REPORT

CITY OF PHOENIX
NPDES PART 2
PERMIT APPLICATION

VOLUME I -

Report,
Tables and Figures,
Appendixes 1 - 3

Prepared for:

City of Phoenix
125 E. Washington Street
Phoenix, Arizona 85005

November 10, 1992
Reference No. 9155038

Woodward-Clyde Consultants

426 N. 44th St., Suite 300
Phoenix, AZ 85008

City of Phoenix
ENGINEERING & ARCHITECTURAL SERVICES DEPARTMENT

November 18, 1992

Ms. Catesby Moore
Maricopa County Flood Control District
2801 West Durango
Phoenix, AZ 85008

Dear Ms. Moore:

NPDES STORM WATER
INDEX NO. ST-897959

Enclosed is a copy of the following:

___ Preliminary Check Prints	___ Quarter Section Maps
___ Final Check Prints	___ Right of Way Maps
___ Project Schedule	___ Alignment Geometrics
___ Specifications	___ Correspondence
___ Estimate	___ Plot Plans
___ Details	___ Legal Descriptions
___ Shop Drawings	___ Materials Reports
___ Design	_X_ Others (clarification)

For:

___ Your approval	___ Approved as submitted
_X_ Your use	___ Approved as noted
___ As requested	___ Return for correction
___ Review and comment	___ Other (rejected)
___ Your information	

Remarks:

Enclosed, for your information, is a copy of the Part 2 NPDES Permit Application we submitted to EPA for our storm sewer system. Unfortunately, due to the high cost of printing colored maps, we have had to omit the volume that contained our geographic database. We would, however, like to provide you with this information on a computer disk. We ask you contact Patricia Murray, at 225-0150, and advise her of the format you need for your computer system. Once Ms. Murray has this information, the disk will be forwarded to you as soon as possible.

Cordially,

R. Blane Work

R. BLANE WORK, P.E., DEE
Environmental Engineering Manager

Attachment

REPORT

Woodward-Clyde Consultants

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

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1.0
LEGAL AUTHORITY

1.1 INTRODUCTION

The NPDES regulations mandate that the City, as part of the Storm Water Management Program, must demonstrate adequate legal authority which enables the City to:

- Control the quality of industrial storm water discharges and the contribution of pollutants to the municipal storm sewer system by such discharges.
- Prohibit illicit discharges to the municipal storm sewer.
- Control spills, dumping, or disposal of materials other than storm water to the municipal storm sewer.
- Control through interagency agreements the contribution of pollutants from one portion of the municipal system to another.
- Require compliance with conditions in ordinances or permits.
- Carry out inspections, surveillance and monitoring necessary to determine compliance and non-compliance with permit conditions.

Generally, existing City ordinances addressing the subject areas of the EPA regulations were originally drafted for other purposes, such as to control littering or prevent blockage of storm drains. Because these ordinances were prepared before the EPA regulations were adopted, they generally do not match the scope and focus of the storm water discharge regulatory program. However, the programs were designed to address issues of similar environmental concern and represent a good start toward addressing the goals of the EPA regulations.

The City, in its Part 1 permit application, inventoried and described the existing legal authorities the City has established to control the contribution of pollutants to the municipal storm sewer system. An example of the City's exercise of this authority in connection with NPDES permits is the pretreatment program to regulate industrial discharge into the sewer system, as required for operation of two Publicly Owned Treatment Works (POTWs) serving the City. The City concluded it has adequate legal authority to implement appropriate controls necessary to provide for storm water quality that will satisfy the NPDES regulatory requirements. This demonstration of legal authority is presented in Section 1.0 - City of Phoenix Part 1 NPDES Permit Application, dated September 30, 1991.

The EPA reviewed and formally approved the City's Part 1 application with the understanding that the City would supply additional requested information. In regard to existing legal authority, EPA did find the Part 1 application to be complete. EPA did recommend that Part 2 of the application cite specific legal authority to conduct the above mentioned regulatory requirements. EPA also suggested the City enact ordinances specific to reducing storm water pollution. These items were communicated in a letter from Harry Seraydarian to Frank Fairbanks, dated February 12, 1992.

The City has now prepared an ordinance which consolidates the City's legal authority, specific to the prevention of pollution of water from discharges of storm water. The City Council approved Ordinance Number G-3589 on November 4, 1992.

ATTACHMENT 1-1

ORDINANCE NO. G 3589

AN ORDINANCE ADDING A NEW CHAPTER 32C TO THE PHOENIX CITY CODE TO PREVENT THE POLLUTION OF WATER FROM DISCHARGES OF STORM WATER.

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF PHOENIX as follows:

SECTION 1. A new Chapter 32C is added to the Phoenix City Code, consisting of Sections 32C-100 through 32C-106 as follows:

Chapter 32C Storm Water Quality Protection

Sec. 32C-100. General Powers and Purpose.

(a) The City Manager or his designee may regulate the use, grading, paving, maintenance, and operation of public rights-of-way and public storm drain systems so as to reduce, to the maximum extent practicable, the addition of pollutants to storm water in quantities or concentrations that could reasonably be expected to cause or contribute to either a violation of an applicable water quality standard or

any condition of a storm water NPDES permit issued to the City; or any other act that causes or contributes to damage to a public storm drain system. The City Manager or his designee may regulate the use of the public storm drain system through administrative rules, permits, and other written forms of approval for activities that could release pollutants or storm water to a public storm drain system.

(b) Nothing in this Chapter shall be construed as an assumption by the City of Phoenix of any other person's duties or responsibilities arising under any applicable law, including the common law. Any activities of the City Manager authorized by this Chapter are permissive rather than mandatory.

(c) The City Manager or his designee will provide implementation guidance to assist the public in complying with this Chapter. This guidance may consist of fact sheets, policy and procedure manuals, and other pertinent information relating to the development and implementation of best management practices.

Sec. 32C-101. Definitions.

As used in this Chapter, the following terms

shall have the designated meanings.

(a) "Applicable Water Quality Standard" means a numeric or narrative water quality criterion that limits the quantity or concentrations of pollutants that may be present in navigable waters defined in 33 United States Code Section 1362(7).

(b) "Nonresidential Property" means any real property that is actually or intended to be used for commercial, industrial, agricultural, or recreational purposes, including but not limited to the immediate vicinity of five or more connected residential dwelling units, and residential subdivisions or dwellings that have not been occupied by a bona fide purchaser or tenant.

(c) "NPDES Permit" means an authorization to discharge pollutants issued pursuant to 33 United States Code Section 1342.

(d) "Pollutant" means solid, liquid, gaseous, or other substances that can alter the chemical or physical properties of water, including but not limited to: fluids, solid wastes, pesticides, herbicides, fertilizers, solvents, sludge, petroleum and petroleum

products, biological materials, radioactive materials, sand, dirt, animal wastes, acids, and bases.

(e) "Pollution" means the presence of pollutants on land or in storm water.

(f) "Public Storm Drain System" means all or any part of the publicly owned storm drains, basins, ditches, pipes, graded areas, and gutters located within easements, rights-of-way, parks, streets, roads, or highways, or in common areas of real property leased from the City of Phoenix, that are used for collecting, retaining, or conveying storm water.

(g) "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, placing, leaching, dumping, or disposing into or on any land in a manner that significant materials, pollutants, or storm water may come to be located in a public storm drain system.

(h) "Significant Materials" means any solid, liquid, or gaseous substance other than storm water, that can release pollutants, including but not limited to: Raw materials; fuels; solvents; detergents; finished materials; hazardous substances designated

under Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act, 42 United States Code Section 9601(14); any chemical for which a report must be filed pursuant to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, 42 United States Code Section 11023; fertilizers; pesticides; herbicides; and waste materials, including garbage, trash, ashes, slag, yard waste, animal waste, and sludge.

(i) "Storm Water" means rainfall runoff.

Sec. 32C-102. Declaration of nuisance.

It is hereby declared to be a public nuisance for any person to directly or indirectly release significant materials, pollutants, or storm water without proper authorization in quantities, velocities, or concentrations that may reasonably be expected to cause or contribute to: Damage to a public right-of-way or public storm drain system; a violation of an applicable water quality standard; or a violation of any condition of a storm water NPDES permit. As used in this section, proper authorization exists if an activity affecting storm water is specifically authorized in (i) this Chapter, (ii) an administrative

rule, permit, plan approval, or other authorization issued in compliance with this Chapter, or (iii) a storm water NPDES permit.

Sec. 32C-103. Prohibited practices.

(a) It shall be unlawful for any person to use, store, treat or dispose of storm water, pollutants, or significant materials in a manner that creates a public nuisance as defined in Section 32C-102 of this Chapter.

(b) It shall be unlawful for any person to release to a publicly-owned right-of-way or public storm drain system any substance that is not composed entirely of storm water except (i) releases pursuant to a NPDES permit, (ii) releases resulting from fire fighting and street maintenance activities, and (iii) releases of materials as provided in paragraphs (d) or (e) of this section.

(c) It shall be unlawful for any person to, without good cause, interfere with or prohibit any City employee from conducting any activities in furtherance of the requirements of this Chapter, including conducting inspections and taking samples.

(d) This section does not prohibit releases of storm water from storm water retention or detention basins if a permit or approval is first obtained from the City Manager or his designee. A person seeking such a permit or approval shall demonstrate that the release is not reasonably expected to cause or contribute to a public nuisance as defined in Section 32C-102 of this Chapter.

(e) This section does not prohibit releases from: Fire hydrant flushing; potable water systems, including water line flushing; foundation or footing drains that are not contaminated by pollutants; naturally occurring seeps, springs, wetlands, or riparian areas; nonagricultural irrigation water; vehicle washing for no charge in residential areas, or for not-for-profit fundraisers for educational or public service groups; residential evaporative coolers; air conditioner condensate; and dust control watering.

Sec. 32C-104. Storm Water Management Plans Prepared by Permit Applicants.

(a) Any person applying pursuant to any Chapter of the Phoenix City Code for authorization, permission, or a permit to construct improvements or

conduct activities on nonresidential property that have the reasonable potential to affect storm water shall prepare a detailed written storm water management plan for the management of the volume, velocity, and quality of storm water that has the reasonable potential to be released off site. Storm water management plans shall apply to all contiguous land under common ownership or control, and shall specifically state the address of each parcel of property subject to the plan. The plan shall include a description of the types of all significant materials that will be on the property; the land use and materials management practices that could lead to the pollution of storm water during all phases of existing and proposed land use; the manner in which significant materials will be used, stored, treated or disposed of; the methods to minimize, to the maximum extent practicable, the pollution of storm water; and any additional information concerning storm water management and pollution prevention efforts that are or will be prepared to comply with any rules or NPDES permits promulgated pursuant to the portions of 40 Code of Federal Regulations Part 122, that relate to discharges of storm water. The storm water management plan shall be provided to the City Manager or his designee.

(b) A storm water management plan may cover more than one parcel of property so long as the activities on the property are sufficiently similar that the plan is appropriate. Storm water management plans need not be resubmitted where the new permits relate to activities that will not affect the applicability of a previously submitted plan.

(c) Permits, approvals or other authorizations that require storm water management plans as provided in this section shall not be issued until the City Manager of his designee has received the applicable storm water management plan. It shall be cause for modification or revocation of the permit, approval or other authorization if significant materials are not at all times managed in substantial compliance with the applicable storm water management plan, or if the authorized activity causes or contributes to violations of this Chapter. There shall be an enforceable commitment that the persons described in section 32C-106(b) of this Chapter will update the storm water management plan as necessary if activities at the affected property are modified in a manner that may cause a material detrimental change in the volume, velocity, or quality of storm water released off site.

(d) Storm water management plans shall include, to the extent applicable, practicable measures for: Managing litter; the use, storage, treatment, and disposal of significant materials; the use and disposal of pesticides and herbicides; reducing the velocity of releases to a public storm drain system; the use of landscape features to reduce the quantity and velocity of storm water that may be released off site; maintenance of retention basins and other storm water management devices; maintenance and cleaning of parking lots and buildings; and ensuring that significant materials are not exposed to direct contact with storm water. Storm water pollution prevention plans that comply with a storm water NPDES permit and applicable requirements of 40 Code of Federal Regulations Part 122 may be used as part or all of the storm water management plan required by this section.

Sec. 32C-105. Inspections.

(a) The City Manager or his designee is authorized to inspect real property, structures, and buildings as necessary to assess compliance with this Chapter or a storm water NPDES permit. These inspections shall be conducted in accordance with applicable constitutional or statutory requirements.

(b) Inspections conducted pursuant to this Chapter may be expanded to include items covered by other Chapters of the Phoenix City Code that relate to the quality or management of storm water.

(c) The City Manager or his designee may collect and analyze samples of storm water and significant materials, install and require the installation of storm water sampling and measurement devices, and examine records concerning significant materials and storm water.

Sec. 32C-106. Violations and penalties.

(a) The remedies specified herein are cumulative and the City Manager or his designee, or the City Attorney, may proceed under these or any other remedies authorized by law. In addition to any other authorized remedies, a person who violates any provisions of this Chapter shall be guilty of a misdemeanor. Each day of violation shall be a separate offense.

(b) Any person having control over an activity or any real property, or who causes, authorizes, facilitates, aids or abets any violation of

any provision of this Chapter, or who fails to abate any nuisance or prohibited practice for which the person is responsible, is guilty of a Class One misdemeanor.

(c) The City Manager or his designee may issue a Notice of Violation to any person who has violated or is in violation of this Chapter. Failure to perform any act required in the Notice of Violation shall be a separate violation for each day beyond the tenth calendar day following the issuance of the Notice of Violation.

(d) The transfer of ownership, possession, or control of real property to another person does not relieve the transferor of responsibility for violations of this Chapter, as provided in paragraph (b) of this section, that occurred before the transfer unless the transferee accepts responsibility for the violations.

(e) A person who violates this Chapter is subject to a civil action in any court of competent jurisdiction to collect a civil sanction of not less than FIFTY DOLLARS ($50.00) nor more than TWO THOUSAND FIVE HUNDRED DOLLARS ($2,500.00) for each violation. Each day of each violation shall constitute a separate civil offense.

(f) The owner of record of the property upon which a violation of this Chapter occurs shall be presumed to be a person having lawful control over an activity or real property, unless it is demonstrated that another person has knowingly and in good faith accepted responsibility for the activity or property at issue. If more than one person is identified as the owner of record, such persons shall be presumed to be jointly and severally in lawful possession and control of the activity or land.

SECTION 2. WHEREAS, the immediate operation of the provisions of this ordinance is necessary for the preservation of the public peace, health and safety, an EMERGENCY is hereby declared to exist, and this ordinance shall be in full force and effect from and after its passage by the Council as required by the City Charter and is hereby exempted from the referendum

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clause of said Charter.

PASSED by the Council of the City of Phoenix this 4 day of NOV, 1992.

MAYOR

ATTEST:

Vicky Mial City Clerk

APPROVED AS TO FORM:

ACTING City Attorney

REVIEWED BY:

Frank Fairbanks City Manager

CR/lk:0653Y

10/30/92

CITY CLERK DEPT. 1992 NOV -4 PM 12:02

2.0
SOURCE IDENTIFICATION

2.1 REGULATORY REQUIREMENTS

The regulations require that the City locate any major outfall that discharges to waters of the United States that was not reported in the Part 1 permit application. Development of an inventory, organized by watershed, presenting the name, address, and description (such as SIC codes) for each facility which may discharge storm water associated with industrial activities, to the municipal separate storm sewer, was also required.

2.2 DISCUSSION

The following geographic databases and tabular databases included in the Part 1 permit application were updated for this task:

Major Outfalls and Catchment Databases: The City identified and located 126 major outfalls discharging to waters of the United States for the Part 1 permit application. "Waters of the U.S." in the study area were defined as all natural drainages (including both named and unnamed intermittent streams and dry washes) and includes the following:

- Salt River
- Indian Bend Wash
- Cave Creek Wash
- New River
- Skunk Creek
- Dreamy Draw Wash

Additionally, major outfalls which discharge to the following manmade water distribution and storm drain systems owned and operated by others were identified:

- Arizona Canal
- Arizona Canal Diversion Channel
- Cross Cut Canal
- Old Cross Cut Canal
- Papago Diversion Channel
- Grand Canal
- Western Canal
- North Highland Canal
- South Highland Canal
- Roosevelt Irrigation District Canal
- Gila Drain
- 48th Street Drain

The updated outfalls database contains seven additional outfalls that have since been identified which were not included in the Part 1 permit applications. Of these 133 outfalls, 118 have been included in evaluations and analyses and plotted on appropriate maps. Those outfalls not evaluated or plotted on the maps are associated with catchment basins lying within larger basins, for which an outfall was identified. The outfall database also contains the outfall size, location, and corresponding drainage area. The outfalls database is presented in Appendix 1, and the base maps developed for the Part 1 permit application have been updated to include the new outfalls and associated drainage areas.

Industrial Database: The Part 1 application included development of an inventory of industries which may discharge storm water to the City of Phoenix municipal storm sewer system. The inventory has been increased to 1047 entries, from the original 920 and includes the name, address, SIC code, contact person and position, and telephone number of each industry. A unique identifier has been assigned to each industrial facility, and these have been included in the tabular database, as well as in the

geographic database. The geographic database has the industries grouped with an additional graphic identifier into groups of industries with similar products or services. The databases can be sorted by catchment which also have unique identifiers in the databases. This enables querying the databases for industries by catchment, and obtaining a tabular listing for each catchment, as well as a corresponding map layer. The 1047 industrial database entries are sorted by watershed and are presented in Appendix 2, SIC Facilities. The industries are shown on the permit maps by industry type.

Landfill and Waste Facility Database:

The City obtained information on all landfills or other waste treatment, storage, or disposal facilities, both active and inactive, located within the study area, which extends one mile beyond the Phoenix City limits. This information was acquired from the City and the Arizona Department of Environmental Quality (ADEQ). There is one secondary wastewater treatment facility located within the City of Phoenix, at 23rd Avenue and Durango Street, and there are five landfills open and operating within the study area.

Each landfill was located on a polygon map and assigned a unique identification number. This information was then digitized into the computer. Also included in the database were the facility name and address, operator name and address, location in selected coordinate system, and identification number. There are 72 landfills mapped on the system. The tabular Landfills Database is presented in Appendix 3.

NPDES - Permitted Facilities Database:

The updated NPDES permitted facilities database is provided in Appendix 4. The information includes the permit number, permit issuance and renewal dates, constituents covered by the permit, and name, location, phone number and contact person for the discharger. The NPDES permit information was obtained from ADEQ, and each permitted facility was located on a map and assigned coordinates.

One facility in the study area permitted under the current NPDES permit system discharges to the municipal storm drain system. The remaining 16 facilities discharge to waters of the U.S.

Structural Storm Water Control Facilities Database:

Seven new control structures have been constructed, or are under construction by the City and FCD, in the study area since submittal of the Part 1 permit application. The control structures were located on the base maps and provided with addresses and coordinates. This information was then digitized into the computer. The name of the facility, owner and operator name, address and phone number, facility size and type, and facility location were entered into the tabular database presented in Appendix 5.

Publicly Owned Lands Database:

The publicly-owned lands database has been updated and is presented in Appendix 6. A generalized land use map, provided by the City, included information on current land ownership status. This information was transferred to the base maps and digitized into the computer. The type of facility, area, owner, address and location was also input into the computer database. The geographic database allows this information on land ownership to be overlain on the catchment area and land use information. The City Parks, Recreation and Library Department provided a current listing of publicly owned properties.

3.0 CHARACTERIZATION DATA

3.1 REGULATORY REQUIREMENTS

The regulations require the City to provide information characterizing the quality and quantity of discharges covered in the permit application, including:

- Quantitative data from representative outfalls designated by the Director.
- Additional limited quantitative data required by the Director for determining permit conditions and other parameters necessary to insure representativeness.
- Estimates of the annual pollutant load of the cumulative discharges to waters of the United States from all identified municipal outfalls and the event mean concentration (EMC) of the cumulative discharges to waters of the Untied States from all identified outfalls during a storm event as described under Section 122.21(c)(7) for BOD_5, COD, TSS, dissolved solids, total nitrogen, total ammonia plus organic nitrogen, total phosphorus, dissolved phosphorus, cadmium, copper, lead, and zinc.
- A proposed schedule to provide estimates for each major outfall of the seasonal pollutant load and of the EMC of a representative storm for any constituent detected in any sample.
- A proposed monitoring program for representative data collection.

3.2 STORM WATER SAMPLING PROGRAM

The City of Phoenix began collecting storm water samples from 7 sampling stations in the study area on January 3, 1992. This storm water quality and quantity monitoring

program was performed in accordance with the Discharge Characterization Plan (Plan) developed in the City's Part 1 NPDES Permit Application (see Appendix 7). The City submitted the Plan to EPA Region IX on June 19, 1991, and received formal approval September 6, 1991, with the understanding that minor modifications and clarifications would be addressed. These modifications and clarifications were made in the final Plan, and included in the Part 1 Permit Application Submittal. Activities described in the Plan consisted of equipment installation, including ISCO automatic samplers and ADS Environmental Services flow monitors; sampling selected outfalls; measuring flows and analyzing the samples. A copy of the final plan is included in Appendix 7.

3.2.1 Storm Water Sampling

Wet weather water quality sampling was performed during selected storm events meeting predetermined criteria, including both minimum and maximum values for the duration and volume of a winter or summer storm. Samples were collected from three representative storm events at stations SR-21, IB-08, IB-11 and AC-05. At stations SR-03, SR-45, and SR-33 two storm events were sampled. Surcharging was experienced at these locations due to upstream, unpredictable dam releases. Equipment malfunctions were also experienced.

The criteria used for sampling winter storms were 0.22 to 0.65 inches of measurable rainfall with a corresponding duration of 5.2 to 15.6 hours; summer storm criteria were 0.24 to 0.77 inches of rainfall with a corresponding duration of 2.2 to 6.5 hours. A local forecasting service provided daily forecasts during the winter storm season. Precipitation records for sampled storm events were obtained from the National Weather Service (NWS) and Flood Control District of Maricopa County (FCD) which have raingauges within a 3-mile radius of the City's sampling stations and are presented in Appendix 8. Figures 3-1 through 3-4 present the sampling stations and corresponding raingauge locations; locations and numbers of the sampling stations and raingauges are presented on the following table.

Sampling Station	Raingauge Number	Location
SR-21	NWS	Sky Harbor Airport
SR-33	6010	Roeser at 2nd Street
SR-03	6200	Durango Complex
SR-45	6020/6500	Salt River at 24th Street/ Guadalupe Fire Station
AC-05	6330/6320	Cave Creek Rd. at Cactus/ ACDC at 43rd Avenue
IB-08	6140/6150	Sweetwater Precipitation Gauge/ Paradise Valley Precipitation Gauge
IB-11	6130	Thunderbird at Scottsdale Road

Table 3-1 presents; (a) the date and duration of each storm event sampled, (b) rainfall estimates of the storm event generating the sampled discharge, and (c) duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event.

Both grab and flow-weighted composite samples were collected and analyzed for constituents including oil and grease, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, total Kjeldahl nitrogen, fecal coliform, fecal streptococcus, biochemical oxygen demand, chemical oxygen demand, hardness, pH, nitrates, metals, minerals and total dissolved solids. Based on EPA's recommendation, the City analyzed for pesticides and herbicides at Station IB-11, located at 56th Street and Shea Boulevard; and Station SR-03, located at 35th Avenue and Lower Buckeye Road. These stations were selected because represented land uses, such as golf course/park areas and agricultural areas, were included in their corresponding drainage areas.

3.2.2 Analytical Laboratory Results

Laboratory analytical test results from the wet weather sampling program are presented in Tables 3-2 through 3-8. Chain-of custody reports are presented in Appendix 12 and laboratory analytical reports are presented in Appendix 13. Test results were compared to Federal Drinking Water Standards and Arizona Surface Water Standards, since there are no promulgated water quality standards for storm water. Arizona Surface Water Standards for metal analytes were obtained using calculated values corresponding to beneficial uses associated with the receiving water. For example, Indian Bend Wash, which is the receiving water of outfalls IB-08 and IB-11, has three designated beneficial uses, including; aquatic and wildlife warm water fishery, partial body contact and fish consumption. Therefore, metal standards calculations were made for each designated beneficial use and the most conservative value was recorded in the table. Values exceeding either the Arizona Surface Water Standard or the Federal Drinking Water Standard are highlighted in **bold** typeface.

3.3 POLLUTANT LOADS DEVELOPMENT

3.3.1 Introduction and Scope

This section of the permit application presents the results of a study to develop information on the characteristics of storm water runoff discharges in selected catchments and to prepare estimates of the pollutant loads discharged to the major receiving waters in the study area.

The study included gathering hydrological data and performing runoff and water quality monitoring for seven selected catchments in the City of Phoenix. Relative to land use, these catchments were selected to fulfill one of two conditions; either the catchment had one predominant land use of interest, or the catchment had a spectrum of land uses which were representative of the land uses in the City of Phoenix as a whole. The data collection period spanned the months from January 1992 to October 1992, with most of

the data being acquired during the first three months of the year. The data were collected in accordance with the sampling plan submitted with the City's Part 1 permit application.

After the data were acquired, they were used to formulate and calibrate a hydrologic and water quality model. The hydrologic portion of the model was used to simulate the runoff responses of the seven selected catchments to precipitation. In this study, the Storm Water Management Model (SWMM) Version 4.04 (Huber and Dickinson, 1988) was used to estimate runoff volumes from land use areas for loads calculations. SWMM provides a detailed mathematical simulation of the hydrologic cycle in the study area.

Once the hydrologic portion of the model was calibrated for the study area, SWMM was used to generate average annual runoff volumes for the selected catchments based on the average rainfall.

The water quality component of the model utilized these predicted annual average flows and measured pollutant concentrations for the monitored storm events to formulate relationships between land use and water quality. These relationships were used to estimate the pollutants loads per acre generated by the different land uses in the City of Phoenix on an annual basis. Overall land use data for the City of Phoenix were then used to estimate the areas of the respective land uses in the watersheds for the major receiving waters of the City. Annual pollutant loadings were estimated using these land use areas and the estimated pollutant loading rates per acre of the specified land uses.

The section is organized so that Section 3.3.2 presents a summary of the hydrological data gathered for the study, including the analyses of precipitation patterns for the Phoenix area and the runoff data gathered. It also provides a description of the development of the hydrological model, including the calibration and calculation of annual runoff volumes for the study area. Section 3.3.3 describes the water quality model used in the study, and the methodology used for estimating the pollutant loads for the major receiving waters. It also provides recommendations for refining and

improving the reliability of the pollutant load estimation as additional monitoring data becomes available.

3.3.2 Hydrological Modeling

3.3.2.1 Introduction and Scope

For this portion of the study, hydrological data were gathered for selected areas of the City of Phoenix to provide insight into the historical magnitude and variability of rainfall and runoff in the study area. The estimation of pollutant loads requires an understanding of the sources of storm water runoff and the differences in volumes and flows due to land use variations. One way to estimate runoff from individual land uses and from ungauged areas, other than installing flow monitoring gauges, is by using a rainfall-runoff model.

Rainfall-runoff models use physical and land use information for a given catchment to calculate storm runoff from a given rainfall record. The models vary in complexity from relatively simple models such as the Rational Method (Ponce, 1989), to models which attempt to represent in detail the physical mechanisms through which rainfall is converted to runoff.

In this study, the Storm Water Management Model (SWMM) Version 4.04 (Huber and Dickinson, 1988) was used to estimate runoff volumes from land use areas for pollutant loads calculations. SWMM provides a detailed mathematical description of the hydrologic cycle, including runoff from impervious and pervious areas; infiltration; percolation to the water table; groundwater flow into channels; losses due to evapotranspiration, interception, and depression storage; and routing of runoff down stream channels and storm drain systems.

Other models, such as the U.S. Army Corps of Engineers HEC-1 model and the Storage, Treatment, Overflow and Runoff Model (STORM), were also evaluated for use but were

not used because they do not offer the flexibility and statistical analysis features which are inherent in the SWMM model.

The hydrologic data gathering effort required compilation and review of rainfall records, delineation of catchment boundaries, and compilation of data including areal distribution of land use, percent imperviousness, soil type, and slope. Catchments were subdivided into subcatchments based on uniform land use types. Estimates of parameters such as the percent imperviousness, surface roughness, and hydraulic conductivity were refined by calibrating the hydrological model against measured storm runoff volumes at monitoring stations.

After calibration was complete, the hydrologic model was applied to the seven study area catchments. Annual runoff estimates were developed for a representative year in terms of average annual rainfall volumes, average annual rainfall events, and average rainfall per event. The representative year was 1976, based on the 35-year period of record at the National Weather Service raingauge at Sky Harbor Airport in the City of Phoenix (1954 through 1988).

The following sections summarize the hydrologic data gathered and the application of SWMM to the selected catchment areas. Section 3.3.2.2 presents a description of the study area and the process used to select the seven catchment areas used in evaluating the runoff and water quality for the City of Phoenix. Section 3.3.2.3 describes the precipitation records gathered for the City of Phoenix and the analyses performed on the data. Section 3.3.2.4 presents the runoff information acquired during the data gathering period in 1992. Section 3.3.2.5 describes the development of the hydrologic model and its calibration, including a description of the process used to estimate the annual runoff volumes from the catchment areas.

3.3.2.2 Study Area Description

The climate of the City of Phoenix and surrounding desert floor is warm and arid, with a mean annual precipitation of approximately 7 inches per year. Most of the

precipitation occurs in two distinct seasons, summer (July through September) and winter (October through March).

In order to formulate a relationship between storm water runoff water quality and land use, it is necessary to obtain water quality and runoff data. Since the factors in the relationship can be complex, selecting catchments with different primary land uses simplifies the characterization. Based on this criteria, five catchments in the City of Phoenix were selected, which represented three primary land uses. These catchments include:

- AC-05, primarily commercial land use.
- IB-08, primarily residential land use.
- IB-11, primarily residential land use.
- SR-21, primarily industrial and transportation land use.
- SR-45, primarily industrial land use.

Additionally, two catchments were selected with distributions of mixed land uses which are representative of the distribution of land uses in the City of Phoenix as a whole. These catchments are SR-03 and SR-33. The locations of the catchments in the City of Phoenix have been presented previously in Section 3.2.1 of this report.

Each of the seven catchments was equipped with a monitoring station in the storm drain network to measure the flood hydrograph generated by a rainfall event in the catchment. The monitoring station also collected composite samples of the storm water runoff for analysis, and provided an access point where grab samples of the runoff could also be collected.

3.3.2.3 Precipitation

This section summarizes historical precipitation data from the National Weather Service (NWS), providing insight into the precipitation that typically occurs in the City of Phoenix. This summary will also address the representativeness of the storms monitored in this study. In addition, the hydrologic data collected as part of this study during 1992 are presented.

The historical precipitation data available for the City of Phoenix includes NWS records data from two raingauges in the City. The data obtained from the NWS included hourly rainfall for two precipitation stations: the Weather Service Forecast Office (WSFO) at Sky Harbor Airport (046481) and the City of Phoenix (046486). The WSFO Station data include hourly precipitation from 1948 to 1988, although rainfall data for several months in 1953 are missing. Therefore, in our analysis, data from 1954 to 1988 were used. The City of Phoenix station records include hourly precipitation data from 1948 to 1968.

Other historical precipitation data available for the City of Phoenix are recorded from a network of gauges maintained by the FCD of Maricopa County (FCD). Their database can provide rain data at desired intervals for storm events.

The addresses and numbers of the raingauges used in this study are presented in Section 3.2.1. The locations of the raingauges relative to the catchment study areas are shown on Figure 3-1, 3-2 and 3-3.

A review of rainfall data for the period of 1954 to 1988 for the Sky Harbor gauge indicates that the total annual rainfall in Phoenix has been as low as 2.49 inches (1962), and as high as 14.33 inches (1984). The volume for each rainfall event during this period typically varied from less than 0.1 inches to 0.5 inches, with occasional values greater than 1.0 inch.

These historical data indicate a time between storms often on the order of weeks or months. This rainfall pattern, combined with high rates of infiltration, evaporation, and

evapotranspiration in the Phoenix area, results in very low antecedent soil moisture, and results in low rates of runoff during storm events.

Representative Storm

A representative storm, for the purposes of sampling as part of the NPDES requirements, is defined as one that meets the following criteria:

- It has a storm depth of greater than 0.1 inches. Events with depths less than this do not generally produce runoff.
- It must be preceded by at least 72 hours of dry weather.
- Its average depth and duration should not vary by more than 50 percent from the average depth and duration of storms for the study area, where feasible.

Characteristic Storms

Three basic types of storms characterize the Phoenix area, as described below:

a. **Winter Storms.** Winter storms normally occur when weak tropical storm systems moving inland from the coast of California produce light to moderate precipitation over widespread areas. Although they can occur any time from late October through May, they are most common and generally heaviest from December through early March. These storms frequently last several days and may occur in series, with only slight breaks between storms. They usually reflect orographic effects (lifting by mountains) to a great degree, so the mountains of central Arizona often receive from four to ten times as much precipitation from winter storms as do the desert areas near Phoenix and south and west of the City. The Phoenix winter storms are of lower intensity but longer duration than the summer storms, and tend to produce less runoff.

b. **Summer Storms.** Summer storms normally result from a flow of warm and very moist tropical air into the region from the southeast or south, including the Gulf of California, the tropical Pacific Ocean south of Baja California, and, to a large extent, the Gulf of Mexico. Such storms over Arizona are sometimes associated with tropical storms or hurricanes. Summer storms can occur in Phoenix any time from late June through mid-October, but are most frequent from August through early September. They usually last from one to three days and generally consist of numerous locally heavy storm cells embedded in more widespread, generally light to moderate rain. Like their general winter counterparts they usually reflect orographic influence, with higher mountains often receiving from three to eight times as much precipitation as most of the desert areas. Some of the late September and October general storms can show characteristics of both the summer and winter types. The areal extent and duration of the summer storms are usually somewhat less than those of the winter storms, but intensities may be higher. The more intense summer storms can produce substantial amounts of runoff and occasional flooding.

c. **Local Storms.** Local storms consist of heavy downpours of rain over relatively small areas (up to about 300 square miles) for short periods of time (up to about 7 hours). They are usually accompanied by lightning and thunder, and are often referred to as "thunderstorms" or "cloudbursts." They can occur any time of the year, but are most prevalent and intense during the summer months, July to September, when tropical moisture frequently invades Arizona from out of the south or southeast. During the latter part of the summer season they are often larger, of longer duration, and more apt to be associated with general summer storms.

Storm Event Statistical Analyses

The SYNOP computer program was used to characterize the precipitation events for the area. SYNOP is a computer code developed jointly by the EPA and the Federal Highway Administration for summarizing and statistically analyzing long-term rainfall

records. The program takes hourly precipitation data and sorts the entries into sequences of "storm events" based on a user-specified minimum number of consecutive dry hours between storms. The characteristics of each storm event (volume, duration, intensity) are then calculated, and this information is used to define and describe the representative storm.

For this analysis, the winter season was assumed to be from October through March, and the summer season from April through September. Due to the difference in storm pattern between the summer and winter seasons, two statistical analyses were conducted to characterize the average rainfall volume and duration for each season. The results indicate that the representative storm for the summer season has a volume between 0.24 inches to 0.71 inches and a duration between 2.2 and 6.5 hours. The results also indicate that the representative storm for the winter season has a volume between 0.22 inches and 0.65 inches and a duration between 5.2 and 15.6 hours.

On the average, about three representative winter season storms have occurred in Phoenix each year from 1954 to 1988. Due to the variable nature of the rainfall during the summer season, an average of only approximately 1.2 representative summer season events occur each year. These data are summarized in Table 3-9.

Storm Events During the 1992 Sampling Period

Water quality data were collected in this study to characterize pollutant loads for a representative year. Thus, it is important to address the representativeness of the 1992 sampling period in terms of rainfall and runoff.

Data from the NWS raingauge at Sky Harbor Airport in the City of Phoenix show that from January 1, 1992, to August 1, 1992, there were 20 events with rainfall depths greater than 0.10 inches. Of these 20 events during this period, 12 occurred during the winter months and eight during the summer months (April through July). On the average, only about eight events typically occur during the first seven months of the year in the City of Phoenix. Table 3-9 presents a comparison between the average number

of events and rainfall volumes based on the period of record and the data gathered from the NWS raingauges during the first eight months of 1992. Figure 3-5 presents a monthly comparison of the rainfall amounts for 1992 and the average year.

The data indicate that the first three months of 1992 had more rainfall than is typical for the Phoenix area. The total rainfall volume for January through March was about 2.38 inches greater than typically occurs. The average storm duration for this period was about three hours less than normally occurs. However, the average rainfall volume per event for these three months was about the same as the average for the period of record. There were six storms which met the criteria for representative winter storms for storm water sampling during this period, as compared to an average of 3.1 for the period of record.

The data also indicate that the first four months of the summer season for 1992 had more rainfall than is typical for the Phoenix area. There were 4.25 inches of rain measured at the NWS raingauge during this period, as compared with an average of 1.15 inches. The average storm duration for this period was approximately equal to the period of record average. There was one storm which met the criteria for a representative summer storm, as compared to an average of 1.2 for the period of record.

The effect of the differences between the precipitation data for 1992 and averages for the period from 1954 to 1988 indicate that there was less time between events for pollutant buildup on the urban surfaces in the City of Phoenix. There was also more rainfall to flush the pollutants off of the surfaces. These factors would have some effect on the concentrations of pollutants measured in the sampled storm water runoff.

Data from the NWS raingauge at Sky Harbor Airport for the five storms sampled during 1992 are shown in Table 3-10. The data for the three storms sampled during the winter season show that they are within the specified depth and duration ranges, and meet the definition of representative winter season storms.

Rainfall Variability

As discussed previously, rainfall patterns of typical storms in the Phoenix area are highly variable, especially for localized thunderstorms during the summer season. This causes problems in establishing rainfall-runoff relationships based on raingauge and streamflow information because the average rainfall values for a catchment can be difficult to estimate. Due to rainfall patterns, rainfall can be variable within a single catchment, as well as varying from catchment to catchment.

A study done at the Walnut Gulch, Arizona, Experimental Watershed, operated by the United States Agricultural Research Service, suggests that hydrologic simulations based on a raingauge network density of 1.5 per square kilometer (km^2) were much more reliable than simulations based on a raingauge network density of 20 per km^2. In fact, hydrologic simulations with the fine resolution data produced flow that were nearly twice those produced with the coarse resolution data. Apparently, the coarse resolution data smooths the rainfall intensities to the point that runoff is significantly reduced.

One way to mitigate this problem is to select raingauges which are as close to the centroid of the study area as possible. In this study, the raingauges from FCD's network closest to the study areas were used to estimate rainfall depths for the storms occurring during the study period.

Weighted Average Raingauge Data

Table 3-11 shows the identification numbers of the gauges used to estimate rainfall depths in this study. It also presents the approximate linear distances from the gauges to the centroids of the areas chosen to monitor storm water runoff and quality. The locations of the gauges have previously been presented in Figures 3-1, 3-2, 3-3, and 3-4.

Some of the study areas had more than one raingauge located near the catchment, so data from several raingauges were used to estimate the rainfall in the area. The raingauge data were averaged using a weighting procedure suggested by Ponce, 1989.

The procedure estimates an average rainfall by weighting the data based on the square of the distances from the study area centroid. Therefore, data from gauges nearer the study area are given more weight than data from gauges further away.

The weighting procedure was used in four of the seven study areas, and produced composite hyetographs (i.e., plots of volumes of rainfall accumulated during specified time intervals) for estimating total storm event rainfall.

The variability of the rainfall volumes measured by the various gauges for the study areas is presented in Figures 3-6 through 3-8. However, when the data from the raingauges are weighted according to the above discussion, the variability in the rainfall volumes decreases. This effect is shown by Figure 3-9.

The figures show the total rainfall measured at each gauge for the three winter season storms in which the runoff was sampled for water quality. Table 3-12 presents the average measured rainfall, range of rainfall for each event, and the standard deviation of the raingauge data.

The results show that the raingauge data for first event sampled in January were more uniform than the data for the other two events. The rainfall for the last two events was more variable, with a range of up to 0.5 inches between the gauges with the highest and lowest measurements.

Evaporation

Evaporation rates in the City of Phoenix can be as high as about 82 inches per year. Monthly rates vary from a low of about 2.3 inches per month in January to a high of about 10.3 inches per month in June. Evaporation data for 1992 and other years used in the study were supplied by the Soil Conservation Service (SCS).

3.3.2.4 Catchment Runoff

Storm water runoff from a series of storms during the data collection period in 1992 was measured using seven monitoring stations installed in the catchment storm drain systems. The monitoring stations were set to acquire data during the events which were to be sampled. However, equipment malfunctions resulted in runoff records with blanks during some storm events. As a result, every catchment did not have a measured runoff volume for each storm event that was sampled.

In addition, the monitoring stations for catchments SR-33, and SR-03 were located in storm drains which were subject to inundation due to elevated levels in the Salt River. These elevated levels were caused by unusual releases from an upstream dam to facilitate dam repair and heavier than normal rainfall. The backup conditions in the storm drains caused erroneous flow measurements. The result was only one valid flow volume measurement for SR-33 and two valid flow volume measurements at SR-03.

Therefore, to aid in model calibration, runoff data were gathered for additional storm events in which water quality was not measured. The unsampled storm events with measured flow volumes occurred during the winter season. The event dates and rainfall depths and durations based on data from the NWS raingauge at Sky Harbor Airport are provided in Table 3-13. Three of these storms are representative winter season storms based on the criteria discussed earlier.

As it was necessary to have a flow volume associated with the sampling data for each catchment to generate pollutant loading estimates, a flow volume for the event was calculated by the hydrological model after the model was calibrated for other measured storm events. Table 3-14 provides a summary of the flow volumes measured for each catchment during the storm events.

3.3.2.5 Hydrological Model

Introduction

The rainfall and runoff data discussed above were used to run the SWMM hydrologic model after development. This section describes the development of the model, including the discretization of catchments and the estimation of model input parameters, and discusses the model calibration. It also presents the methodology for the selection of a representative year for use in estimating annual runoff volumes from the catchments, and the results of those estimations.

Model Setup

SWMM represents a catchment as a set of hydrologic units referred to as subcatchments. Each subcatchment is assumed to have a unique set of runoff properties, including rainfall, area, width, slope, infiltration characteristics, and percent of impervious area. For this study, each catchment used a unique raingauge or a composite hyetograph generated from multiple raingauges to estimate the rainfall across the catchment. To represent the variability of model parameters by land use, each catchment was divided into subcatchments representing each land use. Up to ten land use categories were used (open space, agricultural, low-density residential, medium-density residential, high-density residential, commercial, light industrial, heavy industrial, public, and transportation).

Rain data for the model were from the continuous recording gauges described in Section 3.3.2.3 at hourly intervals. The model was run on a 15-minute time-step during rainfall events for greater resolution of model runoff response.

The physical parameters for each basin such as area, slopes, and land uses were derived based on maps from various sources. The hydrologic boundaries of each basin were delineated by first evaluating the extent of the storm drain system in each catchment on 1"=400' City of Phoenix storm drain maps. This information was combined with

overland flow areas and basin slopes from U.S. Geological Service 7.5-minute quadrangle maps to establish the boundaries.

The land uses of the sub-areas in each basin were evaluated using existing City of Phoenix land use information and updated as necessary through inspection of air photos taken in 1990. Table 3-15 presents a summary of the land uses in the seven catchments based on this evaluation.

Other physical parameters such as percent impervious area for each land use were obtained from the Storm Drain Design Manual for the City of Phoenix. Soil infiltration values were estimated by first tabulating the areal percentages of the various types of soils in each catchment. This was done with soil maps published by the Soil Conservation Service (SCS). The types of soils ranged from sandy loam to clay; however, most of the soils were sandy loams to sandy clay loams. The cumulative area of each soil type in the basin was estimated.

The Green and Ampt infiltration parameters for the different soils, as provided in the Hydrologic Design Manual for Maricopa County (April 1990), were weighted according to the areal percentages. This produced weighted-average infiltration parameters for the catchment. However, where a catchment had soils with widely varying infiltration parameters predominant in different sub-areas, several sets of infiltration parameters were estimated and used in the model.

Green and Ampt infiltration parameters were chosen for use over the widely-used Horton Infiltration Equations because they were recommended by the Hydrologic Design Manual for Maricopa County. Required Green and Ampt parameters for the model are soil moisture deficit, average capillary suction in the wetted zone, and saturated hydraulic conductivity. These parameters are provided for bare ground; however, the saturated hydraulic conductivity is increased to account for higher conductivities as the percent of vegetation in the catchment increases.

The average percent vegetation for each basin was calculated by estimating the amount of pervious area in each basin, and then assuming that approximately 50 percent of the pervious areas were vegetated. This assumption was based on aerial photo review and interpretation. For park and agriculture land uses, 100 percent of the pervious areas were assumed to be vegetated. The saturated hydraulic conductivities were then increased by the factors given in the Hydrologic Design Manual for Maricopa County.

Information about the sizes and alignments of the storm drain system were obtained from City of Phoenix storm drain plans. The slopes of the storm drain inverts of each basin were assumed to be the same as the slopes of the land surfaces, as determined from USGS quadrangle maps.

Monthly evaporation data was supplied by the Soil Conservation Service located in Phoenix, Arizona. Based on the monthly values, an average daily evaporation rate was used in the model.

Model Calibration

Although SWMM is a state-of-the-art model of rainfall-runoff processes, it represents an idealization of the actual processes occurring in any real catchment. In addition, the spatial variability of model input parameters (especially rainfall data) is difficult to account for in catchments with many types of soils and land uses. As a result, usually the model must be calibrated against measured streamflow data to produce accurate results. The calibration consists of running the model, comparing model predictions to measured streamflows, and adjusting the model input parameters to better match the observed flows. The process is repeated until the comparison between measured and predicted flows is deemed adequate. If enough historical data exist, calibration is then followed by verification, in which the calibrated model is run and the results compared to streamflow records for a period not included in the calibration period.

In this study, calibration of the model was limited to the data collected during the winter season of 1992. Because of occasional gaps in runoff data, the number of storms used

for most of the catchments in the hydrological model calibration ranged from three to six. However, for catchments SR-33 and SR-03, elevated water levels in the Salt River due to water releases from an upstream dam caused runoff monitoring equipment to malfunction. Therefore, runoff data was obtained for only one storm for SR-33, and for two storms for SR-03.

Because the focus of this modeling effort was to estimate annual loads, the primary goal of calibration was to match measured storm event runoff volumes rather than simulate the shape of the hydrograph.

Calibration was accomplished by adjusting the appropriate SWMM input parameters to match runoff volumes. The important calibration parameters were the percentage of impervious area in the City by land use, and the hydraulic conductivity for infiltration in open areas. Other important parameters included infiltration and soil moisture storage parameters, and depression storages.

The quality of calibration was quantified by the root mean square error (RMSE) of predicted versus measured storm runoff volumes. The RMSE equation is:

$$RMSE = \{\Sigma (X_p - X_m)^2 / N\}^{(0.5)}$$

where x_p = projected runoff
x_m = measured runoff
N = number of events
RMSE = root mean square error

Figures 3-10 through 3-16 present graphs of the predicted and measured flow volumes versus rainfall amounts for catchments AC-05, IB-08, IB-11, SR-03, SR-33, SR-21, and SR-45, respectively. The results show that the best calibrations were obtained for the smaller catchments, such as AC-05 and SR-45. The calibrations for IB-08, IB-11, and

SR-21 show good agreement for smaller rainfall depths, but diverge considerably for storms with higher rainfalls.

In the case of SR-21, limited measured runoff data decreased the accuracy of the calibration. For IB-08 and IB-11, the divergence of storms with higher rainfalls is probably a result of the smoothing of the hyetographs by the weighting procedure used in creating composite hyetographs. Since the infiltration rates in the pervious areas, as predicted by the Green and Ampt parameters for the various soils, were generally very high, runoff from most catchments was predominantly a function of impervious area and depression storage. However, high rainfall intensities could lead to runoff from the pervious area, if the weighting procedure did not decrease the intensities to below the hydraulic conductivity of the saturated soil. Basins SR-03 and SR-33 have too few calibration points to reach any firm conclusions about their runoff-rainfall relationships.

Representative Year Catchment Runoff Volumes

Once the model was calibrated for the seven catchments, it was run for an entire year to estimate the total annual runoff for each catchment. The rainfall hyetograph input to the model was chosen by evaluating the data for the period of 1954 through 1988 for the NWS raingauge at Sky Harbor Airport. The evaluation included:

- Using the estimate of the average rainfall amount and average number of rainfall events over 0.1 inches to select the years with average rainfall and number of events within ten percent of the averages for the period of record. The data for the years selected for consideration are presented in Table 3-16.

- Rejecting the years with large maximum rainfall events which would tend to decrease the average event volume for the other events in each year.

The years left for consideration after this process were 1976, 1985, and 1986. 1976 was ultimately chosen as the representative year to use for estimating the annual runoff volumes from the catchments. 1976 had 14 events with rainfall depths greater than 0.1

inches and a total rainfall depth of 6.99 inches. The maximum event during the year had an amount of 1.0 inch and the average event had about 0.50 inches. There were two representative events during the first three months of the year, and one representative event during the summer season.

Table 3-17 presents the results of running the model for the precipitation data of 1976 for each of the catchments. The results show that the runoff coefficients (the ratio of runoff volume to rainfall volume for the catchment) are smallest for the catchments with primarily residential land uses (IB-11 and IB-08). The runoff coefficient is largest for the catchment with the commercial land use. The SWMM model output for the annual runs is included in Appendix 9.

3.3.3 Water Quality Model

3.3.3.1 Introduction

The purpose of the modeling analysis was to use the measured hydrologic and water quality data to calibrate a catchment loading model which could then be extrapolated to the entire study area to estimate average annual wet weather pollutant loadings. The hydrologic model and water quality sampling results were combined with City of Phoenix land use data to produce these annual loadings in the water quality model portion of the analysis. Pollutants for the loading analysis were based on the list of priority pollutants from U.S. Environmental Protection Agency (EPA) and several additional important pollutants identified in the City of Phoenix.

The water quality component of the model utilized the flows and pollutant concentrations for the monitored storm events. Based on the results of runoff and water quality sampling, event mean concentrations for each major land use were developed. A set of simultaneous equations, apportioning the measured total mass loading for each sampling station among its specific land use categories, was formulated and solved to estimate the event mean concentration of a pollutant associated with a land use category. When this method provided unreliable results due to the small numbers of water quality

samples available, event mean concentrations for various land uses were generated based on assuming the measured concentrations for each catchment were a function of the primary land use in the catchment.

These data were compared to and supplemented with information from the National Urban Runoff Program (NURP, 1983). Total loads for each land use in the study area were then estimated as the product of the annual runoff volume estimated by the hydrological component of the model and the event mean concentration. Load estimations for each land use were then applied to the total areas of land uses in each of the catchments for the major receiving water basins in the City of Phoenix for projections of total loads during an average year.

Using SWMM for Load Estimation

The SWMM model is extremely flexible and can be used to simulate pollutant buildup and washoff from urban surfaces. Ultimately, the model can simulate complicated physical processes to estimate total pollutant loads and concentrations in storm water for runoff from varying land uses. For the purposes of this study, use of the SWMM model to provide the total pollutant load estimation for the City of Phoenix was evaluated, and the pollutant loading from one of the smaller catchments (AC-05) was simulated.

The parameters which can be altered in the model to calibrate the pollutant loadings include the following:

- The frequency of street sweeping can be set to the desired level. The efficiency of the sweeping for pollutant removal can also be set.

- The pollutant to be modeled can be coupled with dust and dirt so that the pollutant loading is a fraction of the dust and dirt buildup. Alternatively, each modeled pollutant can have its own buildup curve.

- The pollutant and dust and dirt buildup curves can be either linear, exponential, or power curves with a pre-determined upper limit. This feature allows the rate of buildup to be adjusted easily.

- The rate of washoff of the pollutant is a function of the rainfall intensity during the storm. The washoff rate can be manipulated so that only a fraction of the buildup pollutant is washed off during an event.

- Erosion of catchments is simulated using the Universal Soil Loss Equation.

- The model can simulate precipitation with a predetermined pollutant concentration.

The interaction between the above parameters in modeling pollutant loading and concentrations in storm water runoff is complex and not well understood. Based on the results obtained when using the model for pollutant load estimation in this study, it was concluded that more storm water quality data would be required before pollutant trends could be established with statistical reliability. Additional data would enable the model to be calibrated more accurately, and would produce more reliable pollutant loading estimations.

Therefore, for the purposes of pollutant load estimation with the available data, a hybrid model was developed. The hybrid model used the event mean concentrations (EMCs) from the runoff sampling and runoff volumes developed by the hydrological model to estimate the pollutant loading. The following section describes the methodology of the water quality model portion of the analyses.

3.3.3.2 Methodology

Modeled Pollutants

Although the water quality samples were subjected to a full suite of analytical tests to provide evaluations of a number of pollutants, 11 pollutants were selected for the pollutant loading evaluations. Of these 11, nine are on the list of priority pollutants as

determined by the EPA. These are total suspended solids (TSS), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total phosphorus (TP), total Kjeldahl nitrogen (TKN), nitrite and nitrate nitrogen (NO_2/NO_3-N), copper (Cu), lead (Pb), and zinc (Zn). The other two pollutants were selected for evaluation based on their presence in high concentrations relative to the other pollutant levels in the water quality samples. These pollutants are total dissolved solids (TDS) and oil and grease.

Event Mean Concentrations

The water quality sampling concentration results as presented in Section 3.2.2 were averaged to provide event mean concentrations (EMCs) of the 11 pollutants for each catchment. The averaging procedure weighted the concentration of each pollutant based on the total flow from the catchment during the event. The catchment EMC for each pollutant was estimated by summing the weighted concentrations.

In addition to the above 11 pollutants, event mean values (EMVs) for fecal coliform and fecal streptococci were also evaluated. Sampling results for these two constituents are given in probable number per 100 milliliters of sample (MPN/100ml).

The catchment EMC for each pollutant was then multiplied by the annual runoff from the catchment to produce a total annual pollutant load for the catchment. The results of these analyses for the seven catchment areas are presented in Tables 3-18 through 3-24.

Pollutant Loading Estimation

In order to estimate loads from the study area, it was necessary to develop a relationship between water quality and land use. This presumes that a definitive relationship exists, and in fact, such relationships are obscured because it is difficult to isolate catchments which represent only one land use, and because there is significant variability in water quality between catchments which are classified as having similar land uses. In other words, runoff water quality is very site specific and the broad land use categories used are not sufficient to capture this variability. Furthermore, the concept of using land use as the means for predicting water quality is based on the assumption that, within

different areas of a given land use, there are similar amounts and types of pollutants present that would be washed off or otherwise carried away by storm runoff. This assumption is known to be generally valid, but it does not account for the fact that illegal dumping, illicit connections, and some other pollution mechanisms do not correlate with land use type. Because of this, it was necessary to use several approaches to quantify the pollutant loadings due to the various land uses.

Approach 1

The methodology by which water quality was estimated by land use utilized a "water quality calibration" technique that is outlined below. Because each catchment contained primary and secondary land uses, it was necessary to develop a scheme by which the individual contributions from each land use in a monitored catchment could be extracted from the monitoring data. This was done by writing a mass balance equation for each monitored catchment such that the sum of the loads per acre from each land use in that catchment equalled the measured load per acre at the downstream monitoring point. The mass balance equation is as follows:

$$L_i = \sum_{k=1}^{n} A_{ik} C_k$$

where: L_i = annual load of each pollutant in catchment i
A_{ik} = area of land use k within catchment i
C_k = load per acre from land use k, unknown

The equation was developed for each catchment by the following step-wise process:

- Selecting five catchments with a minimum of three water quality sampling results for evaluation.

- Grouping the ten land uses for the City of Phoenix into five major categories to simplify the analysis.

- Estimating the total area for each catchment and the area for each land use within the catchment, as estimated for use by the hydrologic model.

- Using the results of the annual load estimation of each pollutant in the five catchments.

The result of these steps was a set of five equations, with five unknowns. This set of equations was solved using matrix arithmetic. This process was repeated for each selected pollutant.

Although the methodology described above is valid, the small number of water quality samples provided monitoring results which were not statistically reliable. This effect, coupled with the significant variability in water quality between catchments with the same broad land use, led to solutions of the equations which did not represent physical reality. Therefore, an alternative approach for evaluating the pollutant loadings was used.

Approach 2

An alternative way to evaluate the annual pollutant loading is to assume that the catchment loading is related to the land use that is predominant in the catchment. Use of this assumption led to estimations of pollutant loadings for the following: residential land use loads were based on monitoring data from catchments IB-08 and IB-11 and industrial land use loads were based on monitoring data from catchments SR-45 and SR-21. The average EMCs and EMVs for each pair of catchments with one primary land use were generated by areal-weighting of the EMCs and EMVs based on catchment area.

Since the commercial land use was primary in the single catchment AC-05, the EMCs and EMVs from that catchment were used to represent the commercial land use.

These results were compared with the data from the National Urban Runoff Program (NURP) published in 1983 (which were the result of several years of water quality sampling for urban runoff done in 28 cities in the United States). That comparison

indicated that results of the EMC and EMV estimation for the City of Phoenix for residential land and mixed land uses are very similar for BOD, COD, TSS, and TKN. Corresponding EMC and EMV estimates for metals, NO_{2+3}-N, and TP were much lower than the levels in the NURP study. For commercial land use, the comparison indicated that BOD, COD, and TKN are slightly higher than those in the NURP study and metals, TSS, NO_{2+3}-N, and TP were lower than those in the NURP study (see Tables 3-25 and 3-26).

Therefore, the general conclusion of the comparison is that results for the City of Phoenix EMCs and EMVs are either similar to or lower than those of the NURP study. Based on this, as a conservative assumption, the results from the NURP study for the other land uses not predominant in the City of Phoenix catchments were used to estimate additional land use pollutant loadings.

Annual Pollutant Loadings

The annual pollutant loads for the City of Phoenix were estimated by first dividing the City into seven areas (i.e., basins) based on catchments for the major receiving waters. These receiving water basins include:

- Salt River Basin
- Indian Bend Wash Basin
- Arizona Canal Basin
- Cross Cut Canal Basin
- Old Cross Cut Canal Basin
- Papago Diversion Channel Basin
- Grand Canal Basin
- New River
- Skunk Creek
- Scatter Wash

The land use data included in the City of Phoenix Part 1 NPDES Permit Application (WCC, 1991), were used to determine the respective areas for various land uses in the catchments. These areas were multiplied by the pollutant loadings per acre developed

in this study to estimate the total pollutant loads in each of the above listed basins. The results for each basin were summed to provide the total pollutant loads for the City of Phoenix. A summary of the basin loads and total loads data is presented in Tables 3-27 through 3-33.

3.3.3.3 Recommendations

The biggest problem to be overcome in the pollutant loading estimation was the establishment of a relationship between land use and water quality of storm water runoff. The development of this relationship is difficult because the relationship is a function of numerous factors which are difficult to simplify into the broad parameters used in this study.

One way to improve the reliability of the relationship between land use and water quality is to use analysis techniques based on statistical methods. However, the statistical methods would require a large body of data for each study area so that statistically-significant results can be obtained. Therefore, these techniques can not be applied in this Phoenix model until more water quality data are available.

As water quality and runoff data for the study area are gathered during and beyond the 5 years of the permit period, such data could be used to re-evaluate and refine the pollutant loading estimations.

3.4 SCHEDULE FOR MAJOR OUTFALL LOAD ESTIMATION

According to EPA storm water regulations, a schedule must be proposed which is intended to provide estimates of seasonal pollutant loadings for each major outfall. The EPA also requires the applicant to propose a basis or procedure for estimating the event mean concentration of a representative storm event for any constituent which is detected as a consequence of the sampling conducted to obtain quantitative data.

Since most of the precipitation in the City of Phoenix and surrounding areas occurs in two distinct seasons, summer (July through September) and winter (October through March), it is essential to develop two different sets of EMCs for these two different

seasons. In order to develop the required EMCs, the quantity of average seasonal runoff (i.e., volume) as well as storm water quality are required.

Provided below is a proposed schedule for sampling and analysis to estimate seasonal loadings at major outfalls.

The hydrology evaluation study and SWMM model developed herein for Part 2 NPDES permit application for the City of Phoenix can be utilized to estimate the average seasonal runoff for different land uses at different receiving water basins. This analysis will be similar to the existing hydrology analysis described herein to evaluate the average annual runoff for the City of Phoenix; as described in Section 3.3.2.

The data required for a seasonal analysis are measured runoff during the two different seasons. The existing flow measurement equipment installed at the seven monitoring stations automatically measures the depth and quantity of flow for every storm event. The flow data can be extracted from the station for the purpose of model calibration. Precipitation data also are available from the Maricopa County raingauge network.

The City of Phoenix will continue the sampling process for characterizing the representative storms during both seasons. The City's proposed monitoring program is presented in Section 3.5. The samples will be analyzed for a reduced analytical suite. Samples will be analyzed only for constituents with concentrations from the Part 2 NPDES Permit Application sampling that were found to be in excess of detection limits. The following constituents are proposed to be analyzed:

- Fecal Coliform
- Fecal Streptococcus
- BOD

These constituents will be analyzed for representative storms in both the summer and winter seasons. It is anticipated that FDC will be able to capture 2 rainfall events per year. The goal is to obtain one of storm event for each season.

The methodology for estimating pollutant loads for different seasons will be similar to the method described in Section 3.3.2.5. The SWMM model will be used to estimate the seasonal pollutant loads as well as seasonal runoff evaluations. In the event that the results of the SWMM model for EMC and seasonal pollutant loads are not acceptable, EMC will be developed statistically or by log mean averaging of the sampled pollutant concentrations. Seasonal pollutant loads associated with each major outfall will be estimated by using seasonal pollutant load per acre and the acreage of different land uses per outfall catchment. Seasonal pollutant load estimations will be developed by multiplying EMC and the average seasonal runoff.

3.5 MONITORING PROGRAM

3.5.1 Introduction and Objectives

This section presents a proposed monitoring program for collection of representative storm water data in the City of Phoenix for the term of the permit (five years). The proposed monitoring program was prepared in accordance to the EPA's long term monitoring requirements and will be implemented by the Flood Control District of Maricopa County.

The most important step in developing a long-term monitoring program is to define the program's objectives. The monitoring program will be focused on four key areas:

- Loads assessment (annual and seasonal)
- Impacts on water quality
- Source identification
- Best management practices evaluation

We have developed the following specific monitoring objectives that fall under these broad categories.

Objective 1: Refine Estimates of Annual Nonpoint Source Pollutant Loads to the Major Receiving Waters

Objective 2: Assess Impacts of Nonpoint Source Pollution on Water Quality

Objective 3: Evaluate the Sources of Specific Pollutants

Objective 4: Evaluate the Effectiveness of Specific Structural Best Management Practices

The following section discusses how the monitoring plan is organized.

3.5.2 Organization of Monitoring Plan

In Section 3.6, under each objective, there are two main sub-sections:

- Introduction - provides background and describes the objective
- Implementation Phase - discusses monitoring stations selected to fulfill the objective, sampling strategy, frequency of sampling, and laboratory analyses

Section 3.7 presents the type of equipment to be used in the monitoring program, and the methods of sample collection. Section 3.8 presents the quality assurance/quality control plan that will be implemented as part of the monitoring program. Monitoring data management and reporting are provided in Section 3.9. Lastly, Section 3.10 provides the references cited in Section 3.0.

3.6 MONITORING PROGRAM IMPLEMENTATION

3.6.1 Refine Estimates of Annual Nonpoint Source Pollutant Loads To Major Receiving Waterways (Objective 1)

3.6.1.1 Introduction

The City of Phoenix has implemented a wet weather sampling program in the permit area to fulfill the requirements of the Part 2 NPDES permit application regulations. This sampling program includes 7 water quality monitoring stations and 31 automatic

precipitation stations. Of the 7 stations, 5 stations are on watersheds with relatively homogeneous land use (for commercial, industrial, and residential) and two stations are on watersheds with mixed land uses. During the wet weather period of 1992, 2 to 3 storms were collected at each station. Annual loads for 11 pollutants were estimated for the entire City (see Section 3.3) using the water quality data collected from these storms, local rainfall data, and the EPA Storm Water Management Model (SWMM), and a spreadsheet loads model. The annual pollutant loads were estimated for the 7 major basins that drain the City of Phoenix to receiving waters (ephemeral).

Since the annual loads estimates are based on limited water quality data, additional water quality data should be collected to refine the annual loads estimates and to evaluate the seasonal loads to the major receiving waterways. As the City implements the Storm Water Management Program, which is designed to reduce the amount of pollutants entering the storm drain systems and receiving waters, it will be important to continue to evaluate changes or trends in both pollutant concentrations and annual pollutant loads over the long term.

In order to meet this first objective, the following actions will be implemented.

3.6.1.2 Implementation

3.6.1.2.1 Monitoring Stations

Table 3-34 summarizes pertinent information on the number and types of stations that will be monitored over the five-year permit period. Data from all nine designated stations will be used in refining loads estimates. Six of these stations are equipped with automatic samplers, and are located within manholes or outfalls. The last four are intended to monitor "receiving" water bodies, and sampling will be conducted manually.

Four of the automatic sampling stations were used to generate data for the City of Phoenix Part 2 NPDES permit application. These four stations are IB-08 (residential), SR-21 and SR-45 (industrial), and SR-03 (mixed).

Two automatic sampling stations previously operated by the USGS, in conjunction with FCD are also included. The sites are located at 27th Avenue/Salt River (industrial), and 43rd Avenue/Peoria (commercial). These stations are currently part of an ongoing FCD/USGS storm water quality study whose goals include the sampling and analyses of at least three storm events in 1992.

Of the six automatic sampling stations listed, four discharge into the Salt River, the region's largest receiving waterway. These four include SR-03, SR-21, SR-45, and 27th Avenue/Salt River. The fifth station, 43rd Avenue/Peoria drains into another important flood control waterway, the Arizona Canal Diversion Channel (ACDC). Finally, the sixth station, IB-08 drains into Indian Bend Wash, a major storm water conveyance from the northeast valley to the Salt River.

In addition to the six land use stations, it is proposed to gather storm water quality data from two "receiving" water bodies, the Salt River and the ACDC. The main objective of monitoring these locations is to evaluate the impact of urban runoff on in-stream water quality. Salt River monitoring will include manual collection, employing the Equal Width Increment (EWI) method (Edwards and Glysson, 1988) at the 24th Street Bridge, and at an as yet undetermined bridge crossing downstream. Likely candidates include both the 31st Avenue and 51st Avenue Bridges over the Salt River. Ideally, Salt River sampling points will coincide with the City of Phoenix upstream and downstream boundaries.

Below is a description of each of the proposed monitoring stations:

IBW

IB-08: Station IB-08 is located on the north side of Indian Bend Wash. The catchment area is approximately 609 acres, extending north one thousand feet from Bell Road. The east-west extent of the catchment is from 40th Street to 42nd Street. The land use distribution of the contributing catchment is approximately 48 percent medium residential, 30 percent low residential, and 22 percent other land uses. The 66-inch RCP is located at a low water crossing at 40th Street and Indian Bend Wash. The station is a transition structure to an existing thirty-six inch concrete outfall. Flows that exceed the capacity of the 36-inch pipe spill out the top of the transition structure, which has a four- by six-foot grated cover.

40th / Salt

SR-45: Station SR-45 is located on the south side of the Salt River. The catchment area is approximately 120 acres in size, extending from the river south to Interstate 10. The east-west extent of the catchment area is from the City limits at 48th Street west to 40th Street. The land use of the catchment is heavy industrial. The 54-inch RCP outfall is located at the toe of a reinforced embankment, just to the east of a gravel access road which extends to the river bottom. The access road is a northern extension of 40th Street.

Sky harbor

SR-21: Station SR-21 is located on the north side of Old Tower Road. The catchment area is approximately 630 acres in size, extending from the north side of the river, to the Southern Pacific Railroad line at the north boundary of Sky Harbor International Airport. The east-west extent of the catchment area is from 24th Street to 32nd Street. The land use distribution of the contributing catchment is approximately 63 percent transportation, 9 percent heavy industrial, 5 percent light industrial, and 23 percent open space. The catchment is almost entirely occupied by the Sky Harbor Airport. The 90-inch RCP outfall is located at the toe of the northeast abutment of Interstate 10 where it crosses the Salt River.

35th AVE

SR-03: Station SR-03 is located on the north side of the Salt River. The catchment area is approximately 1,363 acres in size, extending from the Salt River north to Roosevelt Street. The east-west extent of the catchment is from 27th Avenue to 39th Avenue. The land use distribution of the catchment is approximately 19 percent medium density residential, 24 percent light industrial, 14 percent agricultural, 2 percent high density residential, 19 percent heavy industrial, 7 percent commercial, 4 percent open space, and 11 percent public lands. The 75-inch RCP outfall is located at the northwest abutment of the 35th Avenue bridge over the Salt River. The outfall consists of a concrete outlet structure at the toe of a rip-rap protected river embankment.

The monitoring station location is the first manhole north of the outfall, approximately seven hundred feet from the Salt River embankment. The manhole is located on the west side of 35th Avenue.

USGS-1

27th Avenue/Salt River: The 27th Avenue Station is located on the south side of the Salt River. The outlet is a 96-inch diameter RCP with a drainage area of 45 acres. The

drainage area is bounded to the south by Broadway road and to the north by the Salt River. The east-west extent of the catchment is from roughly 21st Avenue to 27th Avenue. The land use distribution of the catchment is approximately 6 percent residential (mobile home park), and 94 percent medium-heavy industrial. Access to the station is through an auto-parts recycling facility.

USGS - 3

43rd Avenue/Peoria: The 43rd Avenue Station is located on the north side of the ACDC. The outlet is a rip-rap spillway into the ACDC. The drainage area is 3.4 acres. The land use distribution for the catchment is approximately 97 percent commercial (strip-center) and 3 percent undeveloped. Storm water discharges into the ACDC via overland flow, and ultimately into Skunk Creek.

Alma school / Priest / 51st Ave

Salt River: Two points will be sampled on the Salt River. At this time, only the 24th Street Bridge has been chosen. The FCD is currently seeking a downstream site, and have narrowed their search down to either the 35th Avenue or 51st Avenue Bridges. Sampling will be accomplished using the EWI method. Instream flow measurements will also be conducted at the time of sampling at each site.

51st Ave / ACDC

ACDC: A series of points will be sampled along the length of the ACDC. Upon completion of the structure, sampling will take place at one or more of the following, 24th Street, 43rd Avenue, and/or 75th Avenue. Again, sampling will be accomplished using the EWI method from atop bridge crossings of the ACDC.

3.6.1.2.2 Sampling Frequency

Storm water samples will be collected by the six automatic stations at a frequency of two per year. Ideally, one summer event and one winter event will be sampled by each station.

Surface water sampling at the Salt River site(s) will depend upon releases managed by the Salt River Project. Sampling frequency will be approached in two ways. First, Salt River Project plans to release water into the Salt River to facilitate construction activities at Roosevelt Dam during the Spring of 1993. During this release, sampling will be conducted at least one a month. Second, should a storm event either cause or

coincide with a release by Salt River Project, sampling will be conducted during the event.

Surface water sampling in the ACDC will be conducted at a frequency coinciding with storm events and subsequent flow in the ACDC. Sampling all storm events may prove to be unfeasible, in that case, sampling will be conducted so that at least one storm event is sampled during the winter rainy season and one is sampled during the summer rainy season.

3.6.1.2.3 Load Estimation and Refinement

One of the objectives of the long term monitoring of storm water in the City of Phoenix is to provide more data to justify or revise the event mean concentrations (EMCs) and annual average pollutant load estimation conducted as part of the Part 2 NPDES permit application, and to evaluate seasonal pollutant loads. As noted earlier, the annual pollutant load estimation was based on a limited number of storm water samples collected in 1992. For better estimation of the pollutant loads and to evaluate trends in storm water quality, the runoff and chemical data collected for the nine proposed stations will be used to refine EMCs, the existing annual pollutant load estimation, and to evaluate seasonal pollutant loadings.

EMCs for the catchments representative of single land uses will be developed for each season. These EMCs will be compared to the existing EMCs developed for the 1992 storms to evaluate changes in pollutant concentrations in storm water over time, as well as seasonal variations in pollutant concentrations. Additionally, these data will be used to evaluate EMCs using a log normal distribution. The estimated EMCs will be used to evaluate average annual pollutant loads for the entire city.

EMCs and annual pollutant loads for the catchment representative of mixed land use (SR03) will also be estimated to compare with the City-wide loads extrapolated from the homogeneous land use stations. The samples collected from the Salt River and ACDC will provide the EMCs for these receiving waters.

3.6.2 Assess Impacts of Nonpoint Source Pollution on Water Quality (Objective 2)

3.6.2.1 Introduction

There are many methods of monitoring to assess impacts of storm water discharges on water quality in receiving waterways. Two approaches will be discussed in this section and will be implemented in the City's monitoring program.

3.6.2.1.1 Chemical-Specific Monitoring

The traditional approach of monitoring is commonly known as chemical-specific monitoring, where individual (or groups of) chemicals are analyzed in the laboratory by sophisticated analytical technologies. This type of monitoring provides information on the type and concentration of chemical constituents present in the sample. In order to evaluate the impact of the chemical on water quality, chemical concentrations for storm water runoff in the City of Phoenix have been compared to the EPA's ambient fresh water quality acute criteria and the Arizona Surface Water Standards for protection of aquatic life. Water quality criteria exceedance by a specific chemical constituent implies that the chemical constituent has potential to impair aquatic habitat in the receiving water.

Based on the NPDES Part 2 application sampling of seven stations, copper, lead and zinc concentrations frequently exceeded the Arizona Surface Water Standards during the two to three sampled storm events. While all seven stations are land use stations, not receiving water stations, the comparison is useful as a tool to focus on addressing problem pollutants in specific catchments, such that BMPs can be targeted in these areas.

Chemical-specific monitoring can also be applied to sediment samples collected from stream beds, storm drains, catch basins, or street sediments. Because pollutants such as heavy metals (lead and zinc) and hydrophobic organics (organochlorine pesticides, polynuclear aromatic hydrocarbons) are highly sorbed (retained) to sediment particles, more types and higher concentrations of pollutants are usually found in sediment samples than water samples. Pollutants associated with sediments can impact benthic

organisms, and also contribute pollutants to the water column by resuspension during high storm flows. Sediment criteria to protect benthic and aquatic habitat are not yet promulgated, but are being actively researched and will be used increasingly as another tool to evaluate impacts on water quality.

3.6.2.1.2 Toxicity Monitoring

A second type of monitoring, which is gaining increased attention, is toxicity monitoring. In this approach, biological organisms are exposed to the sample water for a certain period of time (from four to seven days) under controlled laboratory conditions. Acute tests simulating short-term exposure are usually run for four days or less. Chronic tests to evaluate long-term effects are run for about seven days. The organisms used are usually *Ceriodaphnia* (an invertebrate), *Pimephales promelas* (a fish, fathead minnow), and *Selenastrum* (an algae). Within the exposure period, the mortality, reproduction, and growth of the organisms are monitored. If the organism is impacted in any way (e.g., the organism died within the first day of exposure), it implies that the water sample has the potential to degrade receiving waters supporting the aquatic habitat. The advantage of toxicity monitoring over chemical-specific monitoring is that low pollutant concentrations that may not exceed criteria or do not have any criteria for comparisons, may be toxic to biological organisms.

The acute or chronic bioassays do not indicate what kinds of pollutants are responsible for exerting the toxic impacts. By using various physical and chemical methods of removing pollutants in the water sample, a toxicity method known as the Phase 1 toxicity identification evaluation (TIE) tests provide information on what broad groups of pollutants are responsible for causing toxicity. Broad groups of pollutants that can be identified by TIE tests include metals, hydrophobic organics, and volatile organics.

Similar to toxicity monitoring of water samples, the toxicity of sediments can be evaluated by tests that measure the acute and chronic affects of the sediment on selected benthic organisms (e.g. *Hyalella azteca*). Acute sediment tests typically last 10 days or less and mortality is the measured response.

3.6.2.2 Implementation

3.6.2.2.1 Chemical-Specific Monitoring

To evaluate the impacts of storm water on water quality, chemical-specific analyses will be conducted on storm water samples collected from all nine stations listed in Table 3-34. The chemical constituents are shown on Table 3-35. This list includes total and dissolved metals (cadmium, chromium, copper, lead, nickel, silver, and zinc), nutrients (nitrate and nitrite, total and dissolved phosphorus), TSS, TDS, oil and grease, total petroleum hydrocarbons, hardness, bacteria, BOD_5 and COD. The detection limits, EPA method numbers, and associated precision and accuracy requirements are also shown on Table 3-35. Table 3-36 provides a prioritization of the chemical analyses should insufficient storm water volumes be collected in the field.

These constituents are included based on results of monitoring seven stations for two to three storms each for the Part 2 NPDES permit application. The criteria for including these constituents include exceedances of water quality criteria, concentrations that were found in excess of the detection limits, and those that are of general urban runoff concern (e.g., total petroleum hydrocarbons). Some constituents were dropped from the original extensive list required by the Federal regulations based on results that consistently showed concentrations at or below the detection limits. Such constituents include volatile organics, semi-volatile organics, organochlorine pesticides, and organophosphorus pesticides.

In addition to the storm water sampling, the USGS in cooperation with the FCD will be conducting a toxicity and chemistry evaluation of urban storm water and bed material in Maricopa County. In this program, two stations (27th Avenue, and 43rd Avenue and Peoria) will be sampled for sediments. Sediment sampling techniques are described in Section 3.7. The sediments will be analyzed for constituents listed in Table 3-37. The difference between the constituents in Table 3-37 for sediment and Table 3-35 for water samples is that some of the constituents in Table 3-37 are specific to sediments (e.g., moisture content), while constituents such as organochlorine pesticides have not been analyzed before.

3.6.2.2.2 Toxicity Monitoring

As described above, the USGS in cooperation with the FCD is conducting a toxicity and chemistry evaluation of urban storm water and bed material in Maricopa County. Toxicity monitoring of storm water and bed sediments will be implemented at five stations throughout the County, two of which are in the City of Phoenix (27th Avenue and 43rd Avenue/Peoria).

Toxicity testing will be conducted for one year on storm water samples collected from the two USGS stations in the City of Phoenix (27th Avenue and 43rd Avenue/Peoria). Storm water samples will be collected during the early phase of the storm to obtain first flush samples. Additionally, flow-composite samples will be collected. At least three storms will be collected during the year. Samples will be subjected to acute toxicity testing using *Ceriodaphnia* and *Pimephales promelas* according to methods developed by EPA (1990). TIE's will also be conducted on samples that have more than 20 percent mortality during the first 24 hours of the acute toxicity test and for no more than four storm water samples from each site. TIE procedures will be based on test methods developed by EPA (1988).

Sediment samples collected from the two USGS stations (27th Avenue and 43rd Avenue/Peoria) will be tested for acute sediment toxicity using *Hyalella azteca* according to methods described in American Society for Testing and Materials (1990).

3.6.3 Evaluate the Sources of Specific Pollutants (Objective 3)

Objective 3 is described in Section 4.6 - Illicit Discharge Identification and Elimination Program.

3.6.4 Evaluate the Effectiveness of Specific Structural BMPs (Objective 4)

There are no structural BMPs proposed in the City's Storm Water Management Program.

The FCD performs routine maintenance activities on the Arizona Canal Diversion Channel. These activities include stockpiling, testing, and disposal /removal of sediment. The sediment is analyzed for heavy metals and total petroleum hydrocarbons. Should any problems in the sediment exist as a result of this analysis, the FCD will exercise proper disposal procedures.

3.7 EQUIPMENT RECOMMENDATIONS AND SAMPLING METHODS

This section describes the recommended equipment for the field sampling of storm events, and storm sampling methods.

3.7.1 Introduction

3.7.1.1 Rain Gauges

At the present time the Flood Control District of Maricopa County is collecting rainfall data from three rain gauge stations that are distributed throughout the City of Phoenix and surrounding areas (see Table 3-38). These gauges are fully telemetered and transmit data to a central station. Additionally, there is a rain gauge at the Sky Harbor International Airport operated by the National Weather Service. Since summer storms are highly localized, it is important to have rain gauge stations not far from each runoff monitoring catchment.

The catchments selected for monitoring either have a rain gauge station in their vicinity or are located between two rain gauge stations, therefore the precipitation can be estimated by interpolating the rainfall between the two rain gauges.

3.7.1.2 Flow Monitoring Hardware/Software and Equipment Control

Electronic flow monitoring units will be used for obtaining flow measurements at the six automatic sampling stations. The four stations previously owned by the City employ electronic velocity sensors to measure the average velocity of the runoff and ultrasonic depth sensors to measure depth of flow. The two FCD/USGS stations use a pressure

transducer to gauge the depth of flow. These parameters are used along with known channel configurations to calculate both instantaneous and cumulative flow at each site.

These flow monitoring units will be equipped with an intelligent, telemetered remote microprocessor unit capable of two-way communications. The flow data will be retrieved and stored for data analysis and report generation at a central database located at the FCD.
ACDC + Salt River Stations?

3.7.1.3 Water Quality Samples

At the present time existing sample stations are equipped with one 10-liter bottle samplers. These samplers will be replaced with ISCO 3700 samplers, which are discrete water quality samplers with a 24 one-liter bottle configuration. The advantage of the 24 bottle configuration is the capability to sample discretely over the entire hydrograph and more precise compositing of the flow weighted sample.

3.7.2 Rainfall and Runoff Measurement Procedures

This section describes procedures used to measure rainfall and storm water runoff. Also included are the criteria for the selection of storms to be sampled.

A portion of the monitoring program and the data analysis will be directed toward developing reliable estimates of the relationship between rainfall and runoff in the study area. The runoff coefficients developed for Part 1 NPDES Permit Application will be used to estimate runoff volume for each station. Runoff volume estimates (given by the runoff coefficient and the predicted rainfall volume) are needed to set the sampling equipment so it will obtain representative flow-weighted composite samples. Runoff volumes also could be used in conjunction with site median pollutant concentrations (SMC) as input to storm water runoff models to generate basin-wide pollutant loads.

3.7.2.1 Storm Selection Criteria

Criteria for storm sampling were developed based on statistical analysis of historical rainfall data (by SYNOP computer program, as discussed in Section 4.0 of the Part 1

NPDES Permit application). SYNOP analyses provide frequency distributions of key storm characteristics, including volume, duration, intensity, and antecedent dry period. Due to the variability in the storm pattern between Phoenix's summer and winter seasons, statistical analyses were conducted to estimate two sets of parameters for representative rainfall volume and duration. The representative rainfall volumes for the summer and winter seasons are 0.2 to 0.8 inches and 0.2 to 0.7 inches, respectively. Representative rainfall durations for summer and winter are estimated to be 2.2 to 6.5 hours and 5.2 to 15.6 hours, respectively.

3.7.2.2 Rainfall and Runoff Measurement Procedures

Rainfall measurement will be conducted using the existing 31 rain gauges operated by the FCD and the National Weather Service within the Phoenix area (see Table 3-38). Each of the recommended monitoring stations are within a few miles of one or more of the existing rain gauges. The corresponding rain gauges for each recommended monitoring stations is presented below.

Catchment	Rain Gauges & Locations
IB-08	Sweetwater/36th St. & Sweetwater
SR-03	MCFCD/35th Avenue & Durango
SR-21	National Weather Service/Airport
SR-45	National Weather Service/Airport Guadalupe FRS/Baseline to Guadalupe at I-10
27th Avenue/Salt River	USGS 09512403 / at sampler site
43rd Avenue/ACDC	USGS 09513885 / at sampler site
Salt River	FCD gauge network
ACDC	FCD gauge network

Runoff estimates will be based on field measurements and use of the continuity equation. At each monitoring station, flow rates will be calculated by measuring average stream velocity (using an ultrasonic velocity sensor) and water depth. The advantage of

this procedure is that the measurement of the flow rate is not affected by backwater effects or surcharging.

Flow data will be collected at each automatic sampling station at one-minute intervals during the storm event and stored in the station's data logger. Retrieval of the data will be accomplished either locally, by downloading the data logger to a laptop PC, or via modem directly linked to the FCD database. The City will have computer access to the FCD database for data retrieval, and will also receive hard copy reports reflecting both water quality and flow data for a given sampled event.

3.7.3 Water Quality Field Sampling Methods

The section describes field methods for obtaining storm water samples. Samples will be collected by three methods: 1) automatic samplers, which will be installed in all the land use stations, 2) manual grab samples collected by field personnel, and 3) EWI method for the "in-stream" sampling.

Storm sampling will be performed primarily by automatic samplers, because they can be triggered to initiate sampling when a storm starts, and because they have the ability to provide composite storm water samples based on dynamic flow conditions. Field personnel will make instantaneous, on-site measurements during each station visit and will also perform manual grab sampling for chemical/bacteriological constituents that have short holding times (such as bacteria).

Sampling at the "in-stream" stations will be entirely manual grab samples. The sampling methodology will follow the guidelines set forth by the USGS for the EWI sampling method.

3.7.3.1 Flow Composite Samples

Once the decision is made to sample a given storm event, projections of the runoff volume are made from historic rainfall discharge relationships for the basin. From this projection, sampler activation volumes are determined and stations are programmed with this information. When the activation volume is reached (determined by the flow meter)

the sampler is instructed to take a sample. The sample is placed in one of the 24 one-liter bottles and the sampler is set to take the next aliquot. This will continue for the duration of the storm or for three hours. Samples are collected using the 24-bottle configuration to ensure that the hydrograph is adequately sampled and enough liquid is obtained for laboratory analysis. The sampling rate, (activation volume) can be altered in the field to accommodate atypical or misprojected storm events.

Twenty-four 1-liter polypropylene bottles lined with teflon-bags will be placed in each automatic sampler. Once activated, the sampler will deposit one-liter samples into an appropriate number of containers. The number depends on the amount of cumulative flow passing the sampler intake port, i.e., if the sampler activation volume is 1000 cubic feet, the sampler would deposit a 1-liter sample at 1000 cubic feet, 2000 cubic feet, etc. After the storm event, field crews will download the storm hydrograph from the flow meter and determine the sample corresponding to the largest flow. A flow-weighted composite sample will be made by using the entire 1-liter sample volume corresponding to the largest flow and portions of samples taken at less than maximum flow using the following relationship. If samples are volume-proportioned, sample vol. = max. vol (There is no max. All are equal)

Portion of sample required = (sample volume/max. volume) X 1-liter

Simply combine aliquots

The maximum volume sample and required portions of the other samples will be combined in teflon-lined containers and transported via strict chain-of-custody procedures to the laboratory, where sample splitting and preservation will be done.

The goal is for the automatic samplers to collect a volume of storm water sufficient for the required/proposed chemical analyses. When insufficient sample volumes are collected, it may be necessary to omit one or more chemical constituents for analysis.

Surface water sampling will employ the EWI method. Please see copy attached for an explanation of this collection method.

3.7.3.2 First-Flush Samples

First flush samples will be collected at two stations (27th Avenue and 43rd Avenue/Peoria) for toxicity testing. The method of collection involves installing carboys fitted with float valves in the channels and culvert outfalls. The carboy will be buried in the channel or placed at the culvert outfall so that it fills during the initial part of the runoff event. As the carboy fills with water, the float valve will rise and seal the opening and prevent most water from the later part of the storm event from mixing with the first-flush sample (USGS 1992).

3.7.3.3 Grab Samples at Automatic Stations

Grab samples will be taken at the automatic sampler stations for analysis of constituents which are likely to be lost in the pumping process used to collect automatic samples (e.g., TPH, oil and grease) or are likely to be contaminated or altered by the pump tubing (e.g., bacteria). Grab samples will also be necessary for making certain field measurements (e.g., pH, temperature, dissolved oxygen [DO]).

Two analysis methods will be employed for obtaining grab samples. For all measurements, the method will involve direct collection of the water sample into the sample container (rather than pumping). The open container (labeled and logged) will be first attached to a stainless-steel rod and then quickly immersed as near as possible to the intake of the automatic water quality sampler. The container will then be allowed to fill with water, removed from the flow, capped, placed in a chilled cooler, and promptly transported to the laboratory for chemical analyses. Samples will also be measured with a pH meter, thermometer, and DO meter directly in the field.

Grab samples for organics and bacteria will be taken on the rising limb of the hydrograph. This will likely provide concentration data which reflect higher levels of the pollutants in the storm event profile.

3.7.3.4 Manual Grab Samples for Flow-Weighted Composite Samples

At the locations monitoring in-stream flows of the Salt River and the ACDC, flow-weighted composite samples will be obtained using manual grab samples and the EWI method (Edwards and Glysson, 1988). - This article describes a method to collect a flow-weighted grab sample. The resultant concentration represents one point in time.

3.8 QUALITY ASSURANCE/QUALITY CONTROL PLAN

This section of the monitoring program describes the quality assurance and quality control plan to be implemented during the sampling, analysis, and reporting process.

3.8.1 Objectives

Measurement of chemical constituents at trace level concentrations is often difficult due to inherent properties of environmental samples, field sampling techniques, and analysis techniques. In order to assess and maximize data quality, a strict Quality Assurance and Quality Control (QA/QC) Plan will be implemented as an integral part of the monitoring program.

3.8.1.1 Sampling Procedure QA/QC

3.8.1.1.1 Field Standard Operating Procedures

Established Standard Operating Procedures (SOPs) will be followed by the field personnel in the field monitoring program. These will contain the following procedural instructions:

- Standard observations
- Initial setup of the composite samplers
- Initiation of the storm monitoring station software
- Battery replacement
- Data retrieval
- Sample removal and handling
- Grab sampling

- Sample transfer and tracking

3.8.1.1.2 Sample Handling/Compositing

Laboratory personnel involved in compositing the storm water runoff samples will use established SOPs and cleaning techniques in the sample handling procedures. Personnel from FCD have field experience in storm water sampling, and will manage all field sampling. Potential laboratory and/or field contamination will be assessed through analysis of blind equipment blanks and sample duplicates at a frequency of one equipment blank and one duplicate per storm event.

3.8.1.1.3 Sample Representativeness

Sample representativeness (the degree to which collected samples reflect actual field conditions) will be assessed through the analysis of duplicate field samples at a frequency of one field duplicate per storm event. The results of the field duplicate will be compared to the original sample to get a relative percent difference between the two samples. These data will be used to assess the precision of both the field sampling and laboratory analysis program and to aid in the interpretation of the water quality data. Specific objectives regarding the precision of field duplicates are presented in Table 3-35. Due to the inherent variation in environmental samples, these objectives must be viewed as goals and not requirements.

3.8.1.1.4 Sample Custody Procedures

Sample custody and transfer procedures will be based on EPA-recommended procedures and will emphasize careful documentation of sample collection and handling processes. Field teams will adhere to proper custody and documentation procedures for all sampling operations. Standardized sample custody forms will be used to document the relevant information for each storm sample bottle and the transfer of bottles to the laboratory.

3.8.1.2 Laboratory Procedure QA/QC

The laboratory analysis methods are described in Section 3.6.2. One laboratory will be contracted to perform most or all of the required chemical analyses. The suite of chemical analysis for all storm water samples is shown in Tables 3-35 and 3-36. In addition to performing the analyses, the laboratories must make every effort to meet target detection limits for each analytical method. Other QA/QC objectives that the laboratories must meet include holding times and sample preservation techniques, as shown in Table 3-35. In addition to the objectives noted above, the laboratories will meet the precision and accuracy objectives summarized in Table 3-35, unless extreme matrix interference problems are encountered.

3.8.1.2.1 Precision

Laboratory precision will be assessed through the analysis of laboratory duplicates and matrix spike duplicates at the frequency of 10 percent of the total samples for the lab duplicates and 5 percent for the matrix spike duplicates. Combined field and laboratory precision will be evaluated through the analysis of field duplicate samples at the frequency of one duplicate sample per sampling event as described above.

3.8.1.2.2 Accuracy

Laboratory accuracy will be assessed through the analysis of "blind" standard reference samples supplied by Environmental Resources Associates (ERA) and through the analysis of laboratory-prepared matrix spike samples. A goal of 5 percent of the samples will be analyzed as matrix spikes by spiking the sample with a known quantity of standard and measuring the analytical recovery. Blind ERA reference samples will be analyzed once every quarter in which samples are analyzed.

3.8.1.2.3 Laboratory Blanks

Sample contamination resulting from laboratory analysis procedures or sample storage methods will be assessed through the analysis of laboratory blanks and equipment

blanks. Laboratory blanks (reagent and/or method) will be reported for each method everyday samples are analyzed.

3.8.1.2.4 Completeness

All reported analyses will be evaluated against the requested analyses to evaluate the completeness of the analytical characterization of the water samples. Any missing data will be accounted for by the laboratory or field programs with an overall goal of 95 percent completeness.

3.8.1.3 Data Reduction, Validation, and Reporting

Overall data quality will be assessed, based on sampling and analytical conditions, adherence to internal QC procedures, and results of accuracy and precision checks.

Actual detection limits will be reported in the final report summary, along with the results of the external QA samples, field replicates, laboratory duplicates, matrix spike, matrix spike duplicates, and equipment and reagent blanks.

3.8.1.4 Corrective Action

In the event the data quality objectives are not met, the contracted laboratories will notify the FCD project quality assurance task leader who will evaluate the severity of the problem and recommend a course of action.

3.8.1.5 QA/QC Report

Summary results of the QA/QC program will be provided to FCD by the contracted laboratory in the form of a short memorandum detailing any analysis or sampling problems and the potential effects on the analysis results.

3.9 DATA MANAGEMENT AND REPORTING

This section summarizes the tasks required for managing and reporting the monitoring data. Data collected as part of the monitoring program will be efficiently stored in electronic format to enable easy retrieval, data interpretation, graphing, and/or input into any future data system that will be implemented.

Data collected will fall under the following categories:

- Precipitation
- Flow rates
- Field chemical data
- Laboratory chemical data
- Quality assurance/quality control data

Chemical data generated from the contracted laboratories will be input by the laboratories into the computer and transferred to FCD in a spreadsheet format (such as Lotus 1-2-3 or Excel). In addition to the laboratories' electronic data, raw laboratory data reports will also be received from the laboratories. Once the data are received by FCD, errors in transcription and reporting and compliance to QA/QC contract objectives will be checked and resolved. The final chemical data will be reported in a manner that is easy to read and understand.

It is anticipated that an annual monitoring report, due September 1 of each year, will be submitted to EPA Region 9 to comply with the City's NPDES storm water permit. In the annual report, the following information will be submitted:

- Monitoring conducted including stations monitored, number and type of samples collected, and number of storms collected;

- Results of hydrological monitoring including flow and relevant rainfall data;

- Results of chemical monitoring; interpretation of chemical data including comparisons to surface water criteria and drinking water criteria, and comparisons to historical data;

- Results of toxicity monitoring; interpretation of toxicity data with respect to potential impacts on aquatic and benthic habitat;

- Results of source identification programs (e.g., illicit connection/illicit dumping); and

- Recommendations for modifications in the monitoring program for subsequent years.

3.10 REFERENCES

U.S. Environmental Protection Agency. 1988. Methods for Aquatic Toxicity Identification Evaluations. EPA-600/3-88/034.

U.S. Environmental Protection Agency. 1990. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. EPA-600/4-90/027.

American Society of Testing and Materials. 1990. Standard Guide for Conducting Sediment Toxicity Test with Freshwater Invertebrates. 1991 Annual Book of ASTM Standards, v. 11.04.

U.S. Environmental Protection Agency. 1992. NPDES Storm Water Sampling Guidance Document. EPA-833-B-92-001. Office of Water.

U.S. Geological Survey. 1992. Toxicity and Chemical of Urban Storm Water and Bed Material, Maricopa County, Arizona.

Edwards, Thomas K. and G. Douglas Glysson. 1988. Field Methods for Measurement of Fluvial Sediment. U.S. Geological Survey Open-File Report 86-531, Reston, Virginia. pp. 61-64.

DATE OF STORM	SAMPLING STATION	DURATION OF STORM (hours)	RAINFALL (inches)	INTERVAL OF PREVIOUS STORM EVENT (hours)*
March 27, 1992	SR-03	19	.55	>72
	SR-33	26	.59	>72
	SR-21	32	.65	>72
	SR-45	19	.87	>72
		18	.59	
	AC-05	2	.31	>72
		15	.35	>72
	IB-08	17	.55	>72
		19	.63	
	IB-11	38	.39	>72
August 5, 1992	SR-21	7	.29	>72
August 11, 1992	IB-11	1	.08	>72
August 19, 1992	IB-08	9	.24	>72
August 22, 1992	SR-03	36	.44	>72
	SR-33	36	.95	>72
	AC-05	41	.71	>72
		33	.40	>72

TABLE 3-1
STORM EVENT SAMPLING DATA

DATE OF STORM	SAMPLING STATION	DURATION OF STORM (hours)	RAINFALL (inches)	INTERVAL OF PREVIOUS STORM EVENT (hours)*
January 3, 1992	SR-03	6	.44	>72
	SR-33	7	.52	>72
	SR-21	15	.38	>72
	SR-45	11	.59	>72
		4	.39	
	AC-05	8	.55	>72
		8	.52	
	IB-08	9	.43	>72
		11	.43	
	IB-11	7	.32	>72
February 7, 1992	SR-03	18	.31	>72
February 7, 1992	SR-33	16	.35	>72
February 6, 1992	SR-21	25	.37	>72
February 6, 1992	SR-45	20	.71	>72
		16	.28	>72
February 7, 1992	AC-05	18	.63	>72
		10	.08	>72
February 7, 1992	IB-08	17	.35	>72
		19	.39	
February 7, 1992	IB-11	16	.31	>72

TABLE 3-2A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL SR-21

	UNITS	SR-21 SAMPLING EVENTS				WATER QUALITY STANDARDS	
		01-03-92	02-06-92	03-26-92	08-05-92	FEDERAL DRINKING WATER	ARIZONA SURFACE WATER[1]
GENERAL CHEMISTRY AND BIOLOGICAL ANALYTE GROUPING							
FECAL COLIFORM	MPN/100ml	170.00	800.00	**30000.00**	NA		4000 CFU/100 ml
FECAL STREP.	MPN/100ml	2400.00	9000.00	90000.00	NA		
B.O.D.	mg/l	10.00	NA	11.00	14.00		
CYANIDE	mg/l	<0.01	<0.01	<0.01	NA	0.2[2]	0.019
C.O.D.	mg/l	60.00	NA	NA	100		
NH_4-N	mg/l	0.52	NA	NA	1.13		
NO_2-N	mg/l	<0.06	NA	NA	1.53	10	
$N0_3$-N	mg/l	NA	NA	NA	NA	1	
NO_2-N/$N0_3$-N	mg/l	NA	NA	NA	NA	10	
OIL & GREASE	mg/l	3.00	4.00	5.00	NA		
pH	units	6.80	NA	NA	6.4	6.5 - 8.5	6.5-9.0
PHENOLICS	mg/l	0.02	0.02	<0.02	NA		26.0
TDS	mg/l	40.00	NA	NA	100.00	500	
TKN	mg/l	1.30	NA	NA	2.50		
P (total)	mg/l	0.18	NA	NA	0.33		
TSS	mg/l	20.00	NA	NA	110		
VOLATILE ORGANIC ANALYTICAL GROUPING							
EPA METHOD 624	ug/l	<	<	<	NA		
SEMI-VOLATILE ORGANIC ANALYTES							
EPA METHOD 625	ug/l	<*	<	<	<**		

Analytical detection limits for volatile and semi-volatile organics are presented with the laboratory reports
< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
* Not detected except phenol at 11 µg/l
**Not detected except a trace of phenol and a trace of benzoic acid (No Fed. Drinking Water Std.)
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1 (based on most conservative value)
[2] Safe Drinking Water Act, Phase 5 Rule, effective 1/17/94
CFU = Colony forming unit
MPN = Most Probable Number

TABLE 3-2B
RESULTS OF CHEMICAL ANALYSES OF STORMWATER SAMPLES
FOR OUTFALL SR-21

PARAMETERS	UNITS	SR-21 SAMPLING EVENTS								
		01-03-92	ARIZONA SURFACE WATER STANDARDS[1]	02-06-92	ARIZONA SURFACE WATER STANDARDS[1]	03-26-92	ARIZONA SURFACE WATER STANDARDS[1]	08-05-92	ARIZONA SURFACE WATER STANDARDS[1]	FEDERAL DRINKING WATER STANDARDS[1]
METAL ANALYTES										
Ag	mg/l	<0.0002	<0.0003[2]	NA		**<0.0008**	<0.0003[2]	<0.0002	<0.0003[2]	0.050
As	mg/l	0.0010	0.230[2]	NA		0.0020	0.230[2]	0.003	0.230[2]	0.050
Be	mg/l	<0.0002	0.700	NA		<0.0002	0.700	<0.0002	0.700	0.001*
Cd	mg/l	**0.0007**	0.00034[2]	NA		**0.0006**	0.00043[2]	**0.0009**	0.00034[2]	0.005
Cr	mg/l	0.0010	0.0595[2]	NA		0.0030	0.0762[2]	0.007	0.0595[2]	0.100
Cu	mg/l	**0.0260**	0.0044[2]	NA		**0.0310**	0.0057[2]	0.064	0.0044[2]	1.0
HARDNESS	mg/l	21.8000		NA		29.5000		NA		
Hg	mg/l	<0.0002	0.0027[2]	NA		<0.0002	0.0027[2]	<0.0002	0.0027[2]	0.002
Ni	mg/l	<0.020	0.1276[2]	NA		0.0060	0.1648[2]	0.010	0.1276[2]	0.100*
Pb	mg/l	**0.015**	0.0010[2]	NA		**0.0100**	0.0014[2]	**0.022**	0.0010[2]	**0.005****
Sb	mg/l	<0.003	0.056	NA		<0.003	0.056	<0.005	0.056	0.005*
Se	mg/l	<0.0008	0.002	NA		<0.0008	0.002	<0.0008	0.002	0.050
Tl	mg/l	<0.001	3.7	NA		<0.001	3.7	<0.001	3.7	0.001*
Zn	mg/l	**0.0620**	0.0288[2]	NA		**0.0460**	0.0371[2]	**0.122**	0.0288[2]	5.0

< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Dissolved
* Proposed EPA maximum contaminant level
**Value is based on Human Health Based Guidance Levels (ADEQ, June 1992)
Bold indicates value exceeds water quality standard

TABLE 3-3A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL SR-03

PARAMETERS	UNITS	SR-03 SAMPLING EVENTS				WATER QUALITY STANDARDS	
		1-03-92	2-06-92	3-26-92	8-22-92	FEDERAL DRINKING WATER	ARIZONA SURFACE WATER[1]
GENERAL CHEMISTRY AND BIOLOGICAL ANALYTE GROUPING							
FECAL COLIFORM	MPN/100ml	**30000**	**3000.00**	**1300**	**1600000**		800 CFU/100 ml
FECAL STREP.	MPN/100ml	50000	>160000	30,000	500		
B.O.D.	mg/l	11.00	NA	NA	3		
CYANIDE	mg/l	<0.01	<0.01	<0.01	<0.01	0.2[2]	0.0097
C.O.D.	mg/l	93.00	NA	NA	31		
NH_4-N	mg/l	0.54	NA	NA	0.04		
NO_2-N	mg/l	<0.06	NA	NA	2.92	10	NNS
$N0_3$-N	mg/l	1.00	NA	NA	NA	1	NNS
NO_2-N/$N0_3$-N	mg/l	NA	NA	NA	NA	10	NNS
OIL & GREASE	mg/l	5.00	7.00	3	<2		
pH	units	7.00	NA	NA	7.7	6.5-8.5	6.5-9.0
PHENOLICS	mg/l	0.02	<0.04	<0.02	<0.02		1.0
TDS	mg/l	60.00	NA	NA	**660**	500	
TKN	mg/l	0.90	NA	NA	0.9		
P (total)	mg/l	0.43	NA	NA	0.24		
TSS	mg/l	100	NA	NA	40		
ORGANOCHLORINE PESTICIDES AND PCB'S							
EPA METHOD 608	ug/l	NA	NA	NA	<		
CHLORINATED HERBICIDES							
EPA METHOD 615	ug/l	NA	NA	NA	<		
VOLATILE ORGANIC ANALYTICAL GROUPING							
EPA METHOD 624	ug/l	<	<	<	<		
SEMI-VOLATILE ORGANIC ANALYTES							
EPA METHOD 625	ug/l	<	NA	NA	<		

Analytical detection limits for volatile and semi-volatile organics are presented with the laboratory reports
< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
*Not detected except trichloroethene - 1 µg/l (Fed. Drinking Water Std. = 5 µg/l)
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Safe Drinking Water Act, Phase 5 Rule, Effective 1/17/94
CFU = Colony forming unit
MPN = Most Probable Number

TABLE 3-3B
RESULTS OF CHEMICAL ANALYSES OF STORMWATER SAMPLES
FOR OUTFALL SR-03

PARAMETERS	UNITS	SR-03 SAMPLING EVENTS								
		1-03-92	ARIZONA SURFACE WATER STANDARDS[1]	2-06-92	ARIZONA SURFACE WATER STANDARDS[1]	3-26-92	ARIZONA SURFACE WATER STANDARDS[1]	8-22-92	ARIZONA SURFACE WATER STANDARDS[1]	FEDERAL DRINKING WATER
METAL ANALYTES										
Ag	mg/l	<0.0002	0.0085[2]	NA		NA		0.0003	0.0156[2]	0.050
As	mg/l	0.0030	0.0031	NA		NA		**0.038**	0.0031	0.050
Be	mg/l	<0.0002	0.00021	NA		NA		<0.0002	0.00021	0.001*
Cd	mg/l	**0.0006**	0.00056[2]	NA		NA		<0.0002	0.0021[2]	0.005
Cr	mg/l	0.0040	0.0985	NA		NA		0.004	0.3933[2]	0.100
Cu	mg/l	**0.0280**	0.00545[2]	NA		NA		0.010	0.0231[2]	1.0
HARDNESS	mg/l	40.4000		NA		NA		219		
Hg	mg/l	<0.0002	0.0002[2]	NA		NA		<0.0002	0.0002[2]	0.002
Ni	mg/l	<0.020	0.0732[2]	NA		NA		<0.005	0.3060[2]	0.100*
Pb	mg/l	**0.0290**	0.001[2]	NA		NA		0.003	0.0086[2]	0.005**
Sb	mg/l	<0.003	0.056	NA		NA		<0.005	0.056	0.005*
Se	mg/l	<0.0008	0.002	NA		NA		<0.0008	0.002	0.050
Tl	mg/l	<0.001	0.044	NA		NA		<0.001	0.044	0.001*
Zn	mg/l	**0.1400**	0.0492[2]	NA		NA		0.020	0.2059[2]	5.0

< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Dissolved
* Note: This has been proposed by EPA as the maximum contaminant level
**Value based on Human Health Based Guidance Levels (ADEQ, June 1992)
Bold indicates value exceeds water quality standard

TABLE 3-4A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL SR-33

PARAMETERS	UNITS	SR-33 SAMPLING EVENTS			WATER QUALITY STANDARDS	
		1-03-92	2-06-92	8-22-92	FEDERAL DRINKING WATER	ARIZONA SURFACE WATER[1]
GENERAL CHEMISTRY AND BIOLOGICAL ANALYTE GROUPING						
FECAL COLIFORM	MPN/100ml	1400.00	<2	NA		4000 CFU/100ml
FECAL STREP.	MPN/100ml	13000.00	NA	NA		
B.O.D.	mg/l	10.00	NA	11		
CYANIDE	mg/l	<0.01	<0.01	<0.01	0.2[2]	0.0097
C.O.D.	mg/l	76.00	NA	NA		
NH_4-N	mg/l	0.56	NA	NA	10	NNS
NO_2-N	mg/l	<0.06	NA	NA	1	NNS
$N0_3$-N	mg/l	0.91	NA	NA	10	NNS
OIL & GREASE	mg/l	8.00	<2	5		
pH	units	6.90	NA	7.5	6.5-8.5	6.5-9.0
PHENOLICS	mg/l	<0.02	<0.02	<0.02		1.0
TDS	mg/l	80.00	NA	140	500	
TKN	mg/l	1.70	NA	NA		
P (total)	mg/l	0.28	NA	NA		
TSS	mg/l	70.00	NA	80		
VOLATILE ORGANIC ANALYTICAL GROUPING						
EPA METHOD 624	ug/l	<	<	<		
SEMI-VOLATILE ORGANIC ANALYTES						
EPA METHOD 625	ug/l	<	<	NA		

Analytical detection limits for volatile and semi-volatile organics are presented with the laboratory reports
< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
*Not detected except fo acetone - 14 µg/l (No Fed. Drinking Water Std.)
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Safe Drinking Water Act, Phase 5 rule, Effective 1/17/94
CFU = colony forming unit

MPN = Most Probable Number

TABLE 3-4B
RESULTS OF CHEMICAL ANALYSES OF STORMWATER SAMPLES
FOR OUTFALL SR-33

PARAMETERS	UNITS	SR-33 SAMPLING EVENTS						
		1-03-92	ARIZONA SURFACE WATER STANDARDS[1]	2-06-92	ARIZONA SURFACE WATER STANDARDS[1]	8-22-92	ARIZONA SURFACE WATER STANDARDS[1]	FEDERAL DRINKING WATER STANDARDS
METAL ANALYTES								
Ag	mg/l	<0.0002	0.0010[2]	<0.0002	<0.0004[2]	<0.0002	0.0016	0.050
As	mg/l	0.003	0.190[2]	0.0030	0.190[2]	0.031	0.190[2]	0.050
Be	mg/l	<0.0002	0.0053[2]	<0.0002	0.0053[2]	<0.0002	0.0053[2]	0.001*
Cd	mg/l	0.0004	0.0006[2]	0.0004	0.00042[2]	0.0004	0.001[2]	0.005
Cr	mg/l	0.002	0.106[2]	0.0020	0.073[2]	0.003	0.132[2]	0.100
Cu	mg/l	**0.017**	0.0059[2]	**0.0220**	0.0040[2]	**0.019**	0.0007[2]	1.0
HARDNESS	mg/l	44.2		27.8000		57.8		
Hg	mg/l	<0.0002	0.00001[2]	<0.0002	0.00001[2]	<0.0002	0.00001[2]	0.002
Ni	mg/l	<0.020	0.079[2]	<0.020	0.053[2]	0.008	0.099[2]	0.10*
Pb	mg/l	**0.022**	0.0011[2]	**0.0190**	0.0006[2]	**0.021**	0.0016[2]	.005**
Sb	mg/l	<0.003	0.030[2]	<0.003	0.030[2]	<0.005	0.030[2]	0.005*
Se	mg/l	<0.0008	0.002	<0.0008	0.002	<0.0008	0.002	0.050
Tl	mg/l	<0.001	0.150[2]	<0.001	0.150[2]	<0.001	0.150[2]	0.001*
Zn	mg/l	**0.0930**	0.053[2]	**0.1030**	0.036[2]	**0.078**	0.067[2]	5.0

< = Indicates concentration less than detection limit for parameter
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Dissolved
*Proposed EPA maximum contaminant level
**Value based on Human-Health Based Guidance Levels (ADEQ, June 1992)
Bold indicates value exceeds water quality standard

TABLE 3-5A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL AC-05

PARAMETERS	UNITS	AC-05 SAMPLING EVENTS				WATER QUALITY STANDARDS	
		01-03-92	02-06-92	03-26-92	08-22-92	FEDERAL DRINKING WATER	ARIZONA SURFACE WATER[1]
GENERAL CHEMISTRY AND BIOLOGICAL ANALYTE GROUPING							
FECAL COLIFORM	MPN/100ml	9000.00	3000.00	130.00	90,000		800 CFU/100ml
FECAL STREP.	MPN/100ml	30000.00	3000.00	3000.00	3,000		
B.O.D.	mg/l	9.00	15.00	16.00	13		
CYANIDE	mg/l	<0.01	0.04	<0.01	<0.01	0.02[2]	0.0097
C.O.D.	mg/l	51.00	110.00	82.00	100		
NH_4-N	mg/l	0.37	0.77	0.47	NA		
NO_2-N	mg/l	<0.06	<0.06	NA	NA	10	
$N0_3$-N	mg/l	NA	0.57	NA	NA	1	
NO_2-N/$N0_3$-N	mg/l	NA	NA	0.50	NA	10	
OIL & GREASE	mg/l	2.00	5.00	3.00	5		
pH	units	6.90	6.50	6.50	7.4	6.5-8.5	6.5-9.0
PHENOLICS	mg/l	<0.02	<0.04	<0.02	<0.02		1.0
TDS	mg/l	60.00	90.00	40.00	80	500	
TKN	mg/l	1.10	2.20	1.60	NA		
P (total)	mg/l	0.15	0.21	0.21	NA		
TSS	mg/l	10.0	50.00	40.00	30		
VOLATILE ORGANIC ANALYTICAL GROUPING							
EPA METHOD 624	ug/l	<	<	<	<*		
SEMI-VOLATILE ORGANIC ANALYTES							
EPA METHOD 625	ug/l	<	<	<	<**		

Analytical detection limits for volatile and semi-volatile organics are presented with the laboratory reports
< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
* Not detected except Acetone - 11 µg/l (No Federal Drinking Water Std.)
** Not detected except a trace of Chrysene
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Safe Drinking Water Act, Phase 5 Rule, Effective 1/17/94
CFU = colony forming unit
MPN = Most Probable Number

TABLE 3-5B
RESULTS OF CHEMICAL ANALYSES OF STORMWATER SAMPLES
FOR OUTFALL AC-05

PARAMETERS	UNITS	AC-05 SAMPLING EVENTS								
		01-03-92	ARIZONA SURFACE WATER STANDARDS[1]	02-06-92	ARIZONA SURFACE WATER STANDARDS[1]	03-26-92	ARIZONA SURFACE WATER STANDARDS[1]	08-22-92	ARIZONA SURFACE WATER STANDARDS[1]	FEDERAL DRINKING WATER STANDARDS
METAL ANALYTES										
Ag	mg/l	<0.0002	0.00054[2]	<0.0002	0.00045[2]	**0.0011**	0.00015[2]	<0.0002	0.00044[2]	0.050
As	mg/l	<0.001	0.0031	0.0020	0.0031	0.0010	0.0031	**0.005**	0.0031	0.050
Be	mg/l	<0.0002	0.00021	<0.0002	0.00021	<0.0002	0.00021	<0.0002	0.00021	0.001*
Cd	mg/l	<0.0002	0.00045[2]	0.0004	0.00042[2]	**0.0003**	0.00025[2]	0.0002	0.00041[2]	0.005
Cr	mg/l	<0.001	0.0791[2]	0.0020	0.0725[2]	0.0040	0.0428[2]	0.003	0.0719[2]	0.100
Cu	mg/l	**0.0110**	0.0043[2]	**0.0220**	0.0040[2]	**0.0120**	0.0023[2]	**0.010**	0.0040[2]	1.0
HARDNESS	mg/l	30.9000		27.8000		14.6000		27.5		
Hg	mg/l	<0.0002	0.00001[2]	<0.0002	0.00001[2]	<0.0002	0.00001[2]	<0.0002	0.00001[2]	0.002
Ni	mg/l	<0.020	0.0584[2]	<0.020	0.0534[2]	0.0150	0.0310[2]	<0.005	0.0529[2]	0.100
Pb	mg/l	**0.0050**	0.0007[2]	**0.0190**	0.0006[2]	**0.0180**	0.0003[2]	**0.007**	0.0006[2]	0.005**
Sb	mg/l	<0.003	0.0028	<0.003	0.0028	<0.003	0.0028	<0.005	0.0028	0.0005*
Se	mg/l	<0.0008	0.0020	<0.0008	0.0020	<0.0008	0.0020	<0.0008	0.0020	0.050
Tl	mg/l	<0.001	0.0440	<0.001	0.0440	<0.001	0.0440	<0.001	0.0440	0.001*
Zn	mg/l	0.0380	0.0392[2]	**0.1030**	0.0358[2]	**0.0810**	0.0207[2]	**0.078**	0.0355[2]	5.0

< = Indicates concentration less than detection limit for parameter
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] = Dissolved
*Note: This has been proposed by EPA as the maximum contaminant level
**Value is based on Human Health Based Guidance Levels (ADEQ, June 1992)
Bold indicates value exceeds water quality standard

TABLE 3-6A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL IB-08

PARAMETERS	UNITS	IB-08 SAMPLING EVENTS				WATER QUALITY STANDARDS	
		01-03-92	02-06-92	03-26-92	08-18-92	FEDERAL DRINKING WATER	ARIZONA SURFACE WATER[1]
GENERAL CHEMISTRY AND BIOLOGICAL ANALYTE GROUPING							
FECAL COLIFORM	MPN/100ml	**50000.00**	2200.00	800.00	NA		4000 CFU/100 ml
FECAL STREP.	MPN/100ml	13000.00	13000.00	50000.00	NA		
B.O.D.	mg/l	7.00	12.00	16.00	22		
CYANIDE	mg/l	<0.01	<0.01	<0.01	NA	0.2[2]	0.0097
C.O.D.	mg/l	NA	110	81.00	200		
NH_4-N	mg/l	NA	NA	0.62	1.58		
NO_2-N	mg/l	NA	NA	NA	NR		
$N0_3$-N	mg/l	NA	NA	NA	NR	10.3	
NO_2-N/$N0_3$-N	mg/l	NA	NA	0.40	1.2		
OIL & GREASE	mg/l	3	4.00	5.00	NA		
pH	units	7.10	7.20	6.70	7.4	6.5-8.5	6.5-9.0
PHENOLICS	mg/l	<0.02	<0.02	<0.02	NA		1.0
TDS	mg/l	60.00	150.00	70.00	110	500	
TKN	mg/l	NA	NA	2.30	4.4		
P (total)	mg/l	NA	NA	0.44	0.50		
TSS	mg/l	70.00	260.00	170.00	250		
VOLATILE ORGANIC ANALYTICAL GROUPING							
EPA METHOD 624	ug/l	<	<	<	NA		
SEMI-VOLATILE ORGANIC ANALYTES							
EPA METHOD 625	ug/l	NA	<	<	<		

Analytical detection limits for volatile and semi-volatile organics are presented with the laboratory reports
< = Indicates concentration less than detection limit for parameter
NR = Not reported
NA = Not analyzed
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Safe Drinking Water Act, Phase 5 Rule, Effective 1/17/94
CFU = colony forming unit

TABLE 3-6B
RESULTS OF CHEMICAL ANALYSES OF STORMWATER SAMPLES
FOR OUTFALL IB-08

PARAMETERS	UNITS	IB-08 SAMPLING EVENTS WATER QUALITY STANDARDS								
		01-03-92	ARIZONA SURFACE WATER STANDARDS[1]	02-06-92	ARIZONA SURFACE WATER STANDARDS[1]	03-26-92	ARIZONA SURFACE WATER STANDARDS[1]	08-18-92	ARIZONA SURFACE WATER STANDARDS[1]	FEDERAL DRINKING WATER STANDARDS
METAL ANALYTES										
Ag	mg/l	<0.0002	0.0007[2]	<0.0002	0.0017[2]	<0.0008	0.0009[2]	<0.0002	0.0007[2]	0.050
As	mg/l	0.002	0.030[2]	0.0030	0.030[2]	0.0030	0.030[2]	0.004	0.030[2]	0.050
Be	mg/l	<0.0002	0.0002	**0.0005**	0.0002	**0.0004**	0.0002	**0.0004**	0.0002	0.001*
Cd	mg/l	**0.003**	0.0005[2]	**0.0010**	0.0008[2]	0.0004	0.0006[2]	**0.0012**	0.0005[2]	0.005
Cr	mg/l	0.002	0.0927[2]	0.0070	0.1357[2]	0.0030	0.0983[2]	0.019	0.0927[2]	0.100
Cu	mg/l	**0.027**	0.0051[2]	**0.0420**	0.0076[2]	**0.0120**	0.0054[2]	**0.045**	0.0051[2]	1.0
HARDNESS	mg/l	37.5		59.7000		40.3		NA		
Hg	mg/l	<0.0002	0.00001[2]	<0.0002	0.00001[2]	<0.0002	0.00001[2]	<0.0002	0.00001[2]	0.002
Ni	mg/l	<0.020	0.0688[2]	0.023	0.1019[2]	**0.0100**	0.0073[2]	0.018	0.0688[2]	0.100*
Pb	mg/l	**0.015**	0.0009[2]	**0.0580**	0.0017[2]	**0.0100**	0.0010[2]	**0.052**	0.0009[2]	0.005**
Sb	mg/l	<0.003	0.0031	<0.003	0.0031	<0.003	0.0031	<0.005	0.0031	0.005*
Se	mg/l	<0.0008	0.002	<0.0008	0.002	<0.0008	0.002	<0.008	0.002	0.050
Tl	mg/l	<0.001	0.044	<0.001	0.044	<0.001	0.044	<0.001	0.044	0.001*
Zn	mg/l	**0.074**	0.0461[2]	**0.2050**	0.0684[2]	**0.0920**	0.0491[2]	**0.245**	0.0461[2]	5.0

< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Dissolved
*Proposed EPA maximum contaminant level
**Value is based on Human Health Based Guidance Levels (ADEQ, June 1992)

TABLE 3-7A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL IB-11

PARAMETERS	UNITS	IB-11 SAMPLING EVENTS				WATER QUALITY STANDARDS	
		01-03-92	02-06-92	03-26-92	08-12-92	FEDERAL DRINKING WATER	ARIZONA SURFACE WATER[1]
GENERAL CHEMISTRY AND BIOLOGICAL ANALYTE GROUPING							
FECAL COLIFORM	MPN/100ml	1700.00	700.00	1100.00	NA		4000 CFU/100ml
FECAL STREP.	MPN/100ml	13000.00	3000.00	28000.00	NA		
B.O.D.	mg/l	4.00	14.00	13.00	4		
CYANIDE	mg/l	<0.01	<0.01	<0.01	NA	0.2[2]	0.0097
C.O.D.	mg/l	30.00	110.00	69.00	64		
NH_4-N	mg/l	0.23	0.90	0.54	0.62		
NO_2-N	mg/l	<0.06	<0.06	NA	1.01	10	
$N0_3$-N	mg/l	0.46	0.87	NA	NA	1	
NO_2-N/$N0_3$-N	mg/l	NA	NA	0.40	NA	10	
OIL & GREASE	mg/l	4.00	4.00	3.00	NA		
pH	units	7.10	7.00	6.50	7.3	6.5-8.5	6.5-9.0
PHENOLICS	mg/l	<0.02	<0.02	<0.02	NA		1.0
TDS	mg/l	60.00	190.00	70.00	80	500	
TKN	mg/l	0.90	2.80	2.30	1.8		
P (total)	mg/l	0.23	0.25	0.28	0.45		
T.S.S	mg/l	70.00	90.00	90.00	250		
ORGANOCHLORINE PESTICIDES AND PCB'S							
EPA METHOD 608	ug/l	NA	<	NA	<		
CHLORINATED HERBICIDES							
EPA METHOD 615	ug/l	NA	<	NA	<		
ORGANOPHOSPHATE PESTICIDES							
EPA METHOD 614	ug/l	NA	<	NA	NA		
VOLATILE ORGANIC ANALYTICAL GROUPING							
EPA METHOD 624	ug/l	<	<	<	NA		
SEMI-VOLATILE ORGANIC ANALYTES							
EPA METHOD 625	ug/l	<	<	<	<*		

TABLE 3-7A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL IB-11

Analytical detection limits for volatile and semi-volatile organics are presented with the laboratory reports

< = Indicates concentration less than detection limit for parameter

NA = Not analyzed

*Not detected except trace of benzoic acid.

[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1

[2] Safe Drinking Water Act, Phase 5 Rule, Effective 1/17/94

CFU = colony forming unit

MPN = Most Probable Number

TABLE 3-7B
RESULTS OF CHEMICAL ANALYSES OF STORMWATER SAMPLES
FOR OUTFALL IB-11

PARAMETERS	UNITS	IB-11 SAMPLING EVENTS								
		01-03-92	ARIZONA SURFACE WATER STANDARDS[1]	02-06-92	ARIZONA SURFACE WATER STANDARDS[1]	03-26-92	ARIZONA SURFACE WATER STANDARDS[1]	08-12-92	ARIZONA SURFACE WATER STANDARDS[1]	FEDERAL DRINKING WATER STANDARDS
METAL ANALYTES										
Ag	mg/l	<0.0002	0.0005[2]	<0.0002	0.0017[2]	<0.0008	0.0008[2]	<0.0002	<0.000001[2]	0.050
As	mg/l	0.002	0.030[2]	0.0020	0.030[2]	0.0020	0.030[2]	0.003	0.030[2]	0.050
Be	mg/l	<0.0002	0.0002	**0.0005**	0.0002	0.0002	0.0002	**0.003**	0.0002	0.001*
Cd	mg/l	<0.0002	0.0004[2]	**0.0010**	0.0008[2]	0.0004	0.0006[2]	**0.0003**	0.00002[2]	0.005
Cr	mg/l	0.002	0.0732[2]	0.0070	0.1357[2]	0.0030	0.0983[2]	0.0002	0.0027[2]	0.100
Cu	mg/l	**0.012**	0.0040[2]	**0.0420**	0.0076[2]	**0.0120**	0.0054[2]	**0.005**	0.0001[2]	1.0
HARDNESS	mg/l	28.1		59.7000		40.3000		0.020		
Hg	mg/l	<0.0002	0.00001[2]	<0.0002	0.00001[2]	<0.0002	0.00001[2]	<0.0002	0.00001[2]	0.002
Ni	mg/l	<0.020	0.0539[2]	0.023	0.1019[2]	0.0100	0.0730[2]	**0.010**	0.0018[2]	0.100*
Pb	mg/l	**0.005**	0.0006[2]	**0.0580**	0.0017[2]	**0.010**	0.0010[2]	**0.010**	0.00019[2]	0.005**
Sb	mg/l	<0.003	0.0031	<0.003	0.0031	<0.003	0.0031	<0.005	0.0031	0.005*
Se	mg/l	<0.0008	0.002	<0.0008	0.002	<0.0008	0.002	<0.0008	0.002	0.050
Tl	mg/l	<0.001	0.044	<0.001	0.044	<0.001	0.044	<0.001	0.044	0.001*
Zn	mg/l	<0.028	0.0361[2]	**0.2050**	0.0684[2]	**0.0570**	0.0491[2]	**0.154**	0.0001[2]	5.0

< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Dissolved
*Note: This has been proposed by EPA as the maximum contaminant level
** Value is based on Human Health Based Guidance Levels (ADEQ, June, 1992)
Bold indicates value exceeds water quality standard

TABLE 3-8A
RESULTS OF CHEMICAL ANALYSES
OF STORMWATER SAMPLES
FOR OUTFALL SR-45

PARAMETERS	UNITS	SR-45 SAMPLING EVENTS			WATER QUALITY STANDARDS	
		01-03-93	02-06-92	03-26-92	FEDERAL DRINKING WATER	ARIZONA SURFACE WATER[1]
GENERAL CHEMISTRY AND BIOLOGICAL ANALYTE GROUPING						
FECAL COLIFORM	MPN/100ml	2200.00	2400.00	NA		4000 cfu/100 ml
FECAL STREP.	MPN/100ml	24000.00	13000.00	NA		
B.O.D.	mg/l	18.00	NA	21.00		
CYANIDE	mg/l	<0.01	0.03	NA	0.2[2]	0.019
C.O.D.	mg/l	130.00	NA	120		
NH_4-N	mg/l	0.58	NA	0.6		
NO_2-N	mg/l	<0.06	NA	0.8	10	
$N0_3$-N	mg/l	0.84	NA	NA	1	
OIL & GREASE	mg/l	3.00	4.00	NA		
pH	units	6.70	NA	6.8	6.5-8.5	6.5-9.0
PHENOLICS	mg/l	0.02	0.03	NA		26.0
TDS	mg/l	90.00	NA	70	500	
TKN	mg/l	1.90	NA	2.4		
P (total)	mg/l	0.32	NA	0.52		
T.S.S	mg/l	90.00	NA	170		
VOLATILE ORGANIC ANALYTICAL GROUPING						
EPA METHOD 624	ug/l	<*	<	NA		
SEMI-VOLATILE ORGANIC ANALYTES						
EPA METHOD 625	ug/l	<	NA	<		

Analytical detection limits for volatile and semi-volatile organics are presented with the laboratory reports
< = Indicates concentration less than detection limit for parameter
NA = Not analyzed
*Not detected except a trace of acetone.
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] Safe Drinking Water Act, Phase 5 Rule, Effective 1/17/94
CFU = colony forming unit

MPN = Most Probable Number

TABLE 3-8B
RESULTS OF CHEMICAL ANALYSES OF STORMWATER SAMPLES
FOR OUTFALL SR-45

PARAMETERS	UNITS	SR-45 SAMPLING EVENTS						
		01-03-93	ARIZONA SURFACE WATER STANDARDS[1]	02-06-92	ARIZONA SURFACE WATER STANDARDS[1]	03-26-92	ARIZONA SURFACE WATER STANDARDS[1]	FEDERAL DRINKING WATER STANDARDS
METAL ANALYTES								
Ag	mg/l	<0.0002	0.001[2]	NA		0.0010	0.001[2]	0.050
As	mg/l	0.004	0.230[2]	NA		0.0050	0.230[2]	0.050
Be	mg/l	<0.0002	0.700	NA		0.0003	0.700	0.001*
Cd	mg/l	0.0009	0.0006[2]	NA		**0.0013**	0.0006[2]	0.005
Cr	mg/l	0.0030	0.1080[2]	NA		0.0060	0.108[2]	0.100
Cu	mg/l	**0.0570**	0.0083[2]	NA		**0.0630**	0.0083[2]	1.0
HARDNESS	mg/l	45.6000		NA		45.6000		
Hg	mg/l	<0.0002	0.0027[2]	NA		<0.0002	0.0027[2]	0.002
Ni	mg/l	<0.020	0.238[2]	NA		0.0460	0.238[2]	0.100*
Pb	mg/l	**0.031**	0.0025[2]	NA		**0.0500**	0.0025[2]	.005**
Sb	mg/l	<0.003	0.056	NA		<0.003	0.056	0.005*
Se	mg/l	<0.0008	0.002	NA		<0.0008	0.002	0.050
Tl	mg/l	<0.001	3.7	NA		<0.001	3.7	0.001*
Zn	mg/l	0.139	0.536[2]	NA		0.1730	0.536[2]	5.0

NR = Not reported
NA = Not analyzed
[1] Arizona Administrative Code, Title 18, Chapter 11, Article 1
[2] CFU = colony forming unit
*EPA proposed maximum contaminant level
**Value is based on Human-Health Based Guidance Levels (ADEQ, June 1992)
Bold indicates value exceeds water quality standard

TABLE 3-9
COMPARISON OF RAINFALL DATA FOR 1992 AND AVERAGE FOR PERIOD OF RECORD

Category	January through March[1]	April through July[2]
Number of Event inches		
Total Rainfall (i		
Number of Representative F		
Average Storm I (hrs)		
Average Rainfal Volume per Eve		

How derived?

Need copy stat analysis

[1] Representative Storm, Duration = 5.2-15.6 hours, Depth = 0.24-0.77 inches
[2] Representative Storm, Duration = 2.2-6.5 hours, Depth = 0.22-0.65 inches

TABLE 3-9
COMPARISON OF RAINFALL DATA FOR
1992 AND AVERAGE FOR PERIOD OF RECORD

Category	January through March[1]		April through July[2]	
	Average for Period of Record	1992	Average for Period of Record	1992
Number of Events >0.1 inches	5.26	12	2.88	8
Total Rainfall (in.)	2.03	4.41	1.15	4.25
Number of Representative Events	3.1	6	1.1	2
Average Storm Duration (hrs)	10.5	7.7	5.6	6.3
Average Rainfall Volume per Event, (in.)	0.39	0.37	0.40	0.57

[1] Representative Storm, Duration=5.2-15.6 hours, Depth=0.24-0.77 inches
[2] Representative Storm, Duration=2.2-6.5 hours, Depth=0.22-0.65 inches

TABLE 3-10
DATA FOR WINTER SEASON STORMS WITH STORM WATER SAMPLING BASED ON NWS RAIN GAGE

Parameter	Event 1	Event 2	Event 3	Event 4	Event 5
Date	01/03/92	02/06/92	03/28/92	08/05/92	08/22/92
Rainfall Volume (in.)	0.38	0.19	0.47	0.29	0.63
Storm Duration (hrs)	10	10	7	4	2
Hours Since End of Last Storm	360	618	422	282	406

TABLE 3-11
GAUGE IDENTIFICATION NUMBERS AND DISTANCES TO CATCHMENT CENTROIDS

Basin	Old Rain Gauge ID Numbers	Current Rain Gauge ID Numbers	Distance from Gauge to Basin Centroid (mi.)
AC05[1]	1540	6320	1.66
	1550	6330	2.08
IB08[1]	6660	6140	0.99
	6640	6150	1.62
IB11[1]	6660	6140	3.10
	6640	6150	4.58
	6635	6130	2.11
SR45[1]	NWS	NWS	2.40
	6500	6500	3.59
	5900	6020	2.65
SR21	NWS	NWS	*
SR33	3740	6010	*
SR03	2810	6200	*

* = Gage is located in catchment.
1 = Composite Rain Data based on multiple rain gages

TABLE 3-12
RAIN GAUGE VOLUMES, 1992 EVENTS
(10 gauges)

Event	Average Rainfall Per Event, 1992 (in.)	Standard Deviation (in.)	Rain Gauge Amount Range (in.)
01/03/92	0.46	0.08	0.32-0.59
02/06/92	0.39	0.17	0.08-0.72
03/28/92	0.55	0.15	0.32-0.84

TABLE 3-13
DATE AND RAINFALL AMOUNTS FOR EVENTS
WITH MEASURED RUNOFF VOLUMES
NWS GAUGE AT SKY HARBOR AIRPORT

Date	Rainfall Depth (in.)	Rainfall Duration (hr.)	Hours Since Last Rainfall
01/06/92	0.63	10	48
01/11/92	0.52	3	128
02/13/92	0.30	10	130
03/02/92	0.56	15	433
03/07/92	0.26	16	107
03/08/92	0.66	8	11

TABLE 3-14
SAMPLED AND UNSAMPLED STORM EVENT VOLUMES (CF)
1992

Event Date	Basin						
	AC-05	IB-11	SR-21	SR-45	IB-08	SR-03	SR-33
January 3 [2]	83800[1]	442100[1]	327600[1]	69200	157000	622600	691400
February 6 [2]	33500[1]	265000	213000[1]	62900	98200	-	-
March 28 [2]	48200	437800	570300[1]	97400	220300	-	-
August 5 [2]	-	-	169500[1]	-	-	-	-
August 22 [2]	-	-	-	-	-	118800[1]	980500[1]
January 6	-	813200	-	97400	229100	-	-
January 11	75200	682700	522100	55600	214600	-	-
March 2	75100	593400	450200	82400	-	272500	-
March 8	156600	1536000	1036900	168259	569400	-	-

[1] Volume Simulated by Model
[2] Sampled Event

TABLE 3-15
CATCHMENT LAND USE AREAS AND PERCENTAGES

Land Use Basin	Heavy Industrial	Light Industrial	Open Space	Park, Agriculture	High Density Residential	Medium Density Residential	Low Density Residential	Public	Commercial	Transportation	Total Area
Catchment Land Use Areas, Acres											
AC05			23.9			5			47.9		76.8
IB11			57.9	167	5.2	212.4	1111	28.7			1582
IB08			29.5	39.5		291.5	183.7	7.5	57.2		608.9
SR21	59.4	32.3	144.8							394.5	631
SR45	120.1										120.1
SR03	251.7	321.2	58	197.2	25.3	263.5		153.5	92.6		1363
SR33	142.8	58.1	83.5	81	14.3	447		21.8	140.9		989.4
Land Use Percentages											
AC05	0	0	31.11	0	0	6.51	0	0	62.36	0	100
1B11	0	0	3.65	10.55	0.32	13.42	70.21	1.81	0	0	100
1B08	0	0	4.84	6.48	0	47.87	30.16	1.23	9.39	0	100
SR21	9.41	5.11	22.94	0	0	0	0	0	0	62.51	100
SR45	100	0	0	0	0	0	0	0	0	0	100
SR03	18.46	23.56	40.25	14046	1085	19.33	0	11.26	6.79	0	100
SR33	14.4	5.87	8.43	8.18	1044	45.17	0	2.20	14.24	0	100

TABLE 3-16
REPRESENTATIVE YEAR CANDIDATES

Year	Number of Events Over 0.10 inches	Total Rainfall for Events Over 0.10 inches (in.)	Maximum Event Rainfall (in.)	Average Rainfall (in.)
Average	15.5	6.79	1.2	0.42
1957	20	6.69	1.05	0.33
1963	13	6.93	1.42	0.53
1966	11	6.69	1.88	0.61
1970	16	7.26	2.43	0.45
1976	14	6.99	1.00	0.50
1985	17	7.04	0.96	0.41
1986	18	7.14	0.70	0.40

TABLE 3-17
REPRESENTATIVE YEAR (1976) RUNOFF VOLUMES
(7.16 INCHES RAINFALL)[1]

Basin	Catchment Area (Acres)	Total Runoff (Inches)	Total Runoff (Million Cubic Feet)
IB-08	608.9	1.56	496.5
SR-33	989.4	2.45	1267.1
SR-21	631.0	2.73	900.5
AC-05	76.8	3.80	152.6
SR-45	120.1	2.75	172.6
IB-11	1581.8	1.55	1281.6
SR-03	1363.0	1.55	1104.3

[1]Rainfall total = 6.99 inches for events >0.1 inches

TABLE 3-18
EVENT MEAN CONCENTRATION[1]
BASIN AC-05

Area = 76.8 acres Annual Runoff = 3.8 inches	1/3/92 Event	2/6/92 Event	3/28/92 Event	Flow-Averaged Concentration (mg/l)	Pollutant Load (lb/yr)	Pollutant Load per Acre (lb/yr/acre)
Runoff (in.)	0.297	0.12	0.173			
BOD	9	15	16	12.273	812.0	10.6
COD	51	110	82	72.090	4769.5	62.1
NO_2-N	0.06	0.06		0.060	4.0	0.1
NO_3-N		0.57		0.570	37.7	0.5
NO_2/NO_3			0.5	0.500	33.1	0.4
NH_4-N	0.37	0.77	0.47	0.48	31.8	0.41
TKN	1.1	2.2	1.6	1.470	97.3	1.3
P(total)	0.15	0.21	0.21	0.180	11.9	0.2
TSS	10	50	40	26.932	1781.8	23.2
TDS	60	90	40	60.237	3985.3	51.9
Cu	0.011	0.022	0.012	0.014	0.9	0.0
Pb	0.005	0.019	0.018	0.012	0.8	0.0
Zn	0.038	0.103	0.081	0.064	4.2	0.1
Cd		0.0004	0.0003	0.00034	0.02256	0.00029
Oil & Grease	2	5	3	2.903	192.1	2.5
Fecal Col.(MPN/100ml)	9000	3000	130	5179		
Fecal Str.(MPN/100ml)	30000	3000	3000	16592		

[1] All units in mg/l unless indicated

TABLE 3-20
EVENT MEAN CONCENTRATION[1]
BASIN SR-33

Area = 989.4 acres Annual Runoff = 2.45 inches	1/3/92 Event	2/6/92 Event	8/22/92 Event	Flow-Averaged Concentration (mg/l)	Pollutant Load (lb/yr)	Pollutant Load per Acre (lb/yr/acre)
Runoff (in)	0.1925	0.109	0.273			
BOD	10		11	10.586	5817.56	5.88
COD	76			76.000	41764.10	42.21
NO_2-N	0.06			0.060	32.97	0.03
NO_3-N	0.91			0.910	500.07	0.51
NO_2/NO_3				0.000	0.00	0.00
NH_4-N	0.56			0.56	307.74	0.31
TKN	1.7			1.700	934.20	0.94
P(total)	0.28			0.280	153.87	0.16
TSS	70		80	75.865	41689.73	42.14
TDS	80		140	115.188	63298.97	63.98
Cu	0.017	0.022	0.019	0.019	10.39	0.01
Pb	0.022	0.019	0.021	0.021	11.52	0.01
Zn	0.093	0.103	0.078	0.088	48.23	0.05
Cd	0.0004	0.0004	0.0004	0.0004	0.2198	0.00022
Oil & Grease	8	2	5	5.436	2987.25	3.02
Fecal Col.(MPN/100ml)	1400	2		895		
Fecal Str.(MPN/100ml)	13000			13000		

[1] All units in mg/l unless indicated

TABLE 3-19
EVENT MEAN CONCENTRATION[1]
BASIN IB-08

Area = 608.9 acres Annual Runoff = 1.56 inches	1/3/92 Event	2/6/92 Event	3/28/92 Event	Flow-Averaged Concentration (mg/l)	Pollutant Load (lb/yr)	Pollutant Load per Acre (lb/yr/acre)
Runoff (in)	0.0708	0.0443	0.0994			
BOD	7	12	16	12.203	2627.8	4.32
COD		110	81	60.254	12974.9	21.31
NO_2-N				0.000	0.0	0.00
NO_3-N				0.000	0.0	0.00
NO_2/NO_3			0.4	0.400	86.1	0.14
NH_4-N			0.62	0.62	133.5	0.22
TKN			2.3	2.300	495.3	0.81
P(total)			0.44	0.440	94.7	0.16
TSS	70	260	170	155.580	33502.5	55.02
TDS	60	150	70	83.221	17920.8	29.43
Cu	0.027	0.042	0.012	0.023	5.0	0.01
Pb	0.015	0.058	0.01	0.022	4.6	0.01
Zn	0.074	0.205	0.092	0.109	23.6	0.04
Cd	0.003	0.001	0.0004	0.0014	0.2976	0.0005
Oil & Grease	3	4	5	4.133	890.1	1.46
Fecal Col.(MPN/100ml)	50000	2200	800	17329		
Fecal Str.(MPN/100ml)	13000	13000	50000	30146		

[1] All units in mg/l unless indicated

TABLE 3-21
EVENT MEAN CONCENTRATION[1]
BASIN SR-03

Area = 1363 acres Annual Runoff = 1.55 inches	1/3/92 Event	2/6/92 Event	8/22/92 Event	Flow-Averaged Concentration (mg/l)	Pollutant Load (lb/yr)	Pollutant Load per Acre (lb/yr/acre)
Runoff (in)	0.0551	0.05	0.024			
BOD	11	12	3	9.900	4741.52	3.48
COD	93		31	74.188	35531.61	26.07
NO_2-N	0.06		2.92	0.928	444.34	0.33
NO_3-N	1			0.697	333.62	0.24
NO_2/NO_3				0.000	0.00	0.00
NH_4-N	0.54		0.04	0.39	185.97	0.14
TKN	0.9		0.9	0.900	431.04	0.32
P(total)	0.43		0.24	0.372	178.33	0.13
TSS	100		40	81.795	39174.81	28.74
TDS	60		(660)	60.000	28736.27	21.08
Cu	0.028		0.01	0.023	10.79	0.01
Pb	0.029		0.003	0.021	10.11	0.01
Zn	0.14		0.02	0.104	49.61	0.04
Cd	0.0006			0.0006	0.2874	0.00021
Oil & Grease	5	7	2	5.217	2498.56	1.83
Fecal Col.(MPN/100ml)	3000	3000		3000		
Fecal Str.(MPN/100ml)	50000	160000	500	83400		

[1] All units in mg/l unless indicated

TABLE 3-22
EVENT MEAN CONCENTRATION[1]
BASIN SR-45

Area = 120.1 acres Annual Runoff = 2.75 inches	1/3/92 Event	2/6/92 Event	3/28/92 Event	Flow-Averaged Concentration (mg/l)	Pollutant Load (lb/yr)	Pollutant Load per Acre (lb/yr/acre)
Runoff (in)	0.1587	0.1443	0.226			
BOD	18		21	19.762	1479.68	12.32
COD	130		120	124.125	9293.68	77.38
NO_2-N	0.06		0.8	0.495	37.04	0.31
NO_3-N	0.84			0.347	25.95	0.22
NO_2/NO_3				0.000	0.00	0.00
NH_4-N	0.58		0.6	0.59	44.31	0.37
TKN	1.9		2.4	2.194	164.25	1.37
P(total)	0.32		0.52	0.437	32.76	0.27
TSS	90		170	136.998	10257.47	85.41
TDS	90		70	78.251	5858.88	48.78
Cu	0.057		0.063	0.061	4.53	0.04
Pb	0.003		0.003	0.003	0.22	0.00
Zn	0.139		0.173	0.159	11.90	0.10
Cd	0.0009		0.0013	0.0011	0.0850	0.0007
Oil & Grease	3	4		3.476	260.28	2.17
Fecal Col.(MPN/100ml)	2200	2400		2295		
Fecal Str.(MPN/100ml)	24000	13000		18761		

[1] All units in mg/l unless indicated

TABLE 3-23
EVENT MEAN CONCENTRATION[1]
BASIN SR-21

Area=631 acres Annual Runoff=2.73 inches	1/3/92 Event	2/6/92 Event	8/5/92 Event	Flow-Averaged Concentration (mg/l)	Pollutant Load (lb/yr)	Pollutant Load per Acre (lb/yr/acre)
Runoff (in)	0.143	0.249	0.074			
BOD	10	11	14	11.170	4361.93	6.91
COD	60		100	73.641	28758.13	45.58
NO_2-N	0.06		1.53	0.561	219.20	0.35
NO_3-N				0.000	0.00	0.00
NO_2/NO_3-N				0.000	0.00	0.00
NH_4-N	0.52			0.52	203.07	0.32
TKN	1.3		2.5	1.709	667.48	1.06
P(total)	0.18		0.33	0.231	90.27	0.14
TSS	20		110	50.691	19795.96	31.37
TDS	40		100	60.461	23611.18	37.42
Cu	0.026	0.031	0.064	0.035	13.55	0.02
Pb	0.015	0.01	0.022	0.013	5.25	0.01
Zn	0.062	0.046	0.122	0.063	24.5944	0.0390
Cd	0.0007	0.0006	0.0009	0.0007	0.2649	0.0004
Oil & Grease	3	5		4.270	1667.68	2.64
Fecal Col.(MPN/100ml)	170	30000		19118		
Fecal Str.(MPN/100ml)	2400	90000		58044		

[1] All units in mg/l unless indicated

TABLE 3-24
EVENT MEAN CONCENTRATION[1]
BASIN IB-11

Area = 1582 acres Annual Runoff = 1.55 inches	1/3/92 Event	2/6/92 Event	3/28/92 Event	Flow-Averaged Concentration (mg/l)	Pollutant Load (lb/yr)	Pollutant Load per Acre (lb/yr/acre)
Runoff (in)	0.077	0.0462	0.0762			
BOD	4	14	13	9.756	5422.74	3.43
COD	30	110	69	63.439	35260.89	22.29
NO_2-N	0.06	0.06		0.060	33.35	0.02
NO_3-N	0.46	0.87		0.614	341.14	0.22
NO_2/NO_3-N			0.4	0.400	222.33	0.14
NH_4-N	0.23	0.90	0.54	0.50	279.97	0.18
TKN	0.9	2.8	2.3	1.875	1042.29	0.66
P(total)	0.23	0.25	0.28	0.254	141.03	0.09
TSS	70	90	90	82.277	45731.17	28.91
TDS	60	190	70	93.942	52214.82	33.01
Cu	0.012	0.042	0.012	0.019	10.53	0.01
Pb	0.005	0.058	0.01	0.019	10.67	0.01
Zn	0.028	0.205	0.057	0.080	44.52	0.03
Cd		0.001	0.0004	0.0006	0.3482	0.0002
Oil & Grease	4	4	3	3.618	2010.88	1.27
Fecal Col.(MPN/100ml)	1700	700	1100	1239		
Fecal Str.(MPN/100ml)	13000	3000	28000	16415		

[1] All units in mg/l unless indicated

TABLE 3-25
MEDIAN EMCs BY LAND USE CATEGORY
NURP STUDY

Pollutant	Unit	Residential	Mixed	Commercial	Open
BOD	mg/l	10.0	7.8	9.3	
COD	mg/l	73.0	65.0	57	40
TSS	mg/l	101.0	67.0	69	70
Total Lead	ug/l	144	114	104	30
Total Copper	ug/l	33	27	29	
Total Zinc	ug/l	135	154	226	195
TKN	ug/l	1900	1288	1179	965
NO_2/NO_3	ug/l	736	558	572	543
Total P	ug/l	383	263	201	121

TABLE 3-26
ESTIMATED EVENT MEAN CONCENTRATIONS
FOR DIFFERENT LAND USES - CITY OF PHOENIX

Pollutant	Unit	Residential	Mixed	Commercial	Industrial
BOD	mg/l	10.4	10.2	12.3	12.5
COD	mg/l	62.6	75.0	72	81.7
TSS	mg/l	102.7	79.3	26.9	64.5
Total Lead	ug/l	20	21	12	11
Total Copper	ug/l	20	21	14	39
Total Zinc	ug/l	88	97	64	78
Total Cadmium	ug/l	0.8	0.5	0.3	0.8
TKN	ug/l	1993	1236	1470	1787
NO_2/NO_3	ug/l	400	1350	500	897
NH_4-N	ug/l	536	462	481	537
Total P	ug/l	306	333	180	264
TDS	mg/l	90.5	83.2	60.2	63.3
Oil & Grease	mg/l	3.8	5.3	2.9	4.1
Fecal Coliform	MPN/100ml	5711	17759	5179	16428
Fecal Strep	MPN/100ml	20231	53790	16592	51763

TABLE 3-27
AVERAGE ANNUAL POLLUTANT LOAD ESTIMATION
ARIZONA CANAL BASIN

Land Use	Industrial/ Transportation		Residential		Commercial/ Public		Open Space/ Agriculture[1]		Total Load (tons)
Area (acres)	519		7413		1809		492		
Pollutants	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	
BOD	7.775	4035	3.677	27258	10.6	19175	-	-	25.23
COD	50.665	26295	22.018	163219	62.1	112339	9.07	4462	153.16
NO_2/NO_3	0.564	293	0.140	1038	0.4	724	0.123	61	1.06
TKN	1.11	576	0.702	5204	1.3	2352	0.219	108	4.12
NH_4-N	0.328	170	0.191	1416	0.41	742	-	-	1.16
P(total)	0.161	84	0.109	808	0.2	362	0.0274	13	0.63
TSS	40.011	20766	36.167	268106	23.2	41969	15.869	7808	169.32
TDS	39.236	20363	32.015	237327	51.9	93887	-	-	175.79
COPPER	0.023	12	0.010	74	0.012	22	-	-	0.05
LEAD	0.008	4	0.010	74	0.1	181	0.007	3	0.13
ZINC	0.05	26	0.033	245	0.1	181	0.044	22	0.24
CADMIUM	0.00045	0.23	0.00028	2.08	0.00029	0.52			0.0014
OIL & GREASE	2.565	1331	1.323	9807	2.5	4523	-	-	7.83
Total		73955		714576		276455		12477	539

[1] Values from NURP study, 1983

TABLE 3-28
AVERAGE ANNUAL POLLUTANT LOAD ESTIMATION
PAPAGO DIVERSION CHANNEL BASIN

Land Use	Industrial/ Transportation		Residential		Commercial/ Public		Open Space/ Agriculture[1]		Total Load (tons)
Area (acres)	1915		14119		1872		1305		
Pollutants	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	
BOD	7.775	14889	3.677	51916	10.6	19843	-	-	43.32
COD	50.665	97023	22.018	310872	62.1	116251	9.07	11836	267.99
NO_2/NO_3	0.564	1080	0.140	1977	0.4	749	0.123	161	1.98
TKN	1.11	2126	0.702	9912	1.3	2434	0.219	286	7.38
NH_4-N	0.328	628	0.191	2697	0.41	768	-	-	2.05
P(total)	0.161	308	0.109	1539	0.2	374	0.0274	36	1.13
TSS	40.011	76621	36.167	510642	23.2	43430	15.869	20709	325.70
TDS	39.236	75137	32.015	452020	51.9	97157	-	-	312.16
COPPER	0.023	44	0.010	141	0.012	22	-	-	0.10
LEAD	0.008	15	0.010	141	0.1	187	0.007	9	0.18
ZINC	0.05	96	0.033	466	0.1	187	0.044	57	0.40
CADMIUM	0.00045	1	0.00028	4	0.00029	1			0.0027
OIL & GREASE	2.565	4912	1.323	18679	2.5	4680	-	-	14.14
Total		272880		1361001		286083		33094	974

1 Values from NURP study, 1983

TABLE 3-29
AVERAGE ANNUAL POLLUTANT LOAD ESTIMATION
OLD CROSS CUT CANAL BASIN

Land Use	Industrial/ Transportation		Residential		Commmercial/ Public		Open Space/ Agriculture[1]		Total Load (tons)
Area (acres)	108		915		425		114		
Pollutant	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	
BOD	7.775	840	3.677	3364	10.6	4505	-	-	4.35
COD	50.665	5472	22.018	20146	62.1	26393	9.07	1034	26.52
NO_2/NO_3	0.564	61	0.140	128	0.4	170	0.123	14	0.19
TKN	1.11	120	0.702	642	1.3	553	0.219	25	0.67
NH_4-N	0.328	35	0.191	175	0.41	174	-	-	0.19
P(total)	0.161	17	0.109	100	0.2	85	0.0274	3	0.10
TSS	40.011	4321	36.167	33093	23.2	9860	15.869	1809	24.54
TDS	39.236	4237	32.015	29294	51.9	22058	-	-	27.79
COPPER	0.023	2	0.010	9	0.012	5	-	-	0.01
LEAD	0.008	1	0.010	9	0.1	43	0.007	1	0.03
ZINC	0.05	5	0.033	30	0.1	43	0.044	5	0.04
CADMIUM	0.00045	0.05	0.00028	0.26	0.00029	0.12			0.0002
OIL & GREASE	2.565	277	1.323	1211	2.5	1063	-	-	1.28
Total		15390		88201		64949		2891	86

[1] Values from NURP study, 1983

TABLE 3-30
AVERAGE ANNUAL POLLUTANT LOAD ESTIMATION
INDIAN BEND WASH BASIN

Land Use	Industrial/ Transportation		Residential		Commercial/ Public		Open Space/ Agriculture[1]		Total Load (tons)
Area (acres)	81		7297		1305		465		
Pollutant	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	
BOD	7.775	630	3.677	26831	10.6	13833	-	-	20.65
COD	50.665	4104	22.018	160665	62.1	81041	9.07	4218	125.01
NO_2/NO_3	0.564	46	0.140	1022	0.4	522	0.123	57	0.82
TKN	1.11	90	0.702	5122	1.3	1697	0.219	102	3.51
NH_4-N	0.328	27	0.191	1394	0.41	535	-	-	0.98
P(total)	0.161	13	0.109	795	0.2	261	0.0274	13	0.54
TSS	40.011	3241	36.167	263911	23.2	30276	15.869	7379	152.40
TDS	39.236	3178	32.015	233613	51.9	67730	-	-	152.26
COPPER	0.023	2	0.010	73	0.012	16	-	-	0.05
LEAD	0.008	1	0.010	73	0.1	131	0.007	3	0.10
ZINC	0.05	4	0.033	241	0.1	131	0.044	20	0.20
CADMIUM	0.00045	0.04	0.00028	2.04	0.00029	0.38			0.0012
OIL & GREASE	2.565	208	1.323	9654	2.5	3263	-	-	6.56
Total		11542		703394		199433		11792	463

[1] Values from NURP study, 1983

TABLE 3-31
AVERAGE ANNUAL POLLUTANT LOAD ESTIMATION
GRAND CANAL BASIN

Land Use	Industrial/ Transportation		Residential		Commercial/ Public		Open Space/ Agriculture[1]		Total Load (tons)
Area (acres)	200		0		50		0		
Pollutants	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	
BOD	7.775	1555	3.677	0	10.6	530	-	-	1.04
COD	50.665	10133	22.018	0	62.1	3105	9.07	0	6.62
NO_2/NO_3	0.564	113	0.140	0	0.4	20	0.123	0	0.07
TKN	1.11	222	0.702	0	1.3	65	0.219	0	0.14
NH_4-N	0.328	66	0.191	0	0.41	21	-	-	0.04
P(total)	0.161	32	0.109	0	0.2	10	0.0274	0	0.02
TSS	40.011	8002	36.167	0	23.2	1160	15.869	0	4.58
TDS	39.236	7847	32.015	0	51.9	2595	-	-	5.22
COPPER	0.023	5	0.010	0	0.012	1	-	-	0.00
LEAD	0.008	2	0.010	0	0.1	5	0.007	0	0.00
ZINC	0.05	10	0.033	0	0.1	5	0.044	0	0.01
CADMIUM	0.00045	0.09	0.00028	0	0.00029	0.01			0.0001
OIL & GREASE	2.565	513	1.323	0	2.5	125	-	-	0.32
Total		28499		0		7641		0	18

[1] Values from NURP study, 1983

TABLE 3-32
AVERAGE ANNUAL POLLUTANT LOAD ESTIMATION
SALT RIVER BASIN

Land Use	Industrial/ Transportation		Residential		Commercial/ Public		Open Space/ Agriculture[1]		Total Load (tons)
Area (acres)	15566		34130		7932		8009		
Pollutants	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	
BOD	7.775	121026	3.677	125496	10.6	84079	-	-	165.30
COD	50.665	788651	22.018	751474	62.1	492577	9.07	72642	1052.67
NO_2/NO_3	0.564	8779	0.140	4778	0.4	3173	0.123	985	8.86
TKN	1.11	17278	0.702	23959	1.3	10312	0.219	1754	26.65
NH_4-N	0.328	5106	0.191	6519	0.41	3252	-	-	7.44
P(total)	0.161	2506	0.109	3720	0.2	1586	0.0274	219	4.02
TSS	40.011	622811	36.167	1234380	23.2	184022	15.869	127095	1084.15
TDS	39.236	610748	32.015	1092672	51.9	411671	-	-	1057.55
COPPER	0.023	358	0.010	341	0.012	95	-	-	0.40
LEAD	0.008	125	0.010	341	0.1	793	0.007	56	0.66
ZINC	0.05	778	0.033	1126	0.1	793	0.044	352	1.53
CADMIUM	0.00045	7.00	0.00028	9.56	0.00029	2.30			0.0094
OIL & GREASE	2.565	39927	1.323	45154	2.5	19830	-	-	52.46
Total		2218093		3289961		1212184		203103	3462

[1] Values from NURP study, 1983

TABLE 3-33
AVERAGE ANNUAL POLLUTANT LOAD ESTIMATION
CROSS CUT CANAL BASIN

Land Use	Transportation/ Industrial		Residential		Commercial/ Public		Open Space/ Agriculture[1]		Total Load (tons)
Area (acres)	519		7413		1809		492		
Pollutants	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	Load (lb/yr/ac)	Load (lb)	
BOD	7.775	3654	3.677	10862	10.6	12360	-	-	13.44
COD	50.665	23813	22.018	65041	62.1	72409	9.07	3184	82.22
NO_2/NO_3	0.564	265	0.140	414	0.4	466	0.123	43	0.59
TKN	1.11	522	0.702	2074	1.3	1516	0.219	77	2.09
NH_4-N	0.328	154	0.191	564	0.41	478	-	-	0.60
P(total)	0.161	76	0.109	322	0.2	233	0.0274	10	0.32
TSS	40.011	18805	36.167	106837	23.2	27051	15.869	5570	79.13
TDS	39.236	18441	32.015	94572	51.9	60515	-	-	86.76
COPPER	0.023	11	0.010	30	0.012	14	-	-	0.03
LEAD	0.008	4	0.010	30	0.1	117	0.007	2	0.08
ZINC	0.05	24	0.033	97	0.1	117	0.044	15	0.13
CADMIUM	0.00045	0.21	0.00028	0.83	0.00029	0.34			0.001
OIL & GREASE	2.565	1206	1.323	3908	2.5	2915	-	-	4.01
Total		66973		284751		178190		8901	269

[1] Values from NURP study, 1983

TABLE 3-34

SUMMARY OF MONITORING STATIONS

Station	Basin	Land Use Type	Area (acres)	Monitoring Objective+
IB-08	Indian Band Wash	Residential	609	1,2a
SR-21	Salt River	Industrial	630	1,2a
SR-45	Salt River	Industrial	120	1,2a
SR-03	Salt River	Mixed	1,363	1,2a
27th Ave. (USGS 09512403)	Salt River	Industrial	45	1,2a,2b
43rd Ave. (USGS 09513885)	Arizona Canal Drainage Channel	Commercial	3	1,2a,2b
24th Ave. Bridge*	Salt River	-	-	2,2a
51st Ave. Bridge*	Salt River	-	-	2,2a
ACDC*	-	-	-	2,2a

* Receiving water stations

+ Objective 1: Refine Loads Estimates
Objective 2: Impact on Water Quality
Objective 2a: Chemical-Specific Monitoring (water)
Objective 2b: Toxicity Monitoring (water and sediments) and chemical-specific monitoring (sediment)

TABLE 3-35
LABORATORY ANALYSIS CONSTITUENTS FOR STORM WATER SAMPLES

Parameter	Units	Methodology	EPA Method (a)	Maximum Holding Time	Preservation	Target Detection Limit	MS/MSD Precision (%RPD)	Sample Duplicate Precision (%RPD)
Conventional								
pH	pH	pH electrode	150.1	Analyze Immediately	None	-	NA	<15
Hardness	mg/L	Titrimetric EDTA	130.2	6 months	$HN0_3$ pH<2	1	NA	<15
TDS	mg/L	Gravimetric	160.1	7 days	4°C	10	NA	<15
TSS	mg/L	Gravimetric	160.1	7 days	4°C	10	NA	<15
BOD	mg/L	Assay	405.1	48 hrs	4°C	1	NA	<30
COD	mg/L	Assay	410.1	28 days	4°C;pH<2 H^2SO^4	1	NA	<30
Metals - Total and Dissolved								
Cadmium	µg/L	Furnace-AA	213-2	6 months	pH<2$HN0_3$	0.2	<25	<35
Chromium	µg/L	Furnace-AA	218.2	6 months	pH<2$HN0_3$	1	<25	<35
Copper	µg/L	Furnace-AA	220.2	6 months	pH<2$HN0_3$	1	<25	<35
Lead	µg/L	Furnace-AA	239.2	6 months	pH<2$HN0_3$	1	<25	<35
Nickel	µg/L	Furnace-AA	249.2	6 months	pH<2$HN0_3$	2	<25	<35
Zinc	µg/L	Furnace-AA	289.2	6 months	pH<2$HN0_3$	1	<25	<35
Organics								
TPH	µg/L	IR	418.1	7 day (extraction) 40 day (analysis)	Cool 4°C	1	<30	<50
Total Oil and Greese	mg/L	IR	413.2	7 day (extraction) 40 day (analysis)	Cool 4°CpH<2H_2SO_4	0.2	<30	<50
Bacteria								
Fecal Coliform	MPN/100 mL	Assay	SM909C	6 hours	4°C	2	NA	<30
Fecal Streptococci	MPN/100 mL	Assay	SM910A	6 hours	4°C	2	NA	<30
Nutrients								
Nitrate + Nitrite	mg/L	Spectrometric	353.2	28 days	4°C;pH<2H_2SO_4	0.05	NA	<15
P total	mg/L	Spectrometric	365.2	28 days	4°C;pH<2H_2SO_4	0.05	NA	<15
Ortho-P	mg/L	Spectrometric	365.2	48 hours	Filter	0.05	NA	<15

(a) Methods for Chemical Analysis of Water and Wastes (1983) EPA-600\4-79-020
MS/MSD = Matrix spike/matrix spike duplicate
RPD = Relative percent difference = [(conc sample 1 - conc sample 2)/(average of sample 1 & 2)] x 100

TABLE 3-36

STORM WATER SAMPLES

PRIORITY ANALYTE	List 1 Volume	List 2 Volume	List 3 Volume	List 4 Volume
1 TOTAL METALS Cadmium, Chromium, Copper, Lead, Nickel, Zinc	250 mL	250 mL	250 mL	250 mL
2 DISSOLVED METALS Cadmium, Chromium, Copper, Lead, Nickel, Zinc	250 mL	250 mL	250 mL	250 mL
3 TSS/TDS/HARDNESS/BOD /COD	1L	1L	1L	
4 P TOTAL /NO_3/ORTHO-P	1L	1L		
5 TPH	500 mL			
TOTAL VOLUME REQUIRED	3.0	2.5L	1.5L	0.5L

Grab Samples:

1. Bacteria - Fecal Coliform, and Fecal Streptococci
2. Total Oil and Grease

TABLE 3-37

LABORATORY ANALYSIS FOR SEDIMENT SAMPLES

Parameter	Units	Methodology	EPA Method[a]	Maximum Holding Time	Preservation	Detection Limit
Organics						
Total Organic Carbon	%	Walkley-Black		2 months	4°C	0.1
Organochlorine Pesticides	mg/kg	GC	8080	30 days	4°C	0.01
Organophosphorous Pesticides	mg/kg	GC	8140	30 days	4°C	0.001
Metals-Total						
Arsenic	mg/kg	Furnace-AA	7060	6 months	4°C	0.1
Cadmium	mg/kg	Furnace-AA	7131	6 months	4°C	0.1
Cobalt	mg/kg	Furnace-AA	7201	6 months	4°C	0.1
Chromium (Total)	mg/kg	Furnace-AA	7191	6 months	4°C	0.1
Copper	mg/kg	Furnace-AA	7211	6 months	4°C	0.1
Lead	mg/kg	Furnace-AA	7421	6 months	4°C	0.1
Mercury	mg/kg	Cold-Vapor	7470	6 months	4°C	0.1
Nickel	mg/kg	Furnace-AA	7521	6 months	4°C	0.1
Zinc	mg/kg	Flame-AA	7950	6 months	4°C	1
Iron	mg/kg	Flame-AA	7380	6 months	4°C	1
Manganese	mg/kg	Flame-AA	7460	6 months	4°C	1
Nutrients						
Nitrate + Nitrite	mg/kg	Spectrometric	353.2	28 days	4°C	0.5
P total	mg/kg	Spectrometric	365.2	28 days	4°C	0.5

(a) Methods for Chemical Analysis of Water and Wastes (1983) EPA-600/4-79-020.
Other parameters include particle size analysis and moisture content.

TABLE 3-38
TELEMETERED RAIN GAUGES WITHIN PHOENIX AREA

	County Gauge No.	Station Name / Location
1.	6200	FCD / 35th Avenue & Durango
2.	6000	Alvord Park / 35th Avenue & Baseline
3.	5595	New River / Bell Road
4.	6320	AZ Canal Diversion Channel / 43rd Avenue
5.	6330	AZ Canal Diversion Channel / Cave Creek
6.	5565	Skunk Creek / I-17
7.	5535	Adobe Dam / Pinnacle Peak Road & 35th Avenue
8.	6280	Fire Station / Missouri & 16th Street
9.	5550	Deer Valley Airport / Deer Valley Road & 7th Avenue
10.	6250	Fire Station / 48th Street & Thomas
11.	6010	Fire Station / 2nd Street & Roeser
12.	6340	Fire Station / Greenway & 32nd Avenue
13.	6210	Phoenix Municipal Building / 2nd Street & Jefferson
14.	6020	Salt River / 24th Street
15.	6500	Guadalupe FRS / Baseline to Guadalupe at I-10
16.	6510	South Mountain / South Mountain Park
17.	6550	South Mountain West / South Mountain Park
18.	6300	Dreamy Draw Dam / Northern & 20th Street
19.	6400	Cave Buttes Dam / 7th Street and Happy Valley Road
20.	6140	Sweetwater / 36th Street & Sweetwater
21.	6530	Pima Wash / 48th Street within South Mt. Pointe Resort
22.	6240	Papago Park / 52nd Street and Van Buren Street
23.	6230	Perry Park / 32nd Street and Windsor Avenue
24.	6150	Paradise Valley / 36th Street and Bell Road
25.	6120	Indian Bend Wash / Indian Bend Road
26.	6130	Thunderbird / Scottsdale
27.	6100	Indian Bend / McKellips Road
28.	5505	New River and Glendale Road
29.	5400	Agua Fria River and Buckeye Road
30.	6260	Indian School and 59th Avenue
31.	NWS Gauge	Sky Harbor International Airport

TABLE 3-39

EXAMPLE OF HOW TO MANUALLY COLLECT EQUAL SAMPLE ALIQUOTS WHICH ARE LATER FLOW-PROPORTIONED AND COMPOSITED IN THE LABORATORY

Step 1: Determine the necessary volume for compositing purposes.

Example: To fulfill analyses for all parameters in Section VII.A of Form 2F for which composite samples are required (BOD_5, COD, TSS, TKN, nitrate plus nitrite, and phosphorous) a total composite sample volume of 5,000 ml is needed by the contract laboratory.

Step 2: Determine an appropriate interval for collection of samples.

Example: Manually collected flow-weighted composite samples must consist of at least nine sample aliquots and must be gathered at least 15 minutes apart; only three or four samples per hour may be taken. For convenience, the minimum number of three is chosen. Sample aliquots will be collected every 20 minutes.

Step 3: Determine the aliquot which should be taken during each sampling event.

Example: At least 5,000 ml of sample is required for flow-weighted composite sample analytical testing. As discussed in Section 3.4.1, a minimum aliquot volume of 1,000 ml gathered every interval (i.e., every 15 minutes) should result in adequate sample volume to be used for later flow-weighted compositing.

Step 4: Estimate or measure the volume of discharge for each sampling event while collecting a discrete 1,000-ml aliquot, as discussed in Step 3, for later compositing.

Example: Section 3.2 discusses methods to calculate total discharge volumes. A discharge flow volume of 4.8 cubic feet will be used here.

Step 5: Convert the discharge flow volume to liters.

Example: To convert cubic feet to liters, use the conversion factor of 28.32 liters per 1 cubic foot as set forth in the following formula:

TABLE 3-39 (Continued)

EXAMPLE OF HOW TO MANUALLY COLLECT EQUAL SAMPLE ALIQUOTS WHICH ARE LATER FLOW-PROPORTIONED AND COMPOSITED IN THE LABORATORY

$$Volume\ (liters) = Volume\ (cubic\ feet) \times \frac{28.32\ liters}{1\ cubic\ foot}$$

$$Volume = 4.8\ cubic\ feet \times \frac{28.32\ liters}{1\ cubic\ foot} = 136\ liters$$

Step 6: Using Steps 3 and 4, calculate the volumes that have been discharged between the collection of each aliquot.

Example: The procedures set forth in Section 3.2 may be used to calculate discharge volumes. The following table presents aliquot numbers, time of aliquot collection, and discharge volumes (note that the discharge volumes provided for aliquot numbers 2 through 9 were chosen for purposes of this exhibit).

Aliquot Number	Time of Aliquot Collection	Discharged Volume (liters)
1	2:15 p.m.	136
2	2:35 p.m.	200
3	2:55 p.m.	122
4	3:15 p.m.	178
5	3:35 p.m.	156
6	3:55 p.m.	117
7	4:15 p.m.	94
8	4:30 p.m.	21
9	4:45 p.m.	12

TABLE 3-39 (Continued)

EXAMPLE OF HOW TO MANUALLY COLLECT EQUAL SAMPLE ALIQUOTS WHICH ARE LATER FLOW-PROPORTIONED AND COMPOSITED IN THE LABORATORY

Step 7: Determine the aliquot sample which is associated with the greatest discharge volume.

Example: Aliquot number 2 was taken when the volume was 200 liters. This is the largest discharge volume.

Step 8: Calculate the volume of sample aliquot which must be used subsequent to the sample event to comprise a flow-weighted composite sample. The following formula should be used:

$$\textit{Aliquot volume (ml)} = \textit{Minimum aliquot volume (ml)} \times \frac{\textit{Aliquot's discharge volume (liters)}}{\textit{Largest discharge volume (litrers)}}$$

Step 3 shows that the minimum aliquot volume is 1,000 ml. Using this value and the data determined as part of Steps 6 and 7, the following can be calculated:

TABLE 3-39 (Continued)

EXAMPLE OF HOW TO MANUALLY COLLECT EQUAL SAMPLE ALIQUOTS WHICH ARE LATER FLOW-PROPORTIONED AND COMPOSITED IN THE LABORATORY

$$\textit{Aliquot no. 1 volume (ml)} = 1{,}000\ ml \times \frac{136\ liters}{200\ liters} = 680\ ml$$

$$\textit{Aliquot no. 2 volume (ml)} = 1{,}000\ ml \times \frac{200\ liters}{200\ liters} = 1{,}000\ ml$$

$$\textit{Aliquot no. 3 volume (ml)} = 1{,}000\ ml \times \frac{122\ liters}{200\ liters} = 610\ ml$$

$$\textit{Aliquot no. 4 volume (ml)} = 1{,}000\ ml \times \frac{178\ liters}{200\ liters} = 890\ ml$$

$$\textit{Aliquot no. 5 volume (ml)} = 1{,}000\ ml \times \frac{156\ liters}{200\ liters} = 780\ ml$$

$$\textit{Aliquot no. 6 volume (ml)} = 1{,}000\ ml \times \frac{117\ liters}{200\ liters} = 585\ ml$$

7 $\frac{94}{200}$ 470

8 $\frac{21}{200}$ 105

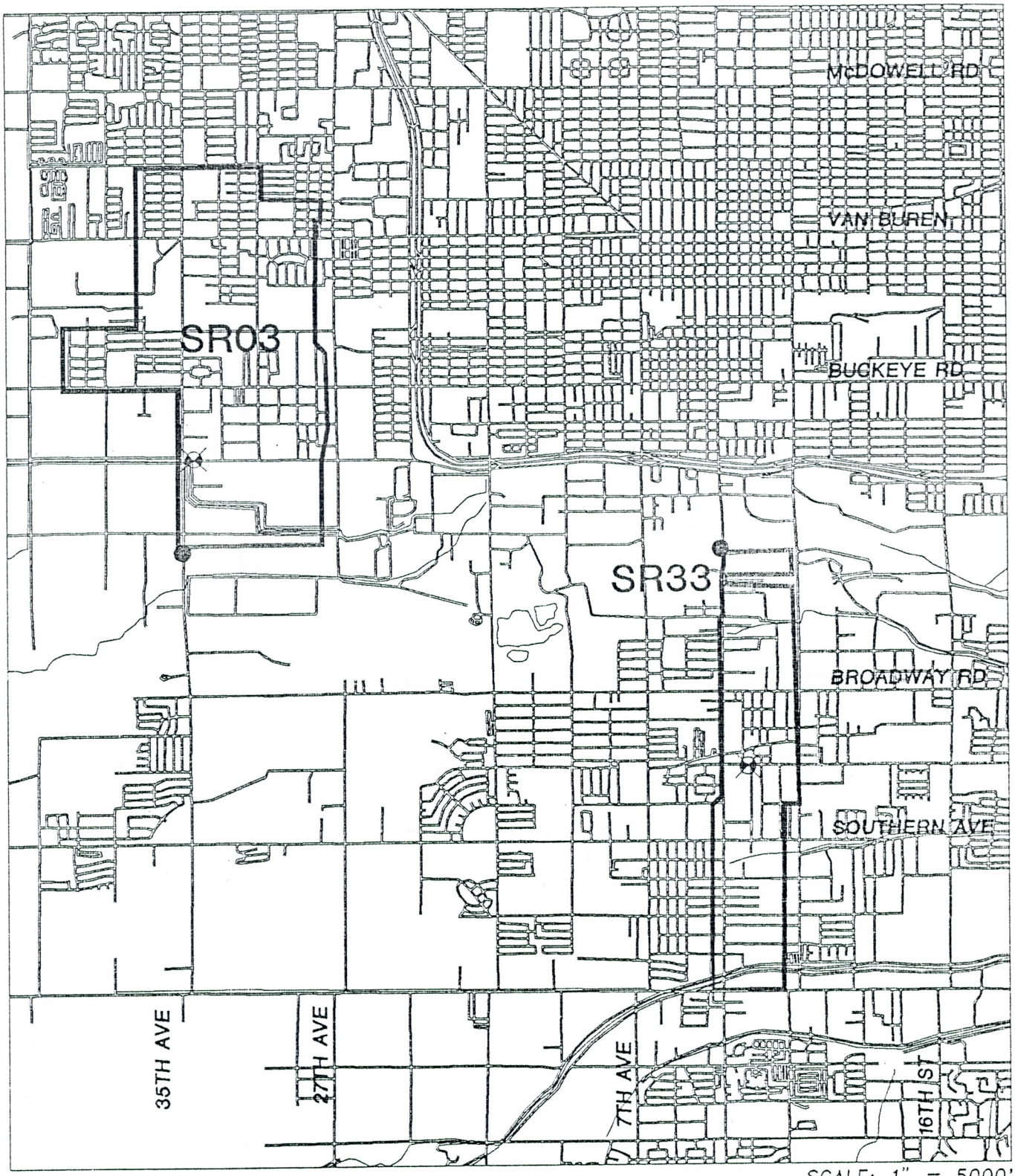
9 $\frac{12}{200}$ 60

total 5130 mL

barely enough

if storm was 2.5% smaller, < 5000mL

either switch to 2-liter bottles or collect samples at shorter intervals



SCALE: 1" = 5000'

KEY

LOCATION OF RAINGAUGE

LOCATION OF OUTFALL FOR DELINIATED CATCHMENT

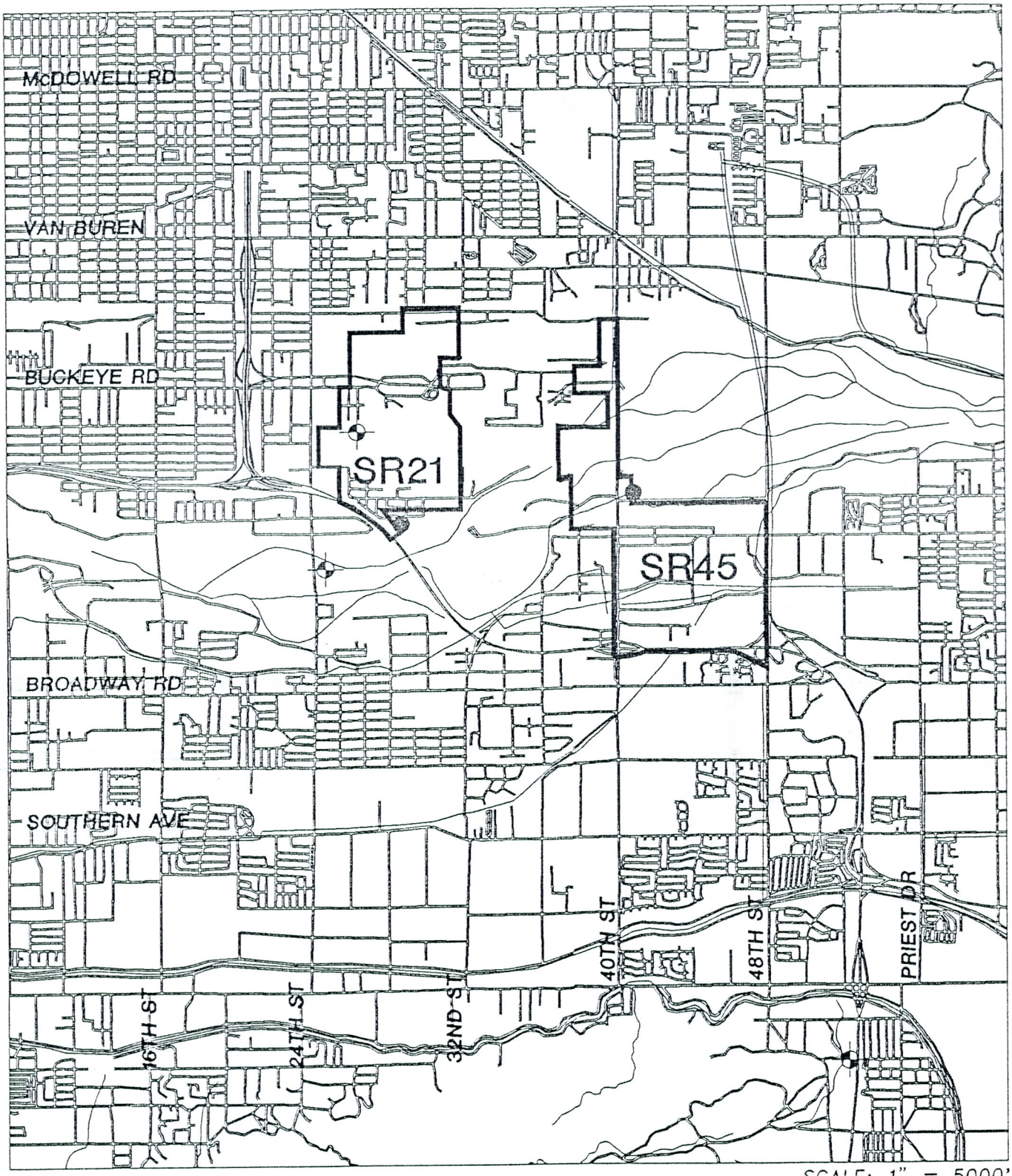
N

SAMPLING STATION AND RAINGAUGE LOCATION MAP
PHOENIX NPDES PART 2

PROJECT: 9155038H

DATE: 10/13/92 | FIG. 3-1

Woodward-Clyde



SCALE: 1" = 5000'

KEY

LOCATION OF RAINGAUGE

LOCATION OF OUTFALL FOR DELINIATED CATCHMENT

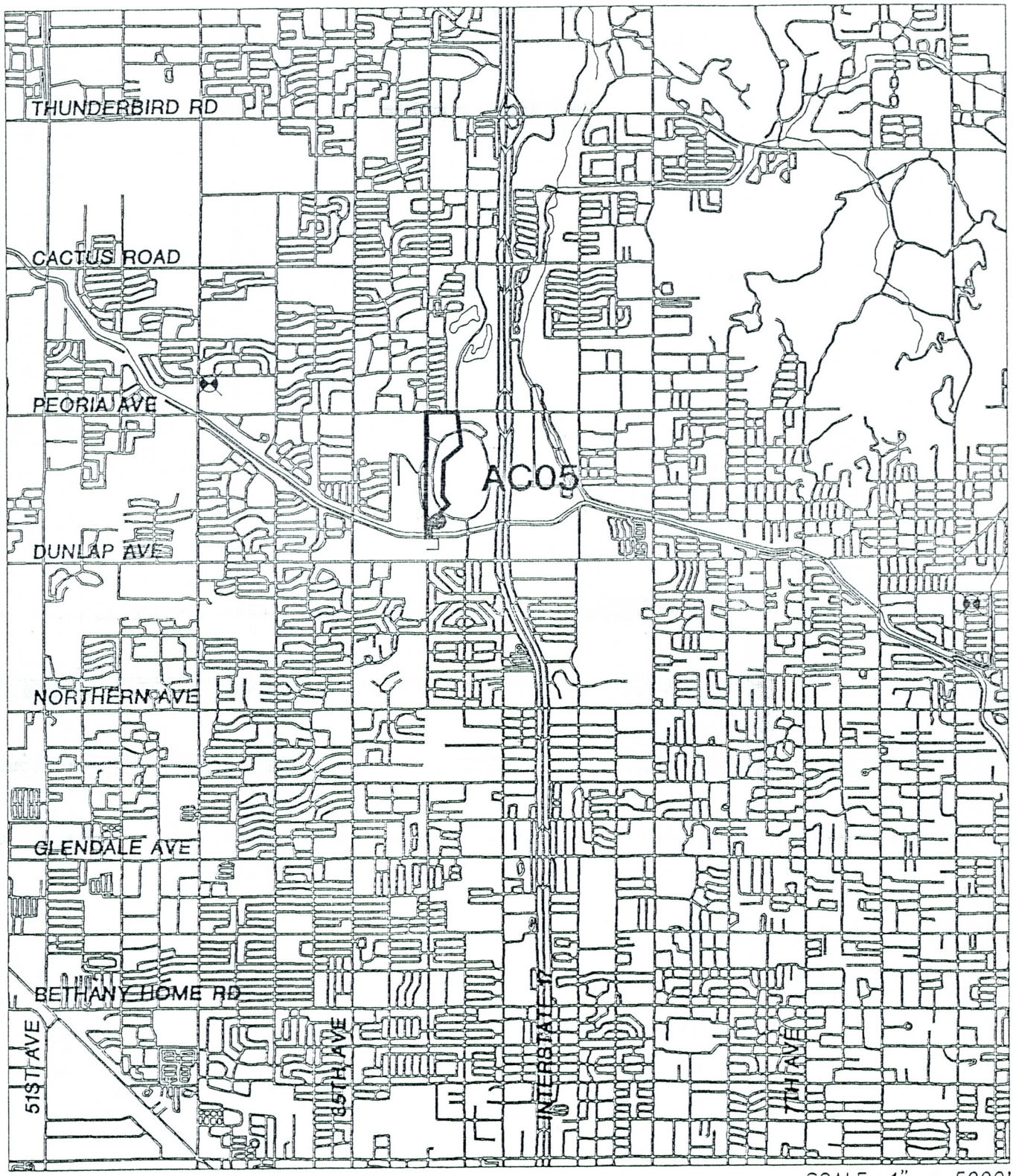
N

SAMPLING STATION AND RAINGAUGE LOCATION MAP
PHOENIX NPDES PART 2

PROJECT: 9155038H

DATE: 10/13/92 | FIG.3-2

Woodward-Clyde



SCALE: 1" = 5000'

KEY

LOCATION OF RAINGAUGE

LOCATION OF OUTFALL FOR DELINIATED CATCHMENT

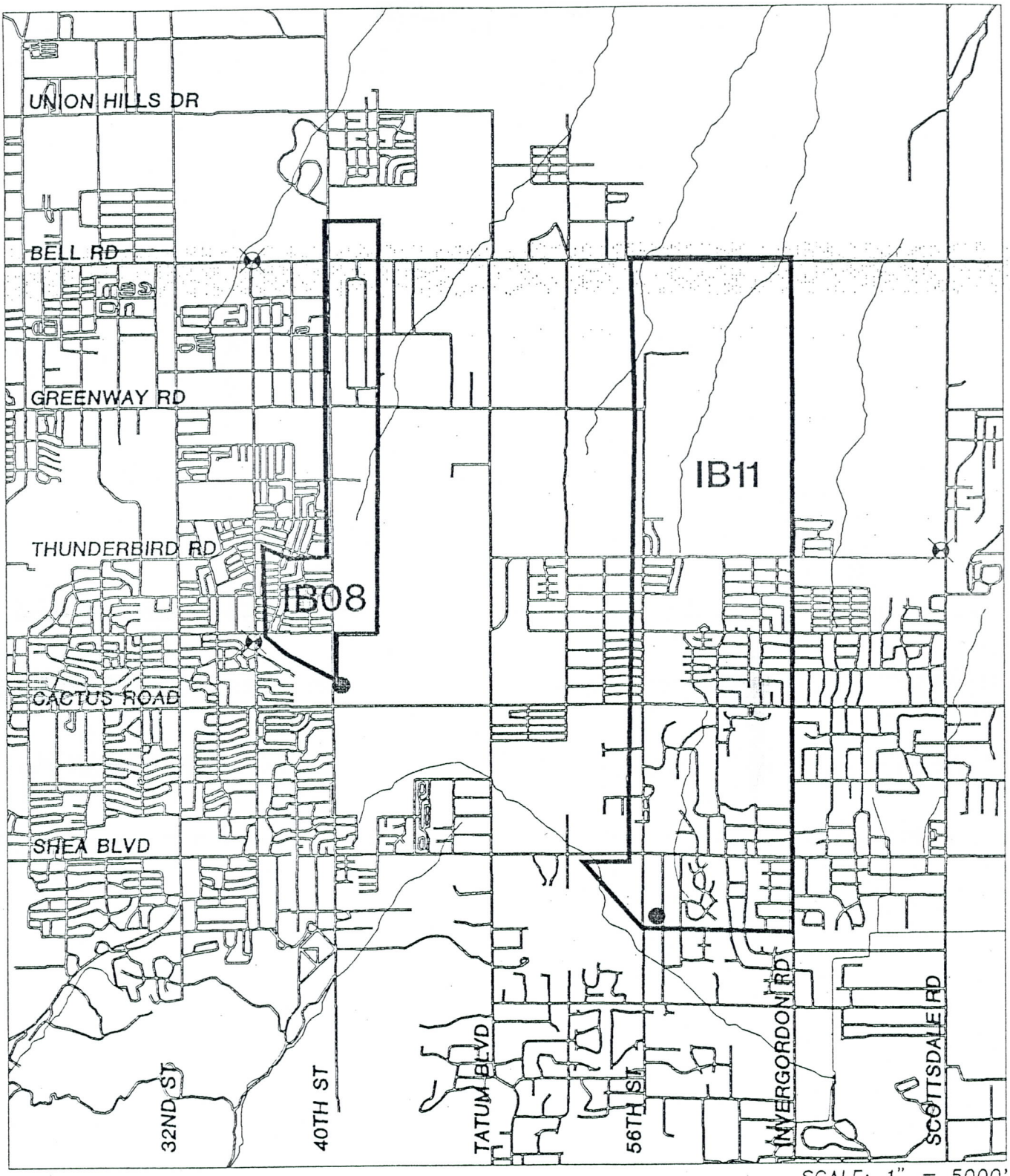
N

SAMPLING STATION AND RAINGAUGE LOCATION MAP
PHOENIX NPDES PART 2

PROJECT: 9155038H

DATE: 10/13/92 | FIG.3-3

Woodward-Clyde



SCALE: 1" = 5000'

KEY

LOCATION OF RAINGAUGE

LOCATION OF OUTFALL FOR DELINIATED CATCHMENT

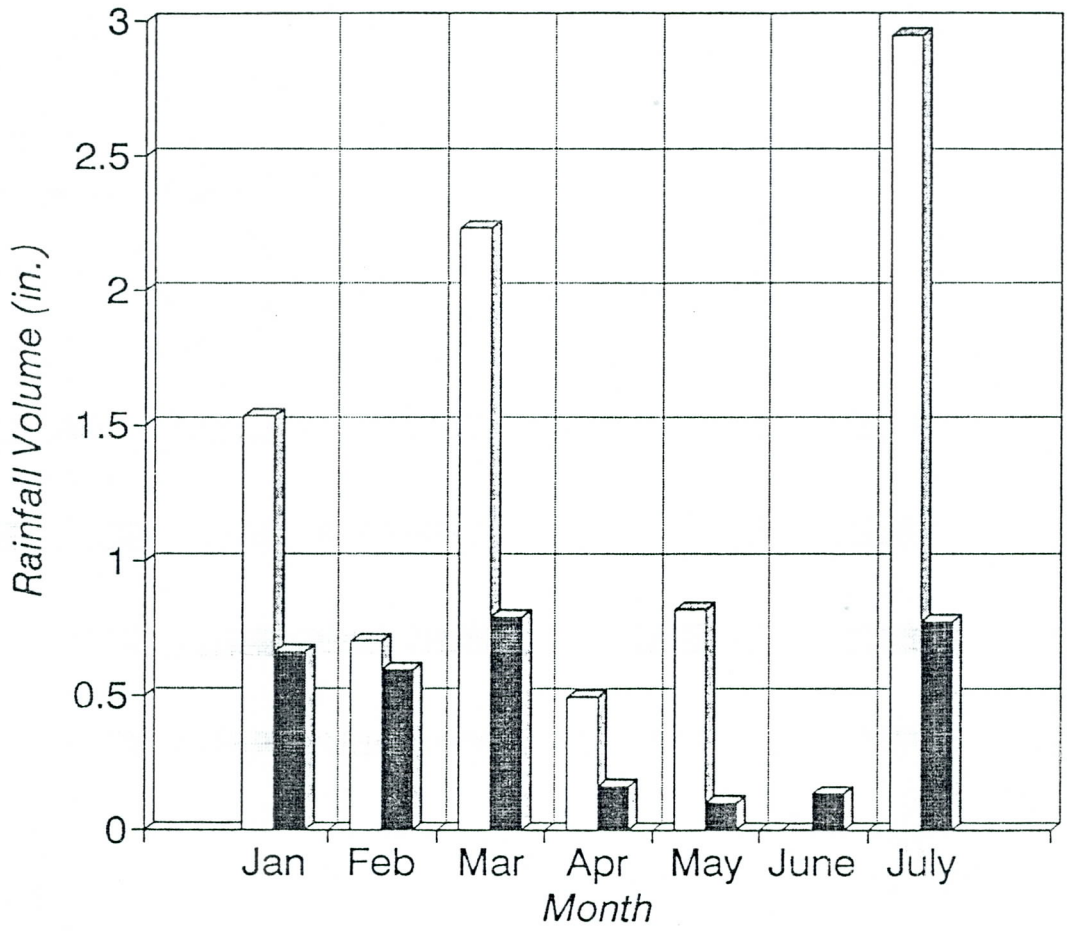
N

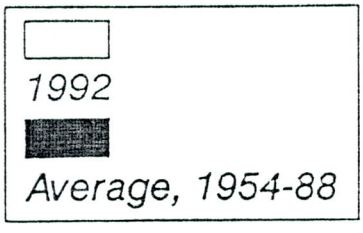
SAMPLING STATION AND RAINGAUGE LOCATION MAP
PHOENIX NPDES PART 2

PROJECT: 9155038H

DATE: 10/13/92 FIG.3-4

Woodward-Clyde

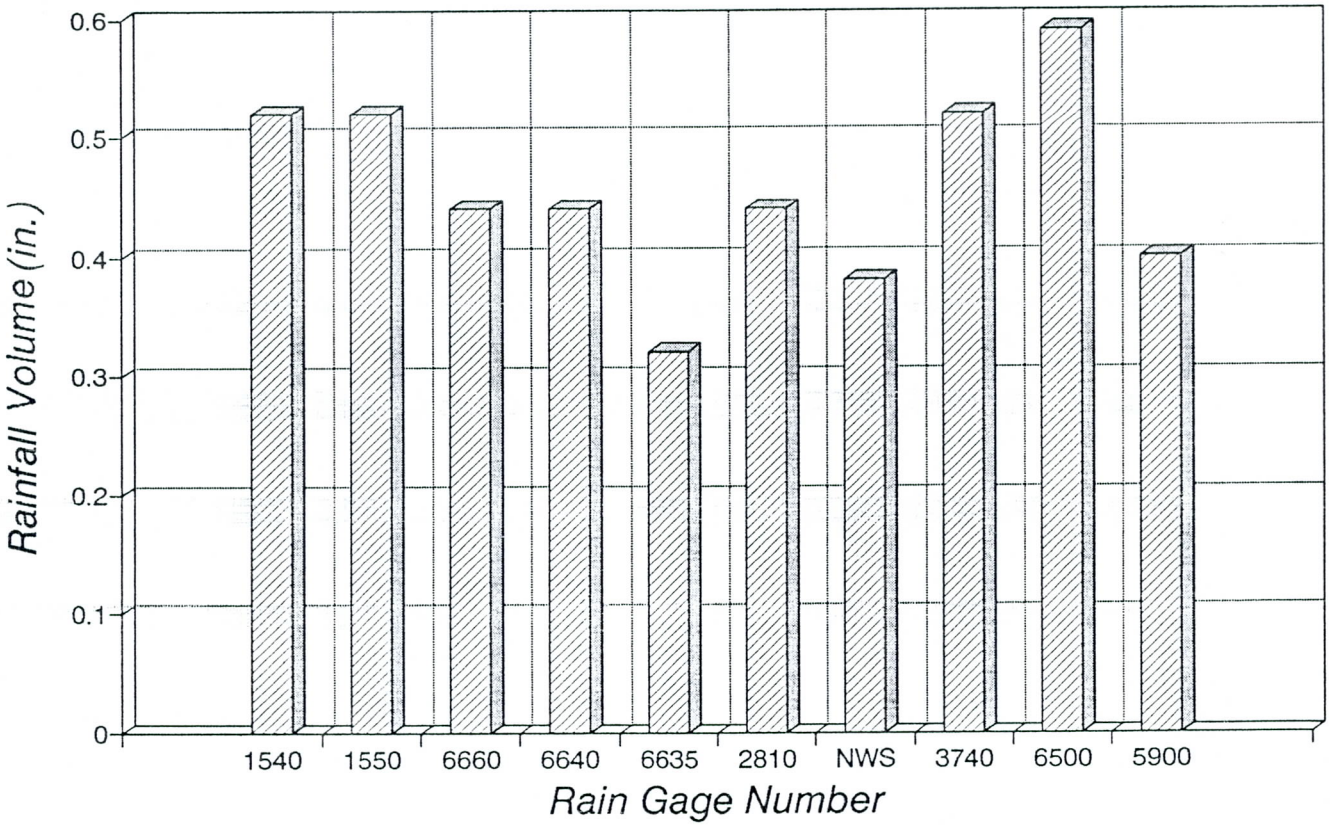




MONTHLY RAINFALL VOLUME COMPARISON - 1992 AND AVERAGE VALUES
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 5

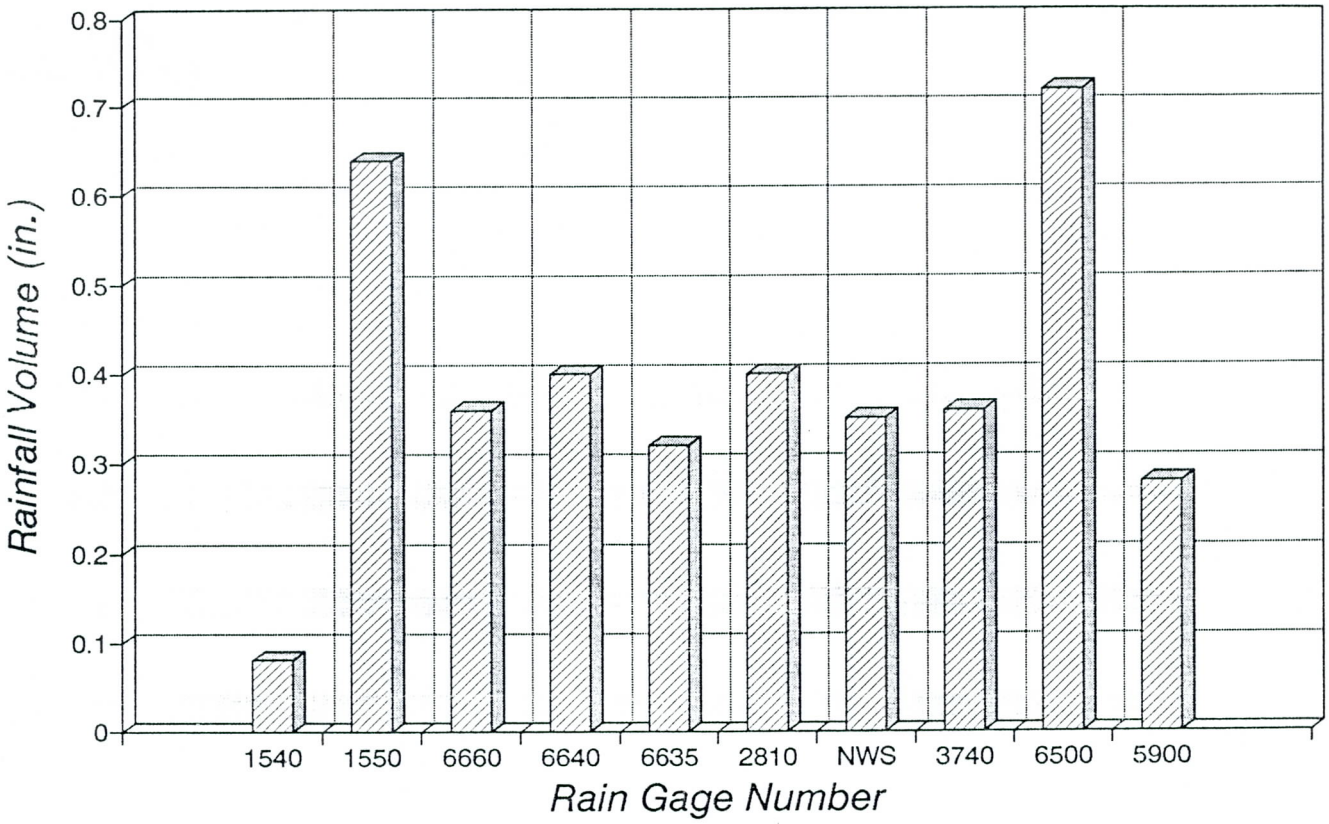
WOODWARD-CLYDE CONSULTANTS



SAMPLING EVENT 1, RECORDED RAINGAUGE VOLUME (JANUARY 3, 1992)
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 6

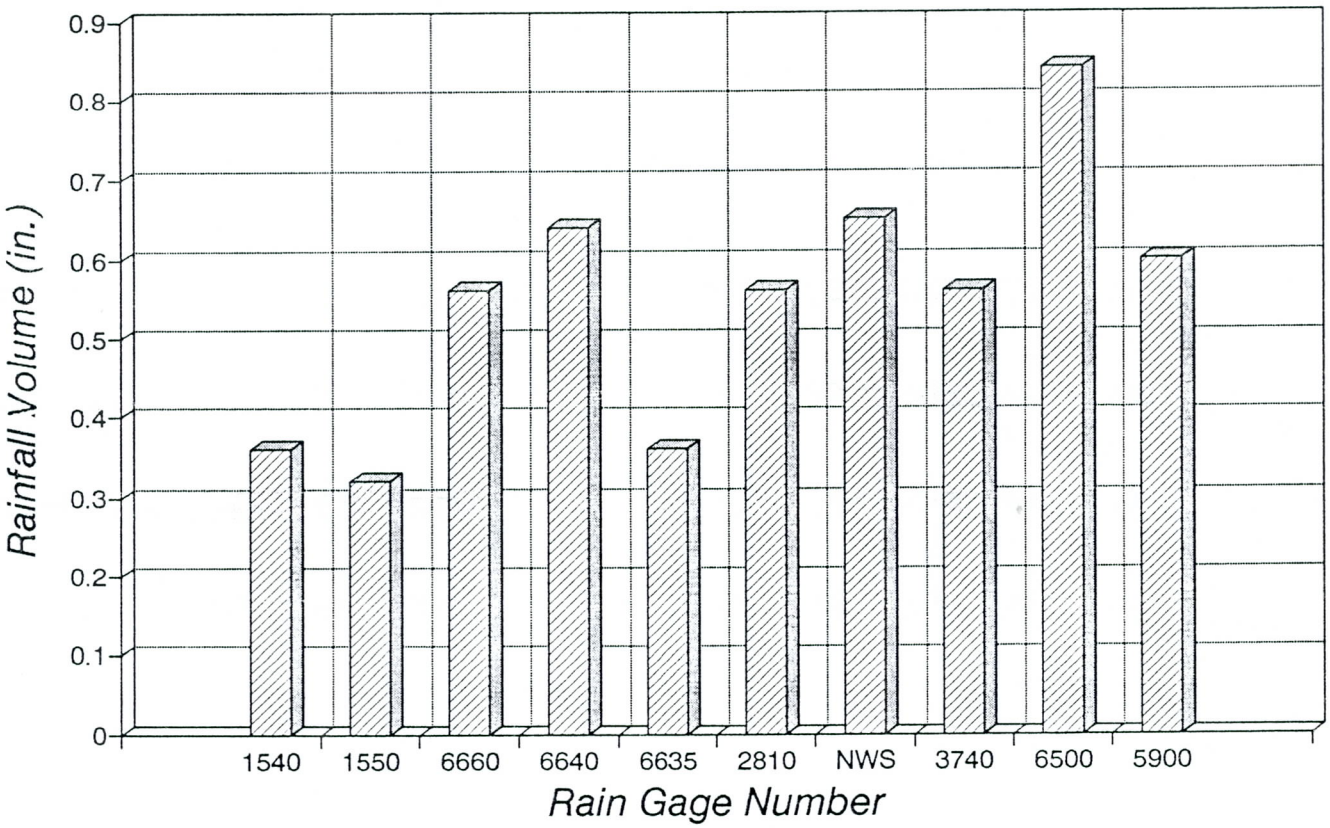
WOODWARD-CLYDE CONSULTANTS



SAMPLING EVENT 2, RECORDED RAINGAUGE VOLUMES (FEBRUARY 6, 1992)
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 7

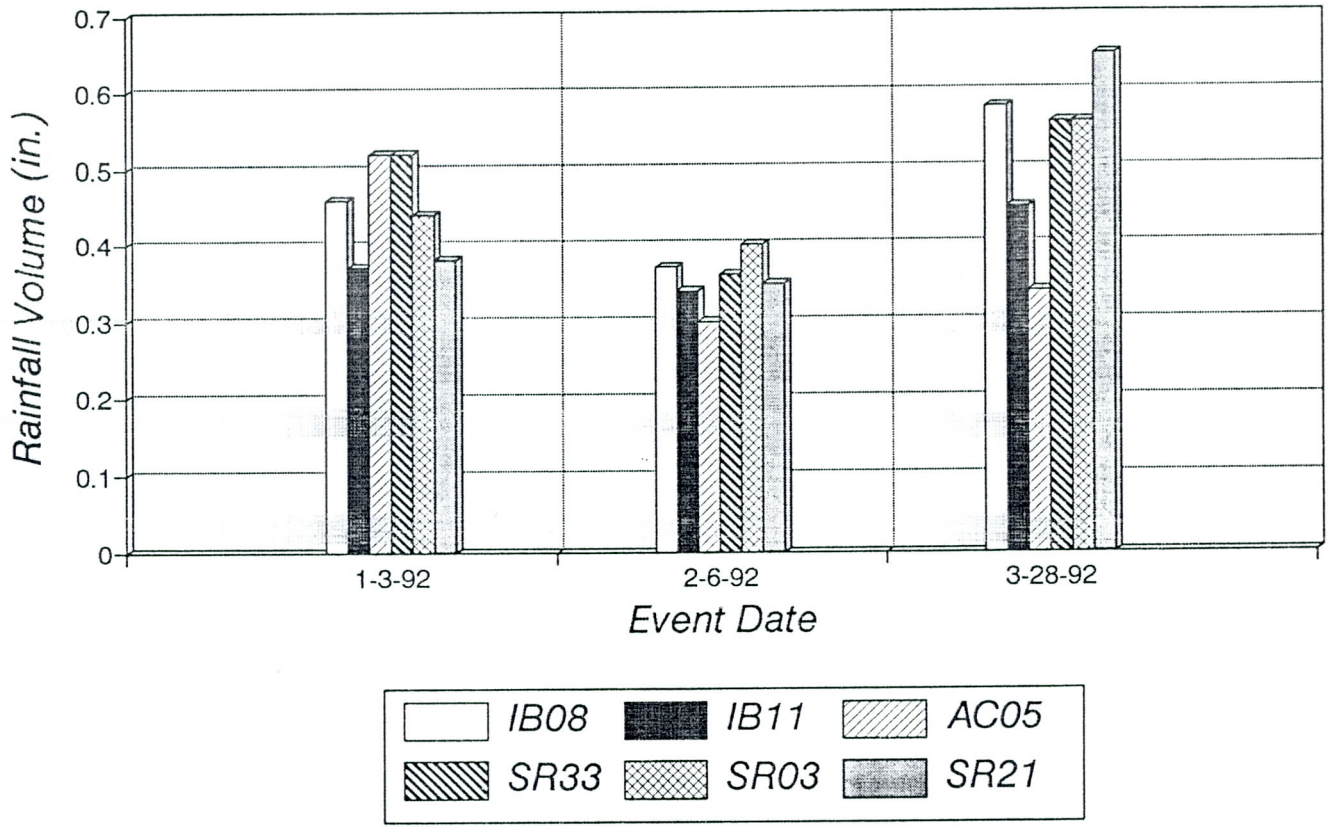
WOODWARD-CLYDE CONSULTANTS



SAMPLING EVENT 3, RECORDED RAINGAUGE VOLUMES (MARCH 28, 1992)
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 8

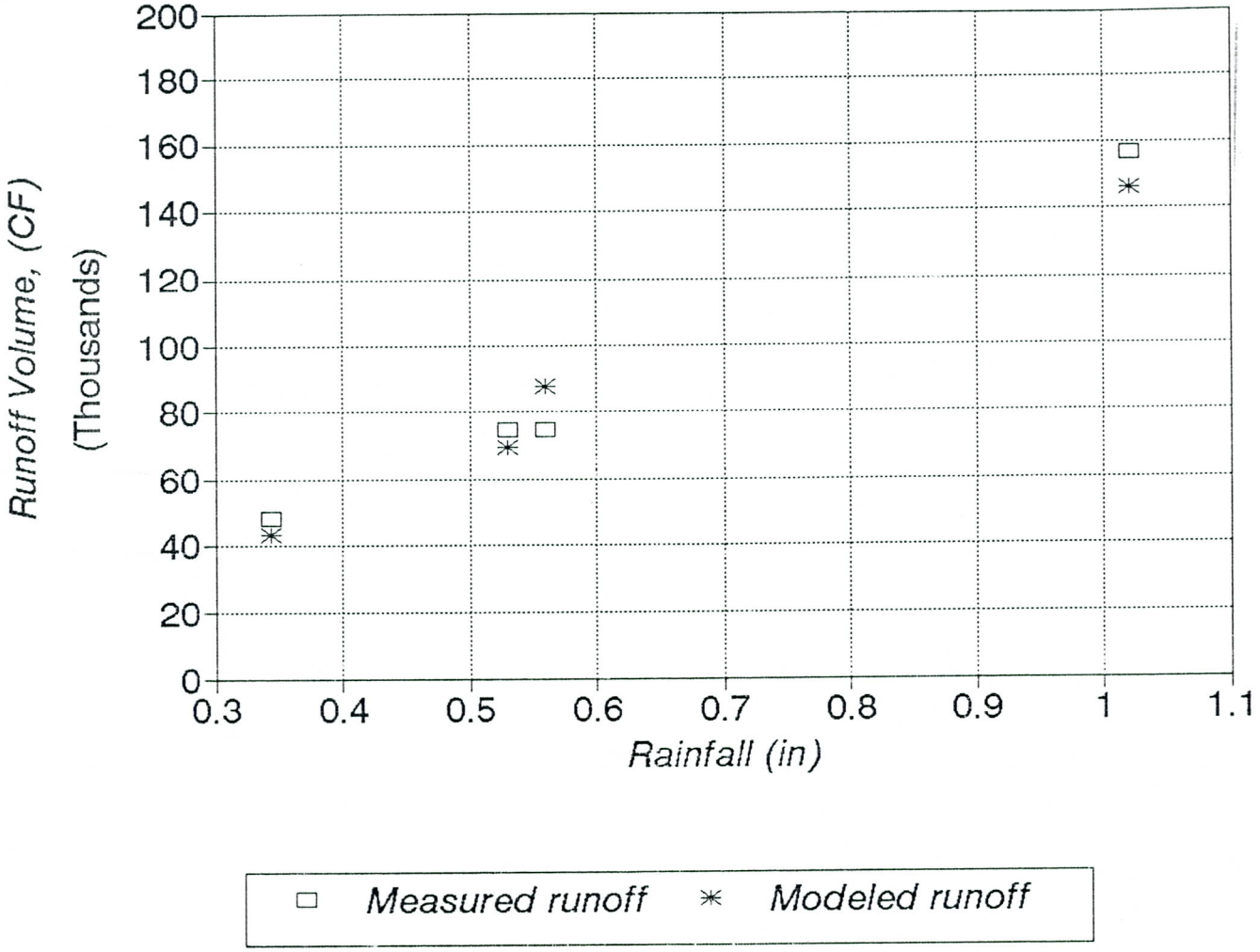
WOODWARD-CLYDE CONSULTANTS



COMPOSITE RAINGAUGE AMOUNTS - SAMPLING EVENTS 1 THROUGH 3
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 9

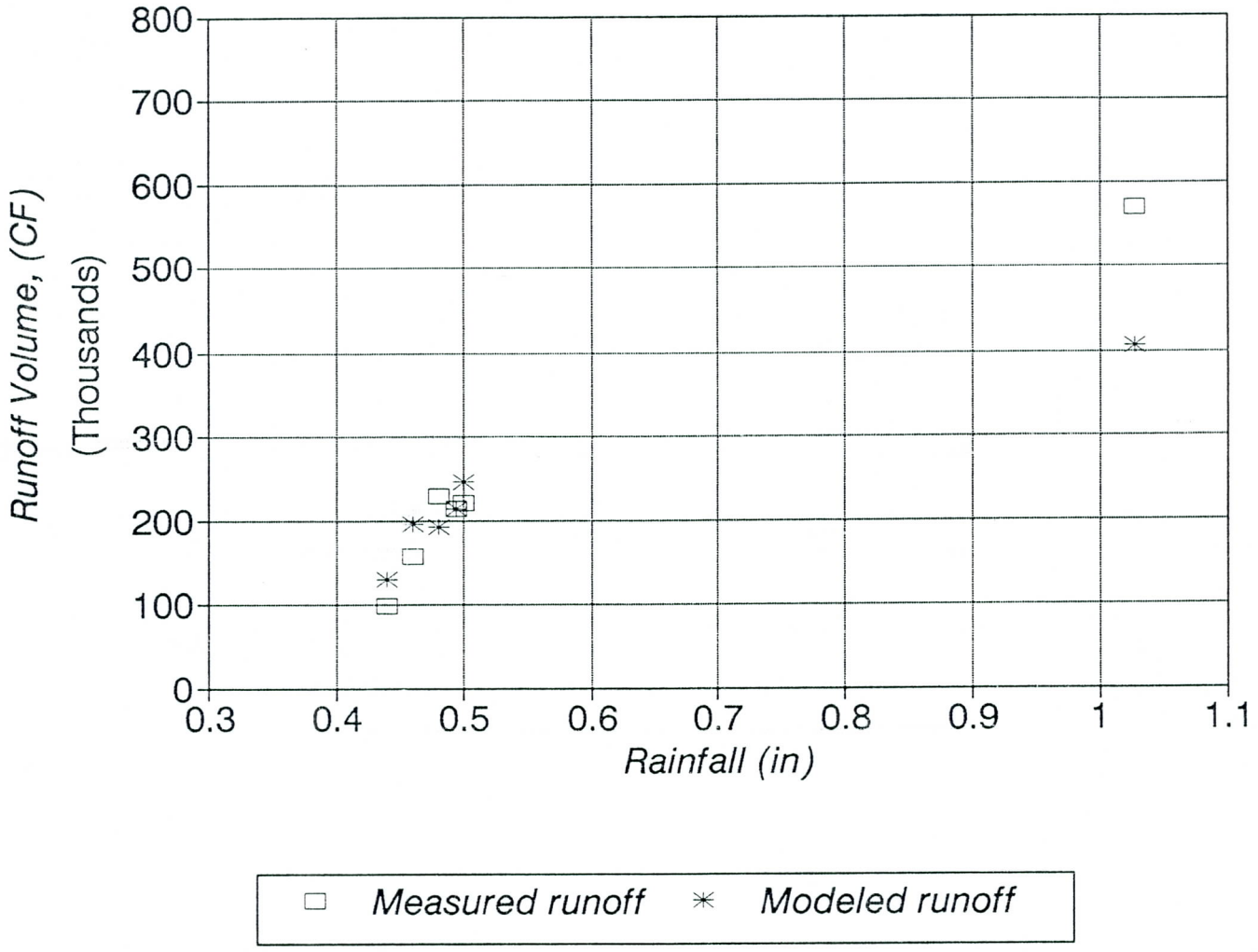
WOODWARD-CLYDE CONSULTANTS



CATCHMENT AC-05, RUNOFF VOLUME VS. RAINFALL VOLUME
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No. 3-10

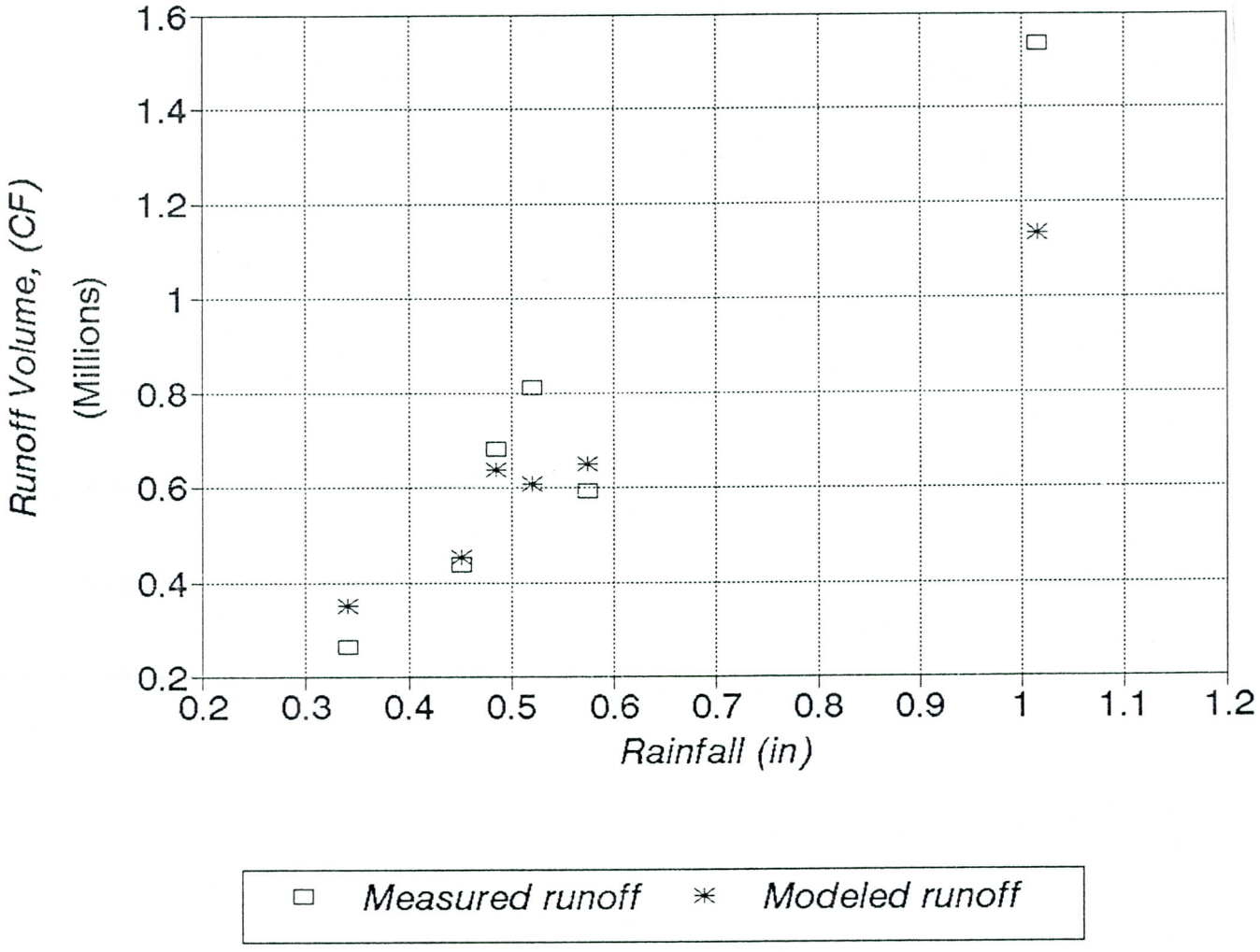
WOODWARD-CLYDE CONSULTANTS



CATCHMENT IB-08, RUNOFF VOLUME VS. RAINFALL VOLUME
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 11

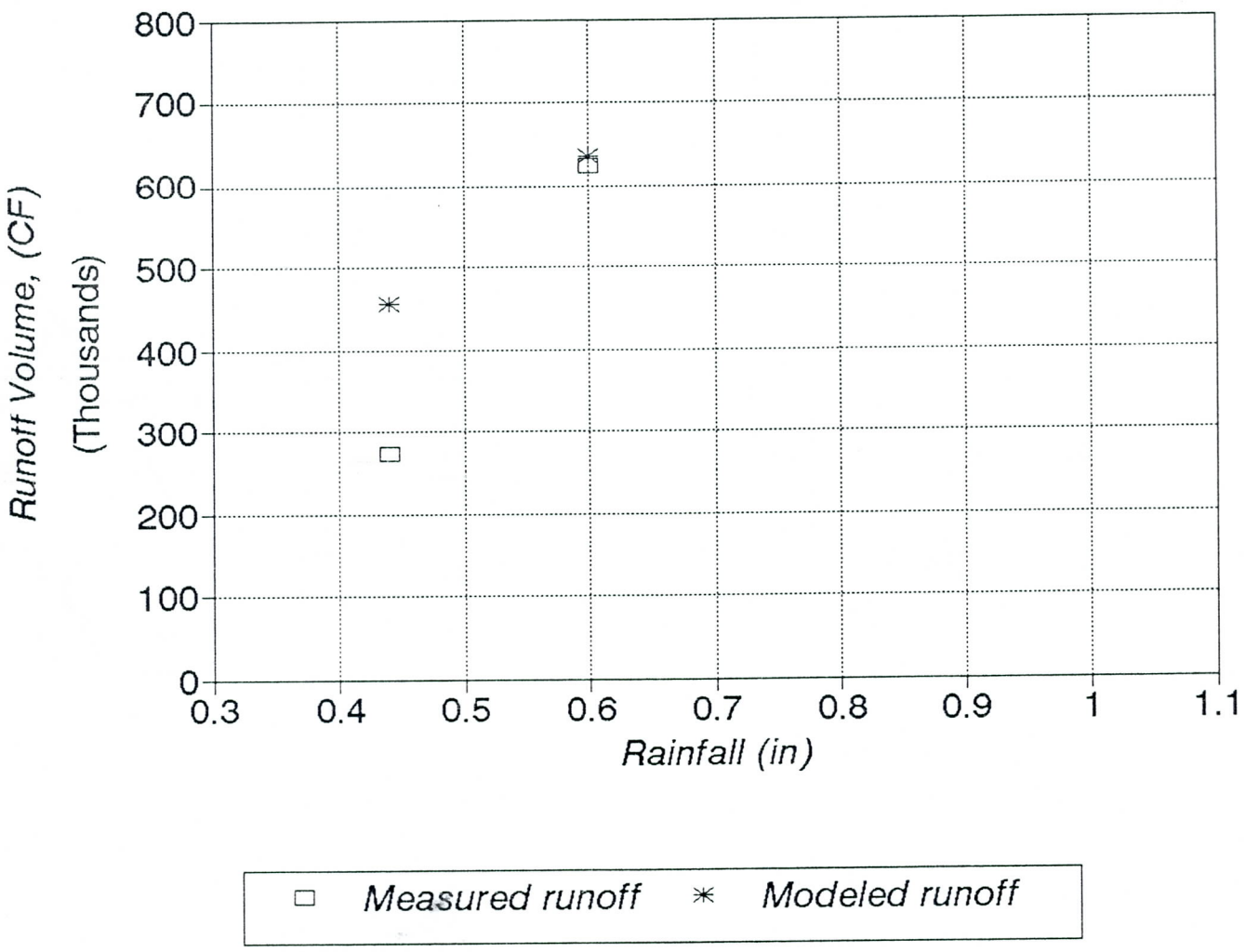
WOODWARD-CLYDE CONSULTANTS



CATCHMENT IB-11, RUNOFF VOLUME VS. RAINFALL VOLUME
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 1 2

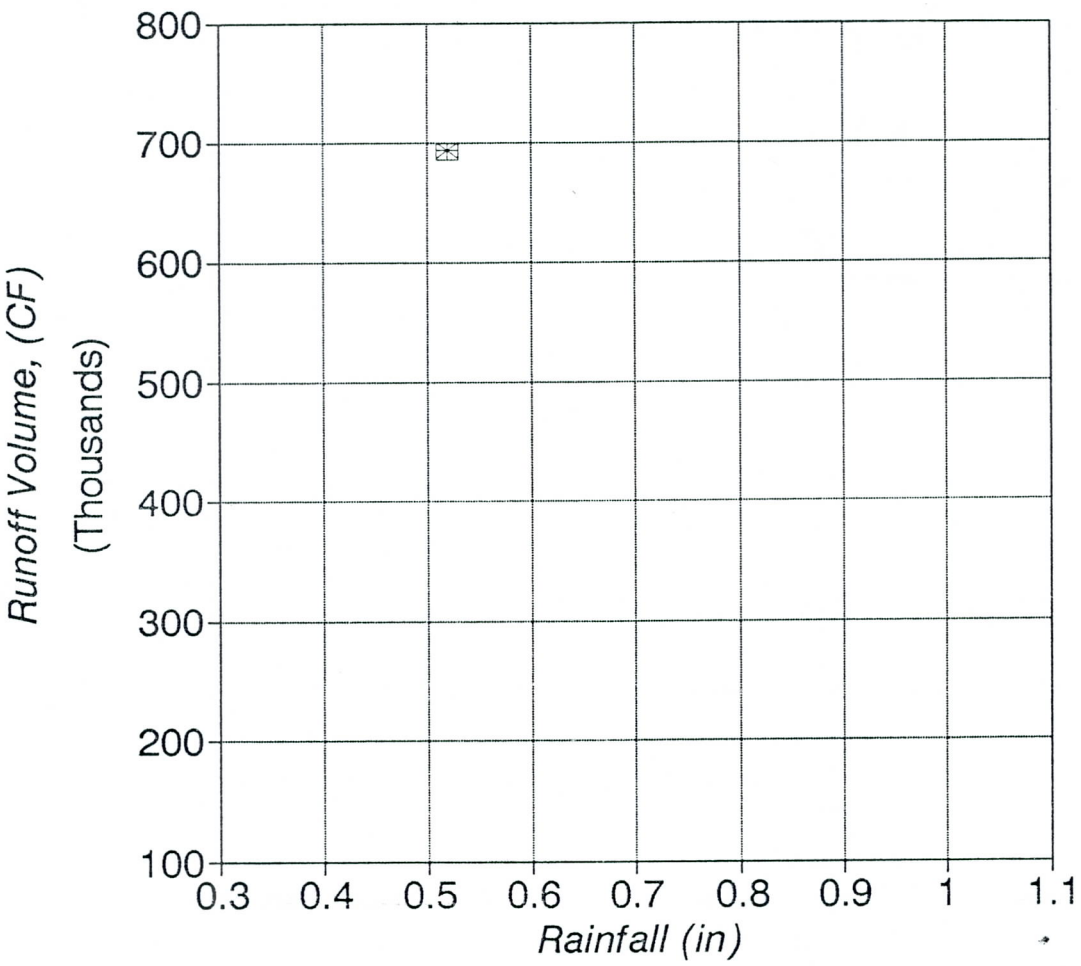
WOODWARD-CLYDE CONSULTANTS



CATCHMENT SR-03, RUNOFF VOLUME VS. RAINFALL VOLUME
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 1 3

WOODWARD-CLYDE CONSULTANTS



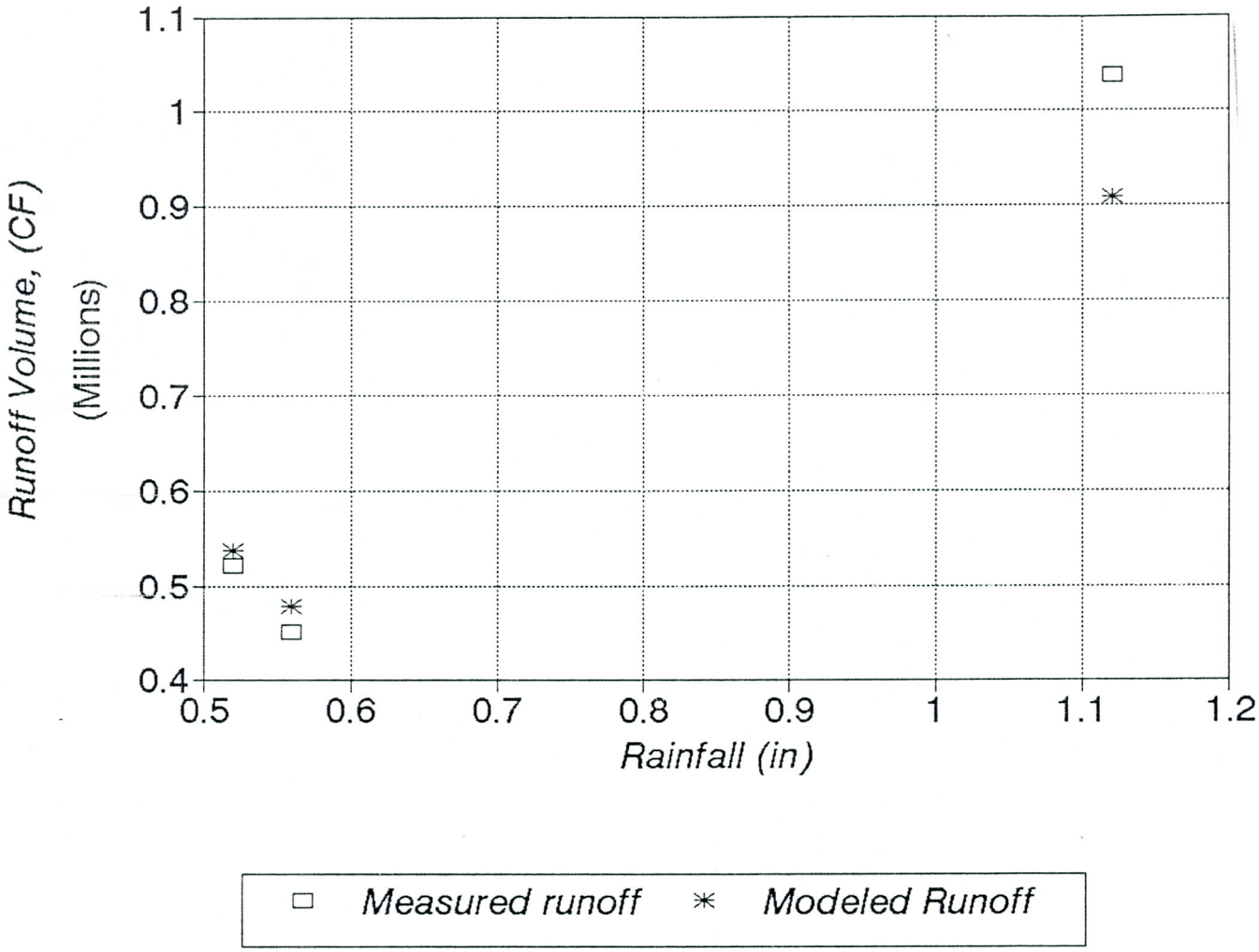
□ measured runoff

✳ Modeled runoff

CATCHMENT SR-33, RUNOFF VOLUME VS. RAINFALL VOLUME
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure 3-14

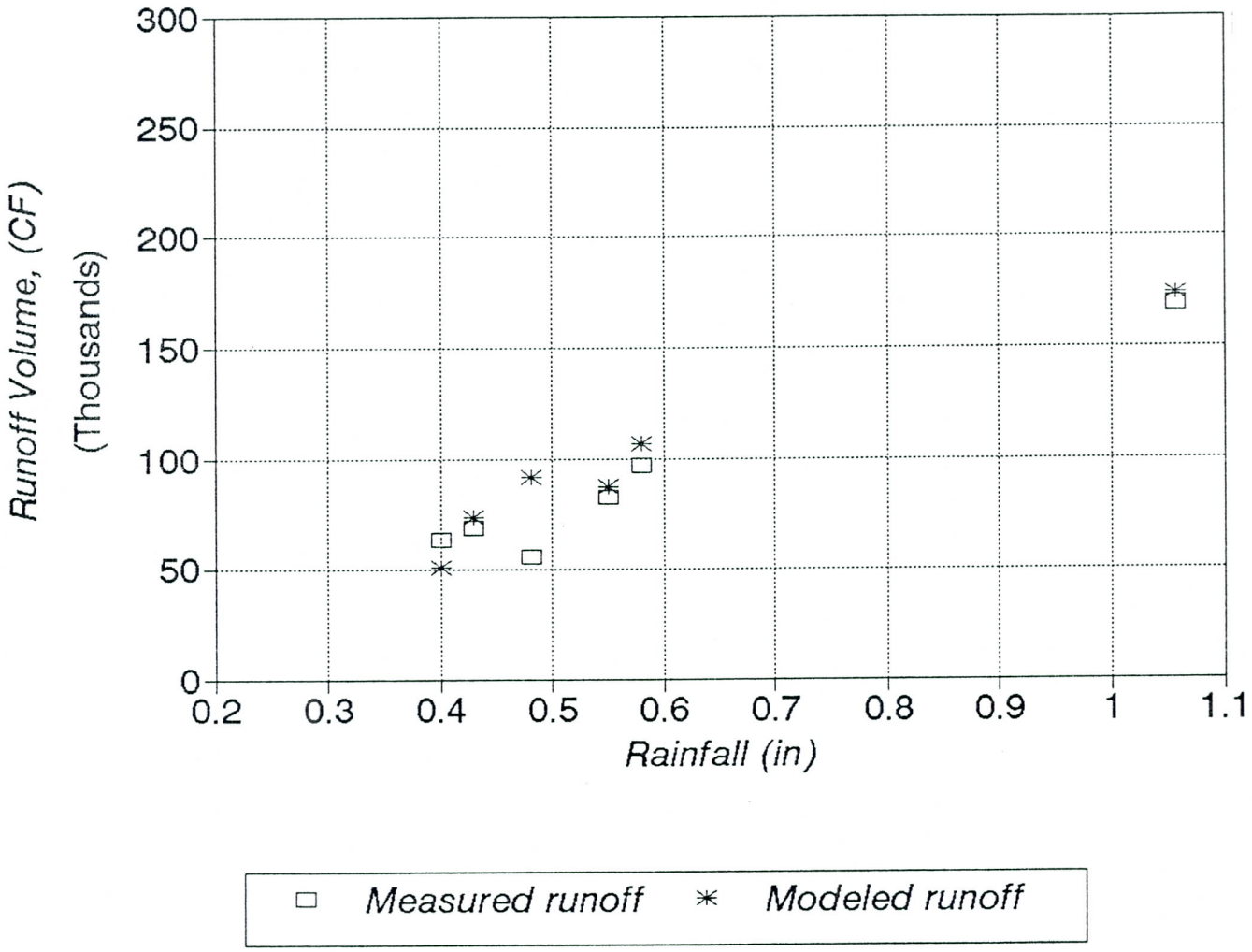
WOODWARD-CLYDE CONSULTANTS



CATCHMENT SR-21, RUNOFF VOLUME VS. RAINFALL VOLUME
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 15

WOODWARD-CLYDE CONSULTANTS



CATCHMENT SR-45, RUNOFF VOLUME VS. RAINFALL VOLUME
PHOENIX NPDES PART 2

Drawn by: cb	Checked by:	Project No: 9155038H	Date: 10-18-92	Figure No: 3 - 16

WOODWARD-CLYDE CONSULTANTS

ATTACHMENT 3-1

FIELD METHODS FOR MEASUREMENT OF FLUVIAL SEDIMENT

By Thomas K. Edwards and G. Douglas Glysson

U.S. GEOLOGICAL SURVEY
Open-File Report 86—531

Reston, Virginia
1988

The streambed of a sand-bed stream characteristically shifts radically, at single points and across segments of the width, over a period of weeks or in a matter of hours. This not only makes it impossible to establish cumulative discharge or cumulative percentage of discharge versus station curves applicable from one visit to the next, but also makes it impossible to be certain the discharge distribution does not change between the water-discharge measurement and the sediment sampling (see Guy, 1970, fig. 15). In this case the EWI method discussed next should be used. For sand-bed streams and for new sediment-measuring sites, the main disadvantage to the EDI method is that a water-discharge measurement must precede the sediment-discharge measurement.

The equal-width-increment method

A cross-sectional suspended-sediment sample obtained by the EWI method requires a sample volume proportional to the amount of flow at each of several equally spaced verticals in the cross section. This equal spacing between the verticals (EWI) across the stream and sampling at an equal transit rate at all verticals yields a gross sample volume proportional to the total streamflow. It is important, obviously, to keep the same size nozzle in the sampler for a given measurement. This method was first used by B. C. Colby in 1946 (F.I.S.P., 1963b, p. 41) and is used most often in shallow, wadable streams and (or) sand-bed streams where the distribution of water discharge in the cross section is not stable. It is also useful in streams where tributary flow has not completely mixed with the main stem flow.

The number of verticals required for an EWI sediment-discharge measurement depends on the distribution of concentration and flow in the cross section at the time of sampling as well as on the desired accuracy of the result. On many streams both statistical approaches and experience are needed to determine the desirable number of verticals. Until such experience is gained, the number of verticals used should be greater than necessary. In all cases a minimum of 10 verticals should be used for streams over 5 feet wide. For streams less than 5 feet wide, as many verticals as possible should be used as long as they are spaced a minimum of 3 inches apart to allow for discrete sampling of each vertical and to avoid overlaps. Through general experience with similar streams, field personnel can estimate the required minimum number of verticals to yield a desired level of accuracy. For all but the very wide and shallow streams, a maximum of 20 verticals is usually ample.

The width of the increments to be sampled, or the distance between verticals, is determined by dividing the stream width by the number of verticals necessary to collect a discharge-weighted suspended-sediment sample representative of the sediment concentration of the flow in the cross section (fig. 36). For example, if the stream width determined from the tagline, cableway, or bridge-rail markings at the sample cross section is 160 feet, and the number of verticals necessary is 10, then the width (W) of each sampled increment would be 16 feet. The sample station within each width increment is located at the center of the increment $\left(\frac{W}{2}\right)$, beginning at a location of 8 feet from the bank nearest the initial point for width measurement. The verticals are then spaced 16 feet apart, resulting in sample stationing at 8, 24, 40, 56, 72, 88, 104, 120, 136, and 152 feet of width. However, in the event the width increment results in a fractional measurement, the width can be rounded to the nearest integer that will yield a whole numbered station for the initial sample vertical. That is, if the increment computation yields a width of 15.5 feet, the nearest integer width would be 16 feet, and the initial vertical

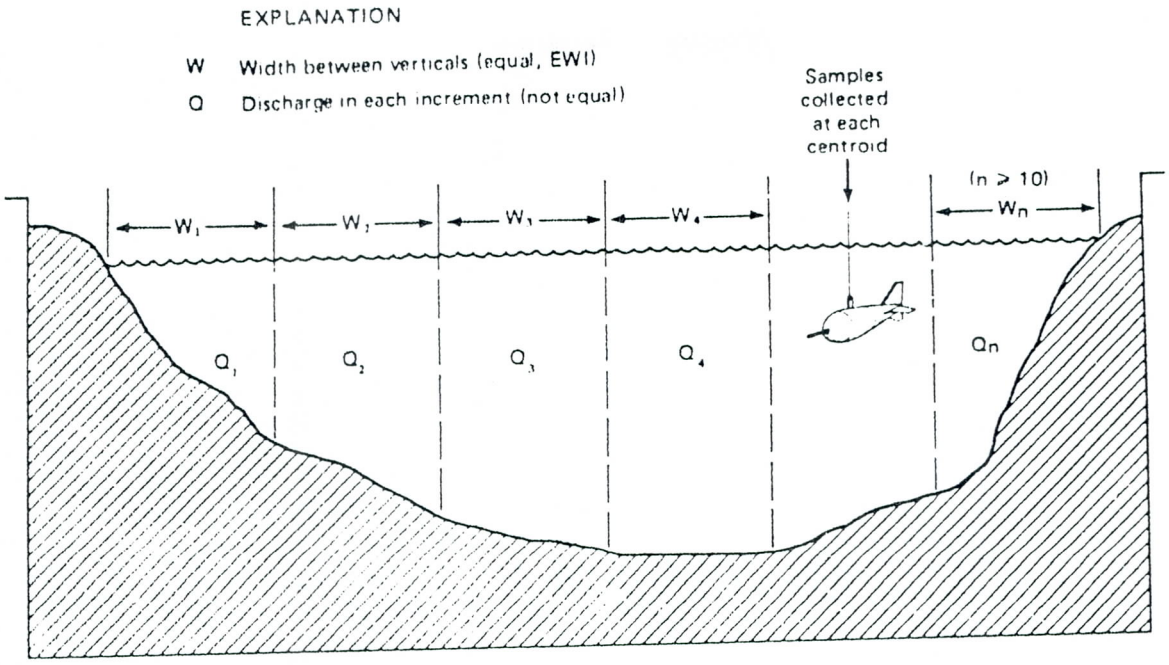


Figure 36.--Equal-width-increment sampling technique.

would be located at 8 feet from the bank; the stationing would be similar to the previous example. Results of samples obtained using this nonideal stationing will not be measurably affected since alterations in width occur in the increments nearest the streambank where flow velocity is normally low compared to midstream increments.

The EWI sampling method requires that all verticals be traversed using the same transit rate (fig. 37). The descending and ascending transit rates must be equal during the sampling traverse of each vertical, and they must be the same at all verticals. By using this equal-transit-rate technique with a standard depth- or point-integrating sampler at each vertical, a volume of water proportional to the flow in the vertical will be collected (fig. 37).

It is often difficult to maintain an equal transit rate when collecting samples while wading. The authors have found the following procedure to be effective in alleviating this difficulty. The field person should hold the sampler at a reference point on the body (for example, the hip) at which level the downward and upward integration is started and finished (even though part of the traverse is in air). The same reference point should be used at each vertical, allowing the same amount of time to elapse during the round trip traverse of the sampler (regardless of the stream depth encountered). In this manner the transit rate will remain constant for the entire cross section. It should be remembered that the reference point at which the sampler traverse is started and stopped must be located above the water surface at the deepest vertical sampled and must be the same for each vertical.

Because the maximum transit rate must not exceed 0.4 V_m, and because the minimum rate must be sufficiently fast to keep from overfilling any of the sample bottles, it is evident that the transit rate to be used for all verticals is limited by conditions at the vertical containing the largest discharge per foot of width (largest product of depth times velocity). A discharge

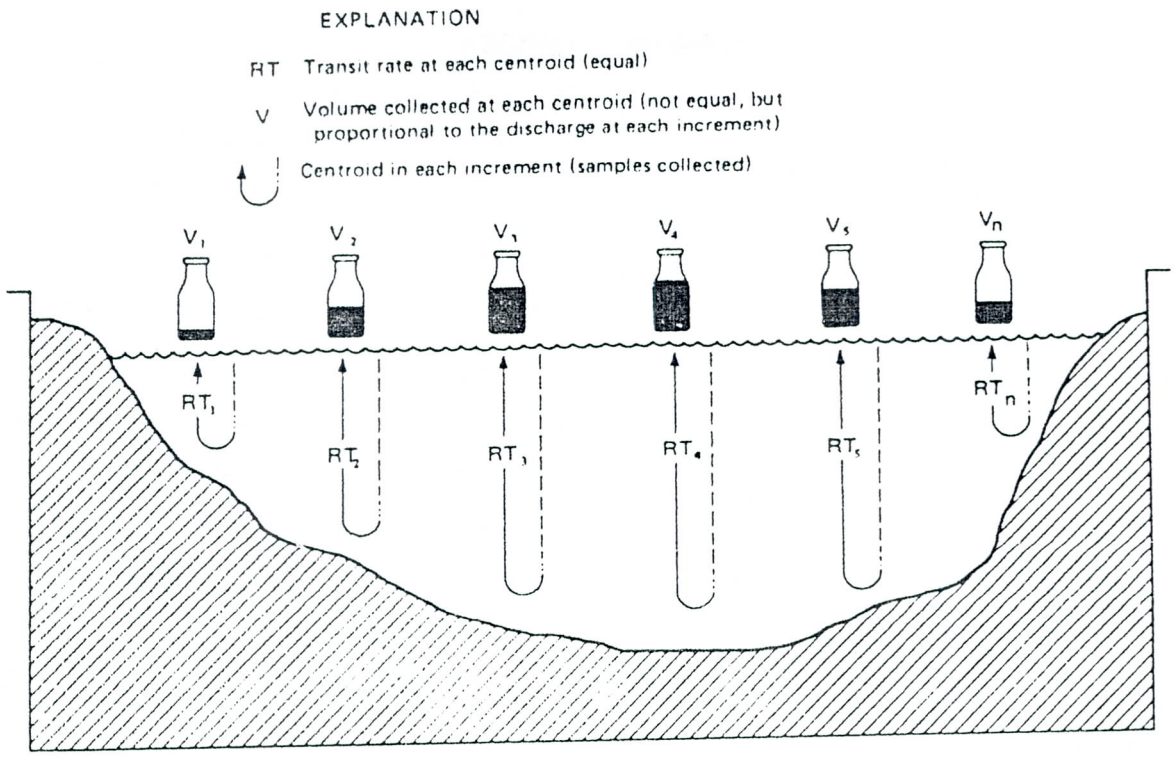


Figure 37.--Equal-width-increment vertical transit rate relative to sample volume that is proportional to water discharge at each vertical.

measurement can be made to determine where this vertical is located, but generally it is estimated by sounding for depth and acquiring a "feel" for the relative velocity with an empty sampler or wading rod. The transit rate required at the maximum discharge vertical must then be used at all other verticals in the cross section and is usually set to fill a bottle to the maximum sample volume in a round trip. It is possible to sample at two or more verticals using the same bottle if the bottle is not overfilled. If a bottle is overfilled, it must be discarded and all verticals previously sampled using that bottle must be resampled using a sufficient number of bottles to avoid overfilling. Note: a sample bottle is "overfilled" when the water surface in the bottle is above the nozzle or air exhaust with the sampler held level.

It is apparent that a water-discharge measurement is not required preceding use of the EWI method. In fact, the method makes it possible to estimate the water-discharge rate for the stream if the vertical spacing, the stream depth at each vertical, the length of time the sampler is in the water, and the volume of sample is recorded. This is possible because the water enters the sample bottles at the ambient stream velocity and thus the gross sample volume is proportional to the integrated velocity in the verticals. Note: at streamflow velocities less than 1 ft/s, the nozzle-entrance velocity will increase as the ambient streamflow velocity decreases, resulting in erroneous stream discharge if this technique is used at stream velocities less than 1 ft/s. The mean velocity of the flow sampled in the vertical or verticals, V_m, can be determined by the equation

$$V_m = \frac{V/T_t}{A_n}$$

where V = volume of the sample, in cubic feet;
T_t = total transit time to obtain sample, in seconds; and
A_n = cross-section area of nozzle, in square feet.

The discharge of the stream is then simply the summation of the velocity-area product for each sampled segment of the stream. Note: the same method may be used for the EDI samples, but the volume and time for each bottle must be recorded. Additionally, the EWI method saves analytical time and effort in the laboratory because the sample bottles are composited to give one cross-sectional sediment concentration and (or) particle-size gradation (see Guy, 1969). If sample bottles are analyzed separately, the average cross-sectional discharge-weighted sediment concentration in milligrams per liter must be computed by dividing the total mass, in grams, of sediment in all the bottles by the total mass, in grams, of the water-sediment mixture in all the bottles and then multiplying the quotient by 10^6.

Advantages and disadvantages of the equal-discharge-increment method and the equal-width-increment method

Some advantages and disadvantages of both the EDI and EWI methods have been mentioned in the previous discussion. It must be remembered, however, that both methods, if properly used, yield the same results.

The advantages of the EDI method are:

1. Fewer verticals are necessary resulting in a shortened collection time.
2. Sampling during rapidly changing stages is facilitated by the shorter sampling time.
3. Bottles comprising a sample set may be composited for laboratory analysis when equal volumes of sample are collected from each vertical.
4. The cross-sectional variation in concentration can be determined if sample bottles are analyzed individually.
5. Duplicate cross-section samples can be collected simultaneously.
6. A variable transit rate can be used among verticals.

The advantages of the EWI method are:

1. Previous knowledge of flow distribution in the cross section is not required.
2. Variations in the distribution of concentration in the cross section may be better defined due to the greater number of verticals sampled.

ATTACHMENT 3-2

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Laboratory Performance Standards

AUGUST 1992

I. Introduction

The Flood Control District will be selecting a laboratory for NPDES stormwater analysis. The laboratory is to be selected from a group of facilities asked to submit information to the District.

Each laboratory was asked to submit general information about itself. This information will allow us to determine how long the laboratory has been in operation, and if they are certified by the State of Arizona Department of Health Services. Only certified laboratories will be able to perform NPDES analyses for the District.

Each additional section will outline the laboratory selection criteria. A description of the requirement will be provided.

II. Analytical Capabilities

The attached document NPDES Pollutant List (List), lists all of the 138 pollutants which are to be analyzed for under NPDES regulations. Also included in the list are 26 additional pollutants. There is no requirement that these pollutants be analyzed, but they will be analyzed to maintain consistency with USGS standards.

Any laboratory retained by the District for stormwater analyses must be capable of analyzing for all 164 pollutants. The laboratory must use EPA approved methods for the analyses. The EPA analysis method is listed next to the pollutant name in the List.

III. Quality Assurance / Quality Control (QA/QC)

Quality Assurance is necessary to ensure reliability and defensibility of the results. Included in the QA/QC program is certification of testing procedures, Standard Operating Procedures, qualifications of staff, quality of analytical equipment, and procedures for handling samples.

Laboratory must perform analyses in accordance with accepted and most updated version of analytical standards. Samples must be tested in a reproducible manner. Standard Operating Procedures (SOPs) must be in place to ensure that analyses are performed properly each time samples are tested.

The laboratory QA/QC should include those elements in the EPA document, Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans. A copy of this document is attached.

IV. Laboratory Services

A. Sample Preservation

District crews or consultants will deliver to the laboratory a flow weighted composite sample. Laboratory staff will be expected to split the samples for analysis and preserve them according to accepted analytical techniques.

B. Turn-Around-Time

Laboratory must be able to complete analyses and return results within five weeks from time of receipt of samples. Results must be returned in two formats.
First, a hard copy of the results is required. Second, the results are to be returned on diskette in ASCII or comma delineated format so that data can be evaluated at the District.

C. Hours of Operation

Laboratory must be able to accept samples for submission during non standard hours. Laboratories must be able to accept samples from 6 p.m. to 8 a.m. In other words, the laboratory must be able to provide 24 hour service for Bac-Ts and BOD. Many storms during the summer occur quickly and unexpectedly. Because laboratories must make special arrangements to accept samples during non standard hours, the District will require laboratories to have personnel available to accept samples on two hours notice.

D. Capabilities

Laboratory must be able to handle large quantities of samples for analysis. Currently, 27 sampling stations are planned. If a large storm hits the metropolitan area, it is conceivable that all 27 stations will generate samples concurrently. The laboratory must be able to provide analytical services on all 27 sample sets within the required turn-around-time.

V. Supplies

A. Blanks

Laboratory shall provide the District with proper travel blanks and equipment blanks. Blanks are as follows:

1. Travel Blanks (Trip Blanks) - prepared by laboratory. Travel blanks go with the sampler and remain unopened. Detects contamination during transportation. One per sample event is recommended.

2. Field Blanks - Check for contamination in laboratory and contamination during sampling attributable to container, rinse water, or improper handling. One per day of sampling.

B. Bottles / Preservative

Laboratory will provide bottles for sample collection should they be required. For those analyses which require preservation, laboratory will provide bottles pre-filled with proper preservatives.

C. Instruction

District staff is to be kept up to date regarding any new analytical techniques employed by the laboratory. This includes preservatives, sample bottle material, and any other special handling requirements.

VI. Charge for Analytical Services

Laboratory will provide a written price list for the required analyses. The list will include the pollutant, or pollutant group (with individual pollutants listed) and a charge for the analysis and additional services.

Attachment I

NPDES Pollutant List

Volatiles

Pollutant	EPA Method
Acrolein	603, 624, 524.2
Acrylonitrile	603, 624, 524.2
Benzene	624, 524.2
Bromoform	624, 524.2
Carbon Tetrachloride	624, 524.2
Chlorobenzene	624, 524.2
Chlorodibromomethane	624, 524.2
Chloroethane	624, 524.2
2-Chloroethylvinyl ether	624, 524.2
Chloroform	624, 524.2
Dichlorobromomethane	624, 524.2
1,1-Dichloroethane	624, 524.2
1,2-Dichloroethane	624, 524.2
1,1-Dichloroethene	624, 524.2
1,2-Dichloropropane	624, 524.2
1,3-Dichloropropylene	624, 524.2
Ethylbenzene	624, 524.2
Methyl bromide	624, 524.2
Methyl chloride	624, 524.2
Methylene chloride	624, 524.2
1,1,2,2-Tetrachloroethane	624, 524.2
Tetrachloroethylene	624, 524.2
Toluene	624, 524.2
1,2-Trans-dichloroethylene	624, 524.2
1,1,1-Trichloroethane	624, 524.2
1,1,2-Trichloroethane	624, 524.2
Trichloroethylene	624, 524.2
Vinyl Chloride	624, 524.2

Acid Compounds

Pollutant	EPA Method
2-Chlorophenol	625
2,4-Dichlorophenol	625
2,4-Dimethylphenol	625
4,6-Dinitro-o-cresol	625
2-Nitrophenol	625
4-Nitrophenol	625
P-Chloro-m-cresol	625
2,4-Dinitrophenol	625
Pentachlorophenol	625
Phenol	625
2,4,6-Trichlorophenol	625

Base and Neutral Compounds

Pollutant	EPA Method
Acenapthylene	625
Acenapthene	625
Anthracene	625
Benzidine	625
Benzo a anthracene	625
Benzo a pyrene	625
3,4-Benzo(GHI)Perylene	625
Benzo(K)Fluoranthene	625
Bis (2-Chloroethoxy) Methane	625
Bis (2-Chloroehtyl) Ether	625
Bis (2-Chloroisopropyl) Ether	625
Bis (2-Ethylhexyl) Phthalate	625
4-Bromophenyl Phenyl Ether	625
Butylbenzyl Phthalate	625
2-Chloronaphthalene	625
1,2,4-Trichlorobenzene	625
4-Chlorophenyl phenyl ether	625
Chrysene	625
Dibenzo(A,H)Anthracene	625
1,2-Dichlorobenzene	625
1,3-Dichlorobenzene	625
1,4-Dichlorobenzene	625
3,3-Dichlorobenzidine	625
Diethyl Phthalate	625
Dimethyl Phthalate	625
Di-N-Butyl Phthalate	625
2,4-Dinitrotoluene	625
2,6-Dinitrotoluene	625
Di-N-Octyl Phthalate	625
1,2-Diphenylhydrazine (Azobenzene)	625
Fluroanthene	625
Fluorene	625
Hexachlorobenzene	625
Hexachlorobutadiene	625
Hexachloropentadiene	625
Hexachloroethane	625
Indeno(1,2,3-CD)pyrene	625
Isophorone	625
Naphthalene	625
Nitrobenzene	625
N-Nitrosodimethylamine	625
N-Nitrosodi-N-Propylamine	625
N-Nitrosodiphenylamine	625
Phenanthrene	625
Pyrene	625

Pesticides

Pollutant	EPA Method
Aldrin	608
Alpha-BHC	608
Beta-BHC	608
Gamma-BHC	608
Delta-BHC	608
Chlorodane	608
4,4-DDT	608
4,4-DDE	608
Endosulfan-Sulfate	608
4,4-DDD	608
Dieldrin	608
Alpha-Endosulfan	608
Beta-Endosulfan	608
Endrin	608
Endrin Aldehyde	608
Heptachlor	608
Heptachlor Epoxide	608
PCB-1242	608
PCB-1254	608
PCB-1221	608
PCB-1232	608
PCB-1248	608
PCB-1260	608
PCB-1016	608
Toxaphene	608

Toxic Metals, Cyanide, and total phenol

Antimony, total	204.2
Arsenic, total	206.3
Beryllium, total	210.2
Cadmium, total	213.2
Chromium, total	218.2
Copper, total	220.2
Cyanide, total	335.2
Lead, total	239.2
Mercury, total	245.1
Nickel, total	249.1
Phenols, total	420.1
Selenium, total	270.3
Silver, total	272.2
Thallium, total	279.2
Zinc, total	289.1

Conventional Pollutants listed in 40 CFR 122.26

Pollutant	Method
Biochemical Oxygen Demand	
Chemical Oxygen Demand	
Dissolved solids, total	
Fecal coliform	
Fecal streptococcus	
Nitrogen, total	351.2
Nitrogen, ammonia plus organic, total	350.3
Oil and Grease	413.1
Nitrate plus nitrite nitrogen	353.2
pH	150.1
Phosphorous, dissolved	
Phosphorous, total	365.4
Suspended solids, total	

Additional Constituents and Physical Properties

Alkalinity
Calcium, dissolved
Chloride, dissolved
Barium, dissolved
Lead, dissolved
Strontium, dissolved
Copper, dissolved
Zinc, dissolved
Chromium, dissolved
Magnesium, dissolved
Potassium, dissolved
Sodium, dissolved
Cobalt, dissolved
Manganese, dissolved
Vanadium, dissolved
Lithium, dissolved
Cadmium, dissolved
Silver, dissolved
Specific conductance
Sulfate, dissolved
Total Organic Carbon
Iron, dissolved
Molybdenum, dissolved
Beryllium, dissolved
Silica, dissolved
Nickel, dissolved

Others as needed

4.0
STORM WATER MANAGEMENT PROGRAM

4.1 INTRODUCTION

This section presents the Storm Water Management Program for the City of Phoenix (City) in accordance with the requirements for a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer. The Storm Water Management Program will be implemented by the City in compliance with the permit requirements.

Terms used throughout the Storm Water Management Program related to water quality and water pollution control may be unfamiliar to some readers. A glossary is included as Appendix 10.

4.1.1 Regulatory Framework

Following is a brief discussion of the federal NPDES regulations affecting the development and implementation of the storm water management program. In 1987, Congress enacted the Water Quality Act which amended portions of the Clean Water Act (CWA) and set requirements for permitting storm water runoff. Section 402(p) of the CWA required EPA to establish regulations setting forth NPDES permit applications for storm water discharges associated with industrial activities and municipal separate storm sewer (drain) systems. EPA published proposed regulations addressing storm water discharges in December 1989 for review and comment. The Final Rule for NPDES Permit Application Regulations for Storm Water Discharges was published on November 16, 1990, and became effective December 17, 1990. The Rule sets forth the required components of a municipal storm water management program and specifies who must apply for a permit, the nature of the applications, and a schedule for submittal. On September 9, 1992, EPA issued a NPDES General Permit for specific industrial activities and construction which disturbs 5 acres or more.

4.1.2 Project Background

The City of Phoenix Part 1 NPDES Permit Application was timely submitted to EPA Region IX on October 17, 1991. The City received a letter from EPA dated February 12, 1992, formally approving the City's Part 1 Storm Water Permit Application, with the understanding that certain additional information would be provided. The City provided the requested information to EPA as an addendum dated September 11, 1992.

4.1.3 Objectives of the Storm Water Management Program

The primary objective of the Storm Water Management Program is to evaluate and propose non-structural and structural controls to reduce the amount of pollutants entering the storm drain systems and receiving waters in the permitted area. Additional objectives of the storm water management program include:

- To reduce both the total loads of pollutants discharged and the concentrations of pollutants in certain areas.

- To focus on controlling those pollutants which may pose the greatest potential threat to designated beneficial uses in the Salt and Gila Rivers and their tributaries.

- To be focused on those pollutants for which a reasonable degree of load reduction will yield significant improvements.

- To attempt to achieve water quality benefits in the Salt and Gila Rivers and their tributary streams.

- To employ BMPs which have been shown to be cost-effective, reliable, and sustainable.

- To employ BMPs that have been shown to have minimal attendant environmental side effects, are generally acceptable to the public, and do not introduce significant risks to public health or safety.

- To include elements that satisfy (or are consistent with) the requirements and objectives of existing and foreseeable storm water quality control programs.

- To implement the program in a series of well-defined phases (according to an implementation schedule which can be incorporated into the forthcoming NPDES storm water permit).

4.1.4 Storm Water Management Program Development Process

The process of developing the City of Phoenix Storm Water Management Program involved evaluating a large number of specific Best Management Practices (BMPs), selecting those judged to be most appropriate to conditions in Phoenix and formulating a practical implementation plan. This process was performed using a nineteen step procedure, which is summarized in Table 4-1 and described in more detail in Appendix 11. The process employed professional judgement and a certain degree of subjectivity, but the prescribed evaluation and selection methodology was followed rigorously and the steps are documented so others can review the work, evaluate the results, and follow a similar strategy in the future. This development process resulted in a Storm Water Management Program which addresses the regulatory requirements. The considerations and actions taken by the City to satisfy these regulatory requirements are presented in Table 4-2.

4.1.5 Organization of Storm Water Management Program

This brief summary of content and organization is intended to facilitate review and understanding of the program.

Section 4.2 provides an overview of water quality impacts and presents priorities for action.

Section 4.3 describes the process for implementing the Storm Water Management Program. This includes activities for developing departmental implementation plans, public involvement, scheduling and funding sources.

Sections 4.4 through 4.7 of the Storm Water Management Program provide descriptions of specific management practices and control technologies proposed to be implemented by the City over the 5-year permit period to reduce contaminant loads in storm water runoff. These practices and controls have been organized into four program components. The objectives of these components are described briefly as follows:

- Section 4.4 Existing Residential and Commercial Areas
  This component includes environmental education activities, regulatory activities and other activities performed by municipal departments to reduce the amount of pollutants entering the municipal storm drain system;

- Section 4.5 New Development, Significant Redevelopment and Construction Site Controls
  This component is proposed to improve activities performed both during and after site construction and land development in order to control storm water pollution originating from these sources.

- Section 4.6 Illicit Discharge Identification and Elimination
  This component is proposed to identify and eliminate illicit discharges to the municipal storm drain system.

- Section 4.7 Municipal Landfills, Hazardous Waste Treatment, Disposal and Recovery Facilities and Industrial Facilities This component is proposed to monitor and control pollutants in storm water discharges to municipal systems originating from these facilities.

4.2 WATER QUALITY IMPACTS AND WATER QUALITY IMPROVEMENT PRIORITIES

4.2.1 Introduction

Storm water flows collected by storm drain systems in Phoenix discharge to various waters of the state (i.e. rivers, creeks, washes, channels, etc.). The major surface waters in the City include the Salt River, Arizona Canal, Arizona Canal Diversion Channel,

Indian Bend Wash, Grand Canal, Papago Diversion Channel, Old Cross Cut Canal, Cross Cut Canal, Skunk Creek, Scatter Wash, New River, and Cave Creek Wash. Some of the designated uses established in State Water Quality Standards for these water bodies include full body contact, aquatic and wildlife, agriculture irrigation and livestock, etc. The ultimate goal of this Storm Water Management Program is to protect the beneficial uses of the receiving waters.

It is important to recognize that the City of Phoenix, like most cities in the arid southwestern region of the United States, receives very little precipitation (approximately 7 inches per year). As a result, the receiving waters identified above generally have ephemeral flow resulting only from storm events. The one exception is the Salt River, which occasionally has flow resulting from upstream water storage dam releases. However, not all storm events result in flow in these waterways as the area is characterized by localized, short duration, high intensity storms, and the runoff from such storms frequently percolates or evaporates before reaching a receiving water. These unique site specific conditions make "receiving waters" a somewhat misleading term when discussing conditions in Phoenix. It is suggested that "receiving waterways" is a more accurate term. In light of these conditions, it must also be kept in mind that typical effects from pollutants in storm water, such as impacts on aquatic flora and fauna do not occur in Phoenix's waterways.

Water quality impacts in Phoenix, as in other large metropolitan areas, are largely attributable to the everyday activities of the people who live, work, and play in the City. The infrastructure that supports people's activities (e.g., roads, storm drainage system, wastewater collection and treatment facilities) also contributes to some of the water quality impacts documented or observed in the City.

Because Phoenix is so large and has many land uses, the potential water quality impacts vary greatly. Land uses range from industrial activities in some of the areas to mining, agriculture, and stockyards in the more rural areas of the City. Each of these land uses could potentially cause point and non-point source pollution in nearby streams, rivers, and lakes. Some types of storm water runoff, including agricultural storm water runoff, are exempt from the requirements of the NPDES storm water permit program. Urban runoff, illegal dumping and illicit connections are the primary potential sources of urban

storm water pollution which will be addressed through the City Of Phoenix Storm Water Management Program.

4.2.2 Overview of Urban Storm Water Pollution

Since 1972, numerous studies have shown that non-point sources have pollution impacts comparable to sewage treatment plants and industrial point discharges, and these non-point sources must also be controlled to meet applicable water quality objectives. The Nationwide Urban Runoff Program (NURP) conducted studies from 1978 to 1983 which found that on an annual loading basis, suspended solids in discharges from separate storm drains from residential, commercial and light industrial areas are an order of magnitude higher than solids in discharges from municipal secondary sewage treatment plants. NURP data showed that fecal coliform counts in urban runoff are typically high in warm weather conditions. Numerous priority pollutants, especially metals, were also identified in urban runoff during the studies. In addition, other studies have demonstrated that urban runoff is a large contributor of oil, as indicated through bioassays in receiving waters.

Many problems associated with urban storm water runoff are a consequence of urbanization. As the natural landscape is replaced with pavement or buildings, the amount of water-absorbing or pervious surface decreases. Water that previously soaked into the ground, removing pollutants by filtering through soil particles, and eventually percolating down to replenish underground water supplies, now flows overland and enters the streams more rapidly. The rapid transport of the water increases the erosion of stream banks and hillsides and does not permit filtering of pollutants. The sediment acts as a transport mechanism for pollutants which adhere to soil particles. Because of the decreased amount of water absorbed into the ground in urban areas, groundwater supplies may also diminish.

Urban storm water runoff can transport pollutants originating from disbursed and uncontrolled sources. This type of pollution is carried over or through soils by rainfall and surface water runoff, and may eventually enter a surface water body. Examples of urban pollutants are oil and grease washed from roadways by storm water runoff, or fertilizer from residential gardens washed into storm drains or groundwater when it rains

and which end up in the receiving water. Typical urban runoff pollutants found in surface waters include heavy metals, nutrients, petroleum products (oil and grease), sediment, bacteria, chemicals and litter.

Table 4-3 presents a general overview of urban runoff pollution. Table 4-3 lists pollutants of concern, the characteristic indications of the presence of pollution (indicators), a comparison of the possible effects in areas with perennial flow versus areas with ephemeral flow and probable causes of the pollution. The overview illustrates both the diverse nature of urban storm water runoff pollution, and the fact that many water quality problems are a direct result of people using unwise or illegal practices in their everyday behavior. Minor changes in the daily activities of residents and businesses, proper drainage management practices by public agencies, and enforcement of water quality regulations can help to decrease urban storm water runoff pollution and improve water quality.

The comparison of possible effects presented in Table 4-3 also helps illustrate the unique situation in Phoenix. First, as was discussed in Section 4.2.1, the receiving waterways in Phoenix generally have only ephemeral flow and as a result, do not support populations of fish or shellfish, nor present the setting for the same types of activities as areas with perennial flow. In fact, most of the possible effects thought to be a problem in less arid environments are not applicable to Phoenix.

Secondly, while the potential pollutants and probable causes for the release of those pollutants exist, not all pollutants listed are thought to be problem in Phoenix. The existing water quality data, summarized in Section 4.2.3, does not indicate a serious problem with any of the listed pollutants. Also, it must be kept in mind, that a certain amount of one "pollutant", sediment, must remain in Phoenix's storm water runoff. During runoff events in the normally dry waterways, sediment is removed and redeposited all along the waterway. Should all the sediment be removed from the runoff prior to its reaching the waterways, the existing equilibrium would be shifted and excessive erosion of the channel embankments and undermining of structures within the channels such as bridges, would occur.

4.2.3 Overview of Available Water Quality Data

Dry weather sampling was conducted by the City of Phoenix as part of the NPDES Part 1 requirements on all 126 major outfalls. Chemical analyses performed in the field included total chlorine, pH, total copper, total phenol, detergents, and ammonia along with water temperature. The outfalls were observed more than 72 hours after any precipitation exceeding 0.1 inch. Thirty-two outfalls were found to have water flowing from them. Water quality concerns such as possible sewage, visual observations of oil or other petroleum products and/or suspended matter in the discharge were noted at 22 of the outfalls inspected. Analytical laboratory samples were collected at 10 of the outfalls with flow. The samples were analyzed for ammonia, alkalinity, surfactants, pH, conductivity, hardness, total dissolved solids (TDS), calcium, chloride, copper, fluoride, iron, magnesium, zinc, manganese, nitrate, sulfate, and potassium. Most of the values measured were found to be within the federal drinking water standards and within the ranges observed in groundwater. However, a few samples indicated potential water quality problems including high concentrations of fluoride, TDS, chloride, carbonate, high pH and conductivity, and low bicarbonate and calcium concentrations.

Currently the City of Phoenix, as part of the NPDES Part 2 requirements, has a storm water quality and quantity monitoring program in the permit area. This monitoring program includes 7 automatic, water quality monitoring stations and 31 automatic precipitation gaging stations. Thirty of the rain gauges are operated by the FCD and another by the National Weather Service. The City will continue its monitoring program for the duration of the permit with FCD conducting the sampling activities in accordance with an intergovernmental agreement. The proposed monitoring program is presented in Section 3.5.

Wet weather water quality sampling was performed during selected storm events which met predetermined criteria including both minimum and maximum values for the duration and volume of a winter or summer storm. Both grab and flow-weighted automatic composite samples were collected and analyzed for constituents including oil and grease, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, total Kjeldahl nitrogen, fecal coliform, fecal streptococcus, biochemical oxygen demand,

chemical oxygen demand, hardness, pH, nitrates, metals, minerals and total dissolved solids. Based on EPA's recommendation the City analyzed for pesticides and herbicides at Station IB-11, located at 56th Street and Shea Boulevard; and Station SR-03, located at 35th Avenue and Lower Buckeye Road. These stations were selected because of the represented land uses included in their corresponding drainage areas, such as golf course/park areas and agricultural areas.

The laboratory analytical results from the wet weather sampling are presented in Tables 3-2 through 3-8.

4.2.4 Priorities for Action

When evaluating potential control measures, it is important to understand the water quality problems qualitatively if not quantitatively to establish priorities for action. The general concerns identified and described below assisted the City of Phoenix in prioritizing and selecting BMP control measures.

- Pollutants washed from urban, rural, and native desert surfaces: Potential pollutants include sediment, bacteria, heavy metals, pesticides, and nutrients.

- Illicit discharge into storm drains (e.g., oils, paints, and other chemicals): Human everyday activity can have an impact on water quality if people discharge significant materials to the storm drain.

- Improper disposal of green wastes: Illegal dumping of yard and landscaping wastes can have an impact on water quality. Decomposing green wastes can contribute to increased levels of coliform bacteria and reduce the availability of dissolved oxygen in the waters which come in contact with these wastes.

- High percentages of impermeable surfaces in urban areas: Urban storm water runoff volumes and pollutant loads can increase with the construction of buildings and expansion of paved areas. Impermeable (hard, non-porous) surfaces increase the volume and velocity of storm water contributing to streambank erosion.

Impermeable surfaces also decrease the amount of water supplied to the groundwater system.

- Erosion due to natural conditions or inadequate drainage: The slopes in mountainous watersheds of the City are potential sources of sediment due to erosion resulting from both natural characteristics of the soil and to storm drainage from human activities.

- Improper use and difficult enforcement of erosion control measures on construction sites: During construction, sediment and chemicals can be washed into the drainage systems if proper construction practices are not followed.

4.2.4.1 Prioritized Water Quality Indicators

The City of Phoenix conducted a Storm Water Management Program Workshop during the initial stages of the Program development. One subject discussed at this workshop was urban runoff pollutants which may be present in the City's storm water. This discussion focussed on examining possible sources of urban runoff pollution throughout the City, pollutants generated from these sources, and the designated beneficial uses associated with the water body receiving the runoff. Based on existing data and the extensive professional experience of the representatives of the City and their consultants, the City prioritized the following list of urban runoff pollutant indicators were based on a high, medium or low level of concern:

Pollutant	Level of Concern
• Heavy Metals	Medium
• Pesticides/Herbicides	Medium
• Oil and Grease	Medium
• Nitrates	Medium
• Debris/Detritus	Medium
• Volatile Organics	Low
• Oxygen Demanding Substances	Low
• Pathogens	Low

- Settleable Solids — Low
- Total suspended solids (TSS) — Low
- Total dissolved solids (TDS) — Low
- pH — Low
- Phosphates — Low

4.2.4.2 Prioritized Actions to Reduce Storm Water Pollutants

The City developed and prioritized the following series of action items needed to control pollutants entering storm water runoff in Phoenix. These items provided direction for selection of BMP control measures:

- Educate the public to encourage modification of habits that contaminate storm water runoff.
- Implement and enforce City ordinances that reduce potential storm water contamination.
- Maximize intergovernmental coordination and efficiency.
- Identify and address for sources/practices to reduce water quality degradation, where appropriate.
- Stay vigilant by monitoring storm water quality in the Phoenix area.

4.3 IMPLEMENTATION PROCESS OF THE CITY OF PHOENIX STORM WATER MANAGEMENT PROGRAM

The City of Phoenix Storm Water Management Program has been developed in a manner that builds on the organizational structure already in place. Where possible, the proposed BMPs utilize or augment existing programs and expertise. Where deemed necessary, new BMPs have been proposed.

The diversity of the proposed BMPs allows for involvement of eleven City departments and the Maricopa County Flood Control District (FCD). The successful implementation of the program will require the cooperative and individual efforts of these entities. The overall responsibility for program coordination has been assigned to the Engineering and Architectural Services Department with the other departments having specific roles and responsibilities.

4.3.1 Implementation Process

4.3.1.1 Storm Water Management Program Organizational Structure

The City's Storm Water Management Program will be implemented by existing city departments with participation from the FCD. The key departments in the management program structure are Engineering and Architectural Services, Street Transportation, and Development Services. Law, Planning, Parks, Recreation and Library, Water Services, Public Works, Aviation, Public Transit and Finance Departments will also contribute to the program. The organizational structure is presented in Figure 4-1.

4.3.1.2 Storm Water Management Program Administration

Overall program administration will be carried out by the Environmental Section of Engineering and Architectural Services Department (EAS). The Law Department and FCD will provide assistance to EAS in the administrative activities.

EAS, by assuming the lead role, assumes overall program responsibility and accountability. EAS will coordinate all internal and external activities, lead the development of interagency agreements and manage the program records. Following program implementation, EAS will be responsible for assessment of controls and compliance reporting to EPA.

The Law Department (Law) will continue to provide legal counsel on the City's behalf in regard to the new storm water ordinance. Should litigation, right-of-way issues or compliance issues arise as a result of the City's Storm Water Management Program, Law will be the lead department in such issues.

The FCD has indicated an interest in providing coordination and some funding for a regional storm water program. FCD currently functions as a regional mapping repository and can provide some laboratory analysis. Under FCD's proposed program, they would perform all storm water sampling for all cities in the greater Phoenix metropolitan area. FCD will, in accordance with an intergovernmental agreement, conduct the sampling activities for the City of Phoenix.

4.3.1.3 Storm Water Management Program Engineering and Planning

EAS will also lead the engineering and planning component of the management program. Street Transportation, Development Services and Planning will be the key supporting departments for these activities.

EAS will be responsible for permitting activities, plan review and program planning. Mapping and Geographic Information Systems (GIS) activities will be coordinated by EAS. New public education and informational programs will be implemented by EAS.

Street Transportation will be responsible for development of design criteria for structural controls, with input from EAS. Street Transportation is also the lead department for drainage planning, storm sewer and BMP's mapping, storm water data management and flooding issues.

Development Services will be responsible for design criteria for private development, code permitting and plan review. This department will also serve as the repository for storm water management plans submitted to the City by the regulated community.

The Planning Department is responsible for the land use planning and zoning.

4.3.1.4 Storm Water Management Program Compliance and Enforcement

Compliance and enforcement activities will be led by Street Transportation with several other departments responsible for assistance in implementation and maintenance of BMPs.

Street Transportation, as the lead department, will develop and implement a comprehensive program for the identification and elimination of illicit discharges (Section 4.6). Street Transportation will also be responsible for surveillance monitoring and compliance inspections.

Development Services will continue in the role of code enforcement and construction site inspections.

BMP installation and maintenance span a wide variety of programs and involve EAS, Street Transportation, Development Services, Water Services, Planning, Parks, Recreation and Library, Public Works, Aviation, Public Transit and Finance. The existing storm water BMPs and the new BMPs developed for the Storm Water Management Program are presented in Sections 4.4 through 4.7.

4.3.2 Department Implementation Plans

Each city department will be responsible for implementing BMPs and other controls to that department's activities. For each BMP selected for implementation, the department will present to EAS a list of specific tasks or actions demonstrating how the proposed BMP will be implemented and how it will address specific conditions within their jurisdiction. The implementation plans will include specific implementation details for each BMP, including how it will be implemented, who will develop and/or implement the BMP, when it will be implemented, how much staffing and equipment resources will be required and how it will be funded (i.e., is it a new program or can it be added to an existing program).

An example of the format for use in the individual department implementation programs is presented below:

Proposed BMP: Develop and implement a program to provide a means of recording the observations of field inspection and maintenance personnel to help locate sources of potential pollution.

Action A: Develop a field form to report sources of potential pollution by **DATE.**

Action B: Educate inspection and maintenance personnel on the use of the form by **DATE.**

Action C: Develop a computerized data base to enter and track field information by **DATE.**

Action D: Investigate sources on a monthly basis and take appropriate actions. Begin field inspections by **DATE.**

Implementation: Street Transportation

Estimated Cost: $255,000 annual recurring costs.

Funding Source: Add to existing program, General Fund.

Schedule: Complete program development **DATE.**

4.3.3 Public Involvement Process

For the Storm Water Management Program to be effective in reducing pollutants in storm water, it is essential to educate both the general public and the regulators on its purpose, use and requirements. This education process has two key components. The first component is the informing of EPA Region IX staff on the purpose, use and requirements of the City's management program.

The second component of this educational process is a public participation program designed to gain widespread public understanding and support for the Storm Water Management Program, without which the program will not succeed. The public participation program will integrate public values into the planning, decision-making, and problem-solving process. Under a public participation approach, interested and affected persons are afforded opportunities to influence the planning and decision-making process prior to the identification of a recommended solution. The great strength of this approach is its ability to develop solutions to public sector problems that are acceptable to the public and therefore implementable.

In addition to educating the public and the regulators on the use of the Storm Water Management Program, to be effective in reducing pollutants entering the storm drain system, it is critical to educate the public about the origins and causes of storm water pollution and its effects on receiving waters. The goal of this education will be to encourage the public's active participation in the effort to reduce storm water pollution.

Public education is a cost-effective means of source control, or keeping pollutants out of the storm drain in the first place. Therefore, the public involvement process will seek to educate all audiences in the City which use, purchase, and dispose of pollutants of concern about the proper management and disposal of these pollutants. In addition, it is important to the credibility of the storm water pollution control message that the public be provided with simple, feasible, and cost-effective disposal alternatives such as curbside recycling and household hazardous waste disposal sites or events. Audiences targeted by the public involvement program may include City residents, owners and managers of commercial establishments; recreational users of water resources; school children; and businesses which use and dispose of pollutants of concern, such as painting contractors, landscapers and gardeners, automotive service shop operators, concrete contractors, and construction site operators.

The public involvement component of the City's Storm Water Management Program will be administered through the Engineering and Architectural Services Department. To maintain cost effective implementation, EAS will coordinate with other ongoing, related City programs conducting public education activities, such as the recycling and household hazardous waste programs. Such coordination will ensure that the storm water pollution control message is incorporated in the materials developed by other programs and that it is consistent with other messages being disseminated by the City.

4.3.4 Storm Water Management Program Implementation Schedule

Since the City's Storm Water Management Program builds on the existing organization, many BMPs are already in place. These existing BMPs will continue for the duration of the permit. New BMPs will be implemented as presented in Figure 4-2.

4.3.5 Estimated Costs to Implement Storm Water Management Program

The City's Storm Water Management Program includes both existing and new programs. Funds for the existing programs have been included in the Fiscal Year 1992-1993 budget and total $50,290,000. It is expected that these costs will be annually recurring costs however, the exact amount of these costs may change as the program matures and evolves. The costs for these existing programs are subject to review and approval by the City Council during the annual budget process. The new programs to be funded in Fiscal Year 1993-1994 are estimated to cost up to $425,000. The costs for these proposed new programs are also subject to review and approval on an annual basis. The source of funds for the Storm Water Management Program will be general funds and general obligation bonds. Table 4-4 presents a summary of identified existing program costs for Fiscal Year 1992-1993 and estimated costs for new programs to be implemented during Fiscal Year 1993-1994. Table 4-5 presents a itemized breakdown for the Fiscal Year 1992-1993 existing program costs.

4.4 POLLUTION CONTROL PROGRAM FOR EXISTING RESIDENTIAL AND COMMERCIAL AREAS

A significant part of the Storm Water Management Program is the identification of existing practices within the City which reduce the discharge of pollutants to waters of the United States. The BMPs may not have been implemented for the sole purpose of reducing the discharge of pollutants; however, if a program or activity at least partially serves this purpose, it is termed a Storm Water BMP.

Currently, various City departments routinely conduct activities that reduce or prevent pollutants from entering the City's storm drain systems. The activities and programs are performed through Engineering and Architectural Services, Street Transportation, Public Works, Water Services, Parks, Recreation and Library, and other departments. These are the departments that are usually responsible for engineering, construction, operations and maintenance, and repair activities. The objectives of the Pollution Control Program for Existing Residential and Commercial Areas are to improve public education on storm water issues, to improve municipal government activities and/or adopt new

activities and procedures to reduce the amount of pollutants entering the storm drain system. Generally, the most cost-effective control strategy is to build on existing programs and activities when possible. A pollution control program for construction sites and new development sites is presented in Section 4.5 of the Storm Water Management Program.

This section describes the best management practices (BMPs) and programs that are being proposed for implementation by the City in existing residential and commercial areas. The process used to select the BMPs was described in Section 4.1.4. Descriptions of BMPs currently employed by the City are presented in this section, followed by descriptions of proposed improvements and/or additional BMPs. The identification of existing BMPs serves as a basis for evaluating the mechanisms the City uses to control pollutants in storm water runoff. The information was used for proposing modifications to existing BMPs and for the development of new BMPs to reduce pollutant loads. These BMPs should reduce pollutant loads to the maximum extent practicable. The identification of the existing BMPs within the City is based on responses from the various city departments to a comprehensive BMP inventory survey distributed in June 1992. Some of the proposed BMPs will be implemented collectively by the City, and other of the proposed BMPs will be individually implemented by each department. The BMPs are grouped together by function where possible for incorporation into the City's management program by the appropriate implementing department. These BMP functional groups include:

- Source Controls
- Hydraulic Controls
- Treatment Based Controls

The above groups of BMPs can be implemented both on an area-wide basis and/or on a site-specific basis.

4.4.1 Regulatory Requirements

The Storm Water Management Program must consider the BMP program requirements established in the NPDES Permit Application Regulations for Storm Water Discharges,

issued November 16, 1990. These BMP program requirements are listed in the Municipal Part 2 (iv) Proposed Management Program section. These regulations require a program to develop and implement BMPs to reduce pollutants in storm water for residential and commercial areas.

4.4.2 Pollution Controls for Commercial and Residential Areas

4.4.2.1 Potential Pollutants Generated by Urban Runoff

As described in Section 4.2 urbanization can lead to storm water runoff problems. As the natural landscape is covered with impervious surfaces, storm runoff increases and enters the drainage system more rapidly. As a result, erosion of stream banks and hillsides can be increased. Also, less percolation occurs so the amount of pollutants filtered from the runoff can be decreased.

The runoff can wash urban pollutants deposited on ground surfaces into the drainage system and from there to surface water bodies. Typical urban pollutants washed by runoff into drainage systems include heavy metals, nutrients, petroleum products, sediment, bacteria, chemicals, and litter and debris.

4.4.2.2 Existing Residential and Commercial BMP Programs

To facilitate identifying and assessing the BMPs currently utilized by the City and to assist in evaluating additional proposed BMPs, types of BMPs are categorized as "source controls" and "hydraulic controls". "Source controls" function by preventing pollutants from entering the storm water (e.g., an effective community disposal program for waste oil, antifreeze, and pesticides would prevent these pollutants from being improperly disposed of via the storm drain system). "Hydraulic controls" function by altering the storm runoff hydrograph, which can result in reductions of both pollutant concentrations and loading rates (e.g., site drainage facilities that temporarily retain part of a storm's runoff and/or facilitate infiltration can alter storm runoff hydrographs and are considered to be hydraulic control measures).

The BMPs currently utilized by each department are described in Table 4-6. Education programs and regulations and policies, including development, strengthening and enforcement, play key roles in this BMP program. Some of the BMPs administered by the City are dual/multi-departmental in nature and are implemented by more than one City department. The City departments implementing them are indicated in parentheses after each BMP.

4.4.2.3 Proposed Modifications to Existing BMPs for Controlling Urban Storm Water Pollutants

As described above, there are a variety of existing BMPs being implemented throughout the City of Phoenix which benefit water quality. Proposed new BMP programs, in addition to the above BMPs already being implemented by some of the City departments, are described in Table 4-7. Proposed new BMPs were selected by the City for inclusion in the Storm Water Management Program.

4.5 BMPs FOR CONSTRUCTION SITE, NEW DEVELOPMENT, AND SIGNIFICANT REDEVELOPMENT

Contamination of urban runoff can originate from construction sites and from developed and redeveloped areas. The City's Storm Water Management Program includes existing and new programs to control the amount of these pollutants.

4.5.1 Regulatory Requirements

The Storm Water Management Program must include descriptions of requirements for non-structural and structural BMPs at construction sites and of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from areas of development and significant redevelopment. The plan must address reduction of pollutants after construction is complete.

4.5.2 Pollution Controls for Construction Sites

4.5.2.1 Potential Pollutants Generated at Construction Sites

The primary pollutant of concern generated during construction is sediment. Uncontrolled sediment easily erodes from exposed land surfaces (such as newly graded areas) during rainfall events, is tracked off-site by heavy equipment or is blown off-site during dry periods. Sediment can enter the storm drain system, and unless properly maintained, the storm drains can become clogged.

Construction sites are also recognized as potentially significant sources of other pollutants in runoff. Sand, gravel and admixtures used to make concrete are often stockpiled on construction sites with no control to prevent rainfall and waters generated on site from contacting the materials. Concrete wash water is often dumped into the street or storm drain. Building materials themselves (such as paint, plaster, solvents and tile) can be pollutant sources if improperly managed. Employee vehicles and construction vehicles themselves, unless carefully maintained, may leak fuels, oil and antifreeze; improper vehicle maintenance activities such as changing oil and lubricants on site may generate additional pollutants. Finally, uncontrolled trash and debris, as well as unmanaged employee sanitation facilities, can contribute pollutants to storm water. The Federal Clean Water Act and the EPA's non-point source pollution regulations recognize the pollutant-generating characteristics of construction sites, and therefore require that BMPs be adopted for use during the construction process.

4.5.2.2 Construction Site BMPs Currently Employed

The City of Phoenix currently requires a variety of management practices at construction sites that reduce the potential for pollutants to enter the storm drain system. The existing BMPs may not have been implemented by the City for the sole purpose of controlling pollutants in storm runoff; however, if a practice at least partially serves this purpose, then it is identified as a Storm Water BMP. Existing BMPs addressing construction sites include: 2, 5, 6, 12, 13, 25, 26, 27, 29 and 29 (see Table 4-6).

4.5.2.3 Proposed BMPs for Controlling Pollutants at Construction Sites

To meet the NPDES requirement for developing and requiring BMPs at construction sites within the City of Phoenix, new BMPs 36, 37, and 39, are proposed by the City in order to provide additional pollutant control at construction sites (see Table 4-7).

4.5.3 Pollution Controls for New Development and Significant Redevelopment

4.5.3.1 Potential Pollutants Generated by New Development and Redevelopment

After land is developed, paved surfaces replace natural surfaces and drainageways, thereby potentially reducing infiltration of storm water and creating increased runoff volumes and possible flooding. In the past, land development practices focused on preventing flood damage by controlling peak discharges with detention basins, but total volumes associated with smaller storm events remained uncontrolled. As this uncontrolled runoff accumulates in volume, its velocity increases, and more pollutants are picked up. When the pollutant-laden runoff reaches receiving waters, its increased volume and velocity can erode stream channels and cause sedimentation downstream. Unlike flood control, however, water quality problems associated with this uncontrolled urban runoff have not been emphasized in past land development practices. Table 4-3 presents a summary of typical pollutants found in developed areas.

4.5.3.2 New Development and Redevelopment BMPs Currently Employed

The City does not currently require specific controls on new residential, commercial and industrial developments to reduce storm water pollutants. They do require measures that reduce peak discharges from large storm events to prevent flood damage, which can also tend to reduce storm water pollutants.

4.5.3.3 Proposed BMPs for Controlling Pollutants in New Developments and Redevelopments

The City, through its new storm water ordinance, requires the submission of a Storm Water Management Plan for new residential, commercial and industrial developments. These plans must be developed to comply with the NPDES storm water regulations. The water quality of urban runoff can be controlled by a series of BMPs. The first level of BMP control is education for construction workers, land development professionals and the public on storm water runoff pollution prevention. The second level of BMPs is operations and maintenance practices, including measures such as the covering of on-site building materials to prevent exposure to rainfall, and selected application of catch basin labeling. Education and operations/maintenance together constitute non-structural control.

The third level of BMPs is comprised of structural controls. Early in the site planning and engineering design process and even in the master planning process, many structural features can be incorporated or required for proposed developments that will help minimize pollutant loadings in urban runoff. These structural control measures can be categorized as follows:

- **Features that reduce total volumes of runoff**
  The goal is to reduce total volumes of runoff from small storm events, not just peak discharges from major storm events. By reducing volumes, the amount of pollutants that can reach downstream surface waters is effectively reduced. Reduction in storm water runoff volume is achieved by the infiltration of storm water. Storm water infiltration features include vegetative swales, retention basins, filter strips and infiltration trenches, among others. Vegetative swales can however, be used only in a manner which is consistent with the City's Water Conservation Program.

- **Features that divert runoff from pollutant areas**
  Diverting flows from around more pollutant-prone areas, such as equipment yards and gas stations, can reduce the pollutants entering storm water. Diversion of

storm water away from pollutant-prone areas can be adopted as a relatively simple standard practice in designing storm drainage plans for development projects.

- **Features that "treat" storm water**
  This approach makes use of known wastewater treatment methods, such as vegetation filtration, separation and settling, for storm water pollution control. Site designs can incorporate detention basins and/or constructed wetlands for volume reduction and pollutant settling for example, or include the installation of oil/water separators.

Incorporating these structural control features in the original development design can prove to be more cost-effective than having to retrofit existing facilities later. Although structural controls are typically more expensive to implement than public education and operation/maintenances practices, they have received current attention in storm water management. The purpose of all the BMPs is to reduce pollutant loads to the maximum extent practicable.

4.6 ILLICIT DISCHARGE IDENTIFICATION AND ELIMINATION PROGRAM

Illicit discharges are non-storm water discharges which enter the storm drain system through illicit connections and illegal dumping. An illicit connection is a direct physical connection to a storm drain which allows non-permissible discharges into the storm drain system. Examples include: sanitary sewer connections, industrial process waters, and floor drains. Illegal dumping is the intermittent discharge of pollutants into the storm drain system through either legal connections such as catchbasins and drains or by direct dumping into creeks, streams and channels. This could include the disposal of used motor oil, paint, and wash water. In addition, illegal dumping could include the illegal disposal of pollutant material in the drainage channels, creeks, and streams throughout the watershed, such that storm water eventually mobilizes it and carries it to other portions of the storm drain system and to the receiving waterways.

4.6.1 Regulatory Requirements

The storm water regulations promulgated by the EPA recognize the importance of illicit discharges as a source of pollution to storm drains by requiring a "screening level" investigation of outfalls, description of the existing program to identify illicit connections, and a description of an illicit discharge elimination program, designed to inspect, implement and enforce ordinances meant to prevent illicit discharges to the system. These regulations are developed as a two part program. The requirements under Part 1 are to include a description of the existing program which identifies illicit connections to the municipal storm sewer system. The requirements under Part 2 are listed as seven components, which are as follows:

1) A program to enforce ordinances to prevent illicit discharges

2) On-going field screening activities

3) Investigations of those portions of the storm drain system that have a reasonable potential of containing illicit discharges

4) Procedures to prevent, contain, and respond to spills that may discharge into the storm drains

5) A program to promote public reporting of illicit discharges

6) Public education programs to facilitate the proper management and disposal of used oil and toxic materials

7) A program to limit infiltration from sanitary sewers to storm drains

The objective of this Illicit Discharge Identification and Elimination Program is to identify and eliminate illicit discharges to the municipal storm drain system and comply with the Federal regulations. Provided below is a general program addressing existing programs, source identification, thorough documentation of illicit discharges,

development of ordinances, acquisition of adequate legal authority, as well as an estimated schedule.

4.6.2 Existing Programs

Presently, the City of Phoenix, like most cities and counties, does not have a formal program specifically designed to identify and eliminate illicit discharges and connections. The City does prohibit private development connections to the storm sewer system without the appropriate permits and approvals. These required permits and approvals are part of a formal permitting process administered by the Development Services Department that would detect any proposed connection to the storm sewers during a review of plans submitted for building permits. A part of the requirements for approval are design specifications and restrictions on types of discharge. In addition to the design approvals, the Development Services Department's staff monitors all private construction and public construction outside of right-of-ways within the City for city-required permitting and adherence to City-approved designs. The Street Transportation Department monitors all City street capital improvements program construction. Illicit discharges are typically (but infrequently) identified when a local agency (e.g., Hazardous Spill Response Team, Public Works Department, Police Department, Water Services Department, Street Transportation Department) is called or notified by another agency or a private citizen because an unusual condition was observed in a dry wash, street or outfall (e.g., unusual color or smell). Except in the case of a suspected hazardous spill, no agency has a clear responsibility to respond. The City, the County, the Department of Fish and Game, Arizona Department of Environmental Quality, or another public agency may respond, depending on where the event occurs and who was notified first.

Currently, complaints placed to the City of Phoenix are handled by the Fire and Emergency Communication system for hazardous spills and by the Water Services Department for other complaints relating to the City's water and sewer systems. The Water Services Department then directs the complaint to the local Street Maintenance Yard in the area of the complaint. A crew from the Street Maintenance Yard visits the site and reports on the situation. Any discharges which are not the direct result of broken lines or mechanical in nature, are directed to the City Manager's Environmental Office and the County Health Services Department. In the case of storm drain

discharges, under the current ordinances the City Street Transportation Department has jurisdiction over any illicit discharges. However, after the complaint has been verified as a water quality problem, it is usually referred to the County Health Services Department. The County Health Services Department indicates that they currently have no jurisdiction within the Phoenix City limits, and therefore would direct the complaint to Arizona Department of Environmental Quality (ADEQ).

4.6.3 Plan for Improvement

The City has, as part of its NPDES Part 1 permit application, performed a city-wide dry weather field screening program of all major outfalls. Of the 126 major outfalls visited, 32 had dry weather flow. Of these 32 outfalls with dry weather flow, 22 had potential water quality concerns. Additionally, two which did not have flow at the time of the field screening had evidence of previous discharges. The Illicit Discharge Identification and Elimination Program will use the database and its identified outfalls having dry weather flow and will prioritize these for the investigation and elimination of illicit connections. Three methods are commonly used for this type of investigative work:

1. Remote video cameras,

2. Smoke tracers used in the storm drain system, and

3. Colored dye placed in the storm drain system.

Once the connections associated with the identified flows are determined, a site by site schedule will be established to eliminate the discharges and their illicit connections. Each site will have its unique circumstance and priority of concern and will need to be given a reasonable time to resolve the problem. Follow-up investigative visits will be done until an inspection shows the problem has been resolved.

An annual program of field sampling of major outfalls will be established to monitor those areas previously identified as having illicit connections and dry weather flow, and to identify new problem areas or those not identified in the initial screening.

A successful program requires that responsibilities be clearly delineated between agencies and that an organized and systematic procedure for identifying and eliminating illicit discharges be implemented. This program component has the goal of meeting these requirements. The approach for this program component has three elements: a field element to identify sources of illicit discharges; a regulatory element to provide adequate enforcement of local ordinances to control discharges; and an education element to inform potential dischargers of the new regulations and the effects of dumping.

4.6.3.1 Field Element

The field element has a two-pronged approach: an opportunistic field screening of the storm drain system and industrial site inspections (on an as-needed basis when tracking sources of illicit discharges). The field screening activities will include conducting investigations of storm drains to identify existing cases of illicit discharges and to track down illicit discharges to their sources. These discharges will be documented and enforcement actions will be taken, as necessary, to eliminate them. As necessary, opportunistic inspections of industrial, commercial, and retail areas will be made to look for visible evidence of potential illicit discharges, in response to observations made during the screening activities. The industrial site inspections are intended to prevent new sources of illicit discharges to the storm drain system and to facilitate the proper implementation of required best management practices (BMPs) designed to minimize runoff entering into the storm drains. In order to identify and eliminate the highest priority illicit discharges citywide, the City will conduct the screening and inspections within its own jurisdiction.

4.6.3.2 Regulatory Element

It would be desirable if the inspecting entity also initiated enforcement action, with assistance from the Law Department when necessary. However, the City may have to conduct enforcement, as results of the field screening and inspection activities are reported. The goal of the regulatory element is to set up a mechanism that provides for consistent and effective enforcement, and to insure that the necessary local regulatory

procedures, institutional arrangements, and staffing are provided to assure that illicit discharges are eliminated.

The City's new ordinance developed to address storm water issues specifically, is presented in Section 1.0.

4.6.3.3 Educational Element

The educational element of this program component will focus on identification of commercial and industrial target audiences, development of educational materials to encourage proper management of hazardous and other materials which may contribute pollutants to the storm drain system, and distribution of materials through media such as workshops, guidance manuals, and brochures. To promote public reporting of illicit discharges, the City will set up and advertise a telephone number within the Streets Transportation Department and arrange for enforcement measures to follow up on calls. All educational tasks will be coordinated by the Engineering and Architectural Services Department.

4.6.3.4 Major Program Components

The City of Phoenix Illicit Discharge and Identification and Elimination Program will be administered and conducted through the Street Transportation Department. The Street Transportation Department will be assisted by the Water Services Pretreatment Group which currently performs routine inspections of categorical industrial facilities. Should any storm water deficiencies be identified incidental to these inspections, the Street Transportation Department will be notified.

1. The Street Transportation Department will prioritize outfalls and/or storm drain segments, based on their probability of contributing pollutants to the storm drain system and receiving waters. Data used for this prioritization will include previous reports of problems, existing databases, and the Notices of Intent currently being submitted as required by the NPDES general permits. This prioritized list will be used by the Street Transportation Department and inspectors to conduct the field screening and inspection activities. These will

be reviewed and updated each year using the data collected in the previous year.

2. The Street Transportation Department will develop and implement a training program for field inspectors, including training in use of field test kits, sample collection for laboratory analysis, and reporting techniques.

3. The inspectors will attempt to determine the source of observed dry weather flows in the City. They may rely mainly on visual observation and use of simple calorimetric field test kits where appropriate. This task will require two-person teams to trace an observed discharge through the storm drain system. Using a map of the storm drain system, the inspectors will move up into the system opening manholes until either they cannot trace the flow anymore or the source has been discovered.

4. The inspectors will perform industrial inspections at industries identified as possible sources of illicit discharges. The inspections will involve a visual inspection of the industrial site, especially around the areas with potential for spills and near known openings to the storm drain system. If appropriate, the inspectors will examine piping diagrams looking for entrances to the storm drain that are not obvious from visual inspections. If necessary, dye tests will be used to confirm if certain drains or sumps discharge to the storm drain.

For the following database and record-keeping tasks, the industrial database developed as part of the Facilities Description task work (Refer to Section 3 of the Part 1 NPDES Permit Application and Section 2 of the Part 2 NPDES Permit Application) will be maintained and used.

5. The Street Transportation Department will develop reporting formats and necessary inspection forms to ensure proper record keeping in the field, facilitate prompt transfer to the established database, and ensure a consistent, City-wide field program. The field inspectors will be trained to use these materials during the training program, as described earlier.

6. The Street Transportation Department will compile information on reported illicit discharges, including spills and incidents of dumping, and submit the information to inspectors for follow-up action and for incorporation into the databases, if the incident involves an industrial, commercial or retail facility.

The following regulatory tasks will be performed primarily by the City after a model enforcement program is developed.

7. The Street Transportation Department will develop a model enforcement procedure to be followed when violators are identified. This procedure may allow for 2 to 3 notifications, followed by interim site inspections to confirm compliance, providing guidance as necessary, and finally, intervention by the City Attorney's office when enforcement actions are not successful. The procedures may be tailored to categories of industries or extent of violation.

8. The Street Transportation Department will adopt, in whole, or in part, with modifications as necessary, the model enforcement procedure. This should include allocating the necessary staff and resources to conduct the work.

9. The Street Transportation Department will implement enforcement procedures as results of field screening activities and inspections are received.

The following three education tasks (10 through 12) will be implemented by the City's Engineering and Architectural Services and Street Transportation Departments.

10. The Street Transportation Department will identify industrial, commercial, and retail target groups and prepare a priority plan for distributing information to these groups. The residential audiences will be targeted as part of the Engineering and Architectural Services Department.

11. Using the priority plan, the Street Transportation Department and Committee should develop educational materials for the target groups. Materials will include brochures, posters, workshops, seminars, etc.

12. The Street Transportation Department and Engineering and Architectural Services Department will distribute materials and disseminate information to target groups according to the priority plan.

13. Annually, the Street Transportation Department will prepare a progress report for incorporation into the overall Program's annual report.

4.6.4 Illicit Discharge Identification and Elimination Program

Figure 4-3 presents a bar chart showing the implementation schedule for the Illicit Discharge Identification and Elimination Program.

4.7 MONITORING PROGRAM FOR MUNICIPAL LANDFILLS, HAZARDOUS WASTE TREATMENT, DISPOSAL AND RECOVERY FACILITIES, AND SELECT INDUSTRIAL FACILITIES

The objective of the Monitoring Program for municipal landfills, hazardous waste treatment, disposal and recovery facilities, and select industrial facilities is to identify industrial dischargers in the City of Phoenix and ensure that the industries are taking steps to reduce the discharge of pollutants to the municipal storm drain system to the maximum extent practicable.

This Storm Water Management Program component is intended to provide coordination of the two independent NPDES storm water permitting requirements for municipalities and industries. This coordination will allow the City to have control over the quality of waters in their storm drains, as well as provide the industries with guidance and direction from the City that is consistent with the guidance and direction given by EPA.

4.7.1 Regulatory Requirements

The storm water federal regulations require the City to describe a program to monitor and control pollutants in storm water discharges to municipal systems from:

- operating or closed municipal landfills;

- hazardous waste treatment, disposal or recovery facilities;

- industrial facilities that are subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA); and

- industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system.

4.7.2 Existing Programs

Many of the City of Phoenix's existing industrial facilities including the landfills, airports, and wastewater treatment facilities, are required to obtain NPDES permits for storm water discharges associated with industrial activities. Industries may apply for permit coverage through an Individual, Group or General permit. The Individual and Group Permit applications require the industrial facilities to conduct storm water sampling during one representative storm event. The General Permit required the facilities to submit a Notice of Intent (NOI) by October 1, 1992, and it also requires the industrial facility to develop and implement a Storm Water Pollution Prevention Plan.

The NPDES industrial storm water permit also requires that all facilities covered by the permit, who discharge to the City's storm drain system must comply with the applicable requirements in the City of Phoenix Storm Water Management Program provided the discharger has been notified of such conditions.

The industrial database developed as part of the Part 1 Permit Application, and as updated for the Part 2 Permit Application submittal identifies 1047 industrial facilities in the study area which are required to comply with the federal NPDES Industrial Storm Water Permit requirements, and identifies one industrial facility with an existing NPDES permit to discharge to the municipal storm drain system. However, the facilities that are subject to Title III Section 313 requirements were not specifically identified. The database will be periodically updated to include those industries which will notify the City that they discharge to the municipal storm drain system, and that they intend to comply with the Federal NPDES Industrial Storm Water Permit.

The City's Public Works Department submitted NOIs for five landfills within the study area including the Skunk Creek Landfill, the 27th Avenue Landfill, the 16th Street Del Rio Landfill, the 19th Avenue Landfill and the 27th Avenue Solid Waste Facility (Transfer Station).

The City Aviation Department's Sky Harbor Airport submitted a Group Permit Application through an airport consortium which consisted of 464 airports throughout the country. The EPA has accepted their Part 1 Application, and the Part 2 was submitted on October 1, 1992. All of the airport's tenants are covered under this permit, with the exception of one applying for general permit coverage.

The City's Water Services Department submitted a Group Storm Water Permit Application to EPA on October 1, 1992. This group was through the Association of Metropolitan Sewerage Agencies, and included the City's 91st Avenue and 23rd Avenue Wastewater Treatment Plants. Storm water sampling from one representative storm event was performed at the 91st Avenue Wastewater Treatment Plant.

4.7.3 Major Program Components

The industrial monitoring program will be conducted by the City's Street Transportation Department in conjunction with their Illicit Discharge and Illegal Dumping Program described in Section 4.6. The industrial discharge monitoring program includes the prioritization and maintenance of the industrial database. Following this, any necessary industrial site inspections will be conducted by the Street Transportation Department and the City will be responsible for enforcement. As mentioned in Section 4.6, the Street Transportation Department will inspect facilities which have been demonstrated to be a potential threat to the City's storm drain system.

1. The City will consult the industrial database to determine which industrial facilities are subject to Section 313 of Title III of SARA (1986), and which facilities the City determines are contributing a substantial pollutant loading to the storm drain system. (the latter type of facility may be one which is known to have released pollutants in storm water in the past which has impaired beneficial uses

of surface waters or violated a known water quality standard). The industrial database will be modified to specifically identify these facilities.

2. After determining which industrial facilities contribute a substantial pollutant load, the City will ensure that the facilities comply with the requirements of the federal NPDES Industrial Storm Water Permit, and may assign additional control, monitoring and inspection measures as appropriate. It is recommended that the City consult the EPA's manual "Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices" for reference on industrial control practices.

3. The City will evaluate the inspection procedures for the Federal NPDES Industrial Storm Water Permit. Where the City determines additional inspections are required for SARA Title III facilities or those facilities contributing a substantial pollutant load, the City will develop additional inspection procedures. Additional inspection procedures may include:

    - Make two inspections per year by the City or County Health Department: one in the fall prior to the winter rain season and one in the spring prior to the summer monsoon storms.

    - Establish additional record keeping procedures.

    - Establish additional measures to ensure corrective actions are taken when needed including education of the facility operator, and if necessary, penalties or fines.

4. The City will compile the analytical data from the discharge monitoring reports (DMRs) and landfill monitoring data (requiring some coordination with ADEQ). This data will be included in the water quality database developed for the City's Part 1 and Part 2 application. Based on the analytical data compiled, the City may establish additional inspection, control and monitoring requirements.

TABLE 4-1
STORM WATER MANAGEMENT PROGRAM DEVELOPMENT PROCESS

1. Engage the right people.

2. Educate/inform the decision makers.

3. Define the water quality problems in practical (human/societal) terms, quantitatively and/or qualitatively.

4. Establish priorities (which problems do we address now? what level of improvement do we want to achieve?).

5. Establish objective(s) that reflect the priorities.

6. Translate the objectives into factors/actions/constraints to be considered.

7. Translate into criteria. (ie., establish top of matrix)

8. Define "practicable".

9. Nominate candidate best management practices (BMPs).

10. Sequentially screen candidates. (ie., establish vertical axis of matrix)
    a.) What specific activities
    b.) Where applied (focus)
    c.) Level of application

11. Evaluate (score) by filling in matrix.

12. Document the process and results.

13. Group the selected BMPs into collections that will facilitate explanation/implementation.

14. Establish timing for the various implementation phases for each BMP element and/or each group of BMPs.

15. Decide who will do each activity (what department).

16. Describe how the above will be implemented.

17. Estimate costs per year. Allocate budget amounts to the selected BMP2 elements.

18. Review existing programs and adjust the assigned dollars to reflect the difference between "new" budget increments and "old" budget items.

19. Decide who pays from what funding sources.

TABLE 4-2
STORM WATER MANAGEMENT PLAN
SATISFACTION OF REGULATORY REQUIREMENTS

REQUIREMENTS	CONSIDERATION/ACTION
Describe maintenance activities and a maintenance schedule for structural controls	The City of Phoenix has an existing program for maintenance of structural controls, which was summarized in the Part 1 application, for ease of reference, that summary is reiterated below: "Catch basins are present in most of the older portions of the City, whereas, some newer developed areas have drop inlets. The Street Transportation Department maintains and cleans inlets, catch basins, dry wells, and sewer lines. Some catch basins are cleaned three times per year, however, most are cleaned less frequently. Most cleaning is conducted on an as-needed basis or in response to complaints. This maintenance helps remove debris and sediment, and keeps it from being transported downstream. It also helps the structures to continue to perform properly. The City Storm Drain Design Manual requires that in the design of catchbasins, the theoretical capacity be reduced by a factor of one-half to allow for silting and/or grate obstruction. The Street Transportation Department also establishes grades at street crossings and criteria for the installation and connection of storm drains. Illicit connections to the storm drain system are prohibited by law. Numerous dry detention basins have been constructed for flood control purposes, which also have pollutant removal benefits. These basins require occasional removal of deposited sediment, debris removal, and lawn maintenance on an as-needed basis. This maintenance is conducted by the Street Transportation Department and the Parks, Recreation and Library Department, and removes contaminants from being transported further in the system as well as maintains the facilities in proper functioning order, which optimizes contaminant removal. Another control on inflow to detention facilities is the requirement by the Grading and Drainage Ordinance that private property owners obtain permission from the City for the drainage of storm water from private property to the detention facility."

TABLE 4-2 (cont.)
STORM WATER MANAGEMENT PLAN
SATISFACTION OF REGULATORY REQUIREMENTS

REQUIREMENTS	CONSIDERATION/ACTION
Describe planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from areas of new development and significant redevelopment. The plan shall address controls to reduce pollutants after construction is complete.	The City has a comprehensive master plan, presented in the *General Plan for Phoenix 1985-2000.* This Plan serves as a general guide for the City Council, Planning Commission, City staff, and the public regarding development and redevelopment in the City. The General Plan is a policy plan and provides general guidance for more detailed decisions. The existing Street Classification map and the Minimum Right-of-Way Standards Map are incorporated by reference into the General Plan. Other plans and documents that refine the General Plan are; all Redevelopment Area Plans, the Capital Improvement Program, the Six Year Major Streets Plan, the Long Range Traffic Safety Plan, the Sky Harbor Airport Master Plan, the Historic Preservation Plan, the Phoenix Water Resources Plan, the Cave Creek Wash Plan, the Parks and Libraries Plan and the Master Plan for the Phoenix Mountain Preserve. Standards that relate to particular policies set forth in the General Plan can be found in; the Zoning Ordinance, the Subdivision Ordinance, the Phoenix Sky Harbor Municipal Airport Zoning Ordinance, the Construction Code, the Fire Code, the Grading and Drainage Ordinance and the Floodplain Ordinance. The above mentioned programs, plans and ordinances contain the majority of the goals and requirements for development and redevelopment within the City. Coordination of many of the activities and efforts to maintain consistency between the various plans is a responsibility of the Planning Department. Regulation and facilitation of new development and redevelopment is a responsibility of the Development Services Department. While these planning programs were not developed specifically to address storm water issues, they provide a structure through which such issues can be addressed. These plans in conjunction with the legal authority presented in the City's Part 2 NPDES permit application, constitute a comprehensive master plan to develop, implement, and enforce controls to reduce the discharge of pollutants from areas of development and redevelopment. The City's new storm water ordinance requires storm water management plans for all development and redevelopment activities.

TABLE 4-2 (cont.)
STORM WATER MANAGEMENT PLAN
SATISFACTION OF REGULATORY REQUIREMENTS

REQUIREMENTS	CONSIDERATION/ACTION
Describe practices for operating and maintaining public streets, roads and highways; and procedures for reducing the impact on receiving waters of discharge from municipal sotrm sewer systems, including pollutants discharged as a result of deicing activities.	The City of Phoenix manages the maintenance of street surfaces (including crack sealing, pothole repair, and more extensive pavement restoration) with the aid of a computerized pavement management system. This state-of-the-art system, developed by Pavement Management Systems, Inc. of Canada, utilizes a computerized van to analyze ride quality, and along with surface distress information (cracking, rutting, ravelling, bleeding, etc.), input by the operator, develops a series of pavement quality indices. This data, coupled with dynaflect pavement analyses of pavement structural adequacy, is used to prioritize maintenance needs on a citywide basis. With use of a budgeting module in the computer program, the cost of needed repairs can be forecast. A prioritized maintenance program is then developed to address maintenance needs within given budget parameters. This maintenance program, the street sweeping program for commercial/industrial and residential streets and municipal parking lots and continued street drainage system cleaning and maintenance efforts reduce the discharge of pollutants from public streets, roads and highways. Due to the mild climate, no deicing activities are conducted in Phoenix. BMPs addressing these requirements include: 18, 19, 20 and 21.
Describe procedures to assure that flood management projects assess the impacts on the water quality of receiving waters, and that existing structural flood control devices have been evaluated to determine if it is feasible to retrofit the device to improve its pollutant removal efficiency.	The Flood Control District of Maricopa County (FCD) is the agency with principal responsibility for flood management projects in all of Maricopa County, including within the City of Phoenix. The City and FCD jointly fund the construction of some structural flood control devices. However, FCD operates and maintains the structural devices. The City currently has no program specific to these requirements.
Describe a program to monitor runoff from municipal landfills and treatment, storage or disposal facilities for municipal waste, which shall identify priorities for inspections and implementing control measures.	The City's municipal landfills have submitted Notices of Intent (NOI) and will meet the requirements of the general permit. The facility locations, submitted on the NOI's will be used by the illicit discharge identification and elimination field team to identify portions of the storm drain system which may be impacted by municipal waste handling facilities. Any illicit discharges identified during routine storm drain system inspections will be traced to the source and control measures will be implemented.

TABLE 4-2 (cont.)
STORM WATER MANAGEMENT PLAN
SATISFACTION OF REGULATORY REQUIREMENTS

REQUIREMENTS	CONSIDERATION/ACTION
Describe a program to reduce pollutants in discharges associated with the application of pesticides, herbicides and fertilizer. As appropriate, include educational, permitting, certification and public right-of-way controls.	BMPs 5, 26, 27 and 29 address this requirement.
Describe a program including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges. Describe procedures to conduct on-going field screening activities during the life of the project. Describe procedures to be followed to investigate those portions of the storm drain system that have a reasonable potential of containing illicit discharges, based on the results of the field screening.	The City's existing permitting and approval program is summarized in Section 4.6.2. Plans for improvement of the regulatory component of the City's illicit discharge program are presented in Section 4.6.3.2 and in Section 4.6.3.4, major program components 7, 8, and 9. The planned field element of the program is summarized in Section 4.6.3.1, with major field program components presented in Section 4.6.3.4 components 1, 2, 3, 4, 5, and 6. BMPs addressing these requirements are 2, 6, and 31.
Describe procedures to prevent, contain and respond to spills.	Existing spill response programs are summarized in Section 4.6.2. BMP 7 addresses this requirement.
Describe a program to facilitate public awareness and reporting of illicit discharges. Describe educational activities, public information activities and other activities to facilitate the proper management and disposal of used oil and toxic materials.	Proposed education/information activities are summarized in Section 4.6.3.3, with major program components in Section 4.6.3.4 components 10, 11 and 12. BMPs 5, 8, 9, 26, 28, 29, and 32 address this requirement.
Describe controls to limit infiltration of seepage from sanitary sewers to storm sewer system.	The existing permit and approval process summarized in Section 4.6.2 is designed to address this requirement. BMPs 6, 30, and 37 address this requirement.

TABLE 4-2 (cont.)
STORM WATER MANAGEMENT PLAN
SATISFACTION OF REGULATORY REQUIREMENTS

REQUIREMENTS	CONSIDERATION/ACTION
Describe a program to monitor and control pollutants discharged from municipal landfills, hazardous waste treatment, disposal and recovery facilities and industries. Identify priorities and procedures for inspections and establishing and implementing control measures.	The City's municipal landfills have submitted Notices of Intent (NOI) and will meet the requirements of the general permit. The facility locations, submitted on the NOI's will be used by the illicit discharge identification and elimination field team to identify portions of the storm drain system which may be impacted by municipal waste handling facilities. Any illicit discharges identified during routine storm drain system inspections will be traced to the source and control measures will be implemented.
Describe a monitoring program, including submission of quantitative data, for parameters identified in the NPDES regulations for storm water discharges for industrial facilities, to be implemented during the life of the permit.	The City will conduct compliance monitoring as presented in Sections 3.5 and 3.6, for the duration of the permit. This monitoring will be conducted with the assistance of the Flood Control District of Maricopa County. Surveillance monitoring will be conducted on specific outfalls with potential industrial facility discharges, as identified by the field program of the illicit discharges identification and elimination program. Quantitative data will be submitted to EPA at a minimum of annually, in the annual report. BMPs 31 and 37 address this requirement.
Describe planning procedures for site planning which incorporate consideration of potential water quality impacts.	BMPs 25, 33, and 36 address this requirement.
Describe requirements for non-structural and structural best management practices at construction sites.	The *Best Management Practices and Erosion Control Manual for Maricopa County Arizona* has been issued by the Flood Control District of Maricopa County, and is used as a reference by the City. The City's new storm water ordinance requires storm water management plans for all construction sites. BMPs specific to construction sites include: 2, 5, 6, 22, 23, 24, 25, 33, 34, 35, 36, 38, and 40.
Describe procedures for identifying priorities for conducting inspections and enforcing control measures which consider the nature of the construction activity and site specific conditions.	All construction must be permitted through the Development Services Department. All construction sites with over one-half acre of disturbance must have a grading and drainage plan, consistent with the City's Grading and Drainage Ordinance. All construction sites are inspected by the Development Services Department.

TABLE 4-2 (cont.)
STORM WATER MANAGEMENT PLAN
SATISFACTION OF REGULATORY REQUIREMENTS

REQUIREMENTS	CONSIDERATION/ACTION
Describe appropriate education and training for construction site operators.	Appropriate education and training for construction site operators in Phoenix would address erosion and sediment control and on-site waste disposal practices. This education process in Phoenix can be accomplished in part through the Development Services Department Policy Advisory Team which meets once a month. The Development Services newsletter can also be used as an education and training tool. BMP 12 addresses this requirement.

TABLE 4-3
GENERAL OVERVIEW OF URBAN RUNOFF POLLUTION

Urban Runoff Pollutant	Indicators	Comparison of Possible Surface Water Effects: Perennial Flow	Comparison of Possible Surface Water Effects: Ephemeral Flow	Probable Causes
Decaying Organic Materials, Chemicals	Biological Oxygen demand, Dissolved Oxygen	Fish and eggs stressed by lack of oxygen during storms.	Not applicable.	Too much fertilizer. Decaying organic debris. Dumping chemical products in storm drains.
Heavy Metals	Arsenic, Cadmium, Copper, Nickel, Lead, Zinc	Fish stressed during storms, accumulated metals in fish.	Not applicable.	Copper and lead pipes. Vehicle residue on streets (from tires, brakes, and fluids).
Pesticides Toxic Organics	Organic Chemicals	Potential human health hazards. Stressed fish.	Potential human health hazards.	Improper use of fertilizers and pesticides. Improper clean-up, or dumping these products down storm drains.
Oil and Grease	Oil and Grease	Reduced enjoyment of creeks. Stressed fish.	Not applicable.	Dumping oil down storm drains. Vehicle emissions and/or leaks.
Nutrients	Total Phosphorus, Phosphate, Total Nitrogen Ammonia Nitrate	Promotes algae blooms, could result in oxygen depletion.	Not applicable.	Too much fertilizer. Dumping products in storm drains.
Sediments and Other Solids	Total Suspended Solids, Turbidity	Interferes with fish respiration, spawning. Contaminant transport. Unappealing appearance during storms.	Contaminant transport.	Increased erosion in streams and on hills from high storm flows, caused by increased impervious surfaces.
Bacteria	Fecal Coliforms, Enterococci	Potential health hazards if creek water, fish or shellfish from creeks is ingested.	Potential human health hazards if runoff is ingested.	Improper disposal of pet wastes. Decaying organic litter (leaves, litter, yard waste) in storm drains.
Floatables	Leaves, Litter	Reduced enjoyment of creeks. Potential reduced investment of the community in the creek.	Not applicable.	Littering. Yard waste, decaying leaves, animal wastes.

TABLE 4-4

SUMMARY OF NPDES STORM WATER MANAGEMENT PROGRAM COSTS

Department	Existing Storm Water Management Programs FY 1992-93 Budgeted Costs	Recommended New Storm Water Management Activities FY 1993-94 Proposed Costs
Aviation	$ 718,000	
Development Services	1,293,000	$ 0 *
Engineering and Architectural Services	407,000	120,000
Fire	299,000	
Law	62,000	50,000
Office of Environmental Programs	10,000	
Parks, Recreation and Library	4,710,000	
Personnel	565,000	
Public Transit	1,608,000	
Public Works	23,914,000	
Street Transportation	16,704,000	255,000
TOTAL	$50,290,000	$425,000

* Any additional costs related to verifying construction site requirements will be recovered through Development Services Department plan review and permit fees.

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TABLE 4-5

NPDES STORM WATER MANAGEMENT PROGRAM
Best Management Practices (BMPs) - Cost Detail
Budget & Research
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PUBLIC WORKS

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)		FY 1992-93 Budgeted Costs
I. Control Littering and Improper Waste Disposal Practices:		
A) Research, strengthen (if necessary), and enforce regulations which provide legal authority to control littering and the improper disposal of potentially harmful wastes. (2b)		
Enforcement of Chapter 27:	$7,071,000	
Cost of rewriting Chapter 27:	43,000	
Phoenix Recycles' Program:	5,124,000	
Book Bag Reuse Program:	25,000	
		$12,263,000
B) Continue to collect uncontainerized trash and debris four times per year from curbside locations. (2d)		
Uncontained Trash Collection Function:	$3,486,000	
City Portion of Disposal Costs:	1,167,000	
Transfer Station Recycling Program:	278,000	
Transfer Station Citizen Drop-off Function:	23,000	
Transfer Station Mulching Operation:	35,000	
		4,989,000
C) Educate the public re: the storm water pollution impacts that result from littering and improper waste disposal practices. (2a)		
Recycling Drop-off Centers Program:	$184,000	
Transfer Station Education Program:	6,000	
		190,000
II. Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels:		
A) Continue and expand programs which provide convenient means for people to properly dispose of oil, antifreeze, pesticides, herbicides, paints, solvents, and other potentially harmful chemicals (recycle if possible). (3c)		
Building Facilities CFC Recovery Program:	$50,000	
Household Hazardous Waste Program:	166,000	
Skunk Creek Landfill Recycling Program:	62,000	
New Procedures for Temporary Oil Spills, Container Disposal, and Coolant Collection and Disposal:	27,000	
Upgrade Wash Racks:	140,000	
		445,000

NPDES STORM WATER MANAGEMENT PROGRAM
Best Management Practices (BMPs) - Cost Detail
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PUBLIC WORKS (Continued)

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)		FY 1992-93 Budgeted Costs
III. Control Leaks from Gasoline, Fuel Oil, and Chemical Storage Tanks:		
A) Continue programs to educate Public Works Personnel re: environmental impacts which result from leaks and spills from gasoline, fuel oil, and chemical tanks (above and below ground). (6a)		
LUST/UST/NPDES Training:	$9,000	
Equipment Management Safety Awareness Program:	57,000	
Public Works Safety Analyst:	15,000	
Phoenix Clean and Beautiful:	94,000	
MSDS/Hazardous Materials Information Maintenance:	16,000	
		191,000
B) Continue to implement regulations which call for improved designs for new tanks (e.g., double walls, monitoring facilities); an aggressive self-monitoring program to be conducted by landowners and tenants; and implement a strategically focused spot-check program to search for, identify, test, and control leaking storage tanks. (6b)		
Tank Tightness Testing Program:	$229,000	
UST Replacement Program:	1,239,000	
LUST/UST Replacement/Remediation Program:	1,785,000	
City Draft of A/R Regarding UST Procedures:	4,000	
Annual Fuel Audit:	1,000	
Fuel Reconciliation:	36,000	
IV. Control Airborne Particles:		3,294,000
A) Continue to cooperate with public transportation agencies, public agency motorpools, and/or public works departments to provide effective air pollution controls on publicly-owned vehicles and motorized equipment, and/or to use alternative clean-burning fuels where practical. (10e)		
Alternative Fuels Programs:	$63,000	
Use of Oxygenated Fuels:	1,600,000	
Emissions Control of City Fleet:	149,000	
Paint Booth Upgrade:	69,000	
Landfill Methane Control Systems:	476,000	
Pave Roads at Skunk Creek Landfill:	76,000	
Alternative Fuels Analysis:	4,000	
Installation and Evaluation of Particulate Traps:	5,000	
		2,442,000

NPDES STORM WATER MANAGEMENT PROGRAM
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PUBLIC WORKS (Continued)

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)		FY 1992-93 Budgeted Costs
IV. Control Airborne Particles:		
B) Continue to implement regulations which call for improved designs for new tanks (e.g., double walls, monitoring facilities); an aggressive self-monitoring program to be conducted by landowners and tenants; and implement a strategically focused spot-check program to search for, identify, test, and control leaking storage tanks. (6b)		
Environmental Coordination at Service Center:	$19,000	
Volatile Organic Compounds Program:	6,000	
Environmental Programs Coordinator:	75,000	
		100,000
Total Existing Programs:		$23,914,000

NPDES STORM WATER MANAGEMENT PROGRAM
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STREET TRANSPORTATION

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)	FY 1992-93 Budgeted Costs
I. Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels:	
A) Research, strengthen (if necessary), and enforce existing regulations which provide the legal authority to eliminate cross-connections, which allow sanitary sewage and/or commercial/industrial wastewater to enter storm sewers or drainage channels. (4a)	$76,000 (Storm Sewer Bonds)
II. Improve the Maintenance of Major Paved Areas:	
A) Continue pavement repair and maintenance on streets and parking areas (e.g., fill potholes, seal cracks, apply surface treatments) through the computerized pavement management system. (12d)	10,948,000
B) Continue program to pave dirt streets through the Improvement District Process.	2,800,000
C) Continue street sweeping program for commercial/industrial and residential streets and municipal parking lots.	1,952,000
D) Continue drainage system cleaning and maintenance effort.	928,000
Total Existing Programs:	$16,704,000

NPDES STORM WATER MANAGEMENT PROGRAM
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STREET TRANSPORTATION (Continued)

RECOMMENDED NEW PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)

	FY 1993-94 Proposed Costs
III. Intensify the Maintenance/Repair of Storm water Drainage Systems:	
A) Develop and implement a program which provides a means of recording the observations of field inspection and maintenance personnel, so this information can be used to help locate the source(s) of pollutants. (11c)	$255,000
IV. Prevent the Dumping of Pollutants into Storm sewers and Drainage Channels:	
A) Educate re: the impacts that result when oil, antifreeze, pesticides, herbicides, paints solvents, or other potentially harmful chemicals are dumped into storm sewers or drainage channels. (3a)	Included in III-A above
B) Coordinate with EPA/ADEQ to be sure that all potential water quality impacts are adequately considered at the time NPDES permits are issued for any discharges to storm sewers or drainage channels. (3e)	Included in III-A above
C) Develop and implement an aggressive field program to search for, detect, and prevent dumping or routinely discharging pollutants into storm sewers and drainage channels. This should involve re-evaluating previous decisions to allow certain relatively clean waters to be discharged to the storm water systems. (3f)	Included in III-A above
Total Recommended New Programs:	$255,000

NPDES STORM WATER MANAGEMENT PROGRAM
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OFFICE OF ENVIRONMENTAL PROGRAMS

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)	FY 1992-93 Budgeted Costs
I. Control Leaks from Gasoline, Fuel Oil, and Chemical Storage Tanks:	
A) Continue programs to educate re: environmental impacts which result from leaks and spills from gasoline, fuel oil, and chemical tanks (above and below ground). (6a)	1,000
II. Control Airborne Particles:	
A) Continue to monitor the City's progress with respect to a variety of measures the City conducts to reduce carbon monoxide, ozone and particulate levels; provide technical assistance and education to City staff regarding air pollution problems and City, County and State programs to address the issues.	9,000
Total Existing Programs:	$10,000

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LAW

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)	FY 1992-93 Budgeted Costs
I. Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels:	
A) Research, strengthen (if necessary), and enforce existing regulations which provide the legal authority to eliminate cross-connections, which allow sanitary sewage and/or commercial/industrial wastewater to enter storm sewers or drainage channels. (4a)	$62,000
II. Control Littering and Improper Waste Disposal Practices:	
A) Research, strengthen (if necessary), and enforce regulations which provide legal authority to control littering and the improper disposal of potentially harmful wastes. (2b)	Included in I-A above.
III. Enhance Surface Retention and Infiltration:	
A) Continue to research, strengthen (if necessary), implement, and enforce regulations which will provide the legal authority to require site drainage designs and systems which minimize the total volume of runoff and the peak rate of runoff. (2b)	Included in I-A above.
Total Existing Programs:	$62,000

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LAW (Continued)

RECOMMENDED NEW PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)

	FY 1993-94 Proposed Costs
IV. Prevent Rainfall and Runoff from Contacting Potential Contaminants:	
A) Develop and implement regulations which require landowners and/or tenants to provide covers (e.g., roofs, tarps) to keep rain off of areas which contain contaminants (e.g., chemical storage areas, waste storage areas, contaminated industrial areas); and keep runoff from draining through areas which contain contaminants. (13b)	$50,000
V. Control Erosion at Construction Sites:	
A) Develop and implement effective erosion and sediment control regulations, and requirements for corresponding construction inspections programs. These should apply to public-sector as well as private-sector construction programs. (7b)	Included in IV-A above.
VI. Reduce the Volume of Roof Runoff which Enter Storm Sewers:	
A) Research, strengthen (if necessary), implement, and enforce regulations which will provide the legal authority to prohibit new direct connections and to require retrofitting existing buildings, where necessary and practical. The objectives are to eliminate situations where the roof drains of exising buildings are connected directly to storm sewers or drainage channels. Implement and enforce regulations which minimize the degree to which new buildings will have roof drains connected directly to storm sewers or drainage channels. (1b)	Included in IV-A above.
VII. Control Oil and Grease:	
A) Research, strengthen (if necessary), and enforce regulations which give local jurisdictions the authority to require oil and grease controls in areas which are significant sources (e.g., gas stations, automotive shops, commercial/industrial facilities, parking areas, food service establishments). (5c)	Included in IV-A above.
Total Recommended New Programs:	$50,000

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FIRE

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)		FY 1992-93 Budgeted Costs
I. Control Leaks from Gasoline, Fuel Oil, and Chemical Storage Tanks:		
A) Continue programs to educate re: environmental impacts which result from leaks and spills from gasoline, fuel oil, and chemical tanks (above and below ground). (6a)		$82,000
B) Continue to implement regulations which call for improved designs for new tanks (e.g., double walls, monitoring facilities); an aggressive self-monitoring program to be conducted by landowners and tenants; and implement a strategically focused spot-check program to search for, identify, test, and control leaking storage tanks. (6b)		Included in I-A above.
II. Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels:		
A) Continue to respond to hazardous materials incidents which helps ensure the health and safety of citizens and reduces the possibility of accidental discharge of contaminants into the storm sewer system.		
Engine 4 Hazmat Unit:	$51,000	
Engine 38 Hazmat Unit:	53,000	
Engine 41 Hazmat Unit:	66,000	
Training Costs - Special Operations Section:	47,000	
		217,000
Total Existing Programs:		$299,000

NPDES STORM WATER MANAGEMENT PROGRAM
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DEVELOPMENT SERVICES

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)	FY 1992-93 Budgeted Costs
I. Enhance Surface Retention and Infiltration:	
A) Continue to research, strengthen (if necessary), implement, and enforce regulations which will provide the legal authority to require site drainage designs and systems which minimize the total volume of runoff and the peak rate of runoff. (2b)	$1,259,000
B) Continue to require new commercial, industrial, institutional, and major multifamily residential building complexes to have drainage facilities that incorporate on-site retention and/or infiltration, to assure that neither the total volume of runoff nor the peak rate of runoff exceed preproject conditions..(2c)	Included in I-A above.
II. Reduce the Volume of Roof Runoff which Enter Storm Sewers:	
A) Research, strengthen (if necessary), implement, and enforce regulations which will provide the legal authority to prohibit new direct connections. The objectives are to eliminate situations where the roof drains of existing buildings are connected directly to storm sewers or drainage channels. Implement and enforce regulations which minimize the degree to which new buildings will have roof drains connected directly to storm sewers or drainage channels. (1b)	34,000
Total Existing Programs:	$1,293,000

NPDES STORM WATER MANAGEMENT PROGRAM
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DEVELOPMENT SERVICES (Continued)

RECOMMENDED NEW PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)

	FY 1993-94 Proposed Costs
III. Enhance Surface Retention and Infiltration:	
A) Continue to educate re: the need to minimize both the total runoff volume that roof drains contribute directly to storm sewers and drainage channels. Describe basic principles and suggest practical alternatives to minimize their peak rate of discharge. (2a)	3,000
IV. Control Erosion at Construction Sites:	
A) Continue to educate architects, engineers, contractors, and public works personnel about the need for and practical methods for erosion control, sediment control, groundwater disposal, and site waste disposal. (7a)	Included in III-A above.
B) Develop and implement effective erosion and sediment control regulations and requirements for construction inspections programs. These should apply to public-sector as well as private-sector construction programs. (7b)	0 (Use existing resources)
C) Develop and implement improved erosion and sediment control policies in the environmental elements of all site development plans. (7c)	Included in IV-B above.
D) Adopt policies which require all site development plans to explicitly address the topics of erosion potential, proposed erosion and sediment control plans, proposed inspection programs, related environmental impacts, and enforceable mitigation measures to minimized environmental impacts. (7d)	86,000
V. Reduce the Volume of Roof Runoff which Enter Storm Sewers:	
A) Educate re: the need to minimize the total volume of runoff and the peak rate of runoff from a given area. Describe basic principles and suggest alternative practical means to enhance surface retention and infiltration. (1a)	Included in III-A above.
VI. Prevent Rainfall and Runoff from Contacting Potential Contaminants	
A) Develop and implement regulations which require landowners and/or tenants to provide covers (e.g., roofs, tarps) to keep rain off of areas which contain contaminants (e.g., chemical storage areas, waste storage areas, contaminated industrial areas); and keep runoff from draining through areas which contain contaminants. (13b)	0 (Use existing resources)
Total Recommended New Programs:	$89,000

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PARKS, RECREATION, AND LIBRARY

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)	FY 1992-93 Budgeted Costs
I. Control Animal Wastes:	
A) Continue to educate the public through brochures re: the need to clean up properly dispose of pet wastes. (9a)	$1,000
B) Continue to implement and enforce leash laws and pet waste cleanup ordinances in selected public-use areas. (9b)	2,000
II. Control the Use and Disposal of Fertilizers, Pesticides, and Herbicides:	
A) Educate department employees re: the proper use (e.g., application methods, frequencies, precautions) and proper management (e.g., storing, disposing) of fertilizers, pesticides, herbicides, and other potentially harmful chemicals through the use of brochures and pamphlets. (1a)	5,000
B) Educate Parks Department personnel responsible for channel maintenance and implement alternative methods for controlling insects and weeds (e.g., physical controls, biological controls, less toxic chemicals) through internal workshops and guidance documents. (1b)	2,000
III. Control Littering and Improper Waste Disposal Practices:	
A) Continue to provide, collect, and maintain litter receptacles in strategic public areas, and during major public events; maintain Park grounds through sweeping, litter control, and landscaping activities. (2a)	4,700,000
Total Existing Programs:	$4,710,000

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AVIATION

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)		FY 1992-93 Budgeted Costs
I. Control Leaks from Gasoline, Fuel Oil, and Chemical Storage Tanks:		
A) Continue programs to educate staff and tenants re: environmental impacts which result from leaks and spills from gasoline, fuel oil, and chemical tanks (above and below ground). (6a)		
Staff Efforts with Tenants:	$25,000	
Contractor Education Program re: Hazmat:	10,000	
		$35,000
B) Continue to implement regulations which call for improved designs for new tanks (e.g., double walls, monitoring facilities); an aggressive self-monitoring program to be conducted by landowners and tenants; and implement a strategically focused spot-check program to search for, identify, test, and control leaking storage tanks. (6b)		
Replace Tanks at Goodyear Airport:	$45,000	
Self-Monitoring Program:	50,000	
Spot-check for Leaking Tanks:	27,000	
		122,000
II. Control Airborne Particles:		
A) Continue to educate re: the need for cooperation with programs (by others) which seek to reduce automobile use by various means (e.g., ride sharing, carpooling, public transportation, human-powered transportation). (10c)		8,000
B) Continue to coordinate vehicle inspections and maintenance efforts to reduce atmospheric emissions. (10d)		25,000
C) Continue to cooperate with public transportation agencies, public agency motorpools, and/or public works departments to provide effective air pollution controls on publicly-owned vehicles and motorized equipment, and/or to use alternative clean-burning fuels where practical. (10e)		120,000
D) Continue to continuously sweep all paved surfaces to reduce airborne particles.		333,000
III. Control Littering and Improper Waste Disposal Practices:		
A) Continue to provide, collect, and maintain litter receptacles in strategic public areas, and during major public events. (12e)		75,000
Total Existing Programs:		$718,000

NPDES STORM WATER MANAGEMENT PROGRAM
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PERSONNEL

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)	FY 1992-93 Budgeted Costs
I. Control Airborne Particles:	
A) Continue to educate re: the need for cooperation with programs (by others) which seek to reduce automobile use by various means (e.g., ride sharing, carpooling, public transportation, human-powered transportation). (10c)	$250,000
II. Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels:	
A) Continue to implement the City-wide program for proper disposal of hazardous waste generated by City operations including identifying all operations that generate hazardous waste and working with city departments to establish procedures for the proper handling, storage, transportaion, and disposal of hazardous wastes.	315,000
Total Existing Programs:	$565,000

NPDES STORM WATER MANAGEMENT PROGRAM
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PUBLIC TRANSIT

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)		FY 1992-93 Budgeted Costs
I. Control Airborne Particles:		
A) Continue to educate re: the need for cooperation with programs (by others) which seek to reduce automobile use by various means (e.g., ride sharing, carpooling, public transportation, human-powered transportation). (10c)		$330,000
B) Continue to coordinate vehicle inspections and maintenance efforts on City buses to reduce atmospheric emissions. (10d)		25,000
C) Continue to cooperate with public transportation agencies, public agency motorpools, and/or public works departments to provide effective air pollution controls on publicly-owned vehicles and motorized equipment, and/or to use alternative clean-burning fuels where practical. (10e)		
Diesel Exhaust Particulate Traps:	$263,000	
Methanol Fueling Station:	89,000	
Electric Powered Buses:	380,000	
'Jet A' Fuel Program	178,000	
Electronically Controlled Diesel Engines:	193,000	
Bicycle Racks on Buses:	150,000	
		1,253,000
Total Existing Programs:		$1,608,000

NPDES STORM WATER MANAGEMENT PROGRAM
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ENGINEERING AND ARCHITECTURAL SERVICES

EXISTING PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS)		FY 1992-93 Budgeted Costs
I. NPDES Storm Water Management Program Administration:		
A) Continue to manage the implementation of NPDES Storm Water Management Program.		
NPDES Storm Water Management Program Administration:	$107,000	
Consulting for Development of Part II NPDES Storm Water Permit Application:	300,000	
		$407,000 (Storm Sewer Bonds)
II. Control Leaks from Gasoline, Fuel Oil, and Chemical Storage Tanks:		
A) Continue programs to educate re: environmental impacts which result from leaks and spills from gasoline, fuel oil, and chemical tanks (above and below ground). (6a)		Included in I-A above.
B) Continue to implement regulations which call for improved designs for new tanks (e.g., double walls, monitoring facilities); an aggressive self-monitoring program to be conducted by landowners and tenants; and implement a strategically focused spot-check program to search for, identify, test, and control leaking storage tanks. (6b)		Included in I-A above.
III. Control the Use and Disposal of Fertilizers, Pesticides, and Herbicides:		
A) Educate high volume users (i.e., agricultural and large commercial) re: the proper use (e.g., application methods, frequencies, precautions) and proper management (e.g., storing, disposing) of fertilizers, pesticides, herbicides, and other potentially harmful chemicals through the use of brochures and pamphlets. (1a)		Included in I-A above.
B) Educate City personnel responsible for channel maintenance and implement alternative methods for controlling insects and weeds (e.g., physical controls, biological controls, less toxic chemicals) through internal workshops and guidance documents. (1b)		Included in I-A above.
Total Existing Programs:		$407,000

NPDES STORM WATER MANAGEMENT PROGRAM
Best Management Practices (BMPs) - Cost Detail
Budget & Research
10/12/92

ENGINEERING AND ARCHITECTURAL SERVICES (Continued)

RECOMMENDED NEW PROGRAMS/BEST MANAGEMENT PRACTICES (BMPS) *

	FY 1993-94 Proposed Costs
IV. Prevent Rainfall and Runoff from Contacting Potential Contaminants:	
A) Educate re: the need to keep rainfall and runoff from contacting potential contaminants. Describe typical examples of the problem and practical solutions. (13a)	120,000
V. Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels:	
A) Coordinate with EPA/ADEQ to be sure that all potential water quality impacts are adequately considered at the time NPDES permits are issued for any discharges to storm sewers or drainage channels. Include monitoring of all pertinent constituents as a permit stipulation. (3e)	Included in IV-A above.
VI. Control Erosion at Construction Sites:	
A) Develop and implement effective erosion and sediment control regulations, and requirements for corresponding construction inspections programs. These should apply to public-sector as well as private-sector construction programs. (7b)	Included in IV-A above.
B) Develop and implement improved erosion and sediment control policies in the environmental elements of all site development plans. (7c)	Included in IV-A above.
Total Recommended Programs:	$120,000

* Additional computer reprogramming costs may be required to modify the Municipal Services Billing System for a Storm Water Environmental Fee. These reprogramming costs are currently under review.

TABLE 4-6
EXISTING STORM WATER MANAGEMENT PROGRAMS

"SOURCE CONTROLS"

NPDES Storm Water Management Program Administration

1. Continue to manage the implementation of NPDES Storm Water Management Program. (EAS)

Control Littering and Improper Waste Disposal Practices

2. Research, strengthen (if necessary), and enforce regulations which provide legal authority to control littering and the improper disposal of potentially harmful wastes. (Public Works)

3. Continue to collect uncontainerized trash and debris four times per year, from curbside locations. (Public Works)

4. Continue to provide, collect, and maintain litter receptacles in strategic public areas, and during major public events, maintain park grounds through sweeping, litter control and landscaping activities. (Street Transportation, Public Works, Parks, Aviation)

Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels

5. Continue and expand programs which provide convenient means for proper disposal of oil, antifreeze, pesticides, herbicides, paints, solvents, and other potentially harmful chemicals (recycle if possible). (Public Works)

6. Research, strengthen (if necessary), and enforce existing regulations which provide the legal authority to eliminate cross-connections, which allow sanitary sewage and/or commercial/industrial wastewater to enter storm sewers or drainage channels. (Law, Street Transportation, Water Services Department)

7. Continue to respond to hazardous materials incidents which helps ensure the health and safety of citizens and reduces the possibility of accidental discharge of contaminants into the storm sewer system. (Fire, Personnel, Street Transportation)

8. Continue to implement the city-wide program for proper disposal of hazardous waste generated by City operations including identifying all operations that generate

hazardous waste and working with City departments to establish procedures for the proper handling, storage, transportation and disposal of hazardous wastes. (Personnel)

Control Leaks from Gasoline, Fuel Oil, and Chemical Storage Tanks

9. Continue programs to educate airport tenants, the public and City personnel regarding environmental impacts which result from leaks and spills from gasoline, fuel oil, and chemical tanks (above and below ground). (Public Works, Office of Environmental Programs, Fire, Aviation, EAS)

10. Continue to implement regulations which call for improved designs for new tanks (e.g., double walls, monitoring facilities); an aggressive self-monitoring program to be conducted by landowners and tenants; and implement a strategically focused spot-check program to search for, identify, test, and control leaking storage tanks. (Public Works, Fire, Aviation, EAS)

Control Animal Wastes (Parks, Public Works)

11. Continue to educate the public through brochures regarding the need to clean up and properly dispose of pet wastes. (Parks, Recreation and Library)

12. Continue to implement and enforce leash laws and pet waste cleanup ordinances in selected public-use areas. (Parks, Recreation and Library)

Control Airborne Particles

13. Continue to educate regarding the need for cooperation with programs (by others) which seek to reduce automobile use by various means (e.g., ride sharing, carpooling, public transportation, human-powered transportation). (Aviation, Personnel, Public Transit)

14. Continue to coordinate vehicle inspection and maintenance efforts to reduce atmospheric emissions. (Aviation, Public Transit)

15. Continue to cooperate with public transportation agencies, public agency motorpools, and/or public works departments to provide effective air pollution controls on publicly-owned vehicles and motorized equipment, and/or to use alternative clean-burning fuels where practical. (Public Works, Aviation, Public Transit)

16. Continue to monitor the City's progress with respect to a variety of measures the City conducts to reduce carbon monoxide, ozone and particulate levels; provide technical assistance and education to City staff regarding air pollution problems and City, County and State programs to address the issues. (Office of Environmental Programs)

17. Continue to continuously sweep all paved surfaces, at the airport, to reduce airborne particulates. (Aviation)

Continue the Maintenance of Major Paved Areas

18. Continue pavement repair and maintenance on streets and parking areas (e.g., fill potholes, seal cracks, apply surface treatments) through the computerized pavement management system. (Street Transportation)

19. Continue programs to pave dirt streets through Improvement District process. (Street Transportation)

20. Continue street sweeping program for commercial/industrial and residential streets and municipal parking lots. (Street Transportation)

21. Continue drainage system cleaning and maintenance effort. (Street Transportation)

"HYDRAULIC CONTROLS"

Reduce the Volume of Roof Runoff which Enter Storm Sewers (Development Services)

22. Research, strengthen (if necessary), implement, and enforce regulations which will provide the legal authority to prohibit new direct connections. The objective is to eliminate roof drains of existing buildings being connected directly to storm sewers or drainage channels. Implement and enforce regulations which minimize the degree to which new buildings will have roof drains connected directly to storm sewers or drainage channels. (Law, Development Services)

Enhance Surface Retention and Infiltration (Development Services)

23. Continue to educate regarding the need to minimize both the total runoff volume that roof drains contribute directly to storm sewers and drainage channels. Describe basic principles and suggest practical alternatives to minimize their peak rate of discharge. (Development Services)

24. Continue to research, strengthen (if necessary), implement, and enforce regulations which will provide the legal authority to require site drainage designs and systems which minimize the total volume of runoff and the peak rate of runoff. (Law, Development Services)

25. Continue to require new commercial, industrial, institutional, and major multi-family residential building complexes to have drainage facilities that incorporate on-site retention and/or infiltration, to ensure that neither the total volume of runoff nor the peak rate of runoff exceed pre-project conditions. (Development Services)

TABLE 4-7
NEW STORM WATER MANAGEMENT PROGRAMS

"SOURCE CONTROLS"

Control the Use and Disposal of Fertilizers, Pesticides, and Herbicides (Parks, Street Transportation, Environmental Office)

26. Educate department employees and high volume users (i.e., agricultural and large commercial) regarding the proper use (e.g., application methods, frequencies, precautions) and proper management (e.g., storing, disposing) of fertilizers, pesticides, herbicides, and other potentially harmful chemicals through the use of brochures and pamphlets. (Parks, EAS, Street Transportation)

27. Educate City personnel responsible for channel maintenance and implement alternative methods for controlling insects and weeds (e.g., physical controls, biological controls, less toxic chemicals) through internal workshops and guidance documents. (Parks, EAS, Street Transportation)

Control Littering and Improper Waste Disposal Practices

28. Educate the public regarding the storm water pollution impacts that result from littering and improper waste disposal practices. (Public Works)

Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels

29. Educate regarding the impacts that result when oil, antifreeze, pesticides, herbicides, paints solvents, or other potentially harmful chemicals are dumped into storm sewers or drainage channels. (Street Transportation)

30. Coordinate with EPA/ADEQ to be sure that all potential water quality impacts are adequately considered at the time NPDES permits are issued for any discharges to storm sewers or drainage channels. (Street Transportation, EAS)

31. Develop and implement an aggressive field program to search for, detect, and prevent dumping or routinely discharging pollutants into storm sewers and drainage channels. This should involve re-evaluating previous decisions to allow certain relatively clean waters to be discharged to the storm water systems. (Street Transportation)

Control Oil and Grease

32. Research, strengthen (if necessary), and enforce regulations which give local jurisdictions the authority to require oil and grease controls in areas which are significant sources (e.g., gas stations, automotive shops, commercial/industrial facilities, parking areas, food service establishments). (Law)

Control Erosion at Construction Sites

33. Continue to educate architects, engineers, contractors, developers and public works personnel about the need for and practical methods for erosion control, sediment control, groundwater disposal, and site waste disposal. (Development Services)

34. Develop and implement effective erosion and sediment control regulations, and requirements for corresponding construction inspection programs. These apply to public-sector and private-sector construction programs. (Law, EAS, Development Services)

35. Develop and implement improved erosion and sediment control policies in the environmental elements of all site development plans. (Development Services, EAS)

36. Adopt policies which require all site development plans to explicitly address the topics of erosion potential, proposed erosion and sediment control plans, proposed inspection programs, related environmental impacts, and enforceable mitigation measures to minimize environmental impacts. (Development Services)

Intensify the Maintenance/Repair of Storm Water Drainage Systems

37. Develop and implement a program which provides a means of recording the observations of field inspection and maintenance personnel, so this information can be used to help locate the source(s) of pollutants. (Street Transportation)

Prevent Rainfall and Runoff from Contacting Potential Contaminants

38. Educate regarding the need to keep rainfall and runoff from contacting potential contaminants. Describe typical examples of the problem and practical solutions. (EAS)

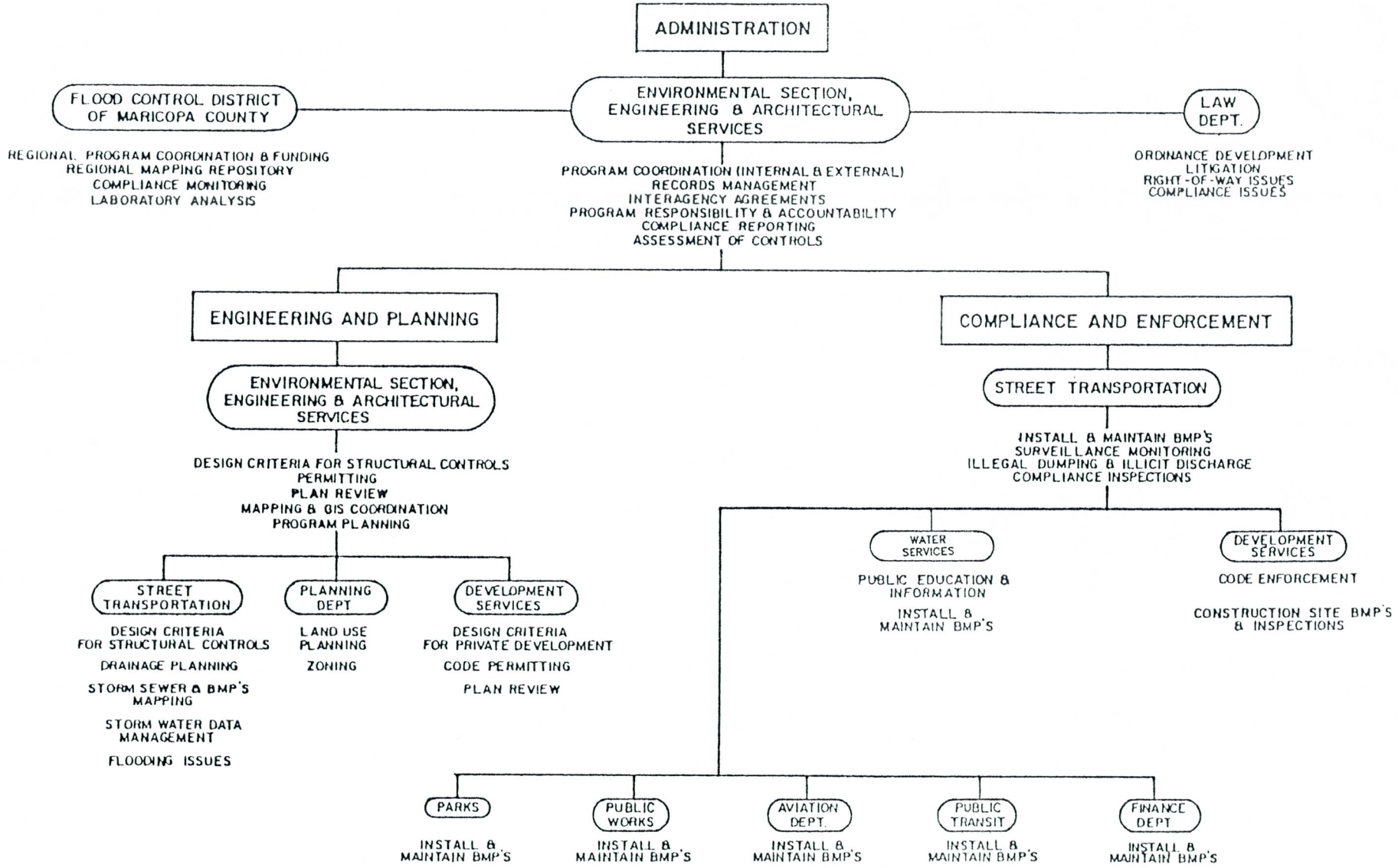
39. Develop and implement regulations which require landowners and/or tenants to provide covers (e.g., roofs, tarps) to keep rain off areas which contain contaminants (e.g., chemical storage areas, waste storage areas, contaminated industrial areas); keep runoff from draining through areas which contain contaminants. (Engineering & Architectural Services, Development Services, Law, Street Transportation)

"HYDRAULIC CONTROLS"

Reduce the Volume of Roof Runoff Which Enters Storm Sewers

40. Educate regarding the need to minimize the total volume of runoff and the peak rate of runoff from a given area. Describe basic principles and suggest alternative practical means to enhance surface retention and infiltration. (Development Services, Law)

FIGURE 4–1
CITY OF PHOENIX STORMWATER MANAGEMENT PROGRAM ORGANIZATIONAL CHART



BMP'S = BEST MANAGMENT PRACTICES

DESCRIPTION	1992	1993	1994	1995	1996	1997
Control the Use and Disposal of Fertilizers, Pesticides, Herbicides						
26. Educate department employees and high volume users regarding the proper use and proper management of fertilizers, pesticides, herbicides, and other potentially harmful chemicals through the use of brochures and pamphlets.	26.					
27. Educate City personnel responsible for channel maintenance and implement alternative methods for controlling insects and weeds through internal workshops and guidance documents.	27.					
Control Littering and Improper Waste Disposal Practices						
28. Educate the public regarding the storm water pollution impacts that result from littering and improper waste disposal practices.	28.					
Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels						
29. Educate regarding the impacts that result when oil, antifreeze, pesticides, herbicides, paints solvents, or other potentially harmful chemicals are dumped into storm sewers or drainage channels.	29.					
30. Coordinate with EPA/ADEQ to be sure that all potential water quality impacts are adequately considered at the time NPDES permits are issued for any discharges to storm sewers or drainage channels.	30.					
31. Develop and implement an aggressive field program to search for, detect, and prevent dumping or routinely discharging pollutants into storm sewers and drainage channels. This should involve re-evaluating previous decisions to allow certian relatively clean waters to be discharged to the storm water systems.	31.					
32. Research, strengthen, and enforce regulations which give local jurisdictions the authority to require oil and grease controls in areas which are significant sources.	32.					
Control Erosion at Construction Sites						
33. Continue to educate architects, engineers, contractors, developers, and public works personnel about the need for and practical methods for erosion control, sediment control, groundwater disposal, and site waste disposal.	33.					
34. Develop and implement effective erosion and sediment control regulations, and requirements for corresponding construction imspection programs. These apply to public-sector and private-sector construction programs.	34.					
35. Develop and implement improved erosion and sediment control policies in the environmental elements of all site development plans.	35.					
36. Adopt policies which require all site development plans to explicitly address the topics of erosion potential, proposed erosion and sediment control plans, proposed inspection programs, related environmental impacts, and enforceable mitigation measures to minimize environmental impacts.	36.					
Intensify the Maintenance/Repair of Storm Water Drainage Systems						
37. Develop and implement a program which provides a means of recording the observations of field inspection and maintenance personnel, so this information can be used to help locate the source(s) of pollutants	37.					
Prevent Rainfall and Runoff from Contacting Potential Contaminants						
38. Educate regarding the need to keep rainfall and runoff from contacting potential contaminants. Describe typical examples of the problem and practical solutions.	38.					
39. Develop and implement regulations which require landowners and/or tenants to provide covers to keep rain off areas which contain contaminants, keep runoff from draining through areas which contain contaminants.	39.					
Prevent Rainfall and Runoff from Contacting Potential Contaminants						
40. Educate regarding the need to minimize the total volume of runoff and the peak rate of runoff from a given area. Describe basic principles and suggest alternative practical means to enhance surface retention and infiltration.	40.					

NEW STORM WATER MANAGEMENT PROGRAMS
IMPLEMENTATION SCHEDULE

PROJECT: 9155038H
DATE: 10/20/92 FIG.: 4-2

Woodward-Clyde

Proposed Schedule for Illicit Discharge Identification and Elimination Program

Date: 05/07/91

8951478F-600 | Page 1 / 1

Project Finish: 12/25/97

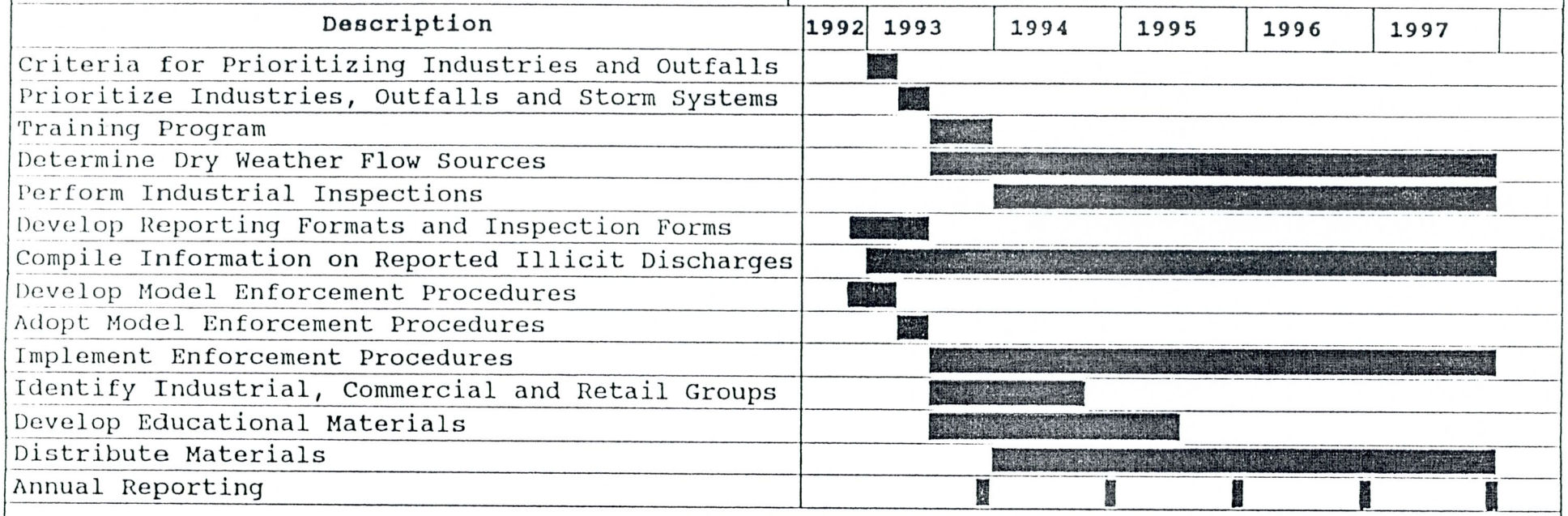


FIGURE 4-3

5.0
ASSESSMENT OF CONTROLS

5.1 INTRODUCTION

This section of the application requires NPDES permit applicants to estimate the reduction in pollutant loadings expected from implementation of the control measures described in their storm water management programs. The regulations imply that the City of Phoenix should consider its system with and without (i.e., "after" and "before") the controls described in its proposed Storm Water Management Program. A strict reading of this requirement implies that the City would estimate pollutant discharges without controls, estimate pollutant discharges with controls, and then compute the difference in pollutant loads discharged to receiving waters (i.e., the "reduction" would equal the difference between "with" and "without"). The following factors limit the value of such an assessment, if it were to be conducted as implied by the EPA regulations, as written.

- First, there is a problem regarding what one should consider as "before" conditions. Some very important elements of the City's Storm Water Management Program are already in place (and have been in place and effective for a long time). If one assumes that these are included in the "before" conditions, then the estimated reduction of loads would consider the benefits of only the new BMPs (not the City's overall Program), and this would indicate that the City is not proposing to provide very much control. On the other hand, if one were to assume that the existing controls are not included in the "before" conditions, then the estimated reduction of loads would reflect the City's entire program (as seems to be appropriate). However, there would be very little data to work with to make loads estimates because all of the monitoring has been conducted with the existing controls in place.

- Second, certain BMPs are implemented in specific, well-defined locations and could be monitored to provide credible data regarding their pollution control effectiveness (e.g., detention basins and focused street cleaning programs have

been monitored by various cities to develop performance data). In fact, some such full-scale field monitoring has been conducted in several U.S. cities to evaluate the performance of some structural BMPs and a few non-structural BMPs. However, most of the BMPs that comprise the City's proposed Storm Water Management Program are non-structural, source-oriented, pollution prevention measures that do not lend themselves to being field monitored by typical sampling techniques. For example, it would be difficult to conduct a field sampling program to isolate and evaluate the pollutant loads reductions that would result from public education BMPs.

Evaluation measures are important to determine whether the controls are meeting their pollution control goals, whether implementation is proving practical and affordable, whether the controls need refinement as implementation proceeds, and to provide an indication of the overall suitability and effectiveness of the program. Program suitability and effectiveness should be viewed as more than just a reduction in pollutant loadings. They should include other factors such as longevity, feasibility, environmental concerns, environmental benefits, costs, and maintenance burden, and public acceptance.

The nature of urban storm water runoff makes it very difficult to document immediate and measurable improvements in water quality. This is largely due to the extreme degree of variability in runoff quantity and composition, relative to time. The "ideal" way to assess the effectiveness of BMPs controls would be to directly measure, through water quality samples, the reduction of pollutants being discharged to the storm drain system. However, such evaluation methods only work well in situations where all storm events are similar in their geographic coverage, their spacing, and their duration and intensity; and if the BMPs being implemented are structural controls (such as detention basins, oil/water separators, and other treatment devices). Reduction of pollutants achieved by these structural controls may be assessed directly using standard engineering methods. However, most of the new management programs proposed in this permit application focus on the implementation of non-structural controls. Therefore, "ideal" evaluation methods are not appropriate for this case; and most non-structural controls must be assessed by applying more indirect methods of evaluation. This is because the nature of these BMPs makes it difficult, if not impossible, to directly measure their effectiveness in reducing pollutant loads. For this reason, indirect measures of

effectiveness will be applied. The results of the ongoing water quality monitoring program will be incorporated into the assessment wherever possible and will help establish long term trends in storm water quality.

Section 5.2 describes how the City currently evaluates existing BMP controls and Section 5.3 describes evaluation methods for the new management programs to be implemented. Section 5.4 assesses any known impacts of storm water controls on groundwater.

5.2 ASSESSMENT OF EXISTING MANAGEMENT PROGRAM BMP CONTROLS

The City is currently implementing many management program BMP controls to reduce pollutants in storm water discharges. The range of control measures is from educational approaches to structural, treatment-based approaches. Most of the structural controls employ existing engineered systems that were originally designed as quantity controls, but will now be used to provide water quality benefits. The vast majority of controls used in Phoenix are non-structural controls that are intended to achieve "pollution prevention" by acting preemptively to keep pollutants out of storm water (rather than treating storm water to remove pollutants).

5.2.1 Assessment of Source Controls

The BMPs have been grouped into the following categories based on the type of activity or pollutant controlled.

- NPDES Storm Water Management Program Administration
- Control Littering and Improper Waste Disposal Practices
- Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels
- Control Oil and Grease
- Control Leaks from Gasoline, Fuel Oil, and Chemical Storage Tanks
- Control Erosion at Construction Sites
- Control Animal Wastes
- Control Airborne Particulates
- Improve the Maintenance of Major Paved Areas
- Reduce the Volume of Roof Runoff which Enters Storm Sewers

- Enhance Surface Retention and Infiltration

Within each category there are from one to five BMPs that are currently being implemented. These programs are being implemented through education techniques, regulatory or policy methods (including inspection and enforcement), or operations and maintenance methods. The City departments implementing these control programs include: Street Transportation, Public Works, Water Services, Fire Department, Development Services, Parks, Recreation and Library, Engineering and Architectural Services and to some extent: Law, Aviation, and Public Transit.

As noted above, the assessment methods suitable for these types of non-structural BMPs make it difficult, if not impossible, to directly measure reduction in pollutant loadings. Appropriate indirect measurements are therefore used, such as increased enforcement activity, increased public awareness, number of inspection visits conducted, number of people attending a workshop, number of pamphlets distributed, or reduction in the number of illegal dumping incidents detected by city workers. For some BMPs, other surrogate measures of the control measures effect, (e.g. the pounds of sediment removed from streets or catch basins and the pounds of oil recycled) are used. These measures are easily translated into an estimate of pollutants that have been reduced from the storm system.

Many of the departments implementing these BMPs currently have record- keeping systems that can be used to assess the effectiveness of these programs. For example, the Street Transportation Department currently keeps track of the tons of sediment removed from street sweeping (18,200 tons in 1991), catch basin cleaning (6 tons in 1991), and detention basin cleaning (25 tons in 1991). The Public Works Solid Waste Division also has a tracking system for their recycling and household hazardous waste programs to track the number of people participating in the program and the quantity of waste collected.

It is important for all of the departments implementing existing BMP programs to document efforts which help to reduce the amount of pollutants discharged to the drainage system, and to begin to keep accurate records associated with these activities if they aren't already doing so.

5.2.2 Assessment of Structural or Treatment Controls

As noted earlier, the reduction in pollutant loadings from use of structural or treatment controls can be measured directly. Water quality samples can be collected upstream and downstream of the structure and the difference in pollutant concentrations can be determined. There have been many performance monitoring studies on structural controls conducted across the nation to determine the pollutant removal efficiencies of these controls. The information below summarizes information about the pollutant removal capability for the structural or treatment control measures that are used in the Phoenix area either by the City or private entities. Most of these systems were not designed as water quality controls, but do provide water quality benefits.

- Infiltration: - This type of storm water control is commonly used in the Phoenix area. These systems remove pollutants through adsorption, straining, and microbial decomposition in the soil below the system, and trapping of particulate matter within pretreatment areas, if used (e.g., sump pits, grass swales). Very few studies monitoring the performance of conventional infiltration systems have been conducted to date. Estimates of performance have been inferred from studies of rapid infiltration land wastewater treatment systems or by modeling. For sediment removal, rates in excess of 90% are cited; for phosphorus and nitrogen removal, the rate is estimated at 60%. Removal rates for trace metals, coliforms and organic matter are estimated at 90%. Lower rates are expected for nitrate, chlorides and soluble trace metals, particularly in sandy soils (WASHCOG, 1991). While infiltration systems are believed to provide excellent pollutant removal and can replicate predevelopment hydrology, their current design must be significantly improved to prevent clogging (WASHCOG, 1991).

- Oil/water separators: There are three general types of separators. The first type is the spill control separator commonly known as the catch basin. It is a simple underground vault or manhole with a "T" or "inverted elbow" outlet designed to prevent discharge of floating materials. The other two separators can remove dispersed oil: the American Petroleum Institute (API) separator, and coalescing plate interceptor (CPI). The catch basin-type separators are commonly used in

Phoenix, especially in the older sections of town. Some of the newer sections use drop inlets.

Pollutant removal for catch basins is through gravitational settling and separation of oil near the surface. It should be noted that actual pollutant removal is accomplished when trapped residuals are cleaned out of the inlet. The pollutant removal performance of catch basins type separators has had very limited monitoring in the field. Design factors suggest that removal capability is limited (WASHCOG, 1991).

Pollutant removal for API and CPI separators is dependent upon the incoming concentrations of oil and grease. The manufacturers of these separators specify a removal down to 10 milligrams per liter (mg/L) of oil and grease from the incoming storm water.

- Grassed swales: The City of Phoenix has several swales, or grassy areas located in parks. These swales are also used for detention of storm water.

Grassed swale systems act to remove pollutants by the filtering action of grass, by settling, and in some instances, by infiltration into the subsoil. The pollutant removal capability of ten conventional residential and highway swale systems has been monitored by six researchers. The results are mixed. Half of the swales studied demonstrated a moderate to high pollutant removal capability and the other half showed little removal (WASHCOG, 1991).

A well-designed, well-maintained conventional swale is expected to remove up to 70 percent of total suspended solids, 30 percent of total phosphorus, 25 percent of total nitrogen, and 50 to 90 percent of various trace metals. Swales appear to be more effective at removing metals than nutrients. No performance data exists on the effect of check dams in swales; however, the detention and trapping capability that they add is projected to be quite useful (WASHCOG, 1991).

Construction of any new grassed swales within the city is expected to be limited. Maintenance of grassed areas in this arid environment is often not consistent with the City's Water Conservation Program.

- Detention Basins: These can be termed either wet detention basins, dry detention basins, or extended detention basins. Both the wet detention basins and extended detention ponds allow water to be retained in the pond for at least 24 hours to achieve settling. Wet detention basins are not commonly used in Phoenix. Dry detention basins can be modified to become extended detention basins. The description of removal efficiencies below applies to monitoring studies conducted on extended detention basins.

  Pollutant removal is primarily accomplished by gravitational settling that is dependent on the detention time and the fraction of the annual runoff volume that is effectively detained in the pond. Reported removal from six performance monitoring studies show that removal for total suspended solids ranges from 30 to 70 percent, but is variable for smaller runoff events. For total phosphorus, removal generally ranges from 10 to 30 percent; for soluble nutrients, removal capability is estimated as low or negative. For chemical oxygen demand (COD), the removal rate ranges from 15 to 40 percent (WASHCOG, 1991).

It should be noted that most of the full-scale field evaluation programs for the above-listed and other types of treatment-based BMPs were conducted in areas that are very different from Phoenix, so the performance data are viewed as being only rough estimates.

5.3 ASSESSMENT OF NEW MANAGEMENT PROGRAM BMP CONTROLS

The new management program BMPs that will be implemented as part of this permit are source control BMPs and therefore will use indirect methods to measure the effectiveness. It is expected that the implementation of new BMP programs will mature and evolve over time. After a few years of implementation, it may be decided that certain proposed controls had too little positive effect of improving water quality or meeting goals to warrant their continued use. On the other hand, it may be determined

that some controls are far more effective than originally anticipated, and a greater effort should be made in implementing theses controls.

Following are the categories of BMPs that will be implemented. Within each category the number of programs to be implemented and the primary implementation method (education, regulatory, etc.) is listed.

- Control the Use and Disposal of Fertilizers, Pesticides and Herbicides - Two educational measures are proposed under this category, one targeting City department employees and agricultural and commercial users and one targeting drainage maintenance employees.

- Control Littering and Improper Waste Disposal Practices - One educational measure targeting the general public.

- Prevent the Dumping of Pollutants into Storm Sewers and Drainage Channels - Three control measures under this category, one educational measure targeting the general public, one regulatory measure coordinating reviews for permits, and one government activities program.

- Control Erosion at Construction Sites - One regulatory measure that includes inspection/enforcement, and one policies measure.

- Intensify the Maintenance/Repair of Storm Water Drainage Systems - One measure that addresses field record keeping to help locate sources of pollution.

- Prevent Rainfall and Runoff from Contacting Potential Contaminants - One educational measure targeted at the general public, and one regulatory measure.

For each of the new programs to be implemented, the approach for assessing the controls is presented according to the method used for implementation. Where possible, goals should be set to assist in measuring effectiveness (i.e., distribute 1000 brochures).

5.3.1 Educational Activities

Environmental education activities are crucial in a storm water management program because they begin to create an environmental awareness of the problem and encourage public involvement in the solution to the problem. As discussed previously, there is no way to estimate the effectiveness of such programs in terms of reduction of pollutant loads. The assessment of programs implemented through educational activities will therefore be conducted using the following methods.

For education of the general public, the increase in public awareness and understanding of storm water quality concerns can be determined by conducting a telephone survey or direct mailing a questionnaire every year or two. Also, keep records of the quantity of educational and informational material distributed, and solicit input from the recipients on the effectiveness of these materials when possible. Keep track of attendance at training sessions, meetings or workshops. After educating agency personnel, follow up to determine if the desired changes in practices have been made.

5.3.2 Regulatory Activities

The methods for evaluating the effectiveness of regulatory activities must be done in phases. Three of the new programs propose development and implementation of new regulations and policies. Often development of new regulations can take years depending upon complexity and the level of public support. The first phase would cover reporting progress on development of the regulations. The second phase would cover the reporting on the activities involved with implementation. Examples of these activities for the control of erosion at construction sites might include: developing guidelines for planning and inspection, education of staff to improve plan checking and permit review process, increasing inspections, and educating developers, engineers/architects and contractors of requirements. After the programs have been implemented more specific measures of effectiveness can be used. For example, one proposed regulatory program involves requiring landowner and tenants to provide covers to keep rain off areas which contain contaminants. Indirect measures of effectiveness might include keeping records of the number of site visits and the number of people making needed changes without enforcement actions.

5.3.3 Operations and Maintenance Activities

The two new management program BMP controls to be implemented through this category involve, for the most part, record keeping and reporting. In many cases, a review of records and reports will help to identify high priority areas. Reporting forms for field personnel will be developed together with procedures for recording, reviewing and resulting actions. Effectiveness can be measured by items such as the participation of employees, and the success of the actions at reducing pollutant sources.

It is important that each department in the City responsible for implementing control measure(s) submit a yearly status report to the Engineering and Architectural Services Department. The purpose of the reports is to provide an internal evaluation of each of the source control measures. The status reports for each control measure should include the following; progress and accomplishments to date, problems that have occurred, if any, with implementing the control measure, costs, suggested modifications, and actions for the following year. To ease the reporting procedure, reporting forms for each department and corresponding control measures could be prepared. The indirect measurements of effectiveness could be listed on this form to further assist the evaluation process.

5.3.4 Performance Evaluation Procedure and Schedule

It is important that each department in the City responsible for implementing a new source control program submit a yearly status report to the Engineering and Architectural Services Department. The purpose of the reports are to provide information to evaluate each of the source control programs, and report this information as required to the regulatory agency.

Many of the new program elements proposed must first be developed, and then implemented. Before the elements of a program are defined and developed, it is difficult, if not impossible to establish parameters to measure the effectiveness of a program. Therefore, assessment of the management program controls at the program development phase consists primarily of an evaluation of the progress towards getting the program in place and operational. After the program is operational, parameters for

evaluation can be defined and an assessment of the effectiveness of the control program can be made. It should be noted that during development of the control program it is important to consider how effectiveness will be measured so the evaluation can be integrated into the program.

The status reports for each control measure should include the following: progress and accomplishments to date; problems that have occurred, if any, with developing or implementing the control program; costs; modifications that were made or are needed; and actions for the following year. To simplify the reporting procedure, reporting forms for each department and their corresponding control measures are included at the end of this section. Each of the departments should provide responses on an annual basis and forward the information to the Engineering and Architectural Services Department no later than December 1 of each year.

5.4 ASSESSMENT OF IMPACTS OF STORM WATER CONTROLS ON GROUNDWATER

In Arizona, there have been concerns expressed since the early 1980's that pollutants in storm water runoff may contaminate groundwater. Infiltration is the primary method of storm water discharge. Dry wells are commonly used to dispose of urban runoff to comply with local detention/retention ordinances. The dry wells are typically designed with two principal components: a concrete-lined settling chamber and a gravel -packed shaft. Overflow from the settling chamber drains into the shaft via an overflow pipe. It has been estimated that the number of dry wells in the Phoenix area is greater than 11,000 (Kafura and others 1988). Several monitoring studies have been performed in the last decade to evaluate the impacts of dry wells on groundwater. In general, results of the studies show that storm water runoff does not degrade the groundwater quality near the monitoring sites.

Potential impacts of other types of storm water controls on groundwater were not assessed due to limited use and in comparison to dry well infiltration would be negligible.

Following is a brief overview of three dry well monitoring studies and the primary results of those studies.

5.4.1 Results of a Dry Well Monitoring Project for a Commercial Site in the Phoenix Urban Area

The Arizona Department of Health Services entered into an agreement with the Maricopa Association of Governments late in 1983 to evaluate the effect of dry wells on groundwater quality. The primary purpose of the program was to determine the effect of dry well recharge of commercial urban storm water runoff on groundwater quality. There were three parts of the study; (1) to determine the relation between depths of dry wells and depth to groundwater, (2) to determine the chemical quality of storm runoff at a specific commercial area, and (3) to determine the quality of shallow groundwater near some active dry wells. A brief overview of the results follows.

Overall, there is no indication that storm runoff has degraded groundwater quality at the site. High contents of fluoride, boron, and arsenic in the shallow groundwater are due to other factors. Storm runoff has improved the inorganic chemical quality of local groundwater because of dilution. Although lead, manganese, the pesticide diazinon, and some polynuclear aromatic hydrocarbons were found at significant levels in some samples of storm runoff, there has been no adverse impact on the chemical quality of groundwater. This is probably because most of these constituents are not mobile in the gravel emplaced in the dry wells or aquifer. In addition, the relatively small amount of recharge originating from commercial area storm runoff is substantially diluted by recharge from other sources (Schmidt, 1985)

5.4.2 Dry Wells in Arizona

This report was presented in August, 1988 to the Arizona State Legislature by the Arizona Department of Environmental Quality (ADEQ). At that time, ADEQ was conducting work in three areas to support the development of rules regulating dry wells under the state's dry well and aquifer protection permit programs. In order to provide data to support rule development and to determine the potential for groundwater contamination in each general land-use category, the ADEQ Hydrology Section has:

conducted a statistically valid dry well inventory of metropolitan Phoenix, begun a dry well runoff sampling project, and established preliminary locational standards for dry wells (Kafura, 1988).

Both willful and accidental dry well contamination may lead to groundwater pollution because dry wells provide a conduit for storm water runoff that reduces the filtering effects provided by the vadose zone. Groundwater pollution, caused by willful dry well contamination, although potentially more severe than accidental contamination may be more easily remedied through increased public awareness and strict regulation of , and compliance by, facilities handling hazardous substances. Groundwater pollution, caused by accidental or inadvertent dry well contamination, is difficult to evaluate because of the large number of hydrogeologic factors that influence how contaminants potentially cause groundwater pollution. Therefore, dry well design and locational standards must be developed that take into consideration worst-case hydrogeologic conditions.

Preliminary studies by ADEQ show that 150 foot horizontal set-back distances from water wells, and at least 10 to 70 foot vertical separation distances from groundwater may be sufficient to protect Arizona's aquifers from contamination introduced into the subsurface thorough dry wells. These locational standards may be applied in the future to newly installed dry wells. However, given the large number of existing dry wells, further investigations are needed to determine the cumulative effects that these unregulated dry wells are having on Arizona's aquifers (Kafura 1988).

5.4.3 The Ground Water Recharge and Pollution Potential of Dry Wells in Pima County, Arizona

The purpose of this study was to estimate the potential for dry well drainage of urban runoff to recharge and pollute groundwater in Tucson, Arizona. Three candidate dry wells were selected for study. At each site, samples of runoff, dry well sediment, vadose-zone sediment, perched groundwater, and groundwater were collected. Water content data from vadose-zone samples suggest that dry-well drainage has created a transmission zone for water movement at each site. Volatile organic compounds, while undetected in runoff samples, were present in dry well sediment, perched groundwater at one site, and groundwater at two sites. The concentrations of volatile organics (toluene and

ethylbenzene) in the water samples were less than the corresponding EPA human health criteria. Pesticides were detected only in runoff and dry well sediment. Lead and chromium occurred in runoff samples at concentrations above drinking water standards. Nickel, chromium, and zinc concentrations were elevated in vadose-zone samples at the commercial site. Of the metals, only manganese, detected at the residential site, exceeded Secondary Drinking Water Standards in groundwater. It is concluded that the three dry wells examined during this study are currently not a major source of groundwater pollution (Wilson 1990).

From review of the studies listed above, it appears that dry well storm water controls used by the City of Phoenix do not have significant impacts on groundwater, and that the ADEQ is adequately addressing this concern through their aquifer permit program.

ATTACHMENT 5-1

City of Phoenix

NPDES Storm Water Permit - Management Program Assessment

Yearly Status Report for the Year ____

Submitted To: Engineering and Architectural Services Department

Submitted By: Parks Department

Date Prepared: _____

Prepared By: _____

Description of New Source Control Programs being Implemented by Department

In Coordination with EAS:

1. Educate department employees and high volume users (i.e., agricultural and large commercial) on the proper use (i.e., application methods, frequencies, precautions) and proper management (i.e., storing, disposing) of fertilizers, pesticides, herbicides, and other potentially harmful chemicals through the use of brochures and pamphlets.

2. Educate City personnel responsible for channel maintenance and implement alternative methods for controlling insects and weeds (i.e., physical controls, biological controls, less toxic chemicals) through internal workshops and guidance documents.

____ Yearly Status Report - Management Program Assessment

Parks Department

Table 1 - Implementation Progress

Activity Description	1. Educate department employees and high volume users on proper use/management of fertilizers/pesticides/ herbicides.	2. Educate City channel maintenance personnel and implement alternative methods for controlling insects and weeds.
Progress and Accomplishments		
Problems Encountered		
Modifications Made or Needed		
Costs Associated with Program		
Plans for Next Year		

____ Yearly Status Report - Management Program Assessment

Parks Department

Table 2 - Evaluation of Effectiveness

Estimated Effectiveness	1. Educate department employees and high volume users on proper use/management of fertilizers/pesticides/ herbicides.	2. Educate City channel maintenance personnel and implement alternative methods for controlling insects and weeds.
Before and after understanding of problem/solution (through questionnaire or telephone survey)		
Number of brochures or letters distributed		
Attendance at workshops or meetings		
Educational materials incorporated into training programs.		
Response from participants		
Change in practices		
Other (please list)		

City of Phoenix

NPDES Storm Water Permit - Management Program Assessment

Yearly Status Report for the Year ____

Submitted To: Engineering and Architectural Services Department

Submitted By: Public Works Department

Date Prepared: _____

Prepared By: _____

Description of New Source Control Programs being Implemented by Department

3. Educate the public on storm water pollution impacts that result from littering and improper waste disposal practices.

____ Yearly Status Report - Management Program Assessment

Public Works Department

Table 1 - Implementation Progress

Activity Description	3. Educate public on storm water pollution impacts that result from littering and improper waste disposal practices.
Progress and Accomplishments	
Problems Encountered	
Modifications Made or Needed	
Costs Associated with Program	
Plans for Next Year	

____ Yearly Status Report - Management Program Assessment
Public Works Department

Table 2 - Evaluation of Effectiveness

Estimated Effectiveness	3. Educate public on storm water pollution impacts that result from littering and improper waste disposal practices.
Before and after understanding of problem/solution (through questionnaire or telephone survey)	
Number of brochures or letters distributed	
Attendance at workshops or meetings or events	
Educational materials incorporated into training programs.	
Response from participants	
Change in practices	
Other (please list)	

City of Phoenix

NPDES Storm Water Permit - Management Program Assessment

Yearly Status Report for the Year ____

Submitted To: Engineering and Architectural Services Department

Submitted By: Street Transportation Department

Date Prepared: _____

Prepared By: _____

Description of New Source Control Programs being Implemented by Department

4. Educate the public on the impacts that result when oil, antifreeze, pesticides, herbicides, paints, solvents, or other potentially harmful chemicals are dumped into storm sewers or drainage channels.

5. In Cooperation with EAS:

   Coordinate with EPA/ADEQ to be sure that all potential water quality impacts are adequately considered at the time NPDES permits are issued for any discharges to storm sewers or drainage channels.

6. Develop and implement an aggressive field program to search for, detect, and prevent dumping or routinely discharging pollutants into storm sewers and drainage channels. This should involve re-evaluating previous decisions to allow certain relatively clean waters to be discharged to the storm water systems.

9. Develop and implement a program which provides a means of recording the observations of field inspections and maintenance personnel, so this information can be used to help locate the source(s) of pollutants.

____ Yearly Status Report - Management Program Assessment

Street Transportation Department

Table 1 - Implementation Progress

Activity Description	4. Educate public on impacts from dumping oil, antifreeze, paints, solvents, or other potentially harmful chemicals into storm sewers or drainage channels.	5. Coordinate with EPA/ADEQ on potential water quality impacts when NPDES permits are issued.
Progress and Accomplishments		
Problems Encountered		
Modifications Made or Needed		
Costs Associated with Program		
Plans for Next Year		

____ Yearly Status Report - Management Program Assessment
Street Transportation Department

Table 1 - Implementation Progress Continued

Activity Description	6. Develop and implement program to search for, detect, and prevent dumping or routinely discharging pollutants into storm sewers and drainage channels.	9. Develop and implement a program to record observations of field inspections and maintenance personnel.
Progress and Accomplishments		
Problems Encountered		
Modifications Made or Needed		
Costs Associated with Program		
Plans for Next Year		

City of Phoenix

NPDES Storm Water Permit - Management Program Assessment

Yearly Status Report for the Year ____

Submitted To: Engineering and Architectural Services Department

Submitted By: Law Department

Date Prepared: _____

Prepared By: _____

Description of New Source Control Programs being Implemented by Department

7. In Cooperation with EAS:

Develop and implement effective erosion and sediment control regulations, and requirements for corresponding construction inspection programs. These apply to public-sector and private-sector construction programs.

11. In Cooperation with EAS and Development Services:

Develop and implement regulations which require landowners and/or tenants to provide covers (i.e. roofs, tarps) to keep rain off areas which contain contaminants (i.e., chemical storage areas, waste storage areas, contaminated industrial areas) and to keep runoff from draining through areas which contain contaminants.

____ Yearly Status Report - Management Program Assessment

Law Department

Table 1 - Implementation Progress

Activity Description	7. Develop and implement effective erosion and sediment control regulations, and requirements for construction inspection programs.	11. Develop and implement regulations which require landowners and/or tenants to provide covers and to keep runoff from draining through areas which contain contaminants.
Progress and Accomplishments		
Problems Encountered		
Modifications Made or Needed		
Costs Associated with Program		
Plans for Next Year		

City of Phoenix

NPDES Storm Water Permit - Management Program Assessment

Yearly Status Report for the Year ____

Submitted To: Engineering and Architectural Services Department

Submitted By: Development Services Department

Date Prepared: _____

Prepared By: _____

Description of New Source Control Programs being Implemented by Department

8. In Cooperation with EAS:

Develop and implement improved erosion and sediment control policies in the environmental elements of all site development plans.

11. In Cooperation with EAS and Law Department:

Develop and implement regulations which require landowners and/or tenants to provide covers (i.e. roofs, tarps) to keep rain off areas which contain contaminants (i.e., chemical storage areas, waste storage areas, contaminated industrial areas) and to keep runoff from draining through areas which contain contaminants.

____ Yearly Status Report - Management Program Assessment
Development Services Department

Table 1 - Implementation Progress

Activity Description	8. Develop and implement improved erosion and sediment control policies in the environmental elements of all site development plans.	11. Develop and implement regulations which require landowners and/or tenants to provide covers and to keep runoff from draining through areas which contain contaminants.
Progress and Accomplishments		
Problems Encountered		
Modifications Made or Needed		
Costs Associated with Program		
Plans for Next Year		

City of Phoenix

NPDES Storm Water Permit - Management Program Assessment

Yearly Status Report for the Year ____

Submitted To: Engineering and Architectural Services Department

Submitted By: Engineering and Architectural Services Department

Date Prepared: _____

Prepared By: _____

Description of New Source Control Programs being Implemented by Department

10. Educate on the need to keep rainfall and runoff from contacting potential contaminants. Describe typical examples of the problem and practical solutions.

In Cooperation with Parks Department:

1. Educate department employees and high volume users (i.e., agricultural and large commercial) on the proper use (i.e., application methods, frequencies, precautions) and proper management (i.e., storing, disposing) of fertilizers, pesticides, herbicides, and other potentially harmful chemicals through the use of brochures and pamphlets.

2. Educate City personnel responsible for channel maintenance and implement alternative methods for controlling insects and weeds (i.e., physical controls, biological controls, less toxic chemicals) through internal workshops and guidance documents.

5. In Cooperation with Street Transportation Department:

Coordinate with EPA/ADEQ to be sure that all potential water quality impacts are adequately considered at the time NPDES permits are issued for any discharges to storm sewers or drainage channels.

7. In Cooperation with Law Department:

Develop and implement effective erosion and sediment control regulations, and requirements for corresponding construction inspection programs. These apply to public-sector and private-sector construction programs.

11. In Cooperation with Development Services and Law Departments:

Develop and implement regulations which require landowners and/or tenants to provide covers (i.e. roofs, tarps) to keep rain off areas which contain contaminants (i.e., chemical storage areas, waste storage areas, contaminated industrial areas) and to keep runoff from draining through areas which contain contaminants.

OUTFALL : AC01 LOCATION: Arizona Canal & Cactus
GEOMETRY: CIRCLE 78"

LAND USE ACREAGE:

TOTAL ACREAGE:	1979						
HEAVY INDUSTRIAL:	0	COMMERICAL:	111.03	OPEN LAND:	6.1977	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	6.1306	PUBLIC OWNED:	334.61	MED. RESIDENTIAL:	819
				AGRICULTURAL:	4.2189	HVY. RESIDENTIAL:	61.59

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	5.61%	OPEN LAND:	0.31%	LT. RESIDENTIAL:	32.15%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.31%	PUBLIC OWNED:	16.91%	MED. RESIDENTIAL:	41.38%
				AGRICULTURAL:	0.21%	HVY. RESIDENTIAL:	3.11%

OUTFALL : AC02 LOCATION: Arizona Canal near Peoria
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	2707						
HEAVY INDUSTRIAL:	0	COMMERICAL:	187.81	OPEN LAND:	79.255	LT. RESIDENTIAL:	21.915
LIGHT INDUSTRIAL:	21.915	TRANSPORTATION:	0	PUBLIC OWNED:	246.7	MED. RESIDENTIAL:	1738
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	66.804

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	6.94%	OPEN LAND:	2.93%	LT. RESIDENTIAL:	13.56%
LIGHT INDUSTRIAL:	0.81%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	9.11%	MED. RESIDENTIAL:	64.18%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	2.47%

OUTFALL : AC03 LOCATION: Ariz Canal
GEOMETRY: CIRCLE 42"

LAND USE ACREAGE:

TOTAL ACREAGE:	146						
HEAVY INDUSTRIAL:	0	COMMERICAL:	12.248	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	113.2
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	20.469

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	8.39%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	77.59%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	14.02%

OUTFALL : AC04 LOCATION: Arizona Canal, 35th & 39th Ave.
GEOMETRY: CIRCLE 96"

LAND USE ACREAGE:

TOTAL ACREAGE:	3117						
HEAVY INDUSTRIAL:	0	COMMERICAL:	432.33	OPEN LAND:	27.682	LT. RESIDENTIAL:	274.64
LIGHT INDUSTRIAL:	274.64	TRANSPORTATION:	10.869	PUBLIC OWNED:	194.04	MED. RESIDENTIAL:	1859
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	318.94

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	13.87%	OPEN LAND:	0.89%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	8.81%	TRANSPORTATION:	0.35%	PUBLIC OWNED:	6.22%	MED. RESIDENTIAL:	59.63%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	10.23%

OUTFALL : AC05 LOCATION: Metro Center, 27th & 31st
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	72.3						
HEAVY INDUSTRIAL:	0	COMMERICAL:	64.343	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	7.956	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	89.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	11.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC06 LOCATION: Arizona Canal & Metro Center
GEOMETRY: CIRCLE 42"

LAND USE ACREAGE:

TOTAL ACREAGE:	12.9						
HEAVY INDUSTRIAL:	0	COMMERICAL:	7.7091	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	5.1624	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	59.89%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	40.11%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC07 LOCATION: 27th Ave & Peoria
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	65.6						
HEAVY INDUSTRIAL:	0	COMMERICAL:	61.395	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	4.1737	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	93.63%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	6.37%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC08 LOCATION: Metro Center
GEOMETRY: CIRCLE 43"

LAND USE ACREAGE:

TOTAL ACREAGE:	91.5						
HEAVY INDUSTRIAL:	0	COMMERICAL:	91.454	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	100.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC09 LOCATION: Between 23rd & 27th
GEOMETRY: CIRCLE 12"

LAND USE ACREAGE:

TOTAL ACREAGE:	44.2						
HEAVY INDUSTRIAL:	0	COMMERICAL:	30.695	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	12.308	PUBLIC OWNED:	1.1918	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	69.45%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	27.85%	PUBLIC OWNED:	2.70%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC10 LOCATION: 19th Ave. near Dunlop
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	178						
HEAVY INDUSTRIAL:	0	COMMERICAL:	56.048	OPEN LAND:	0	LT. RESIDENTIAL:	16.36
LIGHT INDUSTRIAL:	16.36	TRANSPORTATION:	0	PUBLIC OWNED:	0.5634	MED. RESIDENTIAL:	83.3
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	21.585

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	31.51%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	9.20%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.32%	MED. RESIDENTIAL:	46.84%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	12.14%

OUTFALL : AC11 LOCATION: 7th St. btwn Butler Dr & Northern
GEOMETRY: CIRCLE 42"

LAND USE ACREAGE:

TOTAL ACREAGE:	214						
HEAVY INDUSTRIAL:	0	COMMERICAL:	117.25	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	4.0315	PUBLIC OWNED:	2.8471	MED. RESIDENTIAL:	89.57
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	54.85%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.04%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	1.89%	PUBLIC OWNED:	1.33%	MED. RESIDENTIAL:	41.90%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC12 LOCATION: 16th & 20th St.
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	105						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	12.136	PUBLIC OWNED:	15.018	MED. RESIDENTIAL:	56.08
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	20.67%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	11.57%	PUBLIC OWNED:	14.31%	MED. RESIDENTIAL:	53.45%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC13 LOCATION: N. of ACDC & 24th St.
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	139						
HEAVY INDUSTRIAL:	0	COMMERICAL:	26.676	OPEN LAND:	31.283	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	13.664	PUBLIC OWNED:	54.266	MED. RESIDENTIAL:	8.379
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	19.22%	OPEN LAND:	22.54%	LT. RESIDENTIAL:	3.27%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	9.84%	PUBLIC OWNED:	39.10%	MED. RESIDENTIAL:	6.04%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC14 LOCATION: ACDC & 24th St.
GEOMETRY: CIRCLE (2)36"

LAND USE ACREAGE:

TOTAL ACREAGE:	504						
HEAVY INDUSTRIAL:	0	COMMERICAL:	70.749	OPEN LAND:	132.1	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	6.3363	PUBLIC OWNED:	61.285	MED. RESIDENTIAL:	101.1
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	27.766

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	14.02%	OPEN LAND:	26.19%	LT. RESIDENTIAL:	20.84%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	1.26%	PUBLIC OWNED:	12.15%	MED. RESIDENTIAL:	20.04%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	5.50%

OUTFALL : AC19 LOCATION: 42ND ST, NORTH SIDE OF ARIZONA CANAL
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	556						
HEAVY INDUSTRIAL:	0	COMMERICAL:	23.82	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	82.874	MED. RESIDENTIAL:	218
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	21.759

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	4.29%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	37.64%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	14.92%	MED. RESIDENTIAL:	39.24%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	3.92%

OUTFALL : AC21 LOCATION: 49TH DR, NORTH SIDE OF ACDC
GEOMETRY: SPILLWA

LAND USE ACREAGE:

TOTAL ACREAGE:	89.1						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	4.7202	PUBLIC OWNED:	0	MED. RESIDENTIAL:	84.37
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	5.30%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	94.70%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC22 LOCATION: LUPINE DR., NORTH SIDE OF ACDC
GEOMETRY: SPILLWA

LAND USE ACREAGE:

TOTAL ACREAGE:	88						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	10.09	PUBLIC OWNED:	1.5102	MED. RESIDENTIAL:	76.43
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	11.46%	PUBLIC OWNED:	1.72%	MED. RESIDENTIAL:	86.82%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC23 LOCATION: YUCCA ST., NORTH SIDE OF ACDC
GEOMETRY: SPILLWA

LAND USE ACREAGE:

TOTAL ACREAGE:	123						
HEAVY INDUSTRIAL:	0	COMMERICAL:	9.2211	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	3.2586	PUBLIC OWNED:	20.774	MED. RESIDENTIAL:	89.97
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	7.48%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	2.64%	PUBLIC OWNED:	16.86%	MED. RESIDENTIAL:	73.01%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC24 LOCATION: 39TH AVE., NORTH SIDE OF ACDC
GEOMETRY: SPILLWA

LAND USE ACREAGE:

TOTAL ACREAGE:	54.7						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	6.568	PUBLIC OWNED:	1.88	MED. RESIDENTIAL:	46.29
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	12.00%	PUBLIC OWNED:	3.43%	MED. RESIDENTIAL:	84.57%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC25 LOCATION: IRONWOOD DR., NORTH SIDE OF ACDC
GEOMETRY: SPILLWA

LAND USE ACREAGE:

TOTAL ACREAGE:	132						
HEAVY INDUSTRIAL:	0	COMMERICAL:	8.5631	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	18.333	PUBLIC OWNED:	0	MED. RESIDENTIAL:	105
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	6.49%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	13.90%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	79.61%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : AC26 LOCATION: BETWEEN 7TH AV & 7TH STREET
GEOMETRY: SPILLWA

LAND USE ACREAGE:

TOTAL ACREAGE:	1073						
HEAVY INDUSTRIAL:	0	COMMERICAL:	262.79	OPEN LAND:	72.889	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	31.406	PUBLIC OWNED:	292.2	MED. RESIDENTIAL:	362.7
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	31.156

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	24.50%	OPEN LAND:	6.79%	LT. RESIDENTIAL:	1.82%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	2.93%	PUBLIC OWNED:	27.24%	MED. RESIDENTIAL:	33.81%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	2.90%

OUTFALL : CC01 LOCATION: CC-Mtn. View & 23rd Ave.
GEOMETRY: CIRCLE 24"

LAND USE ACREAGE:

TOTAL ACREAGE:	32.9						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	16.817	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	16.103	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	51.08%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	48.92%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : CC02 LOCATION: CC-Mtn. View & 23rd Ave.
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	124						
HEAVY INDUSTRIAL:	0	COMMERICAL:	43.276	OPEN LAND:	23.769	LT. RESIDENTIAL:	57.072
LIGHT INDUSTRIAL:	57.072	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	5.61%	OPEN LAND:	0.31%	LT. RESIDENTIAL:	32.15%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.31%	PUBLIC OWNED:	16.91%	MED. RESIDENTIAL:	41.38%
				AGRICULTURAL:	0.21%	HVY. RESIDENTIAL:	3.11%

OUTFALL : CC03 LOCATION: Cave Creek & Cave Creek
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	452						
HEAVY INDUSTRIAL:	0	COMMERICAL:	42.698	OPEN LAND:	11.986	LT. RESIDENTIAL:	228.26
LIGHT INDUSTRIAL:	228.26	TRANSPORTATION:	26.012	PUBLIC OWNED:	9.7819	MED. RESIDENTIAL:	2.082
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	131.67

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	9.44%	OPEN LAND:	2.65%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	50.44%	TRANSPORTATION:	5.75%	PUBLIC OWNED:	2.16%	MED. RESIDENTIAL:	0.46%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	29.10%

OUTFALL : CC04 LOCATION: Cholla & 23rd Ave.
GEOMETRY: CIRCLE 78"

LAND USE ACREAGE:

TOTAL ACREAGE:	448						
HEAVY INDUSTRIAL:	0	COMMERICAL:	55.859	OPEN LAND:	0	LT. RESIDENTIAL:	12.755
LIGHT INDUSTRIAL:	12.755	TRANSPORTATION:	19.052	PUBLIC OWNED:	113.63	MED. RESIDENTIAL:	176.1
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	70.976

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	12.46%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	2.84%	TRANSPORTATION:	4.25%	PUBLIC OWNED:	25.34%	MED. RESIDENTIAL:	39.28%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	15.83%

OUTFALL : CC05 LOCATION: CC @ Cactus & 23rd Ave.
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	102						
HEAVY INDUSTRIAL:	0	COMMERICAL:	4.1676	OPEN LAND:	11.378	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	17.526	MED. RESIDENTIAL:	39.39
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	29.178

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	4.10%	OPEN LAND:	11.20%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	17.24%	MED. RESIDENTIAL:	38.75%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	28.71%

OUTFALL : CC06 LOCATION: Cactus & Sweetwater
GEOMETRY: CIRCLE 30"

LAND USE ACREAGE:

TOTAL ACREAGE:	92.7						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0.8403	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	91.81
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.91%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	99.09%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : CC07 LOCATION: Sweetwater & 19th
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	166						
HEAVY INDUSTRIAL:	0	COMMERICAL:	3.0579	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	16.892	MED. RESIDENTIAL:	146.4
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	1.84%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	10.15%	MED. RESIDENTIAL:	88.01%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : CC08 LOCATION: Cave Creek & T-Bird
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	499						
HEAVY INDUSTRIAL:	0	COMMERICAL:	1.6126	OPEN LAND:	27	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	59.617	MED. RESIDENTIAL:	112.1
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	42.762

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.32%	OPEN LAND:	5.41%	LT. RESIDENTIAL:	51.31%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	11.94%	MED. RESIDENTIAL:	22.45%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	8.56%

OUTFALL : CC09 LOCATION: Cave Creek & T-Bird
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	112						
HEAVY INDUSTRIAL:	0	COMMERICAL:	13.233	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	3.5619	MED. RESIDENTIAL:	75.4
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	2.1912

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	11.84%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	15.54%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	3.19%	MED. RESIDENTIAL:	67.47%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	1.96%

OUTFALL : CC10 LOCATION: 19th Ave. near Greenway
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	1253						
HEAVY INDUSTRIAL:	0	COMMERICAL:	390.54	OPEN LAND:	228.29	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	25.311	MED. RESIDENTIAL:	438.8
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	111.51

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	31.16%	OPEN LAND:	18.21%	LT. RESIDENTIAL:	4.70%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	2.02%	MED. RESIDENTIAL:	35.01%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	8.90%

OUTFALL : CC11 LOCATION: 7th & Bell
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	677						
HEAVY INDUSTRIAL:	0	COMMERICAL:	117.96	OPEN LAND:	201.47	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	48.59	MED. RESIDENTIAL:	238.1
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	65.41

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	17.41%	OPEN LAND:	29.74%	LT. RESIDENTIAL:	0.86%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	7.17%	MED. RESIDENTIAL:	35.15%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	9.66%

OUTFALL : CC12 LOCATION: 7th & Bell
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	11.9						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	11.897	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	100.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : CC13 LOCATION: 7th & Greenway Pkwy
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	149						
HEAVY INDUSTRIAL:	0	COMMERICAL:	22.133	OPEN LAND:	41.375	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	33.164	PUBLIC OWNED:	0	MED. RESIDENTIAL:	13.84
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	7.1258

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	14.85%	OPEN LAND:	27.76%	LT. RESIDENTIAL:	21.08%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	22.25%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	9.29%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	4.78%

OUTFALL : CC14 LOCATION: 7th & East Greenway Pkwy
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	316						
HEAVY INDUSTRIAL:	0	COMMERICAL:	17.854	OPEN LAND:	15.963	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	10.071	MED. RESIDENTIAL:	235.6
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	5.66%	OPEN LAND:	5.06%	LT. RESIDENTIAL:	11.45%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	3.19%	MED. RESIDENTIAL:	74.64%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : EF01 LOCATION: SE corner Greenway Pkwy & Cave Creek
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	1145						
HEAVY INDUSTRIAL:	0	COMMERICAL:	123.81	OPEN LAND:	38.14	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	4.8421	PUBLIC OWNED:	279.16	MED. RESIDENTIAL:	670.3
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	10.81%	OPEN LAND:	3.33%	LT. RESIDENTIAL:	2.53%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.42%	PUBLIC OWNED:	24.38%	MED. RESIDENTIAL:	58.53%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : EF02 LOCATION: SW corner Greenway Pkwy & 16th St
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	538						
HEAVY INDUSTRIAL:	0	COMMERICAL:	22.948	OPEN LAND:	204.46	LT. RESIDENTIAL:	6.6059
LIGHT INDUSTRIAL:	6.6059	TRANSPORTATION:	31.401	PUBLIC OWNED:	29.15	MED. RESIDENTIAL:	106.9
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	109.41

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	4.27%	OPEN LAND:	38.01%	LT. RESIDENTIAL:	5.02%
LIGHT INDUSTRIAL:	1.23%	TRANSPORTATION:	5.84%	PUBLIC OWNED:	5.42%	MED. RESIDENTIAL:	19.88%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	20.34%

OUTFALL : EF03 LOCATION: SW corner Greenway Pkwy & 18th St
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	174						
HEAVY INDUSTRIAL:	0	COMMERICAL:	18.557	OPEN LAND:	37.858	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	1.4429	MED. RESIDENTIAL:	46.25
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	55.264

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	10.69%	OPEN LAND:	21.81%	LT. RESIDENTIAL:	8.20%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.38%	MED. RESIDENTIAL:	26.64%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	31.83%

OUTFALL : EF04 LOCATION: SW corner Greenway Pkwy & 20th st
GEOMETRY: CIRCLE 96"

LAND USE ACREAGE:

TOTAL ACREAGE:	1953						
HEAVY INDUSTRIAL:	0	COMMERICAL:	63.234	OPEN LAND:	562.72	LT. RESIDENTIAL:	177.91
LIGHT INDUSTRIAL:	177.91	TRANSPORTATION:	131.02	PUBLIC OWNED:	9.1735	MED. RESIDENTIAL:	264.9
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	202.03

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	3.24%	OPEN LAND:	28.81%	LT. RESIDENTIAL:	27.76%
LIGHT INDUSTRIAL:	9.11%	TRANSPORTATION:	6.71%	PUBLIC OWNED:	0.47%	MED. RESIDENTIAL:	13.56%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	10.34%

OUTFALL : GC01 LOCATION: North Side of Grand Canal
GEOMETRY: CIRCLE 24"

LAND USE ACREAGE:

TOTAL ACREAGE:	70.7						
HEAVY INDUSTRIAL:	0.497	COMMERICAL:	8.885	OPEN LAND:	0	LT. RESIDENTIAL:	36.01
LIGHT INDUSTRIAL:	36.01	TRANSPORTATION:	25.197	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0.1311

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.70%	COMMERICAL:	12.56%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	50.92%	TRANSPORTATION:	35.63%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.19%

OUTFALL : GC02 LOCATION: S. Side of Grand Canal
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	202						
HEAVY INDUSTRIAL:	30.71	COMMERICAL:	22.285	OPEN LAND:	0	LT. RESIDENTIAL:	4.7528
LIGHT INDUSTRIAL:	4.7528	TRANSPORTATION:	76.426	PUBLIC OWNED:	21.295	MED. RESIDENTIAL:	45.65
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0.9418

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	15.20%	COMMERICAL:	11.03%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	2.35%	TRANSPORTATION:	37.82%	PUBLIC OWNED:	10.54%	MED. RESIDENTIAL:	22.59%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.47%

OUTFALL : IB01 LOCATION: Indian Bend Wash Shea & 52nd
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	117						
HEAVY INDUSTRIAL:	0	COMMERICAL:	23.125	OPEN LAND:	4.0303	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	88.31
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	19.83%	OPEN LAND:	3.46%	LT. RESIDENTIAL:	0.96%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	75.74%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : IB02 LOCATION: IB Wash @ Shea & 52nd St.
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	462						
HEAVY INDUSTRIAL:	0	COMMERICAL:	16.651	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	0.5973	MED. RESIDENTIAL:	17.84
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	3.60%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	92.41%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.13%	MED. RESIDENTIAL:	3.86%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : IB03 LOCATION: Indian Bend Wash near Tatum
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	371						
HEAVY INDUSTRIAL:	0	COMMERICAL:	8.4961	OPEN LAND:	2.9146	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	225.2
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	2.29%	OPEN LAND:	0.79%	LT. RESIDENTIAL:	36.20%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	60.72%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : IB04 LOCATION: Indian Bend Wash near Tatum
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	1109						
HEAVY INDUSTRIAL:	0	COMMERICAL:	358.92	OPEN LAND:	102.5	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	54.366	MED. RESIDENTIAL:	497.5
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	89.125

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	32.36%	OPEN LAND:	9.24%	LT. RESIDENTIAL:	0.60%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	4.90%	MED. RESIDENTIAL:	44.85%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	8.04%

OUTFALL : IB05 LOCATION: IB & Shea
GEOMETRY: CIRCLE 78"

LAND USE ACREAGE:

TOTAL ACREAGE:	916						
HEAVY INDUSTRIAL:	0	COMMERICAL:	42.419	OPEN LAND:	9.3217	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	53.899	MED. RESIDENTIAL:	721.9
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	4.63%	OPEN LAND:	1.02%	LT. RESIDENTIAL:	9.61%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	5.89%	MED. RESIDENTIAL:	78.85%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : IB06 LOCATION: Indian Bend & Sweetwater
GEOMETRY: CIRCLE 60"

LAND USE ACREAGE:

TOTAL ACREAGE:	99.6						
HEAVY INDUSTRIAL:	0	COMMERICAL:	9.6015	OPEN LAND:	24.825	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	6.4248	PUBLIC OWNED:	0	MED. RESIDENTIAL:	58.72
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	9.64%	OPEN LAND:	24.93%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	6.45%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	58.97%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : IB07 LOCATION: Indian Bend & Sweetwater
GEOMETRY: CIRCLE 78"

LAND USE ACREAGE:

TOTAL ACREAGE:	195						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	2.1918	PUBLIC OWNED:	7.4014	MED. RESIDENTIAL:	185
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	1.13%	PUBLIC OWNED:	3.80%	MED. RESIDENTIAL:	95.07%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : IB08 LOCATION: 40th South of Sweetwater
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	801						
HEAVY INDUSTRIAL:	0	COMMERICAL:	61.517	OPEN LAND:	57.884	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	6.8803	PUBLIC OWNED:	16.28	MED. RESIDENTIAL:	409.6
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	14.829

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	7.68%	OPEN LAND:	7.22%	LT. RESIDENTIAL:	29.26%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.86%	PUBLIC OWNED:	2.03%	MED. RESIDENTIAL:	51.10%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	1.85%

OUTFALL : IB09 LOCATION: 40th South of Sweetwater
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	581						
HEAVY INDUSTRIAL:	0	COMMERICAL:	60.366	OPEN LAND:	45.39	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	71.36	PUBLIC OWNED:	22.661	MED. RESIDENTIAL:	350.6
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	10.39%	OPEN LAND:	7.81%	LT. RESIDENTIAL:	5.24%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	12.29%	PUBLIC OWNED:	3.90%	MED. RESIDENTIAL:	60.36%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : IB10 LOCATION: IB & Acoma
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	1347						
HEAVY INDUSTRIAL:	0	COMMERICAL:	168.08	OPEN LAND:	112.88	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	28.345	PUBLIC OWNED:	69.485	MED. RESIDENTIAL:	581.3
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	187.87

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	12.48%	OPEN LAND:	8.38%	LT. RESIDENTIAL:	14.76%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	2.10%	PUBLIC OWNED:	5.16%	MED. RESIDENTIAL:	43.16%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	13.95%

OUTFALL : IB11 LOCATION: 56th St. and Indian Bend Wash
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	3092						
HEAVY INDUSTRIAL:	0	COMMERICAL:	57.832	OPEN LAND:	98.892	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	241.86	MED. RESIDENTIAL:	1662
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	48.294

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	1.87%	OPEN LAND:	3.20%	LT. RESIDENTIAL:	31.80%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	7.82%	MED. RESIDENTIAL:	53.75%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	1.56%

OUTFALL : OC01 LOCATION: Washington & 46th St.
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	80.6						
HEAVY INDUSTRIAL:	0	COMMERICAL:	34.073	OPEN LAND:	35.524	LT. RESIDENTIAL:	11.019
LIGHT INDUSTRIAL:	11.019	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	42.27%	OPEN LAND:	44.07%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	13.67%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : OC02 LOCATION: Van Buran & 40th St
GEOMETRY: CIRCLE 42"

LAND USE ACREAGE:

TOTAL ACREAGE:	137						
HEAVY INDUSTRIAL:	0	COMMERICAL:	5.7425	OPEN LAND:	33.359	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	42.99	MED. RESIDENTIAL:	54.87
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	4.19%	OPEN LAND:	24.36%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	31.39%	MED. RESIDENTIAL:	40.06%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : OC03 LOCATION: 46th St. & Papago
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	251						
HEAVY INDUSTRIAL:	0	COMMERICAL:	23.886	OPEN LAND:	27.178	LT. RESIDENTIAL:	64.866
LIGHT INDUSTRIAL:	64.866	TRANSPORTATION:	0	PUBLIC OWNED:	12.723	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	121.86

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	9.54%	OPEN LAND:	10.85%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	25.89%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	5.08%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	48.64%

OUTFALL : OC04 LOCATION: East Side OC at McDowell
GEOMETRY: CIRCLE 42"

LAND USE ACREAGE:

TOTAL ACREAGE:	483						
HEAVY INDUSTRIAL:	0	COMMERICAL:	99.449	OPEN LAND:	0	LT. RESIDENTIAL:	0.5719
LIGHT INDUSTRIAL:	0.5719	TRANSPORTATION:	0	PUBLIC OWNED:	57.48	MED. RESIDENTIAL:	322.7
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	2.3239

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	20.61%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.12%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	11.91%	MED. RESIDENTIAL:	66.88%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.48%

OUTFALL : OC05 LOCATION: OCC & Thomas
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	161						
HEAVY INDUSTRIAL:	0	COMMERICAL:	19.662	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	25.164	MED. RESIDENTIAL:	81.62
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	34.904

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	12.19%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	15.60%	MED. RESIDENTIAL:	50.59%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	21.63%

OUTFALL : OC06 LOCATION: OCC, Osborne & Thomas
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	205						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	19.758
LIGHT INDUSTRIAL:	19.758	TRANSPORTATION:	0	PUBLIC OWNED:	8.0113	MED. RESIDENTIAL:	168
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	9.3229

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	9.63%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	3.91%	MED. RESIDENTIAL:	81.91%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	4.55%

OUTFALL : OC07 LOCATION: 48th St., Indian School
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	277						
HEAVY INDUSTRIAL:	0	COMMERICAL:	14.741	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	38.29	PUBLIC OWNED:	24.924	MED. RESIDENTIAL:	191
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	1.0277

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	5.31%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	2.70%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	13.80%	PUBLIC OWNED:	8.98%	MED. RESIDENTIAL:	68.83%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.37%

OUTFALL : PD11 LOCATION: 31st Ave. & Bellevue
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	3690						
HEAVY INDUSTRIAL:	139.9	COMMERICAL:	299.71	OPEN LAND:	0	LT. RESIDENTIAL:	198.1
LIGHT INDUSTRIAL:	198.1	TRANSPORTATION:	86.031	PUBLIC OWNED:	460.93	MED. RESIDENTIAL:	2042
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	330.7

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	3.79%	COMMERICAL:	8.12%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	3.61%
LIGHT INDUSTRIAL:	5.37%	TRANSPORTATION:	2.33%	PUBLIC OWNED:	12.49%	MED. RESIDENTIAL:	55.33%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	8.96%

OUTFALL : PD01 LOCATION: PDC & 91st Ave.
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	1305						
HEAVY INDUSTRIAL:	0	COMMERICAL:	18.278	OPEN LAND:	285.87	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	0	PUBLIC OWNED:	27.4	MED. RESIDENTIAL:	600.2
				AGRICULTURAL:	275.81	HVY. RESIDENTIAL:	75.596

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	1.40%	OPEN LAND:	21.90%	LT. RESIDENTIAL:	1.69%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	00.05%	MED. RESIDENTIAL:	45.98%
				AGRICULTURAL:	21.13%	HVY. RESIDENTIAL:	5.79%

OUTFALL : PD02 LOCATION: PDC & 83rd
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	2073						
HEAVY INDUSTRIAL:	0	COMMERICAL:	177.43	OPEN LAND:	76.516	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	78.501	PUBLIC OWNED:	31.756	MED. RESIDENTIAL:	1132
				AGRICULTURAL:	506.78	HVY. RESIDENTIAL:	23.209

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	8.56%	OPEN LAND:	3.69%	LT. RESIDENTIAL:	2.24%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	3.79%	PUBLIC OWNED:	1.82%	MED. RESIDENTIAL:	54.62%
				AGRICULTURAL:	24.45%	HVY. RESIDENTIAL:	1.12%

OUTFALL : PD03 LOCATION: PDC & 75th
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	2216						
HEAVY INDUSTRIAL:	0	COMMERICAL:	224.37	OPEN LAND:	173.88	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	89.503	PUBLIC OWNED:	160.71	MED. RESIDENTIAL:	1296
				AGRICULTURAL:	41.851	HVY. RESIDENTIAL:	198.3

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	10.12%	OPEN LAND:	7.85%	LT. RESIDENTIAL:	1.42%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	4.04%	PUBLIC OWNED:	4.18%	MED. RESIDENTIAL:	58.48%
				AGRICULTURAL:	1.89%	HVY. RESIDENTIAL:	8.95%

OUTFALL : PD04 LOCATION: PDC & 67th
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	1963						
HEAVY INDUSTRIAL:	0	COMMERICAL:	256.37	OPEN LAND:	86.123	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	70.786	PUBLIC OWNED:	193.75	MED. RESIDENTIAL:	1169
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	126.12

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	13.06%	OPEN LAND:	4.39%	LT. RESIDENTIAL:	3.12%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	3.61%	PUBLIC OWNED:	1.76%	MED. RESIDENTIAL:	59.54%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	6.42%

OUTFALL : PD05 LOCATION: 59th & PDC
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	2152						
HEAVY INDUSTRIAL:	9.202	COMMERICAL:	198.31	OPEN LAND:	113.39	LT. RESIDENTIAL:	8.0497
LIGHT INDUSTRIAL:	8.0497	TRANSPORTATION:	70.558	PUBLIC OWNED:	172.27	MED. RESIDENTIAL:	1470
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	110.81

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.43%	COMMERICAL:	9.21%	OPEN LAND:	5.27%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.37%	TRANSPORTATION:	3.28%	PUBLIC OWNED:	0.40%	MED. RESIDENTIAL:	68.29%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	5.15%

OUTFALL : PD06 LOCATION: PDC & 51st St.
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	1965						
HEAVY INDUSTRIAL:	0	COMMERICAL:	80.543	OPEN LAND:	113.35	LT. RESIDENTIAL:	318.26
LIGHT INDUSTRIAL:	318.26	TRANSPORTATION:	61.832	PUBLIC OWNED:	98.107	MED. RESIDENTIAL:	1199
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	93.915

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	4.10%	OPEN LAND:	5.77%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	16.20%	TRANSPORTATION:	3.15%	PUBLIC OWNED:	2.24%	MED. RESIDENTIAL:	61.01%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	4.78%

OUTFALL : PD07 LOCATION: PDC & 43rd
GEOMETRY: CIRCLE 84"/72"

LAND USE ACREAGE:

TOTAL ACREAGE:	3138						
HEAVY INDUSTRIAL:	123.5	COMMERICAL:	204.7	OPEN LAND:	38.531	LT. RESIDENTIAL:	182.75
LIGHT INDUSTRIAL:	182.75	TRANSPORTATION:	44.147	PUBLIC OWNED:	194.08	MED. RESIDENTIAL:	2273
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	77.77

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	3.93%	COMMERICAL:	6.52%	OPEN LAND:	1.23%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	5.82%	TRANSPORTATION:	1.41%	PUBLIC OWNED:	10.33%	MED. RESIDENTIAL:	72.42%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	2.48%

OUTFALL : PD08 LOCATION: 43rd & I-10
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	70.5						
HEAVY INDUSTRIAL:	0	COMMERICAL:	5.7608	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	6.0378	PUBLIC OWNED:	0	MED. RESIDENTIAL:	42.24
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	16.442

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	8.17%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	8.57%	PUBLIC OWNED:	2.64%	MED. RESIDENTIAL:	59.93%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	23.33%

OUTFALL : PD09 LOCATION: 39th Ave., McDowell & Roosevelt
GEOMETRY: CIRCLE 78"

LAND USE ACREAGE:

TOTAL ACREAGE:	530						
HEAVY INDUSTRIAL:	214.5	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	70.607
LIGHT INDUSTRIAL:	70.607	TRANSPORTATION:	1.6367	PUBLIC OWNED:	10.879	MED. RESIDENTIAL:	215.1
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	17.266

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	40.47%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	13.32%	TRANSPORTATION:	0.31%	PUBLIC OWNED:	6.00%	MED. RESIDENTIAL:	40.59%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	3.26%

OUTFALL : PD10 LOCATION: 35th Ave & PDC I-10
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	841						
HEAVY INDUSTRIAL:	145	COMMERICAL:	75.466	OPEN LAND:	0	LT. RESIDENTIAL:	177.39
LIGHT INDUSTRIAL:	177.39	TRANSPORTATION:	14.536	PUBLIC OWNED:	15.27	MED. RESIDENTIAL:	380.8
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	32.081

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	17.25%	COMMERICAL:	8.98%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	21.10%	TRANSPORTATION:	1.73%	PUBLIC OWNED:	10.47%	MED. RESIDENTIAL:	45.31%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	3.82%

OUTFALL : SC01 LOCATION: 51st Ave & N. of Union Hills
GEOMETRY: BOX 11'x11'

LAND USE ACREAGE:

TOTAL ACREAGE:	2737						
HEAVY INDUSTRIAL:	0	COMMERICAL:	71.127	OPEN LAND:	738.25	LT. RESIDENTIAL:	339.76
LIGHT INDUSTRIAL:	339.76	TRANSPORTATION:	168.61	PUBLIC OWNED:	114.53	MED. RESIDENTIAL:	727.7
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	176.07

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	2.60%	OPEN LAND:	26.98%	LT. RESIDENTIAL:	14.64%
LIGHT INDUSTRIAL:	12.41%	TRANSPORTATION:	6.16%	PUBLIC OWNED:	6.30%	MED. RESIDENTIAL:	26.59%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	6.43%

OUTFALL : SC02 LOCATION: N Skunk Creek & W of 51st Ave bridge
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	69.4						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	41.787	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	7.1864	PUBLIC OWNED:	1.2229	MED. RESIDENTIAL:	16.72
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	60.21%	LT. RESIDENTIAL:	3.58%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	10.36%	PUBLIC OWNED:	9.35%	MED. RESIDENTIAL:	24.09%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR01 LOCATION: 51st Ave & Lower Buckeye
GEOMETRY: CIRCLE 96"

LAND USE ACREAGE:

TOTAL ACREAGE:	2262						
HEAVY INDUSTRIAL:	345.5	COMMERICAL:	0	OPEN LAND:	361.44	LT. RESIDENTIAL:	802.45
LIGHT INDUSTRIAL:	802.45	TRANSPORTATION:	36.228	PUBLIC OWNED:	9.1367	MED. RESIDENTIAL:	0
				AGRICULTURAL:	697.67	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	15.28%	COMMERICAL:	0.00%	OPEN LAND:	15.98%	LT. RESIDENTIAL:	0.40%
LIGHT INDUSTRIAL:	35.48%	TRANSPORTATION:	1.60%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	30.85%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR02 LOCATION: 43rd Ave. & Buckeye
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	2271						
HEAVY INDUSTRIAL:	385.6	COMMERICAL:	0	OPEN LAND:	104.45	LT. RESIDENTIAL:	951.97
LIGHT INDUSTRIAL:	951.97	TRANSPORTATION:	149.69	PUBLIC OWNED:	50.77	MED. RESIDENTIAL:	330
				AGRICULTURAL:	180.4	HVY. RESIDENTIAL:	118.16

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	16.98%	COMMERICAL:	0.00%	OPEN LAND:	4.60%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	41.92%	TRANSPORTATION:	6.59%	PUBLIC OWNED:	5.44%	MED. RESIDENTIAL:	14.53%
				AGRICULTURAL:	7.94%	HVY. RESIDENTIAL:	5.20%

OUTFALL : SR03 LOCATION: 53rd Ave.
GEOMETRY: CIRCLE 75"

LAND USE ACREAGE:

TOTAL ACREAGE:	1855						
HEAVY INDUSTRIAL:	149	COMMERICAL:	91.108	OPEN LAND:	93.947	LT. RESIDENTIAL:	402.11
LIGHT INDUSTRIAL:	402.11	TRANSPORTATION:	0	PUBLIC OWNED:	191.54	MED. RESIDENTIAL:	676.1
				AGRICULTURAL:	130.94	HVY. RESIDENTIAL:	120.17

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	8.03%	COMMERICAL:	4.91%	OPEN LAND:	5.06%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	21.68%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	36.45%
				AGRICULTURAL:	7.06%	HVY. RESIDENTIAL:	6.48%

OUTFALL : SR04 LOCATION: 27th Ave.
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	2860						
HEAVY INDUSTRIAL:	192.6	COMMERICAL:	311.58	OPEN LAND:	11.094	LT. RESIDENTIAL:	452.97
LIGHT INDUSTRIAL:	452.97	TRANSPORTATION:	174.98	PUBLIC OWNED:	75.488	MED. RESIDENTIAL:	1306
				AGRICULTURAL:	103.4	HVY. RESIDENTIAL:	164.53

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	6.74%	COMMERICAL:	10.90%	OPEN LAND:	0.39%	LT. RESIDENTIAL:	2.33%
LIGHT INDUSTRIAL:	15.84%	TRANSPORTATION:	6.12%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	45.68%
				AGRICULTURAL:	3.62%	HVY. RESIDENTIAL:	5.75%

OUTFALL : SR05 LOCATION: Btwn 27th Ave & 23rd Ave/Lower Buckeye
GEOMETRY: CIRCLE 102"

LAND USE ACREAGE:

TOTAL ACREAGE:	1019						
HEAVY INDUSTRIAL:	326.4	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	65.759
LIGHT INDUSTRIAL:	65.759	TRANSPORTATION:	307.71	PUBLIC OWNED:	61.13	MED. RESIDENTIAL:	226.8
				AGRICULTURAL:	22.185	HVY. RESIDENTIAL:	8.8278

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	32.04%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	6.45%	TRANSPORTATION:	30.20%	PUBLIC OWNED:	5.60%	MED. RESIDENTIAL:	22.26%
				AGRICULTURAL:	2.18%	HVY. RESIDENTIAL:	0.87%

OUTFALL : SR06 LOCATION: Lower Buckeye, 23rd & 19th
GEOMETRY: CIRCLE 78"

LAND USE ACREAGE:

TOTAL ACREAGE:	4789						
HEAVY INDUSTRIAL:	312.3	COMMERICAL:	438.62	OPEN LAND:	66.539	LT. RESIDENTIAL:	349.44
LIGHT INDUSTRIAL:	349.44	TRANSPORTATION:	207.81	PUBLIC OWNED:	501.47	MED. RESIDENTIAL:	2238
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	637.68

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	6.52%	COMMERICAL:	9.16%	OPEN LAND:	1.39%	LT. RESIDENTIAL:	0.79%
LIGHT INDUSTRIAL:	7.30%	TRANSPORTATION:	4.34%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	46.72%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	13.31%

OUTFALL : SR07 LOCATION: 19th Ave. N. Side of Salt River
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	633						
HEAVY INDUSTRIAL:	145.3	COMMERICAL:	69.789	OPEN LAND:	0	LT. RESIDENTIAL:	203.36
LIGHT INDUSTRIAL:	203.36	TRANSPORTATION:	18.204	PUBLIC OWNED:	39.881	MED. RESIDENTIAL:	140.7
				AGRICULTURAL:	15.616	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	22.96%	COMMERICAL:	11.03%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	32.13%	TRANSPORTATION:	2.88%	PUBLIC OWNED:	4.56%	MED. RESIDENTIAL:	22.23%
				AGRICULTURAL:	2.47%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR08 LOCATION: 15th Ave & N. Side Salt River
GEOMETRY: CIRCLE 96"

LAND USE ACREAGE:

TOTAL ACREAGE:	3638						
HEAVY INDUSTRIAL:	110.1	COMMERICAL:	453.13	OPEN LAND:	0	LT. RESIDENTIAL:	208.87
LIGHT INDUSTRIAL:	208.87	TRANSPORTATION:	44.891	PUBLIC OWNED:	340.21	MED. RESIDENTIAL:	2040
				AGRICULTURAL:	12.133	HVY. RESIDENTIAL:	290.57

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	3.03%	COMMERICAL:	12.45%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	3.80%
LIGHT INDUSTRIAL:	5.74%	TRANSPORTATION:	1.23%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	56.07%
				AGRICULTURAL:	0.33%	HVY. RESIDENTIAL:	7.99%

OUTFALL : SR09 LOCATION: Btwn 15th Ave & 7th Ave/Lower Buckeye
GEOMETRY: CIRCLE 81"

LAND USE ACREAGE:

TOTAL ACREAGE:	609						
HEAVY INDUSTRIAL:	65.39	COMMERICAL:	81.186	OPEN LAND:	0	LT. RESIDENTIAL:	179.77
LIGHT INDUSTRIAL:	179.77	TRANSPORTATION:	59.19	PUBLIC OWNED:	0	MED. RESIDENTIAL:	189
				AGRICULTURAL:	34.605	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	10.73%	COMMERICAL:	13.33%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	29.51%	TRANSPORTATION:	9.72%	PUBLIC OWNED:	8.29%	MED. RESIDENTIAL:	31.03%
				AGRICULTURAL:	5.68%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR10 LOCATION: 7th Ave, Lower Buckeye & Elwood
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	989						
HEAVY INDUSTRIAL:	6.227	COMMERICAL:	449.51	OPEN LAND:	0	LT. RESIDENTIAL:	215.78
LIGHT INDUSTRIAL:	215.78	TRANSPORTATION:	47.228	PUBLIC OWNED:	53.819	MED. RESIDENTIAL:	212
				AGRICULTURAL:	4.1775	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.63%	COMMERICAL:	45.46%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	21.82%	TRANSPORTATION:	4.78%	PUBLIC OWNED:	4.25%	MED. RESIDENTIAL:	21.44%
				AGRICULTURAL:	0.42%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR11 LOCATION: Central Bridge, Aroyo & Buckeye
GEOMETRY: CIRCLE 30"

LAND USE ACREAGE:

TOTAL ACREAGE:	30.3						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	11.825
LIGHT INDUSTRIAL:	11.825	TRANSPORTATION:	18.449	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	39.06%	TRANSPORTATION:	60.94%	PUBLIC OWNED:	4.25%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR12 LOCATION: Central Bridge, Durange & Buckeye
GEOMETRY: CIRCLE 42"

LAND USE ACREAGE:

TOTAL ACREAGE:	122						
HEAVY INDUSTRIAL:	0	COMMERICAL:	13.258	OPEN LAND:	0	LT. RESIDENTIAL:	54.128
LIGHT INDUSTRIAL:	54.128	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	54.38
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	10.89%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	44.45%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	2.98%	MED. RESIDENTIAL:	44.66%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR13 LOCATION: Central Bridge, Buvey & Buckeye
GEOMETRY: TUNNEL 21'

LAND USE ACREAGE:

TOTAL ACREAGE:	8879						
HEAVY INDUSTRIAL:	0	COMMERICAL:	1573.9	OPEN LAND:	22.756	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	248.82	PUBLIC OWNED:	496.99	MED. RESIDENTIAL:	5306
				AGRICULTURAL:	22.305	HVY. RESIDENTIAL:	1170.9

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	17.73%	OPEN LAND:	0.26%	LT. RESIDENTIAL:	0.42%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	2.80%	PUBLIC OWNED:	8.91%	MED. RESIDENTIAL:	59.76%
				AGRICULTURAL:	0.25%	HVY. RESIDENTIAL:	13.19%

OUTFALL : SR14 LOCATION: Btwn 7th St & Central / Durango
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	25.9						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	22.63
LIGHT INDUSTRIAL:	22.63	TRANSPORTATION:	3.2817	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	87.33%	TRANSPORTATION:	12.67%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR15 LOCATION: Btwn 7th St & Central / Durango
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	1234						
HEAVY INDUSTRIAL:	202.4	COMMERICAL:	289.35	OPEN LAND:	11.651	LT. RESIDENTIAL:	259.7
LIGHT INDUSTRIAL:	259.7	TRANSPORTATION:	49.881	PUBLIC OWNED:	56.244	MED. RESIDENTIAL:	330.3
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	34.062

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	16.41%	COMMERICAL:	23.46%	OPEN LAND:	0.94%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	21.05%	TRANSPORTATION:	4.04%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	26.78%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	2.76%

OUTFALL : SR16 LOCATION: Lower Buckeye, 12th & 7th
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	67.8						
HEAVY INDUSTRIAL:	43.69	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	22.968	PUBLIC OWNED:	0	MED. RESIDENTIAL:	1.133
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	64.45%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	33.88%	PUBLIC OWNED:	23.32%	MED. RESIDENTIAL:	1.67%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR17 LOCATION: 12th St., Lower Buckeye & Elwood
GEOMETRY: CIRCLE 96"

LAND USE ACREAGE:

TOTAL ACREAGE:	750						
HEAVY INDUSTRIAL:	253.7	COMMERICAL:	92.095	OPEN LAND:	20.82	LT. RESIDENTIAL:	20.518
LIGHT INDUSTRIAL:	20.518	TRANSPORTATION:	34.471	PUBLIC OWNED:	62.184	MED. RESIDENTIAL:	266.2
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	33.83%	COMMERICAL:	12.28%	OPEN LAND:	2.78%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	2.74%	TRANSPORTATION:	4.60%	PUBLIC OWNED:	2.84%	MED. RESIDENTIAL:	35.49%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR18 LOCATION: 16th St., Lower Buckeye & Elwood
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	4190						
HEAVY INDUSTRIAL:	598.2	COMMERICAL:	752.7	OPEN LAND:	413.83	LT. RESIDENTIAL:	312.57
LIGHT INDUSTRIAL:	312.57	TRANSPORTATION:	485.45	PUBLIC OWNED:	178.1	MED. RESIDENTIAL:	1249
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	199.86

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	14.28%	COMMERICAL:	17.96%	OPEN LAND:	9.88%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	7.46%	TRANSPORTATION:	11.59%	PUBLIC OWNED:	11.18%	MED. RESIDENTIAL:	29.82%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	4.77%

OUTFALL : SR19 LOCATION: 19th and University
GEOMETRY: TUNNEL 21'

LAND USE ACREAGE:

TOTAL ACREAGE:	2784						
HEAVY INDUSTRIAL:	0	COMMERICAL:	277.95	OPEN LAND:	255.18	LT. RESIDENTIAL:	145.25
LIGHT INDUSTRIAL:	145.25	TRANSPORTATION:	483.13	PUBLIC OWNED:	82.904	MED. RESIDENTIAL:	1236
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	244.92

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	9.98%	OPEN LAND:	9.17%	LT. RESIDENTIAL:	2.11%
LIGHT INDUSTRIAL:	5.22%	TRANSPORTATION:	17.35%	PUBLIC OWNED:	4.11%	MED. RESIDENTIAL:	44.39%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	8.80%

OUTFALL : SR20 LOCATION: S. of Lower Buckeye & 24th St.
GEOMETRY: CIRCLE 84"

LAND USE ACREAGE:

TOTAL ACREAGE:	3577						
HEAVY INDUSTRIAL:	58.13	COMMERICAL:	471.66	OPEN LAND:	50.194	LT. RESIDENTIAL:	317.61
LIGHT INDUSTRIAL:	317.61	TRANSPORTATION:	267.84	PUBLIC OWNED:	318.61	MED. RESIDENTIAL:	1503
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	367.24

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	1.63%	COMMERICAL:	13.19%	OPEN LAND:	1.40%	LT. RESIDENTIAL:	6.22%
LIGHT INDUSTRIAL:	8.88%	TRANSPORTATION:	7.49%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	42.03%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	10.27%

OUTFALL : SR21 LOCATION: Between 28th & 32nd St.
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	641						
HEAVY INDUSTRIAL:	2.695	COMMERICAL:	0	OPEN LAND:	9.8199	LT. RESIDENTIAL:	35.516
LIGHT INDUSTRIAL:	35.516	TRANSPORTATION:	592.5	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.42%	COMMERICAL:	0.00%	OPEN LAND:	1.53%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	5.54%	TRANSPORTATION:	92.50%	PUBLIC OWNED:	13.62%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR22 LOCATION: Airport, 32nd Btwn Univ & Durange
GEOMETRY: CIRCLE 84

LAND USE ACREAGE:

TOTAL ACREAGE:	474						
HEAVY INDUSTRIAL:	0	COMMERICAL:	50.032	OPEN LAND:	0	LT. RESIDENTIAL:	106.39
LIGHT INDUSTRIAL:	106.39	TRANSPORTATION:	317.58	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	10.56%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	22.45%	TRANSPORTATION:	67.00%	PUBLIC OWNED:	0.23%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR23 LOCATION: 32nd St, University & Durange
GEOMETRY: CIRCLE 60"

LAND USE ACREAGE:

TOTAL ACREAGE:	96.8						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	74.219	PUBLIC OWNED:	22.565	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	76.68%	PUBLIC OWNED:	5.49%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR24 LOCATION: Under Airport Runway
GEOMETRY: CIRCLE 90"

LAND USE ACREAGE:

TOTAL ACREAGE:	2876						
HEAVY INDUSTRIAL:	0	COMMERICAL:	484.67	OPEN LAND:	28.045	LT. RESIDENTIAL:	69.668
LIGHT INDUSTRIAL:	69.668	TRANSPORTATION:	134.14	PUBLIC OWNED:	81.627	MED. RESIDENTIAL:	1725
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	349.48

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	16.85%	OPEN LAND:	0.97%	LT. RESIDENTIAL:	0.14%
LIGHT INDUSTRIAL:	2.42%	TRANSPORTATION:	4.66%	PUBLIC OWNED:	3.11%	MED. RESIDENTIAL:	59.96%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	12.15%

OUTFALL : SR25 LOCATION: Airport, Between 32th & 36th St.
GEOMETRY: CIRCLE 27"

LAND USE ACREAGE:

TOTAL ACREAGE:	114						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	100.85	PUBLIC OWNED:	12.688	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	88.82%	PUBLIC OWNED:	3.56%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR27 LOCATION: Under Airport(previous visit?)
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	1949						
HEAVY INDUSTRIAL:	0	COMMERICAL:	225.74	OPEN LAND:	51.192	LT. RESIDENTIAL:	89.455
LIGHT INDUSTRIAL:	89.455	TRANSPORTATION:	37.527	PUBLIC OWNED:	80.175	MED. RESIDENTIAL:	1257
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	164.97

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	11.58%	OPEN LAND:	2.63%	LT. RESIDENTIAL:	2.20%
LIGHT INDUSTRIAL:	4.59%	TRANSPORTATION:	1.93%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	64.49%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	8.46%

OUTFALL : SR28 LOCATION: 40th St, University & Durange
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	108						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	1.1012	LT. RESIDENTIAL:	33.242
LIGHT INDUSTRIAL:	33.242	TRANSPORTATION:	73.32	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	1.02%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	30.88%	TRANSPORTATION:	68.10%	PUBLIC OWNED:	9.94%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR29 LOCATION: 40th St, Btwn SPRR & Buckeye
GEOMETRY: CIRCLE 78"

LAND USE ACREAGE:

TOTAL ACREAGE:	334						
HEAVY INDUSTRIAL:	0	COMMERICAL:	34.936	OPEN LAND:	144.38	LT. RESIDENTIAL:	0
LIGHT INDUSTRIAL:	0	TRANSPORTATION:	4.4462	PUBLIC OWNED:	45.543	MED. RESIDENTIAL:	18.9
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	86.167

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	10.45%	OPEN LAND:	43.18%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	0.00%	TRANSPORTATION:	1.33%	PUBLIC OWNED:	10.39%	MED. RESIDENTIAL:	5.65%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	25.77%

OUTFALL : SR30 LOCATION: 27th Ave Btwn Elwood & Broadway Rd
GEOMETRY: CIRCLE 108"

LAND USE ACREAGE:

TOTAL ACREAGE:	1619						
HEAVY INDUSTRIAL:	86.78	COMMERICAL:	0	OPEN LAND:	9.2105	LT. RESIDENTIAL:	35.773
LIGHT INDUSTRIAL:	35.773	TRANSPORTATION:	14.237	PUBLIC OWNED:	3.7686	MED. RESIDENTIAL:	0.137
				AGRICULTURAL:	1325.6	HVY. RESIDENTIAL:	19.153

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	5.36%	COMMERICAL:	0.00%	OPEN LAND:	0.57%	LT. RESIDENTIAL:	7.66%
LIGHT INDUSTRIAL:	2.21%	TRANSPORTATION:	0.88%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.01%
				AGRICULTURAL:	81.89%	HVY. RESIDENTIAL:	1.18%

OUTFALL : SR31 LOCATION: 19th Ave., S. Side of Salt River
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	1918						
HEAVY INDUSTRIAL:	18.79	COMMERICAL:	0	OPEN LAND:	195.87	LT. RESIDENTIAL:	51.274
LIGHT INDUSTRIAL:	51.274	TRANSPORTATION:	0	PUBLIC OWNED:	105.34	MED. RESIDENTIAL:	571.1
				AGRICULTURAL:	748.01	HVY. RESIDENTIAL:	24.356

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.98%	COMMERICAL:	0.00%	OPEN LAND:	10.21%	LT. RESIDENTIAL:	10.58%
LIGHT INDUSTRIAL:	2.67%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.19%	MED. RESIDENTIAL:	29.78%
				AGRICULTURAL:	39.01%	HVY. RESIDENTIAL:	1.27%

OUTFALL : SR32 LOCATION: 7th Ave S. Side of Salt River
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	1008						
HEAVY INDUSTRIAL:	0	COMMERICAL:	118.98	OPEN LAND:	101.01	LT. RESIDENTIAL:	145.73
LIGHT INDUSTRIAL:	145.73	TRANSPORTATION:	0.9945	PUBLIC OWNED:	31.399	MED. RESIDENTIAL:	380.6
				AGRICULTURAL:	97.498	HVY. RESIDENTIAL:	61.938

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	11.80%	OPEN LAND:	10.02%	LT. RESIDENTIAL:	6.96%
LIGHT INDUSTRIAL:	14.45%	TRANSPORTATION:	0.10%	PUBLIC OWNED:	4.06%	MED. RESIDENTIAL:	37.74%
				AGRICULTURAL:	9.67%	HVY. RESIDENTIAL:	6.14%

OUTFALL : SR33 LOCATION: Central Bridge, Elwood & Buckeye
GEOMETRY: CIRCLE 66"

LAND USE ACREAGE:

TOTAL ACREAGE:	886						
HEAVY INDUSTRIAL:	0	COMMERICAL:	199.85	OPEN LAND:	96.439	LT. RESIDENTIAL:	179.44
LIGHT INDUSTRIAL:	179.44	TRANSPORTATION:	0	PUBLIC OWNED:	31.491	MED. RESIDENTIAL:	334.9
				AGRICULTURAL:	12.204	HVY. RESIDENTIAL:	31.248

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	22.57%	OPEN LAND:	10.89%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	20.26%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	37.82%
				AGRICULTURAL:	1.38%	HVY. RESIDENTIAL:	3.53%

OUTFALL : SR34 LOCATION: Central South of Lower Buckeye
GEOMETRY: CIRCLE 15"

LAND USE ACREAGE:

TOTAL ACREAGE:	20.6						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	5.9358	LT. RESIDENTIAL:	14.669
LIGHT INDUSTRIAL:	14.669	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	28.81%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	71.19%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR35 LOCATION: 7th St, Buckeye & Elwood
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	1668						
HEAVY INDUSTRIAL:	0	COMMERICAL:	116.3	OPEN LAND:	457.93	LT. RESIDENTIAL:	96.99
LIGHT INDUSTRIAL:	96.99	TRANSPORTATION:	7.1601	PUBLIC OWNED:	165.79	MED. RESIDENTIAL:	736.5
				AGRICULTURAL:	36.813	HVY. RESIDENTIAL:	8.296

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	6.97%	OPEN LAND:	27.45%	LT. RESIDENTIAL:	2.54%
LIGHT INDUSTRIAL:	5.81%	TRANSPORTATION:	0.43%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	44.15%
				AGRICULTURAL:	2.21%	HVY. RESIDENTIAL:	0.50%

OUTFALL : SR36 LOCATION: Btwn 12th &16th/Buckeye & Elwood
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	1270						
HEAVY INDUSTRIAL:	0	COMMERICAL:	30.524	OPEN LAND:	222.45	LT. RESIDENTIAL:	100.3
LIGHT INDUSTRIAL:	100.3	TRANSPORTATION:	0.827	PUBLIC OWNED:	131.98	MED. RESIDENTIAL:	665
				AGRICULTURAL:	66.768	HVY. RESIDENTIAL:	29.012

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	2.40%	OPEN LAND:	17.52%	LT. RESIDENTIAL:	1.82%
LIGHT INDUSTRIAL:	7.90%	TRANSPORTATION:	0.07%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	52.37%
				AGRICULTURAL:	5.26%	HVY. RESIDENTIAL:	2.28%

OUTFALL : SR37 LOCATION: 16th St Btwn Lwr Buckeye & Elwood
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	336						
HEAVY INDUSTRIAL:	0	COMMERICAL:	3.4798	OPEN LAND:	30.669	LT. RESIDENTIAL:	179.65
LIGHT INDUSTRIAL:	179.65	TRANSPORTATION:	2.3392	PUBLIC OWNED:	0	MED. RESIDENTIAL:	119.6
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	1.04%	OPEN LAND:	9.14%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	53.51%	TRANSPORTATION:	0.70%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	35.62%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR38 LOCATION: 24th, Lower Buckeye & Elwood
GEOMETRY: CIRCLE 72"

LAND USE ACREAGE:

TOTAL ACREAGE:	1192						
HEAVY INDUSTRIAL:	0	COMMERICAL:	6.9491	OPEN LAND:	36.923	LT. RESIDENTIAL:	169.44
LIGHT INDUSTRIAL:	169.44	TRANSPORTATION:	0	PUBLIC OWNED:	2.3129	MED. RESIDENTIAL:	349.7
				AGRICULTURAL:	602.49	HVY. RESIDENTIAL:	23.188

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.58%	OPEN LAND:	3.10%	LT. RESIDENTIAL:	0.10%
LIGHT INDUSTRIAL:	14.21%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	29.33%
				AGRICULTURAL:	50.54%	HVY. RESIDENTIAL:	1.94%

OUTFALL : SR39 LOCATION: South of Highway 10 Crossing
GEOMETRY: CIRCLE 96"

LAND USE ACREAGE:

TOTAL ACREAGE:	2981						
HEAVY INDUSTRIAL:	0	COMMERICAL:	47.224	OPEN LAND:	439.03	LT. RESIDENTIAL:	759.75
LIGHT INDUSTRIAL:	759.75	TRANSPORTATION:	28.317	PUBLIC OWNED:	121.2	MED. RESIDENTIAL:	875.5
				AGRICULTURAL:	442.61	HVY. RESIDENTIAL:	152.73

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	1.58%	OPEN LAND:	14.73%	LT. RESIDENTIAL:	3.86%
LIGHT INDUSTRIAL:	25.48%	TRANSPORTATION:	0.95%	PUBLIC OWNED:	0.24%	MED. RESIDENTIAL:	29.36%
				AGRICULTURAL:	14.85%	HVY. RESIDENTIAL:	5.12%

OUTFALL : SR40 LOCATION: University Drive & 36th St.
GEOMETRY: CIRCLE 30"

LAND USE ACREAGE:

TOTAL ACREAGE:	288						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	51.655	LT. RESIDENTIAL:	189.1
LIGHT INDUSTRIAL:	189.1	TRANSPORTATION:	46.871	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	17.96%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	65.75%	TRANSPORTATION:	16.30%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR41 LOCATION: University Drive & 46th St.
GEOMETRY: CIRCLE 15"

LAND USE ACREAGE:

TOTAL ACREAGE:	21						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	3.6897	LT. RESIDENTIAL:	17.296
LIGHT INDUSTRIAL:	17.296	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	17.58%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	82.42%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR42 LOCATION: University Drive & 36th St.
GEOMETRY: CIRCLE 48"

LAND USE ACREAGE:

TOTAL ACREAGE:	143						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	4.4632	LT. RESIDENTIAL:	138.71
LIGHT INDUSTRIAL:	138.71	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	3.12%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	96.88%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR43 LOCATION: University Drive & 36th St.
GEOMETRY: CIRCLE 15"

LAND USE ACREAGE:

TOTAL ACREAGE:	12						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	11.826
LIGHT INDUSTRIAL:	11.826	TRANSPORTATION:	0.2226	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	98.15%	TRANSPORTATION:	1.85%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR44 LOCATION: University Drive & 36th St.
GEOMETRY: CIRCLE 15"

LAND USE ACREAGE:

TOTAL ACREAGE:	8.53						
HEAVY INDUSTRIAL:	0	COMMERICAL:	0	OPEN LAND:	0	LT. RESIDENTIAL:	8.5313
LIGHT INDUSTRIAL:	8.5313	TRANSPORTATION:	0	PUBLIC OWNED:	0	MED. RESIDENTIAL:	0
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	0.00%	OPEN LAND:	0.00%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	100.00%	TRANSPORTATION:	0.00%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.00%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR45 LOCATION: 40 St., S. side of Salt River
GEOMETRY: CIRCLE 54"

LAND USE ACREAGE:

TOTAL ACREAGE:	880						
HEAVY INDUSTRIAL:	92.18	COMMERICAL:	0	OPEN LAND:	115.04	LT. RESIDENTIAL:	472.34
LIGHT INDUSTRIAL:	472.34	TRANSPORTATION:	195.05	PUBLIC OWNED:	0	MED. RESIDENTIAL:	5.43
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	0

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	10.47%	COMMERICAL:	0.00%	OPEN LAND:	13.07%	LT. RESIDENTIAL:	0.00%
LIGHT INDUSTRIAL:	53.67%	TRANSPORTATION:	22.16%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	0.62%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	0.00%

OUTFALL : SR49 LOCATION: 67th Ave. and Salt River
GEOMETRY: CIRCLE 96"

LAND USE ACREAGE:

TOTAL ACREAGE:	4738						
HEAVY INDUSTRIAL:	378.9	COMMERICAL:	0	OPEN LAND:	377.92	LT. RESIDENTIAL:	862.39
LIGHT INDUSTRIAL:	862.39	TRANSPORTATION:	49.658	PUBLIC OWNED:	11.247	MED. RESIDENTIAL:	209.6
				AGRICULTURAL:	2467.8	HVY. RESIDENTIAL:	79.11

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	8.00%	COMMERICAL:	0.00%	OPEN LAND:	7.98%	LT. RESIDENTIAL:	6.36%
LIGHT INDUSTRIAL:	18.20%	TRANSPORTATION:	1.05%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	4.42%
				AGRICULTURAL:	52.09%	HVY. RESIDENTIAL:	1.67%

OUTFALL : SW01 LOCATION: Deer Valley & E. of 35th Ave
GEOMETRY: CIRCLE 36"

LAND USE ACREAGE:

TOTAL ACREAGE:	115						
HEAVY INDUSTRIAL:	0	COMMERICAL:	10.9	OPEN LAND:	0.9093	LT. RESIDENTIAL:	31.168
LIGHT INDUSTRIAL:	31.168	TRANSPORTATION:	2.1689	PUBLIC OWNED:	0	MED. RESIDENTIAL:	19.63
				AGRICULTURAL:	0	HVY. RESIDENTIAL:	40.06

LAND USE PERCENTAGES

HEAVY INDUSTRIAL:	0.00%	COMMERICAL:	9.48%	OPEN LAND:	0.79%	LT. RESIDENTIAL:	8.81%
LIGHT INDUSTRIAL:	27.11%	TRANSPORTATION:	1.89%	PUBLIC OWNED:	0.00%	MED. RESIDENTIAL:	17.08%
				AGRICULTURAL:	0.00%	HVY. RESIDENTIAL:	34.84%

ITEM #: 36	BUSINESS: DIANA MARK	PHONE: 6022494743
CATCHMENT:	ADDRESS: 5727 BLK CNYN I 17 ACC	PHOENIX AZ 850152208
SIC: 2098	CONTACT:	POSITION:
ITEM #: 41	BUSINESS: EXECUTIVE HOMES	PHONE: 6022462120
CATCHMENT:	ADDRESS: 5727 BLK CNYN I 17 ACC	PHOENIX AZ 850152208
SIC: 1521	CONTACT:	POSITION:
ITEM #: 120	BUSINESS: PHOENIX REDI-MIX COMPANY INC	PHONE: 6022722637
CATCHMENT:	ADDRESS: 3635 S 43RD AVE	PHOENIX AZ 850096039
SIC: 3273	CONTACT:	POSITION:
ITEM #: 37	BUSINESS: PRECISION PAVING CORPORATION	PHONE: 6024339665
CATCHMENT:	ADDRESS: 6835 BLK CNYN I 17 ACC	PHOENIX AZ 850151031
SIC: 1611	CONTACT:	POSITION:
ITEM #: 11	BUSINESS: MORDEX CONTRACTING INC	PHONE: 6022422244
CATCHMENT:	ADDRESS: 4810 N BLK CNYN I 17 ACC	PHOENIX AZ 850173643
SIC: 1521	CONTACT:	POSITION:
ITEM #: 161	BUSINESS: DEPENDABLE PALLET SERVICE	PHONE: 6022781009
CATCHMENT:	ADDRESS: 2828 S 35TH AVE	PHOENIX AZ 850096700
SIC: 1521	CONTACT: STEVE VANDATORE	POSITION:
ITEM #: 12	BUSINESS: COVENTRY HOMES INC	PHONE: 6024335280
CATCHMENT:	ADDRESS: 4550 BLK CNYN I 17 ACC	PHOENIX AZ 850173714
SIC: 1521	CONTACT:	POSITION:
ITEM #: 153	BUSINESS: WEINBERGER GLENN TOPSOIL & LAN	PHONE: 6022789155
CATCHMENT:	ADDRESS: 3410 S 39TH AVE	PHOENIX AZ 850099781
SIC: 1629	CONTACT: GLEN WEINBERGER	POSITION:
ITEM #: 196	BUSINESS: CACTUS BINDERY INC	PHONE: 6022710112
CATCHMENT:	ADDRESS: 2410 S CENTRAL AVE	PHOENIX AZ 850042910
SIC: 2789	CONTACT:	POSITION:
ITEM #: 33	BUSINESS: ZUMA GROUP INC	PHONE: 6022464238
CATCHMENT:	ADDRESS: 6733 BLK CNYN I 17 ACC	PHOENIX AZ 850151050
SIC: 3652	CONTACT: BITTNER	POSITION:
ITEM #: 13	BUSINESS: KING JOHN D & ASSOCIATES	PHONE: 6022427722
CATCHMENT:	ADDRESS: 4810 BLK CNYN I 17 ACC	PHOENIX AZ 850173643
SIC: 1081	CONTACT:	POSITION:
ITEM #: 39	BUSINESS: MYERS WM CONSTRUCTION CO	PHONE: 6022490683
CATCHMENT:	ADDRESS: 6601 BLK CNYN I 17 ACC	PHOENIX AZ 850151058
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

Woodward-Clyde Consultants

ITEM #: 1	BUSINESS: HOT SHOT MESSENGER SERVICE	PHONE: 6022774747
CATCHMENT:	ADDRESS: 5080 N 40TH ST STE 455	PHOENIX AZ 850182150
SIC: 4212	CONTACT: JAMES M LEGGITT	POSITION:
ITEM #: 189	BUSINESS: QUALITY PRINTED CIRCUITS	PHONE: 6022524689
CATCHMENT:	ADDRESS: 1831 S CENTRAL AVE	PHOENIX AZ 850042905
SIC: 3679	CONTACT: ROBERT GONZALEZ	POSITION:
ITEM #: 323	BUSINESS: GENERATION 3 DISTRIBUTION	PHONE: 6022441080
CATCHMENT:	ADDRESS: 2810 S 24TH ST STE 108	PHOENIX AZ 850346825
SIC: 1411	CONTACT:	POSITION:
ITEM #: 316	BUSINESS: BUZZ PRINT	PHONE: 6022259600
CATCHMENT:	ADDRESS: 2810 S 24TH ST STE 111	PHOENIX AZ 850346825
SIC: 2759	CONTACT:	POSITION:
ITEM #: 319	BUSINESS: LEMON TREE INC	PHONE: 6022671108
CATCHMENT:	ADDRESS: 2810 S 24TH ST STE 103	PHOENIX AZ 850346825
SIC: 2024	CONTACT:	POSITION:
ITEM #: 400	BUSINESS: ARIZONA SCENIC DESERT TOURS	PHONE: 6029713601
CATCHMENT:	ADDRESS: 2948 E SHANGRI LA RD	PHOENIX AZ 850282627
SIC: 4725	CONTACT:	POSITION:
ITEM #: 345	BUSINESS: JETT SKEE RENTALS	PHONE: 6024828080
CATCHMENT:	ADDRESS: 4554 E BECK LN	PHOENIX AZ 850324294
SIC: 2911	CONTACT:	POSITION:
ITEM #: 270	BUSINESS: LUXURY PLUS DEVELOPMENT LTD	PHONE: 6028778502
CATCHMENT:	ADDRESS: 4026 N 89TH AVE	PHOENIX AZ 850372357
SIC: 1521	CONTACT:	POSITION:
ITEM #: 387	BUSINESS: LIQUID AIR CORPORATION	PHONE: 6028613211
CATCHMENT:	ADDRESS: 10851 N BLK CNYN I 17 ACC	PHOENIX AZ 850294793
SIC: 2813	CONTACT:	POSITION:
ITEM #: 322	BUSINESS: MADISON SQUARE DEVELOPMENT	PHONE: 6024372012
CATCHMENT:	ADDRESS: 3410 E UNIVERSITY DR STE 180	PHOENIX AZ 850347224
SIC: 1521	CONTACT:	POSITION:
ITEM #: 267	BUSINESS: VILLA DE PAZ MINI STORAGE	PHONE: 6028773531
CATCHMENT:	ADDRESS: 10622 W INDIAN SCHOOL RD	PHOENIX AZ 850392435
SIC: 4225	CONTACT: ROBERT SCHULKE	POSITION:
ITEM #: 341	BUSINESS: BENTLEY SOLAR SERVICE	PHONE: 6029716081
CATCHMENT:	ADDRESS: 4530 E MICHELLE DR	PHOENIX AZ 850321517
SIC: 3433	CONTACT:	POSITION:
ITEM #: 308	BUSINESS: AMERICAN WOOD STAIRWAYS	PHONE: 6022755516
CATCHMENT:	ADDRESS: 331 S 54TH ST	PHOENIX AZ 850342142
SIC: 3446	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 268	BUSINESS: THE WINDS OF CAMPBELL	PHONE: 6028778760
CATCHMENT:	ADDRESS: 9913 W MEADOWBROOK AVE	PHOENIX AZ 850391700
SIC: 1521	CONTACT:	POSITION:
ITEM #: 338	BUSINESS: LING DYNAMIC SYSTEMS	PHONE: 6024938953
CATCHMENT:	ADDRESS: 4537 E TIERRA BUENA LN	PHOENIX AZ 850328410
SIC: 3825	CONTACT:	POSITION:
ITEM #: 343	BUSINESS: STATEWIDE IRRIGATION INC	PHONE: 6022461999
CATCHMENT:	ADDRESS: 17248 N 37TH ST	PHOENIX AZ 850322145
SIC: 3432	CONTACT:	POSITION:
ITEM #: 223	BUSINESS: FUNKY FRESH HAIR SALON	PHONE: 6024318797
CATCHMENT:	ADDRESS: 4244 S 48TH ST	PHOENIX AZ 850402010
SIC: 2844	CONTACT: GLEN ELLIE	POSITION:
ITEM #: 344	BUSINESS: SPRINKLER WORLD OF ARIZ INC	PHONE: 6029921882
CATCHMENT:	ADDRESS: 17826 N TATUM BLVD	PHOENIX AZ 850321505
SIC: 3432	CONTACT:	POSITION:
ITEM #: 269	BUSINESS: FEDOR DEVELOPMENT	PHONE: 6028771834
CATCHMENT:	ADDRESS: 11033 W MONTEROSA ST	PHOENIX AZ 850392317
SIC: 1521	CONTACT:	POSITION:
ITEM #: 305	BUSINESS: GATEWAY DATA SCIENCES CORP	PHONE: 6029687000
CATCHMENT:	ADDRESS: 3410 E UNIVERSITY DR STE 100	PHOENIX AZ 850347224
SIC: 3571	CONTACT:	POSITION:
ITEM #: 304	BUSINESS: CRE ENTERPRISES INC	PHONE: 6022731260
CATCHMENT:	ADDRESS: 5019 E MADISON ST	PHOENIX AZ 850342018
SIC: 3599	CONTACT:	POSITION:
ITEM #: 340	BUSINESS: LOT TRLR	PHONE: 6024937230
CATCHMENT:	ADDRESS: 15401 N 45TH PL	PHOENIX AZ 850328401
SIC: 3494	CONTACT: EMERALD HOMES	POSITION:
ITEM #: 354	BUSINESS: GREENWORLD NURSERIES INC	PHONE: 6024930700
CATCHMENT:	ADDRESS: 18047 N TATUM BLVD	PHOENIX AZ 850321506
SIC: 2499	CONTACT:	POSITION:
ITEM #: 295	BUSINESS: BEKINS MOVING & STORAGE	PHONE: 6029771333
CATCHMENT:	ADDRESS: 824 E UNIVERSITY DR	PHOENIX AZ 850346599
SIC: 4225	CONTACT:	POSITION:
ITEM #: 299	BUSINESS: SCOTT TECHNICAL INSTRUMENTS	PHONE: 6022750462
CATCHMENT:	ADDRESS: 2810 S 24TH ST STE 110	PHOENIX AZ 850346825
SIC: 3829	CONTACT: KEN J STEWART	POSITION:
ITEM #: 300	BUSINESS: CELWAVE R F INC	PHONE: 6022566796
CATCHMENT:	ADDRESS: 825 E UNIVERSITY DR	PHOENIX AZ 850346527
SIC: 3662	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 366	BUSINESS: COURTLAND HOMES	PHONE: 6027887818
CATCHMENT:	ADDRESS: 4543 E GROVERS AVE	PHOENIX AZ 850321526
SIC: 1521	CONTACT:	POSITION:
ITEM #: 488	BUSINESS: M R FINISHING INC	PHONE: 6027802720
CATCHMENT:	ADDRESS: 21411 N 11TH AVE STE 8	PHOENIX AZ 850272835
SIC: 3479	CONTACT: PATRICK REA	POSITION:
ITEM #: 583	BUSINESS: FLO-TECH CUSTOM PATIO & FLOORC	PHONE: 6025481890
CATCHMENT:	ADDRESS: 14020 N BLK CNYN I 17 ACC	PHOENIX AZ 850235885
SIC: 1521	CONTACT:	POSITION:
ITEM #: 403	BUSINESS: KACHINA INTERNATIONAL	PHONE: 6029920872
CATCHMENT:	ADDRESS: 2920 E COBRE DR	PHOENIX AZ 850285316
SIC: 3571	CONTACT:	POSITION:
ITEM #: 490	BUSINESS: SKUNK CREEK IRON WORKS INC	PHONE: 6029934799
CATCHMENT:	ADDRESS: 3202 W JOMAX RD	PHOENIX AZ 850277628
SIC: 3446	CONTACT: PAUL M ROCK	POSITION:
ITEM #: 405	BUSINESS: VOORHEES RUSSELL	PHONE: 6024940965
CATCHMENT:	ADDRESS: 3420 E SHEA BLVD STE 200	PHOENIX AZ 850283348
SIC: 2411	CONTACT:	POSITION:
ITEM #: 491	BUSINESS: ANVIL TREE	PHONE: 6025821332
CATCHMENT:	ADDRESS: 21618 N 9TH AVE STE H	PHOENIX AZ 850272822
SIC: 3446	CONTACT:	POSITION:
ITEM #: 595	BUSINESS: MOONVALLEY MAIL BOXES	PHONE: 6029426245
CATCHMENT:	ADDRESS: 13236 N 7TH ST # D4	PHOENIX AZ 850225339
SIC: 3469	CONTACT:	POSITION:
ITEM #: 492	BUSINESS: MORRIS INDUSTRIES INC	PHONE: 6024920090
CATCHMENT:	ADDRESS: 21002 N 19TH AVE	PHOENIX AZ 850272726
SIC: 3444	CONTACT:	POSITION:
ITEM #: 593	BUSINESS: INFINITY GRAPHICS	PHONE: 6025481651
CATCHMENT:	ADDRESS: 16220 N 7TH ST APT 2057	PHOENIX AZ 850226611
SIC: 3571	CONTACT:	POSITION:
ITEM #: 493	BUSINESS: ATLAS IRON WORKS	PHONE: 6027801290
CATCHMENT:	ADDRESS: 22226 N 23RD AVE # 4	PHOENIX AZ 850271914
SIC: 3442	CONTACT:	POSITION:
ITEM #: 573	BUSINESS: SUNDSTRAND ELECTRONIC SYSTEMS	PHONE: 6024396400
CATCHMENT:	ADDRESS: 18008 N BLK CNYN I 17 ACC	PHOENIX AZ 850231798
SIC: 3728	CONTACT:	POSITION:
ITEM #: 596	BUSINESS: COPY BOY PRINTING	PHONE: 6025480434
CATCHMENT:	ADDRESS: 440 E BELL RD # 2	PHOENIX AZ 850222302
SIC: 2752	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 589	BUSINESS: A D INFORMATION SERVICES	PHONE: 6024933665
CATCHMENT:	ADDRESS: 1720 E THUNDERBIRD RD APT 2009	PHOENIX AZ 850225778
SIC: 3721	CONTACT:	POSITION:
ITEM #: 574	BUSINESS: CONSOLIDATED ELECTRICAL DISTRI	PHONE: 6023751900
CATCHMENT:	ADDRESS: 18201 N 25TH AVE # A	PHOENIX AZ 850231202
SIC: 3699	CONTACT:	POSITION:
ITEM #: 415	BUSINESS: MERCER TRANSPORTATION	PHONE: 6025815494
CATCHMENT:	ADDRESS: 20816 N 20TH AVE STE 28	PHOENIX AZ 850273438
SIC: 4731	CONTACT:	POSITION:
ITEM #: 592	BUSINESS: MOTOROLA INC COMM SYS	PHONE: 6022688919
CATCHMENT:	ADDRESS: 13208 N CENTRAL AVE	PHOENIX AZ 85022
SIC: 3661	CONTACT:	POSITION:
ITEM #: 417	BUSINESS: AVTEK INDUSTRIES INC	PHONE: 6025825704
CATCHMENT:	ADDRESS: 1819 W ROSE GARDEN LN	PHOENIX AZ 850272722
SIC: 4581	CONTACT:	POSITION:
ITEM #: 590	BUSINESS: DATANET SYSTEMS	PHONE: 6028639981
CATCHMENT:	ADDRESS: 401 E PORT AU PRINCE LN	PHOENIX AZ 850223668
SIC: 3699	CONTACT: MARK ANDERSON	POSITION:
ITEM #: 419	BUSINESS: TOW 4 LESS	PHONE: 6025820851
CATCHMENT:	ADDRESS: 1915 W ADOBE DR # B	PHOENIX AZ 850272006
SIC: 4454	CONTACT:	POSITION:
ITEM #: 494	BUSINESS: EWING IRRIGATION PRODUCTS	PHONE: 6025825083
CATCHMENT:	ADDRESS: 21401 N 21ST AVE	PHOENIX AZ 850272633
SIC: 3432	CONTACT:	POSITION:
ITEM #: 421	BUSINESS: ARGER ENTERPRISES INC	PHONE: 6025810307
CATCHMENT:	ADDRESS: 21439 N 2ND AVE	PHOENIX AZ 850272916
SIC: 4226	CONTACT:	POSITION:
ITEM #: 495	BUSINESS: COWAN L R CONCRETE	PHONE: 6022710331
CATCHMENT:	ADDRESS: 22023 N 20TH AVE # B	PHOENIX AZ 850272001
SIC: 3432	CONTACT:	POSITION:
ITEM #: 423	BUSINESS: DEER VALLEY MINI & RV STORAGE	PHONE: 6028697010
CATCHMENT:	ADDRESS: 1930 W ADOBE DR	PHOENIX AZ 850272007
SIC: 4214	CONTACT: MR ED WILLIS	POSITION:
ITEM #: 496	BUSINESS: P S ACCOUNTING	PHONE: 6022583031
CATCHMENT:	ADDRESS: 21640 N 19TH AVE STE C8	PHOENIX AZ 850272720
SIC: 3429	CONTACT: PRETER SCAFARU	POSITION:
ITEM #: 425	BUSINESS: GENEVA TRANSPORTATION CO	PHONE: 6024929222
CATCHMENT:	ADDRESS: 21644 N 9TH AVE STE 105	PHOENIX AZ 850272824
SIC: 4213	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 497	BUSINESS: KABLETEK MANUFACTURING	PHONE: 6025825707
CATCHMENT:	ADDRESS: 320 W LONE CACTUS DR STE 3	PHOENIX AZ 850272919
SIC: 3429	CONTACT:	POSITION:
ITEM #: 427	BUSINESS: ACE TRUCK BROKERS	PHONE: 6025818086
CATCHMENT:	ADDRESS: 1831 W ROSE GARDEN LN STE 1	PHOENIX AZ 850272725
SIC: 4213	CONTACT:	POSITION:
ITEM #: 498	BUSINESS: HANCHETT ENTRY SYSTEMS INC	PHONE: 6029572472
CATCHMENT:	ADDRESS: 21622 N 7TH AVE	PHOENIX AZ 850272950
SIC: 3429	CONTACT:	POSITION:
ITEM #: 429	BUSINESS: M G T EXPRESS	PHONE: 6025818906
CATCHMENT:	ADDRESS: 2445 W WILLIAMS DR	PHOENIX AZ 850271105
SIC: 4212	CONTACT:	POSITION:
ITEM #: 499	BUSINESS: AQUARIUM ECOSYSTEMS	PHONE: 6024920667
CATCHMENT:	ADDRESS: 1741 W ROSE GARDEN LN # 4	PHOENIX AZ 850272709
SIC: 3231	CONTACT:	POSITION:
ITEM #: 432	BUSINESS: DENNISON CONSTRUCTION CO	PHONE: 6025812033
CATCHMENT:	ADDRESS: 21644 N 9TH AVE STE 107	PHOENIX AZ 850272824
SIC: 3999	CONTACT: KEN DENNISON	POSITION:
ITEM #: 582	BUSINESS: G A WRIGHT CORP	PHONE: 6023752804
CATCHMENT:	ADDRESS: 534 W TIERRA BUENA LN	PHOENIX AZ 850237441
SIC: 1521	CONTACT: THOMAS A WHIPPLE	POSITION:
ITEM #: 434	BUSINESS: SIGNATURE SIGNS INC	PHONE: 6022582727
CATCHMENT:	ADDRESS: 21629 N 9TH AVE STE 1A	PHOENIX AZ 850272800
SIC: 3993	CONTACT: PHIL E BLOOMQUIST	POSITION:
ITEM #: 501	BUSINESS: DIVERSIFIED PACKAGING ASSOCIAT	PHONE: 6029978811
CATCHMENT:	ADDRESS: 1711 W ROSE GARDEN LN STE 12	PHOENIX AZ 850272712
SIC: 3089	CONTACT: T M LEVIS	POSITION:
ITEM #: 436	BUSINESS: R E S INC	PHONE: 6028634835
CATCHMENT:	ADDRESS: 21618 N 9TH AVE	PHOENIX AZ 850272822
SIC: 3844	CONTACT: MELINDA G COTTINGHAM	POSITION:
ITEM #: 502	BUSINESS: ADVENT TECHNOLOGY INC	PHONE: 6029934184
CATCHMENT:	ADDRESS: 21835 N 23RD AVE	PHOENIX AZ 850271908
SIC: 3089	CONTACT:	POSITION:
ITEM #: 438	BUSINESS: CENTRAL ARIZONA RADIOLOGICAL	PHONE: 6022421983
CATCHMENT:	ADDRESS: 20816 N 20TH AVE STE 25	PHOENIX AZ 850273438
SIC: 3844	CONTACT:	POSITION:
ITEM #: 503	BUSINESS: ADVANCED SILK SCREENING INC	PHONE: 6025812460
CATCHMENT:	ADDRESS: 1731 W ROSE GARDEN LN STE 2	PHOENIX AZ 850272714
SIC: 3089	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 586	BUSINESS: MOON VALLEY TRAVEL SERVICE	PHONE: 6028661950
CATCHMENT:	ADDRESS: 13240 N 7TH ST # E2	PHOENIX AZ 850225340
SIC: 4481	CONTACT: CAROL MASCARELLI	POSITION:
ITEM #: 504	BUSINESS: PYRAMID GASKET INC	PHONE: 6027808111
CATCHMENT:	ADDRESS: 1711 W ROSE GARDEN LN STE 1	PHOENIX AZ 850272712
SIC: 3053	CONTACT:	POSITION:
ITEM #: 442	BUSINESS: G & G ENTERPRISES	PHONE: 6025826212
CATCHMENT:	ADDRESS: 31 W LONE CACTUS DR STE 11	PHOENIX AZ 850272944
SIC: 3799	CONTACT:	POSITION:
ITEM #: 505	BUSINESS: CANYON GASKET & SUPPLY INC	PHONE: 6028690600
CATCHMENT:	ADDRESS: 2001 W MELINDA LN	PHOENIX AZ 850272623
SIC: 3053	CONTACT:	POSITION:
ITEM #: 444	BUSINESS: IMAGINEERING INDUSTRIES	PHONE: 6025828660
CATCHMENT:	ADDRESS: 21411 N 11TH AVE STE 5	PHOENIX AZ 850272835
SIC: 3751	CONTACT: CHESTER DOS	POSITION:
ITEM #: 506	BUSINESS: SUN VALLEY BATTERIES	PHONE: 6025826547
CATCHMENT:	ADDRESS: 2105 W DEER VALLEY RD	PHOENIX AZ 850272014
SIC: 2911	CONTACT: MARGERATE KIMBRELL	POSITION:
ITEM #: 446	BUSINESS: INLAND MARINE SERVICE	PHONE: 6022714379
CATCHMENT:	ADDRESS: 22006 N 21ST AVE	PHOENIX AZ 850272004
SIC: 3732	CONTACT: JOHN T VANDERBEEK	POSITION:
ITEM #: 507	BUSINESS: FRAGRANCES ETC	PHONE: 6025829210
CATCHMENT:	ADDRESS: 20630 N 6TH DR	PHOENIX AZ 850275915
SIC: 2844	CONTACT:	POSITION:
ITEM #: 448	BUSINESS: PINGREE W H CO	PHONE: 6028699780
CATCHMENT:	ADDRESS: 2202 W MELINDA LN	PHOENIX AZ 850272603
SIC: 3713	CONTACT:	POSITION:
ITEM #: 508	BUSINESS: GLADE INVESTMENT CORP	PHONE: 6025815233
CATCHMENT:	ADDRESS: 320 W LONE CACTUS DR STE 5	PHOENIX AZ 850272919
SIC: 2819	CONTACT:	POSITION:
ITEM #: 450	BUSINESS: EPITRONICS CORPORATION	PHONE: 6025813663
CATCHMENT:	ADDRESS: 21002 N 19TH AVE STE 5	PHOENIX AZ 850272726
SIC: 3674	CONTACT: R L ADAMS	POSITION:
ITEM #: 509	BUSINESS: CLASSIC THERMOGRAPHERS OF ARIZ	PHONE: 6025820002
CATCHMENT:	ADDRESS: 337 W MELINDA LN	PHOENIX AZ 850272962
SIC: 2759	CONTACT: LARRY J STOWERS	POSITION:
ITEM #: 452	BUSINESS: POSITIVE TECHNOLOGY	PHONE: 6025824235
CATCHMENT:	ADDRESS: 2222 W BEARDSLEY RD APT 1054	PHOENIX AZ 850273461
SIC: 3663	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 510	BUSINESS: PRINTING EXPRESS	PHONE: 6024920298
CATCHMENT:	ADDRESS: 21435 N 23RD AVE	PHOENIX AZ 850272525
SIC: 2752	CONTACT:	POSITION:
ITEM #: 454	BUSINESS: WOOD ART	PHONE: 6022542000
CATCHMENT:	ADDRESS: 21630 N 9TH AVE STE 105	PHOENIX AZ 850272843
SIC: 3599	CONTACT:	POSITION:
ITEM #: 511	BUSINESS: P & G PRESS	PHONE: 6029347448
CATCHMENT:	ADDRESS: 21424 N 7TH AVE STE 1	PHOENIX AZ 850272914
SIC: 2752	CONTACT:	POSITION:
ITEM #: 456	BUSINESS: STINSON MACHINE & MFG	PHONE: 6029445894
CATCHMENT:	ADDRESS: 21411 N 14TH AVE	PHOENIX AZ 850272850
SIC: 3599	CONTACT: BOB STINSON	POSITION:
ITEM #: 512	BUSINESS: AMERICAN SPEEDY PRINTING CENTE	PHONE: 6025826133
CATCHMENT:	ADDRESS: 20801 N 19TH AVE	PHOENIX AZ 850273554
SIC: 2752	CONTACT:	POSITION:
ITEM #: 458	BUSINESS: SARGENT PLASTIC MACHINING INC	PHONE: 6025813903
CATCHMENT:	ADDRESS: 22602 N 17TH AVE	PHOENIX AZ 850271303
SIC: 3599	CONTACT:	POSITION:
ITEM #: 513	BUSINESS: KAY DIRECTORY	PHONE: 6025822901
CATCHMENT:	ADDRESS: 519 W LONE CACTUS DR STE 105	PHOENIX AZ 850272921
SIC: 2741	CONTACT:	POSITION:
ITEM #: 460	BUSINESS: R & C MFG	PHONE: 6025820394
CATCHMENT:	ADDRESS: 519 W LONE CACTUS DR STE 204	PHOENIX AZ 850272922
SIC: 3599	CONTACT: NANCY AWILLIAMS	POSITION:
ITEM #: 514	BUSINESS: RED SKY FURNISHINGS	PHONE: 6025816399
CATCHMENT:	ADDRESS: 1 W DEER VALLEY RD STE 119	PHOENIX AZ 850273133
SIC: 2599	CONTACT:	POSITION:
ITEM #: 462	BUSINESS: PMC MACHINING	PHONE: 6025822233
CATCHMENT:	ADDRESS: 21424 N 7TH AVE STE 4	PHOENIX AZ 850272914
SIC: 3599	CONTACT: RICK CHAMPION	POSITION:
ITEM #: 515	BUSINESS: CUSTOM SOUTHWESTERN FURNITURE	PHONE: 6027802777
CATCHMENT:	ADDRESS: 31 W LONE CACTUS DR STE 9	PHOENIX AZ 850272944
SIC: 2599	CONTACT:	POSITION:
ITEM #: 464	BUSINESS: MCMILLAN MACHINE COMPANY INC	PHONE: 6025823713
CATCHMENT:	ADDRESS: 21438 N 7TH AVE	PHOENIX AZ 850272925
SIC: 3599	CONTACT:	POSITION:
ITEM #: 581	BUSINESS: KLEFSTAD ARIZ BUILDERS INC	PHONE: 6028639765
CATCHMENT:	ADDRESS: 16601 N 25TH AVE STE 102	PHOENIX AZ 850233118
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 584	BUSINESS: COMPLETE CONSTRUCTION COMPANY	PHONE: 6029782427
CATCHMENT:	ADDRESS: 2919 W CHARLESTON AVE	PHOENIX AZ 850231716
SIC: 1521	CONTACT:	POSITION:
ITEM #: 517	BUSINESS: KIVA FURNITURE MANUFACTURING	PHONE: 6027804651
CATCHMENT:	ADDRESS: 329 W LONE CACTUS DR STE 8	PHOENIX AZ 850272939
SIC: 2511	CONTACT:	POSITION:
ITEM #: 468	BUSINESS: J & K SCREW MACHINE PRODUCTS	PHONE: 6027801318
CATCHMENT:	ADDRESS: 302 W MELINDA LN STE 3	PHOENIX AZ 850272927
SIC: 3599	CONTACT:	POSITION:
ITEM #: 518	BUSINESS: ADAMS MED-DENT CABINETS	PHONE: 6029970204
CATCHMENT:	ADDRESS: 21619 N 2ND AVE	PHOENIX AZ 850272931
SIC: 2434	CONTACT: GARY G ADAMS	POSITION:
ITEM #: 470	BUSINESS: DOMINATOR PLASTICS	PHONE: 6025815434
CATCHMENT:	ADDRESS: 2231 W ADOBE DR	PHOENIX AZ 850271921
SIC: 3599	CONTACT: RICHARD L HOLMES	POSITION:
ITEM #: 519	BUSINESS: KIESLER ENTERPRISES	PHONE: 6025823366
CATCHMENT:	ADDRESS: 21609 N 12TH AVE STE 400	PHOENIX AZ 850272847
SIC: 2431	CONTACT:	POSITION:
ITEM #: 472	BUSINESS: BOONE TOOL COMPANY	PHONE: 6025812844
CATCHMENT:	ADDRESS: 21835 N 23RD AVE	PHOENIX AZ 850271908
SIC: 3599	CONTACT:	POSITION:
ITEM #: 473	BUSINESS: ENGINEERING & MFG CO	PHONE: 6028699257
CATCHMENT:	ADDRESS: 21609 N 14TH AVE	PHOENIX AZ 850272892
SIC: 3599	CONTACT:	POSITION:
ITEM #: 570	BUSINESS: ALLSTATE SELF STORAGE	PHONE: 6028668200
CATCHMENT:	ADDRESS: 17201 N BLK CNYN I 17 ACC	PHOENIX AZ 850232298
SIC: 4214	CONTACT: CHUCK BROWN	POSITION:
ITEM #: 474	BUSINESS: SMC PNEUMATICS	PHONE: 6024920908
CATCHMENT:	ADDRESS: 21636 N 14TH AVE STE A2	PHOENIX AZ 850272840
SIC: 3592	CONTACT:	POSITION:
ITEM #: 476	BUSINESS: TATUM MECHANICAL	PHONE: 6025815265
CATCHMENT:	ADDRESS: 21421 N 11TH AVE STE 6	PHOENIX AZ 850272825
SIC: 3585	CONTACT:	POSITION:
ITEM #: 477	BUSINESS: DIGITAL EQUIP CO	PHONE: 6028698825
CATCHMENT:	ADDRESS: 2500 W UNION HILLS DR	PHOENIX AZ 850275199
SIC: 3573	CONTACT:	POSITION:
ITEM #: 478	BUSINESS: OMTEC SUPPORT SERVICES INC	PHONE: 6027800010
CATCHMENT:	ADDRESS: 1741 W ROSE GARDEN LN	PHOENIX AZ 850272709
SIC: 3571	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 479	BUSINESS: ASH-GUARD FIRE PROTECTION INC	PHONE: 6022714548
CATCHMENT:	ADDRESS: 21443 N 23RD AVE # 1	PHOENIX AZ 850272525
SIC: 3569	CONTACT:	POSITION:
ITEM #: 522	BUSINESS: OASIS-FRONTIER CORP	PHONE: 6027802414
CATCHMENT:	ADDRESS: 320 W LONE CACTUS DR STE 9	PHOENIX AZ 850272919
SIC: 2323	CONTACT:	POSITION:
ITEM #: 481	BUSINESS: INTERNATIONAL PLATING INC	PHONE: 6025818371
CATCHMENT:	ADDRESS: 2050 W DEER VALLEY RD STE D	PHOENIX AZ 850272022
SIC: 3559	CONTACT:	POSITION:
ITEM #: 523	BUSINESS: TYNATE SHUTTERS	PHONE: 6024929838
CATCHMENT:	ADDRESS: 401 W LONE CACTUS DR STE 1	PHOENIX AZ 850272947
SIC: 2299	CONTACT: JOHN HHOLSCHER	POSITION:
ITEM #: 483	BUSINESS: GENERAL BINDING CORP	PHONE: 6022464211
CATCHMENT:	ADDRESS: 20823 N 19TH AVE STE 7	PHOENIX AZ 850273561
SIC: 3555	CONTACT:	POSITION:
ITEM #: 524	BUSINESS: BUZZARD GRAPHICS INC	PHONE: 6025829844
CATCHMENT:	ADDRESS: 21622 N 7TH AVE	PHOENIX AZ 850272950
SIC: 2262	CONTACT:	POSITION:
ITEM #: 485	BUSINESS: DELTA TOOL & MOLD CO	PHONE: 6025825854
CATCHMENT:	ADDRESS: 21424 N 7TH AVE STE 2	PHOENIX AZ 850272914
SIC: 3544	CONTACT:	POSITION:
ITEM #: 525	BUSINESS: ARIZONA SHIPPING PRODUCTS	PHONE: 6022524529
CATCHMENT:	ADDRESS: 20601 N 21ST AVE	PHOENIX AZ 850273422
SIC: 2241	CONTACT:	POSITION:
ITEM #: 487	BUSINESS: ADEPT PRODUCTION TECHNOLOGY	PHONE: 6025822020
CATCHMENT:	ADDRESS: 21601 N 9TH AVE	PHOENIX AZ 850272821
SIC: 3498	CONTACT:	POSITION:
ITEM #: 526	BUSINESS: ISCAR METALS INC	PHONE: 6025826304
CATCHMENT:	ADDRESS: 1831 W ROSE GARDEN LN STE 4	PHOENIX AZ 850272725
SIC: 2211	CONTACT:	POSITION:
ITEM #: 565	BUSINESS: PULTE HOME CORPORATION	PHONE: 6025690083
CATCHMENT:	ADDRESS: 4008 E ROSEMONTE DR	PHOENIX AZ 850243749
SIC: 1521	CONTACT:	POSITION:
ITEM #: 567	BUSINESS: B & F GENERAL CONTRACTING INC	PHONE: 6025821170
CATCHMENT:	ADDRESS: 21001 N 7TH ST	PHOENIX AZ 850245101
SIC: 1521	CONTACT:	POSITION:
ITEM #: 527	BUSINESS: THE LUNCH BASKET	PHONE: 6025813028
CATCHMENT:	ADDRESS: 21620 N 19TH AVE STE A5	PHOENIX AZ 850272798
SIC: 2099	CONTACT: DOUG WILLIAMS	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 418	BUSINESS: THUNDERBIRD AVIATION	PHONE: 6028699174
CATCHMENT:	ADDRESS: 530 W DEER VALLEY RD	PHOENIX AZ 850272106
SIC: 4512	CONTACT:	POSITION:
ITEM #: 420	BUSINESS: DEER VALLEY SELF STORAGE	PHONE: 6025826406
CATCHMENT:	ADDRESS: 21835 N 21ST AVE	PHOENIX AZ 850272028
SIC: 4226	CONTACT:	POSITION:
ITEM #: 422	BUSINESS: DEERFIELD MOVING & STORAGE INC	PHONE: 6028690958
CATCHMENT:	ADDRESS: 22201 N 23RD AVE	PHOENIX AZ 850271995
SIC: 4214	CONTACT: MRS DENISE PETRIE	POSITION:
ITEM #: 424	BUSINESS: LDM TRUCKING CO INC	PHONE: 6025812725
CATCHMENT:	ADDRESS: 22433 N BLK CNYN I 17 ACC	PHOENIX AZ 850271934
SIC: 4213	CONTACT: LARRY D MORRIS	POSITION:
ITEM #: 529	BUSINESS: NORTHERN PIPELINE CONSTRUCTION	PHONE: 6025821235
CATCHMENT:	ADDRESS: 1 W DEER VALLEY RD STE 101	PHOENIX AZ 850272130
SIC: 1623	CONTACT:	POSITION:
ITEM #: 428	BUSINESS: SAMMONS TRUCKING	PHONE: 6022331365
CATCHMENT:	ADDRESS: 21630 N 19TH AVE STE B3	PHOENIX AZ 850272717
SIC: 4212	CONTACT:	POSITION:
ITEM #: 530	BUSINESS: IMMING & COMPANY INC	PHONE: 6025826003
CATCHMENT:	ADDRESS: 22228 N 23RD AVE	PHOENIX AZ 850271914
SIC: 1623	CONTACT:	POSITION:
ITEM #: 587	BUSINESS: DRY CLEAN-USA	PHONE: 6028637820
CATCHMENT:	ADDRESS: 401 E BELL RD	PHOENIX AZ 850222300
SIC: 3999	CONTACT: STAN TIER	POSITION:
ITEM #: 531	BUSINESS: VAL CONTRACTING	PHONE: 6028697012
CATCHMENT:	ADDRESS: 22223 N 23RD AVE	PHOENIX AZ 850271906
SIC: 1611	CONTACT: TOM HINTZE	POSITION:
ITEM #: 437	BUSINESS: DESERT X-RAY SALES INC	PHONE: 6022427464
CATCHMENT:	ADDRESS: 21617 N 9TH AVE	PHOENIX AZ 850272826
SIC: 3844	CONTACT:	POSITION:
ITEM #: 532	BUSINESS: SANNER COMPANIES INC	PHONE: 6027804110
CATCHMENT:	ADDRESS: 22223 N 23RD AVE	PHOENIX AZ 850271906
SIC: 1611	CONTACT:	POSITION:
ITEM #: 441	BUSINESS: LUCTOR CORP	PHONE: 6025825503
CATCHMENT:	ADDRESS: 21436 N 20TH AVE	PHOENIX AZ 850272612
SIC: 3825	CONTACT:	POSITION:
ITEM #: 533	BUSINESS: K B T CONTRACTING CO INC	PHONE: 6028699015
CATCHMENT:	ADDRESS: 22224 N 22ND AVE	PHOENIX AZ 850271903
SIC: 1611	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 445	BUSINESS: JETT PERFORMANCE MARINE	PHONE: 6027801909
CATCHMENT:	ADDRESS: 21622 N 7TH AVE STE C10	PHOENIX AZ 850272950
SIC: 3732	CONTACT:	POSITION:
ITEM #: 534	BUSINESS: AMERICAN FENCE CO	PHONE: 6029927770
CATCHMENT:	ADDRESS: 2126 W DEER VALLEY RD	PHOENIX AZ 850272015
SIC: 1611	CONTACT: LENN SIKE	POSITION:
ITEM #: 449	BUSINESS: PANELTEC SOUTHWEST	PHONE: 6025811490
CATCHMENT:	ADDRESS: 501 W LONE CACTUS DR	PHOENIX AZ 850272933
SIC: 3674	CONTACT:	POSITION:
ITEM #: 535	BUSINESS: HARD ROCK CONSTRUCTION	PHONE: 6024920518
CATCHMENT:	ADDRESS: 2225 W HAPPY VALLEY RD	PHOENIX AZ 850277849
SIC: 1542	CONTACT:	POSITION:
ITEM #: 453	BUSINESS: J B'S PRECISION INDUSTRIES INC	PHONE: 6029979700
CATCHMENT:	ADDRESS: 21421 N 7TH AVE	PHOENIX AZ 850272906
SIC: 3624	CONTACT:	POSITION:
ITEM #: 577	BUSINESS: SYNTELLECT INC	PHONE: 6027892800
CATCHMENT:	ADDRESS: 15810 N 28TH AVE	PHOENIX AZ 850234059
SIC: 3571	CONTACT:	POSITION:
ITEM #: 457	BUSINESS: STEWART MANUFACTURING CO INC	PHONE: 6025822261
CATCHMENT:	ADDRESS: 621 W LONE CACTUS DR	PHOENIX AZ 850272958
SIC: 3599	CONTACT:	POSITION:
ITEM #: 537	BUSINESS: WEST STAR CONTRACTING	PHONE: 6025821878
CATCHMENT:	ADDRESS: 20816 N 20TH AVE STE 32	PHOENIX AZ 850273438
SIC: 1521	CONTACT:	POSITION:
ITEM #: 463	BUSINESS: OHLINGER INDUSTRIES INC	PHONE: 6022850911
CATCHMENT:	ADDRESS: 1211 W MELINDA LN	PHOENIX AZ 850272819
SIC: 3599	CONTACT:	POSITION:
ITEM #: 561	BUSINESS: MULTIFAST TRANSPORTATION INC	PHONE: 6024929930
CATCHMENT:	ADDRESS: 4004 E WESCOTT DR # B	PHOENIX AZ 850243710
SIC: 2023	CONTACT:	POSITION:
ITEM #: 538	BUSINESS: VERTEX CONSTRUCTION	PHONE: 6025818951
CATCHMENT:	ADDRESS: 20827 N 6TH DR	PHOENIX AZ 850275940
SIC: 1521	CONTACT:	POSITION:
ITEM #: 467	BUSINESS: JESSE INDUSTRIES INC	PHONE: 6025826167
CATCHMENT:	ADDRESS: 21439 N 2ND AVE	PHOENIX AZ 850272916
SIC: 3599	CONTACT:	POSITION:
ITEM #: 539	BUSINESS: TYERS CONTRACTING CO	PHONE: 6028672497
CATCHMENT:	ADDRESS: 21642 N 9TH AVE	PHOENIX AZ 850272823
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 471	BUSINESS: DEER VALLEY PRECISION TOOL	PHONE: 6028696809
CATCHMENT:	ADDRESS: 302 W MELINDA LN STE 5	PHOENIX AZ 850272927
SIC: 3599	CONTACT: PAMELA SEE	POSITION:
ITEM #: 540	BUSINESS: THE CALVIN CORP	PHONE: 6025823185
CATCHMENT:	ADDRESS: 22440 N 20TH AVE	PHOENIX AZ 850272023
SIC: 1521	CONTACT:	POSITION:
ITEM #: 571	BUSINESS: BELL ROAD MITSUBISHI	PHONE: 6028631100
CATCHMENT:	ADDRESS: 999 W BELL RD # 2	PHOENIX AZ 850233512
SIC: 4213	CONTACT: HOWARD KEYS	POSITION:
ITEM #: 541	BUSINESS: T L C DESIGN & DEVELOPMENT INC	PHONE: 6022714616
CATCHMENT:	ADDRESS: 22023 N 20TH AVE # B	PHOENIX AZ 850272001
SIC: 1521	CONTACT:	POSITION:
ITEM #: 482	BUSINESS: GAYNOR CERAMICS	PHONE: 6025828052
CATCHMENT:	ADDRESS: 21424 N 7TH AVE STE 9	PHOENIX AZ 850272914
SIC: 3559	CONTACT:	POSITION:
ITEM #: 542	BUSINESS: REGAL HOMES INCORPORATED	PHONE: 6025822486
CATCHMENT:	ADDRESS: 21639 N 12TH AVE STE 201	PHOENIX AZ 850272807
SIC: 1521	CONTACT:	POSITION:
ITEM #: 486	BUSINESS: CUSTOM FABRICATORS	PHONE: 6025818418
CATCHMENT:	ADDRESS: 701 W DEER VALLEY RD STE 5	PHOENIX AZ 850272100
SIC: 3542	CONTACT:	POSITION:
ITEM #: 543	BUSINESS: PRENTICE TRUCKING LEE & RANDAL	PHONE: 6025825688
CATCHMENT:	ADDRESS: 21630 N 19TH AVE STE B6	PHOENIX AZ 850272717
SIC: 1521	CONTACT:	POSITION:
ITEM #: 416	BUSINESS: CANYON STATES TRANSPORTATION	PHONE: 6022423047
CATCHMENT:	ADDRESS: 21630 N 19TH AVE STE B11	PHOENIX AZ 850272717
SIC: 4731	CONTACT:	POSITION:
ITEM #: 544	BUSINESS: PONDEROSA LOG HOMES	PHONE: 6022440620
CATCHMENT:	ADDRESS: 22402 N BLK CNYN I 17 ACC	PHOENIX AZ 850271840
SIC: 1521	CONTACT: HOWARD MCCARTNEY	POSITION:
ITEM #: 426	BUSINESS: CONSOLIDATED FREIGHTWAYS	PHONE: 6025810600
CATCHMENT:	ADDRESS: 22001 N 23RD AVE	PHOENIX AZ 850271913
SIC: 4213	CONTACT: BOB SAMPSON	POSITION:
ITEM #: 545	BUSINESS: PHOENIX BODY WORKS	PHONE: 6025821434
CATCHMENT:	ADDRESS: 22012 N 19TH AVE	PHOENIX AZ 850272102
SIC: 1521	CONTACT: GREG MAY	POSITION:
ITEM #: 435	BUSINESS: SOUNDMED ELECTRONICS	PHONE: 6025829888
CATCHMENT:	ADDRESS: 1801 W ROSE GARDEN LN	PHOENIX AZ 850272721
SIC: 3851	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 546	BUSINESS: NEW HOMESTEAD LOG HOMES OF ARI	PHONE: 6027800020
CATCHMENT:	ADDRESS: 22433 N BLK CNYN 17 ACC	PHOENIX AZ 850271934
SIC: 1521	CONTACT:	POSITION:
ITEM #: 443	BUSINESS: NANONICS CORPORATION	PHONE: 6025816188
CATCHMENT:	ADDRESS: 21636 N 14TH AVE STE A3	PHOENIX AZ 850272840
SIC: 3761	CONTACT:	POSITION:
ITEM #: 547	BUSINESS: MOUNTAINVIEW	PHONE: 6029440291
CATCHMENT:	ADDRESS: 18840 N 3RD AVE	PHOENIX AZ 850275600
SIC: 1521	CONTACT:	POSITION:
ITEM #: 451	BUSINESS: COMPOUND SEMICONDUCTOR MATERIA	PHONE: 6025813800
CATCHMENT:	ADDRESS: 21002 N 19TH AVE STE 7	PHOENIX AZ 850272706
SIC: 3674	CONTACT:	POSITION:
ITEM #: 548	BUSINESS: MCAFEE CONCRETE	PHONE: 6025818857
CATCHMENT:	ADDRESS: 2127 W WICKIEUP LN	PHOENIX AZ 850274117
SIC: 1521	CONTACT: CARLA MCAFEE	POSITION:
ITEM #: 459	BUSINESS: RONCO PRECISION AUTOMATICS INC	PHONE: 6025829898
CATCHMENT:	ADDRESS: 1101 W MELINDA LN	PHOENIX AZ 850272808
SIC: 3599	CONTACT: MARLYS JONES	POSITION:
ITEM #: 549	BUSINESS: K-LIGHT CONSTRUCTION	PHONE: 6025822785
CATCHMENT:	ADDRESS: 20817 N 21ST AVE STE 12	PHOENIX AZ 850273478
SIC: 1521	CONTACT:	POSITION:
ITEM #: 469	BUSINESS: HILBIG MACHINE	PHONE: 6025820446
CATCHMENT:	ADDRESS: 401 W LONE CACTUS DR STE 4	PHOENIX AZ 850272947
SIC: 3599	CONTACT:	POSITION:
ITEM #: 550	BUSINESS: IBC SOUTHWEST	PHONE: 6025815000
CATCHMENT:	ADDRESS: 21639 N 12TH AVE STE 200	PHOENIX AZ 850272807
SIC: 1521	CONTACT:	POSITION:
ITEM #: 480	BUSINESS: TECH SPECIALISTS OF ARIZ	PHONE: 6025811666
CATCHMENT:	ADDRESS: 21427 N 23RD AVE # 1	PHOENIX AZ 850272525
SIC: 3559	CONTACT:	POSITION:
ITEM #: 551	BUSINESS: HOLSCHER CUSTOM HOMES	PHONE: 6022582031
CATCHMENT:	ADDRESS: 401 W LONE CACTUS DR STE 5	PHOENIX AZ 850272947
SIC: 1521	CONTACT:	POSITION:
ITEM #: 598	BUSINESS: T C B Y YOGURT	PHONE: 6028669535
CATCHMENT:	ADDRESS: 245 E BELL RD STE 10	PHOENIX AZ 850222354
SIC: 2026	CONTACT:	POSITION:
ITEM #: 576	BUSINESS: ICOTRON	PHONE: 6023751236
CATCHMENT:	ADDRESS: 15820 N 28TH AVE	PHOENIX AZ 850234021
SIC: 3573	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 431	BUSINESS: UNITED DEFENSE INDUSTRIES INC	PHONE: 6024345128
CATCHMENT:	ADDRESS: 205 W DEER VALLEY RD	PHOENIX AZ 850272119
SIC: 3999	CONTACT:	POSITION:
ITEM #: 553	BUSINESS: CENTRAL WEST DEVELOPMENT INC	PHONE: 6025813881
CATCHMENT:	ADDRESS: 320 W LONE CACTUS DR STE 11	PHOENIX AZ 850272919
SIC: 1521	CONTACT:	POSITION:
ITEM #: 447	BUSINESS: HONEYWELL	PHONE: 6024362311
CATCHMENT:	ADDRESS: 21111 N 19TH AVE	PHOENIX AZ 850272708
SIC: 3721	CONTACT:	POSITION:
ITEM #: 455	BUSINESS: SUPERIOR MACHINE & TOOL INC	PHONE: 6029441441
CATCHMENT:	ADDRESS: 301 W LONE CACTUS DR	PHOENIX AZ 850272909
SIC: 3599	CONTACT:	POSITION:
ITEM #: 465	BUSINESS: L D A MACHINE & AUTOMOTIVE	PHONE: 6025824574
CATCHMENT:	ADDRESS: 21421 N 11TH AVE	PHOENIX AZ 850272825
SIC: 3599	CONTACT:	POSITION:
ITEM #: 475	BUSINESS: IONICS INC	PHONE: 6025822957
CATCHMENT:	ADDRESS: 20801 N 19TH AVE STE 1	PHOENIX AZ 850273554
SIC: 3589	CONTACT:	POSITION:
ITEM #: 562	BUSINESS: VALLEYVIEW DEVELOPMENT INC	PHONE: 6025692040
CATCHMENT:	ADDRESS: 1950 E DEER VALLEY RD # B	PHOENIX AZ 850245601
SIC: 1542	CONTACT:	POSITION:
ITEM #: 439	BUSINESS: RAN ENGINEERING INCORPORATED	PHONE: 6027800078
CATCHMENT:	ADDRESS: 325 W MELINDA LN	PHOENIX AZ 850272926
SIC: 3825	CONTACT: RANDY NELSON	POSITION:
ITEM #: 560	BUSINESS: CANINE CONNECTION	PHONE: 6024920364
CATCHMENT:	ADDRESS: 21616 N CENTRAL AVE STE 6	PHOENIX AZ 850245108
SIC: 3172	CONTACT: JEAN HALL	POSITION:
ITEM #: 484	BUSINESS: FRONTIER TOOL & MOLD INC	PHONE: 6025825588
CATCHMENT:	ADDRESS: 21628 N 2ND AVE	PHOENIX AZ 850272917
SIC: 3544	CONTACT: PHIL KLEKITCH	POSITION:
ITEM #: 555	BUSINESS: HORIZON SIGNS INC	PHONE: 6022467056
CATCHMENT:	ADDRESS: 1950 E DEER VALLEY RD	PHOENIX AZ 850245601
SIC: 3993	CONTACT: NANCY WEBER	POSITION:
ITEM #: 556	BUSINESS: Z-SNAP	PHONE: 6024929528
CATCHMENT:	ADDRESS: 21602 N CENTRAL AVE STE 4	PHOENIX AZ 850245106
SIC: 3944	CONTACT:	POSITION:
ITEM #: 558	BUSINESS: G & R SCREW MACHINE PRODUCTS	PHONE: 6025826544
CATCHMENT:	ADDRESS: 21602 N CENTRAL AVE STE 5	PHOENIX AZ 850245106
SIC: 3599	CONTACT:	POSITION:

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ITEM #: 559	BUSINESS: DEER VALLEY BLOCK CO INC	PHONE: 6022583925
CATCHMENT:	ADDRESS: 1639 E DEER VALLEY RD	PHOENIX AZ 850245600
SIC: 3511	CONTACT:	POSITION:
ITEM #: 1010	BUSINESS: CARLSON TRAVEL NETWORK	PHONE: 6028930203
CATCHMENT:	ADDRESS: 4802 E RAY RD STE 17	PHOENIX AZ 850446410
SIC: 4244	CONTACT:	POSITION:
ITEM #: 1011	BUSINESS: INDUSTRY SUPPLY & SERVICE	PHONE: 6027592214
CATCHMENT:	ADDRESS: 16627 S 33RD ST	PHOENIX AZ 850447898
SIC: 4226	CONTACT:	POSITION:
ITEM #: 661	BUSINESS: POINTE TAPTAIO CONDOMINIUM SAL	PHONE: 6023711577
CATCHMENT:	ADDRESS: 10253 N 12TH PL # 1	PHOENIX AZ 850201659
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1108	BUSINESS: GILBERT F E TRUCKING	PHONE: 6029361753
CATCHMENT:	ADDRESS: 24 S 69TH AVE	PHOENIX AZ 850433321
SIC: 4213	CONTACT: F E GILBERT	POSITION:
ITEM #: 662	BUSINESS: POINT RESORT CONDOMINIUMS	PHONE: 6028619528
CATCHMENT:	ADDRESS: 10410 N CAVE CREEK RD	PHOENIX AZ 850201644
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1097	BUSINESS: VEG TRUCKING	PHONE: 6029366311
CATCHMENT:	ADDRESS: 7502 W BROADWAY RD	PHOENIX AZ 850437203
SIC: 4213	CONTACT:	POSITION:
ITEM #: 1035	BUSINESS: DOOR SALES INC	PHONE: 6024381080
CATCHMENT:	ADDRESS: 8249 S POINTE PKY W	PHOENIX AZ 850445421
SIC: 2431	CONTACT:	POSITION:
ITEM #: 663	BUSINESS: HYDRO CONSTRUCTORS	PHONE: 6029438577
CATCHMENT:	ADDRESS: 7220 N 16TH ST	PHOENIX AZ 850205253
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1086	BUSINESS: NATIONAL STORAGE & MINI-WAREHO	PHONE: 6029366076
CATCHMENT:	ADDRESS: 7420 W VAN BUREN ST	PHOENIX AZ 850433203
SIC: 4225	CONTACT: BOB KAHN	POSITION:
ITEM #: 1034	BUSINESS: SCOTT PAPER COMPANY COMMERCIAL	PHONE: 6027592747
CATCHMENT:	ADDRESS: 2502 E DRY CREEK RD	PHOENIX AZ 850449042
SIC: 2621	CONTACT:	POSITION:
ITEM #: 664	BUSINESS: HARDISON DOWNEY CONSTRUCTION	PHONE: 6028610044
CATCHMENT:	ADDRESS: 1635 E MYRTLE AVE STE 200	PHOENIX AZ 850205599
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1074	BUSINESS: SHEA HOMES	PHONE: 6027593144
CATCHMENT:	ADDRESS: 14037 S 35TH PL	PHOENIX AZ 850448702
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1055	BUSINESS: PRESLEY DEVELOPMENT COMPANY	PHONE: 6028931000
CATCHMENT:		ADDRESS: 11022 S 51ST ST	PHOENIX AZ 850441727
SIC:	1521	CONTACT:	POSITION:
ITEM #:	611	BUSINESS: M & I TRANSPORT LTD	PHONE: 6029951198
CATCHMENT:		ADDRESS: 8611 N BLK CNYN I 17 ACC	PHOENIX AZ 850214161
SIC:	4213	CONTACT:	POSITION:
ITEM #:	666	BUSINESS: GOSNELL BUILDERS	PHONE: 6029976138
CATCHMENT:		ADDRESS: 906 E MESCAL ST	PHOENIX AZ 850205822
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1073	BUSINESS: RYLAND HOMES	PHONE: 6024604300
CATCHMENT:		ADDRESS: 15029 S 9TH PL	PHOENIX AZ 850446327
SIC:	1521	CONTACT:	POSITION:
ITEM #:	667	BUSINESS: GOSNELL BUILDERS	PHONE: 6029442249
CATCHMENT:		ADDRESS: 10410 N CAVE CREEK RD	PHOENIX AZ 850201645
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1027	BUSINESS: P A BERGNER & CO	PHONE: 6024318304
CATCHMENT:		ADDRESS: 7822 S 46TH ST	PHOENIX AZ 850445313
SIC:	3172	CONTACT:	POSITION:
ITEM #:	610	BUSINESS: THE GLENN COMPANY	PHONE: 6029952995
CATCHMENT:		ADDRESS: 8433 N BLK CNYN I 17 ACC	PHOENIX AZ 850214859
SIC:	4213	CONTACT:	POSITION:
ITEM #:	617	BUSINESS: STAR COMPANY	PHONE: 6029437161
CATCHMENT:		ADDRESS: 1217 W HATCHER RD STE 23	PHOENIX AZ 850210500
SIC:	3599	CONTACT: MIHAI SFERLE	POSITION:
ITEM #:	612	BUSINESS: OCEAN MARKETING GROUP	PHONE: 6029954394
CATCHMENT:		ADDRESS: 8433 N BLK CNYN I 17 ACC	PHOENIX AZ 850214859
SIC:	3993	CONTACT:	POSITION:
ITEM #:	619	BUSINESS: SIERRA PUMPING SYSTEMS INC	PHONE: 6029979102
CATCHMENT:		ADDRESS: 9850 N 19TH DR STE 5	PHOENIX AZ 850211944
SIC:	3586	CONTACT: CRAIG WELDON	POSITION:
ITEM #:	614	BUSINESS: SOUTHWEST FINANCIAL SYSTEMS	PHONE: 6029952599
CATCHMENT:		ADDRESS: 8027 N BLK CNYN I 17 ACC	PHOENIX AZ 850214897
SIC:	3661	CONTACT:	POSITION:
ITEM #:	1071	BUSINESS: BERRES COMPANIES INC	PHONE: 6024318888
CATCHMENT:		ADDRESS: 8201 S 48TH ST	PHOENIX AZ 850445302
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1072	BUSINESS: AM-MARACAY HOMES	PHONE: 6024379474
CATCHMENT:		ADDRESS: 16220 S 23RD PL	PHOENIX AZ 850444205
SIC:	1521	CONTACT:	POSITION:

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ITEM #: 623	BUSINESS: POWILL MFG & ENGINEERING INC	PHONE: 6029437211
CATCHMENT:	ADDRESS: 9311 N 9TH AVE	PHOENIX AZ 850213115
SIC: 3451	CONTACT: JAMES BUCHANAN	POSITION:
ITEM #: 668	BUSINESS: BARROWS & COMPANY	PHONE: 6028704777
CATCHMENT:	ADDRESS: 1819 E MORTEN AVE STE 260	PHOENIX AZ 850204662
SIC: 1521	CONTACT: JOHN A BARROW	POSITION:
ITEM #: 625	BUSINESS: RICK WEST	PHONE: 6023318932
CATCHMENT:	ADDRESS: 1217 W HATCHER RD STE 19	PHOENIX AZ 850210500
SIC: 3089	CONTACT:	POSITION:
ITEM #: 1054	BUSINESS: PULTE HOME CORPORATION	PHONE: 6022435153
CATCHMENT:	ADDRESS: 2605 E AMBER RIDGE WAY	PHOENIX AZ 850449221
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1069	BUSINESS: BLANDFORD HOMES	PHONE: 6027592100
CATCHMENT:	ADDRESS: 16652 S 38TH PL	PHOENIX AZ 850447946
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1053	BUSINESS: QUESTOR CONSTRUCTION INC	PHONE: 6027598133
CATCHMENT:	ADDRESS: 3908 E SHANNON ST	PHOENIX AZ 850447107
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1067	BUSINESS: COLONIAL HOMES	PHONE: 6028939398
CATCHMENT:	ADDRESS: 10201 S 51ST ST STE 240	PHOENIX AZ 850445217
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1052	BUSINESS: REGATTA HOMES LTD	PHONE: 6024968099
CATCHMENT:	ADDRESS: 11022 S 51ST ST	PHOENIX AZ 850441727
SIC: 1521	CONTACT:	POSITION:
ITEM #: 631	BUSINESS: STREETSCAPE INC	PHONE: 6029959272
CATCHMENT:	ADDRESS: 8611 N BLK CNYN I 17 ACC	PHOENIX AZ 850214162
SIC: 2599	CONTACT: LYNN C TAN	POSITION:
ITEM #: 1051	BUSINESS: UDC HOMES	PHONE: 6024603600
CATCHMENT:	ADDRESS: 1432 W SOUTH FORK DR	PHOENIX AZ 850441957
SIC: 1521	CONTACT:	POSITION:
ITEM #: 633	BUSINESS: DESERT CABINET MANUFACTURING	PHONE: 6029438642
CATCHMENT:	ADDRESS: 9247 N 8TH AVE	PHOENIX AZ 850213110
SIC: 2434	CONTACT: LARSON	POSITION:
ITEM #: 1050	BUSINESS: UDC HOMES	PHONE: 6024602002
CATCHMENT:	ADDRESS: 1740 E SOUTH FORK DR	PHOENIX AZ 850449108
SIC: 1521	CONTACT:	POSITION:
ITEM #: 635	BUSINESS: SHIYA-STREPHANS CONTRACTING CO	PHONE: 6029976308
CATCHMENT:	ADDRESS: 2505 W BERYL AVE STE 200	PHOENIX AZ 850211671
SIC: 1623	CONTACT: SHIYA STEPHANS	POSITION:

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ITEM #:	1049	BUSINESS: UDC HOMES	PHONE: 6024603700
CATCHMENT:		ADDRESS: 15460 S 1ST AVE	PHOENIX AZ 850441170
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1063	BUSINESS: EXECUTIVE HOMES AT CANYON ESTA	PHONE: 6027590472
CATCHMENT:		ADDRESS: 3545 E SQUAWBUSH PL	PHOENIX AZ 850447062
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1048	BUSINESS: UDC HOMES	PHONE: 6024602000
CATCHMENT:		ADDRESS: 15615 S 16TH ST	PHOENIX AZ 850448632
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1030	BUSINESS: LASERSCAN	PHONE: 6028937777
CATCHMENT:		ADDRESS: 10220 S 51ST ST	PHOENIX AZ 850445205
SIC:	2759	CONTACT:	POSITION:
ITEM #:	1047	BUSINESS: VINTAGE HILLS	PHONE: 6027590339
CATCHMENT:		ADDRESS: 14838 S 13TH PL	PHOENIX AZ 850446212
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1062	BUSINESS: FULTON HOMES CONSTRUCTION	PHONE: 6027597234
CATCHMENT:		ADDRESS: 3014 E VERBENA DR	PHOENIX AZ 850449540
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1046	BUSINESS: BLANDFORD HOMES	PHONE: 6027597840
CATCHMENT:		ADDRESS: 3718 E WINDMERE DR	PHOENIX AZ 850447314
SIC:	1522	CONTACT:	POSITION:
ITEM #:	1061	BUSINESS: FULTON HOMES SALES OFFICE	PHONE: 6027591366
CATCHMENT:		ADDRESS: 3002 E VERBENA DR	PHOENIX AZ 850449540
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1045	BUSINESS: ZAHNOW HOMES	PHONE: 6027593750
CATCHMENT:		ADDRESS: 3915 E GAIL DR	PHOENIX AZ 850448244
SIC:	1522	CONTACT:	POSITION:
ITEM #:	1028	BUSINESS: ART'S CUSTOM PRODUCTS	PHONE: 6027593509
CATCHMENT:		ADDRESS: 16611 S 36TH PL	PHOENIX AZ 850447979
SIC:	3061	CONTACT:	POSITION:
ITEM #:	1044	BUSINESS: WATT-HANCOCK HOMES	PHONE: 6024603349
CATCHMENT:		ADDRESS: 1402 E BRIARWOOD TER	PHOENIX AZ 850448692
SIC:	1531	CONTACT:	POSITION:
ITEM #:	647	BUSINESS: TAYLOR JAMES	PHONE: 6029979587
CATCHMENT:		ADDRESS: 1217 W HATCHER RD	PHOENIX AZ 850213000
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1043	BUSINESS: CAPISTRANO HOMES INC	PHONE: 6028938338
CATCHMENT:		ADDRESS: 9223 S 47TH PL	PHOENIX AZ 850447519
SIC:	1541	CONTACT:	POSITION:

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ITEM #: 649	BUSINESS: ARIZONA EXPLORATIONS INC	PHONE: 6028646202
CATCHMENT:	ADDRESS: 8433 N BLK CNYN I 17 ACC	PHOENIX AZ 850214859
SIC: 1499	CONTACT:	POSITION:
ITEM #: 1042	BUSINESS: GOSNELL BUILDERS	PHONE: 6024318267
CATCHMENT:	ADDRESS: 7776 S POINTE PKY W	PHOENIX AZ 850445423
SIC: 1541	CONTACT:	POSITION:
ITEM #: 651	BUSINESS: THOMPSON BILL TRANSPORTATION	PHONE: 6028701185
CATCHMENT:	ADDRESS: 1624 E GARDENIA DR	PHOENIX AZ 850205215
SIC: 4213	CONTACT:	POSITION:
ITEM #: 1041	BUSINESS: BLANDFORD HOMES	PHONE: 6028930606
CATCHMENT:	ADDRESS: 4411 E BANNOCK ST	PHOENIX AZ 850444002
SIC: 1542	CONTACT:	POSITION:
ITEM #: 653	BUSINESS: TURNER SALES CO	PHONE: 6028703223
CATCHMENT:	ADDRESS: 7015 N 23RD PL	PHOENIX AZ 850205615
SIC: 3585	CONTACT:	POSITION:
ITEM #: 1040	BUSINESS: BLANDFORD HOMES	PHONE: 6028930625
CATCHMENT:	ADDRESS: 4524 E SANDIA ST	PHOENIX AZ 850444029
SIC: 1542	CONTACT:	POSITION:
ITEM #: 655	BUSINESS: SOUTHWESTERN GESTALT TRAINING	PHONE: 6029978199
CATCHMENT:	ADDRESS: 1855 E NORTHERN AVE	PHOENIX AZ 850203963
SIC: 2796	CONTACT: LAURA KEHRER	POSITION:
ITEM #: 1039	BUSINESS: KENTUCKY FRIED CHICKEN	PHONE: 6028937600
CATCHMENT:	ADDRESS: 4949 E ELLIOT RD	PHOENIX AZ 850441708
SIC: 1542	CONTACT:	POSITION:
ITEM #: 657	BUSINESS: MORE SALES INC	PHONE: 6023318115
CATCHMENT:	ADDRESS: 10443 N CAVE CREEK RD	PHOENIX AZ 850201617
SIC: 2721	CONTACT: JILL COOPER	POSITION:
ITEM #: 1038	BUSINESS: DESSERT CELEBRATION	PHONE: 6025980160
CATCHMENT:	ADDRESS: 4940 E RAY RD	PHOENIX AZ 850446413
SIC: 2026	CONTACT:	POSITION:
ITEM #: 659	BUSINESS: VALLEY HOMES MAGAZINE	PHONE: 6029979405
CATCHMENT:	ADDRESS: 10443 N CAVE CREEK RD	PHOENIX AZ 850201637
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1037	BUSINESS: DESSERT CELEBRATION	PHONE: 6024960201
CATCHMENT:	ADDRESS: 4825 E WARNER RD STE 17	PHOENIX AZ 850443307
SIC: 2026	CONTACT: KEN JSCAVARDA	POSITION:
ITEM #: 1107	BUSINESS: HAMILTON TRUCKING INC	PHONE: 6029363331
CATCHMENT:	ADDRESS: 2430 S 75TH AVE	PHOENIX AZ 850437408
SIC: 4213	CONTACT:	POSITION:

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ITEM #: 1089	BUSINESS: FREEZER SERVICES OF ARIZONA	PHONE: 6029361733
CATCHMENT:	ADDRESS: 455 S 75TH AVE	PHOENIX AZ 850434100
SIC: 4222	CONTACT:	POSITION:
ITEM #: 1033	BUSINESS: GENTLEMEN'S CLUB MAGAZINE	PHONE: 6024381042
CATCHMENT:	ADDRESS: 8809 S POINTE PKY E	PHOENIX AZ 85044
SIC: 2721	CONTACT:	POSITION:
ITEM #: 618	BUSINESS: D & J MACHINE & AUTO	PHONE: 6023950800
CATCHMENT:	ADDRESS: 1217 W HATCHER RD STE 13	PHOENIX AZ 850213000
SIC: 3599	CONTACT: DRAL E MUMAU	POSITION:
ITEM #: 1036	BUSINESS: LASER OFFICE TECHNOLOGY	PHONE: 6024601613
CATCHMENT:	ADDRESS: 1415 E ROCK WREN RD	PHOENIX AZ 850446210
SIC: 2211	CONTACT:	POSITION:
ITEM #: 622	BUSINESS: KERBS CONSTRUCTION CORPORATION	PHONE: 6029442442
CATCHMENT:	ADDRESS: 2505 W BERYL AVE	PHOENIX AZ 850211671
SIC: 3531	CONTACT: ED ECHOA	POSITION:
ITEM #: 1003	BUSINESS: SOUTHWEST UTILITY CONSULTANTS	PHONE: 6027597180
CATCHMENT:	ADDRESS: 16806 S 28TH PL	PHOENIX AZ 850448507
SIC: 4731	CONTACT:	POSITION:
ITEM #: 1032	BUSINESS: THIRD MILLENNIUM COMMUNICATION	PHONE: 6027592153
CATCHMENT:	ADDRESS: 2722 E WINDMERE DR	PHOENIX AZ 850449350
SIC: 2721	CONTACT:	POSITION:
ITEM #: 1004	BUSINESS: TRAVELSMART	PHONE: 6024964020
CATCHMENT:	ADDRESS: 4855 E WARNER RD STE A22	PHOENIX AZ 850443310
SIC: 4724	CONTACT:	POSITION:
ITEM #: 1066	BUSINESS: COVENTRY HOMES INC	PHONE: 6027591047
CATCHMENT:	ADDRESS: 4357 E WINDMERE DR	PHOENIX AZ 850448825
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1005	BUSINESS: TRAVEL AGENTS INTERNATIONAL	PHONE: 6027595615
CATCHMENT:	ADDRESS: 4025 E CHANDLER BLVD STE 5	PHOENIX AZ 850448830
SIC: 4724	CONTACT:	POSITION:
ITEM #: 1031	BUSINESS: INTERNATIONAL MINUTE PRESS	PHONE: 6024965966
CATCHMENT:	ADDRESS: 4747 E ELLIOT RD STE 13	PHOENIX AZ 850441628
SIC: 2752	CONTACT:	POSITION:
ITEM #: 1006	BUSINESS: SOUTH MOUNTAIN TRAVEL	PHONE: 6024960160
CATCHMENT:	ADDRESS: 4747 E ELLIOT RD STE 12	PHOENIX AZ 850441628
SIC: 4724	CONTACT: CAROLINE GRIESEL	POSITION:
ITEM #: 638	BUSINESS: SUN VALLEY ENT	PHONE: 6029443707
CATCHMENT:	ADDRESS: 9850 N 19TH DR STE 1	PHOENIX AZ 850211944
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1007	BUSINESS: HAYDEN TRAVEL	PHONE: 6027595402
CATCHMENT:		ADDRESS: 16607 S 34TH WAY	PHOENIX AZ 850447875
SIC:	4724	CONTACT:	POSITION:
ITEM #:	642	BUSINESS: KIEWIT WESTERN CO	PHONE: 6029448880
CATCHMENT:		ADDRESS: 2525 W BERYL AVE # 100	PHOENIX AZ 850211682
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1008	BUSINESS: DESIGN A FRAME	PHONE: 6027594224
CATCHMENT:		ADDRESS: 4025 E CHANDLER BLVD STE 1	PHOENIX AZ 850448830
SIC:	4724	CONTACT: DON W HOECK	POSITION:
ITEM #:	1059	BUSINESS: HORTON DR SALES	PHONE: 6024602667
CATCHMENT:		ADDRESS: 15813 S 13TH PL	PHOENIX AZ 850448665
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1009	BUSINESS: CARLSON TRAVEL NETWORK	PHONE: 6028939660
CATCHMENT:		ADDRESS: 5015 E ELLIOT RD	PHOENIX AZ 850441780
SIC:	4724	CONTACT:	POSITION:
ITEM #:	1057	BUSINESS: LAURELCREST HOMES	PHONE: 6024601300
CATCHMENT:		ADDRESS: 16615 S 15TH ST	PHOENIX AZ 850449381
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1026	BUSINESS: PRECISION CASTPARTS INC	PHONE: 6027598050
CATCHMENT:		ADDRESS: 2302 E MOUNTAIN SKY AVE	PHOENIX AZ 850449144
SIC:	3369	CONTACT:	POSITION:
ITEM #:	654	BUSINESS: GREENFIELD SHAMPOO	PHONE: 6029433133
CATCHMENT:		ADDRESS: 9101 N 13TH ST	PHOENIX AZ 850202704
SIC:	2844	CONTACT:	POSITION:
ITEM #:	601	BUSINESS: ESTATE BUILDERS INC	PHONE: 6029714009
CATCHMENT:		ADDRESS: 13610 N 17TH PL	PHOENIX AZ 850225000
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1056	BUSINESS: LENNAR HOMES OF ARIZONA INC	PHONE: 6027592171
CATCHMENT:		ADDRESS: 4419 E MOUNTAIN VISTA DR	PHOENIX AZ 850447632
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1012	BUSINESS: SIMULA INC	PHONE: 6028937533
CATCHMENT:		ADDRESS: 10016 S 51ST ST	PHOENIX AZ 850445299
SIC:	3999	CONTACT:	POSITION:
ITEM #:	1025	BUSINESS: CITY SPRINKLERS	PHONE: 6028931213
CATCHMENT:		ADDRESS: 3436 E SUNCREST CT	PHOENIX AZ 850443506
SIC:	3432	CONTACT:	POSITION:
ITEM #:	1013	BUSINESS: A & C ENERCOM INC	PHONE: 6028933310
CATCHMENT:		ADDRESS: 5030 E SUNRISE DR	PHOENIX AZ 850445201
SIC:	3961	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

Woodward-Clyde Consultants

ITEM #: 1070	BUSINESS: BLANDFORD HOMES	PHONE: 6027592255
CATCHMENT:	ADDRESS: 2426 E ROCKLEDGE RD	PHOENIX AZ 850444307
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1014	BUSINESS: SOUTHWEST CALIBRATION LABS INC	PHONE: 6027594496
CATCHMENT:	ADDRESS: 4110 E LIBERTY LN	PHOENIX AZ 850448043
SIC: 3825	CONTACT: MADELINE PAULSON	POSITION:
ITEM #: 1065	BUSINESS: DANMARK HOMES	PHONE: 6025980713
CATCHMENT:	ADDRESS: 11809 S TUZIGOOT CT	PHOENIX AZ 850443446
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1015	BUSINESS: MICRO COMPONENT TECHNOLOGY INC	PHONE: 6028938991
CATCHMENT:	ADDRESS: 9831 S 51ST ST	PHOENIX AZ 850445675
SIC: 3825	CONTACT:	POSITION:
ITEM #: 1029	BUSINESS: MERLE NORMAN COSMETICS	PHONE: 6028936947
CATCHMENT:	ADDRESS: 4855 E WARNER RD STE A17	PHOENIX AZ 850443310
SIC: 2844	CONTACT:	POSITION:
ITEM #: 1016	BUSINESS: HEWLETT-PACKARD COMPANY	PHONE: 6022738000
CATCHMENT:	ADDRESS: 8080 S POINTE PKY W	PHOENIX AZ 850445496
SIC: 3825	CONTACT:	POSITION:
ITEM #: 1058	BUSINESS: LAURELCREST HOMES	PHONE: 6024602200
CATCHMENT:	ADDRESS: 1442 E NIGHT HAWK WAY	PHOENIX AZ 850449374
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1017	BUSINESS: GENERAL INSTRUMENT CORP	PHONE: 6024381118
CATCHMENT:	ADDRESS: 8222 S 48TH ST STE 250	PHOENIX AZ 850445364
SIC: 3825	CONTACT:	POSITION:
ITEM #: 656	BUSINESS: COLONIAL CUSTOM PRINTING	PHONE: 6029445949
CATCHMENT:	ADDRESS: 11649 N CAVE CREEK RD	PHOENIX AZ 850201305
SIC: 2759	CONTACT: DOUG K ILLS	POSITION:
ITEM #: 1018	BUSINESS: DUBRIC PACKING & SEALS OF ARIZ	PHONE: 6029665762
CATCHMENT:	ADDRESS: 8638 S 51ST ST UNIT 1	PHOENIX AZ 850445759
SIC: 3679	CONTACT:	POSITION:
ITEM #: 620	BUSINESS: BULL HN INFORMATIONS SYSTEMS	PHONE: 6028615240
CATCHMENT:	ADDRESS: 2626 W BERYL AVE	PHOENIX AZ 850211668
SIC: 3573	CONTACT:	POSITION:
ITEM #: 1019	BUSINESS: THREE-FIVE SYSTEMS INC	PHONE: 6024960035
CATCHMENT:	ADDRESS: 10230 S 50TH PL	PHOENIX AZ 850445209
SIC: 3674	CONTACT:	POSITION:
ITEM #: 636	BUSINESS: CHOLLA BUSINESS COMMUNICATIONS	PHONE: 6022646565
CATCHMENT:	ADDRESS: 9850 N 19TH DR STE 3	PHOENIX AZ 850211944
SIC: 1623	CONTACT: RICK CHOLLA	POSITION:

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ITEM #: 652	BUSINESS: CARPET & PATIO GRASS	PHONE: 6029710010
CATCHMENT:	ADDRESS: 10443 N CAVE CREEK RD	PHOENIX AZ 850201617
SIC: 3999	CONTACT:	POSITION:
ITEM #: 660	BUSINESS: ROWLAND COMPANIES	PHONE: 6029445944
CATCHMENT:	ADDRESS: 1635 E MYRTLE AVE STE 100	PHOENIX AZ 850205599
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1068	BUSINESS: CENTEX HOMES-THE FOOTHILLS	PHONE: 6024600828
CATCHMENT:	ADDRESS: 1323 E DESERT TRUMPET RD	PHOENIX AZ 850446317
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1060	BUSINESS: H B D CONSTRUCTION INC	PHONE: 6025980217
CATCHMENT:	ADDRESS: 4940 E RAY RD	PHOENIX AZ 850446413
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1020	BUSINESS: SEMITORR ASSOC INC	PHONE: 6027597000
CATCHMENT:	ADDRESS: 14620 S 25TH ST	PHOENIX AZ 850449028
SIC: 3674	CONTACT:	POSITION:
ITEM #: 1021	BUSINESS: ESEC USA INC	PHONE: 6028936990
CATCHMENT:	ADDRESS: 9830 S 51ST ST	PHOENIX AZ 850445600
SIC: 3674	CONTACT:	POSITION:
ITEM #: 1022	BUSINESS: C & A PRECISION	PHONE: 6028938970
CATCHMENT:	ADDRESS: 9831 S 51ST ST	PHOENIX AZ 850445675
SIC: 3599	CONTACT:	POSITION:
ITEM #: 1023	BUSINESS: JOHNSON SALES	PHONE: 6022434208
CATCHMENT:	ADDRESS: 12136 S KI RD	PHOENIX AZ 850442812
SIC: 3571	CONTACT: PHILLIP N JOHNSON	POSITION:
ITEM #: 1024	BUSINESS: ARTISTEC	PHONE: 6027597547
CATCHMENT:	ADDRESS: 15850 S 29TH ST	PHOENIX AZ 850449239
SIC: 3571	CONTACT:	POSITION:
ITEM #: 1221	BUSINESS: DESERT FIRE INDUSTRIES	PHONE: 6022681511
CATCHMENT:	ADDRESS: 28 W FOREST GROVE AVE	PHOENIX AZ 850411230
SIC: 3398	CONTACT:	POSITION:
ITEM #: 1220	BUSINESS: ARIZONA ZINC PLATERS INC	PHONE: 6022769045
CATCHMENT:	ADDRESS: 117 W FOREST GROVE AVE	PHOENIX AZ 850411231
SIC: 3471	CONTACT: BILL SLICEMAN	POSITION:
ITEM #: 1227	BUSINESS: MORRIS TRUCKING & BROKERAGE	PHONE: 6024370444
CATCHMENT:	ADDRESS: 3711 E MIAMI AVE	PHOENIX AZ 850401632
SIC: 4789	CONTACT: JIM D MORRIS	POSITION:
ITEM #: 1219	BUSINESS: BROWN TANK AND STEEL	PHONE: 6022433053
CATCHMENT:	ADDRESS: 4300 S 15TH AVE	PHOENIX AZ 850411411
SIC: 3499	CONTACT: RANDY F BROWN	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 1225	BUSINESS: URBAN FOREST PRODUCTS	PHONE: 6022688849
CATCHMENT:	ADDRESS: 3330 W BROADWAY RD	PHOENIX AZ 850411808
SIC: 2421	CONTACT:	POSITION:
ITEM #: 1226	BUSINESS: ACE ASPHALT OF ARIZONA	PHONE: 6022434100
CATCHMENT:	ADDRESS: 895 W ELWOOD ST	PHOENIX AZ 850411198
SIC: 1611	CONTACT: MR JOHN DREXLER	POSITION:
ITEM #: 1222	BUSINESS: MONTEZUMA PAVING	PHONE: 6022761530
CATCHMENT:	ADDRESS: 3434 W BROADWAY RD	PHOENIX AZ 850411896
SIC: 3272	CONTACT:	POSITION:
ITEM #: 1125	BUSINESS: ARIZONA STORAGE RENTAL INCORPO	PHONE: 6022472800
CATCHMENT:	ADDRESS: 6900 W BUCKEYE RD	PHOENIX AZ 850434301
SIC: 212	CONTACT: MR JAMES FITZGERALD	POSITION:
ITEM #: 1289	BUSINESS: SAF-TEE SIPING & GROOVING INC	PHONE: 6029661430
CATCHMENT:	ADDRESS: 3418 S 48TH ST STE 10	PHOENIX AZ 850401939
SIC: 3559	CONTACT:	POSITION:
ITEM #: 1200	BUSINESS: BANNER CONSTRUCTION CO INC	PHONE: 6029361931
CATCHMENT:	ADDRESS: 6805 W VAN BUREN ST	PHOENIX AZ 850433398
SIC: 1623	CONTACT: RUTH T JUAREZ	POSITION:
ITEM #: 1223	BUSINESS: CORESLAB STRUCTURES INC	PHONE: 6022373875
CATCHMENT:	ADDRESS: 5026 S 43RD AVE	PHOENIX AZ 850412502
SIC: 3272	CONTACT:	POSITION:
ITEM #: 1217	BUSINESS: TOM HAAS STUDIO	PHONE: 6022436009
CATCHMENT:	ADDRESS: 1750 W LODGE DR	PHOENIX AZ 850419108
SIC: 3999	CONTACT:	POSITION:
ITEM #: 1215	BUSINESS: FRANK'S TRANSFER	PHONE: 6022436297
CATCHMENT:	ADDRESS: 126 W FOREST GROVE AVE	PHOENIX AZ 850411232
SIC: 4213	CONTACT: ORDATTA JIMENEZ	POSITION:
ITEM #: 1207	BUSINESS: DEEP DOWN DRILLER	PHONE: 6022474155
CATCHMENT:	ADDRESS: 230 N 69TH AVE	PHOENIX AZ 850433325
SIC: 1522	CONTACT: SANDY STOCKTON	POSITION:
ITEM #: 1206	BUSINESS: HERNANDEZ BACKHOE SVC & EXCAVA	PHONE: 6022699269
CATCHMENT:	ADDRESS: 6923 W WIER AVE	PHOENIX AZ 850436941
SIC: 1522	CONTACT: GLORIA T HERNANDEZ	POSITION:
ITEM #: 2048	BUSINESS: ARIZONA RAPID COURIER	PHONE: 6024310887
CATCHMENT:	ADDRESS: 2121 S 48TH ST STE 101	TEMPE AZ 852821015
SIC: 4212	CONTACT: PENNY L BOSECK	POSITION:
ITEM #: 2047	BUSINESS: CANYON STATE COURIER	PHONE: 6024380911
CATCHMENT:	ADDRESS: 2219 S 48TH ST STE J	TEMPE AZ 852821010
SIC: 4215	CONTACT:	POSITION:

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ITEM #: 2106	BUSINESS: CUSTOM PACKAGING PRODUCTS INC	PHONE: 6028290255
CATCHMENT:	ADDRESS: 500 S 52ND ST STE 308	TEMPE AZ 852817243
SIC: 3089	CONTACT:	POSITION:
ITEM #: 2104	BUSINESS: ACTION PERFORMANCE SALES INC	PHONE: 6028940100
CATCHMENT:	ADDRESS: 825 S 52ND ST	TEMPE AZ 852815258
SIC: 3229	CONTACT:	POSITION:
ITEM #: 2102	BUSINESS: PHOENIX SPRING CO	PHONE: 6029677733
CATCHMENT:	ADDRESS: 1535 W ELNA RAE ST	TEMPE AZ 852815254
SIC: 3452	CONTACT: PAUL J PRETE	POSITION:
ITEM #: 2101	BUSINESS: GOLD TECH INDUSTRIES	PHONE: 6029681930
CATCHMENT:	ADDRESS: 1043 N STADEM DR	TEMPE AZ 852811877
SIC: 3471	CONTACT:	POSITION:
ITEM #: 2103	BUSINESS: UNITED MCGILL CORPORATION	PHONE: 6029662638
CATCHMENT:	ADDRESS: 607 S 48TH ST STE 102	TEMPE AZ 852812310
SIC: 3443	CONTACT:	POSITION:
ITEM #: 2099	BUSINESS: JD'S WESTERN WEAR	PHONE: 6029681036
CATCHMENT:	ADDRESS: 1755 W UNIVERSITY DR STE 6	TEMPE AZ 852813271
SIC: 3496	CONTACT: JAMES D KRAUS	POSITION:
ITEM #: 2105	BUSINESS: VALLEY PATTERN & MOLD CO INC	PHONE: 6029218866
CATCHMENT:	ADDRESS: 2425 W 12TH ST STE 6	TEMPE AZ 852816939
SIC: 3089	CONTACT: VINCENT A MERRICK	POSITION:
ITEM #: 1402	BUSINESS: DURSO CONSTRUCTION & INTERIORS	PHONE: 6027595746
CATCHMENT:	ADDRESS: 3502 E DESERT BROOM WAY	PHOENIX AZ 850448700
SIC: 1521	CONTACT:	POSITION:
ITEM #: 2098	BUSINESS: GENERAL TURBINE SYSTEMS	PHONE: 6029218950
CATCHMENT:	ADDRESS: 1761 W UNIVERSITY DR # 139	TEMPE AZ 852813231
SIC: 3511	CONTACT:	POSITION:
ITEM #: 2049	BUSINESS: WAVEPHORE INC	PHONE: 6024388700
CATCHMENT:	ADDRESS: 2601 W BROADWAY RD	TEMPE AZ 852821002
SIC: 3825	CONTACT:	POSITION:
ITEM #: 2001	BUSINESS: ESSEX HOMES	PHONE: 6025610988
CATCHMENT:	ADDRESS: 5667 W ABRAHAM LN	GLENDALE AZ 853086244
SIC: 3999	CONTACT:	POSITION:
ITEM #: 2050	BUSINESS: TENCOR INSTRUMENTS	PHONE: 6024381488
CATCHMENT:	ADDRESS: 2223 S 48TH ST STE J	TEMPE AZ 852821082
SIC: 3674	CONTACT:	POSITION:
ITEM #: 2003	BUSINESS: AM-MARACAY HOMES	PHONE: 6022580818
CATCHMENT:	ADDRESS: 21647 N 58TH DR	GLENDALE AZ 853086238
SIC: 1521	CONTACT:	POSITION:

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ITEM #: 2051	BUSINESS: ASM EPITAXY	PHONE: 6024388300
CATCHMENT:	ADDRESS: 2300 W HUNTINGTON DR	TEMPE AZ 852823130
SIC: 3674	CONTACT:	POSITION:
ITEM #: 2005	BUSINESS: ALL ORTHOPEDIC SERVICES	PHONE: 6029784393
CATCHMENT:	ADDRESS: 5757 W THUNDERBIRD RD	GLENDALE AZ 853064643
SIC: 3842	CONTACT:	POSITION:
ITEM #: 2052	BUSINESS: WEST COAST TERMINAL INC	PHONE: 6024389782
CATCHMENT:	ADDRESS: 2125 S 48TH ST STE 104	TEMPE AZ 852821014
SIC: 3661	CONTACT:	POSITION:
ITEM #: 2007	BUSINESS: SECURED STORAGE LTD	PHONE: 6022851899
CATCHMENT:	ADDRESS: 5240 W CACTUS RD	GLENDALE AZ 853041947
SIC: 4226	CONTACT:	POSITION:
ITEM #: 2053	BUSINESS: AZ JACK LTD	PHONE: 6029219483
CATCHMENT:	ADDRESS: 1501 W FOUNTAINHEAD PKY	TEMPE AZ 852821853
SIC: 3569	CONTACT:	POSITION:
ITEM #: 2009	BUSINESS: LENNAR HOMES OF ARIZONA INC	PHONE: 6028787849
CATCHMENT:	ADDRESS: 11016 N 59TH DR	GLENDALE AZ 853043743
SIC: 1521	CONTACT:	POSITION:
ITEM #: 2054	BUSINESS: AIR PRODUCTS AND CHEMICALS INC	PHONE: 6029684494
CATCHMENT:	ADDRESS: 1501 W FOUNTAINHEAD PKY	TEMPE AZ 852821846
SIC: 3559	CONTACT:	POSITION:
ITEM #: 2011	BUSINESS: STOR-IT-YOURSELF	PHONE: 6029341314
CATCHMENT:	ADDRESS: 5801 W SAN MIGUEL AVE	GLENDALE AZ 853015903
SIC: 4225	CONTACT: ROBERTA VANNOTE	POSITION:
ITEM #: 2055	BUSINESS: SANKYO ENGINEERING OF AMERICA	PHONE: 6024387000
CATCHMENT:	ADDRESS: 2507 W GENEVA DR	TEMPE AZ 852823127
SIC: 3499	CONTACT:	POSITION:
ITEM #: 2013	BUSINESS: FAIRWAY TAXI CO	PHONE: 6029319933
CATCHMENT:	ADDRESS: 5036 N 54TH AVE STE 10	GLENDALE AZ 853017509
SIC: 4121	CONTACT:	POSITION:
ITEM #: 2056	BUSINESS: DRAKE CORPORATION	PHONE: 6024381221
CATCHMENT:	ADDRESS: 2510 W GENEVA DR	TEMPE AZ 852823128
SIC: 3469	CONTACT:	POSITION:
ITEM #: 2015	BUSINESS: SCIENTIFIC LASER CONNECTION	PHONE: 6029396711
CATCHMENT:	ADDRESS: 5037 N 54TH AVE STE 3	GLENDALE AZ 853017536
SIC: 3845	CONTACT:	POSITION:
ITEM #: 2057	BUSINESS: ARIZONA SENIOR WORLD	PHONE: 6024381566
CATCHMENT:	ADDRESS: 2207 S 48TH ST	TEMPE AZ 852828200
SIC: 2759	CONTACT: MR STEVE FISH	POSITION:

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ITEM #:	2017	BUSINESS: APPLIED CIRCUIT ENGINEERING	PHONE: 6029394749
CATCHMENT:		ADDRESS: 5023 N 54TH AVE STE 2	GLENDALE AZ 853017533
SIC:	3672	CONTACT:	POSITION:
ITEM #:	2058	BUSINESS: CIMARRON FINE ART STUDIO	PHONE: 6024318400
CATCHMENT:		ADDRESS: 2412 W HUNTINGTON DR	TEMPE AZ 852823132
SIC:	2752	CONTACT:	POSITION:
ITEM #:	2019	BUSINESS: MESA SPRINKLER INC	PHONE: 6029399933
CATCHMENT:		ADDRESS: 5449 N 51ST AVE # 102	GLENDALE AZ 853017028
SIC:	3432	CONTACT:	POSITION:
ITEM #:	2059	BUSINESS: AZTEC MOULDING CO	PHONE: 6024374888
CATCHMENT:		ADDRESS: 2125 S 48TH ST STE 109	TEMPE AZ 852821014
SIC:	2499	CONTACT:	POSITION:
ITEM #:	2021	BUSINESS: GEORGIA-PACIFIC CORPORATION	PHONE: 6029391413
CATCHMENT:		ADDRESS: 4800 W PASADENA AVE	GLENDALE AZ 853017619
SIC:	3272	CONTACT: JOHN F FOREMN	POSITION:
ITEM #:	2060	BUSINESS: US SIGN CONSULTANTS	PHONE: 6024381796
CATCHMENT:		ADDRESS: 2105 S 48TH ST STE 106	TEMPE AZ 852821019
SIC:	1623	CONTACT:	POSITION:
ITEM #:	2024	BUSINESS: TRI PAPER	PHONE: 6029307033
CATCHMENT:		ADDRESS: 5365 N 51ST AVE # 102	GLENDALE AZ 853017003
SIC:	2621	CONTACT:	POSITION:
ITEM #:	2097	BUSINESS: UNIQUE MACHINE & TOOL CO	PHONE: 6029687258
CATCHMENT:		ADDRESS: 500 S 52ND ST	TEMPE AZ 852817224
SIC:	3553	CONTACT: KEN RMOFFATT	POSITION:
ITEM #:	2061	BUSINESS: E M J CONSTRUCTION CONSULTANTS	PHONE: 6024388707
CATCHMENT:		ADDRESS: 2105 S 48TH ST STE 108	TEMPE AZ 852821019
SIC:	1622	CONTACT:	POSITION:
ITEM #:	2026	BUSINESS: AERO-TECH ENGINEERING	PHONE: 6029340750
CATCHMENT:		ADDRESS: 5808 W SAN MIGUEL AVE	GLENDALE AZ 853015905
SIC:	2321	CONTACT: JOHN M MORGAN	POSITION:
ITEM #:	2062	BUSINESS: WILDISH SOUTHWEST CONSTRUCTION	PHONE: 6024380033
CATCHMENT:		ADDRESS: 2510 W BROADWAY RD	TEMPE AZ 852821020
SIC:	1611	CONTACT:	POSITION:
ITEM #:	2028	BUSINESS: SSG GLASS	PHONE: 6029312294
CATCHMENT:		ADDRESS: 5750 W SAN MIGUEL AVE STE 2	GLENDALE AZ 853015915
SIC:	1542	CONTACT: ILENE SIMMONS	POSITION:
ITEM #:	2063	BUSINESS: P C L CONSTRUCTION SERVICES	PHONE: 6028296200
CATCHMENT:		ADDRESS: 1620 W FOUNTAINHEAD PKY	TEMPE AZ 852821841
SIC:	1521	CONTACT:	POSITION:

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ITEM #: 2030	BUSINESS: JADE TRANSPORTATION	PHONE: 6024964488
CATCHMENT:	ADDRESS: 8841 S HARDY DR	TEMPE AZ 852842809
SIC: 4212	CONTACT:	POSITION:
ITEM #: 2064	BUSINESS: COX JAMES ARCHITECTS	PHONE: 6024311111
CATCHMENT:	ADDRESS: 2412 W HUNTINGTON DR	TEMPE AZ 852823132
SIC: 1521	CONTACT:	POSITION:
ITEM #: 2032	BUSINESS: LOT CONST TRLR	PHONE: 6029610604
CATCHMENT:	ADDRESS: 8949 S BECK AVE	TEMPE AZ 852842829
SIC: 1623	CONTACT:	POSITION:
ITEM #: 2065	BUSINESS: CLARK COMMERCIAL BUILDERS	PHONE: 6024381149
CATCHMENT:	ADDRESS: 2117 S 48TH ST STE 101	TEMPE AZ 852821016
SIC: 1521	CONTACT: CHARLES A CLARK	POSITION:
ITEM #: 2034	BUSINESS: WESTERN WELL & PUMP INC	PHONE: 6028936983
CATCHMENT:	ADDRESS: 8845 S HARDY DR	TEMPE AZ 852842809
SIC: 1381	CONTACT:	POSITION:
ITEM #: 2066	BUSINESS: ADOLFSON & PETERSON INC	PHONE: 6024380343
CATCHMENT:	ADDRESS: 2105 S 48TH ST STE 101	TEMPE AZ 852821019
SIC: 1521	CONTACT:	POSITION:
ITEM #: 2036	BUSINESS: ALLIED VAN LINES AGENTS	PHONE: 6022520088
CATCHMENT:	ADDRESS: 1849 W DRAKE DR	TEMPE AZ 852834368
SIC: 4214	CONTACT:	POSITION:
ITEM #: 2067	BUSINESS: T L C TRANSPORTATION	PHONE: 6029210455
CATCHMENT:	ADDRESS: 825 S 52ND ST STE 1	TEMPE AZ 852815258
SIC: 4731	CONTACT:	POSITION:
ITEM #: 2038	BUSINESS: AETEC SOLDERCOAT	PHONE: 6028316006
CATCHMENT:	ADDRESS: 1830 W DRAKE DR STE 104	TEMPE AZ 852834304
SIC: 3674	CONTACT:	POSITION:
ITEM #: 2068	BUSINESS: PIONEER TRAVEL	PHONE: 6028299573
CATCHMENT:	ADDRESS: 1705 W UNIVERSITY DR STE 5	TEMPE AZ 852813269
SIC: 4724	CONTACT: DOUGLAS LOWNEY	POSITION:
ITEM #: 2040	BUSINESS: MIG-IT INC	PHONE: 6028399388
CATCHMENT:	ADDRESS: 1820 W DRAKE DR STE 105	TEMPE AZ 852834312
SIC: 3548	CONTACT:	POSITION:
ITEM #: 2069	BUSINESS: TRICOR AMERICA COURIER INC	PHONE: 6029672939
CATCHMENT:	ADDRESS: 509 S 48TH ST	TEMPE AZ 852812322
SIC: 4513	CONTACT:	POSITION:
ITEM #: 2042	BUSINESS: STONE WORKS	PHONE: 6028319598
CATCHMENT:	ADDRESS: 1510 W DRAKE DR	TEMPE AZ 852834346
SIC: 3272	CONTACT:	POSITION:

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ITEM #:	2070	BUSINESS: SPECIALTY MAILING	PHONE: 6029687437
CATCHMENT:		ADDRESS: 509 S 48TH ST STE 107	TEMPE AZ 852812322
SIC:	4513	CONTACT:	POSITION:
ITEM #:	2044	BUSINESS: INTERSTATE PACKAGING GROUP INC	PHONE: 6023456564
CATCHMENT:		ADDRESS: 1829 W DRAKE DR STE 105	TEMPE AZ 852834320
SIC:	2673	CONTACT:	POSITION:
ITEM #:	2071	BUSINESS: AIRWAYS FREIGHT	PHONE: 6029663966
CATCHMENT:		ADDRESS: 520 S 52ND ST STE 210	TEMPE AZ 852817226
SIC:	4513	CONTACT:	POSITION:
ITEM #:	2046	BUSINESS: BOWERS WORLDWIDE TRAVEL SERVIC	PHONE: 6029682828
CATCHMENT:		ADDRESS: 1501 W FOUNTAINHEAD PKY	TEMPE AZ 852821846
SIC:	4729	CONTACT:	POSITION:
ITEM #:	2072	BUSINESS: RIGHT-O-WAY AIR FREIGHT	PHONE: 6029681130
CATCHMENT:		ADDRESS: 520 S 52ND ST STE 210	TEMPE AZ 852817226
SIC:	4512	CONTACT:	POSITION:
ITEM #:	2000	BUSINESS: SUN LAND BEEF CO	PHONE: 6029367177
CATCHMENT:		ADDRESS: 651 S 91ST AVE	TOLLESON AZ 853539299
SIC:	2011	CONTACT: HAROLD WICKMAN	POSITION:
ITEM #:	2073	BUSINESS: LABOR MANAGEMENT SERVICES	PHONE: 6029663672
CATCHMENT:		ADDRESS: 1524 W 14TH ST	TEMPE AZ 852816999
SIC:	4213	CONTACT:	POSITION:
ITEM #:	2004	BUSINESS: WETSKI INC	PHONE: 6025470065
CATCHMENT:		ADDRESS: 5160 W PHELPS RD # A	GLENDALE AZ 853061309
SIC:	4499	CONTACT:	POSITION:
ITEM #:	2074	BUSINESS: CHROMA COPY	PHONE: 6029662828
CATCHMENT:		ADDRESS: 1860 W UNIVERSITY DR STE 109	TEMPE AZ 852813247
SIC:	3993	CONTACT:	POSITION:
ITEM #:	2008	BUSINESS: CACTUS WEST STOR-ALL MINI STOR	PHONE: 6029786262
CATCHMENT:		ADDRESS: 12280 N 51ST AVE	GLENDALE AZ 853042234
SIC:	4225	CONTACT:	POSITION:
ITEM #:	2075	BUSINESS: TRIAD	PHONE: 6028946264
CATCHMENT:		ADDRESS: 2443 W 12TH ST STE 5	TEMPE AZ 852816934
SIC:	3825	CONTACT: JOHN M MURPHY	POSITION:
ITEM #:	2012	BUSINESS: HADLEY AUTO TRANSPORT	PHONE: 6029319151
CATCHMENT:		ADDRESS: 4705 W PASADENA AVE	GLENDALE AZ 853017616
SIC:	4213	CONTACT:	POSITION:
ITEM #:	2076	BUSINESS: TERADYNE INC	PHONE: 6029677549
CATCHMENT:		ADDRESS: 1791 W UNIVERSITY DR # 165	TEMPE AZ 852813231
SIC:	3825	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	2016	BUSINESS: AMERICAN RV CENTER	PHONE: 6029313232
CATCHMENT:		ADDRESS: 5630 NW GRAND AVE	GLENDALE AZ 853013902
SIC:	3716	CONTACT:	POSITION:
ITEM #:	2077	BUSINESS: KES SYSTEMS INC	PHONE: 6029213670
CATCHMENT:		ADDRESS: 2404 W 12TH ST # 4A	TEMPE AZ 852816913
SIC:	3825	CONTACT:	POSITION:
ITEM #:	2020	BUSINESS: BONNEVILLE METALS INC	PHONE: 6024351422
CATCHMENT:		ADDRESS: 5455 N 51ST AVE	GLENDALE AZ 853017030
SIC:	3341	CONTACT:	POSITION:
ITEM #:	2078	BUSINESS: TAYMAC CORPORATION	PHONE: 6029217552
CATCHMENT:		ADDRESS: 2440 W 12TH ST STE 5	TEMPE AZ 852816932
SIC:	3699	CONTACT:	POSITION:
ITEM #:	2025	BUSINESS: OAK SOUTHWEST MFG	PHONE: 6029318585
CATCHMENT:		ADDRESS: 5740 W SAN MIGUEL AVE STE D1	GLENDALE AZ 853015916
SIC:	2599	CONTACT: JOHN VALENTI	POSITION:
ITEM #:	2079	BUSINESS: CONTROL DESIGN SUPPLY	PHONE: 6028297981
CATCHMENT:		ADDRESS: 521 S 48TH ST STE 106	TEMPE AZ 852812320
SIC:	3699	CONTACT:	POSITION:
ITEM #:	2029	BUSINESS: HOSANNA CONSTRUCTION FAX LINE	PHONE: 6024350490
CATCHMENT:		ADDRESS: 5322 N 59TH AVE STE Q	GLENDALE AZ 853016753
SIC:	1521	CONTACT:	POSITION:
ITEM #:	2080	BUSINESS: SEAL-JET OF PHOENIX	PHONE: 6029665000
CATCHMENT:		ADDRESS: 441 S 48TH ST STE 101	TEMPE AZ 852812303
SIC:	3679	CONTACT:	POSITION:
ITEM #:	2033	BUSINESS: GUZMAN	PHONE: 6024966606
CATCHMENT:		ADDRESS: 9213 S HARDY DR	TEMPE AZ 852842804
SIC:	1521	CONTACT:	POSITION:
ITEM #:	2081	BUSINESS: TESTERION INC	PHONE: 6028297772
CATCHMENT:		ADDRESS: 1797 W UNIVERSITY DR # 170	TEMPE AZ 852813231
SIC:	3672	CONTACT:	POSITION:
ITEM #:	2037	BUSINESS: JOHN'S GOLF CARTS	PHONE: 6023459732
CATCHMENT:		ADDRESS: 1820 W DRAKE DR STE 103	TEMPE AZ 852834312
SIC:	3949	CONTACT:	POSITION:
ITEM #:	2082	BUSINESS: MCCAIN TRAFFIC SUPPLY	PHONE: 6029667203
CATCHMENT:		ADDRESS: 537 S 48TH ST STE 101	TEMPE AZ 852812319
SIC:	3669	CONTACT:	POSITION:
ITEM #:	2041	BUSINESS: ETTACO	PHONE: 6028317445
CATCHMENT:		ADDRESS: 1829 W DRAKE DR STE 104	TEMPE AZ 852834320
SIC:	3498	CONTACT:	POSITION:

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ITEM #:	2083	BUSINESS: ASSEMBLY TECHNOLOGIES	PHONE: 6029680533
CATCHMENT:		ADDRESS: 505 S 48TH ST STE 102	TEMPE AZ 852812323
SIC:	3663	CONTACT:	POSITION:
ITEM #:	2045	BUSINESS: JANEL FREIGHT FORWARDING	PHONE: 6024310577
CATCHMENT:		ADDRESS: 2415 W HUNTINGTON DR STE J	TEMPE AZ 852823167
SIC:	4731	CONTACT:	POSITION:
ITEM #:	2084	BUSINESS: ACCURENT COMPUTER SYSTEMS	PHONE: 6028296500
CATCHMENT:		ADDRESS: 521 S 48TH ST STE 101	TEMPE AZ 852812320
SIC:	3663	CONTACT:	POSITION:
ITEM #:	2002	BUSINESS: AM-MARACAY HOMES	PHONE: 6025611050
CATCHMENT:		ADDRESS: 21623 N 58TH DR	GLENDALE AZ 853086238
SIC:	1542	CONTACT:	POSITION:
ITEM #:	2085	BUSINESS: OMNIFAX	PHONE: 6028946688
CATCHMENT:		ADDRESS: 449 S 48TH ST STE 103	TEMPE AZ 852812304
SIC:	3661	CONTACT:	POSITION:
ITEM #:	2010	BUSINESS: EXTRA SPACE SELF STORAGE	PHONE: 6028420459
CATCHMENT:		ADDRESS: 4616 NW GRAND AVE	GLENDALE AZ 853017105
SIC:	4226	CONTACT:	POSITION:
ITEM #:	2086	BUSINESS: SYSTEMATICS MFG & TOOL CO INC	PHONE: 6029689454
CATCHMENT:		ADDRESS: 2447 W 12TH ST STE 3	TEMPE AZ 852816936
SIC:	3599	CONTACT:	POSITION:
ITEM #:	2018	BUSINESS: ARIZONA INDUSTRIAL SPRAY EQUIP	PHONE: 6029340954
CATCHMENT:		ADDRESS: 5750 W SAN MIGUEL AVE STE C9	GLENDALE AZ 853015915
SIC:	3523	CONTACT:	POSITION:
ITEM #:	2087	BUSINESS: RELIABLE TOOL & MFG	PHONE: 6029665882
CATCHMENT:		ADDRESS: 521 S 48TH ST STE 109	TEMPE AZ 852812320
SIC:	3599	CONTACT: GREG JANKOWSKI	POSITION:
ITEM #:	2027	BUSINESS: ANIMAL TECHNOLOGY INC	PHONE: 6028421336
CATCHMENT:		ADDRESS: 5455 N 51ST AVE STE 7	GLENDALE AZ 853017030
SIC:	7077	CONTACT:	POSITION:
ITEM #:	2088	BUSINESS: WINN-MARION INC	PHONE: 6029672234
CATCHMENT:		ADDRESS: 455 S 48TH ST STE 104	TEMPE AZ 852812302
SIC:	3592	CONTACT:	POSITION:
ITEM #:	2035	BUSINESS: EBERHART MOVING & STORAGE LTD	PHONE: 6028399676
CATCHMENT:		ADDRESS: 1849 W DRAKE DR # 101	TEMPE AZ 852834368
SIC:	4214	CONTACT:	POSITION:
ITEM #:	2089	BUSINESS: CAR-GRAPH INC	PHONE: 6028941356
CATCHMENT:		ADDRESS: 1545 W ELNA RAE ST	TEMPE AZ 852815254
SIC:	3592	CONTACT: CHUCK LINDBLOOM	POSITION:

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ITEM #:	2043	BUSINESS: NESCO MFG INC	PHONE: 6027566675
CATCHMENT:		ADDRESS: 1510 W DRAKE DR	TEMPE AZ 852834346
SIC:	2851	CONTACT:	POSITION:
ITEM #:	2090	BUSINESS: AQUA CHILL OF ARIZONA	PHONE: 6028299255
CATCHMENT:		ADDRESS: 2465 W 12TH ST STE 2	TEMPE AZ 852816935
SIC:	3589	CONTACT:	POSITION:
ITEM #:	2100	BUSINESS: GROUP MANUFACTURING SERVICES	PHONE: 6028942417
CATCHMENT:		ADDRESS: 500 S 52ND ST STE 306	TEMPE AZ 852817243
SIC:	3479	CONTACT:	POSITION:
ITEM #:	2022	BUSINESS: ARISTOCRAFT	PHONE: 6029376393
CATCHMENT:		ADDRESS: 5750 W SAN MIGUEL AVE STE C3	GLENDALE AZ 853015915
SIC:	2759	CONTACT: GARY K MUSSER	POSITION:
ITEM #:	2031	BUSINESS: GIBBONS & REED COMPANY	PHONE: 6028931067
CATCHMENT:		ADDRESS: 8207 S PRIEST DR	TEMPE AZ 852841911
SIC:	1629	CONTACT:	POSITION:
ITEM #:	2039	BUSINESS: ECKERT ENTERPRISES	PHONE: 6028200380
CATCHMENT:		ADDRESS: 1695 W DRAKE DR	TEMPE AZ 852834372
SIC:	3599	CONTACT:	POSITION:
ITEM #:	2096	BUSINESS: ARIES TECHNOLOGY	PHONE: 6027844818
CATCHMENT:		ADDRESS: 1711 W UNIVERSITY DR # 154	TEMPE AZ 852813231
SIC:	3571	CONTACT:	POSITION:
ITEM #:	2095	BUSINESS: BETTER MOUSE TRAP	PHONE: 6029666777
CATCHMENT:		ADDRESS: 2465 W 12TH ST STE 6	TEMPE AZ 852816935
SIC:	3571	CONTACT:	POSITION:
ITEM #:	2091	BUSINESS: ROBEC DISTRIBUTORS INC	PHONE: 6028297097
CATCHMENT:		ADDRESS: 2404 W 14TH ST	TEMPE AZ 852816920
SIC:	3571	CONTACT:	POSITION:
ITEM #:	2092	BUSINESS: PAR ASSOCIATES	PHONE: 6028946226
CATCHMENT:		ADDRESS: 2414 W 12TH ST # 4	TEMPE AZ 852816913
SIC:	3571	CONTACT:	POSITION:
ITEM #:	2093	BUSINESS: MICROSUPPLY INC	PHONE: 6028291258
CATCHMENT:		ADDRESS: 621 S 48TH ST STE 103	TEMPE AZ 852812325
SIC:	3571	CONTACT:	POSITION:
ITEM #:	2094	BUSINESS: DTK COMPUTER INC	PHONE: 6029212518
CATCHMENT:		ADDRESS: 1625 W UNIVERSITY DR	TEMPE AZ 852813268
SIC:	3571	CONTACT:	POSITION:
ITEM #:	2006	BUSINESS: SPRINKLER WORLD WEST INC	PHONE: 6029383141
CATCHMENT:	AC01	ADDRESS: 16700 N 51ST AVE # A	GLENDALE AZ 853061300
SIC:	3432	CONTACT:	POSITION:

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ITEM #: 396	BUSINESS: TALLMAN CONSTRUCTION	PHONE: 6029554097
CATCHMENT: AC02	ADDRESS: 4062 W SHANGRI LA RD	PHOENIX AZ 850293852
SIC: 1522	CONTACT: BILL TALLMAN	POSITION:
ITEM #: 572	BUSINESS: AQUA SYSTEMS	PHONE: 6029785581
CATCHMENT: AC02	ADDRESS: 3801 W PORT ROYALE LN	PHOENIX AZ 850234546
SIC: 3822	CONTACT: DAVID KINKEAD	POSITION:
ITEM #: 575	BUSINESS: ARIZONA TOTAL COMMUNICATIONS	PHONE: 6028698400
CATCHMENT: AC02	ADDRESS: 13811 N 35TH DR # D	PHOENIX AZ 850235501
SIC: 3661	CONTACT:	POSITION:
ITEM #: 585	BUSINESS: APRIL SOUND SALES OFFICE	PHONE: 6025470336
CATCHMENT: AC02	ADDRESS: 4212 W BOCA RATON ST	PHOENIX AZ 850235384
SIC: 1521	CONTACT:	POSITION:
ITEM #: 389	BUSINESS: THE REYNOLDS & REYNOLDS CO	PHONE: 6028663000
CATCHMENT: AC04	ADDRESS: 11225 N 28TH DR STE B201	PHOENIX AZ 850295610
SIC: 2752	CONTACT:	POSITION:
ITEM #: 391	BUSINESS: IMPACT	PHONE: 6029423139
CATCHMENT: AC04	ADDRESS: 13201 N 35TH AVE STE B20	PHOENIX AZ 850291222
SIC: 2731	CONTACT: JIM MOOS	POSITION:
ITEM #: 392	BUSINESS: APPLETON PAPERS INC	PHONE: 6023750140
CATCHMENT: AC04	ADDRESS: 11221 N 28TH DR	PHOENIX AZ 850295615
SIC: 2621	CONTACT:	POSITION:
ITEM #: 397	BUSINESS: SHRICOMB CONSTRUCTION	PHONE: 6024391776
CATCHMENT: AC04	ADDRESS: 12020 N 35TH AVE STE 111	PHOENIX AZ 850293299
SIC: 1521	CONTACT:	POSITION:
ITEM #: 399	BUSINESS: MCCAW'S DRILLING USA INC	PHONE: 6025489956
CATCHMENT: AC04	ADDRESS: 11225 N 28TH DR STE B109	PHOENIX AZ 850295611
SIC: 1481	CONTACT:	POSITION:
ITEM #: 398	BUSINESS: BECKWITH CONSTRUCTION	PHONE: 6029423796
CATCHMENT: AC04	ADDRESS: 13231 N 35TH AVE STE 11A	PHOENIX AZ 850291233
SIC: 1521	CONTACT:	POSITION:
ITEM #: 568	BUSINESS: PAK MAIL CENTERS OF AMERICA	PHONE: 6025489518
CATCHMENT: AC04	ADDRESS: 2814 W BELL RD STE 1465	PHOENIX AZ 850237532
SIC: 4783	CONTACT:	POSITION:
ITEM #: 569	BUSINESS: SIMPLY TRAVEL	PHONE: 6029788985
CATCHMENT: AC04	ADDRESS: 2710 W BELL RD STE 1229	PHOENIX AZ 850237524
SIC: 4724	CONTACT: ORLY MCCAVE	POSITION:
ITEM #: 579	BUSINESS: FRAMIN' WORKS	PHONE: 6024398744
CATCHMENT: AC04	ADDRESS: 17233 N HOLMES BLVD STE 1635	PHOENIX AZ 850232020
SIC: 2499	CONTACT:	POSITION:

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ITEM #: 580	BUSINESS: CHILL OUT FROZEN YOGURT	PHONE: 6023753760
CATCHMENT: AC04	ADDRESS: 2734 W BELL RD STE 1336	PHOENIX AZ 850237528
SIC: 2026	CONTACT: CAROL PETERSON	POSITION:
ITEM #: 1001	BUSINESS: DEFOREST CONSTRUCTION	PHONE: 6029447682
CATCHMENT: AC08	ADDRESS: 9628 N METRO PKY E # A	PHOENIX AZ 85051
SIC: 1521	CONTACT:	POSITION:
ITEM #: 615	BUSINESS: PITNEY BOWES FACSIMILE SYSTEMS	PHONE: 6023710505
CATCHMENT: AC09	ADDRESS: 9424 N 25TH AVE	PHOENIX AZ 850212786
SIC: 3661	CONTACT:	POSITION:
ITEM #: 23	BUSINESS: SAMUELSON HORNADAY	PHONE: 6029573715
CATCHMENT: AC14	ADDRESS: 2408 E ARIZONA BILTMORE CIR	PHOENIX AZ 850162103
SIC: 1542	CONTACT: TOM HORNADAY	POSITION:
ITEM #: 30	BUSINESS: BILTMORE SQUARE GATEHOUSE	PHONE: 6029574377
CATCHMENT: AC14	ADDRESS: 2626 E ARIZONA BILTMORE CIR	PHOENIX AZ 850162101
SIC: 1521	CONTACT:	POSITION:
ITEM #: 25	BUSINESS: SPIRIT OF THE SOUTHWEST INC	PHONE: 6029572372
CATCHMENT: AC14	ADDRESS: 2525 E ARIZONA BILTMORE CIR	PHOENIX AZ 850162194
SIC: 1521	CONTACT:	POSITION:
ITEM #: 15	BUSINESS: TRAVEL BIZ	PHONE: 6029489571
CATCHMENT: AC14	ADDRESS: 3159 E LINCOLN DR	PHOENIX AZ 850162317
SIC: 4724	CONTACT:	POSITION:
ITEM #: 29	BUSINESS: EDISON MICRO-UTILITIES COMPANY	PHONE: 6023818221
CATCHMENT: AC14	ADDRESS: 2408 E ARIZONA BILTMORE CIR	PHOENIX AZ 850162103
SIC: 1521	CONTACT:	POSITION:
ITEM #: 640	BUSINESS: QUALITY FIRST BUILDING SERVICE	PHONE: 6028612616
CATCHMENT: AC26	ADDRESS: 401 W HATCHER RD # C	PHOENIX AZ 850212455
SIC: 1521	CONTACT:	POSITION:
ITEM #: 645	BUSINESS: CLARK CONTRACTING CO	PHONE: 6029977521
CATCHMENT: CC01	ADDRESS: 9849 N 19TH DR STE A1	PHOENIX AZ 850211942
SIC: 1521	CONTACT: DICK CLARK	POSITION:
ITEM #: 639	BUSINESS: S R BITTL	PHONE: 6029439215
CATCHMENT: CC01	ADDRESS: 9849 N 19TH DR STE 4	PHOENIX AZ 850211942
SIC: 1521	CONTACT:	POSITION:
ITEM #: 634	BUSINESS: VANTAGE SCREEN PRINT & GRAPHIC	PHONE: 6028610355
CATCHMENT: CC01	ADDRESS: 9855 N 19TH DR	PHOENIX AZ 850211946
SIC: 2261	CONTACT:	POSITION:
ITEM #: 626	BUSINESS: QUALITY EQUIPMENT & SPRAY	PHONE: 6023711993
CATCHMENT: CC01	ADDRESS: 9849 N 19TH DR STE 3	PHOENIX AZ 850211942
SIC: 3052	CONTACT:	POSITION:

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ITEM #:	395	BUSINESS:	MARKHAM CONTRACTING CO INC	PHONE:	6029979623
CATCHMENT:	CC03	ADDRESS:	2108 W SHANGRI LA RD		PHOENIX AZ 850294896
SIC:	1611	CONTACT:	MR MICHAEL MARKHAM	POSITION:	
ITEM #:	394	BUSINESS:	WESTERN STATES PROFILING INC	PHONE:	6023959601
CATCHMENT:	CC03	ADDRESS:	2108 W SHANGRI LA RD		PHOENIX AZ 850294812
SIC:	1611	CONTACT:		POSITION:	
ITEM #:	393	BUSINESS:	COFFEE INN OF AMERICA	PHONE:	6029443396
CATCHMENT:	CC03	ADDRESS:	2362 W SHANGRI LA RD		PHOENIX AZ 850294724
SIC:	2066	CONTACT:		POSITION:	
ITEM #:	375	BUSINESS:	QUALITY TRANSPORT	PHONE:	6023951562
CATCHMENT:	CC03	ADDRESS:	11001 N BLK CNYN I 17 ACC		PHOENIX AZ 850294754
SIC:	4213	CONTACT:		POSITION:	
ITEM #:	377	BUSINESS:	IC MEDICAL INC	PHONE:	6029436162
CATCHMENT:	CC03	ADDRESS:	2340 W SHANGRI LA RD STE 3		PHOENIX AZ 850294745
SIC:	3845	CONTACT:		POSITION:	
ITEM #:	382	BUSINESS:	M & S MFG INC	PHONE:	6029977141
CATCHMENT:	CC03	ADDRESS:	11201 N 21ST AVE		PHOENIX AZ 850294895
SIC:	3499	CONTACT:	C L MCCULLEY	POSITION:	
ITEM #:	379	BUSINESS:	VIKING ELECTRONIC SALES	PHONE:	6029433433
CATCHMENT:	CC03	ADDRESS:	2106 W SHANGRI LA RD		PHOENIX AZ 850294812
SIC:	3679	CONTACT:		POSITION:	
ITEM #:	380	BUSINESS:	G & G PROTOTYPE MACHINES	PHONE:	6028612144
CATCHMENT:	CC03	ADDRESS:	2340 W SHANGRI LA RD STE 103		PHOENIX AZ 850294745
SIC:	3599	CONTACT:		POSITION:	
ITEM #:	386	BUSINESS:	FOREVER YOUNG INC	PHONE:	6028612111
CATCHMENT:	CC03	ADDRESS:	2433 W DESERT COVE AVE		PHOENIX AZ 850294750
SIC:	2844	CONTACT:		POSITION:	
ITEM #:	385	BUSINESS:	HARCO INDUSTRIES INC	PHONE:	6029441565
CATCHMENT:	CC03	ADDRESS:	2362 W SHANGRI LA RD		PHOENIX AZ 850294724
SIC:	3089	CONTACT:	H A SPEERSTRA	POSITION:	
ITEM #:	384	BUSINESS:	CLOUD COMPANIES INC	PHONE:	6028613547
CATCHMENT:	CC03	ADDRESS:	2240 W SHANGRI LA RD		PHOENIX AZ 850294814
SIC:	3272	CONTACT:	MR WAYNE CLOUD	POSITION:	
ITEM #:	383	BUSINESS:	B B P CONCRETE CO	PHONE:	6029435667
CATCHMENT:	CC03	ADDRESS:	11209 N 21ST AVE		PHOENIX AZ 850294803
SIC:	3273	CONTACT:	GARY BURLESON	POSITION:	
ITEM #:	388	BUSINESS:	TRADE PRINTERS INC	PHONE:	6029977557
CATCHMENT:	CC03	ADDRESS:	2122 W SHANGRI LA RD		PHOENIX AZ 850294889
SIC:	2759	CONTACT:	GARY STEWART	POSITION:	

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ITEM #: 381	BUSINESS: SCOOTER LIFT CORP	PHONE: 6029970857
CATCHMENT: CC03	ADDRESS: 2231 W SHANGRI LA RD STE U	PHOENIX AZ 850294822
SIC: 3534	CONTACT:	POSITION:
ITEM #: 390	BUSINESS: INTERNATIONAL PRINTING COMPANY	PHONE: 6029436668
CATCHMENT: CC03	ADDRESS: 2115 W SHANGRI LA RD STE 2	PHOENIX AZ 850294826
SIC: 2752	CONTACT: JIM WHEATS	POSITION:
ITEM #: 378	BUSINESS: PHOENIX MAGNETIC SYSTEM	PHONE: 6028701410
CATCHMENT: CC04	ADDRESS: 11202 N 24TH AVE	PHOENIX AZ 850294744
SIC: 3829	CONTACT: DAVID KROEGER	POSITION:
ITEM #: 588	BUSINESS: MEDICAL GASS SERVICES INC	PHONE: 6022428420
CATCHMENT: CC09	ADDRESS: 312 E JOAN D ARC AVE	PHOENIX AZ 850224707
SIC: 3843	CONTACT: GARY VAUGHN	POSITION:
ITEM #: 594	BUSINESS: DALLAS DIGITAL CORP	PHONE: 6029931285
CATCHMENT: CC09	ADDRESS: 132 E SHARON AVE	PHOENIX AZ 850224731
SIC: 3571	CONTACT:	POSITION:
ITEM #: 599	BUSINESS: GOLLY ENTERPRISES INC	PHONE: 6029423219
CATCHMENT: CC09	ADDRESS: 202 E SHARON AVE	PHOENIX AZ 850224733
SIC: 1522	CONTACT: DANIEL W FOX	POSITION:
ITEM #: 578	BUSINESS: SCOT FREE	PHONE: 6027897949
CATCHMENT: CC10	ADDRESS: 18206 N 19TH AVE STE B2	PHOENIX AZ 850231300
SIC: 3312	CONTACT:	POSITION:
ITEM #: 363	BUSINESS: RJS REMODELING COMPANY	PHONE: 6029410453
CATCHMENT: CC11	ADDRESS: 17838 N 35TH PL	PHOENIX AZ 850321307
SIC: 1522	CONTACT: ROBERT JSPIGARELLI	POSITION:
ITEM #: 339	BUSINESS: FIX A FAX	PHONE: 6024939388
CATCHMENT: CC11	ADDRESS: 17808 N 35TH PL	PHOENIX AZ 850321307
SIC: 3579	CONTACT:	POSITION:
ITEM #: 563	BUSINESS: COVENTRY HOMES INC	PHONE: 6022462553
CATCHMENT: CC11	ADDRESS: 18822 N 7TH PL	PHOENIX AZ 850242991
SIC: 1531	CONTACT:	POSITION:
ITEM #: 591	BUSINESS: SGS THOMSON MICROELECTRONICS	PHONE: 6028676100
CATCHMENT: CC11	ADDRESS: 1000 E BELL RD	PHOENIX AZ 850222699
SIC: 3674	CONTACT:	POSITION:
ITEM #: 608	BUSINESS: ALL-TRAVEL SPECIALISTS	PHONE: 6023751707
CATCHMENT: CC11	ADDRESS: 350 E BELL RD STE J11	PHOENIX AZ 850226311
SIC: 1231	CONTACT: GEORGIA DUTI	POSITION:
ITEM #: 606	BUSINESS: COFFMAN R D ENTERPRISES INC	PHONE: 6029710680
CATCHMENT: CC11	ADDRESS: 18002 N 12TH ST UNIT 6	PHOENIX AZ 850221207
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 603	BUSINESS: ELAN REALTY DEVELOPMENT	PHONE: 6027889606
CATCHMENT: CC11	ADDRESS: 1213 E MICHIGAN AVE	PHOENIX AZ 850221223
SIC: 1521	CONTACT:	POSITION:
ITEM #: 600	BUSINESS: VERDE & MIRAGE MAINTENANCE	PHONE: 6024932163
CATCHMENT: CC13	ADDRESS: 17410 N 15TH ST	PHOENIX AZ 850222049
SIC: 1522	CONTACT:	POSITION:
ITEM #: 597	BUSINESS: HANSON & LATTIMER	PHONE: 6027889809
CATCHMENT: EF01	ADDRESS: 14040 N CAVE CREEK RD	PHOENIX AZ 850226119
SIC: 2711	CONTACT: SALLY LATIMER	POSITION:
ITEM #: 602	BUSINESS: ELLIOTT HOMES INC	PHONE: 6024822882
CATCHMENT: EF01	ADDRESS: 14040 N CAVE CREEK RD	PHOENIX AZ 850226119
SIC: 1521	CONTACT:	POSITION:
ITEM #: 604	BUSINESS: DG FENN CONSTRUCTION	PHONE: 6029921232
CATCHMENT: EF01	ADDRESS: 14040 N CAVE CREEK RD	PHOENIX AZ 850226118
SIC: 1521	CONTACT:	POSITION:
ITEM #: 605	BUSINESS: DAVINCI HOMES	PHONE: 6029715810
CATCHMENT: EF01	ADDRESS: 14421 N 17TH PL	PHOENIX AZ 850224559
SIC: 1521	CONTACT:	POSITION:
ITEM #: 607	BUSINESS: CLASSIC STELLAR HOMES-SALES	PHONE: 6029715868
CATCHMENT: EF01	ADDRESS: 1704 E TIERRA BUENA LN	PHOENIX AZ 850223362
SIC: 1521	CONTACT:	POSITION:
ITEM #: 566	BUSINESS: CENTEX HOMES	PHONE: 6025692240
CATCHMENT: EF04	ADDRESS: 19401 N 37TH WAY	PHOENIX AZ 850243916
SIC: 1521	CONTACT:	POSITION:
ITEM #: 564	BUSINESS: CENTEX HOMES	PHONE: 6025691610
CATCHMENT: EF04	ADDRESS: 19402 N 36TH WAY	PHOENIX AZ 850243907
SIC: 1531	CONTACT:	POSITION:
ITEM #: 557	BUSINESS: SOFTVIEW CORPORATION	PHONE: 6025818655
CATCHMENT: EF04	ADDRESS: 1902 E BEHREND DR	PHOENIX AZ 850241240
SIC: 3845	CONTACT:	POSITION:
ITEM #: 500	BUSINESS: GALCO INTERNATIONAL LTD	PHONE: 6022588295
CATCHMENT: EF04	ADDRESS: 2019 W QUAIL AVE	PHOENIX AZ 850272611
SIC: 3199	CONTACT: RICK GALLAGHER	POSITION:
ITEM #: 670	BUSINESS: ECONOMY WAREHOUSE AND DISTRIBU	PHONE: 6022789499
CATCHMENT: GC02	ADDRESS: 4002 W TURNEY AVE	PHOENIX AZ 850193322
SIC: 4225	CONTACT: LEON WHITE	POSITION:
ITEM #: 401	BUSINESS: LET'S JET TRAVEL INC	PHONE: 6029980800
CATCHMENT: IB02	ADDRESS: 10214 N TATUM BLVD STE B400	PHOENIX AZ 850284232
SIC: 4724	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 406	BUSINESS: PERFORMANCE ENTERPRISES INC	PHONE: 6024437411
CATCHMENT: IB02	ADDRESS: 10214 N TATUM BLVD STE A1200	PHOENIX AZ 850284233
SIC: 1542	CONTACT: MICHAEL DEUTCH	POSITION:
ITEM #: 413	BUSINESS: DALLUM-SCOTT CONSTRUCTION	PHONE: 6022639006
CATCHMENT: IB02	ADDRESS: 4120 E FANFOL DR	PHOENIX AZ 850285106
SIC: 1521	CONTACT:	POSITION:
ITEM #: 410	BUSINESS: PREMIER BUILDING & DEVELOPMENT	PHONE: 6029977416
CATCHMENT: IB03	ADDRESS: 4638 E SHANGRI LA RD	PHOENIX AZ 850283036
SIC: 1521	CONTACT:	POSITION:
ITEM #: 412	BUSINESS: HOLLANDWEST DEVELOPMENT	PHONE: 6029960242
CATCHMENT: IB03	ADDRESS: 11211 N TATUM BLVD STE 110	PHOENIX AZ 850283078
SIC: 1521	CONTACT:	POSITION:
ITEM #: 404	BUSINESS: GLAXO INC	PHONE: 6029961334
CATCHMENT: IB03	ADDRESS: 11209 N TATUM BLVD STE 120	PHOENIX AZ 850286004
SIC: 2834	CONTACT:	POSITION:
ITEM #: 402	BUSINESS: WESTCOR RESORTS	PHONE: 6029536400
CATCHMENT: IB03	ADDRESS: 11411 N TATUM BLVD	PHOENIX AZ 850282399
SIC: 4522	CONTACT: JEFF DANITZ	POSITION:
ITEM #: 358	BUSINESS: BIRKENSTOCK COMFI SHOES	PHONE: 6024944290
CATCHMENT: IB04	ADDRESS: 4550 E CACTUS RD STE 400	PHOENIX AZ 850327745
SIC: 2221	CONTACT:	POSITION:
ITEM #: 351	BUSINESS: ALL ABOUT BOOKS & COMICS	PHONE: 6024941976
CATCHMENT: IB04	ADDRESS: 13835 N TATUM BLVD # 1	PHOENIX AZ 850325533
SIC: 2721	CONTACT:	POSITION:
ITEM #: 350	BUSINESS: CREATIVE PAPERS BY KINKO	PHONE: 6029531029
CATCHMENT: IB04	ADDRESS: 13637 N TATUM BLVD	PHOENIX AZ 850326465
SIC: 2752	CONTACT:	POSITION:
ITEM #: 362	BUSINESS: COVENTRY HOMES INC	PHONE: 6027881304
CATCHMENT: IB04	ADDRESS: 4207 E NISBET RD	PHOENIX AZ 850328119
SIC: 1531	CONTACT:	POSITION:
ITEM #: 349	BUSINESS: KINKOS OF ARIZONA	PHONE: 6024944399
CATCHMENT: IB04	ADDRESS: 13637 N TATUM BLVD	PHOENIX AZ 850326465
SIC: 2752	CONTACT:	POSITION:
ITEM #: 359	BUSINESS: YOGURT EXPRESS	PHONE: 6029965149
CATCHMENT: IB04	ADDRESS: 13843 N TATUM BLVD # 29	PHOENIX AZ 850325595
SIC: 2026	CONTACT:	POSITION:
ITEM #: 360	BUSINESS: T C B Y YOGURT	PHONE: 6024940575
CATCHMENT: IB04	ADDRESS: 4550 E CACTUS RD STE 321	PHOENIX AZ 850327728
SIC: 2026	CONTACT:	POSITION:

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Woodward-Clyde Consultants

ITEM #: 361	BUSINESS: SURF CITY SQUEEZE	PHONE: 6029962245
CATCHMENT: IB04	ADDRESS: 4568 E CACTUS RD # 115	PHOENIX AZ 850327702
SIC: 2026	CONTACT:	POSITION:
ITEM #: 353	BUSINESS: HALL OF FRAMES	PHONE: 6024944787
CATCHMENT: IB04	ADDRESS: 12851 N TATUM BLVD # B3	PHOENIX AZ 850327730
SIC: 2499	CONTACT:	POSITION:
ITEM #: 372	BUSINESS: P & G MINING INC	PHONE: 6029714281
CATCHMENT: IB04	ADDRESS: 4316 E JANICE WAY	PHOENIX AZ 850328101
SIC: 1499	CONTACT:	POSITION:
ITEM #: 371	BUSINESS: SHEA HOMES	PHONE: 6029614999
CATCHMENT: IB04	ADDRESS: 15236 N 44TH PL	PHOENIX AZ 850324872
SIC: 1521	CONTACT:	POSITION:
ITEM #: 356	BUSINESS: VICTORIA'S SECRET	PHONE: 6029962890
CATCHMENT: IB04	ADDRESS: 4550 E CACTUS RD STE 336	PHOENIX AZ 850327728
SIC: 2341	CONTACT:	POSITION:
ITEM #: 355	BUSINESS: JAY JACOBS	PHONE: 6029967494
CATCHMENT: IB04	ADDRESS: 4550 E CACTUS RD STE 38	PHOENIX AZ 850327713
SIC: 2369	CONTACT:	POSITION:
ITEM #: 369	BUSINESS: ATLANTIS BUILDERS	PHONE: 6029532445
CATCHMENT: IB04	ADDRESS: 12629 N TATUM BLVD	PHOENIX AZ 850327700
SIC: 1521	CONTACT:	POSITION:
ITEM #: 348	BUSINESS: ALPHAGRAPHICS PRINTSHOPS	PHONE: 6029531810
CATCHMENT: IB04	ADDRESS: 4657 E CACTUS RD	PHOENIX AZ 850327703
SIC: 2759	CONTACT: JOHN WILSON	POSITION:
ITEM #: 329	BUSINESS: SUNDANCE TRAVEL SERVICE	PHONE: 6029961180
CATCHMENT: IB04	ADDRESS: 12609 N TATUM BLVD	PHOENIX AZ 850327710
SIC: 4724	CONTACT:	POSITION:
ITEM #: 336	BUSINESS: CACTUS BUSINESS CENTER	PHONE: 6029781956
CATCHMENT: IB04	ADDRESS: 4312 E CACTUS RD # 11	PHOENIX AZ 850327636
SIC: 4212	CONTACT:	POSITION:
ITEM #: 335	BUSINESS: A-BLANKENSHIP MOVERS	PHONE: 6029711110
CATCHMENT: IB04	ADDRESS: 4220 E GREENWAY LN	PHOENIX AZ 850328111
SIC: 4214	CONTACT: JAMES PETERSON	POSITION:
ITEM #: 328	BUSINESS: WEISSMAN RONALD S DMD	PHONE: 6029960988
CATCHMENT: IB04	ADDRESS: 13843 N TATUM BLVD STE 19	PHOENIX AZ 850325545
SIC: 4724	CONTACT: TROY JOHNSON	POSITION:
ITEM #: 330	BUSINESS: PARADISE VALLEY WORLD TRAVEL	PHONE: 6029966900
CATCHMENT: IB04	ADDRESS: 13843 N TATUM BLVD STE 27	PHOENIX AZ 850325545
SIC: 4724	CONTACT:	POSITION:

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ITEM #: 331	BUSINESS: CACTUS TRAVEL	PHONE: 6029788828
CATCHMENT: IB04	ADDRESS: 4323 E CACTUS RD # 13	PHOENIX AZ 850327637
SIC: 4724	CONTACT:	POSITION:
ITEM #: 333	BUSINESS: MAIL BOXES-PARADISE VALLEY	PHONE: 6029539113
CATCHMENT: IB04	ADDRESS: 12629 N TATUM BLVD	PHOENIX AZ 850327700
SIC: 4512	CONTACT: DAVID COSTA	POSITION:
ITEM #: 334	BUSINESS: RUSS LYON REALTY CO	PHONE: 6029960100
CATCHMENT: IB04	ADDRESS: 4707 E CACTUS RD	PHOENIX AZ 850327705
SIC: 4214	CONTACT:	POSITION:
ITEM #: 407	BUSINESS: TELOS CONSULTING SERVICES	PHONE: 6029536650
CATCHMENT: IB04	ADDRESS: 11811 N TATUM BLVD	PHOENIX AZ 850281689
SIC: 1521	CONTACT: K Y YAMA	POSITION:
ITEM #: 411	BUSINESS: PACIFIC DEVCON INC	PHONE: 6029531033
CATCHMENT: IB04	ADDRESS: 11811 N TATUM BLVD	PHOENIX AZ 850281689
SIC: 1521	CONTACT:	POSITION:
ITEM #: 408	BUSINESS: SHIMIZU CORPORATION	PHONE: 6029531010
CATCHMENT: IB04	ADDRESS: 11811 N TATUM BLVD STE 1040	PHOENIX AZ 850281617
SIC: 1521	CONTACT:	POSITION:
ITEM #: 409	BUSINESS: QUAIL HOMES	PHONE: 6029538448
CATCHMENT: IB04	ADDRESS: 11801 N TATUM BLVD	PHOENIX AZ 850281694
SIC: 1521	CONTACT:	POSITION:
ITEM #: 414	BUSINESS: C V DEVELOPERS	PHONE: 6024939711
CATCHMENT: IB04	ADDRESS: 11811 N TATUM BLVD	PHOENIX AZ 850281689
SIC: 1521	CONTACT: EDWARD D CHAVEZ	POSITION:
ITEM #: 364	BUSINESS: OWENS BUILDERS	PHONE: 6029539587
CATCHMENT: IB08	ADDRESS: 4209 E LUDLOW DR	PHOENIX AZ 850325826
SIC: 1521	CONTACT: ART W OWENS	POSITION:
ITEM #: 332	BUSINESS: AVANT TRAVEL	PHONE: 6029960229
CATCHMENT: IB08	ADDRESS: 3923 E THUNDERBIRD RD	PHOENIX AZ 850325754
SIC: 4724	CONTACT:	POSITION:
ITEM #: 367	BUSINESS: CONTINENTAL HOMES	PHONE: 6024828529
CATCHMENT: IB09	ADDRESS: 13807 N 30TH ST	PHOENIX AZ 850325668
SIC: 1521	CONTACT:	POSITION:
ITEM #: 346	BUSINESS: VALLEY BODY LANGUAGE	PHONE: 6024939270
CATCHMENT: IB10	ADDRESS: 3301 E SAINT JOHN RD	PHOENIX AZ 850322087
SIC: 2759	CONTACT: NANCY J GOSEWISCH	POSITION:
ITEM #: 347	BUSINESS: MASTER PRINTING	PHONE: 6029711900
CATCHMENT: IB10	ADDRESS: 16026 N 32ND ST	PHOENIX AZ 850323895
SIC: 2759	CONTACT: MR. GEORGE OLLER	POSITION:

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ITEM #: 93	BUSINESS: J P MACHINE TOOL SALES	PHONE: 6023521112
CATCHMENT: PD11	ADDRESS: 3127 W VIRGINIA AVE STE 20	PHOENIX AZ 850091503
SIC: 3599	CONTACT: GEORGE KETRING	POSITION:
ITEM #: 104	BUSINESS: ARIZONA DIE DESIGN & MFG	PHONE: 6022720072
CATCHMENT: PD11	ADDRESS: 3137 W VIRGINIA AVE # 3	PHOENIX AZ 850091504
SIC: 3544	CONTACT: TONY G PORCARO	POSITION:
ITEM #: 94	BUSINESS: DENCO	PHONE: 6022697837
CATCHMENT: PD11	ADDRESS: 3137 W VIRGINIA AVE # 10	PHOENIX AZ 850091504
SIC: 3599	CONTACT:	POSITION:
ITEM #: 83	BUSINESS: ARIZONA WESTERN FIXTURE AND	PHONE: 6022722170
CATCHMENT: PD11	ADDRESS: 1340 N 29TH DR	PHOENIX AZ 850093532
SIC: 3993	CONTACT:	POSITION:
ITEM #: 75	BUSINESS: G & G NATIONAL TRUCK BROKERS	PHONE: 6023520707
CATCHMENT: PD11	ADDRESS: 3012 W VIRGINIA AVE	PHOENIX AZ 850091606
SIC: 4213	CONTACT: GARY GEISLER	POSITION:
ITEM #: 141	BUSINESS: TEAM USA	PHONE: 6022691733
CATCHMENT: PD11	ADDRESS: 2920 W WILLETTA ST	PHOENIX AZ 850093518
SIC: 2653	CONTACT:	POSITION:
ITEM #: 157	BUSINESS: GRINNELL FIRE PROTECTION SYSTE	PHONE: 6022692421
CATCHMENT: PD11	ADDRESS: 3144 W VIRGINIA AVE	PHOENIX AZ 850091505
SIC: 1522	CONTACT:	POSITION:
ITEM #: 160	BUSINESS: ROYAL RESTORATION	PHONE: 6022333134
CATCHMENT: PD11	ADDRESS: 3127 W VIRGINIA AVE STE 16	PHOENIX AZ 850091503
SIC: 1521	CONTACT:	POSITION:
ITEM #: 126	BUSINESS: CENTRAL BINDERY COMPANY	PHONE: 6022693722
CATCHMENT: PD11	ADDRESS: 1329 N 29TH DR	PHOENIX AZ 850093533
SIC: 2789	CONTACT: ANDY DELTH	POSITION:
ITEM #: 113	BUSINESS: BOBIER SALES	PHONE: 6022696287
CATCHMENT: PD11	ADDRESS: 3112 W VIRGINIA AVE	PHOENIX AZ 850091505
SIC: 3431	CONTACT: MIKE BOBIER	POSITION:
ITEM #: 327	BUSINESS: FLOSSIES FUNNEL CAKES	PHONE: 6022478133
CATCHMENT: PDC02	ADDRESS: 7611 W THOMAS RD STE 2	PHOENIX AZ 850335441
SIC: 2026	CONTACT: BETH LEARNER	POSITION:
ITEM #: 325	BUSINESS: DILLARD'S TRAVEL	PHONE: 6028493141
CATCHMENT: PDC02	ADDRESS: 7621 W THOMAS RD	PHOENIX AZ 850335433
SIC: 4724	CONTACT:	POSITION:
ITEM #: 324	BUSINESS: WESTRIDGE DENTAL GROUP	PHONE: 6028732777
CATCHMENT: PDC02	ADDRESS: 7611 W THOMAS RD	PHOENIX AZ 850335441
SIC: 4724	CONTACT: DON ELIA	POSITION:

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ITEM #:	273	BUSINESS: SUNPOINT APARTMENTS	PHONE: 6028494160
CATCHMENT:	PDC03	ADDRESS: 7077 W MCDOWELL RD	PHOENIX AZ 850354650
SIC:	1522	CONTACT:	POSITION:
ITEM #:	326	BUSINESS: SUPERMAT	PHONE: 6028499833
CATCHMENT:	PDC03	ADDRESS: 2929 N 75TH AVE STE 33	PHOENIX AZ 850335400
SIC:	2252	CONTACT: HERBERT ORLANDO	POSITION:
ITEM #:	271	BUSINESS: ARMORED MINI STORAGE	PHONE: 6022450172
CATCHMENT:	PDC04	ADDRESS: 6315 W MCDOWELL RD	PHOENIX AZ 850354755
SIC:	4226	CONTACT:	POSITION:
ITEM #:	373	BUSINESS: BASICALLY BUCKLES	PHONE: 6022475369
CATCHMENT:	PDC05	ADDRESS: 5220 W INDIAN SCHOOL RD	PHOENIX AZ 850312610
SIC:	3965	CONTACT: KEN GLENN	POSITION:
ITEM #:	1152	BUSINESS: UNION ROCK & MATERIALS CORP	PHONE: 6022786077
CATCHMENT:	PDC05	ADDRESS: 1221 N 59TH AVE	PHOENIX AZ 850431549
SIC:	3273	CONTACT:	POSITION:
ITEM #:	2014	BUSINESS: QUALITY STAMP & SEAL	PHONE: 6029347252
CATCHMENT:	PDC05	ADDRESS: 5134 W CAMELBACK RD	GLENDALE AZ 853017501
SIC:	3953	CONTACT:	POSITION:
ITEM #:	2023	BUSINESS: A ADVANCE WEST MINI STORAGE	PHONE: 6029345570
CATCHMENT:	PDC05	ADDRESS: 5150 W CAMELBACK RD	GLENDALE AZ 853017501
SIC:	2759	CONTACT:	POSITION:
ITEM #:	274	BUSINESS: NIEMANN CONTRACTING INC	PHONE: 6022784250
CATCHMENT:	PDC06	ADDRESS: 4828 W VIRGINIA AVE	PHOENIX AZ 850352037
SIC:	1521	CONTACT:	POSITION:
ITEM #:	374	BUSINESS: LONG JOHN F HOMES	PHONE: 6028463700
CATCHMENT:	PDC06	ADDRESS: 5035 W CAMELBACK RD	PHOENIX AZ 850311399
SIC:	1521	CONTACT:	POSITION:
ITEM #:	272	BUSINESS: MORENO REALTY INC	PHONE: 6022726876
CATCHMENT:	PDC06	ADDRESS: 5128 W MCDOWELL RD	PHOENIX AZ 850353862
SIC:	1611	CONTACT: OLIVIA MORENO	POSITION:
ITEM #:	55	BUSINESS: A-SECURED SELF STORAGE	PHONE: 6022787973
CATCHMENT:	PDC07	ADDRESS: 1844 N 43RD AVE	PHOENIX AZ 850092048
SIC:	4226	CONTACT:	POSITION:
ITEM #:	106	BUSINESS: LIFT TRUCKS PLUS	PHONE: 6022785350
CATCHMENT:	PDC07	ADDRESS: 1844 N 43RD AVE # 907	PHOENIX AZ 850092048
SIC:	3537	CONTACT:	POSITION:
ITEM #:	672	BUSINESS: INDEPENDENT TRUCK BROKERS	PHONE: 6028419128
CATCHMENT:	PDC07	ADDRESS: 4255 W MEDLOCK DR	PHOENIX AZ 850192427
SIC:	4213	CONTACT: LAURA CADY	POSITION:

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ITEM #: 684	BUSINESS: HOSPITAL FORMS SERVICES OF ARI	PHONE: 6022695083
CATCHMENT: PDC07	ADDRESS: 4035 W FAIRMOUNT AVE	PHOENIX AZ 850193672
SIC: 2761	CONTACT: WHITEY DICKERSON	POSITION:
ITEM #: 10	BUSINESS: NEON	PHONE: 6022781114
CATCHMENT: PDC09	ADDRESS: 3550 N 35TH AVE # D	PHOENIX AZ 850174407
SIC: 3229	CONTACT:	POSITION:
ITEM #: 683	BUSINESS: STEWART-WALKER COMPANY	PHONE: 6022696255
CATCHMENT: PDC09	ADDRESS: 4239 N 39TH AVE	PHOENIX AZ 850193510
SIC: 3089	CONTACT:	POSITION:
ITEM #: 682	BUSINESS: GOLDEN STATE CONTAINER SHOWROO	PHONE: 6022696445
CATCHMENT: PDC09	ADDRESS: 4152 N 39TH AVE	PHOENIX AZ 850193509
SIC: 3221	CONTACT:	POSITION:
ITEM #: 681	BUSINESS: MASONRY SYSTEMS INC	PHONE: 6028400808
CATCHMENT: PDC09	ADDRESS: 3550 W CLARENDON AVE # G	PHOENIX AZ 850193712
SIC: 3251	CONTACT:	POSITION:
ITEM #: 680	BUSINESS: STAR SILVER	PHONE: 6022492266
CATCHMENT: PDC09	ADDRESS: 3775 N 36TH AVE	PHOENIX AZ 850193803
SIC: 3339	CONTACT:	POSITION:
ITEM #: 676	BUSINESS: STRUCTURAL BEHAVIOR ENGINEERIN	PHONE: 6022720274
CATCHMENT: PDC09	ADDRESS: 4236 N 39TH AVE	PHOENIX AZ 850193511
SIC: 3829	CONTACT:	POSITION:
ITEM #: 679	BUSINESS: F & B MANUFACTURING COMPANY	PHONE: 6022723900
CATCHMENT: PDC09	ADDRESS: 4316 N 39TH AVE	PHOENIX AZ 850193512
SIC: 3356	CONTACT: PHILLIP S AFFRONTI	POSITION:
ITEM #: 674	BUSINESS: MAXICRAFT INC	PHONE: 6022697871
CATCHMENT: PDC09	ADDRESS: 3809 W INDIAN SCHOOL RD	PHOENIX AZ 850193519
SIC: 3993	CONTACT: DENTON E MAGRUDER	POSITION:
ITEM #: 673	BUSINESS: CRUISE AMERICA MOTORHOME RENTA	PHONE: 6022420181
CATCHMENT: PDC09	ADDRESS: 3535 W INDIAN SCHOOL RD	PHOENIX AZ 850193513
SIC: 4141	CONTACT:	POSITION:
ITEM #: 686	BUSINESS: BOB'S CUSTOM WOODWORKING	PHONE: 6024840076
CATCHMENT: PDC09	ADDRESS: 4228 N 39TH AVE	PHOENIX AZ 850193511
SIC: 2434	CONTACT: BOB LEMON	POSITION:
ITEM #: 671	BUSINESS: ROADS WEST	PHONE: 6024847377
CATCHMENT: PDC09	ADDRESS: 3640 N 39TH AVE	PHOENIX AZ 850193602
SIC: 4213	CONTACT:	POSITION:
ITEM #: 685	BUSINESS: STERLING MANUFACTURING CO	PHONE: 6022692626
CATCHMENT: PDC09	ADDRESS: 3890 W WHITTON AVE	PHOENIX AZ 850193808
SIC: 2511	CONTACT: MR GEORGE BIEN WILL	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 669	BUSINESS: STORAGE GARAGE RENTALS	PHONE: 6022722978
CATCHMENT: PDC09	ADDRESS: 3611 N 36TH AVE	PHOENIX AZ 850193801
SIC: 4225	CONTACT:	POSITION:
ITEM #: 678	BUSINESS: PREMIUM COMPRESSORS INC	PHONE: 6022782137
CATCHMENT: PDC09	ADDRESS: 4120 N 38TH DR	PHOENIX AZ 850193502
SIC: 3519	CONTACT:	POSITION:
ITEM #: 677	BUSINESS: SPACE CRAFT MFG CO	PHONE: 6022726633
CATCHMENT: PDC09	ADDRESS: 4060 W FAIRMOUNT AVE	PHOENIX AZ 850193621
SIC: 3599	CONTACT: GLENN WILKINS	POSITION:
ITEM #: 675	BUSINESS: GILTSPUR EXHIBITS	PHONE: 6022788833
CATCHMENT: PDC09	ADDRESS: 3550 W CLARENDON AVE	PHOENIX AZ 850193712
SIC: 3993	CONTACT:	POSITION:
ITEM #: 97	BUSINESS: CHILDS MFG CO	PHONE: 6022720571
CATCHMENT: PDC10	ADDRESS: 3747 W ROANOKE AVE	PHOENIX AZ 850091359
SIC: 3599	CONTACT:	POSITION:
ITEM #: 132	BUSINESS: THE ADDED TOUCH	PHONE: 6022722145
CATCHMENT: PDC10	ADDRESS: 3442 W WILSHIRE DR STE 6	PHOENIX AZ 850091452
SIC: 2752	CONTACT:	POSITION:
ITEM #: 134	BUSINESS: SARNA LITHO SERVICES INC	PHONE: 6024849173
CATCHMENT: PDC10	ADDRESS: 3422 W WILSHIRE DR STE 19	PHOENIX AZ 850091457
SIC: 2752	CONTACT:	POSITION:
ITEM #: 98	BUSINESS: AMERICAN PRECISION MACHINING	PHONE: 6022696298
CATCHMENT: PDC10	ADDRESS: 2550 N 33RD AVE	PHOENIX AZ 850091401
SIC: 3599	CONTACT:	POSITION:
ITEM #: 102	BUSINESS: SIMPLE SPACE-RITE LETTERING	PHONE: 6022339483
CATCHMENT: PDC10	ADDRESS: 3315 W VERNON AVE	PHOENIX AZ 850091447
SIC: 3554	CONTACT:	POSITION:
ITEM #: 103	BUSINESS: NUMERICAL PRESS	PHONE: 6022692772
CATCHMENT: PDC10	ADDRESS: 3334 W WILSHIRE DR STE 35	PHOENIX AZ 850091455
SIC: 3544	CONTACT: DAVE LOWTHER	POSITION:
ITEM #: 90	BUSINESS: TCG MACHINING & GRINDING	PHONE: 6022784777
CATCHMENT: PDC10	ADDRESS: 2540 N 33RD AVE	PHOENIX AZ 850091401
SIC: 3599	CONTACT:	POSITION:
ITEM #: 151	BUSINESS: CERVELLI DISTRIBUTORS INC	PHONE: 6022332227
CATCHMENT: PDC10	ADDRESS: 3337 W WILSHIRE DR	PHOENIX AZ 850091494
SIC: 2024	CONTACT:	POSITION:
ITEM #: 148	BUSINESS: SESCO SERIGRAPHICS	PHONE: 6022690775
CATCHMENT: PDC10	ADDRESS: 3315 W VERNON AVE	PHOENIX AZ 850091447
SIC: 2262	CONTACT: MR CARL PLUMB	POSITION:

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ITEM #: 159	BUSINESS: SCOTT ROBERTS & ASSOC INC	PHONE: 6022780622
CATCHMENT: PDC10	ADDRESS: 3432 W WILSHIRE DR STE 11	PHOENIX AZ 850091458
SIC: 1521	CONTACT:	POSITION:
ITEM #: 110	BUSINESS: ARIZONA WIRE ROPE & RIGGING	PHONE: 6022697878
CATCHMENT: PDC10	ADDRESS: 2339 N 34TH DR	PHOENIX AZ 850091444
SIC: 3496	CONTACT:	POSITION:
ITEM #: 111	BUSINESS: PETES CUSTOM METAL FINISHING	PHONE: 6022693808
CATCHMENT: PDC10	ADDRESS: 3721 W CAMBRIDGE AVE STE 18	PHOENIX AZ 850091346
SIC: 3471	CONTACT:	POSITION:
ITEM #: 149	BUSINESS: GUADALAJARA DISTRIBUTING INC	PHONE: 6022729082
CATCHMENT: PDC10	ADDRESS: 3440 W LEWIS AVE	PHOENIX AZ 850091443
SIC: 2099	CONTACT:	POSITION:
ITEM #: 137	BUSINESS: EAGLE PRESS	PHONE: 6024849008
CATCHMENT: PDC10	ADDRESS: 3432 W WILSHIRE DR STE 9	PHOENIX AZ 850091458
SIC: 2752	CONTACT:	POSITION:
ITEM #: 127	BUSINESS: HARRIS PRINTERS	PHONE: 6022331888
CATCHMENT: PDC10	ADDRESS: 3637 W ROANOKE AVE STE 6	PHOENIX AZ 850091329
SIC: 2759	CONTACT:	POSITION:
ITEM #: 99	BUSINESS: ADAMS PRECISION DEBURRING	PHONE: 6022330666
CATCHMENT: PDC10	ADDRESS: 3442 W WILSHIRE DR STE 8	PHOENIX AZ 850091453
SIC: 3599	CONTACT:	POSITION:
ITEM #: 128	BUSINESS: COURIER GRAPHICS	PHONE: 6022696381
CATCHMENT: PDC10	ADDRESS: 2340 N 34TH DR	PHOENIX AZ 850091424
SIC: 2759	CONTACT:	POSITION:
ITEM #: 131	BUSINESS: VIC ANDERSON ASSOCIATES	PHONE: 6022331163
CATCHMENT: PDC10	ADDRESS: 3637 W ROANOKE AVE STE 8	PHOENIX AZ 850091329
SIC: 2752	CONTACT:	POSITION:
ITEM #: 61	BUSINESS: A-W DELIVERY SERVICE	PHONE: 6022780992
CATCHMENT: PDC10	ADDRESS: 2632 N 37TH DR # 1	PHOENIX AZ 850091347
SIC: 4215	CONTACT:	POSITION:
ITEM #: 96	BUSINESS: COMCONCO	PHONE: 6022721923
CATCHMENT: PDC10	ADDRESS: 2540 N 33RD AVE	PHOENIX AZ 850091401
SIC: 3599	CONTACT:	POSITION:
ITEM #: 101	BUSINESS: FAIRBANKS SCALES-A DIVISION	PHONE: 6022722241
CATCHMENT: PDC10	ADDRESS: 3637 W ROANOKE AVE STE 5	PHOENIX AZ 850091329
SIC: 3596	CONTACT:	POSITION:
ITEM #: 143	BUSINESS: EMERALD UPHOLSTERY	PHONE: 6022723997
CATCHMENT: PDC10	ADDRESS: 3334 W WILSHIRE DR STE 32	PHOENIX AZ 850091455
SIC: 2512	CONTACT:	POSITION:

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ITEM #:	142	BUSINESS:	ART'S FURNITURE FRAMES	PHONE:	6022786858
CATCHMENT:	PDC10	ADDRESS:	3432 W WILSHIRE DR STE 7		PHOENIX AZ 850091458
SIC:	2599	CONTACT:		POSITION:	
ITEM #:	84	BUSINESS:	APPLIED CONTROL SYSTEMS INC	PHONE:	6023520051
CATCHMENT:	PDC10	ADDRESS:	2633 N 37TH AVE STE 9		PHOENIX AZ 850091328
SIC:	3823	CONTACT:	NICK PLESKACH	POSITION:	
ITEM #:	489	BUSINESS:	SAMSON INDUSTRIES INC	PHONE:	6025818082
CATCHMENT:	SC01	ADDRESS:	2501 W BEHREND DR STE 7		PHOENIX AZ 850274147
SIC:	3452	CONTACT:		POSITION:	
ITEM #:	520	BUSINESS:	GILA WOODWORKS	PHONE:	6025826220
CATCHMENT:	SC01	ADDRESS:	3042 W TONOPAH DR		PHOENIX AZ 850273126
SIC:	2431	CONTACT:	STU GLENN	POSITION:	
ITEM #:	554	BUSINESS:	ARIZONA PARTITION	PHONE:	6025818105
CATCHMENT:	SC01	ADDRESS:	2501 W BEHREND DR STE 47		PHOENIX AZ 850274148
SIC:	1521	CONTACT:	KATHY SCFABRO	POSITION:	
ITEM #:	521	BUSINESS:	EMBROIDERY RESOURCE INC	PHONE:	6027801181
CATCHMENT:	SC01	ADDRESS:	2501 W BEHREND DR STE 55		PHOENIX AZ 850274149
SIC:	2395	CONTACT:		POSITION:	
ITEM #:	528	BUSINESS:	FURNITURE AFFAIR WAREHOUSE	PHONE:	6027808525
CATCHMENT:	SC01	ADDRESS:	2401 W BEHREND DR STE 17		PHOENIX AZ 850274143
SIC:	2032	CONTACT:		POSITION:	
ITEM #:	516	BUSINESS:	SUN WEST MILLWORK	PHONE:	6027800774
CATCHMENT:	SC01	ADDRESS:	2501 W BEHREND DR STE 45		PHOENIX AZ 850274148
SIC:	2511	CONTACT:	DAN HUTCHENS	POSITION:	
ITEM #:	536	BUSINESS:	ROSSMAN & BLUNT ENTERPRISES	PHONE:	6027808089
CATCHMENT:	SC01	ADDRESS:	2501 W BEHREND DR STE 69		PHOENIX AZ 850274149
SIC:	1522	CONTACT:		POSITION:	
ITEM #:	433	BUSINESS:	WOOD ART	PHONE:	6027800656
CATCHMENT:	SC01	ADDRESS:	2836 W DEER VALLEY RD STE 2		PHOENIX AZ 850272300
SIC:	3993	CONTACT:		POSITION:	
ITEM #:	466	BUSINESS:	JET PRODUCTS	PHONE:	6028696749
CATCHMENT:	SC01	ADDRESS:	2660 W QUAIL AVE		PHOENIX AZ 850272494
SIC:	3599	CONTACT:		POSITION:	
ITEM #:	461	BUSINESS:	PRO BUILT ENGINEERING	PHONE:	6028690256
CATCHMENT:	SC01	ADDRESS:	22028 N 24TH AVE		PHOENIX AZ 850271909
SIC:	3599	CONTACT:		POSITION:	
ITEM #:	440	BUSINESS:	MICROTERM SYSTEMS INC	PHONE:	6024929050
CATCHMENT:	SC01	ADDRESS:	2501 W BEHREND DR STE 67		PHOENIX AZ 850274149
SIC:	3825	CONTACT:		POSITION:	

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ITEM #:	1083	BUSINESS: SOUTHWEST FREEPORT HOLDINGS	PHONE: 6022333891
CATCHMENT:	SR01	ADDRESS: 431 N 47TH AVE	PHOENIX AZ 850432805
SIC:	4225	CONTACT:	POSITION:
ITEM #:	1098	BUSINESS: SWIFT TRANSPORTATION CO INC	PHONE: 6022692667
CATCHMENT:	SR01	ADDRESS: 2621 S 51ST AVE	PHOENIX AZ 850438002
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1100	BUSINESS: ROADWAY EXPRESS INC	PHONE: 6022697583
CATCHMENT:	SR01	ADDRESS: 2021 S 51ST AVE	PHOENIX AZ 850438000
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1084	BUSINESS: SOUTHWEST COLD STORAGE	PHONE: 6022697290
CATCHMENT:	SR01	ADDRESS: 10 S 48TH AVE # 1	PHOENIX AZ 850433820
SIC:	4225	CONTACT:	POSITION:
ITEM #:	1082	BUSINESS: SOUTHWEST FREEPORT WAREHOUSE	PHONE: 6022781108
CATCHMENT:	SR01	ADDRESS: 4801 W POLK ST	PHOENIX AZ 850432807
SIC:	4225	CONTACT:	POSITION:
ITEM #:	1081	BUSINESS: STATES WAREHOUSES INC	PHONE: 6022724122
CATCHMENT:	SR01	ADDRESS: 4739 W JEFFERSON ST	PHOENIX AZ 850433810
SIC:	4225	CONTACT:	POSITION:
ITEM #:	1096	BUSINESS: WERNER ENTERPRISES INC	PHONE: 6022695823
CATCHMENT:	SR01	ADDRESS: 4800 W LOWER BUCKEYE RD	PHOENIX AZ 850438103
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1085	BUSINESS: PRICE TRANSFER INC SOUTHWEST	PHONE: 6022330545
CATCHMENT:	SR01	ADDRESS: 75 S 49TH AVE	PHOENIX AZ 850433839
SIC:	4225	CONTACT:	POSITION:
ITEM #:	1087	BUSINESS: JACOBSON WAREHOUSE CO INC	PHONE: 6022333070
CATCHMENT:	SR01	ADDRESS: 4701 W JEFFERSON ST	PHOENIX AZ 850433810
SIC:	4225	CONTACT:	POSITION:
ITEM #:	1077	BUSINESS: NORTH AMERICAN VAN LINES AGENC	PHONE: 6022526531
CATCHMENT:	SR01	ADDRESS: 652 N 52ND AVE	PHOENIX AZ 850432733
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1090	BUSINESS: SUN VALLEY EXPRESS INC	PHONE: 6022697151
CATCHMENT:	SR01	ADDRESS: 2440 S 48TH AVE	PHOENIX AZ 850438106
SIC:	4215	CONTACT:	POSITION:
ITEM #:	1095	BUSINESS: WILLIG FREIGHT LINES	PHONE: 6022697941
CATCHMENT:	SR01	ADDRESS: 1648 S 51ST AVE	PHOENIX AZ 850438027
SIC:	4213	CONTACT: NATHAN KOHLER	POSITION:
ITEM #:	1117	BUSINESS: R & F DISTRIBUTION	PHONE: 6022722390
CATCHMENT:	SR01	ADDRESS: 4850 W JEFFERSON ST	PHOENIX AZ 850433807
SIC:	212	CONTACT:	POSITION:

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ITEM #:	1113	BUSINESS: CORPORATE ADVERTISING & PUBLIC	PHONE: 6022332880
CATCHMENT:	SR01	ADDRESS: 2621 S 51ST AVE	PHOENIX AZ 850438002
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1209	BUSINESS: ROYDEN CONSTRUCTION CO	PHONE: 6024840028
CATCHMENT:	SR01	ADDRESS: 3423 S 51ST AVE	PHOENIX AZ 850436211
SIC:	1521	CONTACT: MIKE HENTGES	POSITION:
ITEM #:	1192	BUSINESS: FOREST PLYWOOD INC	PHONE: 6022339888
CATCHMENT:	SR01	ADDRESS: 25 S 48TH AVE	PHOENIX AZ 850433819
SIC:	2436	CONTACT:	POSITION:
ITEM #:	1191	BUSINESS: ARIZ TRUSS FABRICATORS	PHONE: 6022696121
CATCHMENT:	SR01	ADDRESS: 3207 S 51ST AVE	PHOENIX AZ 850436210
SIC:	2439	CONTACT:	POSITION:
ITEM #:	1214	BUSINESS: PRODUCT DEVELOPMENT CORPORATIO	PHONE: 6022339111
CATCHMENT:	SR01	ADDRESS: 220 N 48TH AVE	PHOENIX AZ 850433822
SIC:	1499	CONTACT:	POSITION:
ITEM #:	1168	BUSINESS: ACME PRINTING INK CO	PHONE: 6022330431
CATCHMENT:	SR01	ADDRESS: 5127 W POLK ST	PHOENIX AZ 850432720
SIC:	2893	CONTACT:	POSITION:
ITEM #:	1186	BUSINESS: US DOOR	PHONE: 6022789503
CATCHMENT:	SR01	ADDRESS: 211 S 49TH AVE	PHOENIX AZ 850433806
SIC:	2499	CONTACT:	POSITION:
ITEM #:	1213	BUSINESS: AMES CONSTRUCTION INC	PHONE: 6029950622
CATCHMENT:	SR01	ADDRESS: 1801 S 51ST AVE	PHOENIX AZ 850438032
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1185	BUSINESS: SIGNATURE INDUSTRIES INC	PHONE: 6022699636
CATCHMENT:	SR01	ADDRESS: 4929 W VAN BUREN ST	PHOENIX AZ 850433841
SIC:	2599	CONTACT:	POSITION:
ITEM #:	1134	BUSINESS: C A D ENTERPRISES	PHONE: 6022784407
CATCHMENT:	SR01	ADDRESS: 302 N 52ND AVE	PHOENIX AZ 850432723
SIC:	3599	CONTACT:	POSITION:
ITEM #:	1170	BUSINESS: ZEP MANUFACTURING COMPANY	PHONE: 6022729233
CATCHMENT:	SR01	ADDRESS: 5137 W LATHAM ST	PHOENIX AZ 850431726
SIC:	2841	CONTACT:	POSITION:
ITEM #:	1211	BUSINESS: PHOENIX CULVERT COMPANY INCORP	PHONE: 6022726776
CATCHMENT:	SR01	ADDRESS: 5145 W MADISON ST	PHOENIX AZ 850433706
SIC:	1521	CONTACT:	POSITION:
ITEM #:	1210	BUSINESS: ROBERTSON INDUSTRIES INC	PHONE: 6022721009
CATCHMENT:	SR01	ADDRESS: 2836 S 49TH AVE # 2	PHOENIX AZ 850436103
SIC:	1521	CONTACT:	POSITION:

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ITEM #: 1162	BUSINESS: STEPSTONE INC	PHONE: 6022730205
CATCHMENT: SR01	ADDRESS: 4902 W SUPERIOR AVE	PHOENIX AZ 850436101
SIC: 3069	CONTACT:	POSITION:
ITEM #: 1140	BUSINESS: TRI-STAR METAL FINISHING	PHONE: 6022331113
CATCHMENT: SR01	ADDRESS: 5144 W MCKINLEY ST	PHOENIX AZ 850432718
SIC: 3471	CONTACT:	POSITION:
ITEM #: 1183	BUSINESS: KIRK PAPER	PHONE: 6024847103
CATCHMENT: SR01	ADDRESS: 3 N 47TH AVE	PHOENIX AZ 850433896
SIC: 2621	CONTACT:	POSITION:
ITEM #: 1203	BUSINESS: PRUDENTIAL OVERALL SUPPLY INC	PHONE: 6022331994
CATCHMENT: SR01	ADDRESS: 5102 W ROOSEVELT ST	PHOENIX AZ 850432716
SIC: 1541	CONTACT: LOUIS D PETTY	POSITION:
ITEM #: 1160	BUSINESS: MESA INDUSTRIES INC	PHONE: 6022693199
CATCHMENT: SR01	ADDRESS: 230 N 48TH AVE	PHOENIX AZ 850433822
SIC: 3087	CONTACT:	POSITION:
ITEM #: 1177	BUSINESS: ARIZONA TUBE & CORE INC	PHONE: 6022690223
CATCHMENT: SR01	ADDRESS: 22 N 47TH AVE # 1	PHOENIX AZ 850433830
SIC: 2679	CONTACT:	POSITION:
ITEM #: 1195	BUSINESS: O'BRIEN CONCRETE PUMPING	PHONE: 6022788926
CATCHMENT: SR01	ADDRESS: 4715 W BUCKEYE RD	PHOENIX AZ 850434803
SIC: 2395	CONTACT:	POSITION:
ITEM #: 1129	BUSINESS: LAKEWOOD INSTRUMENTS INC	PHONE: 6022725100
CATCHMENT: SR01	ADDRESS: 4857 W VAN BUREN ST	PHOENIX AZ 850433814
SIC: 3679	CONTACT:	POSITION:
ITEM #: 1132	BUSINESS: TRIO PRECISION	PHONE: 6022697924
CATCHMENT: SR01	ADDRESS: 840 N 52ND AVE	PHOENIX AZ 850432726
SIC: 3599	CONTACT:	POSITION:
ITEM #: 1171	BUSINESS: E R CARPENTER COMPANY & INC	PHONE: 6022339706
CATCHMENT: SR01	ADDRESS: 5102 W MCKINLEY ST	PHOENIX AZ 850432718
SIC: 2824	CONTACT:	POSITION:
ITEM #: 1141	BUSINESS: PIONEER METAL FINISHING	PHONE: 6022692248
CATCHMENT: SR01	ADDRESS: 230 S 49TH AVE	PHOENIX AZ 850433805
SIC: 3471	CONTACT: BRUCE O WALLER	POSITION:
ITEM #: 1158	BUSINESS: CUSTOM EXTRUSION INC	PHONE: 6022331153
CATCHMENT: SR01	ADDRESS: 211 S 49TH AVE	PHOENIX AZ 850433806
SIC: 3089	CONTACT:	POSITION:
ITEM #: 1145	BUSINESS: SWIFT FLAG REPAIR SERVICE	PHONE: 6022726997
CATCHMENT: SR01	ADDRESS: 4833 W LOWER BUCKEYE RD	PHOENIX AZ 850438104
SIC: 3446	CONTACT:	POSITION:

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ITEM #:	1153	BUSINESS: R & R AQUARIUM INC	PHONE: 6022782577
CATCHMENT:	SR01	ADDRESS: 5141 W LATHAM ST	PHOENIX AZ 850431726
SIC:	3231	CONTACT: THOMAS J RICE	POSITION:
ITEM #:	1401	BUSINESS: USA SPORT-ARIZONA INC	PHONE: 6022721781
CATCHMENT:	SR01	ADDRESS: 4901 W VAN BUREN ST STE 1	PHOENIX AZ 850433840
SIC:	3751	CONTACT:	POSITION:
ITEM #:	59	BUSINESS: WESTERN PARCEL EXPRESS	PHONE: 6022720009
CATCHMENT:	SR02	ADDRESS: 401 N 37TH DR STE 107	PHOENIX AZ 850094180
SIC:	4215	CONTACT:	POSITION:
ITEM #:	60	BUSINESS: SPECIAL DISPATCH OF PHOENIX	PHONE: 6022729552
CATCHMENT:	SR02	ADDRESS: 301 N 37TH DR STE 103	PHOENIX AZ 850094178
SIC:	4215	CONTACT:	POSITION:
ITEM #:	140	BUSINESS: SHUFORD MILLS INC	PHONE: 6022723333
CATCHMENT:	SR02	ADDRESS: 1835 S 43RD AVE	PHOENIX AZ 850096022
SIC:	2672	CONTACT:	POSITION:
ITEM #:	63	BUSINESS: YELLOW FREIGHT SYSTEM INC	PHONE: 6022695141
CATCHMENT:	SR02	ADDRESS: 2425 S 43RD AVE	PHOENIX AZ 850096012
SIC:	4213	CONTACT:	POSITION:
ITEM #:	56	BUSINESS: A & B PLASTICS SOUTHWEST INC	PHONE: 6022332600
CATCHMENT:	SR02	ADDRESS: 4101 W GIBSON LN	PHOENIX AZ 850096055
SIC:	4226	CONTACT:	POSITION:
ITEM #:	62	BUSINESS: ALL AMERICAN MOVING SERVICE	PHONE: 6022332112
CATCHMENT:	SR02	ADDRESS: 502 N 37TH DR STE 101	PHOENIX AZ 850094186
SIC:	4214	CONTACT: KENNETH KRABBE	POSITION:
ITEM #:	54	BUSINESS: AUTOSTOR INC	PHONE: 6022330577
CATCHMENT:	SR02	ADDRESS: 3605 W LOWER BUCKEYE RD # A	PHOENIX AZ 850096604
SIC:	4226	CONTACT:	POSITION:
ITEM #:	69	BUSINESS: RAIDER TRUCKING	PHONE: 6022780445
CATCHMENT:	SR02	ADDRESS: 1433 S 39TH AVE	PHOENIX AZ 850096105
SIC:	4213	CONTACT:	POSITION:
ITEM #:	70	BUSINESS: PRUDENCE TRUCKING INC	PHONE: 6022783880
CATCHMENT:	SR02	ADDRESS: 1825 S 43RD AVE	PHOENIX AZ 850096022
SIC:	4213	CONTACT:	POSITION:
ITEM #:	71	BUSINESS: KARRY ALL TRANSPORTATION INC	PHONE: 6022782030
CATCHMENT:	SR02	ADDRESS: 502 N 37TH DR STE 109	PHOENIX AZ 850094186
SIC:	4213	CONTACT:	POSITION:
ITEM #:	72	BUSINESS: JON-RIC LTD	PHONE: 6022330856
CATCHMENT:	SR02	ADDRESS: 1545 S 39TH AVE	PHOENIX AZ 850096104
SIC:	4213	CONTACT:	POSITION:

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ITEM #: 73	BUSINESS: JOHNSON FREIGHT LINES	PHONE: 6022332883
CATCHMENT: SR02	ADDRESS: 4110 W GIBSON LN	PHOENIX AZ 850096054
SIC: 4213	CONTACT:	POSITION:
ITEM #: 74	BUSINESS: H & H DISTRIBUTING	PHONE: 6022788991
CATCHMENT: SR02	ADDRESS: 1545 S 39TH AVE	PHOENIX AZ 850096104
SIC: 4213	CONTACT: ERICK P HEINZ	POSITION:
ITEM #: 53	BUSINESS: VIKING FREIGHT	PHONE: 6022330304
CATCHMENT: SR02	ADDRESS: 2205 S 43RD AVE	PHOENIX AZ 850096036
SIC: 4231	CONTACT:	POSITION:
ITEM #: 76	BUSINESS: COAST TRANSPORTATION SYSTEMS	PHONE: 6023521819
CATCHMENT: SR02	ADDRESS: 4110 W GIBSON LN	PHOENIX AZ 850096054
SIC: 4213	CONTACT:	POSITION:
ITEM #: 135	BUSINESS: PIP PRINTING	PHONE: 6022722361
CATCHMENT: SR02	ADDRESS: 301 N 37TH DR STE 101	PHOENIX AZ 850094178
SIC: 2752	CONTACT:	POSITION:
ITEM #: 48	BUSINESS: B & N SALVAGE	PHONE: 6022727796
CATCHMENT: SR02	ADDRESS: 3663 W LOWER BUCKEYE RD	PHOENIX AZ 850096604
SIC: 4789	CONTACT: WILLIAM D HOLT	POSITION:
ITEM #: 123	BUSINESS: ALLIED COLOR INDUSTRIES INC	PHONE: 6022339095
CATCHMENT: SR02	ADDRESS: 4203 W ADAMS ST	PHOENIX AZ 850094631
SIC: 3087	CONTACT:	POSITION:
ITEM #: 117	BUSINESS: RUFF R J & CO INC	PHONE: 6022785581
CATCHMENT: SR02	ADDRESS: 3883 W LOWER BUCKEYE RD	PHOENIX AZ 850096697
SIC: 3312	CONTACT:	POSITION:
ITEM #: 81	BUSINESS: PRECISION HEAVY HAUL INC	PHONE: 6022725691
CATCHMENT: SR02	ADDRESS: 1431 S 39TH AVE	PHOENIX AZ 850096105
SIC: 4212	CONTACT: MICHAEL POPPE	POSITION:
ITEM #: 82	BUSINESS: DESERT TRANSFER	PHONE: 6022726671
CATCHMENT: SR02	ADDRESS: 3737 W LOWER BUCKEYE RD	PHOENIX AZ 850096699
SIC: 4212	CONTACT:	POSITION:
ITEM #: 115	BUSINESS: ZIEMAN MFG CO	PHONE: 6024840210
CATCHMENT: SR02	ADDRESS: 4205 W LOWER BUCKEYE RD	PHOENIX AZ 850096002
SIC: 3312	CONTACT:	POSITION:
ITEM #: 144	BUSINESS: WOODSTUFF MFG	PHONE: 6022695811
CATCHMENT: SR02	ADDRESS: 1635 S 43RD AVE	PHOENIX AZ 850096026
SIC: 2511	CONTACT:	POSITION:
ITEM #: 85	BUSINESS: CAVCO INDUSTRIES INC	PHONE: 6024840171
CATCHMENT: SR02	ADDRESS: 3502 W LOWER BUCKEYE RD	PHOENIX AZ 850096612
SIC: 3792	CONTACT:	POSITION:

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ITEM #: 112	BUSINESS: INTER PIPE INC	PHONE: 6022780078
CATCHMENT: SR02	ADDRESS: 3807 W ADAMS ST	PHOENIX AZ 850094764
SIC: 3443	CONTACT:	POSITION:
ITEM #: 147	BUSINESS: BRADFORD MILLWORK & CABINET CO	PHONE: 6022690030
CATCHMENT: SR02	ADDRESS: 1645 S 39TH AVE	PHOENIX AZ 850096103
SIC: 2434	CONTACT: ROBERT J BRADFORD	POSITION:
ITEM #: 145	BUSINESS: VIRCO MANUFACTURING	PHONE: 6022724488
CATCHMENT: SR02	ADDRESS: 50 N 41ST AVE	PHOENIX AZ 850094634
SIC: 2511	CONTACT: RICHARD A SNOOK	POSITION:
ITEM #: 89	BUSINESS: TURNER ENGINEERING	PHONE: 6022726014
CATCHMENT: SR02	ADDRESS: 3415 S 43RD AVE	PHOENIX AZ 850096038
SIC: 3599	CONTACT: LYNN W TURNER	POSITION:
ITEM #: 152	BUSINESS: BELL ATLANTIC SYSTEMS LEASING	PHONE: 6022330339
CATCHMENT: SR02	ADDRESS: 1429 S 40TH AVE	PHOENIX AZ 850096112
SIC: 2011	CONTACT:	POSITION:
ITEM #: 108	BUSINESS: P W FABRICATING	PHONE: 6022698211
CATCHMENT: SR02	ADDRESS: 3541 W LOWER BUCKEYE RD	PHOENIX AZ 850096605
SIC: 3499	CONTACT:	POSITION:
ITEM #: 155	BUSINESS: NATIONAL RAILROAD CONSTRUCTORS	PHONE: 6022726800
CATCHMENT: SR02	ADDRESS: 3211 S 43RD AVE	PHOENIX AZ 850096048
SIC: 1629	CONTACT:	POSITION:
ITEM #: 67	BUSINESS: TRUCK COUNTRY	PHONE: 6022780598
CATCHMENT: SR02	ADDRESS: 1431 S 39TH AVE	PHOENIX AZ 850096105
SIC: 4213	CONTACT: PATRICK MCMICHAEL	POSITION:
ITEM #: 162	BUSINESS: DAVE BEST DUMP TRUCK	PHONE: 6022333587
CATCHMENT: SR02	ADDRESS: 1605 S 39TH AVE	PHOENIX AZ 850096103
SIC: 1231	CONTACT: DAVE BEST	POSITION:
ITEM #: 1144	BUSINESS: MATERIAL MANAGEMENT GROUP INC	PHONE: 6022720203
CATCHMENT: SR02	ADDRESS: 4303 W VAN BUREN ST STE 1	PHOENIX AZ 850433928
SIC: 3452	CONTACT:	POSITION:
ITEM #: 1175	BUSINESS: THE REYNOLDS & REYNOLDS CO	PHONE: 6022692401
CATCHMENT: SR02	ADDRESS: 40 S 45TH AVE	PHOENIX AZ 850433989
SIC: 2752	CONTACT:	POSITION:
ITEM #: 1174	BUSINESS: BUSINESS DOCUMENTS INC	PHONE: 6022722321
CATCHMENT: SR02	ADDRESS: 4333 W VAN BUREN ST	PHOENIX AZ 850433900
SIC: 2759	CONTACT: TOM TRIEBER	POSITION:
ITEM #: 1173	BUSINESS: AIRCO GASES	PHONE: 6022692295
CATCHMENT: SR02	ADDRESS: 4401 W JEFFERSON ST	PHOENIX AZ 850433916
SIC: 2813	CONTACT:	POSITION:

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ITEM #: 1128	BUSINESS: WESTINGHOUSE ELECTRIC SUPPLY	PHONE: 6022333242
CATCHMENT: SR02	ADDRESS: 4441 W POLK ST	PHOENIX AZ 850432904
SIC: 3699	CONTACT:	POSITION:
ITEM #: 1172	BUSINESS: LIQUID AIR CORP	PHONE: 6022721959
CATCHMENT: SR02	ADDRESS: 301 S 45TH AVE	PHOENIX AZ 850433914
SIC: 2813	CONTACT:	POSITION:
ITEM #: 1142	BUSINESS: HI-TECH PLATING & SHIELDING	PHONE: 6022697087
CATCHMENT: SR02	ADDRESS: 4313 W VAN BUREN ST	PHOENIX AZ 850433917
SIC: 3471	CONTACT:	POSITION:
ITEM #: 1126	BUSINESS: STOROPACK	PHONE: 6024840831
CATCHMENT: SR02	ADDRESS: 77 N 45TH AVE STE 2	PHOENIX AZ 850433931
SIC: 3999	CONTACT:	POSITION:
ITEM #: 1138	BUSINESS: PERMA-FINISH INC	PHONE: 6022781733
CATCHMENT: SR02	ADDRESS: 74 N 45TH AVE	PHOENIX AZ 850433901
SIC: 3499	CONTACT:	POSITION:
ITEM #: 1135	BUSINESS: AIR TUF PRODUCTS INC	PHONE: 6022699741
CATCHMENT: SR02	ADDRESS: 101 N 45TH AVE	PHOENIX AZ 850433994
SIC: 3599	CONTACT: JOE GONZALIS	POSITION:
ITEM #: 1169	BUSINESS: PROCLEAN INC	PHONE: 6022330457
CATCHMENT: SR02	ADDRESS: 4315 W VAN BUREN ST	PHOENIX AZ 850433917
SIC: 2842	CONTACT: RICH CHIATE	POSITION:
ITEM #: 1165	BUSINESS: QUAKER STATE OIL	PHONE: 6022726795
CATCHMENT: SR02	ADDRESS: 44 N 45TH AVE	PHOENIX AZ 850433901
SIC: 2911	CONTACT: ALAN KRAUSE	POSITION:
ITEM #: 58	BUSINESS: PRECISION WAREHOUSE & DISTRIBU	PHONE: 6024847277
CATCHMENT: SR03	ADDRESS: 3330 W PAPAGO ST	PHOENIX AZ 850099701
SIC: 4225	CONTACT:	POSITION:
ITEM #: 51	BUSINESS: PROFESSIONAL MOVERS INC	PHONE: 6023520091
CATCHMENT: SR03	ADDRESS: 3636 W BUCKEYE RD	PHOENIX AZ 850095500
SIC: 4731	CONTACT:	POSITION:
ITEM #: 49	BUSINESS: IMPACT DISTRIBUTING	PHONE: 6022693884
CATCHMENT: SR03	ADDRESS: 107 S 41ST AVE	PHOENIX AZ 850094600
SIC: 4783	CONTACT:	POSITION:
ITEM #: 118	BUSINESS: CHETCO STEEL	PHONE: 6022789451
CATCHMENT: SR03	ADDRESS: 3131 W HARRISON ST	PHOENIX AZ 850094836
SIC: 3312	CONTACT: CHET BRISCO	POSITION:
ITEM #: 158	BUSINESS: TRITON BUILDERS COMPANY	PHONE: 6022727144
CATCHMENT: SR03	ADDRESS: 1 S 41ST AVE	PHOENIX AZ 850094640
SIC: 1521	CONTACT:	POSITION:

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ITEM #: 130	BUSINESS: CLARKE AMERICAN	PHONE: 6022331606
CATCHMENT: SR03	ADDRESS: 111 S 41ST AVE	PHOENIX AZ 850094627
SIC: 2759	CONTACT:	POSITION:
ITEM #: 114	BUSINESS: METAL IMPROVEMENTS CO	PHONE: 6022782811
CATCHMENT: SR03	ADDRESS: 103 S 41ST AVE	PHOENIX AZ 850094627
SIC: 3398	CONTACT:	POSITION:
ITEM #: 156	BUSINESS: CVC INDUSTRIES INC	PHONE: 6024840608
CATCHMENT: SR03	ADDRESS: 2602 S 35TH AVE	PHOENIX AZ 850096702
SIC: 1542	CONTACT:	POSITION:
ITEM #: 146	BUSINESS: AAA PALLET & LUMBER CO INC	PHONE: 6022781450
CATCHMENT: SR03	ADDRESS: 3401 W HARRISON ST	PHOENIX AZ 850094718
SIC: 2448	CONTACT:	POSITION:
ITEM #: 95	BUSINESS: CUSTOM CRANKSHAFT EXCHANGE INC	PHONE: 6022728202
CATCHMENT: SR04	ADDRESS: 2620 W ENCANTO BLVD	PHOENIX AZ 850091713
SIC: 3599	CONTACT:	POSITION:
ITEM #: 9	BUSINESS: F G LIGHTING SALES	PHONE: 6022777901
CATCHMENT: SR04	ADDRESS: 4030 N 27TH AVE	PHOENIX AZ 850174745
SIC: 3699	CONTACT:	POSITION:
ITEM #: 105	BUSINESS: TOYOTALIFT OF ARIZONA	PHONE: 6022782371
CATCHMENT: SR04	ADDRESS: 1445 N 26TH AVE	PHOENIX AZ 850093600
SIC: 3537	CONTACT:	POSITION:
ITEM #: 86	BUSINESS: ROTORWAY INTERNATIONAL	PHONE: 6022788899
CATCHMENT: SR04	ADDRESS: 300 S 25TH AVE	PHOENIX AZ 850095134
SIC: 3721	CONTACT:	POSITION:
ITEM #: 133	BUSINESS: SWAINE PUBLICATIONS INC	PHONE: 6024844800
CATCHMENT: SR04	ADDRESS: 2821 W WILLETTA ST	PHOENIX AZ 850093542
SIC: 2752	CONTACT:	POSITION:
ITEM #: 125	BUSINESS: GENESIS TELEVISION LTD	PHONE: 6022786220
CATCHMENT: SR04	ADDRESS: 1458 N 26TH AVE	PHOENIX AZ 850093625
SIC: 2841	CONTACT:	POSITION:
ITEM #: 91	BUSINESS: NICO MACHINE CO	PHONE: 6023521808
CATCHMENT: SR04	ADDRESS: 1402 N 26TH AVE	PHOENIX AZ 850093633
SIC: 3599	CONTACT: CONNIE COMANESCU	POSITION:
ITEM #: 80	BUSINESS: ABF FREIGHT SYSTEM INC	PHONE: 6022723211
CATCHMENT: SR04	ADDRESS: 2400 BLK CNYN I 17 ACC	PHOENIX AZ 850091820
SIC: 4213	CONTACT:	POSITION:
ITEM #: 87	BUSINESS: COPPERSTATE BATTERY MANUFACTUR	PHONE: 6024847425
CATCHMENT: SR04	ADDRESS: 1401 N 26TH AVE	PHOENIX AZ 850093632
SIC: 3692	CONTACT:	POSITION:

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ITEM #: 122	BUSINESS: CLARK-SCHWEBEL DISTRIBUTION CO	PHONE: 6022331400
CATCHMENT: SR04	ADDRESS: 2701 W VIRGINIA AVE	PHOENIX AZ 850091701
SIC: 3087	CONTACT:	POSITION:
ITEM #: 1002	BUSINESS: CENTEX HOMES	PHONE: 6029955337
CATCHMENT: SR04	ADDRESS: 7012 N 28TH DR	PHOENIX AZ 850518455
SIC: 1521	CONTACT:	POSITION:
ITEM #: 150	BUSINESS: MARKS DISTRIBUTING	PHONE: 6022570673
CATCHMENT: SR05	ADDRESS: 2419 BLK CNYN I 17 ACC	PHOENIX AZ 850091830
SIC: 2033	CONTACT: JULIE A FISHER	POSITION:
ITEM #: 107	BUSINESS: ARIZONA MITE-E-LIFT	PHONE: 6024378373
CATCHMENT: SR05	ADDRESS: 1403 BLK CNYN I 17 ACC	PHOENIX AZ 850096567
SIC: 3537	CONTACT: PHIL KEESLING	POSITION:
ITEM #: 50	BUSINESS: WAHO TRUCK BROKERAGE	PHONE: 6022726821
CATCHMENT: SR05	ADDRESS: 1904 BLK CNYN I 17 ACC	PHOENIX AZ 850092914
SIC: 4731	CONTACT: MICHAEL J GUTMACHER	POSITION:
ITEM #: 57	BUSINESS: PUBLIC STORAGE	PHONE: 6022520124
CATCHMENT: SR05	ADDRESS: 2421 BLK CNYN I 17 ACC	PHOENIX AZ 850091819
SIC: 4225	CONTACT: ELIZABETH HALL	POSITION:
ITEM #: 64	BUSINESS: WATSON WILLIAMS FREIGHT AGENCY	PHONE: 6022722148
CATCHMENT: SR05	ADDRESS: 1904 BLK CNYN I 17 ACC	PHOENIX AZ 850092914
SIC: 4213	CONTACT: WATSON WILLIAMS	POSITION:
ITEM #: 124	BUSINESS: RESCO INC	PHONE: 6022562002
CATCHMENT: SR05	ADDRESS: 1401 N 22ND AVE	PHOENIX AZ 850093712
SIC: 2952	CONTACT:	POSITION:
ITEM #: 176	BUSINESS: PICO SPRING CO	PHONE: 6022540598
CATCHMENT: SR06	ADDRESS: 1509 N 18TH AVE	PHOENIX AZ 850071852
SIC: 2515	CONTACT: GREG S EWING	POSITION:
ITEM #: 47	BUSINESS: LESBROW COMPANY	PHONE: 6022529440
CATCHMENT: SR06	ADDRESS: 707 N 20TH AVE	PHOENIX AZ 850093847
SIC: 4789	CONTACT:	POSITION:
ITEM #: 68	BUSINESS: TOM JARRETT TRUCKING	PHONE: 6022544616
CATCHMENT: SR06	ADDRESS: 2621 N 24TH DR	PHOENIX AZ 850091808
SIC: 4213	CONTACT:	POSITION:
ITEM #: 88	BUSINESS: AZTEC LIGHTING	PHONE: 6022562355
CATCHMENT: SR06	ADDRESS: 2631 N 24TH DR # 4	PHOENIX AZ 850091803
SIC: 3646	CONTACT:	POSITION:
ITEM #: 32	BUSINESS: BETHANY ENTERPRISES INC	PHONE: 6022465710
CATCHMENT: SR06	ADDRESS: 6025 N 20TH AVE	PHOENIX AZ 850152110
SIC: 4215	CONTACT:	POSITION:

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ITEM #: 38	BUSINESS: NEW DAWN CONSTRUCTION CORPORAT	PHONE: 6022462525
CATCHMENT: SR06	ADDRESS: 1990 W CAMELBACK RD STE 102	PHOENIX AZ 850153463
SIC: 1521	CONTACT:	POSITION:
ITEM #: 34	BUSINESS: STORAGETEK	PHONE: 6022499196
CATCHMENT: SR06	ADDRESS: 1990 W CAMELBACK RD STE 303	PHOENIX AZ 850153464
SIC: 3571	CONTACT:	POSITION:
ITEM #: 40	BUSINESS: L M B CONSTRUCTION INC	PHONE: 6022420600
CATCHMENT: SR06	ADDRESS: 1990 W CAMELBACK RD STE 402	PHOENIX AZ 850153465
SIC: 1521	CONTACT:	POSITION:
ITEM #: 35	BUSINESS: LAUGHLIN CONSTRUCTION CO	PHONE: 6022585432
CATCHMENT: SR06	ADDRESS: 2119 W PICCADILLY RD	PHOENIX AZ 850155358
SIC: 3471	CONTACT:	POSITION:
ITEM #: 627	BUSINESS: PLAZA PRINTING	PHONE: 6029431433
CATCHMENT: SR06	ADDRESS: 2330 W MISSION LN STE 5	PHOENIX AZ 850212833
SIC: 2759	CONTACT: RON JORDON	POSITION:
ITEM #: 613	BUSINESS: WIREBENDERS	PHONE: 6028611856
CATCHMENT: SR06	ADDRESS: 2440 W MISSION LN STE 9	PHOENIX AZ 850212824
SIC: 3677	CONTACT: MIKE MIDDLETON	POSITION:
ITEM #: 621	BUSINESS: THOMPSON-QUILL ASSOCIATES INC	PHONE: 6023710011
CATCHMENT: SR06	ADDRESS: 9034 N 23RD AVE STE 12	PHOENIX AZ 850212850
SIC: 3567	CONTACT: STEVE QUILL	POSITION:
ITEM #: 624	BUSINESS: ARK DATA SYSTEMS INC	PHONE: 6028703095
CATCHMENT: SR06	ADDRESS: 2310 W MISSION LN STE 1	PHOENIX AZ 850212812
SIC: 3315	CONTACT: JIM T WALKER	POSITION:
ITEM #: 641	BUSINESS: M H HINTZ CONSTRUCTION CO INC	PHONE: 6029440784
CATCHMENT: SR06	ADDRESS: 9034 N 23RD AVE STE 1	PHOENIX AZ 850212848
SIC: 1521	CONTACT: MICHEAL H HINTZ	POSITION:
ITEM #: 643	BUSINESS: HAWORTH CORPORATION	PHONE: 6029950947
CATCHMENT: SR06	ADDRESS: 2311 W ROYAL PALM RD STE 108	PHOENIX AZ 850214916
SIC: 1521	CONTACT: DAN HAWORTH	POSITION:
ITEM #: 628	BUSINESS: THE QUICK PRINT PLACE	PHONE: 6029440594
CATCHMENT: SR06	ADDRESS: 9014 N 23RD AVE STE 13	PHOENIX AZ 850212854
SIC: 2752	CONTACT:	POSITION:
ITEM #: 629	BUSINESS: MIDWEST PUBLISHING	PHONE: 6029431244
CATCHMENT: SR06	ADDRESS: 9201 N 25TH AVE STE 260	PHOENIX AZ 850212700
SIC: 2752	CONTACT: RUSS BROWN	POSITION:
ITEM #: 630	BUSINESS: VIM & VIGOR MAGAZINE	PHONE: 6023955850
CATCHMENT: SR06	ADDRESS: 8805 N 23RD AVE STE 11	PHOENIX AZ 850214171
SIC: 2721	CONTACT:	POSITION:

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ITEM #: 637	BUSINESS: THE KOLL COMPANY	PHONE: 6028619687
CATCHMENT: SR06	ADDRESS: 9201 N 25TH AVE STE 110	PHOENIX AZ 850212721
SIC: 1521	CONTACT: MR JAMES WENTWORTH	POSITION:
ITEM #: 648	BUSINESS: BEMA GOLD (US) INC	PHONE: 6028612329
CATCHMENT: SR06	ADDRESS: 2340 W MISSION LN STE 11	PHOENIX AZ 850212818
SIC: 1499	CONTACT:	POSITION:
ITEM #: 646	BUSINESS: ABET CONSTRUCTION EXCHANGE	PHONE: 6022464842
CATCHMENT: SR06	ADDRESS: 2440 W MISSION LN STE 12	PHOENIX AZ 850212824
SIC: 1521	CONTACT:	POSITION:
ITEM #: 616	BUSINESS: GE COMPANY	PHONE: 6023711907
CATCHMENT: SR06	ADDRESS: 9013 N 24TH AVE # 1	PHOENIX AZ 850212889
SIC: 3612	CONTACT:	POSITION:
ITEM #: 609	BUSINESS: ARIZONA MOTOR TARIFF BUREAU	PHONE: 6029975278
CATCHMENT: SR06	ADDRESS: 9201 N 25TH AVE STE 190	PHOENIX AZ 850212721
SIC: 4731	CONTACT: RON MEEKS	POSITION:
ITEM #: 78	BUSINESS: ARIZONA PACIFIC FREIGHT WAYS	PHONE: 6022587755
CATCHMENT: SR07	ADDRESS: 2465 S 19TH AVE STE D1	PHOENIX AZ 850096950
SIC: 4213	CONTACT:	POSITION:
ITEM #: 77	BUSINESS: CLEARWATER TRUCKING	PHONE: 6024951206
CATCHMENT: SR07	ADDRESS: 2465 S 19TH AVE STE B	PHOENIX AZ 850096958
SIC: 4213	CONTACT:	POSITION:
ITEM #: 121	BUSINESS: H G P INDUSTRIES	PHONE: 6022536980
CATCHMENT: SR07	ADDRESS: 2465 S 19TH AVE	PHOENIX AZ 850096980
SIC: 3211	CONTACT:	POSITION:
ITEM #: 79	BUSINESS: ARIZONA BEEF CO	PHONE: 6022585387
CATCHMENT: SR07	ADDRESS: 2401 S 19TH AVE	PHOENIX AZ 850096930
SIC: 4213	CONTACT: MR ARTHUR TUBERSON	POSITION:
ITEM #: 66	BUSINESS: UINTAH FREIGHTWAYS INC	PHONE: 6022546403
CATCHMENT: SR07	ADDRESS: 2465 S 19TH AVE STE B2	PHOENIX AZ 850096950
SIC: 4213	CONTACT:	POSITION:
ITEM #: 65	BUSINESS: VAN-PAK	PHONE: 6022546555
CATCHMENT: SR07	ADDRESS: 2465 S 19TH AVE	PHOENIX AZ 850096980
SIC: 4213	CONTACT:	POSITION:
ITEM #: 280	BUSINESS: OGDEN ALLIED AVIATION SERVICE	PHONE: 6022255114
CATCHMENT: SR07	ADDRESS: 3200 E SKY HARBOR BLVD	PHOENIX AZ 850344423
SIC: 4581	CONTACT:	POSITION:
ITEM #: 278	BUSINESS: COMPLETE SKY CAP SERVICES INC	PHONE: 6022670294
CATCHMENT: SR07	ADDRESS: 3200 E SKY HARBOR BLVD	PHOENIX AZ 850344423
SIC: 4729	CONTACT:	POSITION:

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ITEM #: 281	BUSINESS: ARA GROUND SERVICE	PHONE: 6022255188
CATCHMENT: SR07	ADDRESS: 3200 E SKY HARBOR BLVD	PHOENIX AZ 850344493
SIC: 4581	CONTACT:	POSITION:
ITEM #: 282	BUSINESS: TRANS WORLD AIRLINES INC	PHONE: 6022733500
CATCHMENT: SR07	ADDRESS: 3200 E SKY HARBOR BLVD	PHOENIX AZ 850344493
SIC: 4513	CONTACT:	POSITION:
ITEM #: 43	BUSINESS: QUARANTA CONSTRUCTION CO	PHONE: 6022469363
CATCHMENT: SR08	ADDRESS: 6549 N MARYLAND CIR	PHOENIX AZ 850131030
SIC: 1521	CONTACT:	POSITION:
ITEM #: 180	BUSINESS: SOUTHEAST PIPELINE CONTRACTORS	PHONE: 6022714409
CATCHMENT: SR08	ADDRESS: 1545 W WATKINS ST	PHOENIX AZ 850074416
SIC: 1623	CONTACT:	POSITION:
ITEM #: 179	BUSINESS: PHOENIX TALLOW	PHONE: 6022545971
CATCHMENT: SR08	ADDRESS: 2602 S 15TH AVE	PHOENIX AZ 850074409
SIC: 2077	CONTACT: JOHN BENNICI	POSITION:
ITEM #: 175	BUSINESS: SPECIALITY RENTALS INC	PHONE: 6022548034
CATCHMENT: SR08	ADDRESS: 2222 S 15TH AVE	PHOENIX AZ 850074203
SIC: 2531	CONTACT:	POSITION:
ITEM #: 173	BUSINESS: INTERNATIONAL WINDOW-ARIZONA	PHONE: 6022580333
CATCHMENT: SR08	ADDRESS: 2121 S 15TH AVE	PHOENIX AZ 850074201
SIC: 3231	CONTACT: KEN ROSEN	POSITION:
ITEM #: 172	BUSINESS: VALLEY INDUSTRIAL PAINTING	PHONE: 6022562005
CATCHMENT: SR08	ADDRESS: 2222 S 15TH AVE	PHOENIX AZ 850074203
SIC: 3471	CONTACT: SCOTT HISEMAN	POSITION:
ITEM #: 170	BUSINESS: ARIZONA MACHINERY MOVERS	PHONE: 6022550225
CATCHMENT: SR08	ADDRESS: 2420 S 16TH AVE	PHOENIX AZ 850074403
SIC: 4212	CONTACT:	POSITION:
ITEM #: 168	BUSINESS: KEITH C W TRANSFER & WAREHOUSE	PHONE: 6022585366
CATCHMENT: SR08	ADDRESS: 2100 S 15TH AVE	PHOENIX AZ 850074202
SIC: 4213	CONTACT: DON KEITH	POSITION:
ITEM #: 167	BUSINESS: KELLEY JACK B INC	PHONE: 6022581613
CATCHMENT: SR08	ADDRESS: 2530 S 16TH AVE	PHOENIX AZ 850074405
SIC: 4213	CONTACT:	POSITION:
ITEM #: 166	BUSINESS: SUN FREIGHTWAYS INC	PHONE: 6022579363
CATCHMENT: SR08	ADDRESS: 2100 S 15TH AVE	PHOENIX AZ 850074202
SIC: 4213	CONTACT:	POSITION:
ITEM #: 632	BUSINESS: CLARK LUMBER MFG CO	PHONE: 6029976121
CATCHMENT: SR08	ADDRESS: 9035 N 12TH AVE	PHOENIX AZ 850213095
SIC: 2511	CONTACT: AKIO MITS	POSITION:

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ITEM #: 171	BUSINESS: EXCESS DISTRIBUTORS	PHONE: 6022521280
CATCHMENT: SR09	ADDRESS: 918 W BUCHANAN ST	PHOENIX AZ 850073433
SIC: 3699	CONTACT:	POSITION:
ITEM #: 169	BUSINESS: SYNERGISTIC TRANSPORTATION	PHONE: 6022546175
CATCHMENT: SR09	ADDRESS: 448 S 11TH AVE	PHOENIX AZ 850073430
SIC: 4212	CONTACT: ROBERT PEARCE	POSITION:
ITEM #: 165	BUSINESS: RICKETTS JOHN TRUCKING	PHONE: 6022578277
CATCHMENT: SR09	ADDRESS: 1001 W MAGNOLIA ST	PHOENIX AZ 850074508
SIC: 4731	CONTACT: JOHN I RICKETTS	POSITION:
ITEM #: 177	BUSINESS: H & R MILLWORK	PHONE: 6022540043
CATCHMENT: SR09	ADDRESS: 930 W BUCHANAN ST	PHOENIX AZ 850073433
SIC: 2431	CONTACT:	POSITION:
ITEM #: 174	BUSINESS: HARRINGTON IND PLASTICS INC	PHONE: 6022527616
CATCHMENT: SR09	ADDRESS: 1048 W MARICOPA FWY	PHOENIX AZ 850074145
SIC: 3082	CONTACT:	POSITION:
ITEM #: 181	BUSINESS: MADISON INDUSTRIES INC	PHONE: 6022523083
CATCHMENT: SR09	ADDRESS: 2100 S 11TH AVE	PHOENIX AZ 850074160
SIC: 1521	CONTACT: JOHN S FREY	POSITION:
ITEM #: 200	BUSINESS: PHOENIX SPECIALTIES	PHONE: 6022579237
CATCHMENT: SR10	ADDRESS: 1843 S 5TH AVE	PHOENIX AZ 850032855
SIC: 3732	CONTACT: TOM W DIXON	POSITION:
ITEM #: 199	BUSINESS: AMTRAK	PHONE: 6022530121
CATCHMENT: SR10	ADDRESS: 401 W HARRISON ST	PHOENIX AZ 850032433
SIC: 4011	CONTACT: C GILLILAND	POSITION:
ITEM #: 198	BUSINESS: MCDANIEL TRUCKING CO	PHONE: 6022545958
CATCHMENT: SR10	ADDRESS: 420 S 3RD AVE	PHOENIX AZ 850032421
SIC: 4213	CONTACT:	POSITION:
ITEM #: 202	BUSINESS: STATE INDUSTRIAL REPAIR CO	PHONE: 6022545030
CATCHMENT: SR10	ADDRESS: 201 W HILTON AVE	PHOENIX AZ 850032820
SIC: 3599	CONTACT:	POSITION:
ITEM #: 201	BUSINESS: SOUTHWEST CUSTOM CONVERSIONS	PHONE: 6022543282
CATCHMENT: SR10	ADDRESS: 102 W MARICOPA FWY	PHOENIX AZ 850033200
SIC: 3716	CONTACT:	POSITION:
ITEM #: 279	BUSINESS: SYSTEM PARKING INC	PHONE: 6022730954
CATCHMENT: SR10	ADDRESS: 3400 E SKY HARBOR BLVD	PHOENIX AZ 850344490
SIC: 4581	CONTACT:	POSITION:
ITEM #: 293	BUSINESS: WORLD SERVICE CO	PHONE: 6022733711
CATCHMENT: SR10	ADDRESS: 3400 E SKY HARBOR BLVD	PHOENIX AZ 850344490
SIC: 4511	CONTACT:	POSITION:

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ITEM #: 204	BUSINESS: HARVEY'S PRECISION BURRING	PHONE: 6022583828
CATCHMENT: SR10	ADDRESS: 204 W MARICOPA FWY	PHOENIX AZ 850032740
SIC: 3471	CONTACT:	POSITION:
ITEM #: 205	BUSINESS: DESERT POWDER	PHONE: 6022537875
CATCHMENT: SR10	ADDRESS: 1808 S 1ST AVE	PHOENIX AZ 850032714
SIC: 3083	CONTACT:	POSITION:
ITEM #: 195	BUSINESS: CONSTAR PLASTICS	PHONE: 6022719679
CATCHMENT: SR11	ADDRESS: 135 E WATKINS ST	PHOENIX AZ 850042925
SIC: 3079	CONTACT:	POSITION:
ITEM #: 185	BUSINESS: JEPSEN SOUTHWEST INC	PHONE: 6022579632
CATCHMENT: SR11	ADDRESS: 111 E MARICOPA FWY	PHOENIX AZ 850042919
SIC: 4213	CONTACT: REYNALDO MENDOZA	POSITION:
ITEM #: 193	BUSINESS: LANE AWARD MFG INC	PHONE: 6022588505
CATCHMENT: SR12	ADDRESS: 1118 S CENTRAL AVE	PHOENIX AZ 850042734
SIC: 3479	CONTACT: JOHN LUBESEE	POSITION:
ITEM #: 183	BUSINESS: PRODUCT RECOVERY CENTERS INC	PHONE: 6022549557
CATCHMENT: SR12	ADDRESS: 236 E PIMA ST STE 114	PHOENIX AZ 850042848
SIC: 4224	CONTACT:	POSITION:
ITEM #: 184	BUSINESS: ALL POINTS RELOCATION SYSTEMS	PHONE: 6022539394
CATCHMENT: SR12	ADDRESS: 236 E PIMA ST STE 109	PHOENIX AZ 850042848
SIC: 4214	CONTACT:	POSITION:
ITEM #: 45	BUSINESS: FIESTA CANNING COMPANY	PHONE: 6022414315
CATCHMENT: SR13	ADDRESS: 17 E INDIANOLA AVE	PHOENIX AZ 850122018
SIC: 2099	CONTACT:	POSITION:
ITEM #: 46	BUSINESS: SPEROS CHARLES J REAL ESTATE	PHONE: 6022644301
CATCHMENT: SR13	ADDRESS: 221 E INDIANOLA AVE STE 208	PHOENIX AZ 850122030
SIC: 1521	CONTACT: DANNY SPEROS	POSITION:
ITEM #: 44	BUSINESS: INKLINE	PHONE: 6022654210
CATCHMENT: SR13	ADDRESS: 200 E MITCHELL DR STE 2	PHOENIX AZ 850122343
SIC: 2752	CONTACT:	POSITION:
ITEM #: 42	BUSINESS: PAISLEY NEON GLASS WORKS	PHONE: 6022307857
CATCHMENT: SR13	ADDRESS: 650 W COOLIDGE ST	PHOENIX AZ 850132719
SIC: 3993	CONTACT: WILLIAM C PAISLEY	POSITION:
ITEM #: 197	BUSINESS: NANAK'S CONSCIOUS CONSTRUCTION	PHONE: 6022543994
CATCHMENT: SR13	ADDRESS: 322 E ALVARADO RD	PHOENIX AZ 850041405
SIC: 1521	CONTACT: SAT J CHALSA	POSITION:
ITEM #: 644	BUSINESS: DUNLAP DEVELOPMENT CORP SALES	PHONE: 6023711721
CATCHMENT: SR13	ADDRESS: 710 W PUGET AVE	PHOENIX AZ 850214584
SIC: 1521	CONTACT:	POSITION:

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ITEM #: 665	BUSINESS: GOSNELL BUILDERS	PHONE: 6029439533
CATCHMENT: SR13	ADDRESS: 7680 N 15TH ST	PHOENIX AZ 850204300
SIC: 1521	CONTACT:	POSITION:
ITEM #: 650	BUSINESS: TOM PAWLAK TRUCKING	PHONE: 6028613731
CATCHMENT: SR13	ADDRESS: 8428 N CENTRAL AVE	PHOENIX AZ 850203534
SIC: 4213	CONTACT:	POSITION:
ITEM #: 658	BUSINESS: REMAX AT THE POINTE	PHONE: 6029445460
CATCHMENT: SR13	ADDRESS: 7600 N 15TH ST STE 165	PHOENIX AZ 850204330
SIC: 2032	CONTACT:	POSITION:
ITEM #: 191	BUSINESS: KARLSON MACHINE WORKS INC	PHONE: 6022533195
CATCHMENT: SR15	ADDRESS: 605 E GRANT ST	PHOENIX AZ 850042634
SIC: 3599	CONTACT:	POSITION:
ITEM #: 192	BUSINESS: INDUSTRIAL DESIGN & MACHINE	PHONE: 6029660721
CATCHMENT: SR15	ADDRESS: 605 E GRANT ST	PHOENIX AZ 850042634
SIC: 3541	CONTACT:	POSITION:
ITEM #: 194	BUSINESS: ARA LEISURE SERVICES INC	PHONE: 6022581534
CATCHMENT: SR15	ADDRESS: 225 E ADAMS ST	PHOENIX AZ 850042332
SIC: 3448	CONTACT: TOM BRIGHTWELL	POSITION:
ITEM #: 186	BUSINESS: LINCOLN LASER CO	PHONE: 6022570407
CATCHMENT: SR15	ADDRESS: 234 E MOHAVE ST	PHOENIX AZ 850042845
SIC: 3827	CONTACT: RANDY SHERMAN	POSITION:
ITEM #: 190	BUSINESS: SEALCO AIR CONTROLS INC	PHONE: 6022531007
CATCHMENT: SR15	ADDRESS: 215 E WATKINS ST	PHOENIX AZ 850042927
SIC: 3625	CONTACT:	POSITION:
ITEM #: 187	BUSINESS: OPTIC SOLUTIONS	PHONE: 6022566039
CATCHMENT: SR15	ADDRESS: 515 E GRANT ST	PHOENIX AZ 850042633
SIC: 3826	CONTACT:	POSITION:
ITEM #: 188	BUSINESS: COLLINS BENFORD & GRAY FOOD	PHONE: 6022535752
CATCHMENT: SR15	ADDRESS: 245 E WATKINS ST	PHOENIX AZ 850042928
SIC: 3714	CONTACT: TOM BENFORD	POSITION:
ITEM #: 311	BUSINESS: AMERON PIPE DIVISION	PHONE: 6022527111
CATCHMENT: SR15	ADDRESS: 2325 S 7TH ST	PHOENIX AZ 850345597
SIC: 3272	CONTACT: KENNETH VOYLES	POSITION:
ITEM #: 289	BUSINESS: AIR CARGO TRANSIT INC	PHONE: 6022521000
CATCHMENT: SR16	ADDRESS: 1033 E MARICOPA FWY	PHOENIX AZ 850345505
SIC: 4513	CONTACT:	POSITION:
ITEM #: 296	BUSINESS: AZTEC TECHNOLOGY CORP	PHONE: 6022589474
CATCHMENT: SR16	ADDRESS: 1007 E MARICOPA FWY	PHOENIX AZ 850345505
SIC: 4225	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 294	BUSINESS: GOLDEN GATE WAREHOUSE	PHONE: 6022547074
CATCHMENT: SR16	ADDRESS: 1002 E UNIVERSITY DR	PHOENIX AZ 850346512
SIC: 4225	CONTACT: DOUG OLSEN	POSITION:
ITEM #: 297	BUSINESS: COMMERCIAL CARRIERS INC	PHONE: 6022546005
CATCHMENT: SR17	ADDRESS: 902 S 12TH ST	PHOENIX AZ 850344125
SIC: 4213	CONTACT:	POSITION:
ITEM #: 301	BUSINESS: PRECISION GRINDING INC	PHONE: 6022521748
CATCHMENT: SR17	ADDRESS: 1411 E HADLEY ST	PHOENIX AZ 850344197
SIC: 3599	CONTACT: HENRY TRIESLER	POSITION:
ITEM #: 16	BUSINESS: STEFANIA TRAVEL	PHONE: 6022658413
CATCHMENT: SR18	ADDRESS: 3615 N 16TH ST STE 2	PHOENIX AZ 850166442
SIC: 4724	CONTACT: STEFANIA J DYBOWSKI	POSITION:
ITEM #: 14	BUSINESS: RYAN'S TOURS INC	PHONE: 6022341122
CATCHMENT: SR18	ADDRESS: 3625 N 16TH ST STE 115	PHOENIX AZ 850166446
SIC: 4725	CONTACT:	POSITION:
ITEM #: 17	BUSINESS: ANCHORS AWAY TRAVEL NETWORK	PHONE: 6022647665
CATCHMENT: SR18	ADDRESS: 4628 N 17TH ST STE J111	PHOENIX AZ 850164646
SIC: 4724	CONTACT:	POSITION:
ITEM #: 26	BUSINESS: R W CONSULTING	PHONE: 6022772402
CATCHMENT: SR18	ADDRESS: 3625 N 16TH ST STE 100H	PHOENIX AZ 850166446
SIC: 1521	CONTACT:	POSITION:
ITEM #: 21	BUSINESS: SOUTHERN ARIZONA BUSINESS INFO	PHONE: 6022348854
CATCHMENT: SR18	ADDRESS: 3625 N 16TH ST STE 201	PHOENIX AZ 850166447
SIC: 2741	CONTACT:	POSITION:
ITEM #: 27	BUSINESS: PEGASUS CONSTRUCTION INC	PHONE: 6022859339
CATCHMENT: SR18	ADDRESS: 4628 N 17TH ST STE G121	PHOENIX AZ 850164646
SIC: 1521	CONTACT: CAROL A LENINGTON	POSITION:
ITEM #: 182	BUSINESS: MARICOPA PACKING CO FEED LOT	PHONE: 6029355181
CATCHMENT: SR18	ADDRESS: 915 N 16TH ST	PHOENIX AZ 850063606
SIC: 2011	CONTACT:	POSITION:
ITEM #: 312	BUSINESS: INDUSTRIAL TECHNOLOGY	PHONE: 6022583232
CATCHMENT: SR18	ADDRESS: 2815 S 16TH ST	PHOENIX AZ 850346741
SIC: 3089	CONTACT:	POSITION:
ITEM #: 317	BUSINESS: C & D MOTORS	PHONE: 6023408015
CATCHMENT: SR18	ADDRESS: 2002 E MONROE ST	PHOENIX AZ 850341315
SIC: 2721	CONTACT: GEORGE FONZMAN	POSITION:
ITEM #: 31	BUSINESS: ALL AMERICAN WATER SUPPLY INC	PHONE: 6023818877
CATCHMENT: SR19	ADDRESS: 4120 N 20TH ST	PHOENIX AZ 850166022
SIC: 1381	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 18	BUSINESS: AMDAHL CORPORATION	PHONE: 6029550770
CATCHMENT: SR19	ADDRESS: 2111 E HIGHLAND AVE STE 375	PHOENIX AZ 850164750
SIC: 3571	CONTACT:	POSITION:
ITEM #: 19	BUSINESS: CLUTCH USA	PHONE: 6029554755
CATCHMENT: SR19	ADDRESS: 2111 E HIGHLAND AVE STE 170	PHOENIX AZ 850164732
SIC: 3568	CONTACT:	POSITION:
ITEM #: 28	BUSINESS: HACIENDA BUILDERS INC	PHONE: 6022245007
CATCHMENT: SR19	ADDRESS: 4539 N 22ND ST STE 204	PHOENIX AZ 850164691
SIC: 1521	CONTACT:	POSITION:
ITEM #: 20	BUSINESS: PROGRESSIVE TOOL & DIE CO	PHONE: 6022570155
CATCHMENT: SR20	ADDRESS: 208 W MARICOPA FWY	PHOENIX AZ 850032740
SIC: 3599	CONTACT: JOHN G KALLSTEDT	POSITION:
ITEM #: 164	BUSINESS: AAA CONSULTANTS	PHONE: 6022737344
CATCHMENT: SR20	ADDRESS: 2106 N 24TH ST	PHOENIX AZ 850082714
SIC: 1521	CONTACT: WYNN PRATT	POSITION:
ITEM #: 24	BUSINESS: VILLA SEVILLE TOWNHOUSE CORP	PHONE: 6029556506
CATCHMENT: SR20	ADDRESS: 2809 E FAIRMOUNT AVE	PHOENIX AZ 850166900
SIC: 1521	CONTACT:	POSITION:
ITEM #: 20	BUSINESS: CAMPBELL PRINTED COMMUNICATION	PHONE: 6029554480
CATCHMENT: SR20	ADDRESS: 2540 E THOMAS RD	PHOENIX AZ 850167947
SIC: 2761	CONTACT: LISA HANSON	POSITION:
ITEM #: 22	BUSINESS: CAL CHRISTIANSEN CO	PHONE: 6029570694
CATCHMENT: SR20	ADDRESS: 51 BILTMORE ESTATES DR	PHOENIX AZ 850162825
SIC: 1623	CONTACT:	POSITION:
ITEM #: 287	BUSINESS: ARIZONA AIR EXPRESS	PHONE: 6022441851
CATCHMENT: SR20	ADDRESS: 2635 E AIR LN	PHOENIX AZ 850342626
SIC: 4513	CONTACT:	POSITION:
ITEM #: 288	BUSINESS: AMERIFLIGHT INC	PHONE: 6022441800
CATCHMENT: SR20	ADDRESS: 2543 E AIR LN # 15	PHOENIX AZ 850342625
SIC: 4513	CONTACT:	POSITION:
ITEM #: 298	BUSINESS: OMNIFLIGHT HELICOPTERS INC	PHONE: 6022731013
CATCHMENT: SR20	ADDRESS: 2725 E AIR LN	PHOENIX AZ 850342627
SIC: 4119	CONTACT:	POSITION:
ITEM #: 314	BUSINESS: AERO UNION CORP	PHONE: 6022671630
CATCHMENT: SR21	ADDRESS: 2802 E OLD TOWER RD # A200	PHOENIX AZ 850346000
SIC: 2899	CONTACT:	POSITION:
ITEM #: 313	BUSINESS: CHEMONICS INDUSTRIES INC	PHONE: 6022200794
CATCHMENT: SR21	ADDRESS: 2802 E OLD TOWER RD # A200	PHOENIX AZ 850346000
SIC: 2899	CONTACT:	POSITION:

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ITEM #: 286	BUSINESS: EDEN AIR FREIGHT	PHONE: 6029669912
CATCHMENT: SR22	ADDRESS: 3904 E AIR LN	PHOENIX AZ 850342916
SIC: 4513	CONTACT:	POSITION:
ITEM #: 283	BUSINESS: SKY HARBOR DELIVERY INC	PHONE: 6022671946
CATCHMENT: SR22	ADDRESS: 3910 E AIR LN # 200	PHOENIX AZ 850342916
SIC: 4513	CONTACT:	POSITION:
ITEM #: 292	BUSINESS: AIR SUPPORT SYSTEMS	PHONE: 6022733707
CATCHMENT: SR22	ADDRESS: 3910 E AIR LN # 200	PHOENIX AZ 850342998
SIC: 4512	CONTACT: BRENT BREWER	POSITION:
ITEM #: 275	BUSINESS: PANALPINA INC	PHONE: 6022753020
CATCHMENT: SR22	ADDRESS: 3922 E AIR LN # 11	PHOENIX AZ 850342916
SIC: 4731	CONTACT:	POSITION:
ITEM #: 276	BUSINESS: NIPPON EXPRESS USA	PHONE: 6022739986
CATCHMENT: SR22	ADDRESS: 3920 E AIR LN	PHOENIX AZ 850342916
SIC: 4731	CONTACT:	POSITION:
ITEM #: 291	BUSINESS: PROFIT FREIGHT SYSTEMS	PHONE: 6022751882
CATCHMENT: SR22	ADDRESS: 3916 E AIR LN	PHOENIX AZ 850342916
SIC: 4512	CONTACT:	POSITION:
ITEM #: 277	BUSINESS: EMPIRE AIRLINES	PHONE: 6022758898
CATCHMENT: SR22	ADDRESS: 3703 E AIR LN	PHOENIX AZ 850342918
SIC: 4729	CONTACT:	POSITION:
ITEM #: 284	BUSINESS: SEKO AIR FREIGHT	PHONE: 6022442610
CATCHMENT: SR22	ADDRESS: 3908 E AIR LN	PHOENIX AZ 850342916
SIC: 4513	CONTACT:	POSITION:
ITEM #: 285	BUSINESS: ELITE EXPRESS INC	PHONE: 6022755384
CATCHMENT: SR22	ADDRESS: 3902 E AIR LN	PHOENIX AZ 850342916
SIC: 4513	CONTACT:	POSITION:
ITEM #: 290	BUSINESS: SKYWEST AIRLINES	PHONE: 6022733870
CATCHMENT: SR23	ADDRESS: 3000 E SKY HARBOR BLVD	PHOENIX AZ 850344414
SIC: 4512	CONTACT:	POSITION:
ITEM #: 5	BUSINESS: SMITH & SMITH INC	PHONE: 6029563661
CATCHMENT: SR24	ADDRESS: 3626 E CAMELBACK RD	PHOENIX AZ 850182506
SIC: 1521	CONTACT: PALA N SMITH	POSITION:
ITEM #: 3	BUSINESS: FAIRWAYS & GREENS	PHONE: 6029553332
CATCHMENT: SR27	ADDRESS: 5050 N 40TH ST STE 200	PHOENIX AZ 850182139
SIC: 2721	CONTACT:	POSITION:
ITEM #: 4	BUSINESS: VIVIR INC	PHONE: 6029521101
CATCHMENT: SR27	ADDRESS: 4040 E CAMELBACK RD STE 2	PHOENIX AZ 850182735
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 6	BUSINESS: HOUSE JULIAN B LTD	PHONE: 6024681278
CATCHMENT: SR27	ADDRESS: 5070 N 40TH ST STE 135	PHOENIX AZ 850182141
SIC: 1521	CONTACT: STEVE BERNARD	POSITION:
ITEM #: 7	BUSINESS: BERNARD & CO BUILDERS	PHONE: 6022245885
CATCHMENT: SR27	ADDRESS: 5070 N 40TH ST STE 150	PHOENIX AZ 850182141
SIC: 1521	CONTACT:	POSITION:
ITEM #: 8	BUSINESS: SHEA HOMES	PHONE: 6029521009
CATCHMENT: SR27	ADDRESS: 4040 E CAMELBACK RD STE 2	PHOENIX AZ 850182735
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1	BUSINESS: HOT SHOT MESSENGER SERVICE	PHONE: 6022774747
CATCHMENT: SR27	ADDRESS: 5080 N 40TH ST STE 455	PHOENIX AZ 850182150
SIC: 4212	CONTACT: JAMES M LEGGITT	POSITION:
ITEM #: 303	BUSINESS: HENES STAMPING INC	PHONE: 6022754126
CATCHMENT: SR27	ADDRESS: 4225 E MADISON ST	PHOENIX AZ 850343096
SIC: 3599	CONTACT:	POSITION:
ITEM #: 302	BUSINESS: JAKOLAT MACHINE CO	PHONE: 6022730335
CATCHMENT: SR27	ADDRESS: 31 S 42ND PL	PHOENIX AZ 850343013
SIC: 3599	CONTACT: MARTIN J JAKOLAT	POSITION:
ITEM #: 310	BUSINESS: STEWART CONCRETE PIPE INC	PHONE: 6022751896
CATCHMENT: SR27	ADDRESS: 4230 E MADISON ST	PHOENIX AZ 850343095
SIC: 3272	CONTACT:	POSITION:
ITEM #: 309	BUSINESS: NEENAH FOUNDRY COMPANY	PHONE: 6022259801
CATCHMENT: SR27	ADDRESS: 4221 E MADISON ST	PHOENIX AZ 850343097
SIC: 3321	CONTACT:	POSITION:
ITEM #: 307	BUSINESS: COLLINS METAL FINISHING	PHONE: 6022753117
CATCHMENT: SR27	ADDRESS: 37 S 42ND PL	PHOENIX AZ 850343013
SIC: 3471	CONTACT: JOHN COLLINS	POSITION:
ITEM #: 315	BUSINESS: BYGRAPHICS CORPORATION	PHONE: 6022678667
CATCHMENT: SR28	ADDRESS: 4050 E AIR LN	PHOENIX AZ 850343021
SIC: 2759	CONTACT: BILL BYNUM	POSITION:
ITEM #: 321	BUSINESS: SLETTEN CONSTRUCTION CO	PHONE: 6022731474
CATCHMENT: SR28	ADDRESS: 4114 E AIR LN	PHOENIX AZ 850343091
SIC: 1521	CONTACT:	POSITION:
ITEM #: 306	BUSINESS: BURN-A-ROD CERTIFIED WELDING	PHONE: 6022759585
CATCHMENT: SR28	ADDRESS: 4048 E AIR LN	PHOENIX AZ 850343021
SIC: 3499	CONTACT: REX S CONDIE	POSITION:
ITEM #: 213	BUSINESS: COPPERSTATE PLASTICS INC	PHONE: 6022433929
CATCHMENT: SR31	ADDRESS: 3328 E CORONA AVE	PHOENIX AZ 850402891
SIC: 3089	CONTACT: GERALD B WILLIAMS	POSITION:

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ITEM #: 228	BUSINESS: PRISMA GRAPHIC CORP	PHONE: 6022435777
CATCHMENT: SR31	ADDRESS: 4821 S 33RD ST	PHOENIX AZ 850402851
SIC: 2759	CONTACT:	POSITION:
ITEM #: 215	BUSINESS: ARREIS PLASTICS INC	PHONE: 6022433535
CATCHMENT: SR31	ADDRESS: 4814 S 33RD ST	PHOENIX AZ 850402813
SIC: 3089	CONTACT:	POSITION:
ITEM #: 249	BUSINESS: EXCEL SHUTTER	PHONE: 6022431223
CATCHMENT: SR31	ADDRESS: 3343 E CORONA AVE	PHOENIX AZ 850402837
SIC: 2431	CONTACT:	POSITION:
ITEM #: 1216	BUSINESS: WILLIAMS TRUCKING CO	PHONE: 6022764205
CATCHMENT: SR31	ADDRESS: 4300 S 17TH AVE	PHOENIX AZ 850411399
SIC: 4212	CONTACT:	POSITION:
ITEM #: 229	BUSINESS: PRINTEK	PHONE: 6022431133
CATCHMENT: SR32	ADDRESS: 3401 E WIER AVE	PHOENIX AZ 850402880
SIC: 2759	CONTACT: STEVE ANDERSON	POSITION:
ITEM #: 1218	BUSINESS: ALLIED MACHINE WORKS INC	PHONE: 6022688873
CATCHMENT: SR32	ADDRESS: 601 W ELWOOD ST	PHOENIX AZ 850411296
SIC: 3599	CONTACT: WARREN POLK	POSITION:
ITEM #: 1224	BUSINESS: BRIDEN INDUSTRIES	PHONE: 6022680021
CATCHMENT: SR32	ADDRESS: 515 W ELWOOD ST	PHOENIX AZ 850411227
SIC: 3272	CONTACT: BOB WILLIAMS	POSITION:
ITEM #: 257	BUSINESS: FRYE & SONS' CONSTRUCTION	PHONE: 6022682898
CATCHMENT: SR33	ADDRESS: 24 E LYNNE LN	PHOENIX AZ 850404203
SIC: 1522	CONTACT:	POSITION:
ITEM #: 1250	BUSINESS: ELM TREE TRUCKING	PHONE: 6022436289
CATCHMENT: SR33	ADDRESS: 434 E CODY ST	PHOENIX AZ 850402158
SIC: 4213	CONTACT:	POSITION:
ITEM #: 230	BUSINESS: EXECUTIVE IMAGE CORP	PHONE: 6024373150
CATCHMENT: SR35	ADDRESS: 7208 S 14TH PL	PHOENIX AZ 850405631
SIC: 2759	CONTACT: RICHARD R RHUTCHISON	POSITION:
ITEM #: 238	BUSINESS: KNIGHT LITHOGRAPH INC	PHONE: 6022433251
CATCHMENT: SR35	ADDRESS: 3540 E CORONA AVE	PHOENIX AZ 850402842
SIC: 2752	CONTACT: HELENKA S KNIGHT	POSITION:
ITEM #: 246	BUSINESS: WATER TREATMENT SPECIALISTS	PHONE: 6022681584
CATCHMENT: SR35	ADDRESS: 1309 E ELWOOD ST	PHOENIX AZ 850401255
SIC: 2499	CONTACT:	POSITION:
ITEM #: 233	BUSINESS: WEB TECH GRAPHICS	PHONE: 6022683585
CATCHMENT: SR35	ADDRESS: 3534 E CORONA AVE	PHOENIX AZ 850402842
SIC: 2752	CONTACT: JERRY F GROVAN	POSITION:

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ITEM #:	1287	BUSINESS: DOMINO ROAD COATINGS INC	PHONE: 6022762000
CATCHMENT:	SR35	ADDRESS: 1223 E ELWOOD ST	PHOENIX AZ 850401253
SIC:	3564	CONTACT:	POSITION:
ITEM #:	221	BUSINESS: STACO ROOF TILE MFG	PHONE: 6024370297
CATCHMENT:	SR36	ADDRESS: 3530 E ELWOOD ST	PHOENIX AZ 850401628
SIC:	2952	CONTACT:	POSITION:
ITEM #:	266	BUSINESS: ELLIOTT HOMES INC	PHONE: 6022430362
CATCHMENT:	SR36	ADDRESS: 1605 E DARREL RD	PHOENIX AZ 850405717
SIC:	1521	CONTACT:	POSITION:
ITEM #:	250	BUSINESS: SPECIAL PROCESSES	PHONE: 6022430225
CATCHMENT:	SR37	ADDRESS: 1545 E VICTORY ST	PHOENIX AZ 850401327
SIC:	2295	CONTACT:	POSITION:
ITEM #:	231	BUSINESS: CREATIVE PRESS	PHONE: 6022433905
CATCHMENT:	SR37	ADDRESS: 2224 E JONES AVE	PHOENIX AZ 850401467
SIC:	2759	CONTACT: ROBERT G GANZ	POSITION:
ITEM #:	1273	BUSINESS: MILLER O E M SUPPLIES INC	PHONE: 6022680001
CATCHMENT:	SR37	ADDRESS: 2222 E JONES AVE	PHOENIX AZ 850401467
SIC:	3645	CONTACT: LUCILLE MILLER	POSITION:
ITEM #:	1276	BUSINESS: RELIANCE ELECTRIC CO PHOENIX	PHONE: 6022431791
CATCHMENT:	SR37	ADDRESS: 3550 S 16TH ST	PHOENIX AZ 850401309
SIC:	3599	CONTACT: PAT AMOTO	POSITION:
ITEM #:	1231	BUSINESS: KINTETSU WORLD EXPRESS USA INC	PHONE: 6022430591
CATCHMENT:	SR37	ADDRESS: 4022 S 20TH ST # 1	PHOENIX AZ 850401483
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1256	BUSINESS: MICROGRAPHICS INC	PHONE: 6022435292
CATCHMENT:	SR37	ADDRESS: 2135 E JONES AVE	PHOENIX AZ 850401470
SIC:	3861	CONTACT:	POSITION:
ITEM #:	1242	BUSINESS: SOUTHWEST AIRLINES CO	PHONE: 6022430653
CATCHMENT:	SR37	ADDRESS: 2320 E JONES AVE	PHOENIX AZ 850401473
SIC:	4511	CONTACT:	POSITION:
ITEM #:	1281	BUSINESS: CO-HONE HYDRAULICS	PHONE: 6022763998
CATCHMENT:	SR37	ADDRESS: 1522 E VICTORY ST STE 9	PHOENIX AZ 850401306
SIC:	3599	CONTACT:	POSITION:
ITEM #:	1245	BUSINESS: A-ELITE-SUREWAY AIR	PHONE: 6022765199
CATCHMENT:	SR37	ADDRESS: 4006 S 23RD ST STE 15	PHOENIX AZ 850401485
SIC:	4215	CONTACT: GARY ABBOTT	POSITION:
ITEM #:	218	BUSINESS: CENTRAL PLASTIC & RUBBER CO	PHONE: 6022686368
CATCHMENT:	SR38	ADDRESS: 5418 S 25TH ST	PHOENIX AZ 850403637
SIC:	3081	CONTACT:	POSITION:

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ITEM #:	251	BUSINESS: ROAR CAKE COMPANY	PHONE: 6022439899
CATCHMENT:	SR38	ADDRESS: 4415 S 28TH ST APT 127	PHOENIX AZ 850402772
SIC:	2051	CONTACT:	POSITION:
ITEM #:	210	BUSINESS: WESTERN INSULFOAM CORP	PHONE: 6024374395
CATCHMENT:	SR38	ADDRESS: 3632 E LA SALLE ST	PHOENIX AZ 850403974
SIC:	3089	CONTACT:	POSITION:
ITEM #:	1282	BUSINESS: CHEMICAL MILLING RESOURCES	PHONE: 6022439445
CATCHMENT:	SR38	ADDRESS: 2450 E CHAMBERS ST STE 7	PHOENIX AZ 850403635
SIC:	3599	CONTACT:	POSITION:
ITEM #:	1274	BUSINESS: WESTINGHOUSE ELECTRIC SUPPLY	PHONE: 6022688858
CATCHMENT:	SR38	ADDRESS: 2639 E CHAMBERS ST	PHOENIX AZ 850403641
SIC:	3613	CONTACT: KEN DAWSON	POSITION:
ITEM #:	1306	BUSINESS: BILL LONGO	PHONE: 6022436835
CATCHMENT:	SR38	ADDRESS: 2450 E CHAMBERS ST STE 14	PHOENIX AZ 850403636
SIC:	3444	CONTACT:	POSITION:
ITEM #:	1315	BUSINESS: TIMES FIBER COMMUNICATION INC	PHONE: 6022760399
CATCHMENT:	SR38	ADDRESS: 2920 E ELWOOD ST	PHOENIX AZ 850408658
SIC:	3315	CONTACT:	POSITION:
ITEM #:	252	BUSINESS: PREMIUM PET FOODS	PHONE: 6024373656
CATCHMENT:	SR39	ADDRESS: 3801 E ROESER RD STE 5	PHOENIX AZ 850409051
SIC:	2048	CONTACT:	POSITION:
ITEM #:	255	BUSINESS: LAWLOR & LANGE REMODELING CONT	PHONE: 6022766755
CATCHMENT:	SR39	ADDRESS: 2816 E JONES AVE	PHOENIX AZ 850408644
SIC:	1542	CONTACT: CHRIS LAWLOR	POSITION:
ITEM #:	248	BUSINESS: SUNBURST SHUTTERS & INTERIOR	PHONE: 6022750400
CATCHMENT:	SR39	ADDRESS: 3637 E MARICOPA FWY	PHOENIX AZ 850401819
SIC:	2431	CONTACT: ROWNALD SWAPP	POSITION:
ITEM #:	247	BUSINESS: COLMENERO'S PALLETS	PHONE: 6022437750
CATCHMENT:	SR39	ADDRESS: 2838 E JONES AVE	PHOENIX AZ 850408629
SIC:	2448	CONTACT:	POSITION:
ITEM #:	256	BUSINESS: CRESTON HOMES INC	PHONE: 6022762199
CATCHMENT:	SR39	ADDRESS: 5214 S 30TH ST	PHOENIX AZ 850403730
SIC:	1542	CONTACT:	POSITION:
ITEM #:	245	BUSINESS: ARIZONA OFFICE LIQUIDATORS	PHONE: 6024372224
CATCHMENT:	SR39	ADDRESS: 5064 S 40TH ST	PHOENIX AZ 850402902
SIC:	2520	CONTACT: ROBERT STRAUSS	POSITION:
ITEM #:	244	BUSINESS: SOUTHWEST STORAGE SYSTEMS	PHONE: 6022681013
CATCHMENT:	SR39	ADDRESS: 2907 E CHAMBERS ST	PHOENIX AZ 850403737
SIC:	2542	CONTACT:	POSITION:

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ITEM #: 243	BUSINESS: DEGAGE	PHONE: 6024700748
CATCHMENT: SR39	ADDRESS: 4239 S 36TH PL	PHOENIX AZ 850401809
SIC: 2599	CONTACT:	POSITION:
ITEM #: 237	BUSINESS: KWIK-KOPY	PHONE: 6024379520
CATCHMENT: SR39	ADDRESS: 5056 S 40TH ST	PHOENIX AZ 850402902
SIC: 2752	CONTACT:	POSITION:
ITEM #: 242	BUSINESS: NATIONAL CONTRACT FURNISHINGS	PHONE: 6024700770
CATCHMENT: SR39	ADDRESS: 5002 S 40TH ST STE M	PHOENIX AZ 850402962
SIC: 2599	CONTACT:	POSITION:
ITEM #: 240	BUSINESS: DAVID'S GRAPHICS & PRINTING	PHONE: 6024371019
CATCHMENT: SR39	ADDRESS: 4214 S 36TH PL	PHOENIX AZ 850401810
SIC: 2752	CONTACT:	POSITION:
ITEM #: 239	BUSINESS: FINANCIAL REGISTERS CO	PHONE: 6022681379
CATCHMENT: SR39	ADDRESS: 4601 S 32ND ST	PHOENIX AZ 850402807
SIC: 2752	CONTACT:	POSITION:
ITEM #: 259	BUSINESS: VANDEHEI ENTERPRISES	PHONE: 6024378772
CATCHMENT: SR39	ADDRESS: 3702 E ROESER RD STE 23	PHOENIX AZ 850409049
SIC: 1521	CONTACT:	POSITION:
ITEM #: 241	BUSINESS: THORNWOOD FURNITURE MANUFACTUR	PHONE: 6024700234
CATCHMENT: SR39	ADDRESS: 3801 E LA SALLE ST	PHOENIX AZ 850409005
SIC: 2599	CONTACT:	POSITION:
ITEM #: 236	BUSINESS: P Q PRINTING	PHONE: 6024372718
CATCHMENT: SR39	ADDRESS: 4224 S 36TH PL	PHOENIX AZ 850401810
SIC: 2752	CONTACT:	POSITION:
ITEM #: 235	BUSINESS: RAPID PRINT INC	PHONE: 6024373356
CATCHMENT: SR39	ADDRESS: 3702 E ROESER RD STE 25	PHOENIX AZ 850409049
SIC: 2752	CONTACT: SCOTT HAVER	POSITION:
ITEM #: 234	BUSINESS: STUDIO UNO	PHONE: 6024375777
CATCHMENT: SR39	ADDRESS: 4245 S 37TH ST	PHOENIX AZ 850401813
SIC: 2752	CONTACT:	POSITION:
ITEM #: 260	BUSINESS: THE TANNER COMPANIES	PHONE: 6024377878
CATCHMENT: SR39	ADDRESS: 3888 E BROADWAY RD	PHOENIX AZ 850402924
SIC: 1521	CONTACT:	POSITION:
ITEM #: 232	BUSINESS: BAZZILL ENGRAVING COMPANY	PHONE: 6024379019
CATCHMENT: SR39	ADDRESS: 3702 E ROESER RD STE 7	PHOENIX AZ 850409047
SIC: 2759	CONTACT: DOUG O JONES	POSITION:
ITEM #: 261	BUSINESS: SCHAAF CONSTRUCTION INC	PHONE: 6024319743
CATCHMENT: SR39	ADDRESS: 4742 E APOLLO RD	PHOENIX AZ 850405381
SIC: 1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

Woodward-Clyde Consultants

ITEM #: 222	BUSINESS: POLYCHROME CORPORATION	PHONE: 6024372090
CATCHMENT: SR39	ADDRESS: 4810 S 40TH ST	PHOENIX AZ 850402940
SIC: 2893	CONTACT:	POSITION:
ITEM #: 208	BUSINESS: SPECCERAMICS	PHONE: 6024701000
CATCHMENT: SR39	ADDRESS: 3912 E ROESER RD	PHOENIX AZ 850409012
SIC: 3251	CONTACT:	POSITION:
ITEM #: 209	BUSINESS: PROFESSIONAL PLASTICS INC	PHONE: 6024374555
CATCHMENT: SR39	ADDRESS: 4439 S 38TH PL	PHOENIX AZ 850402943
SIC: 3229	CONTACT:	POSITION:
ITEM #: 211	BUSINESS: VALLEY PRECISION PLASTICS	PHONE: 6024372727
CATCHMENT: SR39	ADDRESS: 3702 E ROESER RD STE 11	PHOENIX AZ 850409047
SIC: 3089	CONTACT:	POSITION:
ITEM #: 220	BUSINESS: LINATEX CORPORATION OF AMERICA	PHONE: 6024372794
CATCHMENT: SR39	ADDRESS: 3802 E BROADWAY RD	PHOENIX AZ 850402924
SIC: 3069	CONTACT:	POSITION:
ITEM #: 226	BUSINESS: COLORGRAPHICS OF ARIZONA	PHONE: 6024372720
CATCHMENT: SR39	ADDRESS: 3707 E BROADWAY RD	PHOENIX AZ 850402953
SIC: 2796	CONTACT: GENE GILLENWATER	POSITION:
ITEM #: 224	BUSINESS: J & L PRODUCTS	PHONE: 6024378944
CATCHMENT: SR39	ADDRESS: 4215 S 37TH ST	PHOENIX AZ 850401813
SIC: 2842	CONTACT:	POSITION:
ITEM #: 214	BUSINESS: ASTRO PRODUCTS	PHONE: 6024372066
CATCHMENT: SR39	ADDRESS: 4231 S 36TH PL	PHOENIX AZ 850401809
SIC: 3089	CONTACT:	POSITION:
ITEM #: 227	BUSINESS: PRINTING CONCEPTS INC	PHONE: 6022430677
CATCHMENT: SR39	ADDRESS: 2816 E JONES AVE STE 5	PHOENIX AZ 850408644
SIC: 2761	CONTACT: APRIL L NOBLE	POSITION:
ITEM #: 212	BUSINESS: MOHR PLASTICS INC	PHONE: 6024378893
CATCHMENT: SR39	ADDRESS: 4238 S 37TH ST	PHOENIX AZ 850401814
SIC: 3089	CONTACT: KATHY MOHRBACKER	POSITION:
ITEM #: 219	BUSINESS: ACRO MOLD	PHONE: 6024379555
CATCHMENT: SR39	ADDRESS: 4222 S 36TH PL	PHOENIX AZ 850401810
SIC: 3079	CONTACT:	POSITION:
ITEM #: 253	BUSINESS: SOUTH WEST TEL-DATA	PHONE: 6024700740
CATCHMENT: SR39	ADDRESS: 4242 S 37TH ST	PHOENIX AZ 850401814
SIC: 1623	CONTACT:	POSITION:
ITEM #: 217	BUSINESS: PHILIP'S PLASTICS	PHONE: 6024701808
CATCHMENT: SR39	ADDRESS: 3801 E ROESER RD STE 18	PHOENIX AZ 850409054
SIC: 3081	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 216	BUSINESS: ARIZONA POLYMERS	PHONE: 6024375454
CATCHMENT: SR39	ADDRESS: 3801 E ROESER RD STE 6	PHOENIX AZ 850409052
SIC: 3089	CONTACT: DARRELL L BUGHAM	POSITION:
ITEM #: 265	BUSINESS: HARRELL ENTERPRISES INC	PHONE: 6024311720
CATCHMENT: SR39	ADDRESS: 4334 E MALDONADO RD	PHOENIX AZ 850405229
SIC: 1521	CONTACT:	POSITION:
ITEM #: 1293	BUSINESS: DIMENSION MOLD & DESIGN	PHONE: 6024372130
CATCHMENT: SR39	ADDRESS: 4239 S 37TH ST	PHOENIX AZ 850401813
SIC: 3544	CONTACT: TODD M SCHWALLIE	POSITION:
ITEM #: 1292	BUSINESS: JSS TOOL & DIE	PHONE: 6024372736
CATCHMENT: SR39	ADDRESS: 4216 S 37TH ST	PHOENIX AZ 850401814
SIC: 3545	CONTACT:	POSITION:
ITEM #: 1291	BUSINESS: ARIZONA WOODWORKING MACHINERY	PHONE: 6024374941
CATCHMENT: SR39	ADDRESS: 3831 E GROVE ST	PHOENIX AZ 850409001
SIC: 3553	CONTACT:	POSITION:
ITEM #: 1288	BUSINESS: SOUTHWEST TECH SUPPLY INC	PHONE: 6024381693
CATCHMENT: SR39	ADDRESS: 3837 E WIER AVE STE 2	PHOENIX AZ 850402949
SIC: 3559	CONTACT:	POSITION:
ITEM #: 1295	BUSINESS: A T S STEELS INC	PHONE: 6022433056
CATCHMENT: SR39	ADDRESS: 4802 S 33RD ST	PHOENIX AZ 850402813
SIC: 3544	CONTACT:	POSITION:
ITEM #: 1286	BUSINESS: FILTEMP SALES INC	PHONE: 6022434245
CATCHMENT: SR39	ADDRESS: 4814 S 35TH ST	PHOENIX AZ 850402852
SIC: 3569	CONTACT:	POSITION:
ITEM #: 1290	BUSINESS: PYRAMID CONNECTORS INC	PHONE: 6022696431
CATCHMENT: SR39	ADDRESS: 5205 S 31ST PL	PHOENIX AZ 850403732
SIC: 3559	CONTACT:	POSITION:
ITEM #: 1284	BUSINESS: CONTAMINATION TECHNOLOGY	PHONE: 6024371700
CATCHMENT: SR39	ADDRESS: 3815 E GROVE ST STE 6	PHOENIX AZ 850409002
SIC: 3589	CONTACT:	POSITION:
ITEM #: 1285	BUSINESS: B & R INDUSTRIES	PHONE: 6022430008
CATCHMENT: SR39	ADDRESS: 3341 E CORONA AVE # 2	PHOENIX AZ 850402837
SIC: 3589	CONTACT:	POSITION:
ITEM #: 1296	BUSINESS: COPPER STATE MACHINERY CO	PHONE: 6024378599
CATCHMENT: SR39	ADDRESS: 3767 E BROADWAY RD APT 8	PHOENIX AZ 850402900
SIC: 3542	CONTACT:	POSITION:
ITEM #: 1297	BUSINESS: PHOENIX GRINDING CO	PHONE: 6024378401
CATCHMENT: SR39	ADDRESS: 5225 S 39TH ST	PHOENIX AZ 850403985
SIC: 3541	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 1298	BUSINESS: AVL SYSTEMS	PHONE: 6024374864
CATCHMENT: SR39	ADDRESS: 3702 E ROESER RD	PHOENIX AZ 850409046
SIC: 3541	CONTACT: TOM GUILBURG	POSITION:
ITEM #: 1299	BUSINESS: THE STARR COMPANY	PHONE: 6022681888
CATCHMENT: SR39	ADDRESS: 4656 S 33RD ST	PHOENIX AZ 850402812
SIC: 3537	CONTACT:	POSITION:
ITEM #: 1301	BUSINESS: AERO SPRING & MANUFACTURING CO	PHONE: 6022434329
CATCHMENT: SR39	ADDRESS: 3325 E WIER AVE	PHOENIX AZ 850402859
SIC: 3495	CONTACT:	POSITION:
ITEM #: 1302	BUSINESS: PRECISION FINISHING INC	PHONE: 6022436293
CATCHMENT: SR39	ADDRESS: 3302 E ATLANTA AVE	PHOENIX AZ 850402848
SIC: 3479	CONTACT: DENNIS PERLA	POSITION:
ITEM #: 1294	BUSINESS: CONTOUR MOLD	PHONE: 6024374835
CATCHMENT: SR39	ADDRESS: 3702 E ROESER RD	PHOENIX AZ 850409046
SIC: 3544	CONTACT: VERA BOLE	POSITION:
ITEM #: 1283	BUSINESS: ARIZONA AUTOMOTIVE MFG CO INC	PHONE: 6022686632
CATCHMENT: SR39	ADDRESS: 3310 E CORONA AVE	PHOENIX AZ 850402838
SIC: 3599	CONTACT: JOHN BABIN	POSITION:
ITEM #: 1303	BUSINESS: METCO FINISHING	PHONE: 6022764120
CATCHMENT: SR39	ADDRESS: 3508 E CORONA AVE	PHOENIX AZ 850402842
SIC: 3471	CONTACT:	POSITION:
ITEM #: 1272	BUSINESS: EBERLE DESIGN INC	PHONE: 6024371955
CATCHMENT: SR39	ADDRESS: 3819 E LA SALLE ST	PHOENIX AZ 850409005
SIC: 3663	CONTACT: TONY EBERLE	POSITION:
ITEM #: 1271	BUSINESS: M J S DESIGNS	PHONE: 6024375010
CATCHMENT: SR39	ADDRESS: 4212 S 36TH PL	PHOENIX AZ 850401810
SIC: 3663	CONTACT:	POSITION:
ITEM #: 1275	BUSINESS: TIME MACHINE & STAMPING INC	PHONE: 6024372394
CATCHMENT: SR39	ADDRESS: 4210 S 36TH PL	PHOENIX AZ 850401810
SIC: 3599	CONTACT:	POSITION:
ITEM #: 1257	BUSINESS: ROI INC	PHONE: 6024374330
CATCHMENT: SR39	ADDRESS: 3702 E ROESER RD STE 16	PHOENIX AZ 850409049
SIC: 3851	CONTACT: JOHN ALOFF	POSITION:
ITEM #: 1305	BUSINESS: QUADNA INC	PHONE: 6024700123
CATCHMENT: SR39	ADDRESS: 4234 S 37TH ST	PHOENIX AZ 850401814
SIC: 3446	CONTACT:	POSITION:
ITEM #: 1264	BUSINESS: REGAN-WEBER ENGINEERING CO	PHONE: 6022430616
CATCHMENT: SR39	ADDRESS: 3402 E WIER AVE	PHOENIX AZ 850402855
SIC: 3699	CONTACT: GALEN WEBBER	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1261	BUSINESS: ALL TEMPERATURE CONTROL INC	PHONE: 6022763841
CATCHMENT:	SR39	ADDRESS: 4819 S 35TH ST	PHOENIX AZ 850402821
SIC:	3822	CONTACT: LEN DESTREMPS	POSITION:
ITEM #:	1260	BUSINESS: NATIONAL CALIBRATION INC	PHONE: 6024370114
CATCHMENT:	SR39	ADDRESS: 3707 E BROADWAY RD STE 1	PHOENIX AZ 850402953
SIC:	3824	CONTACT:	POSITION:
ITEM #:	1267	BUSINESS: MEGA SYSTEMS & CHEMICALS	PHONE: 6024379105
CATCHMENT:	SR39	ADDRESS: 4828 S 40TH ST # 2	PHOENIX AZ 850402940
SIC:	3674	CONTACT:	POSITION:
ITEM #:	1263	BUSINESS: TRI-VALLEY ELECTRIC SUPPLY CO	PHONE: 6024371666
CATCHMENT:	SR39	ADDRESS: 3821 E BROADWAY RD	PHOENIX AZ 850402961
SIC:	3699	CONTACT:	POSITION:
ITEM #:	1255	BUSINESS: SQUAW WRAP INDIAN JEWELRY	PHONE: 6024371222
CATCHMENT:	SR39	ADDRESS: 4205 S 37TH ST	PHOENIX AZ 850401813
SIC:	3911	CONTACT:	POSITION:
ITEM #:	1254	BUSINESS: BERGMANN PRECISION	PHONE: 6024374940
CATCHMENT:	SR39	ADDRESS: 3617 E LA SALLE ST	PHOENIX AZ 850403975
SIC:	3944	CONTACT:	POSITION:
ITEM #:	1253	BUSINESS: NEON NIGHTSCAPES	PHONE: 6024700201
CATCHMENT:	SR39	ADDRESS: 4219 S 36TH PL	PHOENIX AZ 850401809
SIC:	3993	CONTACT: JOHN PERRY	POSITION:
ITEM #:	1252	BUSINESS: SOUTHWEST AMBULANCE SERVICE	PHONE: 6024371431
CATCHMENT:	SR39	ADDRESS: 3933 E LA SALLE ST	PHOENIX AZ 850403996
SIC:	4119	CONTACT:	POSITION:
ITEM #:	1251	BUSINESS: SOUTHWEST AMBULANCE SERVICE	PHONE: 6022678991
CATCHMENT:	SR39	ADDRESS: 5424 S 40TH ST	PHOENIX AZ 850403919
SIC:	4119	CONTACT:	POSITION:
ITEM #:	1279	BUSINESS: HARTER INDUSTRIES INC	PHONE: 6022765394
CATCHMENT:	SR39	ADDRESS: 4815 S 35TH ST	PHOENIX AZ 850402821
SIC:	3599	CONTACT:	POSITION:
ITEM #:	1249	BUSINESS: PREMIERE FREIGHT SYSTEMS INC	PHONE: 6024372117
CATCHMENT:	SR39	ADDRESS: 4840 S 40TH ST	PHOENIX AZ 850402940
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1308	BUSINESS: NRG PAK	PHONE: 6022433246
CATCHMENT:	SR39	ADDRESS: 4230 S 37TH ST	PHOENIX AZ 850401814
SIC:	3433	CONTACT:	POSITION:
ITEM #:	1278	BUSINESS: KEYSTONE MACHINE CO	PHONE: 6022680510
CATCHMENT:	SR39	ADDRESS: 3000 E CHAMBERS ST	PHOENIX AZ 850403728
SIC:	3599	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1247	BUSINESS: ABC MOVING INC	PHONE: 6022547181
CATCHMENT:	SR39	ADDRESS: 3326 E WIER AVE	PHOENIX AZ 850402860
SIC:	4214	CONTACT:	POSITION:
ITEM #:	1246	BUSINESS: RELIABLE WEST MOVING & STORAGE	PHONE: 6022686800
CATCHMENT:	SR39	ADDRESS: 3324 E ATLANTA AVE	PHOENIX AZ 850402848
SIC:	4214	CONTACT: AL ABRAMS	POSITION:
ITEM #:	1277	BUSINESS: LANDMARK TOOL & GAGE	PHONE: 6024370408
CATCHMENT:	SR39	ADDRESS: 5424 S 39TH ST # 1	PHOENIX AZ 850403986
SIC:	3599	CONTACT: LINDA TICE	POSITION:
ITEM #:	1243	BUSINESS: SOUTHWEST DELIVERY SERVICE	PHONE: 6022430075
CATCHMENT:	SR39	ADDRESS: 3535 E WIER AVE STE 2	PHOENIX AZ 850402862
SIC:	4215	CONTACT: WOODY MATTHEWS	POSITION:
ITEM #:	1270	BUSINESS: KEYSTONE	PHONE: 6024374944
CATCHMENT:	SR39	ADDRESS: 5245 S 39TH ST	PHOENIX AZ 850409008
SIC:	3671	CONTACT: JOHN LAKE	POSITION:
ITEM #:	1237	BUSINESS: PROGRESSIVE DELIVERY SERVICE	PHONE: 6024378025
CATCHMENT:	SR39	ADDRESS: 3837 E WIER AVE STE 3	PHOENIX AZ 850402949
SIC:	4513	CONTACT:	POSITION:
ITEM #:	1240	BUSINESS: AIR EXPRESS	PHONE: 6022433163
CATCHMENT:	SR39	ADDRESS: 4840 S 40TH ST	PHOENIX AZ 850402940
SIC:	4513	CONTACT:	POSITION:
ITEM #:	1238	BUSINESS: PHX PRESS	PHONE: 6024378411
CATCHMENT:	SR39	ADDRESS: 4213 S 36TH PL	PHOENIX AZ 850401809
SIC:	4513	CONTACT:	POSITION:
ITEM #:	1236	BUSINESS: TEAM AIR FREIGHT	PHONE: 6022681145
CATCHMENT:	SR39	ADDRESS: 3228 E CORONA AVE	PHOENIX AZ 850402836
SIC:	4513	CONTACT:	POSITION:
ITEM #:	1230	BUSINESS: PILOT AIR FREIGHT	PHONE: 6024379799
CATCHMENT:	SR39	ADDRESS: 3801 E ROESER RD STE 8	PHOENIX AZ 850409052
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1235	BUSINESS: BELLAIR EXPEDITING SERVICE	PHONE: 6024378361
CATCHMENT:	SR39	ADDRESS: 4213 S 36TH PL	PHOENIX AZ 850401809
SIC:	4581	CONTACT: WALTER DILLING	POSITION:
ITEM #:	1233	BUSINESS: EXPEDITORS INTERNATIONAL	PHONE: 6024378877
CATCHMENT:	SR39	ADDRESS: 3837 E WIER AVE STE 7	PHOENIX AZ 850402949
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1314	BUSINESS: PIPING ALLOYS INC	PHONE: 6022768800
CATCHMENT:	SR39	ADDRESS: 3301 E CORONA AVE	PHOENIX AZ 850402837
SIC:	3325	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1311	BUSINESS: BERNIE'S BRASS INC	PHONE: 6024373727
CATCHMENT:	SR39	ADDRESS: 3818 E LA SALLE ST STE 1	PHOENIX AZ 850409000
SIC:	3432	CONTACT:	POSITION:
ITEM #:	1313	BUSINESS: FASTENING SYSTEMS INC	PHONE: 6024372853
CATCHMENT:	SR39	ADDRESS: 3837 E WIER AVE STE 8	PHOENIX AZ 850402949
SIC:	3399	CONTACT:	POSITION:
ITEM #:	1312	BUSINESS: AMERICAN CHINA INC	PHONE: 6024701005
CATCHMENT:	SR39	ADDRESS: 3618 E LA SALLE ST	PHOENIX AZ 850403974
SIC:	3431	CONTACT:	POSITION:
ITEM #:	1309	BUSINESS: CONSOLIDATED ENERGY SYSTEMS	PHONE: 6024370066
CATCHMENT:	SR39	ADDRESS: 4230 S 37TH ST	PHOENIX AZ 850401814
SIC:	3433	CONTACT:	POSITION:
ITEM #:	318	BUSINESS: JVT DATACOM	PHONE: 6024700026
CATCHMENT:	SR40	ADDRESS: 3021 S 35TH ST STE 1	PHOENIX AZ 850347236
SIC:	2032	CONTACT:	POSITION:
ITEM #:	1248	BUSINESS: WILL JAMES' MOBILE TRANSPORT	PHONE: 6024372110
CATCHMENT:	SR40	ADDRESS: 3428 E ELWOOD ST	PHOENIX AZ 850401626
SIC:	4213	CONTACT: WILLIAM JAMES	POSITION:
ITEM #:	254	BUSINESS: LMA ASSOCIATES INC	PHONE: 6024370133
CATCHMENT:	SR42	ADDRESS: 3912 E MIAMI AVE	PHOENIX AZ 850401637
SIC:	1542	CONTACT: KEN LUFKIN	POSITION:
ITEM #:	206	BUSINESS: DEAN MANUFACTURING INC	PHONE: 6024370904
CATCHMENT:	SR42	ADDRESS: 3912 E MIAMI AVE	PHOENIX AZ 850401637
SIC:	3312	CONTACT:	POSITION:
ITEM #:	1300	BUSINESS: SCRIP MFG	PHONE: 6024378808
CATCHMENT:	SR42	ADDRESS: 3702 E MIAMI AVE	PHOENIX AZ 850401633
SIC:	3498	CONTACT:	POSITION:
ITEM #:	1400	BUSINESS: QUALITY BLOCK CO INC	PHONE: 6022697691
CATCHMENT:	SR42	ADDRESS: 3035 S 35TH AVE	PHOENIX AZ 850411092
SIC:	7521	CONTACT: CLUM HELLMMAN	POSITION:
ITEM #:	264	BUSINESS: HENDERSON CONSTRUCTION CO INC	PHONE: 6024378696
CATCHMENT:	SR45	ADDRESS: 4240 E ELWOOD ST	PHOENIX AZ 850401975
SIC:	1521	CONTACT: TERRY HENDERSON	POSITION:
ITEM #:	225	BUSINESS: PLEXICO	PHONE: 6029660090
CATCHMENT:	SR45	ADDRESS: 4630 E ELWOOD ST STE 10	PHOENIX AZ 850401962
SIC:	2822	CONTACT:	POSITION:
ITEM #:	258	BUSINESS: YATES CONSTRUCTION	PHONE: 6024378186
CATCHMENT:	SR45	ADDRESS: 4202 E ELWOOD ST	PHOENIX AZ 850401953
SIC:	1521	CONTACT: PAUL YATES	POSITION:

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ITEM #:	263	BUSINESS: MG C CONTRACTORS INC	PHONE: 6024375000
CATCHMENT:	SR45	ADDRESS: 4110 E ELWOOD ST	PHOENIX AZ 850401922
SIC:	1521	CONTACT:	POSITION:
ITEM #:	262	BUSINESS: NAVAHAWK	PHONE: 6029671216
CATCHMENT:	SR45	ADDRESS: 4636 E ELWOOD ST STE 9	PHOENIX AZ 850401963
SIC:	1521	CONTACT:	POSITION:
ITEM #:	207	BUSINESS: D'AGNOLO MARBLE & GRANITE SYST	PHONE: 6024372735
CATCHMENT:	SR45	ADDRESS: 4256 E ELWOOD ST	PHOENIX AZ 850401924
SIC:	3281	CONTACT:	POSITION:
ITEM #:	1234	BUSINESS: CIRCLE FREIGHT INTERNATIONAL	PHONE: 6029669799
CATCHMENT:	SR45	ADDRESS: 4620 E ELWOOD ST STE 5	PHOENIX AZ 850401961
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1232	BUSINESS: INTERTRANS CORP	PHONE: 6024375611
CATCHMENT:	SR45	ADDRESS: 4202 E ELWOOD ST STE 19	PHOENIX AZ 850401955
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1229	BUSINESS: RADIX GROUP INTERNATIONAL INC	PHONE: 6024372920
CATCHMENT:	SR45	ADDRESS: 4202 E ELWOOD ST STE 200	PHOENIX AZ 850401953
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1239	BUSINESS: AIR EXPRESS INTERNATIONAL CORP	PHONE: 6029680333
CATCHMENT:	SR45	ADDRESS: 3414 S 48TH ST STE 6	PHOENIX AZ 850401937
SIC:	4513	CONTACT:	POSITION:
ITEM #:	1259	BUSINESS: SIEMENS	PHONE: 6028941212
CATCHMENT:	SR45	ADDRESS: 4620 E ELWOOD ST STE 10	PHOENIX AZ 850401961
SIC:	3844	CONTACT:	POSITION:
ITEM #:	1280	BUSINESS: FARR COMPANY	PHONE: 6024373030
CATCHMENT:	SR45	ADDRESS: 4202 E ELWOOD ST STE 16	PHOENIX AZ 850401955
SIC:	3599	CONTACT:	POSITION:
ITEM #:	1269	BUSINESS: TULON INC	PHONE: 6029215447
CATCHMENT:	SR45	ADDRESS: 4620 E ELWOOD ST STE 4	PHOENIX AZ 850401961
SIC:	3672	CONTACT:	POSITION:
ITEM #:	1268	BUSINESS: FUJITSU BUSINESS COMMUNICATION	PHONE: 6029215900
CATCHMENT:	SR45	ADDRESS: 4605 E ELWOOD ST	PHOENIX AZ 850401976
SIC:	3674	CONTACT:	POSITION:
ITEM #:	1304	BUSINESS: DORMONT MANUFACTURING CO	PHONE: 6029687076
CATCHMENT:	SR45	ADDRESS: 4602 E ELWOOD ST STE 7	PHOENIX AZ 850401960
SIC:	3449	CONTACT:	POSITION:
ITEM #:	1266	BUSINESS: TELEPHONE EQUIPMENT REPAIR SVC	PHONE: 6029214650
CATCHMENT:	SR45	ADDRESS: 4605 E ELWOOD ST	PHOENIX AZ 850401958
SIC:	3674	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1265	BUSINESS: R D C ELECTRICAL CORP	PHONE: 6024370760
CATCHMENT:	SR45	ADDRESS: 4256 E ELWOOD ST	PHOENIX AZ 850401924
SIC:	3699	CONTACT:	POSITION:
ITEM #:	1244	BUSINESS: REST ASSURED FINE FURNITURE	PHONE: 6029290465
CATCHMENT:	SR45	ADDRESS: 4602 E ELWOOD ST STE 11	PHOENIX AZ 850401960
SIC:	4215	CONTACT:	POSITION:
ITEM #:	1307	BUSINESS: POWERS STEEL & WIRE PRODUCTS	PHONE: 6024371160
CATCHMENT:	SR45	ADDRESS: 4118 E ELWOOD ST	PHOENIX AZ 850401922
SIC:	3441	CONTACT:	POSITION:
ITEM #:	1258	BUSINESS: SPECTRA PHYSICS	PHONE: 6024370410
CATCHMENT:	SR45	ADDRESS: 4202 E ELWOOD ST STE 1	PHOENIX AZ 850401954
SIC:	3845	CONTACT:	POSITION:
ITEM #:	1241	BUSINESS: KUEHNE & NAGEL	PHONE: 6024378108
CATCHMENT:	SR45	ADDRESS: 4202 E ELWOOD ST STE 23	PHOENIX AZ 850401955
SIC:	4512	CONTACT:	POSITION:
ITEM #:	1262	BUSINESS: SOUTHERN TRUCK EQUIPMENT INC	PHONE: 6024371145
CATCHMENT:	SR45	ADDRESS: 4102 E ELWOOD ST	PHOENIX AZ 850401922
SIC:	3713	CONTACT:	POSITION:
ITEM #:	1310	BUSINESS: FIVE STAR FIXTURES	PHONE: 6024378223
CATCHMENT:	SR45	ADDRESS: 4240 E ELWOOD ST	PHOENIX AZ 850401924
SIC:	3432	CONTACT: DOUG BAILEY	POSITION:
ITEM #:	1078	BUSINESS: CAPTAIN FREIGHT	PHONE: 6022330062
CATCHMENT:	SR49	ADDRESS: 6045 W WASHINGTON ST	PHOENIX AZ 850433526
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1091	BUSINESS: OJC TRANSFER & DELIVERY SERVIC	PHONE: 6022692742
CATCHMENT:	SR49	ADDRESS: 3 S 59TH AVE	PHOENIX AZ 850433530
SIC:	4215	CONTACT:	POSITION:
ITEM #:	1092	BUSINESS: SWIFT TRANSPORTATION CO INC	PHONE: 6022780333
CATCHMENT:	SR49	ADDRESS: 5601 W MOHAVE ST	PHOENIX AZ 850439602
SIC:	4214	CONTACT: JERRY MOYES	POSITION:
ITEM #:	1093	BUSINESS: HI-TECH CARGO	PHONE: 6022339633
CATCHMENT:	SR49	ADDRESS: 118 N 57TH DR STE 1	PHOENIX AZ 850433626
SIC:	4214	CONTACT:	POSITION:
ITEM #:	1076	BUSINESS: SCHAYER CHARLES M & CO	PHONE: 6022333855
CATCHMENT:	SR49	ADDRESS: 802 S 56TH AVE	PHOENIX AZ 850434615
SIC:	4731	CONTACT:	POSITION:
ITEM #:	1075	BUSINESS: LANGSTON COMPANIES INC	PHONE: 6022780588
CATCHMENT:	SR49	ADDRESS: 414 S 59TH AVE	PHOENIX AZ 850434503
SIC:	4783	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1094	BUSINESS: ALL SERVICE MOVING INC	PHONE: 6022786110
CATCHMENT:	SR49	ADDRESS: 211 S 57TH DR	PHOENIX AZ 850433635
SIC:	4214	CONTACT:	POSITION:
ITEM #:	1079	BUSINESS: I-10 STORAGE SOLUTIONS	PHONE: 6022339311
CATCHMENT:	SR49	ADDRESS: 1239 N 54TH AVE	PHOENIX AZ 850431780
SIC:	4226	CONTACT:	POSITION:
ITEM #:	1080	BUSINESS: TOTAL WAREHOUSING INC	PHONE: 6022693459
CATCHMENT:	SR49	ADDRESS: 5601 W BUCKEYE RD	PHOENIX AZ 850434603
SIC:	4225	CONTACT: RANDY KNIGHT	POSITION:
ITEM #:	1101	BUSINESS: ROADRUNNER TRUCKING INC	PHONE: 6022541154
CATCHMENT:	SR49	ADDRESS: 6520 W BUCKEYE RD	PHOENIX AZ 850434412
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1102	BUSINESS: R & R TRUCKING BY RATLIFF	PHONE: 6022720481
CATCHMENT:	SR49	ADDRESS: 5724 W BUCKEYE RD	PHOENIX AZ 850434604
SIC:	4213	CONTACT: JOE GAIO	POSITION:
ITEM #:	1103	BUSINESS: PARAMOUNT TRANSPORT INC	PHONE: 6022339433
CATCHMENT:	SR49	ADDRESS: 1649 S 59TH AVE # 1	PHOENIX AZ 850437903
SIC:	4213	CONTACT: PAUL HIGGADY	POSITION:
ITEM #:	1104	BUSINESS: PACER TRUCK LINES	PHONE: 6024849080
CATCHMENT:	SR49	ADDRESS: 1649 S 59TH AVE # 1	PHOENIX AZ 850437903
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1105	BUSINESS: KNIGHT TRANSPORTATION INC	PHONE: 6022692000
CATCHMENT:	SR49	ADDRESS: 5601 W BUCKEYE RD	PHOENIX AZ 850434603
SIC:	4213	CONTACT: KEVIN RKNIGHT	POSITION:
ITEM #:	1106	BUSINESS: HORNISH & SON TRUCKING	PHONE: 6022696811
CATCHMENT:	SR49	ADDRESS: 1649 S 59TH AVE	PHOENIX AZ 850437903
SIC:	4213	CONTACT: SCOTT NANCE	POSITION:
ITEM #:	1088	BUSINESS: SOUTHWEST COLD STORAGE	PHONE: 6022333296
CATCHMENT:	SR49	ADDRESS: 1 N 59TH AVE	PHOENIX AZ 850433500
SIC:	4222	CONTACT: L E DERRICOTT	POSITION:
ITEM #:	1099	BUSINESS: SWIFT TRANSPORTATION CO INC	PHONE: 6022699700
CATCHMENT:	SR49	ADDRESS: 5602 W MOHAVE ST	PHOENIX AZ 85043
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1109	BUSINESS: G I TRUCKING	PHONE: 6022726666
CATCHMENT:	SR49	ADDRESS: 5939 W WASHINGTON ST	PHOENIX AZ 850433524
SIC:	4213	CONTACT: TERRY SCHUPP	POSITION:
ITEM #:	1120	BUSINESS: MCNABB TRUCKING CO	PHONE: 6022726163
CATCHMENT:	SR49	ADDRESS: 845 S 59TH AVE	PHOENIX AZ 850434512
SIC:	4212	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1130	BUSINESS: EECO INCORPORATED FACSIMILE	PHONE: 6022782417
CATCHMENT:	SR49	ADDRESS: 5436 W LATHAM ST	PHOENIX AZ 850431798
SIC:	3679	CONTACT:	POSITION:
ITEM #:	1122	BUSINESS: COMPLETE LEASING CONCEPTS	PHONE: 6022330300
CATCHMENT:	SR49	ADDRESS: 5707 W BUCKEYE RD	PHOENIX AZ 850434605
SIC:	4212	CONTACT:	POSITION:
ITEM #:	1131	BUSINESS: UNI-TEK	PHONE: 6022722601
CATCHMENT:	SR49	ADDRESS: 1030 N 53RD AVE	PHOENIX AZ 850431741
SIC:	3599	CONTACT:	POSITION:
ITEM #:	1119	BUSINESS: PACIFIC COAST WAREHOUSE	PHONE: 6022330941
CATCHMENT:	SR49	ADDRESS: 5707 W BUCKEYE RD	PHOENIX AZ 850434605
SIC:	4212	CONTACT:	POSITION:
ITEM #:	1123	BUSINESS: CALZONA TANKWAYS INC	PHONE: 6022726829
CATCHMENT:	SR49	ADDRESS: 842 S 59TH AVE	PHOENIX AZ 850434511
SIC:	212	CONTACT:	POSITION:
ITEM #:	1139	BUSINESS: CLASSIC FENCE COMPANY	PHONE: 6022332367
CATCHMENT:	SR49	ADDRESS: 1611 S 59TH AVE # B	PHOENIX AZ 850437903
SIC:	3496	CONTACT:	POSITION:
ITEM #:	1133	BUSINESS: SOUTHWEST MACHINING ENGINEERIN	PHONE: 6029365833
CATCHMENT:	SR49	ADDRESS: 6316 W VAN BUREN ST	PHOENIX AZ 850435001
SIC:	3599	CONTACT:	POSITION:
ITEM #:	1112	BUSINESS: CRANE & HAYES TRUCKING CO	PHONE: 6029361574
CATCHMENT:	SR49	ADDRESS: 440 S 67TH AVE	PHOENIX AZ 850434400
SIC:	4213	CONTACT: ERNIE HAYES	POSITION:
ITEM #:	1116	BUSINESS: RELIABLE FREIGHT SYSTEMS	PHONE: 6023521360
CATCHMENT:	SR49	ADDRESS: 224 N 59TH AVE	PHOENIX AZ 850433505
SIC:	4212	CONTACT:	POSITION:
ITEM #:	1208	BUSINESS: SINCO CONSTRUCTION CORP	PHONE: 6022459111
CATCHMENT:	SR49	ADDRESS: 6323 W VAN BUREN ST	PHOENIX AZ 850435098
SIC:	1521	CONTACT: BOB SING	POSITION:
ITEM #:	1118	BUSINESS: PP & G INC	PHONE: 6022690870
CATCHMENT:	SR49	ADDRESS: 120 N 57TH DR STE 1	PHOENIX AZ 850433627
SIC:	212	CONTACT:	POSITION:
ITEM #:	1124	BUSINESS: BERGMAN TRANSPORT INC	PHONE: 6022787908
CATCHMENT:	SR49	ADDRESS: 122 N 55TH AVE	PHOENIX AZ 850433611
SIC:	4212	CONTACT:	POSITION:
ITEM #:	1143	BUSINESS: ANOCAD PLATING & PAINTING	PHONE: 6022727131
CATCHMENT:	SR49	ADDRESS: 6033 W SHERMAN ST	PHOENIX AZ 850433514
SIC:	3471	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1114	BUSINESS: AMERICAN FREIGHT SPECIALISTS	PHONE: 6022720334
CATCHMENT:	SR49	ADDRESS: 5701 W LATHAM ST	PHOENIX AZ 850431618
SIC:	4213	CONTACT: MIKE RUGGIERI	POSITION:
ITEM #:	1115	BUSINESS: STEERE TANK LINES INC	PHONE: 6022531900
CATCHMENT:	SR49	ADDRESS: 831 S 59TH AVE	PHOENIX AZ 850434512
SIC:	212	CONTACT:	POSITION:
ITEM #:	1205	BUSINESS: NIELSEN FLOYD CONTRACTORS INC	PHONE: 6022695727
CATCHMENT:	SR49	ADDRESS: 1549 S 59TH AVE	PHOENIX AZ 850437907
SIC:	1522	CONTACT: MERL NIELSEN	POSITION:
ITEM #:	1136	BUSINESS: G & S PARTS & SERVICE	PHONE: 6022698222
CATCHMENT:	SR49	ADDRESS: 1201 N 54TH AVE STE 114	PHOENIX AZ 850431745
SIC:	3537	CONTACT: GEORGE ESHINER	POSITION:
ITEM #:	1212	BUSINESS: MCDAVID CONSTRUCTION INC	PHONE: 6029366687
CATCHMENT:	SR49	ADDRESS: 6509 W MCKINLEY ST	PHOENIX AZ 850432414
SIC:	1521	CONTACT: CATHY J MCDAVID	POSITION:
ITEM #:	1204	BUSINESS: COUNTRY VILLAGE SALES OFFICE	PHONE: 6029364150
CATCHMENT:	SR49	ADDRESS: 6641 W YUMA RD	PHOENIX AZ 850431430
SIC:	1541	CONTACT:	POSITION:
ITEM #:	1137	BUSINESS: TIGER INDUSTRIES INC	PHONE: 6022332278
CATCHMENT:	SR49	ADDRESS: 1617 S 59TH AVE	PHOENIX AZ 850437903
SIC:	3499	CONTACT: BARRY JONES	POSITION:
ITEM #:	1110	BUSINESS: FFE TRANSPORTATION SERVICES	PHONE: 6022788108
CATCHMENT:	SR49	ADDRESS: 1649 S 59TH AVE # 5	PHOENIX AZ 850437903
SIC:	4213	CONTACT:	POSITION:
ITEM #:	1167	BUSINESS: CALJET INC	PHONE: 6022725521
CATCHMENT:	SR49	ADDRESS: 125 N 53RD AVE	PHOENIX AZ 850433700
SIC:	2911	CONTACT:	POSITION:
ITEM #:	1127	BUSINESS: MODULAR TECHNOLOGY	PHONE: 6022722000
CATCHMENT:	SR49	ADDRESS: 5635 W VAN BUREN ST	PHOENIX AZ 850433601
SIC:	3999	CONTACT: MIKE MORTON	POSITION:
ITEM #:	1199	BUSINESS: BG CONST TRLR	PHONE: 6022699772
CATCHMENT:	SR49	ADDRESS: 1002 S 54TH AVE	PHOENIX AZ 850434740
SIC:	1623	CONTACT:	POSITION:
ITEM #:	1198	BUSINESS: WESTCO PRODUCTS	PHONE: 6022720444
CATCHMENT:	SR49	ADDRESS: 5720 W JEFFERSON ST	PHOENIX AZ 850433633
SIC:	2041	CONTACT:	POSITION:
ITEM #:	1197	BUSINESS: CABLE LOUNGE	PHONE: 6029364251
CATCHMENT:	SR49	ADDRESS: 6548 W VAN BUREN ST	PHOENIX AZ 850435019
SIC:	2221	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1196	BUSINESS: EPICMPRESSIONS	PHONE: 6022786161
CATCHMENT:	SR49	ADDRESS: 121 N 57TH DR	PHOENIX AZ 850433620
SIC:	2262	CONTACT:	POSITION:
ITEM #:	1147	BUSINESS: COMMERCIAL ACCOUSTICS	PHONE: 6022332322
CATCHMENT:	SR49	ADDRESS: 5960 W WASHINGTON ST	PHOENIX AZ 850433523
SIC:	3444	CONTACT:	POSITION:
ITEM #:	1146	BUSINESS: METAL FORM MANUFACTURING CO	PHONE: 6022331211
CATCHMENT:	SR49	ADDRESS: 5960 W WASHINGTON ST	PHOENIX AZ 850433523
SIC:	3444	CONTACT:	POSITION:
ITEM #:	1184	BUSINESS: DIXON PAPER COMPANY	PHONE: 6022695711
CATCHMENT:	SR49	ADDRESS: 5320 W BUCKEYE RD # 1	PHOENIX AZ 850434722
SIC:	2621	CONTACT:	POSITION:
ITEM #:	1194	BUSINESS: SHARON STAIR SYSTEMS	PHONE: 6022331697
CATCHMENT:	SR49	ADDRESS: 6029 W WASHINGTON ST	PHOENIX AZ 850433526
SIC:	2431	CONTACT:	POSITION:
ITEM #:	1154	BUSINESS: PACKAGING SPECIALISTS INC	PHONE: 6022695000
CATCHMENT:	SR49	ADDRESS: 602 S 54TH AVE	PHOENIX AZ 850434731
SIC:	3089	CONTACT:	POSITION:
ITEM #:	1148	BUSINESS: SUN VALLEY DOOR & SUPPLY INC	PHONE: 6022692615
CATCHMENT:	SR49	ADDRESS: 101 N 57TH AVE	PHOENIX AZ 850433641
SIC:	3442	CONTACT:	POSITION:
ITEM #:	1182	BUSINESS: PAPER DISTRIBUTORS OF ARIZONA	PHONE: 6022695053
CATCHMENT:	SR49	ADDRESS: 616 S 55TH AVE	PHOENIX AZ 850434619
SIC:	2621	CONTACT:	POSITION:
ITEM #:	1190	BUSINESS: MADERA COMPONENT SYSTEMS	PHONE: 6022451001
CATCHMENT:	SR49	ADDRESS: 6323 W VAN BUREN ST	PHOENIX AZ 850435098
SIC:	2439	CONTACT: BOB SING	POSITION:
ITEM #:	1180	BUSINESS: UNISOURCE	PHONE: 6022783411
CATCHMENT:	SR49	ADDRESS: 601 S 55TH AVE	PHOENIX AZ 850434618
SIC:	2621	CONTACT:	POSITION:
ITEM #:	1188	BUSINESS: INSULATED SHIPPING CONTAINERS	PHONE: 6024849745
CATCHMENT:	SR49	ADDRESS: 5240 W BUCKEYE RD	PHOENIX AZ 850434720
SIC:	2448	CONTACT:	POSITION:
ITEM #:	1179	BUSINESS: PHOENIX SANITARY SUPPLY CO	PHONE: 6022332332
CATCHMENT:	SR49	ADDRESS: 5746 W JEFFERSON ST	PHOENIX AZ 850433633
SIC:	2647	CONTACT:	POSITION:
ITEM #:	1111	BUSINESS: DIGBY SOUTHWEST	PHONE: 6024849422
CATCHMENT:	SR49	ADDRESS: 6021 W SHERMAN ST	PHOENIX AZ 850433514
SIC:	4213	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #: 1178	BUSINESS: ALL INK	PHONE: 6022330133
CATCHMENT: SR49	ADDRESS: 1201 N 54TH AVE STE 123	PHOENIX AZ 850431775
SIC: 2741	CONTACT:	POSITION:
ITEM #: 1151	BUSINESS: FLEXI-ROCK INCORPORATED	PHONE: 6022331080
CATCHMENT: SR49	ADDRESS: 5701 W LATHAM ST	PHOENIX AZ 850431618
SIC: 3299	CONTACT:	POSITION:
ITEM #: 1155	BUSINESS: MAIDWARE PRODUCTS OF PHOENIX	PHONE: 6029361161
CATCHMENT: SR49	ADDRESS: 425 S 67TH AVE	PHOENIX AZ 850434402
SIC: 3089	CONTACT:	POSITION:
ITEM #: 1149	BUSINESS: STEINER FABRICATION INC	PHONE: 6022698788
CATCHMENT: SR49	ADDRESS: 6215 W VAN BUREN ST	PHOENIX AZ 850433522
SIC: 3365	CONTACT:	POSITION:
ITEM #: 1187	BUSINESS: TOWERS WOOD INDUSTRY	PHONE: 6022787180
CATCHMENT: SR49	ADDRESS: 811 S 59TH AVE	PHOENIX AZ 850434512
SIC: 2448	CONTACT:	POSITION:
ITEM #: 1150	BUSINESS: SILVER SYSTEMS INC	PHONE: 6023521911
CATCHMENT: SR49	ADDRESS: 3 S 57TH DR	PHOENIX AZ 850433622
SIC: 3339	CONTACT: MRS M BYNUM	POSITION:
ITEM #: 1193	BUSINESS: BILTWEL CABINETS INC	PHONE: 6022782220
CATCHMENT: SR49	ADDRESS: 27 N 57TH DR # 3	PHOENIX AZ 850433618
SIC: 2434	CONTACT: JERRY R LADUE	POSITION:
ITEM #: 1189	BUSINESS: MORAN & SONS LUMBER COMPANY	PHONE: 6022523216
CATCHMENT: SR49	ADDRESS: 1551 S 59TH AVE	PHOENIX AZ 850437907
SIC: 2441	CONTACT: BERNARD MORAN	POSITION:
ITEM #: 1176	BUSINESS: PENNY PUBLICATIONS	PHONE: 6022787996
CATCHMENT: SR49	ADDRESS: 5609 W LATHAM ST STE 104	PHOENIX AZ 850431600
SIC: 2741	CONTACT:	POSITION:
ITEM #: 1156	BUSINESS: JAREEN COMPANY INC	PHONE: 6024840950
CATCHMENT: SR49	ADDRESS: 5301 W MOHAVE ST	PHOENIX AZ 850438036
SIC: 3089	CONTACT:	POSITION:
ITEM #: 1157	BUSINESS: DESERT EXTRUSION CORP	PHONE: 6022785411
CATCHMENT: SR49	ADDRESS: 5743 W WASHINGTON ST	PHOENIX AZ 850433648
SIC: 3089	CONTACT:	POSITION:
ITEM #: 1159	BUSINESS: CREATIVE IMAGES	PHONE: 6022699391
CATCHMENT: SR49	ADDRESS: 6025 W MONROE ST	PHOENIX AZ 850433513
SIC: 3089	CONTACT: MR LEONARD LIFF	POSITION:
ITEM #: 1161	BUSINESS: PLASKOLITE WEST INC	PHONE: 6022332255
CATCHMENT: SR49	ADDRESS: 601 S 54TH AVE # 104	PHOENIX AZ 850434732
SIC: 3081	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

ITEM #:	1202	BUSINESS: ASPHALT BUSTERS	PHONE: 6022788988
CATCHMENT:	SR49	ADDRESS: 805 S 59TH AVE	PHOENIX AZ 850434512
SIC:	1611	CONTACT: RICHARD L FOX	POSITION:
ITEM #:	1163	BUSINESS: KING BEARING INC	PHONE: 6022729002
CATCHMENT:	SR49	ADDRESS: 1201 N 54TH AVE STE 107	PHOENIX AZ 850431745
SIC:	3052	CONTACT:	POSITION:
ITEM #:	1164	BUSINESS: COMPETITION COMPONENTS	PHONE: 6022331218
CATCHMENT:	SR49	ADDRESS: 5819 W BUCKEYE RD	PHOENIX AZ 850434607
SIC:	3011	CONTACT: JACK RICH	POSITION:
ITEM #:	1201	BUSINESS: MODERN PAVING CO	PHONE: 6022787647
CATCHMENT:	SR49	ADDRESS: 805 S 59TH AVE	PHOENIX AZ 850434512
SIC:	1611	CONTACT:	POSITION:
ITEM #:	1121	BUSINESS: INDEPENDENT FREIGHTWAY INC	PHONE: 6022727618
CATCHMENT:	SR49	ADDRESS: 1649 S 59TH AVE # 1	PHOENIX AZ 850437903
SIC:	212	CONTACT: PAUL HEGARTY	POSITION:
ITEM #:	552	BUSINESS: CLEARSTONE PRODUCTS	PHONE: 6022536390
CATCHMENT:	SW01	ADDRESS: 2819 W LOUISE DR	PHOENIX AZ 850271720
SIC:	1521	CONTACT:	POSITION:

* INDUSTRIES WITHOUT CATCHMENT ID FALL OUTSIDE OF ALL CATCHMENTS DELINEATED WITHIN GEOGRAPHIC DATABASE

APPENDIX 3 - LANDFILLS
CITY OF PHOENIX NPDES PART II

Woodward-Clyde Consultants

IDENTIFIER: C10601	STATUS: OPEN	
FACILITY NAME:	SKUNK CREEK LANDFILL	
FACILITY LOCATION:	1 MILE WEST OF I-17 ON HAPPY VALLEY RD.	
OPERATOR:	CITY OF PHOENIX	
OPERATOR ADDRESS:	1724 E. INDIAN SCHOOL RDPHOENIX	AZ 85016
LAND OWNER:	SAME AS ABOVE	
LAND OWNER ADDRESS:		

IDENTIFIER: C11502	STATUS: OPEN	
FACILITY NAME:	27TH AVENUE LANDFILL	
FACILITY LOCATION:	SW CORNER OF 27TH AVE & LOWER BUCKEYE RD	
OPERATOR:	CITY OF PHOENIX	
OPERATOR ADDRESS:	1724 E INDIAN SCHOOL RDPHOENIX	AZ 85016
LAND OWNER:	SAME AS ABOVE	
LAND OWNER ADDRESS:		

IDENTIFIER: C10703	STATUS: OPEN	
FACILITY NAME:	DEER VALLEY LANDFILL	
FACILITY LOCATION:	SW CORNER 16TH ST & HAPPY VALLEY RD	
OPERATOR:	SANIFILL OF AZ	
OPERATOR ADDRESS:	PO BOX 9129PHOENIX	AZ 85068
LAND OWNER:	AZ STATE LAND DEPT	
LAND OWNER ADDRESS:	1624 W ADAMSPHOENIX	AZ 85007

IDENTIFIER: C11604	STATUS: OPEN	
FACILITY NAME:	BRADLEY LANDFILL	
FACILITY LOCATION:	N SIDE OF MAGNOLIA .25 MILES E OF 40TH ST	
OPERATOR:	JOHN BRADLEY INVESTMENT	
OPERATOR ADDRESS:	2425 S 40TH STPHOENIX	AZ 85036
LAND OWNER:	JOHN BRADLEY	
LAND OWNER ADDRESS:	SAME AS ABOVE	

IDENTIFIER: C11504	STATUS: CLOSED	
FACILITY NAME:	CENTRAL AVE LANDFILL	
FACILITY LOCATION:	.25 MILES S OF I-10 ON CENTRAL AVE	
OPERATOR:	UNION ROCK & MATERIALS	
OPERATOR ADDRESS:	PO BOX 8007PHOENIX	AZ 85066
LAND OWNER:	SAME AS ABOVE	
LAND OWNER ADDRESS:		

APPENDIX 3 - LANDFILLS
CITY OF PHOENIX NPDES PART II

Woodward-Clyde Consultants

IDENTIFIER: C11464 STATUS: OPEN
FACILITY NAME: WEINBERGER
FACILITY LOCATION: .5 MILES S OF LOWER BUCKEYE RD ON 39TH AVE
OPERATOR: GLENN WEINBERGER
OPERATOR ADDRESS: 3410 S 39TH AVE RR5PHOENIX AZ 85009
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11507 STATUS: CLOSED
FACILITY NAME: 16TH ST (DEL RIO)
FACILITY LOCATION: 1 MILE S OF I-10 ON 16TH ST
OPERATOR: CITY OF PHOENIX
OPERATOR ADDRESS: 251 W WASHINGTONPHOENIX AZ 85004
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11508 STATUS: CLOSED
FACILITY NAME: 19TH AVE
FACILITY LOCATION: 1 MILE S OF I-10, E SIDE OF 19TH AVE
OPERATOR: CITY OF PHOENIX
OPERATOR ADDRESS: 251 W WASHINGTONPHOENIX AZ 85004
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11410 STATUS: CLOSED
FACILITY NAME: 59TH AVE
FACILITY LOCATION: 59TH AVE & SOUTHERN AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: KENSINGTON WEST CORP.
LAND OWNER ADDRESS: PO BOX 996NOVI MI 48050

IDENTIFIER: C11511 STATUS: CLOSED
FACILITY NAME: 7TH STREET
FACILITY LOCATION: 7TH ST & SALT RIVER
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: CITY OF PHOENIX
LAND OWNER ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004

APPENDIX 3 - LANDFILLS
CITY OF PHOENIX NPDES PART II

Woodward-Clyde Consultants

IDENTIFIER: C11312 STATUS: CLOSED
FACILITY NAME: 91ST AVE
FACILITY LOCATION: W SIDE OF 91ST AVE OPPOSITE 91ST AVE WWT
OPERATOR: CITY OF PHOENIX
OPERATOR ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11513 STATUS: CLOSED
FACILITY NAME: AMERON
FACILITY LOCATION: W OF 12TH ST S OF WATKINS RD
OPERATOR: AMERON PIPE DIVISION
OPERATOR ADDRESS: PO BOX 20505PHOENIX AZ 85036
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11614 STATUS: CLOSED
FACILITY NAME: ASU NO.1
FACILITY LOCATION: W SIDE SCOTTSDALE RD & S SIDE OF SALT RIVER
OPERATOR: AZ STATE UNIVERSITY
OPERATOR ADDRESS: TEMPE AZ 85287
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11615 STATUS: CLOSED
FACILITY NAME: ASU NO.2
FACILITY LOCATION: E SIDE SCOTTSDALE RD & S OF SALT RIVER
OPERATOR:
OPERATOR ADDRESS: AZ STATE UNIVERSITYTEMPE AZ 85287
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C10716 STATUS: CLOSED
FACILITY NAME: BEARDSLEY LANDFILL
FACILITY LOCATION: 7TH ST & BEARDSLEY
OPERATOR: CITY OF PHOENIX
OPERATOR ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C10717 STATUS: CLOSED
FACILITY NAME: DEER VALLEY LANDFILL
FACILITY LOCATION: S E CORNER 19TH AVE & GREENWAY RD
OPERATOR: CITY OF PHOENIX
OPERATOR ADDRESS: 251 W WASHINGTONPHOENIX AZ 85004
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11670 STATUS: CLOSED
FACILITY NAME: ESTES
FACILITY LOCATION: E SIDE 40TH ST & S OF SALT RIVER
OPERATOR: CITY OF PHOENIX
OPERATOR ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C10777 STATUS: W SIDE O
FACILITY NAME: H & H MATERIALS
FACILITY LOCATION: F CAVE CREEK WASH & N OF TIERRA BUENA
OPERATOR: JAY HAMBY, H & H MATLS
OPERATOR ADDRESS: 2362 W KATHLEEN RDPHOENIX AZ 85023
LAND OWNER: H & H MATERIALS
LAND OWNER ADDRESS: SAME AS ABOVE

IDENTIFIER: C11518 STATUS: CLOSED
FACILITY NAME: JUICE OF LIFE
FACILITY LOCATION: 5837 S 36TH
OPERATOR: MIKE NIELS
OPERATOR ADDRESS: 5837 S 36TH ST.PHOENIX AZ 85034
LAND OWNER: BETTY NEILS
LAND OWNER ADDRESS: SAME AS ABOVE

IDENTIFIER: C10619 STATUS: CLOSED
FACILITY NAME: RAINBOW ENTERPRISES
FACILITY LOCATION: .25 MILES N UNION HILLS ON 54TH DR
OPERATOR: RAINBOW ENTERPRISES
OPERATOR ADDRESS: 19052 N 54TH AVEGLENDALE AZ 85308
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11420 STATUS: CLOSED
FACILITY NAME: REED CONSTRUCTION
FACILITY LOCATION:
OPERATOR: REED CONSTRUCTION
OPERATOR ADDRESS: 4637 S WHITTONPHOENIX AZ 85031
LAND OWNER: MR. ORAN BALES
LAND OWNER ADDRESS: 12626 W ELWOODTOLLESON AZ 85353

IDENTIFIER: C11421 STATUS: CLOSED
FACILITY NAME: REYNOLDS
FACILITY LOCATION:
OPERATOR: REYNOLDS ALUMINUM CO
OPERATOR ADDRESS:
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11622 STATUS: CLOSED
FACILITY NAME: RIO SALADO #10
FACILITY LOCATION: E SIDE 27TH AVE & .25 MILES S OF LOWER BUCKEYE RD
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11623 STATUS: CLOSED
FACILITY NAME: RIO SALADO #12
FACILITY LOCATION: 33RD AVE & .5 MILES S OF LOWER BUCKEYE RD
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11424 STATUS: CLOSED
FACILITY NAME: RIO SALADO #13
FACILITY LOCATION: NE CORNER 35TH AVE & BROADWAY RD
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11425 STATUS: CLOSED
FACILITY NAME: RIO SALADO #15
FACILITY LOCATION: 51ST AVE & .5 MILES SL OF LOWER BUCKEYE RD
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11426 STATUS: CLOSED
FACILITY NAME: RIO SALADO #16
FACILITY LOCATION: 51ST AVE & .5 MILES S OF LOWER BUCKEYE RD
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11627 STATUS: CLOSED
FACILITY NAME: RIO SALADO #18
FACILITY LOCATION: SKY HARBOR BLVD .5 MILES W OF HOHOKAM EXPRESSWAY
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: CITY OF PHOENIX
LAND OWNER ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004

IDENTIFIER: C11628 STATUS: CLOSED
FACILITY NAME: RIO SALADO #19
FACILITY LOCATION: 40ST & E OF SKYHARBOR RUNWAY
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: CITY OF PHOENIX
LAND OWNER ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004

IDENTIFIER: C11629 STATUS: CLOSED
FACILITY NAME: RIO SALADO #20
FACILITY LOCATION: S BANK OF SALT RIVER & W OF 48TH ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: CITY OF PHOENIX
LAND OWNER ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004

IDENTIFIER: C11530 STATUS: CLOSED
FACILITY NAME: RIO SALADO #21
FACILITY LOCATION: HESS/WATKINS RD 1.25 MILES E OF 24TH ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: CITY OF PHOENIX
LAND OWNER ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004

IDENTIFIER: C11531 STATUS: CLOSED
FACILITY NAME: RIO SALADO #22
FACILITY LOCATION:
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11532 STATUS: CLOSED
FACILITY NAME: RIO SALADO #23
FACILITY LOCATION: .5 MILES NORTH OF BROADWAY RD ON 32ND ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11533 STATUS: CLOSED
FACILITY NAME: RIO SALADO #24
FACILITY LOCATION: 1 MILE E OF 24TH ST ON HESS/WATKINS RD
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11534 STATUS: CLOSED
FACILITY NAME: RIO SALADO #25
FACILITY LOCATION: .5 MILES E OF 24TH ST ON MAGNOLIA ST .5 MILES SOUTH
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11535 STATUS: CLOSED
FACILITY NAME: RIO SALADO #26
FACILITY LOCATION: NE CORNER OF 24TH ST ON RAYMOND ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11538 STATUS: CLOSED
FACILITY NAME: RIO SALADO #27
FACILITY LOCATION: .25 MILES W OF 24TH ST ON RAYMOND ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11536 STATUS: CLOSED
FACILITY NAME: RIO SALADO #28
FACILITY LOCATION: .5 MILES WEST OF 24TH ST ON RAYMOND ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11637 STATUS: CLOSED
FACILITY NAME: RIO SALADO #29
FACILITY LOCATION: NE CORNER OF 16TH ST AND ELWOOD
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11539 STATUS: CLOSED
FACILITY NAME: RIO SALADO #3
FACILITY LOCATION: .25 MILES S OF I-10 ON 16TH ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: CITY OF PHOENIX
LAND OWNER ADDRESS: 251 W WASHINGTON RDPHOENIX AZ 85004

IDENTIFIER: C11541 STATUS: CLOSED
FACILITY NAME: RIO SALADO #31
FACILITY LOCATION:
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11542 STATUS: CLOSED
FACILITY NAME: RIO SALADO #32
FACILITY LOCATION: S BANK OF THE SALT RIVER ON E SIDE OF 7TH AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11543 STATUS: CLOSED
FACILITY NAME: RIO SALADO #33
FACILITY LOCATION: NW CORNER OF ELWOOD AVE AND 7TH AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11544 STATUS: CLOSED
FACILITY NAME: RIO SALADO #34
FACILITY LOCATION: NE CORNER OF BROADWAY RD & 19TH AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11545 STATUS: CLOSED
FACILITY NAME: RIO SALADO #35
FACILITY LOCATION: NW CORNER OF BROADWAY RD AND 19TH AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11546 STATUS: CLOSED
FACILITY NAME: RIO SALADO #36
FACILITY LOCATION: .25 MILES N OF BROADWAY RD ON 27TH AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11547 STATUS: CLOSED
FACILITY NAME: RIO SALADO #37
FACILITY LOCATION: .25 MILES N OF BROADWAY RD ON 32ND AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11448 STATUS: CLOSED
FACILITY NAME: RIO SALADO #39
FACILITY LOCATION: .5 MILES S OF LOWER BUCKEYE ON 43RD AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11449 STATUS: CLOSED
FACILITY NAME: RIO SALADO #40
FACILITY LOCATION: 1 MILE S OF LOWER BUCKEYE RD ON 51ST AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11650 STATUS: CLOSED
FACILITY NAME: RIO SALADO #42
FACILITY LOCATION: NW CORNER OF SKY HARBOR BLVD AND THE HOHOKAM EXPSWY
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: CITY OF PHOENIX
LAND OWNER ADDRESS: 251 W WASHINGTON STPHOENIX AZ 85004

IDENTIFIER: C11650 STATUS: CLOSED
FACILITY NAME: RIO SALADO #43
FACILITY LOCATION:
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11652 STATUS: CLOSED
FACILITY NAME: RIO SALADO #44
FACILITY LOCATION: S SIDE OF VAN BUREN AND 50TH ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11653 STATUS: CLOSED
FACILITY NAME: RIO SALADO #45
FACILITY LOCATION: .25 MILES N OF WASHINGTON ON 52ND ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11654 STATUS: CLOSED
FACILITY NAME: RIO SALADO #46
FACILITY LOCATION: N SIDE OF WASHINGTON AT 56TH ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11655 STATUS: CLOSED
FACILITY NAME: RIO SALADO #47
FACILITY LOCATION: .5 MILES N OF UNIVERSITY ON 52ND ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: SALT RIVER PROJECT
LAND OWNER ADDRESS: PO BOX 52025PHOENIX AZ 85072

IDENTIFIER: C11656 STATUS: CLOSED
FACILITY NAME: RIO SALADO #48
FACILITY LOCATION: .5 MILES N OF UNIVERSITY ON PRIEST DR
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11657 STATUS: CLOSED
FACILITY NAME: RIO SALADO #49
FACILITY LOCATION: SE CORNER OF SCOTTSDALE RD AND GILBERT DR
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: SALT RIVER PROJECT
LAND OWNER ADDRESS: PO BOX 52025PHOENIX AZ 85072

IDENTIFIER: C11658 STATUS: CLOSED
FACILITY NAME: RIO SALADO #50
FACILITY LOCATION: .5 MILES E OF SCOTTSDALE RD ON GILBERT DR
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: SALT RIVER PROJECT
LAND OWNER ADDRESS: PO BOX 52025PHOENIX AZ 85072

IDENTIFIER: C11659 STATUS: CLOSED
FACILITY NAME: RIO SALADO #51
FACILITY LOCATION: N SIDE OF THE SALT RIVER AT HAYDEN DR
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: SALT RIVER PROJECT
LAND OWNER ADDRESS: PO BOX 85025PHOENIX AZ 85072

IDENTIFIER: C11560 STATUS: CLOSED
FACILITY NAME: RIO SALADO #6
FACILITY LOCATION: NE CORNER OF PIONEER ST AND CENTRAL
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C11561 STATUS: CLOSED
FACILITY NAME: RIO SALADO #8
FACILITY LOCATION: S BANK OF THE SALT RIVER ON W SIDE OF 7TH AVE
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER:
LAND OWNER ADDRESS:

IDENTIFIER: C10763 STATUS: CLOSED
FACILITY NAME: SATORIS (EARTHWORKS)
FACILITY LOCATION: 1.5 MILES E OF I-17 ON END OF GREENWAY RD
OPERATOR: PETE SATORIS
OPERATOR ADDRESS: 2833 NEW RIVER STAGEPHOENIX AZ 85029
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11666 STATUS: CLOSED
FACILITY NAME: RIO SALADO #60
FACILITY LOCATION: S BANK OF THE SALT RIVER E OF 48TH ST
OPERATOR:
OPERATOR ADDRESS:
LAND OWNER: SALT RIVER PROJECT
LAND OWNER ADDRESS: PO BOX 52025PHOENIX AZ 85072

IDENTIFIER: C11664 STATUS: CLOSED
FACILITY NAME: TEMPE #1
FACILITY LOCATION:
OPERATOR: CITY OF TEMPE
OPERATOR ADDRESS: 31 E 5TH STTEMPE AZ 85281
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS:

IDENTIFIER: C11372 STATUS: CLOSED
FACILITY NAME: TOLLESON
FACILITY LOCATION: 91ST AVE AND SALT RIVER
OPERATOR: CITY OF TOLLESON
OPERATOR ADDRESS: 9555 W VAN BURENTOLLESON AZ 85353
LAND OWNER: SAME AS ABOVE
LAND OWNER ADDRESS: