CaCo ₃)	--
Alkalinity Dissolved Water Field Total (mg/L as CaCo ₃)	--
Alkalinity LAB (mg/L as CaCo ₃)	48
Silica Dissolved (mg/L as SiO ₂)	--
Hardness (mg/L)	64
Antimony (ug/L as Sb)	<5
Antimony Dissolved (ug/L as Sb)	<4
Arsenic Total (ug/L as As)	9
Arsenic Dissolved (ug/L as As)	7
Barium Dissolved (ug/L as Ba)	--
Beryllium Total Recoverable (ug/L as Be)	<2
Beryllium Dissolved (ug/L as Be)	<2
Cadmium Total Recoverable (ug/L as Cd)	0.7
Cadmium Dissolved (ug/L as Cd)	0.5
Calcium Dissolved (mg/L as Ca)	--
Chromium Total Recoverable (ug/L as Cr)	4.6
Chromium Dissolved (ug/L as Cr)	2.9
Cobalt Dissolved (ug/L as Co)	--
Copper Total Recoverable (ug/L as Cu)	15
Copper Dissolved (ug/L as Cu)	<15
Iron Dissolved (ug/L as Fe)	--
Lead Total Recoverable (ug/L as Pb)	9
Lead Dissolved (ug/L as Pb)	<5
Lithium Dissolved (ug/L as Li)	--
Magnesium Dissolved (mg/L as Mg)	--
Manganese Dissolved (ug/L as Mn)	--
Mercury Total Recoverable (ug/L as Hg)	<0.2

Mercury Dissolved (ug/L as Hg)	0.2
Molybdenum Dissolved (ug/L as Mo)	--
Nickel Total Recoverable (ug/L as Ni)	10
Nickel Dissolved (ug/L as Ni)	6
Potassium Dissolved (mg/L as K)	--
Selenium Total (ug/L as Se)	<5
Selenium Dissolved (ug/L as Se)	<5
Silver Total Recoverable (ug/L as Ag)	<40
Silver Dissolved (ug/L as Ag)	<50
Sodium Dissolved (mg/L as Na)	--
Strontium Dissolved (ug/L as Sr)	--
Thallium Total (ug/L as Tl)	<1
Thallium Dissolved (ug/L as Tl)	<1
Vanadium Dissolved (ug/L as V)	--
Zinc Total Recoverable (ug/L as Zn)	310
Zinc Dissolved (ug/L as Zn)	70
Diazinon Total (ug/L)	--
Ethion Total (ug/L)	--
Malathion Total (ug/L)	--
Methyl Parathion Total (ug/L)	--
Parathion Total (ug/L)	--
Trithion Total (ug/L)	--
Di-syston Total (ug/L)	--
Phorate Total (ug/L)	--
Chlorpyrifos Total (ug/L)	--
DEF Total (ug/L)	--
Fonofos (Dy-fonate), WWT (ug/L)	--
Aldrin Total (ug/L)	<1.0
BHC - ALPHA (ug/L)	<1.0
BHC - Gamma (Lindane) (ug/L)	<1.0
BHC - DELTA (ug/L)	<1.0
Aroclor 1016, PCB, Total (ug/L)	<1.0
Aroclor 1221, PCB, Total (ug/L)	<10
Aroclor 1232, PCB, Total (ug/L)	<1.0
Aroclor 1242, PCB, Total (ug/L)	<1.0
Aroclor 1248, PCB, Total (ug/L)	<1.0
Aroclor 1254, PCB, Total (ug/L)	<1.0
Aroclor 1260, PCB, Total (ug/L)	<1.0
Chlorodane Total (ug/L)	<1.0
P, P' DDD Total (ug/L)	<1.0
P, P' DDE Total (ug/L)	<1.0
P, P' DDT Total (ug/L)	<2.0
Dieldrin Total (ug/L)	<1.0

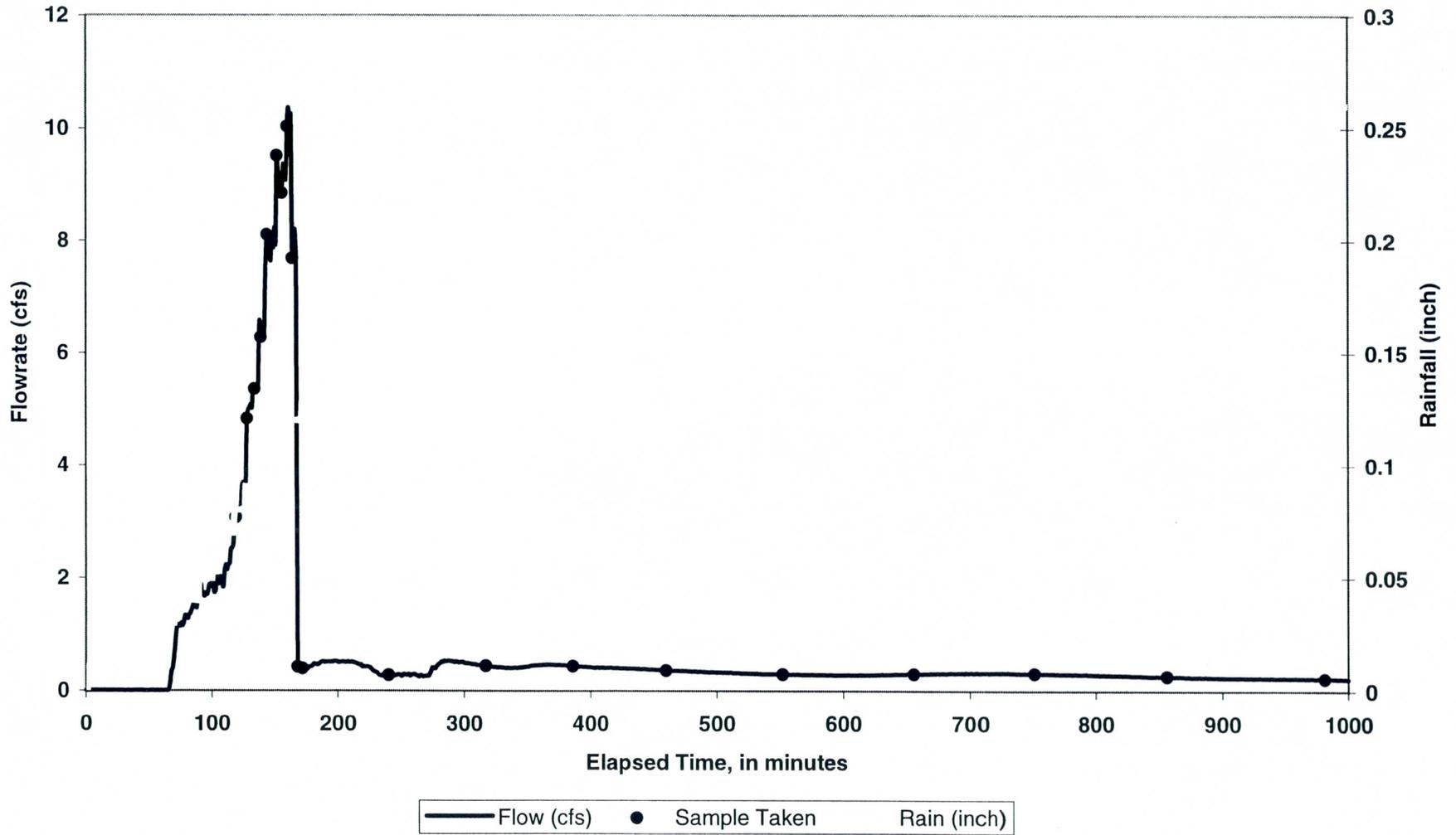
Endo-Sulfan Alpha Total (ug/L)	<1.0
Endo-Sulfan Beta Total (ug/L)	<1.0
Endo-Sulfan Sulfate Total (ug/L)	<1.0
Endrin Aldehyde Total (ug/L)	<1.0
Endrin Total (ug/L)	<1.0
Heptachlor Total (ug/L)	<1.0
Heptachlor Epoxide Total (ug/L)	<1.0
Toxaphene Total (ug/L)	<1.0
Methoxychlor Total (ug/L)	--
Beta Benzene Hexachloride Total (ug/L)	<1.0
1,1,2,2-Tetrachloroethane Total (ug/L)	<8
1,1,1,2-Tetrachloroethane Total (ug/L)	--
Tetrachloroethane PCE Total (ug/L)	<8
1,1,1-Trichloroethane Total (ug/L)	<8
1,1,2-Trichloroethane Total (ug/L)	<8
Trichloroethane Total (ug/L)	<8
1,1-Dichloroethane Total (ug/L)	<8
1,1-Dichloroethene Total (ug/L)	<8
1,2-Dichloroethane Total (ug/L)	<8
1,2-Dichloropropane Total (ug/L)	<8
2-Chloroethylvinyl Ether Total (ug/L)	<8
cis-1,3-Dichloropropane (ug/L)	<8
trans-1,2-Dichloroethene (ug/L)	<8
trans-1,3-Dichloropropene (ug/L)	<8
Benzene Total (ug/L)	<8
Bromodichloromethane Total (ug/L)	<8
Bromoform Total (ug/L)	<8
Carbon Tetrachloride Total (ug/L)	<8
Chlorobenzene Total (ug/L)	<8
Chloroethane (ug/L)	<20
Chloroform Total (ug/L)	<8
Ethyl-Benzene Total (ug/L)	<8
Methylene Chloride Total (ug/L)	<8
Toluene Total (ug/L)	<8
Trichlorofluoromethane Total (ug/L)	<20
Vinyl Chloride Total (ug/L)	<20
Chlorodibromomethane Total (ug/L)	<8
4-Methyl, 2-Pentanone, (MIBK), Total (ug/L)	--
Acetone Total (ug/L)	<100
2-Butanone (ug/L)	<40
Carbon Disulfide Total (ug/L)	<40
1,2 Dichloroethene Total (ug/L)	<8
Xylenes Total (ug/L)	<8

2-Hexanone Total (ug/L)	<40
Styrene Total (ug/L)	<8
Acrolein Total (ug/L)	<200
Acrylonitrile Total (ug/L)	<40
Bromobenzene, Water Whole, Total (ug/L)	--
1,3-Dichloropropane, Water Whole, Total (ug/L)	<8
Methyl Bromide Total (ug/L)	<20
Methyl Chloride Total (ug/L)	<20
Parachloro Toluene Total (ug/L)	--
Dibromoethane Total (ug/L)	--
Acenaphthene Total (ug/L)	<10
Acenaphthylene Total (ug/L)	<10
Anthracene Total (ug/L)	<10
Benzidine Total (ug/L)	<50
Benzoic Acid Total (ug/L)	<10
Benzo (a) Anthracene Total (ug/L)	<10
Benzo (b) Fluoranthene Total (ug/L)	<10
Benzo (k) Fluoranthene Total (ug/L)	<10
Benzo (ghi) Perylene Total (ug/L)	<10
Benzo (a) Pyrene Total (ug/L)	<10
Benzyl Alcohol Total (ug/L)	<10
Bis-(2-Chloroethoxy)-Methane Total (ug/L)	<10
Bis-(2-Chloroethyl)-Ether Total (ug/L)	<10
Bis-(2-Chloroisopropyl)-Ether Total (ug/L)	<10
Bis(2-Ethyl Hexyl) Phthalate Total (ug/L)	<10
4-Bromo-Phenyl Phenyl Ether Total (ug/L)	<10
Butyl Benzyl Phthalate Total (ug/L)	<10
2-Chloronaphthalene Total (ug/L)	<10
2-Chlorophenol Total (ug/L)	<10
4-Chloro-Phenyl Phenyl Ether Total (ug/L)	<10
Chrysene Total (ug/L)	<10
Dibenzo-[a,h]-Anthracene Total (ug/L)	<10
Di-N-Butyl Phthalate Total (ug/L)	<10
1,3-Dichlorobenzene Total (ug/L)	<10
1,4-Dichlorobenzene Total (ug/L)	<10
1,2-Dichlorobenzene Total (ug/L)	<10
3,3'-Dichlorobenzidine Total (ug/L)	<10
2,4-Dichlorophenol Total (ug/L)	<10
Diethyl Phthalate Total (ug/L)	<10
2-Methyl-4,6-Dinitrophenol Total (ug/L)	<10
2,4-Dinitrophenol Total (ug/L)	<10
2,4-Dinitrotoluene Total (ug/L)	<10
2,6-Dinitrotoluene Total (ug/L)	<10

Di-N-Octyl-Phthalate Total (ug/L)	<10
Fluoranthene Total (ug/L)	<10
Fluorene Total (ug/L)	<10
Hexachlorobenzene Total (ug/L)	<10
Hexachlorobutadiene Total (ug/L)	<10
Hexachlorocyclopentadiene Total (ug/L)	<10
Hexachloroethane Total (ug/L)	<10
Indeno (1,2,3-CD) Pyrene Total (ug/L)	<10
Isophorone Total (ug/L)	<10
Naphthalene Total (ug/L)	<10
Nitrobenzene Total (ug/L)	<10
2-Nitrophenol Total (ug/L)	<10
4-Nitrophenol Total (ug/L)	<10
N-Nitrosodiphenylamine Total (ug/L)	<10
N-Nitrosodi-N-Propylamine Total (ug/L)	<10
Pentachlorophenol Total (ug/L)	<10
Phenanthrene Total (ug/L)	<10
Phenol Total (ug/L)	<10
Pyrene Total (ug/L)	<10
1,2,4-Trichlorobenzene Total (ug/L)	<10
2,4,5-Trichlorophenol Total (ug/L)	<10
2,4,6-Trichlorophenol Total (ug/L)	<10
N-Nitrosodimethylamine Total (ug/L)	<10
1,2-Diphenylhydrazine Total (ug/L)	<10
Dichlorodifluoromethane Total (ug/L)	--
Parachloro-Meta-Cresol Total (ug/L)	--

Glendale ARROW

04 February 1999



ARROW Station	
Date of Sampling	09/19/99
Time	1930
Representative Storm Event	Y
Agency Collecting Sample	FCD
Agency Analyzing Sample	BOLIN
Drainage Area (acres) (DA)	180
Impervious Area (arcres) (IA)	0
Land Use - Residential	0
Land Use - Commercial	180
Land Use - Industrial	0
Land Use - Undeveloped	0
Sampling Duration (minutes) (DRN)	110
Storm Duration (minutes)	254
Runoff Sampled (cubic feet) (RUN)	113,400
Total Storm Runoff (cubic feet)	265,700
Instantaneous Discharge (cfs)	62.4
Preceding Dry Period (days) (ANT)	3
Total Storm Rainfall (inch)	0.67
Rainfall Sampled (inch) (TRN)	0.41
Maximum 5-minute rain intensity (MAX5)	0.96
Sample Temperature (deg. C)	0
Effluent Temperature (deg. C)	NM
Ambient Temperature (deg. C)	NM
Barometric Pressure (mm Hg)	NM
pH, Effluent (standard units)	NM
pH, Lab (standard units)	NM
Specific Conductance, FIELD (us/cm)	NM
Specific Conductance, LAB (us/cm)	NA
Oxygen Dissolved (% saturation)	NM
Oxygen Dissolved (mg/L)	NM
Electrical Conductivity (umhos/cm)	NA
BOD5 (mg/L)	NA
COD High Level (mg/L)	98
Chloride (mg/L as Cl)	<5.0
Cyanide Total (mg/L as Cn)	<0.01
Fecal Coliform (MPN/100mL)	NA
Fecal Streptococci (MPN/100mL)	NA
Solids Residue at 180 Deg. C (TDS) (mg/L)	48
Residue, Total at 105 Deg. C (TSS) (mg/L)	106
Nitrogen No2 + No3, Total (mg/L as N)	0.4
TKN Nitrogen (mg/L as N)	3.63
Nitrogen, Ammonia + Organic, Total (mg/L as N)	3.63
Nitrogen Nitrate Total (mg/L as N)	0.4
Nitrogen Nitrite Total (mg/L as N)	<0.1

Nitrogen Ammonia Total (mg/L as N)	2.29
Nitrogen Organic Total (mg/L as N)	1.34
Phosphorous Total (mg/L as P)	0.5
Phosphorous Dissolved (mg/L as P)	0.13
Phosphorous Ortho (mg/L as P)	0.38
Sulfate Dissolved (mg/L)	11.4
Hexavalent Chromium Total (mg/L)	NA
Phenols Total Recoverable (ug/L)	6.2
Oil and Grease Total Recoverable (mg/L)	NA
Organic Carbon, Total (mg/L)	14.2
Bicarbonate Whole Field (mg/L as HCo3)	NA
Carbonate Water Field (mg/L as Co3)	NA
Carbonate Water Dissolved, Field (mg/L as Co3)	NA
Alkalinity Water Field Total (mg/L as CaCo3)	NA
Alkalinity Dissolved Water Field Total (mg/L as CaCo3)	NA
Alkalinity LAB (mg/L as CaCo3)	22
Silica Dissolved (mg/L as SiO2)	NA
Hardness (mg/L)	35
Antimony (ug/L as Sb)	<4
Antimony Dissolved (ug/L as Sb)	<4
Arsenic Total (ug/L as As)	<5
Arsenic Dissolved (ug/L as As)	<5
Barium Dissolved (ug/L as Ba)	NA
Beryllium Total Recoverable (ug/L as Be)	<2
Beryllium Dissolved (ug/L as Be)	<2
Cadmium Total Recoverable (ug/L as Cd)	0.3
Cadmium Dissolved (ug/L as Cd)	<5
Calcium Dissolved (mg/L as Ca)	11
Chromium Total Recoverable (ug/L as Cr)	1.66
Chromium Dissolved (ug/L as Cr)	9.3
Cobalt Dissolved (ug/L as Co)	NA
Copper Total Recoverable (ug/L as Cu)	17
Copper Dissolved (ug/L as Cu)	<15
Iron Dissolved (ug/L as Fe)	NA
Lead Total Recoverable (ug/L as Pb)	10
Lead Dissolved (ug/L as Pb)	<5
Lithium Dissolved (ug/L as Li)	NA
Magnesium Dissolved (mg/L as Mg)	2
Manganese Dissolved (ug/L as Mn)	NA
Mercury Total Recoverable (ug/L as Hg)	0.7
Mercury Dissolved (ug/L as Hg)	<0.2
Molybdenum Dissolved (ug/L as Mo)	NA
Nickel Total Recoverable (ug/L as Ni)	4
Nickel Dissolved (ug/L as Ni)	10
Potassium Dissolved (mg/L as K)	NA
Selenium Total (ug/L as Se)	<5

Selenium Dissolved (ug/L as Se)	<5
Silver Total Recoverable (ug/L as Ag)	<40
Silver Dissolved (ug/L as Ag)	<50
Sodium Dissolved (mg/L as Na)	NA
Strontium Dissolved (ug/L as Sr)	NA
Thallium Total (ug/L as Tl)	<1
Thallium Dissolved (ug/L as Tl)	<1
Vanadium Dissolved (ug/L as V)	NA
Zinc Total Recoverable (ug/L as Zn)	210
Zinc Dissolved (ug/L as Zn)	60
Diazinon Total (ug/L)	NA
Ethion Total (ug/L)	NA
Malathion Total (ug/L)	NA
Methyl Parathion Total (ug/L)	NA
Parathion Total (ug/L)	NA
Trithion Total (ug/L)	NA
Di-syston Total (ug/L)	NA
Phorate Total (ug/L)	NA
Chlorpyrifos Total (ug/L)	NA
DEF Total (ug/L)	NA
Fonofos (Dy-fonate), WWT (ug/L)	NA
Aldrin Total (ug/L)	<1.0
BHC - ALPHA (ug/L)	<1.0
BHC - Gamma (Lindane) (ug/L)	<1.0
BHC - DELTA (ug/L)	<1.0
Aroclor 1016, PCB, Total (ug/L)	<1.0
Aroclor 1221, PCB, Total (ug/L)	<10
Aroclor 1232, PCB, Total (ug/L)	<1.0
Aroclor 1242, PCB, Total (ug/L)	<1.0
Aroclor 1248, PCB, Total (ug/L)	<1.0
Aroclor 1254, PCB, Total (ug/L)	<1.0
Aroclor 1260, PCB, Total (ug/L)	<1.0
Chlorodane Total (ug/L)	<1.0
P, P' DDD Total (ug/L)	<1.0
P, P' DDE Total (ug/L)	<1.0
P, P' DDT Total (ug/L)	<1.0
Dieldrin Total (ug/L)	<1.0
Endo-Sulfan Alpha Total (ug/L)	<1.0
Endo-Sulfan Beta Total (ug/L)	<1.0
Endo-Sulfan Sulfate Total (ug/L)	<1.0
Endrin Aldehyde Total (ug/L)	<1.0
Endrin Total (ug/L)	<1.0
Heptachlor Total (ug/L)	<1.0
Heptachlor Epoxide Total (ug/L)	<1.0
Toxaphene Total (ug/L)	<1.0
Methoxychlor Total (ug/L)	NA

Beta Benzene Hexachloride Total (ug/L)	<1.0
1,1,2,2-Tetrachloroethane Total (ug/L)	NA
1,1,1,2-Tetrachloroethane Total (ug/L)	NA
Tetrachloroethane PCE Total (ug/L)	NA
1,1,1-Trichloroethane Total (ug/L)	NA
1,1,2-Trichloroethane Total (ug/L)	NA
Trichloroethane Total (ug/L)	NA
1,1-Dichloroethane Total (ug/L)	NA
1,1-Dichloroethene Total (ug/L)	NA
1,2-Dichloroethane Total (ug/L)	NA
1,2-Dichloropropane Total (ug/L)	NA
2-Chloroethylvinyl Ether Total (ug/L)	NA
cis-1,3-Dichloropropane (ug/L)	NA
trans-1,2-Dichloroethene (ug/L)	NA
trans-1,3-Dichloropropene (ug/L)	NA
Benzene Total (ug/L)	NA
Bromodichloromethane Total (ug/L)	NA
Bromoform Total (ug/L)	NA
Carbon Tetrachloride Total (ug/L)	NA
Chlorobenzene Total (ug/L)	NA
Chloroethane (ug/L)	NA
Chloroform Total (ug/L)	NA
Ethyl-Benzene Total (ug/L)	NA
Methylene Chloride Total (ug/L)	NA
Toluene Total (ug/L)	NA
Trichlorofluoromethane Total (ug/L)	NA
Vinyl Chloride Total (ug/L)	NA
Chlorodibromomethane Total (ug/L)	NA
4-Methyl, 2-Pentanone, (MIBK), Total (ug/L)	NA
Acetone Total (ug/L)	NA
2-Butanone (ug/L)	NA
Carbon Disulfide Total (ug/L)	NA
1,2 Dichloroethene Total (ug/L)	NA
Xylenes Total (ug/L)	NA
m,p-Xylenes (ug/L)	NA
o-Xylene (ug/L)	NA
2-Hexanone Total (ug/L)	NA
Styrene Total (ug/L)	NA
Acrolein Total (ug/L)	NA
Acrylonitrile Total (ug/L)	NA
Bromobenzene, Water Whole, Total (ug/L)	NA
1,3-Dichloropropane, Water Whole, Total (ug/L)	NA
Methyl Bromide Total (ug/L)	NA
Methyl Chloride Total (ug/L)	NA
Parachloro Toluene Total (ug/L)	NA
Dibromoethane Total (ug/L)	NA

Bromomethane Total (ug/L0	NA
Chloromethane (ug/L)	NA
Dibromochloromethane (ug/L)	NA
Dichlorodifluoromethane Total (ug/L)	NA
Dichloromethane (ug/L0	NA
Total Trihalomethanes (ug/L)	NA
Acenaphthene Total (ug/L)	<5.0
Acenaphthylene Total (ug/L)	<5.0
Anthracene Total (ug/L)	<5.0
Benzidine Total (ug/L)	<50
Benzoic Acid Total (ug/L)	<5.0
Benzo (a) Anthracene Total (ug/L)	<5.0
Benzo (b) Fluoranthene Total (ug/L)	<5.0
Benzo (k) Fluoranthene Total (ug/L)	<5.0
Benzo (ghi) Perylene Total (ug/L)	<5.0
Benzo (a) Pyrene Total (ug/L)	<5.0
Benzyl Alcohol Total (ug/L)	<5.0
Bis-(2-Chloroethoxy)-Methane Total (ug/L)	<5.0
Bis-(2-Chloroethyl)-Ether Total (ug/L)	<5.0
Bis-(2-Chloroisopropyl)-Ether Total (ug/L)	<5.0
Bis(2-Ethyl Hexyl) Phthalate Total (ug/L)	15
4-Bromo-Phenyl Phenyl Ether Total (ug/L)	<5.0
Butyl Benzyl Phthalate Total (ug/L)	<5.0
2-Chloronaphthalene Total (ug/L)	<5.0
2-Chloropohnol Total (ug/L)	<5.0
4-Chloro-Phenyl Phenyl Ether Total (ug/L)	<5.0
Chrysene Total (ug/L)	<5.0
Dibenzo-[a,h]-Anthracene Total (ug/L)	<5.0
Di-N-Butyl Phthalate Total (ug/L)	<5.0
1,3-Dichlorobenzene Total (ug/L)	<5.0
1,4-Dichlorobenzene Total (ug/L)	<5.0
1,2-Dichlorobenzene Total (ug/L)	<5.0
3,3'-Dichlorobenzidine Total (ug/L)	<5.0
2,4-Dichlorophenol Total (ug/L)	<5.0
Diethyl Phthalate Total (ug/L)	<5.0
2-Methyl-4,6-Dinitrophenol Total (ug/L)	<5.0
2,4-Dinitrophenol Total (ug/L)	<10.0
2,4-Dinitrotoluene Total (ug/L)	<5.0
2,6-Dinitrotoluene Total (ug/L)	<5.0
Di-N-Octyl-Phthalate Total (ug/L)	<5.0
Fluoranthene Total (ug/L)	<5.0
Fluorene Total (ug/L)	<5.0
Hexachlorobenzene Total (ug/L)	<5.0
Hexachlorobutadiene Total (ug/L)	<5.0
Hexachlorocyclopentadiene Total (ug/L)	<5.0
Hexachloroethane Total (ug/L)	<5.0

Indeno (1,2,3-CD) Pyrene Total (ug/L)	<5.0
Isophorone Total (ug/L)	<5.0
Naphthalene Total (ug/L)	<5.0
Nitrobenzene Total (ug/L)	<5.0
2-Nitrophenol Total (ug/L)	<5.0
4-Nitrophenol Total (ug/L)	<5.0
N-Nitrosodiphenylamine Total (ug/L)	<5.0
N-Nitrosodi-N-Propylamine Total (ug/L)	<5.0
Pentachlorophenol Total (ug/L)	<5.0
Phenanthrene Total (ug/L)	<5.0
Phenol Total (ug/L)	<5.0
Pyrene Total (ug/L)	<5.0
1,2,4-Trichlorobenzene Total (ug/L)	<5.0
2,4,5-Trichlorophenol Total (ug/L)	<5.0
2,4,6-Trichlorophenol Total (ug/L)	<5.0
N-Nitrosodimethylamine Total (ug/L)	<5.0
1,2-Diphenylhydrazine Total (ug/L)	<5.0
Parachloro-Meta-Cresol Total (ug/L)	NA
Aniline (ug/L)	<5.0
4-Chloroaniline (ug/L)	<5.0
2-Nitroaniline (ug/L)	<5.0
3-Nitroaniline (ug/L)	<5.0
4-Nitroaniline (ug/L)	<5.0
2-Methylphenol (ug/L)	<5.0
4-Methylphenol (p-Cresol) (ug/L)	<5.0
4-Chloro-3-methylphenol (ug/L)	<5.0
2-Methylnaphthalene (ug/L)	<5.0
2,3,7,8-TCDD (ug/L)	<10
Dibenzofuran (ug/L)	<5.0

Glendale ARROW
19 September 1999

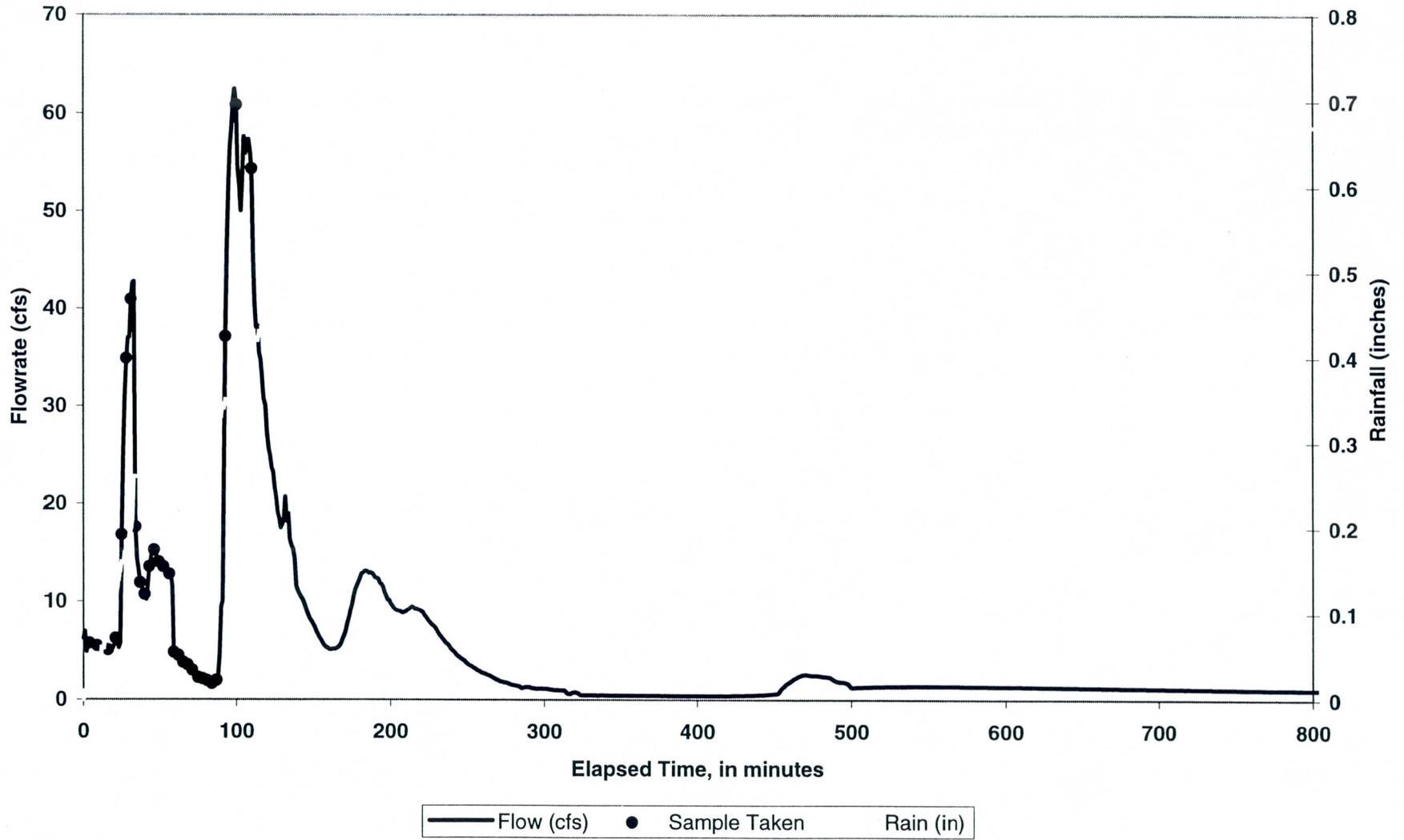


Table 3-3

BUTLER Station

Date of Sampling	02/04/99
Time	1733
Representative Storm Event	Y
Agency Collecting Sample	FCD
Agency Analyzing Sample	BOLIN
Drainage Area (acres) (DA)	30
Impervious Area (acres) (IA)	--
Land Use - Residential	30
Land Use - Commercial	0
Land Use - Industrial	0
Land Use - Undeveloped	0
Sampling Duration (minutes) (DRN)	203
Storm Duration (minutes)	373
Runoff Sampled (cubic feet) (RUN)	18,000
Total Storm Runoff (cubic feet)	27,500
Instantaneous Discharge (cfs)	3.8
Preceding Dry Period (days) (ANT)	49
Total Storm Rainfall (inch)	0.37
Rainfall Sampled (inch) (TRN)	0.36
Maximum 5-minute rain intensity (MAX5)	0.24
Sample Temperature (deg. C)	4
Effluent Temperature (deg. C)	12.5
Ambient Temperature (deg. C)	NM
Barometric Pressure (mm Hg)	NM
pH, Effluent (standard units)	9.2
pH, Lab (standard units)	--
Specific Conductance, FIELD (us/cm)	--
Specific Conductance, LAB (us/cm)	--
Oxygen Dissolved (% saturation)	--
Oxygen Dissolved (mg/L)	--
Electrical Conductivity (umhos/cm)	--
BOD5 (mg/L)	27
COD High Level (mg/L)	87
Chloride (mg/L as Cl)	7
Cyanide Total (mg/L as Cn)	<0.01
Fecal Coliform (MPN/100mL)	17,000
Fecal Streptococci (MPN/100mL)	2,400
Solids Residue at 180 Deg. C (TDS) (mg/L)	100
Residue, Total at 105 Deg. C (TSS) (mg/L)	34
Nitrogen No2 + No3, Total (mg/L as N)	0.85
TKN Nitrogen (mg/L as N)	4.47
Nitrogen, Ammonia + Organic, Total (mg/L as N)	4.47

Nitrogen Nitrate Total (mg/L as N)	0.85
Nitrogen Nitrite Total (mg/L as N)	<0.01
Nitrogen Ammonia Total (mg/L as N)	1.47
Nitrogen Organic Total (mg/L as N)	3
Phosphorous Total (mg/L as P)	0.46
Phosphorous Dissolved (mg/L as P)	0.12
Phosphorous Ortho (mg/L as P)	0.23
Sulfate Dissolved (mg/L)	7
Hexavalent Chromium Total (mg/L)	--
Phenols Total Recoverable (ug/L)	18
Oil and Grease Total Recoverable (mg/L)	11
Organic Carbon, Total (mg/L)	18.1
Bicarbonate Whole Field (mg/L as HCo3)	--
Carbonate Water Field (mg/L as Co3)	--
Carbonate Water Dissolved, Field (mg/L as Co3)	--
Alkalinity Water Field Total (mg/L as CaCo3)	--
Alkalinity Dissolved Water Field Total (mg/L as CaCo3)	--
Alkalinity LAB (mg/L as CaCo3)	46
Silica Dissolved (mg/L as SiO2)	--
Hardness (mg/L)	44
Antimony (ug/L as Sb)	<5
Antimony Dissolved (ug/L as Sb)	<4
Arsenic Total (ug/L as As)	<5
Arsenic Dissolved (ug/L as As)	8
Barium Dissolved (ug/L as Ba)	--
Beryllium Total Recoverable (ug/L as Be)	<2
Beryllium Dissolved (ug/L as Be)	<2
Cadmium Total Recoverable (ug/L as Cd)	0.4
Cadmium Dissolved (ug/L as Cd)	0.4
Calcium Dissolved (mg/L as Ca)	--
Chromium Total Recoverable (ug/L as Cr)	4.1
Chromium Dissolved (ug/L as Cr)	3.8
Cobalt Dissolved (ug/L as Co)	--
Copper Total Recoverable (ug/L as Cu)	<15
Copper Dissolved (ug/L as Cu)	16
Iron Dissolved (ug/L as Fe)	--
Lead Total Recoverable (ug/L as Pb)	8
Lead Dissolved (ug/L as Pb)	<5
Lithium Dissolved (ug/L as Li)	--
Magnesium Dissolved (mg/L as Mg)	--
Manganese Dissolved (ug/L as Mn)	--
Mercury Total Recoverable (ug/L as Hg)	<0.2
Mercury Dissolved (ug/L as Hg)	<0.2
Molybdenum Dissolved (ug/L as Mo)	--
Nickel Total Recoverable (ug/L as Ni)	6.8
Nickel Dissolved (ug/L as Ni)	4.5

Potassium Dissolved (mg/L as K)	--
Selenium Total (ug/L as Se)	<5
Selenium Dissolved (ug/L as Se)	<5
Silver Total Recoverable (ug/L as Ag)	<40
Silver Dissolved (ug/L as Ag)	<50
Sodium Dissolved (mg/L as Na)	--
Strontium Dissolved (ug/L as Sr)	--
Thallium Total (ug/L as Tl)	<1
Thallium Dissolved (ug/L as Tl)	<1
Vanadium Dissolved (ug/L as V)	--
Zinc Total Recoverable (ug/L as Zn)	290
Zinc Dissolved (ug/L as Zn)	30
Diazinon Total (ug/L)	--
Ethion Total (ug/L)	--
Malathion Total (ug/L)	--
Methyl Parathion Total (ug/L)	--
Parathion Total (ug/L)	--
Trithion Total (ug/L)	--
Di-syston Total (ug/L)	--
Phorate Total (ug/L)	--
Chlorpyrifos Total (ug/L)	--
DEF Total (ug/L)	--
Fonofos (Dy-fonate), WWT (ug/L)	--
Aldrin Total (ug/L)	<1.0
BHC - ALPHA (ug/L)	<1.0
BHC - Gamma (Lindande) (ug/L)	<1.0
BHC - DELTA (ug/L)	<1.0
Aroclor 1016, PCB, Total (ug/L)	<1.0
Aroclor 1221, PCB, Total (ug/L)	<10
Aroclor 1232, PCB, Total (ug/L)	<1.0
Aroclor 1242, PCB, Total (ug/L)	<1.0
Aroclor 1248, PCB, Total (ug/L)	<1.0
Aroclor 1254, PCB, Total (ug/L)	<1.0
Aroclor 1260, PCB, Total (ug/L)	<1.0
Chlorodane Total (ug/L)	<1.0
P, P' DDD Total (ug/L)	<1.0
P, P' DDE Total (ug/L)	<1.0
P, P' DDT Total (ug/L)	<2.0
Dieldrin Total (ug/L)	<1.0
Endo-Sulfan Alpha Total (ug/L)	<1.0
Endo-Sulfan Beta Total (ug/L)	<1.0
Endo-Sulfan Sulfate Total (ug/L)	<1.0
Endrin Aldehyde Total (ug/L)	<1.0
Endrin Total (ug/L)	<1.0
Heptachlor Total (ug/L)	<1.0
Heptachlor Epoxide Total (ug/L)	<1.0

Toxaphene Total (ug/L)	<1.0
Methoxychlor Total (ug/L)	--
Beta Benzene Hexachloride Total (ug/L)	<1.0
1,1,2,2-Tetrachloroethane Total (ug/L)	<8
1,1,1,2-Tetrachloroethane Total (ug/L)	--
Tetrachloroethane PCE Total (ug/L)	<8
1,1,1-Trichloroethane Total (ug/L)	<8
1,1,2-Trichloroethane Total (ug/L)	<8
Trichloroethane Total (ug/L)	<8
1,1-Dichloroethane Total (ug/L)	<8
1,1-Dichloroethene Total (ug/L)	<8
1,2-Dichloroethane Total (ug/L)	<8
1,2-Dichloropropane Total (ug/L)	<8
2-Chloroethylvinyl Ether Total (ug/L)	<8
cis-1,3-Dichloropropane (ug/L)	<8
trans-1,2-Dichloroethene (ug/L)	<8
trans-1,3-Dichloropropene (ug/L)	<8
Benzene Total (ug/L)	<8
Bromodichloromethane Total (ug/L)	<8
Bromoform Total (ug/L)	<8
Carbon Tetrachloride Total (ug/L)	<8
Chlorobenzene Total (ug/L)	<8
Chloroethane (ug/L)	<20
Chloroform Total (ug/L)	<8
Ethyl-Benzene Total (ug/L)	<8
Methylene Chloride Total (ug/L)	<8
Toluene Total (ug/L)	<8
Trichlorofluoromethane Total (ug/L)	<20
Vinyl Chloride Total (ug/L)	<20
Chlorodibromomethane Total (ug/L)	<8
4-Methyl, 2-Pentanone, (MIBK), Total (ug/L)	--
Acetone Total (ug/L)	<100
2-Butanone (ug/L)	<40
Carbon Disulfide Total (ug/L)	<40
1,2 Dichloroethene Total (ug/L)	<8
Xylenes Total (ug/L)	<8
2-Hexanone Total (ug/L)	<40
Styrene Total (ug/L)	<8
Acrolein Total (ug/L)	<200
Acrylonitrile Total (ug/L)	<40
Bromobenzene, Water Whole, Total (ug/L)	--
1,3-Dichloropropane, Water Whole, Total (ug/L)	<8
Methyl Bromide Total (ug/L)	<20
Methyl Chloride Total (ug/L)	<20
Parachloro Toluene Total (ug/L)	--
Dibromoethane Total (ug/L)	--

Acenaphthene Total (ug/L)	<5
Acenaphthylene Total (ug/L)	<5
Anthracene Total (ug/L)	<5
Benzidine Total (ug/L)	<5
Benzoic Acid Total (ug/L)	9.1
Benzo (a) Anthracene Total (ug/L)	<5
Benzo (b) Fluoranthene Total (ug/L)	<5
Benzo (k) Fluoranthene Total (ug/L)	<5
Benzo (ghi) Perylene Total (ug/L)	<5
Benzo (a) Pyrene Total (ug/L)	<5
Benzyl Alcohol Total (ug/L)	<5
Bis-(2-Chloroethoxy)-Methane Total (ug/L)	<5
Bis-(2-Chloroethyl)-Ether Total (ug/L)	<5
Bis-(2-Chloroisopropyl)-Ether Total (ug/L)	<5
Bis(2-Ethyl Hexyl) Phthalate Total (ug/L)	9.4
4-Bromo-Phenyl Phenyl Ether Total (ug/L)	<5
Butyl Benzyl Phthalate Total (ug/L)	<5
2-Chloronaphthalene Total (ug/L)	<5
2-Chlorophehnol Total (ug/L)	<5
4-Chloro-Phenyl Phenyl Ether Total (ug/L)	<5
Chrysene Total (ug/L)	<5
Dibenzo-[a,h]-Anthracene Total (ug/L)	<5
Di-N-Butyl Phthalate Total (ug/L)	<5
1,3-Dichlorobenzene Total (ug/L)	<5
1,4-Dichlorobenzene Total (ug/L)	<5
1,2-Dichlorobenzene Total (ug/L)	<5
3,3'-Dichlorobenzidine Total (ug/L)	<5
2,4-Dichlorophenol Total (ug/L)	<5
Diethyl Phthalate Total (ug/L)	<5
2-Methyl-4,6-Dinitrophenol Total (ug/L)	<5
2,4-Dinitrophenol Total (ug/L)	<5
2,4-Dinitrotoluene Total (ug/L)	<5
2,6-Dinitrotoluene Total (ug/L)	<5
Di-N-Octyl-Phthalate Total (ug/L)	<5
Fluoranthene Total (ug/L)	<5
Fluorene Total (ug/L)	<5
Hexachlorobenzene Total (ug/L)	<5
Hexachlorobutadiene Total (ug/L)	<5
Hexachlorocyclopentadiene Total (ug/L)	<5
Hexachloroethane Total (ug/L)	<5
Indeno (1,2,3-CD) Pyrene Total (ug/L)	<5
Isophorone Total (ug/L)	<5
Naphthalene Total (ug/L)	<5
Nitrobenzene Total (ug/L)	<5
2-Nitrophenol Total (ug/L)	<5
4-Nitrophenol Total (ug/L)	<5

N-Nitrosodiphenylamine Total (ug/L)	<5
N-Nitrosodi-N-Propylamine Total (ug/L)	<5
Pentachlorophenol Total (ug/L)	<5
Phenanthrene Total (ug/L)	<5
Phenol Total (ug/L)	<5
Pyrene Total (ug/L)	<5
1,2,4-Trichlorobenzene Total (ug/L)	<5
2,4,5-Trichlorophenol Total (ug/L)	<5
2,4,6-Trichlorophenol Total (ug/L)	<5
N-Nitrosodimethylamine Total (ug/L)	<5
1,2-Diphenylhydrazine Total (ug/L)	<5
Dichlorodifluoromethane Total (ug/L)	--
Parachloro-Meta-Cresol Total (ug/L)	--

Glendale BUTLER

04 February 1999

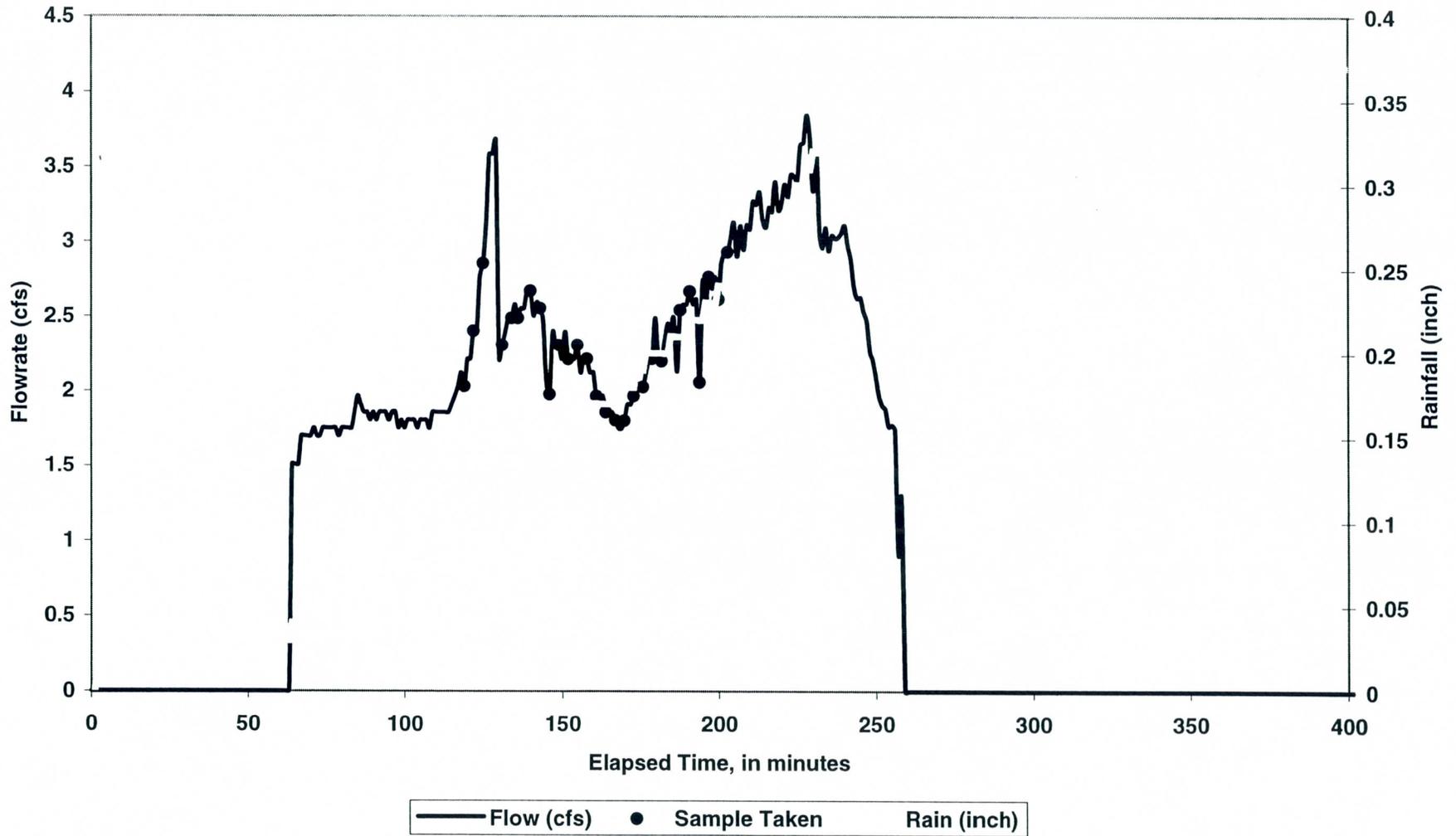


Table 3-4
CITRUS Station

Date of Sampling	09/19/99
Time	1900
Representative Storm Event	Y
Agency Collecting Sample	FCD
Agency Analyzing Sample	BOLIN
Drainage Area (acres) (DA)	60
Impervious Area (arcres) (IA)	UA
Land Use - Residential	UA
Land Use - Commercial	UA
Land Use - Industrial	UA
Land Use - Undeveloped	UA
Sampling Duration (minutes) (DRN)	913
Storm Duration (minutes)	286
Runoff Sampled (cubic feet) (RUN)	16,500
Total Storm Runoff (cubic feet)	17,000
Instantaneous Discharge (cfs)	0.95
Preceding Dry Period (days) (ANT)	3
Total Storm Rainfall (inch)	0.63
Rainfall Sampled (inch) (TRN)	0.63
Maximum 5-minute rain intensity (MAX5)	0.72
Sample Temperature (deg. C)	0
Effluent Temperature (deg. C)	NM
Ambient Temperature (deg. C)	NM
Barometric Pressure (mm Hg)	NM
pH, Effluent (standard units)	NM
pH, Lab (standard units)	NA
Specific Conductance, FIELD (us/cm)	NM
Specific Conductance, LAB (us/cm)	NA
Oxygen Dissolved (% saturation)	NM
Oxygen Dissolved (mg/L)	NA
Electrical Conductivity (umhos/cm)	NA
BOD5 (mg/L)	NA
COD High Level (mg/L)	65
Chloride (mg/L as Cl)	<5.0
Cyanide Total (mg/L as Cn)	<0.01
Fecal Coliform (MPN/100mL)	NA
Fecal Streptococci (MPN/100mL)	NA
Solids Residue at 180 Deg. C (TDS) (mg/L)	97
Residue, Total at 105 Deg. C (TSS) (mg/L)	83
Nitrogen No2 + No3, Total (mg/L as N)	1.3
TKN Nitrogen (mg/L as N)	2.84
Nitrogen, Ammonia + Organic, Total (mg/L as N)	2.84

Nitrogen Nitrate Total (mg/L as N)	102
Nitrogen Nitrite Total (mg/L as N)	0.1
Nitrogen Ammonia Total (mg/L as N)	1.5
Nitrogen Organic Total (mg/L as N)	1.34
Phosphorous Total (mg/L as P)	0.5
Phosphorous Dissolved (mg/L as P)	0.2
Phosphorous Ortho (mg/L as P)	0.45
Sulfate Dissolved (mg/L)	12.4
Hexavalent Chromium Total (mg/L)	NA
Phenols Total Recoverable (ug/L)	8.1
Oil and Grease Total Recoverable (mg/L)	NA
Organic Carbon, Total (mg/L)	7
Bicarbonate Whole Field (mg/L as HCo3)	NA
Carbonate Water Field (mg/L as Co3)	NA
Carbonate Water Dissolved, Field (mg/L as Co3)	NA
Alkalinity Water Field Total (mg/L as CaCo3)	NA
Alkalinity Dissolved Water Field Total (mg/L as CaCo3)	NA
Alkalinity LAB (mg/L as CaCo3)	52
Silica Dissolved (mg/L as SiO2)	NA
Hardness (mg/L)	63
Antimony (ug/L as Sb)	<4
Antimony Dissolved (ug/L as Sb)	<4
Arsenic Total (ug/L as As)	<5
Arsenic Dissolved (ug/L as As)	<5
Barium Dissolved (ug/L as Ba)	NA
Beryllium Total Recoverable (ug/L as Be)	<2
Beryllium Dissolved (ug/L as Be)	<2
Cadmium Total Recoverable (ug/L as Cd)	<0.2
Cadmium Dissolved (ug/L as Cd)	<5
Calcium Dissolved (mg/L as Ca)	22
Chromium Total Recoverable (ug/L as Cr)	2.8
Chromium Dissolved (ug/L as Cr)	8.4
Cobalt Dissolved (ug/L as Co)	NA
Copper Total Recoverable (ug/L as Cu)	<15
Copper Dissolved (ug/L as Cu)	<15
Iron Dissolved (ug/L as Fe)	NA
Lead Total Recoverable (ug/L as Pb)	10
Lead Dissolved (ug/L as Pb)	<5
Lithium Dissolved (ug/L as Li)	NA
Magnesium Dissolved (mg/L as Mg)	2
Manganese Dissolved (ug/L as Mn)	NA
Mercury Total Recoverable (ug/L as Hg)	<0.2
Mercury Dissolved (ug/L as Hg)	<0.2
Molybdenum Dissolved (ug/L as Mo)	NA
Nickel Total Recoverable (ug/L as Ni)	3
Nickel Dissolved (ug/L as Ni)	11

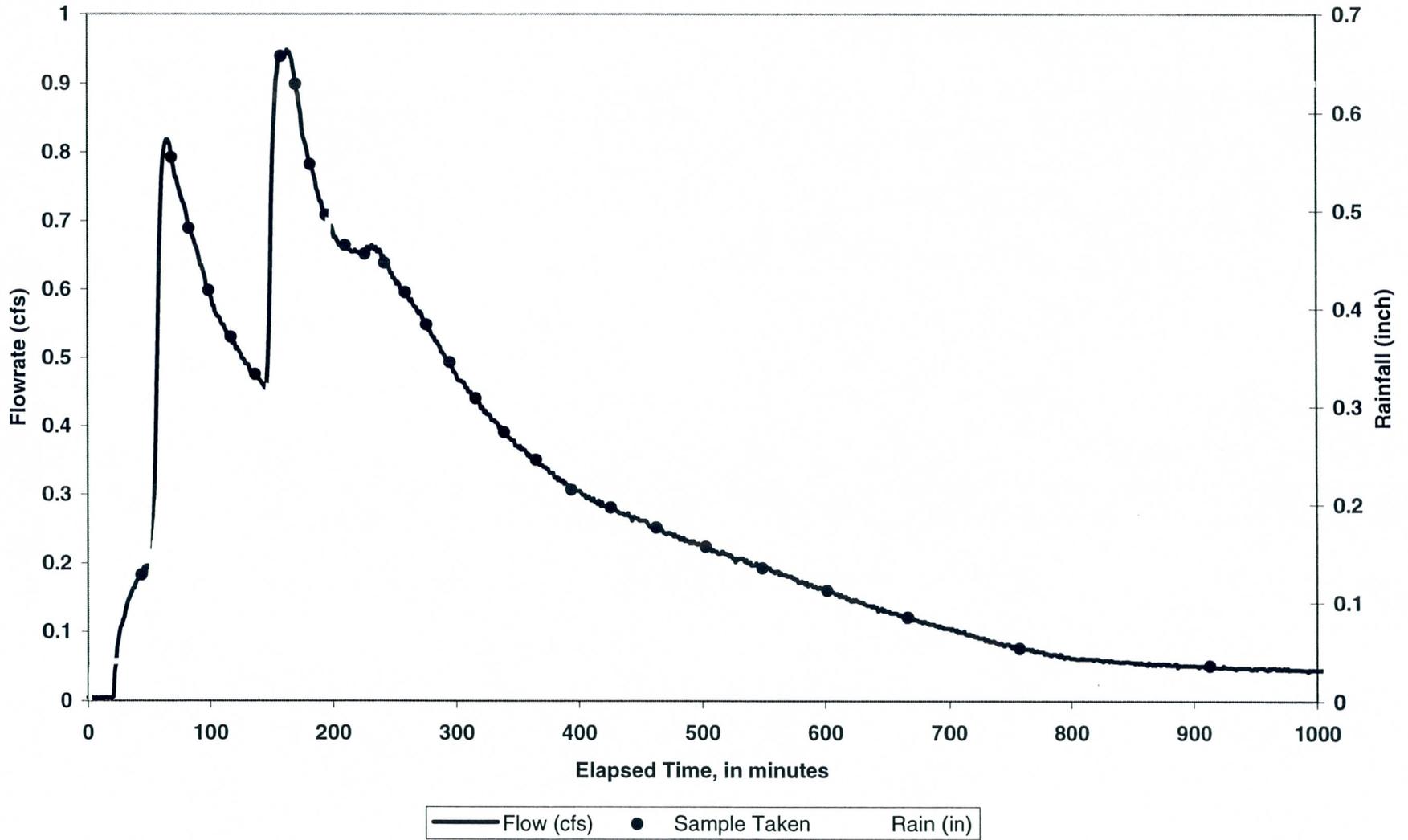
Potassium Dissolved (mg/L as K)	NA
Selenium Total (ug/L as Se)	<5
Selenium Dissolved (ug/L as Se)	<5
Silver Total Recoverable (ug/L as Ag)	<40
Silver Dissolved (ug/L as Ag)	<50
Sodium Dissolved (mg/L as Na)	NA
Strontium Dissolved (ug/L as Sr)	NA
Thallium Total (ug/L as Tl)	<1
Thallium Dissolved (ug/L as Tl)	<1
Vanadium Dissolved (ug/L as V)	NA
Zinc Total Recoverable (ug/L as Zn)	200
Zinc Dissolved (ug/L as Zn)	80
Diazinon Total (ug/L)	NA
Ethion Total (ug/L)	NA
Malathion Total (ug/L)	NA
Methyl Parathion Total (ug/L)	NA
Parathion Total (ug/L)	NA
Trithion Total (ug/L)	NA
Di-syston Total (ug/L)	NA
Phorate Total (ug/L)	NA
Chlorpyrifos Total (ug/L)	NA
DEF Total (ug/L)	NA
Fonofos (Dy-fonate), WWT (ug/L)	NA
Aldrin Total (ug/L)	<1.0
BHC - ALPHA (ug/L)	<1.0
BHC - Gamma (Lindane) (ug/L)	<1.0
BHC - DELTA (ug/L)	<1.0
Aroclor 1016, PCB, Total (ug/L)	<1.0
Aroclor 1221, PCB, Total (ug/L)	<10
Aroclor 1232, PCB, Total (ug/L)	<1.0
Aroclor 1242, PCB, Total (ug/L)	<1.0
Aroclor 1248, PCB, Total (ug/L)	<1.0
Aroclor 1254, PCB, Total (ug/L)	<1.0
Aroclor 1260, PCB, Total (ug/L)	<1.0
Chlorodane Total (ug/L)	<1.0
P, P' DDD Total (ug/L)	<1.0
P, P' DDE Total (ug/L)	<1.0
P, P' DDT Total (ug/L)	<1.0
Dieldrin Total (ug/L)	<1.0
Endo-Sulfan Alpha Total (ug/L)	<1.0
Endo-Sulfan Beta Total (ug/L)	<1.0
Endo-Sulfan Sulfate Total (ug/L)	<1.0
Endrin Aldehyde Total (ug/L)	<1.0
Endrin Total (ug/L)	<1.0
Heptachlor Total (ug/L)	<1.0
Heptachlor Epoxide Total (ug/L)	<1.0

Toxaphene Total (ug/L)	<1.0
Methoxychlor Total (ug/L)	NA
Beta Benzene Hexachloride Total (ug/L)	<1.0
1,1,2,2-Tetrahaloethane Total (ug/L)	NA
1,1,1,2-Tetrahaloethane Total (ug/L)	NA
Tetrahaloethane PCE Total (ug/L)	NA
1,1,1-Trichloroethane Total (ug/L)	NA
1,1,2-Trichloroethane Total (ug/L)	NA
Trichloroethane Total (ug/L)	NA
1,1-Dichloroethane Total (ug/L)	NA
1,1-Dichloroethene Total (ug/L)	NA
1,2-Dichloroethane Total (ug/L)	NA
1,2-Dichloropropane Total (ug/L)	NA
2-Chloroethylvinyl Ether Total (ug/L)	NA
cis-1,3-Dichloropropane (ug/L)	NA
trans-1,2-Dichloroethene (ug/L)	NA
trans-1,3-Dichloropropene (ug/L)	NA
Benzene Total (ug/L)	NA
Bromodichloromethane Total (ug/L)	NA
Bromoform Total (ug/L)	NA
Carbon Tetrachloride Total (ug/L)	NA
Chlorobenzene Total (ug/L)	NA
Chloroethane (ug/L)	NA
Chloroform Total (ug/L)	NA
Ethyl-Benzene Total (ug/L)	NA
Methylene Chloride Total (ug/L)	NA
Toluene Total (ug/L)	NA
Trichlorofluoromethane Total (ug/L)	NA
Vinyl Chloride Total (ug/L)	NA
Chlorodibromomethane Total (ug/L)	NA
4-Methyl, 2-Pentanone, (MIBK), Total (ug/L)	NA
Acetone Total (ug/L)	NA
2-Butanone (ug/L)	NA
Carbon Disulfide Total (ug/L)	NA
1,2 Dichloroethene Total (ug/L)	NA
Xylenes Total (ug/L)	NA
m,p-Xylenes (ug/L)	NA
o-Xylene (ug/L)	NA
2-Hexanone Total (ug/L)	NA
Styrene Total (ug/L)	NA
Acrolein Total (ug/L)	NA
Acrylonitrile Total (ug/L)	NA
Bromobenzene, Water Whole, Total (ug/L)	NA
1,3-Dichloropropane, Water Whole, Total (ug/L)	NA
Methyl Bromide Total (ug/L)	NA
Methyl Chloride Total (ug/L)	NA

Parachloro Toluene Total (ug/L)	NA
Dibromoethane Total (ug/L)	NA
Bromomethane Total (ug/L)	NA
Chloromethane (ug/L)	NA
Dibromochloromethane (ug/L)	NA
Dichlorodifluoromethane Total (ug/L)	NA
Dichloromethane (ug/L)	NA
Total Trihalomethanes (ug/L)	NA
Acenaphthene Total (ug/L)	<5.0
Acenaphthylene Total (ug/L)	<5.0
Anthracene Total (ug/L)	<5.0
Benzidine Total (ug/L)	<50
Benzoic Acid Total (ug/L)	<50
Benzo (a) Anthracene Total (ug/L)	<5.0
Benzo (b) Fluoranthene Total (ug/L)	<5.0
Benzo (k) Fluoranthene Total (ug/L)	<5.0
Benzo (ghi) Perylene Total (ug/L)	<5.0
Benzo (a) Pyrene Total (ug/L)	<5.0
Benzyl Alcohol Total (ug/L)	<5.0
Bis-(2-Chloroethoxy)-Methane Total (ug/L)	<5.0
Bis-(2-Chloroethyl)-Ether Total (ug/L)	<5.0
Bis-(2-Chloroisopropyl)-Ether Total (ug/L)	<5.0
Bis(2-Ethyl Hexyl) Phthalate Total (ug/L)	<5.0
4-Bromo-Phenyl Phenyl Ether Total (ug/L)	<5.0
Butyl Benzyl Phthalate Total (ug/L)	<5.0
2-Chloronaphthalene Total (ug/L)	<5.0
2-Chlorophenol Total (ug/L)	<5.0
4-Chloro-Phenyl Phenyl Ether Total (ug/L)	<5.0
Chrysene Total (ug/L)	<5.0
Dibenzo-[a,h]-Anthracene Total (ug/L)	<5.0
Di-N-Butyl Phthalate Total (ug/L)	<5.0
1,3-Dichlorobenzene Total (ug/L)	<5.0
1,4-Dichlorobenzene Total (ug/L)	<5.0
1,2-Dichlorobenzene Total (ug/L)	<5.0
3,3'-Dichlorobenzidine Total (ug/L)	<5.0
2,4-Dichlorophenol Total (ug/L)	<5.0
Diethyl Phthalate Total (ug/L)	<5.0
2-Methyl-4,6-Dinitrophenol Total (ug/L)	<5.0
2,4-Dinitrophenol Total (ug/L)	<10
2,4-Dinitrotoluene Total (ug/L)	<5.0
2,6-Dinitrotoluene Total (ug/L)	<5.0
Di-N-Octyl-Phthalate Total (ug/L)	<5.0
Fluoranthene Total (ug/L)	<5.0
Fluorene Total (ug/L)	<5.0
Hexachlorobenzene Total (ug/L)	<5.0
Hexachlorobutadiene Total (ug/L)	<5.0

Hexachlorocyclopentadiene Total (ug/L)	<5.0
Hexachloroethane Total (ug/L)	<5.0
Indeno (1,2,3-CD) Pyrene Total (ug/L)	<5.0
Isophorone Total (ug/L)	<5.0
Naphthalene Total (ug/L)	<5.0
Nitrobenzene Total (ug/L)	<5.0
2-Nitrophenol Total (ug/L)	<5.0
4-Nitrophenol Total (ug/L)	<5.0
N-Nitrosodiphenylamine Total (ug/L)	<5.0
N-Nitrosodi-N-Propylamine Total (ug/L)	<5.0
Pentachlorophenol Total (ug/L)	<5.0
Phenanthrene Total (ug/L)	<5.0
Phenol Total (ug/L)	<5.0
Pyrene Total (ug/L)	<5.0
1,2,4-Trichlorobenzene Total (ug/L)	<5.0
2,4,5-Trichlorophenol Total (ug/L)	<5.0
2,4,6-Trichlorophenol Total (ug/L)	<5.0
N-Nitrosodimethylamine Total (ug/L)	<5.0
1,2-Diphenylhydrazine Total (ug/L)	<5.0
Parachloro-Meta-Cresol Total (ug/L)	NA
Aniline (ug/L)	<5.0
4-Chloroaniline (ug/L)	<5.0
2-Nitroaniline (ug/L)	<5.0
3-Nitroaniline (ug/L)	<5.0
4-Nitroaniline (ug/L)	<5.0
2-Methylphenol (ug/L)	<5.0
4-Methylphenol (p-Cresol) (ug/L)	<5.0
4-Chloro-3-methylphenol (ug/L)	<5.0
2-Methylnaphthalene (ug/L)	<5.0
2,3,7,8-TCDD (ug/L)	<10
Dibenzofuran (ug/L)	<5.0

Glendale CITRUS
19 September 1999



INDPK Station	
Date of Sampling	02/04/99
Time	2022
Representative Storm Event	Y
Agency Collecting Sample	FCD
Agency Analyzing Sample	BOLIN
Drainage Area (acres) (DA)	30
Impervious Area (acres) (IA)	--
Land Use - Residential	0
Land Use - Commercial	0
Land Use - Industrial	30
Land Use - Undeveloped	0
Sampling Duration (minutes) (DRN)	433
Storm Duration (minutes)	351
Runoff Sampled (cubic feet) (RUN)	15,000
Total Storm Runoff (cubic feet)	15,400
Instantaneous Discharge (cfs)	19
Preceding Dry Period (days) (ANT)	49
Total Storm Rainfall (inch)	0.31
Rainfall Sampled (inch) (TRN)	0.31
Maximum 5-minute rain intensity (MAX5)	0.24
Sample Temperature (deg. C)	4
Effluent Temperature (deg. C)	11
Ambient Temperature (deg. C)	NM
Barometric Pressure (mm Hg)	NM
pH, Effluent (standard units)	7.03
pH, Lab (standard units)	NM
Specific Conductance, FIELD (us/cm)	--
Specific Conductance, LAB (us/cm)	--
Oxygen Dissolved (% saturation)	--
Oxygen Dissolved (mg/L)	--
Electrical Conductivity (umhos/cm)	--
BOD5 (mg/L)	17
COD High Level (mg/L)	71
Chloride (mg/L as Cl)	<5.0
Cyanide Total (mg/L as Cn)	<0.01
Fecal Coliform (MPN/100mL)	50,000
Fecal Streptococci (MPN/100mL)	3,000
Solids Residue at 180 Deg. C (TDS) (mg/L)	84
Residue, Total at 105 Deg. C (TSS) (mg/L)	34
Nitrogen No2 + No3, Total (mg/L as N)	2
TKN Nitrogen (mg/L as N)	3.81
Nitrogen, Ammonia + Organic, Total (mg/L as N)	3.81
Nitrogen Nitrate Total (mg/L as N)	1.8
Nitrogen Nitrite Total (mg/L as N)	0.07

Nitrogen Ammonia Total (mg/L as N)	2.53
Nitrogen Organic Total (mg/L as N)	1.28
Phosphorous Total (mg/L as P)	0.55
Phosphorous Dissolved (mg/L as P)	0.12
Phosphorous Ortho (mg/L as P)	0.29
Sulfate Dissolved (mg/L)	--
Hexavalent Chromium Total (mg/L)	--
Phenols Total Recoverable (ug/L)	5.8
Oil and Grease Total Recoverable (mg/L)	<5.0
Organic Carbon, Total (mg/L)	15.2
Bicarbonate Whole Field (mg/L as HCo3)	--
Carbonate Water Field (mg/L as Co3)	--
Carbonate Water Dissolved, Field (mg/L as Co3)	--
Alkalinity Water Field Total (mg/L as CaCo3)	--
Alkalinity Dissolved Water Field Total (mg/L as CaCo3)	--
Alkalinity LAB (mg/L as CaCo3)	48
Silica Dissolved (mg/L as SiO2)	--
Hardness (mg/L)	44
Antimony (ug/L as Sb)	<5
Antimony Dissolved (ug/L as Sb)	<4
Arsenic Total (ug/L as As)	<5
Arsenic Dissolved (ug/L as As)	<5
Barium Dissolved (ug/L as Ba)	--
Beryllium Total Recoverable (ug/L as Be)	<2
Beryllium Dissolved (ug/L as Be)	<2
Cadmium Total Recoverable (ug/L as Cd)	<0.2
Cadmium Dissolved (ug/L as Cd)	<0.2
Calcium Dissolved (mg/L as Ca)	--
Chromium Total Recoverable (ug/L as Cr)	2
Chromium Dissolved (ug/L as Cr)	<1
Cobalt Dissolved (ug/L as Co)	--
Copper Total Recoverable (ug/L as Cu)	<15
Copper Dissolved (ug/L as Cu)	20
Iron Dissolved (ug/L as Fe)	--
Lead Total Recoverable (ug/L as Pb)	<5
Lead Dissolved (ug/L as Pb)	86
Lithium Dissolved (ug/L as Li)	--
Magnesium Dissolved (mg/L as Mg)	--
Manganese Dissolved (ug/L as Mn)	--
Mercury Total Recoverable (ug/L as Hg)	<0.2
Mercury Dissolved (ug/L as Hg)	<0.2
Molybdenum Dissolved (ug/L as Mo)	--
Nickel Total Recoverable (ug/L as Ni)	5
Nickel Dissolved (ug/L as Ni)	2.1
Potassium Dissolved (mg/L as K)	--
Selenium Total (ug/L as Se)	<5

Selenium Dissolved (ug/L as Se)	<5
Silver Total Recoverable (ug/L as Ag)	<40
Silver Dissolved (ug/L as Ag)	<50
Sodium Dissolved (mg/L as Na)	--
Strontium Dissolved (ug/L as Sr)	--
Thallium Total (ug/L as Tl)	<1
Thallium Dissolved (ug/L as Tl)	<1
Vanadium Dissolved (ug/L as V)	--
Zinc Total Recoverable (ug/L as Zn)	210
Zinc Dissolved (ug/L as Zn)	30
Diazinon Total (ug/L)	--
Ethion Total (ug/L)	--
Malathion Total (ug/L)	--
Methyl Parathion Total (ug/L)	--
Parathion Total (ug/L)	--
Trithion Total (ug/L)	--
Di-syston Total (ug/L)	--
Phorate Total (ug/L)	--
Chlorpyrifos Total (ug/L)	--
DEF Total (ug/L)	--
Fonofos (Dy-fonate), WWT (ug/L)	--
Aldrin Total (ug/L)	<1.0
BHC - ALPHA (ug/L)	<1.0
BHC - Gamma (Lindane) (ug/L)	<1.0
BHC - DELTA (ug/L)	<1.0
Aroclor 1016, PCB, Total (ug/L)	<1.0
Aroclor 1221, PCB, Total (ug/L)	<10
Aroclor 1232, PCB, Total (ug/L)	<1.0
Aroclor 1242, PCB, Total (ug/L)	<1.0
Aroclor 1248, PCB, Total (ug/L)	<1.0
Aroclor 1254, PCB, Total (ug/L)	<1.0
Aroclor 1260, PCB, Total (ug/L)	<1.0
Chlorodane Total (ug/L)	<1.0
P, P' DDD Total (ug/L)	<1.0
P, P' DDE Total (ug/L)	<1.0
P, P' DDT Total (ug/L)	<2.0
Dieldrin Total (ug/L)	<1.0
Endo-Sulfan Alpha Total (ug/L)	<1.0
Endo-Sulfan Beta Total (ug/L)	<1.0
Endo-Sulfan Sulfate Total (ug/L)	<1.0
Endrin Aldehyde Total (ug/L)	<1.0
Endrin Total (ug/L)	<1.0
Heptachlor Total (ug/L)	<1.0
Heptachlor Epoxide Total (ug/L)	<1.0
Toxaphene Total (ug/L)	<1.0
Methoxychlor Total (ug/L)	--

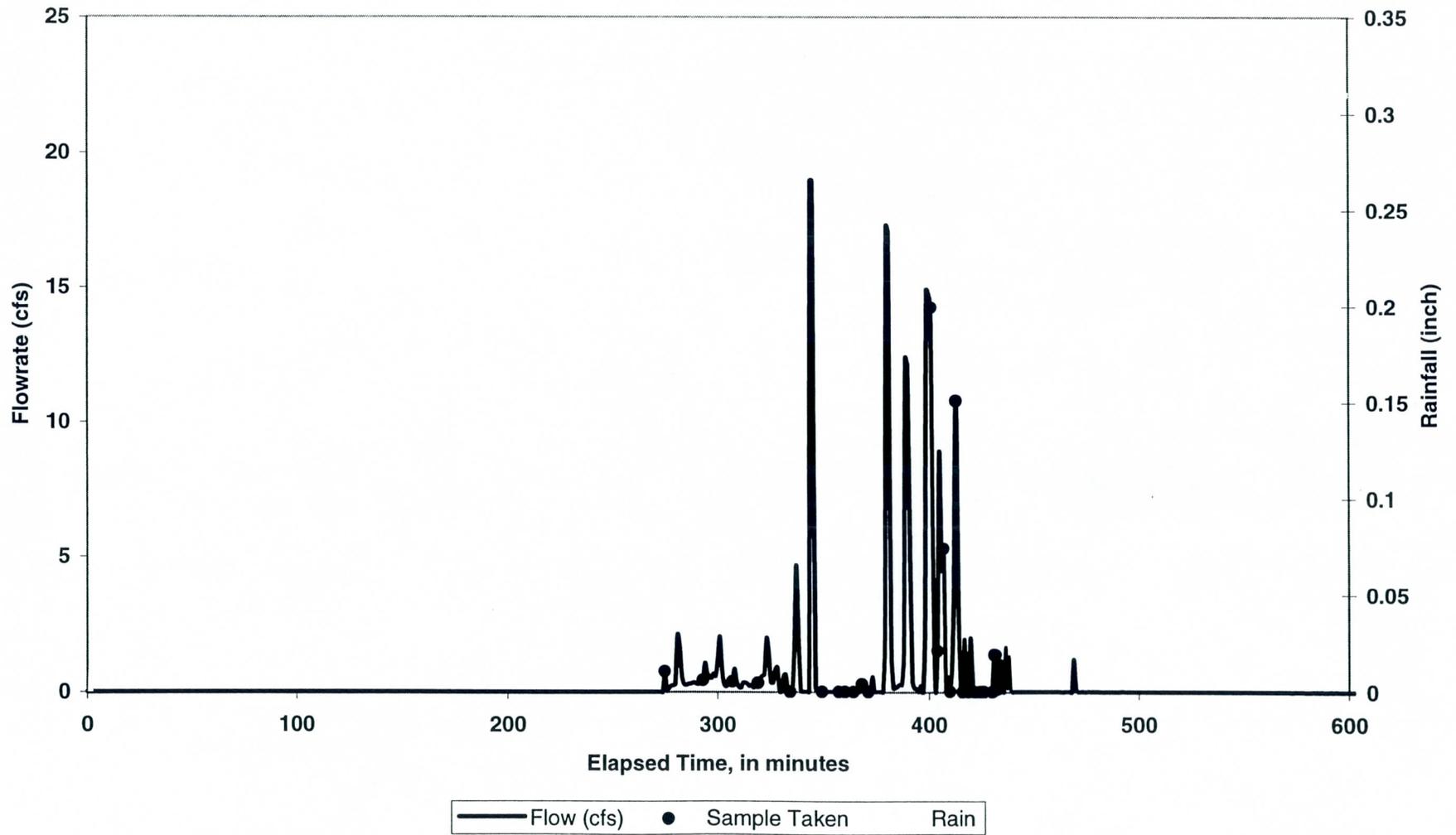
Beta Benzene Hexachloride Total (ug/L)	<1.0
1,1,2,2-Tetrahydroethane Total (ug/L)	<8
1,1,1,2-Tetrahydroethane Total (ug/L)	--
Tetrahydroethane PCE Total (ug/L)	<8
1,1,1-Trichloroethane Total (ug/L)	<8
1,1,2-Trichloroethane Total (ug/L)	<8
Trichloroethane Total (ug/L)	<8
1,1-Dichloroethane Total (ug/L)	<8
1,1-Dichloroethene Total (ug/L)	<8
1,2-Dichloroethane Total (ug/L)	<8
1,2-Dichloropropane Total (ug/L)	<8
2-Chloroethylvinyl Ether Total (ug/L)	<8
cis-1,3-Dichloropropane (ug/L)	<8
trans-1,2-Dichloroethene (ug/L)	<8
trans-1,3-Dichloropropene (ug/L)	<8
Benzene Total (ug/L)	<8
Bromodichloromethane Total (ug/L)	<8
Bromoform Total (ug/L)	<8
Carbon Tetrachloride Total (ug/L)	<8
Chlorobenzene Total (ug/L)	<8
Chloroethane (ug/L)	<20
Chloroform Total (ug/L)	<8
Ethyl-Benzene Total (ug/L)	<8
Methylene Chloride Total (ug/L)	<8
Toluene Total (ug/L)	<8
Trichlorofluoromethane Total (ug/L)	<20
Vinyl Chloride Total (ug/L)	<20
Chlorodibromomethane Total (ug/L)	<8
4-Methyl, 2-Pentanone, (MIBK), Total (ug/L)	--
Acetone Total (ug/L)	<100
2-Butanone (ug/L)	<40
Carbon Disulfide Total (ug/L)	<40
1,2 Dichloroethene Total (ug/L)	<8
Xylenes Total (ug/L)	<8
2-Hexanone Total (ug/L)	<40
Styrene Total (ug/L)	<8
Acrolein Total (ug/L)	<200
Acrylonitrile Total (ug/L)	<40
Bromobenzene, Water Whole, Total (ug/L)	--
1,3-Dichloropropane, Water Whole, Total (ug/L)	<8
Methyl Bromide Total (ug/L)	<20
Methyl Chloride Total (ug/L)	<20
Parachloro Toluene Total (ug/L)	--
Dibromoethane Total (ug/L)	--
Acenaphthene Total (ug/L)	<5
Acenaphthylene Total (ug/L)	<10

Anthracene Total (ug/L)	<5
Benzidine Total (ug/L)	<50
Benzoic Acid Total (ug/L)	<50
Benzo (a) Anthracene Total (ug/L)	<5
Benzo (b) Fluoranthene Total (ug/L)	<5
Benzo (k) Fluoranthene Total (ug/L)	<5
Benzo (ghi) Perylene Total (ug/L)	<5
Benzo (a) Pyrene Total (ug/L)	<5
Benzyl Alcohol Total (ug/L)	<10
Bis-(2-Chloroethoxy)-Methane Total (ug/L)	<10
Bis-(2-Chloroethyl)-Ether Total (ug/L)	<10
Bis-(2-Chloroisopropyl)-Ether Total (ug/L)	<10
Bis(2-Ethyl Hexyl) Phthalate Total (ug/L)	<10
4-Bromo-Phenyl Phenyl Ether Total (ug/L)	<5
Butyl Benzyl Phthalate Total (ug/L)	<10
2-Chloronaphthalene Total (ug/L)	<5
2-Chloropohnol Total (ug/L)	<5
4-Chloro-Phenyl Phenyl Ether Total (ug/L)	<5
Chrysene Total (ug/L)	<5
Dibenzo-[a,h]-Anthracene Total (ug/L)	<5
Di-N-Butyl Phthalate Total (ug/L)	<5
1,3-Dichlorobenzene Total (ug/L)	<5
1,4-Dichlorobenzene Total (ug/L)	<5
1,2-Dichlorobenzene Total (ug/L)	<5
3,3'-Dichlorobenzidine Total (ug/L)	<5
2,4-Dichlorophenol Total (ug/L)	<5
Diethyl Phthalate Total (ug/L)	<5
2-Methyl-4,6-Dinitrophenol Total (ug/L)	<10
2,4-Dinitrophenol Total (ug/L)	<10
2,4-Dinitrotoluene Total (ug/L)	<5
2,6-Dinitrotoluene Total (ug/L)	<5
Di-N-Octyl-Phthalate Total (ug/L)	<5
Fluoranthene Total (ug/L)	<5
Fluorene Total (ug/L)	<5
Hexachlorobenzene Total (ug/L)	<10
Hexachlorobutadiene Total (ug/L)	<5
Hexachlorocyclopentadiene Total (ug/L)	<5
Hexachloroethane Total (ug/L)	<10
Indeno (1,2,3-CD) Pyrene Total (ug/L)	<5
Isophorone Total (ug/L)	<10
Naphthalene Total (ug/L)	<5
Nitrobenzene Total (ug/L)	<10
2-Nitrophenol Total (ug/L)	<5
4-Nitrophenol Total (ug/L)	<5
N-Nitrosodiphenylamine Total (ug/L)	<5
N-Nitrosodi-N-Propylamine Total (ug/L)	<5

Pentachlorophenol Total (ug/L)	<10
Phenanthrene Total (ug/L)	<5
Phenol Total (ug/L)	<5
Pyrene Total (ug/L)	<5
1,2,4-Trichlorobenzene Total (ug/L)	<5
2,4,5-Trichlorophenol Total (ug/L)	<5
2,4,6-Trichlorophenol Total (ug/L)	<5
N-Nitrosodimethylamine Total (ug/L)	<5
1,2-Diphenylhydrazine Total (ug/L)	<5
Dichlorodifluoromethane Total (ug/L)	--
Parachloro-Meta-Cresol Total (ug/L)	--

Glendale INDPK

04 February 1999



INDPK Station	
Date of Sampling	07/15/99
Time	1215
Representative Storm Event	Y
Agency Collecting Sample	FCD
Agency Analyzing Sample	BOLIN
Drainage Area (acres) (DA)	30
Impervious Area (arcres) (IA)	0
Land Use - Residential	0
Land Use - Commercial	0
Land Use - Industrial	30
Land Use - Undeveloped	0
Sampling Duration (minutes) (DRN)	102
Storm Duration (minutes)	165
Runoff Sampled (cubic feet) (RUN)	40,000
Total Storm Runoff (cubic feet)	40,200
Instantaneous Discharge (cfs)	24.3
Preceding Dry Period (days) (ANT)	4
Total Storm Rainfall (inch)	0.48
Rainfall Sampled (inch) (TRN)	0.46
Maximum 5-minute rain intensity (MAX5)	1.56
Sample Temperature (deg. C)	4
Effluent Temperature (deg. C)	NM
Ambient Temperature (deg. C)	NM
Barometric Pressure (mm Hg)	NM
pH, Effluent (standard units)	NM
pH, Lab (standard units)	7.2
Specific Conductance, FIELD (us/cm)	NM
Specific Conductance, LAB (us/cm)	NA
Oxygen Dissolved (% saturation)	NM
Oxygen Dissolved (mg/L)	NM
Electrical Conductivity (umhos/cm)	NA
BOD5 (mg/L)	<44
COD High Level (mg/L)	123
Chloride (mg/L as Cl)	<5.0
Cyanide Total (mg/L as Cn)	NA
Fecal Coliform (MPN/100mL)	>8200
Fecal Streptococci (MPN/100mL)	50,000
Solids Residue at 180 Deg. C (TDS) (mg/L)	112
Residue, Total at 105 Deg. C (TSS) (mg/L)	2
Nitrogen No2 + No3, Total (mg/L as N)	2.3
TKN Nitrogen (mg/L as N)	3.62
Nitrogen, Ammonia + Organic, Total (mg/L as N)	3.62
Nitrogen Nitrate Total (mg/L as N)	2.3
Nitrogen Nitrite Total (mg/L as N)	<0.1

Nitrogen Ammonia Total (mg/L as N)	1.08
Nitrogen Organic Total (mg/L as N)	2.54
Phosphorous Total (mg/L as P)	0.35
Phosphorous Dissolved (mg/L as P)	0.14
Phosphorous Ortho (mg/L as P)	0.2
Sulfate Dissolved (mg/L)	7.4
Hexavalent Chromium Total (mg/L)	NA
Phenols Total Recoverable (ug/L)	NA
Oil and Grease Total Recoverable (mg/L)	<40
Organic Carbon, Total (mg/L)	NA
Bicarbonate Whole Field (mg/L as HCo3)	NA
Carbonate Water Field (mg/L as Co3)	NA
Carbonate Water Dissolved, Field (mg/L as Co3)	NA
Alkalinity Water Field Total (mg/L as CaCo3)	NA
Alkalinity Dissolved Water Field Total (mg/L as CaCo3)	NA
Alkalinity LAB (mg/L as CaCo3)	48
Silica Dissolved (mg/L as SiO2)	NA
Hardness (mg/L)	48
Antimony (ug/L as Sb)	<4.0
Antimony Dissolved (ug/L as Sb)	<4.0
Arsenic Total (ug/L as As)	<5.0
Arsenic Dissolved (ug/L as As)	<5.0
Barium Dissolved (ug/L as Ba)	NA
Beryllium Total Recoverable (ug/L as Be)	<2.0
Beryllium Dissolved (ug/L as Be)	<2.0
Cadmium Total Recoverable (ug/L as Cd)	<0.2
Cadmium Dissolved (ug/L as Cd)	<5.0
Calcium Dissolved (mg/L as Ca)	16
Chromium Total Recoverable (ug/L as Cr)	18
Chromium Dissolved (ug/L as Cr)	1.4
Cobalt Dissolved (ug/L as Co)	NA
Copper Total Recoverable (ug/L as Cu)	<15
Copper Dissolved (ug/L as Cu)	<15
Iron Dissolved (ug/L as Fe)	NA
Lead Total Recoverable (ug/L as Pb)	<5.0
Lead Dissolved (ug/L as Pb)	<5.0
Lithium Dissolved (ug/L as Li)	NA
Magnesium Dissolved (mg/L as Mg)	2
Manganese Dissolved (ug/L as Mn)	NA
Mercury Total Recoverable (ug/L as Hg)	<0.2
Mercury Dissolved (ug/L as Hg)	<0.2
Molybdenum Dissolved (ug/L as Mo)	NA
Nickel Total Recoverable (ug/L as Ni)	4
Nickel Dissolved (ug/L as Ni)	4.6
Potassium Dissolved (mg/L as K)	NA
Selenium Total (ug/L as Se)	<5.0

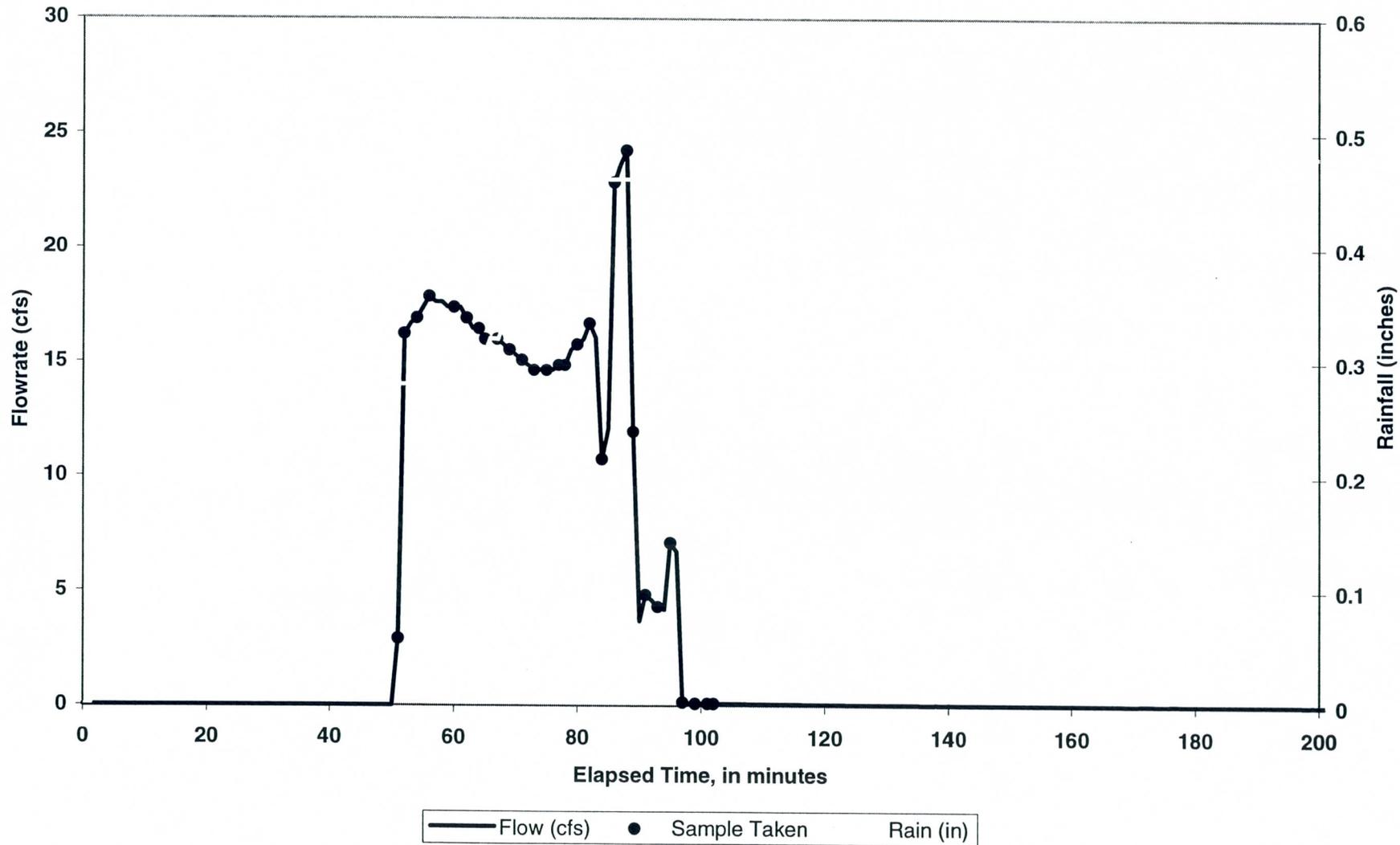
Selenium Dissolved (ug/L as Se)	<5.0
Silver Total Recoverable (ug/L as Ag)	<40
Silver Dissolved (ug/L as Ag)	<50
Sodium Dissolved (mg/L as Na)	NA
Strontium Dissolved (ug/L as Sr)	NA
Thallium Total (ug/L as Tl)	<1.0
Thallium Dissolved (ug/L as Tl)	<1.0
Vanadium Dissolved (ug/L as V)	NA
Zinc Total Recoverable (ug/L as Zn)	70
Zinc Dissolved (ug/L as Zn)	<20
Diazinon Total (ug/L)	NA
Ethion Total (ug/L)	NA
Malathion Total (ug/L)	NA
Methyl Parathion Total (ug/L)	NA
Parathion Total (ug/L)	NA
Trithion Total (ug/L)	NA
Di-syston Total (ug/L)	NA
Phorate Total (ug/L)	NA
Chlorpyrifos Total (ug/L)	NA
DEF Total (ug/L)	NA
Fonofos (Dy-fonate), WWT (ug/L)	NA
Aldrin Total (ug/L)	<1.0
BHC - ALPHA (ug/L)	<1.0
BHC - Gamma (Lindane) (ug/L)	<1.0
BHC - DELTA (ug/L)	<1.0
Aroclor 1016, PCB, Total (ug/L)	<1.0
Aroclor 1221, PCB, Total (ug/L)	<10
Aroclor 1232, PCB, Total (ug/L)	<1.0
Aroclor 1242, PCB, Total (ug/L)	<1.0
Aroclor 1248, PCB, Total (ug/L)	<1.0
Aroclor 1254, PCB, Total (ug/L)	<1.0
Aroclor 1260, PCB, Total (ug/L)	<1.0
Chlorodane Total (ug/L)	<1.0
P, P' DDD Total (ug/L)	<1.0
P, P' DDE Total (ug/L)	<1.0
P, P' DDT Total (ug/L)	<1.0
Dieldrin Total (ug/L)	<1.0
Endo-Sulfan Alpha Total (ug/L)	<1.0
Endo-Sulfan Beta Total (ug/L)	<1.0
Endo-Sulfan Sulfate Total (ug/L)	<1.0
Endrin Aldehyde Total (ug/L)	<1.0
Endrin Total (ug/L)	<1.0
Heptachlor Total (ug/L)	<1.0
Heptachlor Epoxide Total (ug/L)	<1.0
Toxaphene Total (ug/L)	<5.0
Methoxychlor Total (ug/L)	NA

Beta Benzene Hexachloride Total (ug/L)	<1.0
1,1,2,2-Tetrachloroethane Total (ug/L)	<20
1,1,1,2-Tetrachloroethane Total (ug/L)	NA
Tetrachloroethane PCE Total (ug/L)	<20
1,1,1-Trichloroethane Total (ug/L)	<20
1,1,2-Trichloroethane Total (ug/L)	<20
Trichloroethane Total (ug/L)	<20
1,1-Dichloroethane Total (ug/L)	<20
1,1-Dichloroethene Total (ug/L)	<20
1,2-Dichloroethane Total (ug/L)	<20
1,2-Dichloropropane Total (ug/L)	<20
2-Chloroethylvinyl Ether Total (ug/L)	<20
cis-1,3-Dichloropropane (ug/L)	<20
trans-1,2-Dichloroethene (ug/L)	<20
trans-1,3-Dichloropropene (ug/L)	<20
Benzene Total (ug/L)	<20
Bromodichloromethane Total (ug/L)	<20
Bromoform Total (ug/L)	<20
Carbon Tetrachloride Total (ug/L)	<20
Chlorobenzene Total (ug/L)	<20
Chloroethane (ug/L)	<50
Chloroform Total (ug/L)	<20
Ethyl-Benzene Total (ug/L)	<20
Methylene Chloride Total (ug/L)	<50
Toluene Total (ug/L)	<20
Trichlorofluoromethane Total (ug/L)	<50
Vinyl Chloride Total (ug/L)	<50
Chlorodibromomethane Total (ug/L)	NA
4-Methyl, 2-Pentanone, (MIBK), Total (ug/L)	NA
Acetone Total (ug/L)	NA
2-Butanone (ug/L)	NA
Carbon Disulfide Total (ug/L)	NA
1,2 Dichloroethene Total (ug/L)	NA
Xylenes Total (ug/L)	NA
m,p-Xylenes (ug/L)	<40
o-Xylene (ug/L)	<20
2-Hexanone Total (ug/L)	NA
Styrene Total (ug/L)	NA
Acrolein Total (ug/L)	<500
Acrylonitrile Total (ug/L)	<100
Bromobenzene, Water Whole, Total (ug/L)	NA
1,3-Dichloropropane, Water Whole, Total (ug/L)	NA
Methyl Bromide Total (ug/L)	NA
Methyl Chloride Total (ug/L)	NA
Parachloro Toluene Total (ug/L)	NA
Dibromoethane Total (ug/L)	NA

Bromomethane Total (ug/L0	<50
Chloromethane (ug/L)	<50
Dibromochloromethane (ug/L)	<20
Dichloromethane (ug/L0	<50
Total Trihalomethanes (ug/L)	<20
Acenaphthene Total (ug/L)	<5.0
Acenaphthylene Total (ug/L)	<5.0
Anthracene Total (ug/L)	<5.0
Benzidine Total (ug/L)	<50
Benzoic Acid Total (ug/L)	<5.0
Benzo (a) Anthracene Total (ug/L)	<5.0
Benzo (b) Fluoranthene Total (ug/L)	<5.0
Benzo (k) Fluoranthene Total (ug/L)	<5.0
Benzo (ghi) Perylene Total (ug/L)	<5.0
Benzo (a) Pyrene Total (ug/L)	<5.0
Benzyl Alcohol Total (ug/L)	<5.0
Bis-(2-Chloroethoxy)-Methane Total (ug/L)	<5.0
Bis-(2-Chloroethyl)-Ether Total (ug/L)	<5.0
Bis-(2-Chloroisopropyl)-Ether Total (ug/L)	<5.0
Bis(2-Ethyl Hexyl) Phthalate Total (ug/L)	<5.0
4-Bromo-Phenyl Phenyl Ether Total (ug/L)	<5.0
Butyl Benzyl Phthalate Total (ug/L)	<5.0
2-Chloronapthalene Total (ug/L)	<5.0
2-Chloropehnol Total (ug/L)	<5.0
4-Chloro-Phenyl Phenyl Ether Total (ug/L)	<5.0
Chrysene Total (ug/L)	<5.0
Dibenzo-[a,h]-Anthracene Total (ug/L)	<5.0
Di-N-Butyl Phthalate Total (ug/L)	<5.0
1,3-Dichlorobenzene Total (ug/L)	<5.0
1,4-Dichlorobenzene Total (ug/L)	<5.0
1,2-Dichlorobenzene Total (ug/L)	<5.0
3,3'-Dichlorobenzidine Total (ug/L)	<5.0
2,4-Dichlorophenol Total (ug/L)	<5.0
Diethyl Phthalate Total (ug/L)	<5.0
2-Methyl-4,6-Dinitrophenol Total (ug/L)	<20
2,4-Dinitrophenol Total (ug/L)	<20
2,4-Dinitrotoluene Total (ug/L)	<5.0
2,6-Dinitrotoluene Total (ug/L)	<5.0
Di-N-Octyl-Phthalate Total (ug/L)	<5.0
Fluoranthene Total (ug/L)	<5.0
Fluorene Total (ug/L)	<5.0
Hexachlorobenzene Total (ug/L)	<5.0
Hexachlorobutadiene Total (ug/L)	<5.0
Hexachlorocyclopentadiene Total (ug/L)	<5.0
Hexachloroethane Total (ug/L)	<5.0
Indeno (1,2,3-CD) Pyrene Total (ug/L)	<5.0

Isophorone Total (ug/L)	<5.0
Naphthalene Total (ug/L)	<5.0
Nitrobenzene Total (ug/L)	<5.0
2-Nitrophenol Total (ug/L)	<5.0
4-Nitrophenol Total (ug/L)	<5.0
N-Nitrosodiphenylamine Total (ug/L)	<5.0
N-Nitrosodi-N-Propylamine Total (ug/L)	<5.0
Pentachlorophenol Total (ug/L)	<5.0
Phenanthrene Total (ug/L)	<5.0
Phenol Total (ug/L)	<5.0
Pyrene Total (ug/L)	<5.0
1,2,4-Trichlorobenzene Total (ug/L)	<5.0
2,4,5-Trichlorophenol Total (ug/L)	<5.0
2,4,6-Trichlorophenol Total (ug/L)	<5.0
N-Nitrosodimethylamine Total (ug/L)	<5.0
1,2-Diphenylhydrazine Total (ug/L)	<5.0
Dichlorodifluoromethane Total (ug/L)	<5.0
Parachloro-Meta-Cresol Total (ug/L)	<50
Aniline (ug/L)	<5.0
4-Chloroaniline (ug/L)	<5.0
2-Nitroaniline (ug/L)	<5.0
3-Nitroaniline (ug/L)	<5.0
4-Nitroaniline (ug/L)	<5.0
2-Methylphenol (ug/L)	<5.0
4-Methylphenol (p-Cresol) (ug/L)	<5.0
4-Chloro-3-methylphenol (ug/L)	<5.0
2-Methylnaphthalene (ug/L)	<5.0
2,3,7,8-TCDD (ug/L)	<10
Dibenzofuran (ug/L)	<5.0

Glendale INDUSTRIAL PARK
15 July 1999





Appendix L

Dry Weather Sample Locations

Glendale, Arizona
Dry Weather/Illicit Discharge Sampling Location

ID: ACDC3

Diameter: 36in RCP

Discharges To: Arizona Canal Diversion Channel

Location: ACDC at approximately 59th Avenue



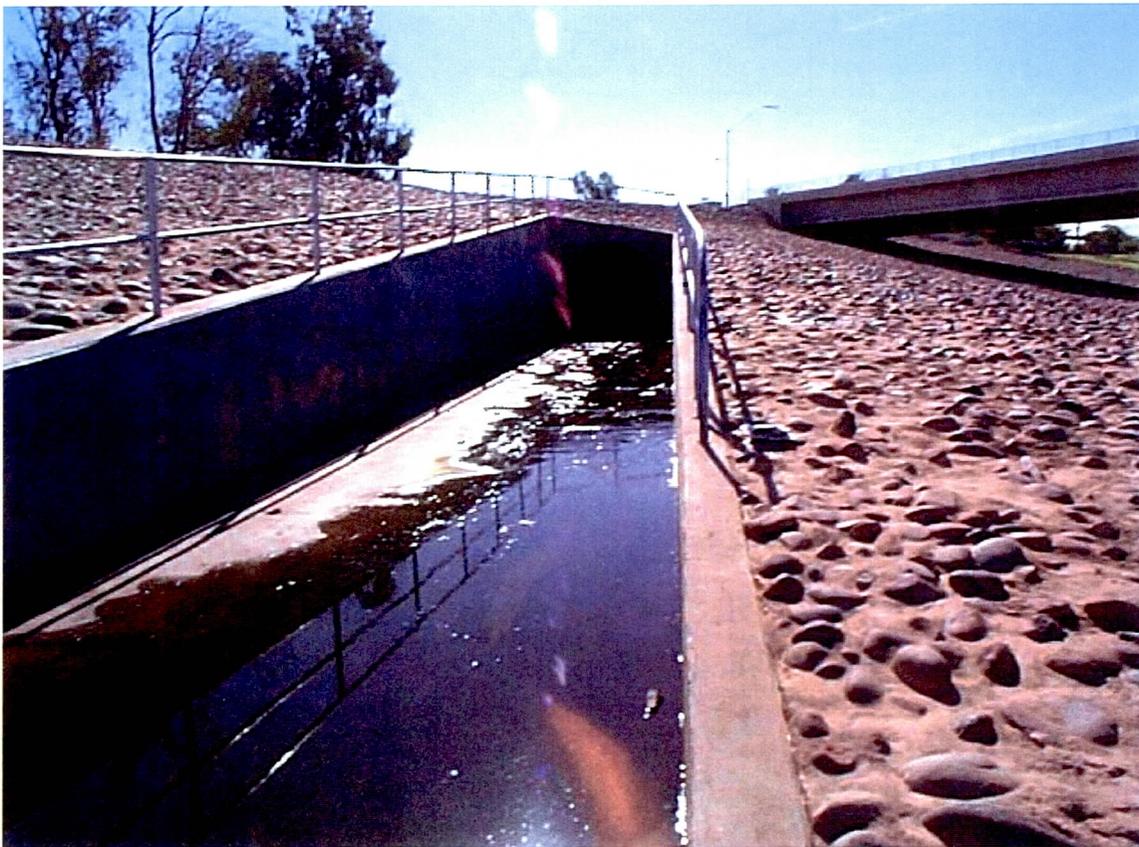
Glendale, Arizona
Dry Weather/Illicit Discharge Sampling Location

ID: ACDC6

Diameter: 96in RCP

Discharges To: Arizona Canal Diversion Channel

Location: Southeast of Thunderbird Road Bridge



Glendale, Arizona
Dry Weather/Illicit Discharge Sampling Location

ID: ACDC14
Diameter: 96in RCP
Discharges To: Arizona Canal Diversion Channel
Location: 67th Avenue and Greenway Road



Glendale, Arizona
Dry Weather/Illicit Discharge Sampling Location

ID: SKCK9

Diameter: 36in RCP

Discharges To: Skunk Creek

Location: South of Skunk Creek and approximately 75ft west of 67th Avenue



Glendale, Arizona
Dry Weather/Illicit Discharge Sampling Location

ID: SKCK2
Diameter: 11ft x 11ft RCBC
Discharges To: Skunk Creek
Location: 55th Avenue and the Skunk Creek



Glendale, Arizona
Dry Weather/Illicit Discharge Sampling Location

ID: SKCK8

Diameter: 36in RCP

Discharges To: Skunk Creek

Location: North of Skunk Creek and approximately 75ft west of 67th Avenue





Appendix M

Field Data Sheets for Dry Weather Sampling

TABLE 2-2

FIELD DATA SHEET
ILLEGAL DISCHARGE FIELD SCREENING PROGRAM

Sheet No.: 1
Outfall No.: AEDC 3
Date: 7/18/00
Time: 8:30

GENERAL INFORMATION:

Time since last rain: >72 hrs <72 hrs Inspection Team: Lisa Spahr
Megan D'Ortona
Quantity of last rain: >0.1 in. <0.1 in.

FIELD DESCRIPTION: 36" RCP Location: E of 59th Ave S of Thunderbird

Open Channel Manhole Outfall Other

Dominant watershed land uses: Industrial Commercial Residential Unknown Other

(If known, list them)

FLOW ESTIMATION: Flow observed: Yes No *too small measure/sample* Approximate channel width or pipe diameter: 36" RCP

- 1) Width of water surface (feet): <u>0.10</u>
- 2) Approximate depth of water (feet): <u>0.01</u>
- 3) Approximate flow velocity (feet per second): _____
- 4) Flow rate (cubic feet per second) = 1 x 2 x 3: _____

VISUAL OBSERVATIONS: Photo taken: No Yes (Rolls & Photo number(s))

Odor: None Musty Sewage Rotten eggs Sour milk Other _____

Color: Clear Red Yellow Brown Green Grey Other *impossible to tell*

Clarity: Clear Cloudy Opaque Suspended solids *can't tell*

Floatables: None Oily sheen Garbage/sewage Other
none

Deposits/Stains: None Sediments Oily Other _____

Vegetation Condition: None Normal Excessive growth Inhibited growth

Structural Condition: Normal Concrete cracking/spalling Metal corrosion Other _____

Biological: Mosquito larvae Bacteria/algae Other _____

FIELD ANALYSES:

FIELD ANALYSES:

Water Temp.: _____ degrees C Chlorine (total): _____ mg/L

pH: _____ Copper: _____ mg/L

Phenol: _____ mg/L Detergents: _____ mg/L

Laboratory Samples Collected: Yes No
(If YES, attach copy of chain-of-custody record)

Comments:

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TABLE 2-2

FIELD DATA SHEET
ILLEGAL DISCHARGE FIELD SCREENING PROGRAM

Sheet No.: 1
Outfall No.: ACDC 6
Date: 7/18/00
Time: 9:03

GENERAL INFORMATION:

Time since last rain: >72 hrs <72 hrs Inspection Team: Lisa Spahr
Megan D'Ortona
Quantity of last rain: >0.1 in. <0.1 in.

FIELD DESCRIPTION: 96" RCP Location: S. of Thunderbird Rd, W. of 59th

Open Channel Manhole Outfall Other

Dominant watershed land uses: Industrial Commercial Residential Unknown Other
(If known, list them)

FLOW ESTIMATION: Flow observed: Yes No Approximate channel width or pipe diameter: 96" RCP

- 1) Width of water surface (feet): 18"
- 2) Approximate depth of water (feet): 1.5"
- 3) Approximate flow velocity (feet per second): .1 ft./sec
- 4) Flow rate (cubic feet per second) = 1 x 2 x 3: _____

VISUAL OBSERVATIONS: Photo taken: No Yes (Rolls & Photo number(s))

Odor: None Musty Sewage Rotten eggs Sour milk Other damp

Color: Clear Red Yellow Brown Green Grey Other _____

Clarity: Clear Cloudy Opaque Suspended solids

Floatables: None Oily sheen Garbage/sewage Other

Deposits/Stains: None Sediments Oily Other _____

Vegetation Condition: None Normal Excessive growth Inhibited growth

Structural Condition: Normal Concrete cracking/spalling Metal corrosion Other

Biological: Mosquito larvae Bacteria/algae Other

FIELD ANALYSES:

FIELD ANALYSES:

Water Temp.: 29 degrees C

Chlorine (total): 0 mg/L (total)

pH: 7.2

Copper: 0 mg/L (free)

Phenol: 0.0 mg/L

Detergents: 0 mg/L

sample turned yellow, doesn't appear to gain phenol

Laboratory Samples Collected: Yes No
(If YES, attach copy of chain-of-custody record)

Comments:

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TABLE 2-2

FIELD DATA SHEET
ILLEGAL DISCHARGE FIELD SCREENING PROGRAM

Sheet No.: 1
Outfall No.: ACDC 14
Date: 7/18/00
Time: 10:14

GENERAL INFORMATION:

Time since last rain: >72 hrs <72 hrs Inspection Team: Lisa Spahr
Megan D'Ortona

Quantity of last rain: >0.1 in. <0.1 in.

FIELD DESCRIPTION: 96" RCP Location: E. of G 7th Ave, S. of Greenway Rd.

Open Channel Manhole Outfall Other

Dominant watershed land uses: Industrial Commercial Residential Unknown Other

(If known, list them)

FLOW ESTIMATION: Flow observed: Yes No Approximate channel width or pipe diameter: 96" RCP

- 1) Width of water surface (feet): 8"
- 2) Approximate depth of water (feet): 1/4"
- 3) Approximate flow velocity (feet per second): 52 sec / 12 ft.
- 4) Flow rate (cubic feet per second) = 1 x 2 x 3: _____

VISUAL OBSERVATIONS:

Photo taken: No Yes (Rolls & Photo number(s))

Odor: None Musty Sewage Rotten eggs Sour milk Other decaying leaves

Color: Clear Red Yellow Brown Green Grey Other _____

Clarity: Clear Cloudy Opaque Suspended solids

Floatables: None Oily sheen Garbage/sewage Other

Deposits/Stains: None Sediments Oily Other _____

Vegetation Condition: None Normal Excessive growth Inhibited growth

Structural Condition: Normal Concrete cracking/spalling Metal corrosion Other

Biological: Mosquito larvae Bacteria/algae Other snails

FIELD ANALYSES:

FIELD ANALYSES:

Water Temp.: 25 degrees C

Chlorine (total): 0 mg/L

pH: 7.5

Copper: 0/0 mg/L (free) / (dissolved)

Phenol: 0 mg/L

Detergents: 0 mg/L

Laboratory Samples Collected: Yes No
(If YES, attach copy of chain-of-custody record)

Comments:

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TABLE 2-2

FIELD DATA SHEET
ILLEGAL DISCHARGE FIELD SCREENING PROGRAM

Sheet No.: 1
 Outfall No.: SKCKA
 Date: 7/18
 Time: 11:29

GENERAL INFORMATION:

Time since last rain: >72 hrs <72 hrs Inspection Team: Lisa Spahr
Megan D'Ortona
 Quantity of last rain: >0.1 in. <0.1 in.

FIELD DESCRIPTION:

Location: SKCKA N. of Skunk Creek, W. of
67th Ave
 Open Channel Manhole Outfall Other
below bottom of streambed

Dominant watershed land uses: Industrial Commercial Residential Unknown Other
 (If known, list them)

Flow ESTIMATION: Flow observed: Yes No Approximate channel width or pipe diameter: 36" RCP

- 1) Width of water surface (feet): _____
- 2) Approximate depth of water (feet): _____
- 3) Approximate flow velocity (feet per second): _____
- 4) Flow rate (cubic feet per second) = 1 x 2 x 3: _____

VISUAL OBSERVATIONS:

Photo taken: No Yes (Rolls & Photo number(s))

Odor: None Musty Sewage Rotten eggs Sour milk Other _____

Color: Clear Red Yellow Brown Green Grey Other _____

Clarity: Clear Cloudy Opaque Suspended solids

Floatables: None Oily sheen Garbage/sewage Other _____

Deposits/Stains: None Sediments Oily Other _____

Vegetation Condition: None Normal Excessive growth Inhibited growth

Structural Condition: Normal Concrete cracking/spalling Metal corrosion Other _____

Biological: Mosquito larvae Bacteria/algae Other _____

FIELD ANALYSES:

FIELD ANALYSES:

Water Temp.: _____ degrees C

Chlorine (total): _____ mg/L

pH: _____

Copper: _____ mg/L

Phenol: _____ mg/L

Detergents: _____ mg/L

Laboratory Samples Collected: Yes No
 (If YES, attach copy of chain-of-custody record)

Comments:

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TABLE 2-2

FIELD DATA SHEET
ILLEGAL DISCHARGE FIELD SCREENING PROGRAM

Sheet No.: 1
 Outfall No.: SKCK 2
 Date: 7/18
 Time: 11:42

GENERAL INFORMATION:

Time since last rain: >72 hrs <72 hrs Inspection Team: Lisa Spahr
Megan D'Ortona
 Quantity of last rain: >0.1 in. <0.1 in.

FIELD DESCRIPTION:

Location: 55th + Skunk creek, N. of Union Hills

Open Channel Manhole Outfall Other
No flow

Dominant watershed land uses: Industrial Commercial Residential Unknown Other
 (If known, list them)

FLOW ESTIMATION: Flow observed: Yes No Approximate channel width or pipe diameter: 11' x 11'

- 1) Width of water surface (feet): _____
- 2) Approximate depth of water (feet): _____
- 3) Approximate flow velocity (feet per second): _____
- 4) Flow rate (cubic feet per second) = 1 x 2 x 3: _____

VISUAL OBSERVATIONS:

Photo taken: No Yes (Rolls & Photo number(s))

Odor: None Musty Sewage Rotten eggs Sour milk Other _____
 Color: Clear Red Yellow Brown Green Grey Other _____
 Clarity: Clear Cloudy Opaque Suspended solids
 Floatables: None Oily sheen Garbage/sewage Other _____
 Deposits/Stains: None Sediments Oily Other _____

Vegetation Condition: None Normal Excessive growth Inhibited growth
 Structural Condition: Normal Concrete cracking/spalling Metal corrosion Other _____
 Biological: Mosquito larvae Bacteria/algae Other _____

FIELD ANALYSES:

FIELD ANALYSES:

Water Temp.: _____ degrees C Chlorine (total): _____ mg/L
 pH: _____ Copper: _____ mg/L
 Phenol: _____ mg/L Detergents: _____ mg/L

Laboratory Samples Collected: Yes No
 (If YES, attach copy of chain-of-custody record)

Comments:

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TABLE 2-2

FIELD DATA SHEET
ILLEGAL DISCHARGE FIELD SCREENING PROGRAM

Sheet No.: 1
 Outfall No.: SKCK 8
 Date: 7/18
 Time: 11:29

GENERAL INFORMATION:

Time since last rain: >72 hrs <72 hrs Inspection Team: Lisa Spahr
Megan D'Ortona
 Quantity of last rain: >0.1 in. <0.1 in.

FIELD DESCRIPTION:

Location: N. of Skunk Creek, W. of 67th

Open Channel Manhole Outfall Other
No flow

Dominant watershed land uses: Industrial Commercial Residential Unknown Other

(If known, list them)

FLOW ESTIMATION: Flow observed: Yes No Approximate channel width or pipe diameter: _____

- 1) Width of water surface (feet): _____
- 2) Approximate depth of water (feet): _____
- 3) Approximate flow velocity (feet per second): _____
- 4) Flow rate (cubic feet per second) = 1 x 2 x 3: _____

VISUAL OBSERVATIONS:

Photo taken: No Yes (Rolls & Photo number(s))

Odor: None Musty Sewage Rotten eggs Sour milk Other _____

Color: Clear Red Yellow Brown Green Grey Other _____

Clarity: Clear Cloudy Opaque Suspended solids

Floatables: None Oily sheen Garbage/sewage Other _____

Deposits/Stains: None Sediments Oily Other _____

Vegetation Condition: None Normal Excessive growth Inhibited growth

Structural Condition: Normal Concrete cracking/spalling Metal corrosion Other _____

Biological: Mosquito larvae Bacteria/algae Other _____

FIELD ANALYSES:

FIELD ANALYSES:

Water Temp.: _____ degrees C

Chlorine (total): _____ mg/L

pH: _____

Copper: _____ mg/L

Phenol: _____ mg/L

Detergents: _____ mg/L

Laboratory Samples Collected: Yes No
 (If YES, attach copy of chain-of-custody record)

Comments:

6-13-06
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Appendix N

Program Activities for Permit Year 2

Appendix N
City of Glendale
NPDES Requirements for Permit Year 2

PROGRAM ELEMENT		REQUIREMENT	DEPARTMENT	STAFF	
4.1 COMMERCIAL AND RESIDENTIAL MANAGEMENT PROGRAM					
4.1.1 Stormwater Facility Maintenance					
4.1.1.1 Street Inlets		Inspection & Cleaning recording dates of inspection and cleaning by inlet	Streets	Larry Vassel, Streets Superintendent	
		Maintenance documented by date and description of maintenance by inlet	Streets	Larry Vassel, Streets Superintendent	
		Update inventory list of inlets by location as-needed	Engineering	Bob Coons, GIS Coordinator	
		Re-evaluate inlet inspection and cleaning	Streets	Larry Vassel, Streets Superintendent	
4.1.1.2 Drainage Channel Maintenance		Inspect non-turf channels in ROW; document date of inspection	Streets	Larry Vassel, Streets Superintendent	
City-Owned Detention/ Retention Basins	4.1.1.3 & 4.1.1.4 Inlets and Outlets		Inspect inlets & outlets within Parks; document date of inspection by inlet and outlet	Parks	Pete Vargas, Parks Superintendent
			Debris removal from inlets & outlets (turfed); document date by inlet and outlet	Parks	Pete Vargas, Parks Superintendent
			Inspect inlets and outlets in ROW; document date of inspection by inlet and outlet	Streets	Larry Vassel, Streets Superintendent
			Debris removal from inlets & outlets (non-turf); document date of removal by inlet and outlet	Streets	Larry Vassel, Streets Superintendent
	4.1.1.5 & 4.1.1.6 Sediment Removal		Sediment removal from basins in Parks; document date of removal by basin by park	Parks	Pete Vargas, Parks Superintendent
			Sediment removal from basins in ROW; document date of removal by basin	Streets	Larry Vassel, Streets Superintendent
	4.1.1.7 & 4.1.1.8 Dry Well Maintenance/ Replacement		Maintenance of Drywells in Parks; document date of maintenance and number of dry wells maintained by Parks	Parks	Pete Vargas, Parks Superintendent
			Replacement of Drywells in Parks; document date and number of dry wells replaced	Parks	Pete Vargas, Parks Superintendent
			Develop & maintain drywell inventory list in Parks	Engineering	Bob Coons, GIS Coordinator
			Maintenance of Drywells; document date of maintenance by ROW	Streets	Larry Vassel, Streets Superintendent
			Replacement of Drywells; document date and number of dry wells replaced in ROW	Streets	Larry Vassel, Streets Superintendent
	4.1.1.9 Privately-Owned Detention & Retention Basins		Modify existing Grading & Drainage Ordinance for private basins (inspection & sediment removal) and provide copy of modified ordinance	Engineering	Land Development Engineer
4.1.2 Development/ Redevelopment Planning					
4.1.2.1 Compliance with General Plan and Various City Codes		Evaluate and update annually; provide memo stating results of evaluation	Engineering	Dan Sherwood, Senior Civil Engineer	

Appendix N
City of Glendale
NPDES Requirements for Permit Year 2

PROGRAM ELEMENT	REQUIREMENT	DEPARTMENT	STAFF
4.1.2.2 Storm Drainage Policy/ Control Measures	Require retention of 100 yr, 2-hr storm for all new development documented in new storm drain policy	Engineering	Land Development Engineer
	Review & develop changes to the storm water program documented by new storm drain policy or written evaluation justifying existing system	Engineering & Environmental Resources	Land Development & Environmental Resources
4.1.2.3 Development Plan Review	Review and make changes as necessary	Engineering	Land Development Engineer
4.1.3 Roadway Operation and Maintenance			
4.1.3.1 Street Sweeping	Street sweeping documented by City's street sweeping policy	Streets	Larry Vassel, Streets Superintendent
4.1.3.2, 4.1.3.3 and 4.1.3.4 Road Maintenance, Construction runoff control	Continue existing programs and ensure compliance with applicable regs	Streets	Larry Vassel, Streets Superintendent
4.1.3.5 Field Operations Center	Complete evaluation of Field Operations Center and implement corrective actions, if needed, D10 and document date of implementation	Field Ops & Environmental Resources	Mike Hoyt, FOPS Director & Doug Kukino, Environmental Resources Administrator
4.1.4 Existing/ Proposed Flood Management Facility Assessments			
4.1.4.1 Existing and Proposed Flood Control Facilities	Assessment of existing facilities-storm drains document in written report	Field Ops & Engineering	Mike Hoyt, FOPS Director & Dan Sherwood, Senior Civil Engineer
	Assessment of proposed facilities-storm drains document in written report	Engineering	Dan Sherwood, Senior Civil Engineer
4.1.5 Municipal Waste Handling Facilities			
4.1.5.1 Municipal Waste Handling Facilities	Inspections of Municipal facilities documented by copies of inspections, monitoring data, and enforcement actions	Pretreatment	John Watkins, Pretreatment Officer & Dan Sherwood, Senior Civil Engineer
4.1.6 Pesticide, Herbicide and Fertilizer Use			
4.1.6.1 Municipal Pesticide Use	Follow approved application procedures, provide copy of operating procedures and list amount of pesticide used by type	Streets & Parks	Lupe Rodriguez, ROW Supervisor & Pete Vargas, Parks Superintendent
4.1.6.2 Programs to Reduce Pesticide & Fertilizer Use	Promote use of low water use plants, document with copies of brochures, date and number of classes, consultations, and other events held	Water Conservation	David Schultz, Water Conservation Coordinator
	Document design and use of low water use plants	Engineering	Katherine Emery, Landscape Architect
4.1.6.3 Public Education	Public education program on using less pesticides and water document with copy of educational materials and citizen newsletters	Marketing, Environmental Resources & Water Conservation	Doug Kukino, Environmental Resources Administrator

Appendix N
City of Glendale
NPDES Requirements for Permit Year 2

PROGRAM ELEMENT	REQUIREMENT	DEPARTMENT	STAFF
4.2 ILLICIT DISCHARGES/IMPROPER DISPOSAL MANAGEMENT PROGRAM			
4.2.1 Inspections and Enforcement			
4.2.1.1. Ordinance Enforcement	Code compliance inspections for illicit discharges document number of inspections by type and list enforcement actions taken	Code Compliance	Dan Gunn, Code Compliance Manager
4.2.2 Field Screening			
4.2.2.1 Revisions to Dry Weather Field Screening Procedures	Revise dry weather screening procedures as necessary	Engineering	Dan Sherwood, Senior Civil Engineer
4.2.2.2 Dry Weather Field Screening	Dry weather field inspection of 20% of major outfall for illicit discharges document date of inspections by major outfall and provide field notes	Engineering	Dan Sherwood, Senior Civil Engineer
	Dry weather inspection of major outfalls constructed after submittal of Part II NPDES	Engineering	Dan Sherwood, Senior Civil Engineer
4.2.3 Storm Sewer Investigation Approach & Sanitary Seepage			
4.2.3.1 Illicit Discharge Investigation	Illicit Discharge Investigation-develop written SOP and conduct inspections documented by date and listing actions taken	Engineering, Environmental Resources, & Utilities	Dan Sherwood, Senior Civil Engineer
4.2.3.2 Sanitary Sewer System Evaluation	Evaluate sanitary sewer system for seepage problems and document in a report including field notes, corrective actions, and additional dry weather screening and sampling	Engineering	Dan Sherwood, Senior Civil Engineer
4.2.3.3 Current Procedures to Limit Sanitary Seepage	Revise current SOP to limit sanitary seepage as necessary; document any problems and actions taken	Utilities	Chris Ochs, Superintendent of Utility Operations
4.2.4 Spill Prevention/ Containment			
4.2.4.1, 4.2.4.2, 4.2.4.3 & 4.2.4.4 Responsibilities, Containment Controls, Training, & Prevention	Document spill containment program with a copy of the SOP and training summaries including dates, number trained and training recordkeeping procedures. (Fire Dept and Environmental Resources)	Fire & Environmental Resources	Mike White, Emergency Svcs Battalion Chief & Doug Kukino, Environmental Resources Administrator
4.2.4.5 Recordkeeping	Maintain spill log including activities conducted for each incident, clean-up procedure, type/size/volume of spill, date, location. Summary of number of vehicular accidents on City streets.	Fire Department	Jim Higgins & Mike Harrington, Emergency Svcs Battalion Chief

Appendix N
City of Glendale
NPDES Requirements for Permit Year 2

PROGRAM ELEMENT	REQUIREMENT	DEPARTMENT	STAFF
4.2.5 Public Reporting & Used Oil/ Toxic Materials			
4.2.5.1 Public Education and Awareness Program for Illicit Discharges/ Improper Disposal	Develop & implement public information or awareness program document with copies of educational materials and summary of when, where, how and to whom (number) the materials were disseminated	Environmental Resources, Utilities & Marketing	Doug Kukino, Environmental Resources Administrator, John Watkins, Pretreatment Officer & Paula Illardo, Marketing Director
4.2.5.2 and 4.2.5.3 Mgmt and Disposal of Used Oil/Toxic Materials Generated by Businesses and City Operations	Continue existing programs and ensure compliance with applicable regs	Code Compliance	Dan Gunn, Code Compliance Manager
4.3 INDUSTRIAL MANAGEMENT PROGRAM			
4.3.1 Inspections/ Control Measures & Monitoring Program			
4.3.1.2 Prioritization of Industrial Facilities List	Prioritize industrial facilities list created in Permit Year 1 and identify which facilities contribute substantial pollutant loading to MS4	Utilities & Engineering	John Watkins, Pretreatment Officer & Dan Sherwood, Senior Civil Engineer
4.3.1.3 Education	City to inform industries of NPDES program; all industries required to file NOI's to EPA and City; letter will remind industries and inform them of City inspection; City to include pamphlet on storage and handling of toxic chemicals	Utilities, Environmental Resources & Marketing	John Watkins, Pretreatment Officer, Doug Kukino, Env Admin, Paula Illardo, Marketing Director
4.4 CONSTRUCTION SITE MANAGEMENT PROGRAM			
4.4.1 Site Planning			
4.4.1.1 Revise Development Plan Review Procedures	Revise Design guidelines for site development infrastructure construction	Engineering	Land Development Engineer
4.4.1.2 Require Permits for Construction Activities	Inspection and enforcement of grading and drainage permits; document with list of site inspected by date and the number of inspections and enforcement actions	Engineering	Pat Thurman, Assistant City Engineer
4.4.2 BMP Requirements			
4.4.2.1	Modify existing grading and drainage requirements to reduce potential environmental impacts during construction	Engineering	Land Development Engineer
4.4.3 Inspection and Enforcement			
4.4.3.1 and 4.4.3.2 Inspection and Enforcement and Recordkeeping	Inspection and enforcement at construction sites documented with list of constructions sites inspected by date and the number of inspections and enforcement actions (by type); review construction site SWPPPs when the City deems it necessary	Engineering	Land Development Engineer

Appendix N
City of Glendale
NPDES Requirements for Permit Year 2

PROGRAM ELEMENT	REQUIREMENT	DEPARTMENT	STAFF
4.4.4 Education and Training			
4.4.4.1 City Employees	Training for City Employees documented by date of training, number of employees trained and summary of training materials	Engineering & Environmental Resources	Pat Thurman, Assistant City Engineer & Doug Kukino, Environmental Resources Administrator
4.4.4.2 Construction Industry	Continue existing programs and ensure compliance with applicable regs	Engineering & Building Safety	Pat Thurman, Assistant City Engineer & Building Inspection Manager