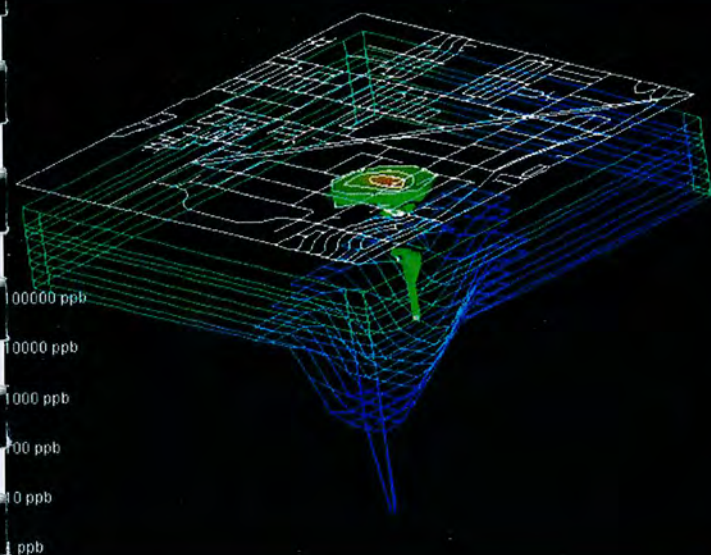


Final Remedial Investigation Report

West Central Phoenix North Plume Site Phoenix, Arizona Volume IV of IV January 2009



Prepared for
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Appendix J

Thin Section Analysis Report

Petrographic Report #KBX

August 24, 2000

for

Robert Forsberg
LFR Levine-Frizke
8230 E. Raintree Dr., #103
Scottsdale, AZ 85260

by



Michael DePangher, Ph.D.
Spectrum Petrographics, Inc.

SAMPLE #

WCP37 470'

August 24, 2000

ROCK NAME

MIXED CATACLASITE -- probably formed by regional dynamothermal metamorphism, hydrothermal alteration (secondary sericite + chlorite + sphene + FEOH + opaques) and cataclasis of metapelite and altered quartz diorite.

MINERALS

Quartz (30%) + plagioclase (26%) + sericite (26%) + calcite (6%) + chlorite (6%) + sphene (3%) + FEOH (2%) + biotite (1%) + apatite (<1%) + opaques (<1%).

TEXTURES

Cataclastic. Cataclasis has produced a strongly directed fabric. Texture-destructive cataclasis has produced a continuous size variation between clasts and matrix.

Porphyroclasts are lensoidal, lithic fragments of altered quartz diorite (60%) + metapelite (40%). The metapelite is composed of [biotite strongly altered to [chlorite + [opaques strongly altered to sphene] + apatite]] + quartz + calcite. Contacts between porphyroclasts are curved.

Matrix is composed of the comminuted equivalent of the clasts, suggesting a dominantly cataclastic mechanism of brecciation.

ALTERATION

Alteration features in relative chronological order from oldest to youngest are: (1) regional metamorphism; (2) hydrothermal alteration; and (3) cataclasis. The following alteration features are also present but of indeterminate relative ages: (1) plagioclase moderately altered to sericite; (2) biotite strongly altered to [chlorite + [opaques strongly altered to sphene] + apatite]; and (3) primary opaques strongly altered to sphene + FEOH.

SECTIONING

Format: 27 x 46 mm Finish: STD Stains: SCN + ARS + PF Cover: PLA

PHOTOS

WCP37 470'/00023/07/DAY/3X/KBX MIXED CATACLASITE showing typical appearance of hand specimen. Reddish domains are calcite (M13), light colored domains are altered quartz diorite (E9-G9), and dark colored interstitial domains are metapelite (M3, G15).

WCP37 470'/00023/08/DAY/3X/KBX MIXED CATACLASITE showing typical appearance of hand specimen. Reddish domains are calcite, light colored domains are altered quartz diorite, and dark colored interstitial domains are metapelite.



WCP37 470'/00023/07/DAY/3X/KBX
 MIXED CATACLASITE showing typical appearance of hand specimen. Reddish domains are calcite (M13), light colored domains are altered quartz diorite (E9-G9), and dark colored interstitial domains are metapelite (M3, G15).



WCP37 470'/00023/08/DAY/3X/KBX
 MIXED CATACLASITE showing typical appearance of hand specimen. Reddish domains are calcite, light colored domains are altered quartz diorite, and dark colored interstitial domains are metapelite.



WCP37 470'/00023/22/XPL/28X/KBX
 MIXED CATACLASITE showing typical appearance of interlensed
 [altered quartz diorite (L1-T11) + metapelite (J18-T26)].



WCP37 470'/00023/23/XPL/28X/KBX
 MIXED CATACLASITE showing typical appearance of interlensed
 [altered quartz diorite (A1-J13) + metapelite (I15-T30)].

Appendix K

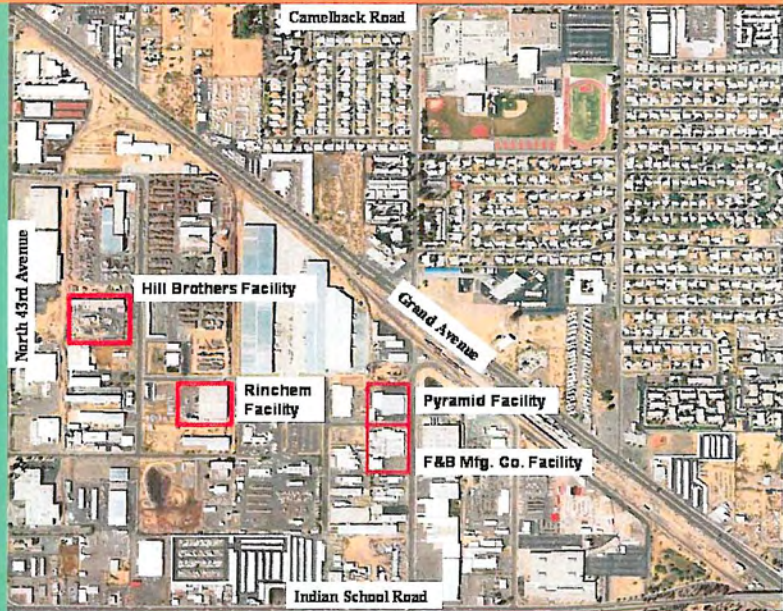
Land and Water Use Report

Land and Water Use Report

West Central Phoenix North Plume Site Phoenix, Arizona



Prepared for
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Land and Water Use Report

West Central Phoenix North Plume Site Phoenix, Arizona

July 2006

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EXECUTIVE SUMMARY

On behalf of the Arizona Department of Environmental Quality (ADEQ), LFR Inc. (LFR) has prepared this Land and Water Use report for the West Central Phoenix (WCP) North Plume Water Quality Assurance Revolving Fund (WQARF) Registry site to meet the requirements established under Arizona Administrative Code (A.A.C.) R18-16-406 (D). The purpose of the report is to gather information regarding current and foreseeable uses of land or waters that have been or are threatened to be impacted by a contaminant release.

Meetings were conducted with various stakeholders including representatives from the City of Phoenix (COP), Salt River Project (SRP), and local property/well owners to gather information concerning the current and future land and water uses of the site property and surrounding area. Land use on the property and in the surrounding area is predominantly light industrial. The COP Planning Department has no current plans to change zoning or land use in the area.

The COP and SRP currently own and operate groundwater wells within the WCP area. The COP currently operates one water supply production well, Well No. 72, within a one-mile radius of the WCP North Plume site boundary. Well No. 72 is located approximately 4,200 feet north of the F&B Mfg. Co facility and is upgradient from the WCP North Plume site. Due to population increases and the consequent increase in water demand, the need may exist to install additional groundwater wells in the WCP area within the next 100 years. SRP maintains two irrigation wells currently not being pumped in accordance with an agreement with the ADEQ. This agreement may remain in place until a remedy selection has been made.

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ACRONYMS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AMA	Active Management Area
AWQS	Arizona Aquifer Water Quality Standard
AWS	Assured Water Supply
BTEX	benzene, toluene, ethylbenzene, and xylenes (total)
CAP	Central Arizona Project
COP	City of Phoenix
1,1-DCE	1,1-dichloroethylene or 1,1-dichloroethene
F&B	F&B Mfg. Co.
FS	feasibility study
LUST	leaking underground storage tank
MCL	maximum contaminant level
MTBE	methyl tertiary butyl ether
µg/L	micrograms per liter
mg/L	milligrams per liter
PCE	tetrachloroethylene or tetrachloroethene
RI	remedial investigation
RO	remedial objective
SRP	Salt River Project
TCA	1,1,1-trichloroethane
TCE	trichloroethylene or trichloroethene
TDS	total dissolved solids
VOC	volatile organic compound
WCP	West Central Phoenix
WQARF	Water Quality Assurance Revolving Fund

1.0 INTRODUCTION

On behalf of the Arizona Department of Environmental Quality (ADEQ), LFR Inc. (LFR) has prepared this Land and Water Use report for the West Central Phoenix (WCP) North Plume Water Quality Assurance Revolving Fund (WQARF) Registry site to meet the requirements established under Arizona Administrative Code (A.A.C.) R18-16-406 (D). The purpose of the report is to gather information regarding current and foreseeable uses of land or waters that have been or are threatened to be impacted by a contaminant release.

1.1 Process Overview

The process to complete the remedial investigation (RI) and select remedial objectives (ROs) begins with the completion of the draft RI report. Following the completion of the draft RI Report, which includes the land and water use report (Use report), a public meeting is held to discuss the Use report and solicit input for the selection of ROs. Typically, the public will be given 30 days to comment on the Use report. Following the public meeting and comment period, ADEQ issues the proposed ROs report. The ROs chosen for a site may be based off of none, some, or all of the uses identified in the Use report. If there is significant public interest or additional information has been discovered, an additional public meeting to discuss the ROs is held. The Final ROs Report is then prepared and included in the Final RI Report.

1.2 Land and Water Use Report

The purpose of the Land and Water Use report is to gather information regarding current and “foreseeable” uses of land or waters that have been or are threatened to be impacted by a contaminant release, and to project time frames for future changes in those uses. Information gathered from discussions with property owners, water providers, municipalities, and well owners are to be included in the report.

In general, this Land and Water Use report identifies various current and potential future uses of land and water in the vicinity of the WCP North Plume site. However, the report does not evaluate the uses, nor does it classify the use as “reasonably foreseeable”. The evaluation of uses will take place during public comment periods, and public meetings and will be presented in the proposed ROs report.

1.3 Site Background

In 1982, a volatile organic compound (VOC), trichloroethene (TCE), was detected in several City of Phoenix (COP) municipal wells located in west-central Phoenix. Subsequent groundwater sampling confirmed the presence of TCE at concentrations above the U.S. Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs). ADEQ subsequently designated the area of groundwater contamination as the WCP WQARF site and

recommended further study under the State Superfund (WQARF) program. The WCP WQARF area was placed in the WQARF Priority List in 1987.

In 1998, five sites within the WCP WQARF area were established pursuant to Arizona Revised Statutes (A.R.S.) §49-287.01. The five WCP Sites include the following:

- ◆ West Osborn Complex Site;
- ◆ West Grand Avenue Site;
- ◆ East Grand Avenue Site;
- ◆ North Canal Site; and
- ◆ North Plume Site.

The WCP North Plume Site is bounded approximately by Hazelwood Street to the north, 38th Avenue to the east, Indian School Road to the south, and 43rd Avenue to the west. Figure 1 presents the WCP North Plume site as redefined in June 2003.

The contaminants known to be present at levels above regulatory limits in the groundwater in the WCP North Plume site includes the chlorinated solvents PCE, TCE, 1,1-DCE, and vinyl chloride. In addition, chromium has also been detected. Other contaminants include benzene, toluene, ethylbenzene, xylenes, methyl tertiary butyl ether (MTBE), and nitrates. The following four facilities have been identified as sources of the groundwater contamination in the WCP North Plume site (Figure 2):

1. F&B Mfg. Co. (F&B) located at 4316 North 39th Avenue in Phoenix, Arizona;
2. Pyramid Industries, Inc. (Pyramid) located at 4330 North 39th Avenue, Phoenix, Arizona;
3. Rinchem located near 42nd Ave and Turney Ave in Phoenix, Arizona; and
4. Hill Brothers located at 4450 North 42nd Avenue, Phoenix, Arizona.

1.4 General Groundwater Quality

Groundwater in the WCP North Plume site and the surrounding area generally contain concentrations of total dissolved solids (TDS) ranging from 415 milligrams per liter (mg/L) to greater than 1,000 mg/L (Brown and Pool, 1989; Daniel, 1981). The principal ions present within local groundwater include sodium, calcium, chloride, and bicarbonate (Reeter and Remick, 1986). Salt River Project (SRP) data for TDS in wells within the WCP area range from 554 mg/L to 965 mg/L (SRP, 1999). Data collected from a groundwater well immediately west of the WCP North Plume site for TDS ranged from 804 mg/L to 840 mg/L (Reeter and Remick, 1986). The EPA has not set an MCL for TDS, however, there is a secondary standard of 500 mg/L TDS for drinking water. The secondary standards are non-enforceable guidelines regulating contaminants that may cause aesthetic effects in drinking water.

Based on analytical data collected by the SRP from wells located in the WCP area, other general groundwater quality parameters such as nitrate and arsenic are within current regulatory guidelines for drinking water uses (SRP, 1999). Current regulatory guidelines for nitrate and arsenic are 45 mg/L and 50 mg/L, respectively. However, in January 2006, the new regulatory 10 mg/L guideline for arsenic will be in effect. The SRP wells closest to WCP North Plume site

are 8E-8.5N, 9.5E-7.7N, and 10E-9.3N (Figure 3). Data from the 1999 SRP sampling of groundwater from these wells showed nitrate concentrations 21.4 mg/L, 7.23 mg/L, and 11.4 mg/L, respectively (SRP, 1999).

In the past, concentrations of the following contaminants in the WCP North Plume site have exceeded their respective Arizona Aquifer Water Quality Standard (AWQS) in one or more wells:

Contaminant Found Above AWQS	AWQS (µg/L) ¹	Contaminant Found Above AWQS	AWQS (µg/L) ¹
PCE	5	Arsenic	50 ³
TCE	5	Beryllium	4
1,1-DCE	7	Chromium	100
cis 1,2-DCE	70	Copper	NE
Vinyl Chloride	2	Lead	NE
Benzene	5	Nickel	NE
Toluene	1,000	Ethylbenzene	700
Methylene Chloride	5	Xylenes (total)	10,000

1. µg/L = micrograms per liter

2. NE = Not Established

3. This level will be reduced to 10 µg/L effective January 23, 2006

In the past, the following contaminants have been detected in groundwater in the WCP North Plume site at concentrations below their respective AWQSs: TCA, carbon tetrachloride, methyl ethyl ketone, ethylene, total xylenes, and methyl tertiary butyl ether (MTBE). Additionally, acetone and 1,1-DCA has been detected; however, there currently is no AWQS for this contaminant.

2.0 USE EVALUATION

The following sections outline current and foreseeable land and water uses for the WCP North Plume site and the surrounding area. Reasonably foreseeable uses for land are those uses of land likely to occur at the site within a reasonable time period. Reasonably foreseeable uses of water are those likely to occur within 100 years unless a longer time period is shown to be reasonable based on site-specific circumstances [A.A.C. R18-16-406 (D)].

A list of contacts, meetings, and interviews conducted as part of the use evaluation is presented in Table 1.

2.1 Land Uses

Development in the area occurs consistent with zoning laws and must go through a site-planning review and permit process. Zoning districts for the property located within the WCP North Plume area is defined on COP Planning Map as H6 (Figure 4). A detailed description of COP zoning designations can be found in Appendix A. All property within WCP North Plume area is designated as A-2 Industrial. Each village located within the COP has a Planning Coordinator who has input into planning decisions for that community. A description of the various village boundaries can be found on Figure 5. Contact information for the Village Planning Coordinators can be found in Table 2 (COP, 2003a). The properties within the WCP North Plume site boundary are primarily located within the eastern portion of Maryvale Village and is bordered by the villages of Alhambra on the northeast, Encanto on the east, and Estrella on the south (Figure 6).

2.1.1 Current Site-Specific Land Use

The WCP North Plume site lies within a heavily industrialized area of west central Phoenix, and is zoned as A-2 Industrial by the City of Phoenix Zoning Department. In general, commercial properties are concentrated near the intersections of major streets (43rd Avenue, 39th Avenue, Indian School Road and Grand Avenue). Industrial properties occupy most of the land enclosed by these thoroughfares. Residential areas are located in the northern site vicinity north of Grand Avenue. Several school sites are located in a one mile radius from the WCP North Plume area.

2.1.1.1 F&B Facility

The F&B facility is located at 4316 North 39th Avenue in Phoenix, Arizona. F&B manufactures metal aircraft and spacecraft parts and performs sheet metal forming, light machining, and assembly at the facility. Figure 2 shows the F&B facility location.

The property on which the F&B facility lays was cultivated land until F&B began leasing the location in 1967. By March of 1967, F&B had completed construction of their facility and began operations. Aerial photographs indicate that F&B twice expanded their facility, once to the west,

and once to the south. The current zoning designation for the F&B facility is A-2, Industrial District (COP, 2003b).

2.1.1.2 Pyramid Facility

Pyramid facility is located at 4330 North 39th Avenue. Pyramid operated a telephone and television cable riser boxes manufacturing facility from 1977 to 1994. Operations at the facility required the use of acids, caustics, heavy metals, paints, and methylene chloride. The facility property consists of two adjoining parcels. Since 1997, National Environmental Waste, a plastic recycling company, and Intermountain Lumber Company have occupied the southern parcel. Since 1999, the northern parcel has been occupied by M&S Enterprise. Figure 2 shows the Pyramid facility location.

2.1.1.3 Rinchem Facility

Rinchem is located within the WCP North Plume Site, near 42nd and Turney Avenues in Phoenix, Arizona (Figure 2). The facility is currently owned by Phoenix Investors No. 2 Limited Partnership (Phoenix Investors) in Tustin, California. Rinchem operated a chemical warehouse and distribution facility that handled solvents, oils, and fuels. Rinchem also blended custom solvents at this facility. Rinchem was the only company that operated at the facility from facility construction in 1982 through June 1993.

2.1.1.4 Hill Brothers Facility

The Hill Brothers facility is located at 4450 North 42nd Avenue within the WCP North Plume Site in Phoenix, Arizona (Figure 2). The Hill Brothers facility has operated a chemical distribution facility at this location since 1969. Prior to 1969, the location was developed as agricultural land.

The Hill Brothers facility is bordered to the north by the Trenwyth Company, to the east by 42nd Avenue followed by Superlite Block, Inc., to the south by VM Distributing and to the west by a Southern Pacific railroad spur followed by a vacant land. Surrounding land use includes industrial and commercial businesses.

2.1.2 Future Land Use

Meetings with the COP Planning Department, including the Alhambra and Maryvale planning coordinators, indicated that there are no foreseeable plans to alter current zoning districts in the WCP North Plume site vicinity, nor are there any special projects in the area. However, property owners can file to change the zoning designation of their property. Requests for zoning changes must go through a public hearing and be approved by the City Council prior to finalization.

2.2 Groundwater Uses

The WCP North Plume site lies within the Phoenix Active Management Area (AMA). The Phoenix AMA was created by the Arizona Groundwater Management Code passed in 1980 and covers approximately 5,646 square miles in central Arizona. All groundwater withdrawn from any AMA must occur under a groundwater right or permit, unless groundwater is being withdrawn from an exempt well. An exempt well is a well with a maximum pump capacity of 35 gallons per minute. Exempt wells may be used to withdraw groundwater only for non-irrigation purposes and are generally used for domestic purposes. All exempt wells must be registered with the ADWR.

Non-exempt wells have a pump capacity greater than 35 gallons per minute and are associated with one of the following types of rights or permits: Grandfathered rights, service area rights, and withdrawal permits. The following sections briefly describe these rights.

Grandfathered rights are derived from past individual water use. There are three different types of grandfathered rights: irrigation rights, Type 1 non-irrigation rights, and Type 2 non-irrigation rights. An irrigation grandfathered right is the right to use groundwater to irrigate specific acres of land that had been irrigated with groundwater between 1975 and 1980. The amount of groundwater that can be used is specified in the right and the amount will vary over time according to a formula established in the management plans. An irrigation grandfathered right may not be sold apart from the associated land.

A Type 1 right is associated with land permanently retired from farming and converted to a non-irrigation use. The maximum amount of groundwater that may be pumped each year is three acre-feet per acre of land. A Type 1 right may not be sold apart from the associated land.

A Type 2 right allows the owner, with prior approval from ADWR, the ability to withdraw groundwater from a new location within the same AMA. However, the groundwater can only be used for a non-irrigation purpose. Type 2 rights are the most flexible because they can be sold separately from the land or well.

Service area rights are rights that allow cities, towns, private water companies and irrigation districts to withdraw groundwater to serve their customers. Most Arizonans receive domestic water through service area rights.

Withdrawal permits allow new withdrawals of groundwater for non-irrigation uses within AMAs. There are eight types of withdrawal permits covering various groundwater uses that are subject to different requirements. Examples of withdrawal permits include general industrial use permits, dewatering permits, and poor quality groundwater withdrawal permits.

Within the WCP North Plume site area, there are a couple areas with irrigation grandfathered rights and Type 1 non-irrigation rights. These locations are shown in Figure 7.

Groundwater wells having either grandfathered Type 2 irrigation rights (private use) or service area permits (municipal and utility use) within a one-mile radius of the WCP North Plume site

are shown in Table 3. There are approximately 338 wells registered with ADWR in the area that have withdrawal permits used to monitor aquifer conditions in the surrounding area. A list of these wells is included in Appendix B for reference.

Groundwater under the WCP North Plume site generally flows to the west-northwest, however, regional groundwater flow direction is affected during pumping in two SRP wells located in the site vicinity. Figure 8 shows the groundwater plume boundary for the WCP North Plume site based on most current data and depicts locations of wells presented in Appendix B.

2.2.1 Municipality and Utility Groundwater Uses

The COP and SRP pump groundwater to a certain degree to satisfy their customer needs. The following sections discuss the current and future groundwater uses of the COP and SRP.

2.2.1.1 City of Phoenix

The City of Phoenix receives water from four major sources: the Salt River, the Verde River, the Colorado River, and groundwater. The SRP supplies water to the COP, from reservoirs on the Salt and Verde Rivers, and groundwater wells to approximately 30 percent of the water service area entitled to water delivered by SRP. The service area, referred to as the “On-Project” area, is generally south of the Arizona Canal (Figure 9). The WCP North Plume site lies within the On-Project Area. The “Off-Project and Non-member Area” is supplied primarily by Colorado River water and water stored behind spillway gates at Horseshoe Dam on the Verde River. The fourth water source is groundwater from wells operated by the COP. Although less than 5 percent of current total water deliveries are from groundwater, the COP uses groundwater to ensure adequate supplies during drought periods and temporary water system outages.

There are ten COP wells in the WCP area (Figure 10). Due to water quality degradation and the establishment of more stringent drinking water quality standards in recent years, nine of the ten wells have been placed on inactive status as of 1989 because the water they provide does not meet current regulatory standards (Table 4). Two COP wells (No. 69 and No. 72) lie within a one-mile radius of the F&B facility. Well No. 69 is located approximately 2,300 feet northeast of the F&B facility and was abandoned in October 1988. Well No. 72 is located approximately 4,200 feet north of the F&B facility and is currently active. Both wells are located upgradient from the WCP North Plume site.

2.2.1.1.1 Future COP Needs

According to information provided by COP, the COP estimates that by 2010, 18,000 acre-feet per year of new well capacity will be needed to provide back up water supplies during future drought events (COP, 2000). The additional new well capacity is expected to increase to 140,000 acre-feet by 2050. Reportedly, these increases would require up to 80 new wells by 2050. The COP is currently drilling all of its new production wells in the northeast Phoenix area, but future expansion is limited by concerns over potential land subsidence and competing demand from Scottsdale production wells just across the Phoenix-Scottsdale boundary (COP,

2001b). The state-mandated Assured Water Supply (AWS) Rules limit the depth to which groundwater levels may be lowered through future pumping to 1,000 feet below land surface over the next 100 years. In addition, the COP anticipated that many of the northeast Phoenix wells will require expensive treatment to remove arsenic if the MCL of 10 µg/L is implemented (COP, 2001b). The new arsenic rule became effective on February 22, 2002. The date by which systems must comply with the new 10 µg/L standard is January 23, 2006.

According to COP, possible well field expansion may occur in the WCP area despite water quality problems because groundwater elevations there are several hundred feet higher than in other potential expansion areas and arsenic levels are not a concern. The COP is unlikely to restore previously closed wells to production due to the high cost of wellhead treatment and because of other physical and ADWR regulatory limits (COP, 2001b). According to COP, it is possible, however, that existing well sites could be redrilled with new wells (COP Meeting, 2001).

COP's continued interest in future well development in the Central Phoenix wellfields led COP to the development of computerized tools that would assist the City in evaluating the suitability of groundwater resources in the Central Phoenix area. The primary goal of the project was to aid the City in evaluating the general location and timing of future groundwater resources development for the COP public water supply. As part of the project, COP evaluated the entire water service area for future well development and assigned numerical scores, based on established criteria. Based strictly on the statistical evaluation of the scores, COP indicates that areas with scores in at least the 75th percentile (scores ≥ 81) may warrant consideration for future well development. The area where the WCP North Plume site is located scores 80, therefore, it may not be considered for future well development for drought protection (COP, 2002). However, in a letter received from COP dated May 12, 2005, COP indicates that site-specific considerations and operational/service needs may require the location of wells in lower scoring areas. COP's current analysis is that scores in the 78-80 range, or perhaps lower in certain circumstances, may indicate generally favorable well development conditions.

2.2.1.2 *Salt River Project*

As a water supplier, Salt River Project (SRP) delivers nearly a million acre-feet of water to the Phoenix area each year. In normal runoff years, most of the water is supplied from surface water on the Salt and Verde Watersheds. However in more dry years, more groundwater must be pumped to supplement the surface water supply. During extended periods of low run off, groundwater can account for almost one-third of the total SRP water supply. Typically, groundwater comprises approximately 15 percent of the total water supplied by SRP to municipal treatment plants. The groundwater contribution varies seasonally with the highest contribution occurring March through August. Historically, there has been enough surface water to meet demand in only one out of every three years.

SRP operates and maintains nine irrigation wells within the WCP area (Figure 3). Four of these wells (11.2E-7.7N, 10.5E-7.5N, 9.5E-7.7N, and 8.5E-7.5N) have been affected by TCE contamination. SRP well 9.5E-7.7N is within a one-mile radius of the WCP North Plume site

(Appendix C). SRP well 9.5E-7.7N lies approximately 2,500 feet south and cross gradient of the contaminant plume as shown in Figure 3. Data gathered by SRP shows that concentrations of TCE increased during years of higher pumpage (i.e.- 1990, 1994, and 1997) than during years of lower pumpage for several of the wells in the WCP area, including 9.5E-7.7N (SRP, 2001). SRP and ADEQ have had an agreement since 1999 to not pump wells located near WQARF sites in the WCP area because of the influences on contaminant plume migration. SRP pumped relatively large amounts of groundwater between 1950 and the mid to late 1970's. Since that time, pumping has been more sporadic, with annual pumpages much less than those prior thirty years. This was due in large part to above normal precipitation on the watershed and the increased availability of surface water through this period. For many of the last twelve years, SRP had to release water from its dams into the normally dry bed of the Salt River. In recent years, the Colorado Aqueduct Project (CAP) and the Arizona Water Banking Authority have made it possible for SRP to use Colorado River water in lieu of pumping groundwater.

2.2.1.2.1 *Future SRP Needs*

Although not in use at this time, SRP has no plans to eliminate any of the wells in the WCP area from their system. Based on demand analysis, SRP has indicated it will continue to need the wells in the area to remain operational, especially during dry years. Current monthly demand (1999-2000) for the section of the Grand Canal downstream from the WCP WQARF area ranges from less than 1,000 acre-feet in the winter months to more than 10,000 acre-feet in the peak summer months. Based on this demand, SRP anticipates that future pumping needs from the four wells affected by TCE contamination during dry years are as follows:

- 60 to 80 percent of the time during the summer months (June to August);
- 20 to 40 percent during shoulder months (March through May and September through October), and
- 0 to 10 percent during the winter months (November through February). In wet years, the wells would most likely be used minimally, if at all (SRP, 2001).

SRP indicated to ADEQ that it has future plans for the construction of a drinking water treatment plant planned at the end of the Grand Canal. Overall water demand will likely increase if the treatment plant is constructed. Additionally, a drinking water treatment plant on the Grand Canal will require that water sources discharging to the canal comply with more stringent water quality criteria. Currently, SRP does not plan on installing any new wells in the WCP area (SRP, 2001).

2.2.2 *Private Groundwater Uses*

There is no documented private groundwater use, or non-municipal groundwater use, in the WCP North Plume site area.

2.3 Surface Water Uses

The only surface water in the vicinity of the WCP North Plume site area is that provided by the SRP canal system (Figure 11). The Grand Canal lies approximately 2,500 feet to the south of the WCP North Plume WQARF site and is the only surface water body in the vicinity of the site. Water from SRP irrigation wells along the Grand Canal is discharged to the canal, which presently serves downstream agricultural and urban irrigation customers. Future plans include a drinking water treatment plant that may be constructed at the end of the Grand Canal. The construction of the treatment plant would change the end use of the canal water requiring that water discharged to the canal meet stricter water quality criteria than what is currently required.

In the area near the WCP North Plume site, the Grand Canal is not fully lined. In general in this area, only the bottom and one bank are lined. However, there are sections where both the bottom and both banks are lined. The canal is primarily unlined between 19th Avenue and Interstate 17 except for lined portions near Indian School Road, 23rd Avenue, and Interstate 17. The canal is lined on the south bank and on the southern half of the bottom from Interstate 17 to 27th Avenue and on the bottom and both banks from 27th Avenue to 39th Avenue.

Figure 12 shows the sections and specific areas of lining along the Grand Canal.

3.0 SUMMARY OF USES

The land and water uses described in Section 2.0 that are most likely to be relevant to the discussion of remedial objectives are presented below.

3.1 Land Uses

The zoning pattern in the area has been long established and there are no foreseeable changes for the future. Land uses for the F&B facility property, Pyramid facility property, Rinchem property, Hill Brothers facility property and within the WCP North Plume site area are expected to remain predominantly industrial or light industrial.

3.2 Groundwater Uses

Current and future groundwater uses within the WCP North Plume site area include the following:

- ◆ The COP anticipates the possible need for well expansion in the WCP area sometime in the future.
- ◆ The SRP owns several wells in the area and will continue to need the wells to be operational to supplement surface water supplies. A water treatment plant may be built on the Grand Canal sometime in the future, which would change the use of the groundwater from irrigation to drinking water.

3.3 Surface Water Uses

Currently, there are no surface water uses within the WCP North Plume site area.

4.0 REFERENCES

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Reeter, R.W. and W.H. Remick, 1986. Maps Showing Groundwater Conditions in the West Salt River, East Salt River, Lake Pleasant, Carefree and Fountain Hills Sub-Basins of the Phoenix Active Management Area, Maricopa, Pinal, and Yavapai Counties, Arizona 1983. Arizona Department of Water Resources. Hydrologic Map Series Report Number 12.

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Weston, Roy F., Inc., (WESTON), 1998. WCP East Grand Avenue Plume Site, Phase II Remedial Investigation Report Van Waters & Rogers Facility, 2930 West Osborn Road, Phoenix, Arizona. December 1998.

TABLES

Table 1
Personal Interviews and Contacts

Date	Type of Contact	Party/Attendees	Notes
March 26, 2001	Meeting: COP	Lynda Person, ADEQ Don Richey, ADEQ Tamara Huddleston, AGO Keith Larson, COP Karen O'Regan, COP Karen Peters, COP Bob Pikora, COP Planning Elaine Taylor-Tyler, COP Planning Steve Muenker, COP Planning Nancy Nesky, WESTON Bob Forsberg, LFR	Meeting notes by LFR available in ADEQ project files.
April 16, 2001	Meeting: SRP	Lynda Person, ADEQ Ana Vargas, ADEQ Bob Forsberg, LFR Kevin Wanttaja, SRP Paul Cherrington, SRP Joe Rauch, SRP Nancy Nesky, WESTON	Meeting notes by LFR available in ADEQ project files.
August 28, 2001 and June 21, 2006	Telephone Conversation	Elizabeth Kepuraitis F&B Mfg. Co.	Notes in Appendix D
June 23, 2006	Telephone Conversation	Ronald Hill Hill Brothers Chemical	Notes in Appendix D
June 23, 2006	Telephone Conversation	Ron Bratcher Tarr, Inc.	Notes in Appendix D
July 25, 2006	Telephone Conversation	Pam Harrison	Notes in Appendix D

Table 2
Village Planning Coordinators Contact Information

Village Name	Planning Coordinator	Phone Number
Alhambra	Bob Pikora	(602) 262-6823
Maryvale	Elaine Taylor-Tyler	(602) 261-8771
Encanto	Jim Hansen	(602) 261-8726

Table 3
Groundwater Production Wells Located within One-Mile Radius of WCP-North Plume Area
Land and Water Use Report

ADWR 55 ID Number	Location (T,R Section, Acre 160, Acre 40, Acre 10)	Well Type	Well Use	Water Use	Approved/ Installed	Well Depth	Water Level	Casing Type	Casing Deep	Pump Rate	Company	Cancelled
634575	2N 2E 16 SE, NW, NW	EXEMPT	WATER PRODUCTION	DOMESTIC	1/1/1949	0	0	STEEL - PERFORATED OR SLOTTED CASING	410	30		
086999	2N 2E 16 SE, SE, NE	EXEMPT	WATER PRODUCTION	DOMESTIC	6/1/1981	510	197	STEEL - PERFORATED OR SLOTTED CASING	512	26		
634633	2N 2E 22 NE, SE, SE	EXEMPT	WATER PRODUCTION	DOMESTIC	2/15/1979	500	80	PLASTIC OR PVC	500	4		
618512	2N 2E 26 NW, SE, SW	NON-EXEMPT	WATER PRODUCTION	DOMESTIC		0	0		0	0		
563318	2N 2E 27 NE, SE, SW	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	10/28/1997	155	0	PLASTIC OR PVC	140	0	UNITED INDUSTRIAL CORP	
563319	2N 2E 27 NE, SE, SW	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	10/24/1997	0	0		0	0	UNITED INDUSTRIAL CORP	Y
563320	2N 2E 27 NE, SE, SW	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	10/24/1997	0	0		0	0	UNITED INDUSTRIAL CORP	Y
534122	2N 2E 27 NE, SE, SE	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	1/31/1992	125	95	PLASTIC OR PVC	85	0	UNITED INDUSTRIAL CORPORA	
617946	2N 2W 23 NW, NE, NE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION	1/1/1940	840	418	OTHER - BLACK STEEL - IRON - SEAMLESS	840	2000		
802165	2N 2W 23 NW, NW, NW	NON-EXEMPT	WATER PRODUCTION	IRRIGATION	6/1/1977	1552	400	STEEL - PERFORATED OR SLOTTED CASING	1552	750		
608381	2N 2E 27 NE, SW, NW	NON-EXEMPT	WATER PRODUCTION	IRRIGATION	12/16/1948	700	142	STEEL - PERFORATED OR SLOTTED CASING	700	3862		
603866	2N 2E 27 NE, SE, SE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		0	0		0	50		
558665	2N 2E 27 NE, SW, NW	WITHDRAWAL PERMIT	WATER PRODUCTION	MONITORING	8/22/1996	305	0	STEEL - PERFORATED OR SLOTTED CASING	305	12	UNITED INDUSTRIAL CORPORA	
558697	2N 2E 27 SE, SW, NW	WITHDRAWAL PERMIT	WATER PRODUCTION	MONITORING	9/13/1996	370	0	STEEL - PERFORATED OR SLOTTED CASING	365	12	UNITED INDUSTRIAL CORPORA	
626554	2N 2E 15 SW, SW, NE	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	3/1/1959	1200	263	STEEL - PERFORATED OR SLOTTED CASING	1200	450		
604114	2N 2E 16 SE, SE, SE	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	1/1/1950	1300	253	STEEL - PERFORATED OR SLOTTED CASING	1300	600		
626552	2N 2E 27 SE, SW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	4/1/1955	701	203	STEEL - PERFORATED OR SLOTTED CASING	701	700		
626553	2N 2E 27 SE, SW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	5/1/1957	545	194	STEEL - PERFORATED OR SLOTTED CASING	545	700		
626575	2N 2E 28 NE, NW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	1/1/1962	650	184	STEEL - PERFORATED OR SLOTTED CASING	650	750		
626576	2N 2E 28 NE, NW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	3/1/1957	630	184	STEEL - PERFORATED OR SLOTTED CASING	630	800		
564732	2N 2E 27 SE, NE, NE	MONITOR	WATER PRODUCTION	TEST	10/9/1997	450	0	PLASTIC OR PVC	380	0	UNITED INDUSTRIAL CORPORA	
564733	2N 2E 27 SE, NE, NE	MONITOR	WATER PRODUCTION	TEST	10/9/1997	140	95	PLASTIC OR PVC	135	0	UNITED INDUSTRIAL CORPORA	

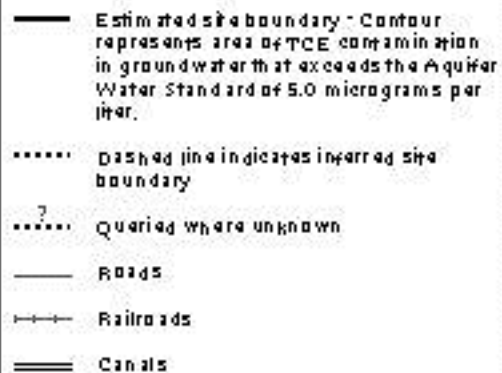
Table 4
Summary of COP Wells in West Central Phoenix

Well No.	Well Status	Reason Well is Not Active	Date Taken Out of Service	Year Drilled	Well Diameter (inches)	Well Depth (feet)	Maximum Pumping Capacity
68	Inactive but not capped	1221 mg/L TDS 34 mg/L Nitrates	3/1986	1953	12	434	750
69	Abandoned	825 mg/L TDS 15mg/L Nitrates	10/1988	1954	16	405	450
70	Capped	8.9 µg/L TCE	9/1982	1955	16	701	800
71	Capped	29.0 µg/L TCE	4/1982	1957	16	545	700
72	Active	N/A	N/A	1959	20	1200	442
151	Capped	3.3 µg/L TCE 16 mg/L Nitrates	3/1989	1962	12	650	850
152	Capped	3.9 µg/L TCE 12 mg/L Nitrates	3/1989	1957	20-12	630	1320
157	Inactive but not capped	14 mg/L Nitrates	11/1989	1962	20	696	1169
77	Unused/Capped	Unknown	Unknown	1952	12	400	Unknown
100	Closed	Ethylene dibromide contamination	10/1984	1952	12	387	Unknown

Sources:

- 1) Information from COP letter to ADEQ, April 2001.
- 2) Earth Technology Corporation, August 1989. Water Quality Assurance Revolving Fund Phase I Report. West Central Phoenix Area, Task Assignment E-1, Phoenix, Arizona.

FIGURES



Project No. 6854





Arizona Department of Environmental Quality
WCP North Plume Water Quality Assurance Revolving Fund Site
Land & Water Use Report

Figure 2
Facilities Within WCP North Plume Site

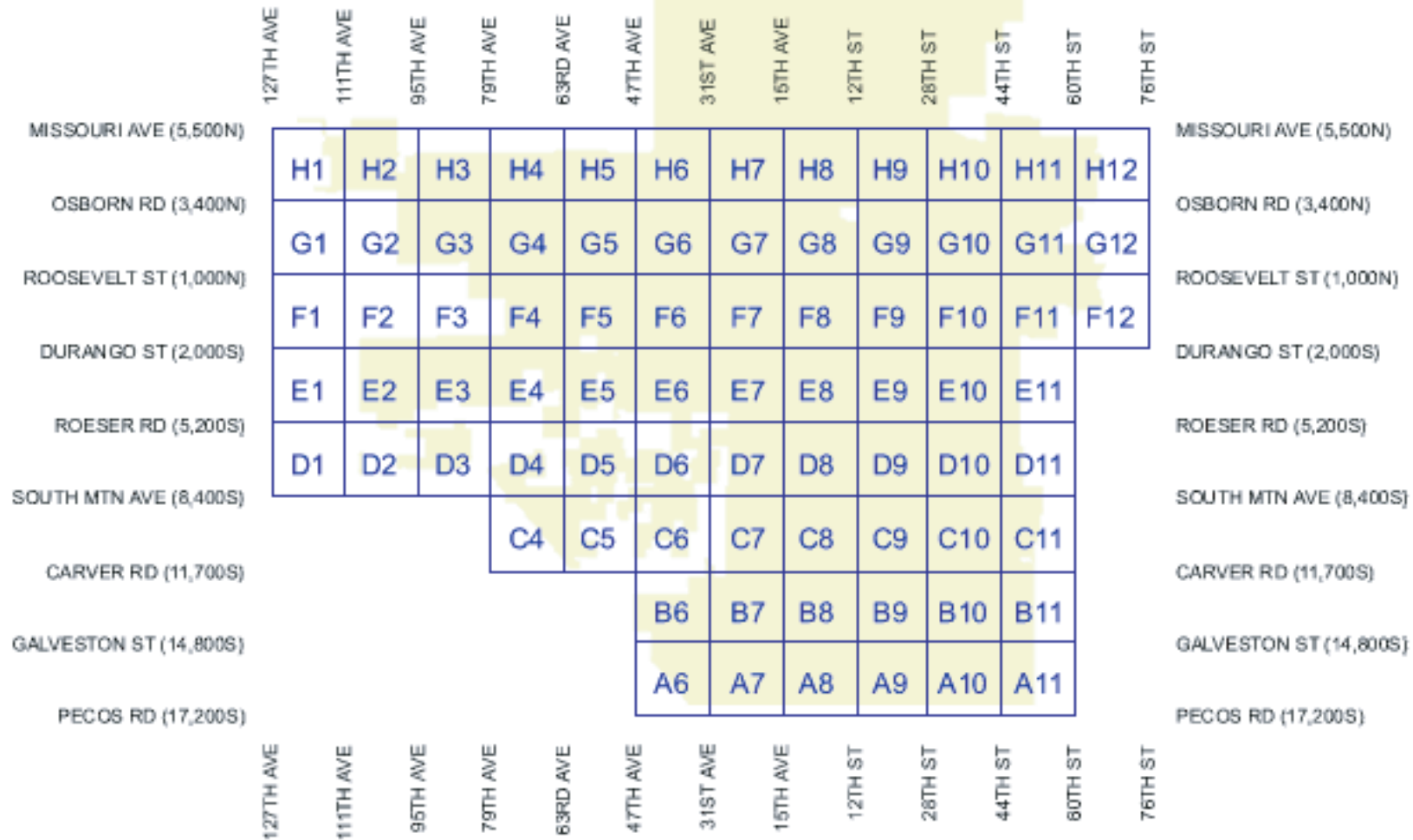
Project No. 6854-44



The map displays the Grand Canal area in Phoenix, Arizona. The canal is shown as a thick black line, starting from the New River and flowing generally eastward. Key streets shown include Olive Ave., Northern Ave., Glendale Ave., Bethany Home Rd., Camelback Rd., Indian School Rd., Thomas Rd., McDowell Rd., and Van Buren St. The New River and Agua Fria River are also depicted. Station locations are marked with black dots and labeled with coordinates in the format E-N (e.g., 5E-12N, 10E-11.8N). The canal is labeled 'GRAND' and 'CANAL' at different points.

Station Label	Approximate Easting (E)	Approximate Northing (N)
5E-12N	5	12
5.3E-12.3N	5.3	12.3
6E-12N	6	12
10E-11.8N	10	11.8
2E-10N	2	10
10E-9.3N	10	9.3
2E-9N	2	9
4E-9N	4	9
3E-8.9N	3	8.9
2E-8.5N	2	8.5
5.5E-8.5N	5.5	8.5
6E-8.3N	6	8.3
8E-8.5N	8	8.5
2E-8N	2	8
3E-8N	3	8
4E-8N	4	8
5E-8.3N	5	8.3
6.3E-8N	6.3	8
9.5E-7.7N	9.5	7.7
5E-7.5N	5	7.5
7E-7.8N	7	7.8
7.5E-7.5N	7.5	7.5
8.5E-7.5N	8.5	7.5
1E-7N	1	7
2E-7N	2	7
7E-6.8N	7	6.8
6E-6.4N	6	6.4
8E-6.5N	8	6.5
3.5E-6N	3.5	6
5E-6N	5	6
OE-5.5N	0	5.5
2E-5N	2	5
4E-5N	4	5

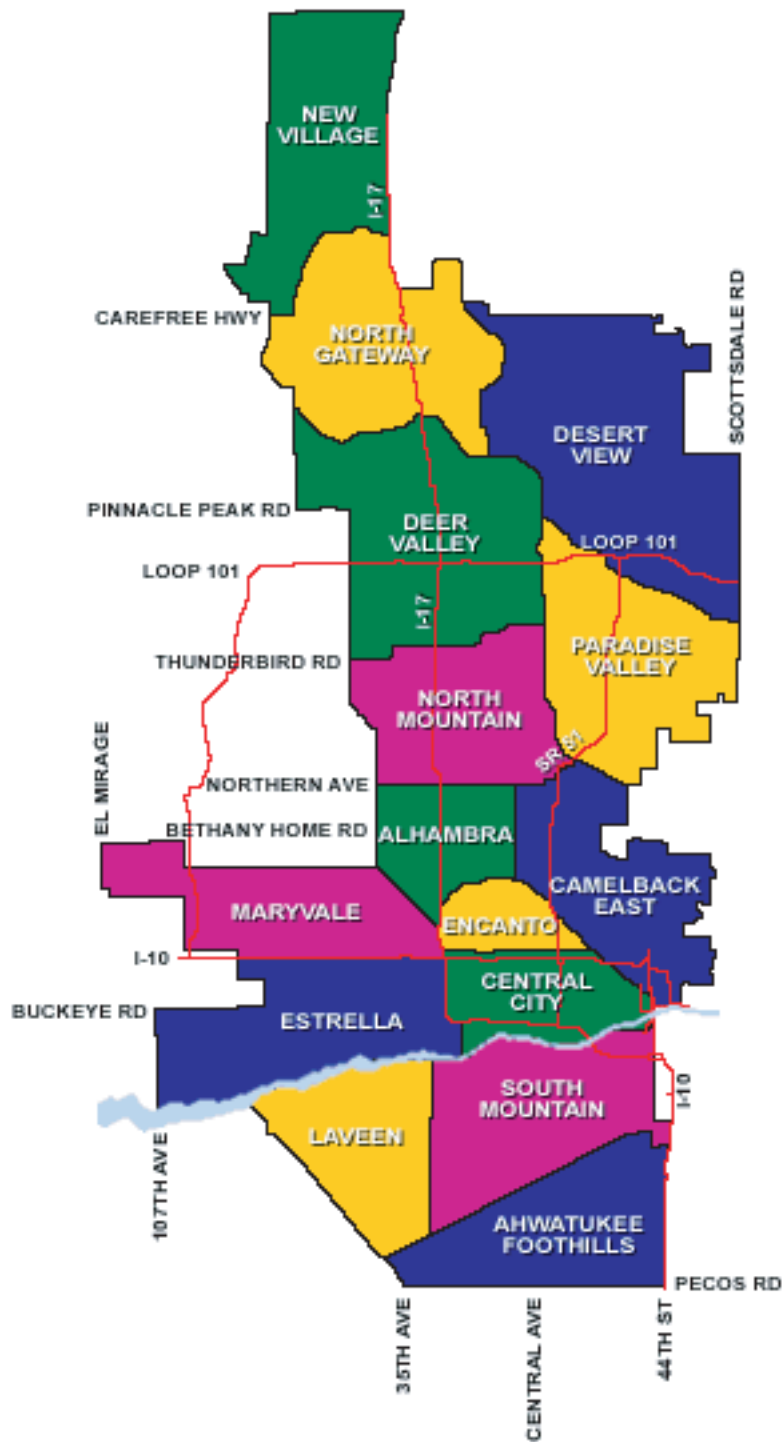
4/20/94 CAR.[140.77]SRBWPTA DG



Arizona Department of Environmental Quality
WCP North Plume Water Quality Assurance Revolving Fund Site
Land & Water Use Report

Figure 4
Master Zoning Map District for
City of Phoenix
Project No. 6854-44





Source: City of Phoenix Website <http://www.ci.phoenix.az.us/PLANNING/vpcommitt.html>

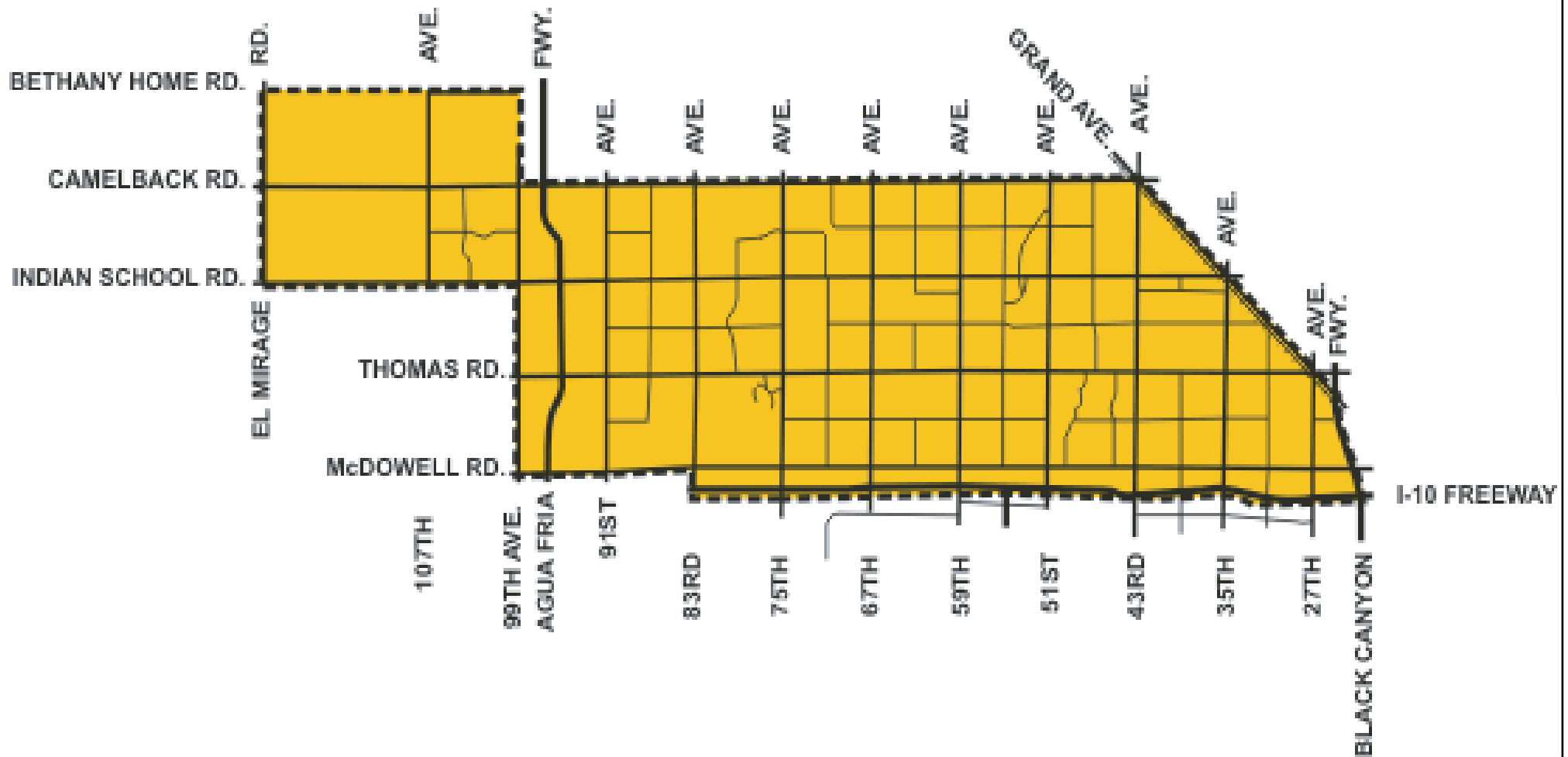
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Land & Water Use Report

Figure 5
Boundary Map for City of Phoenix
Village Planning Committees

Project No. 6854-44



MARYVALE VILLAGE



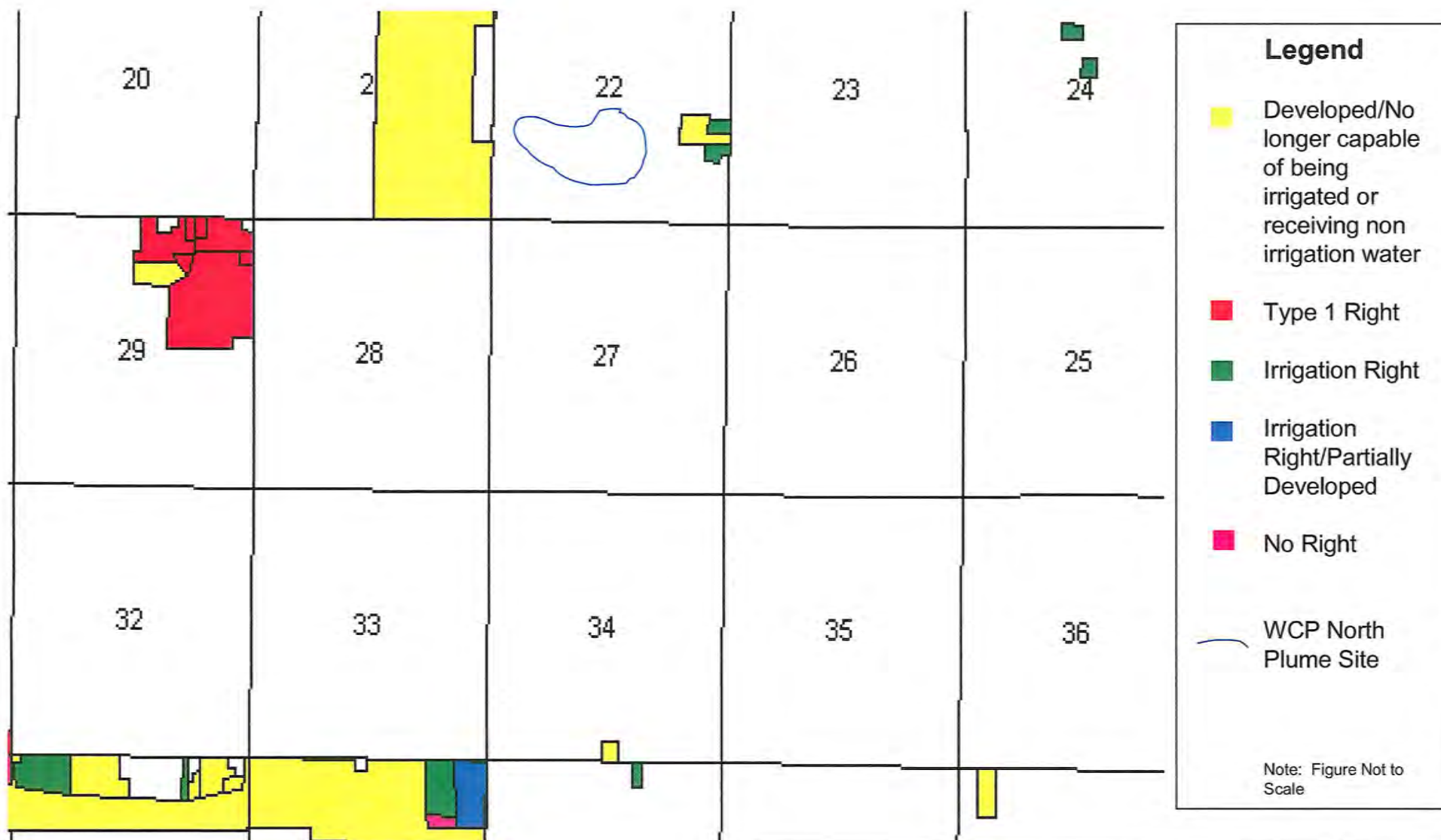
Arizona Department of Environmental Quality
WCP North Plume Water Quality Assurance Revolving Fund Site
Land & Water Use Report

Figure 6

Boundary Map for City of Phoenix
Maryvale Village Planning Committee

Project No. 685444



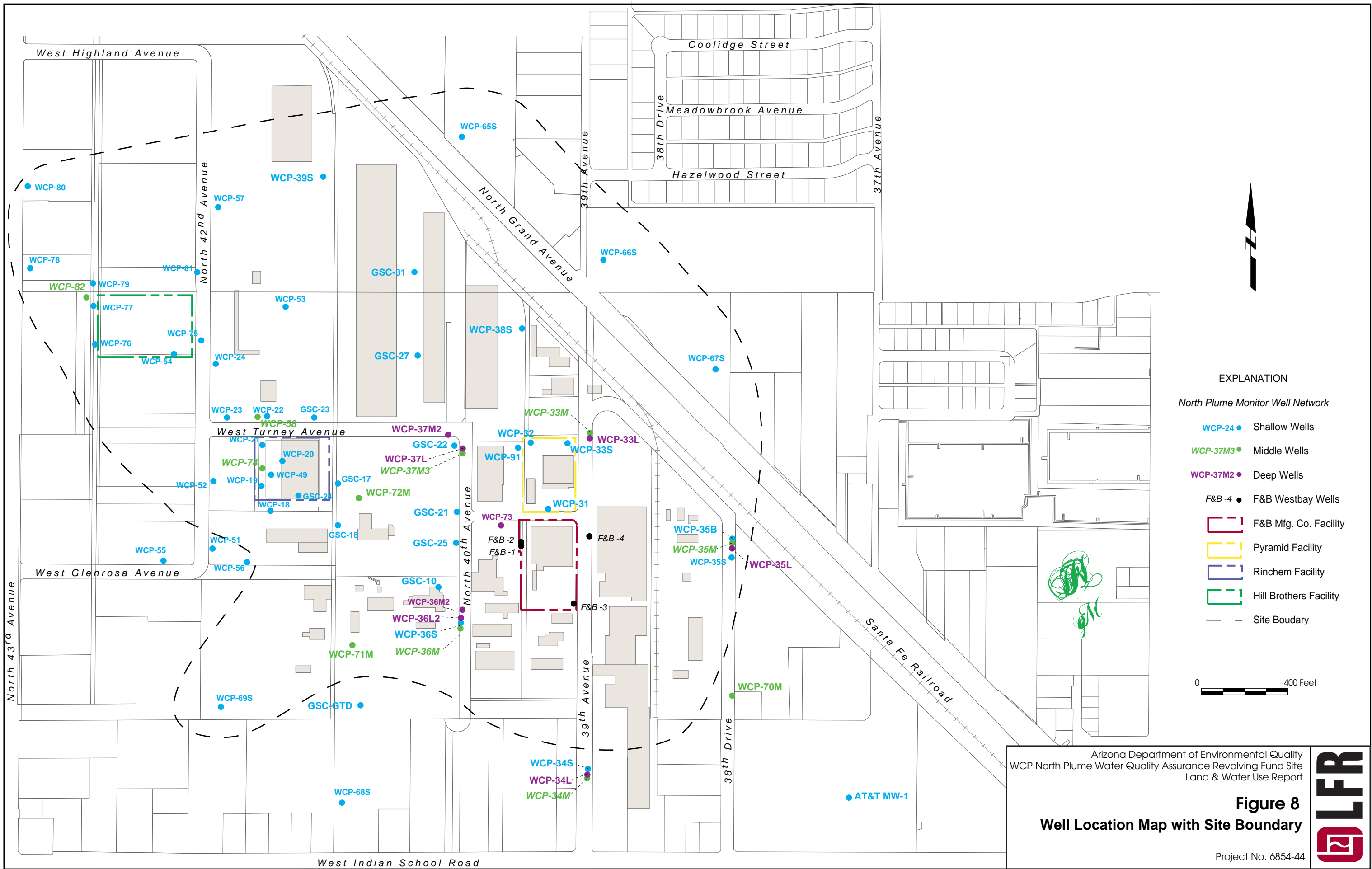


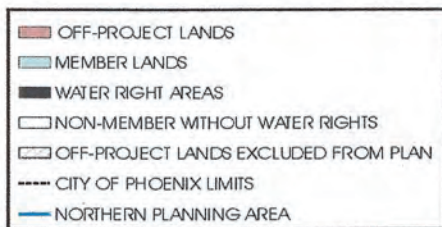
Arizona Department of Environmental Quality
WCP North Plume Water Quality Assurance Revolving Fund Site
Land & Water Use Report

Figure 7
Grandfathered Irrigation and Type I
Non-Irrigation Groundwater Rights

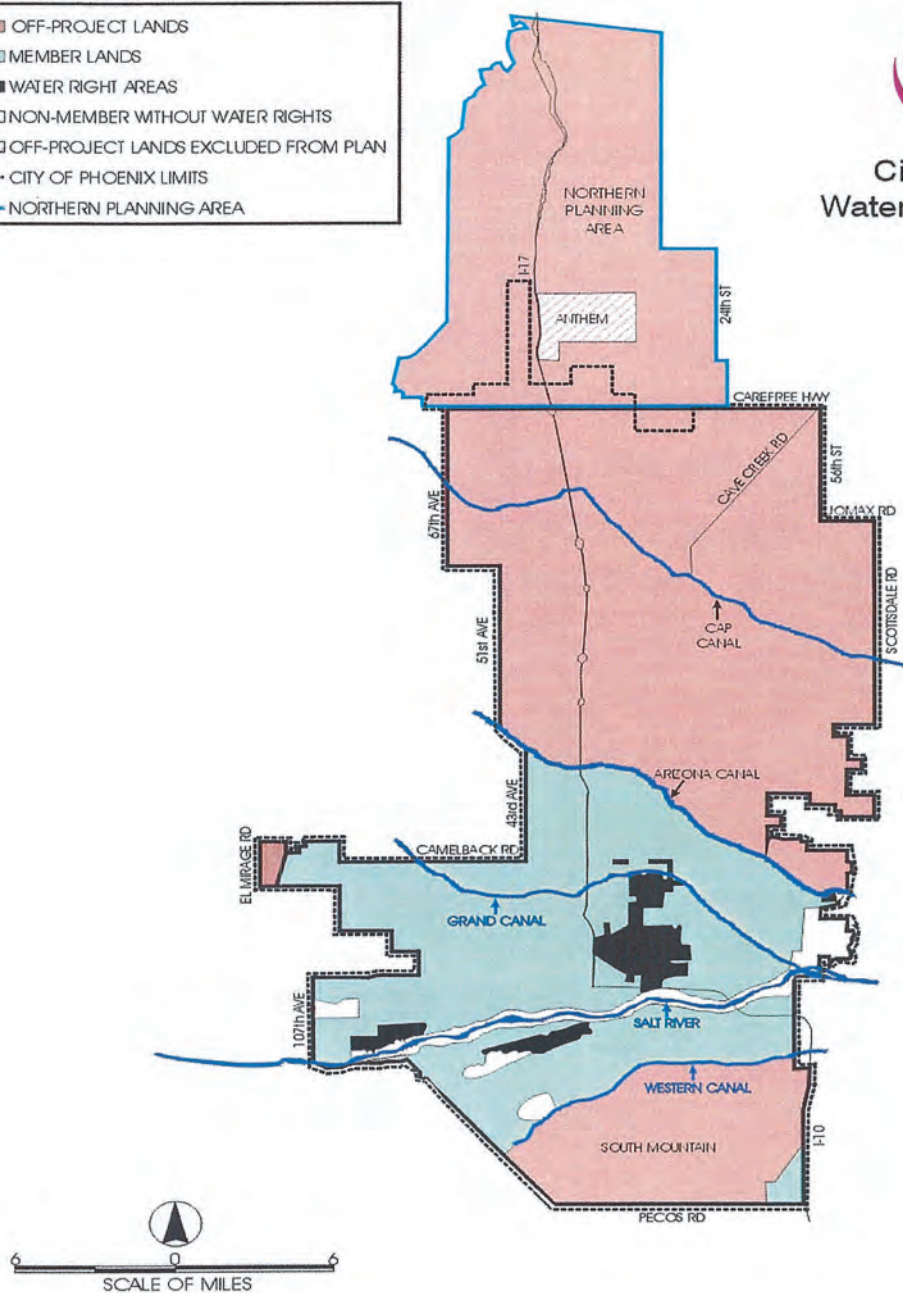
Project No. 6854-44







City of Phoenix
Water Resources Plan
2000

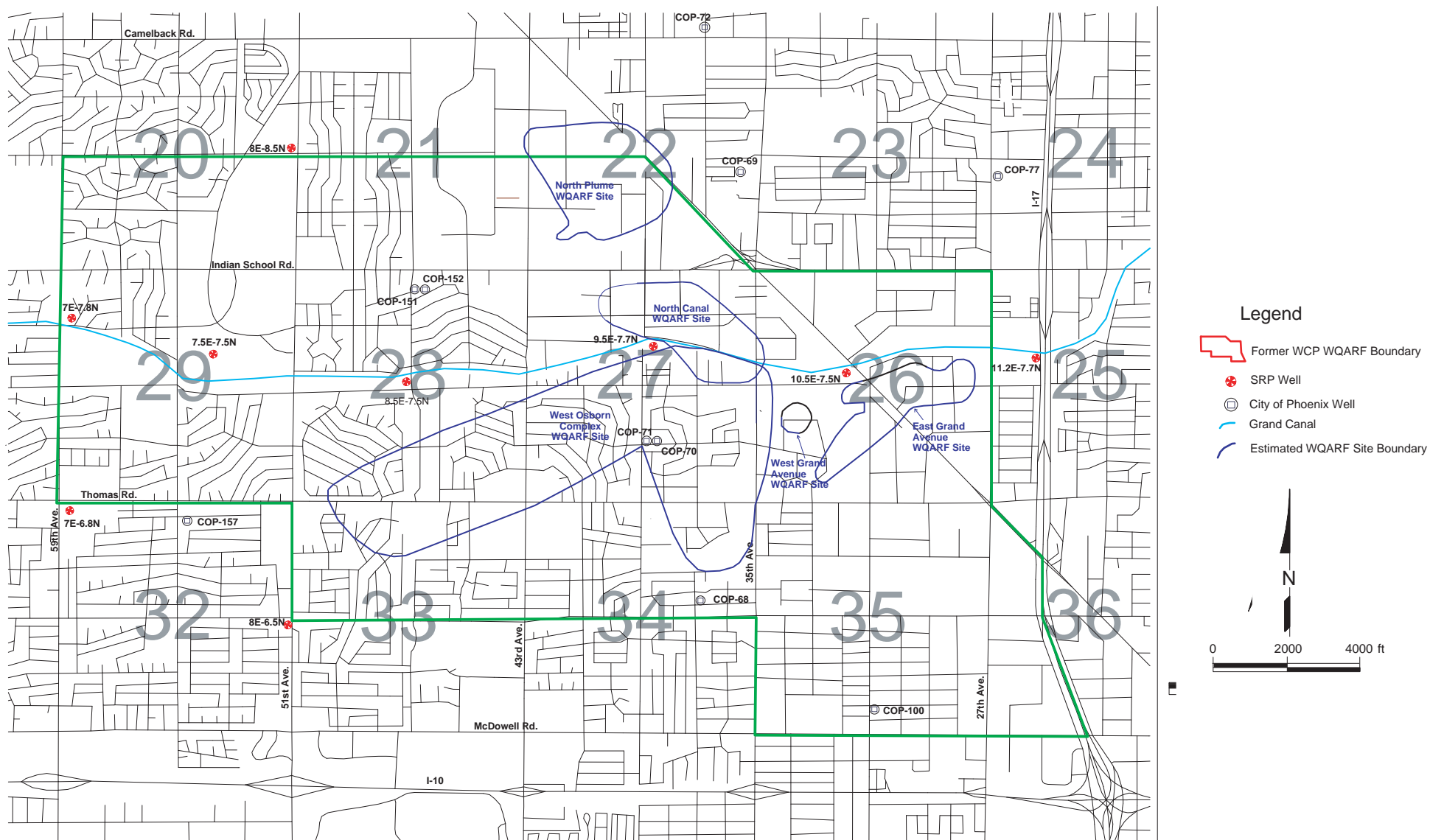


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Figure 9
Water Service Planning Boundaries

Project No. 6854-44



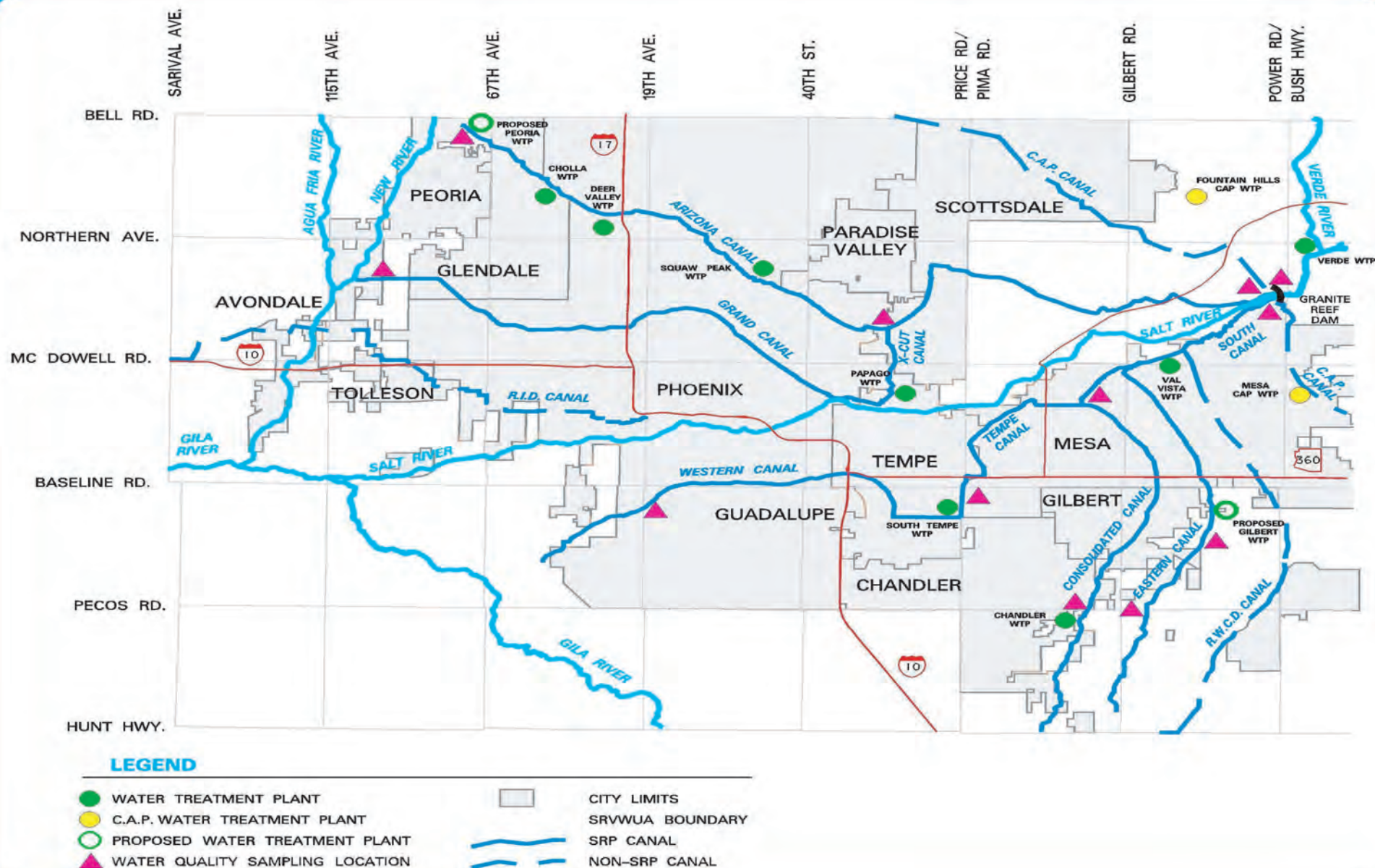


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Figure 10
COP and SRP Wells within the
West Central Phoenix Area

Project No. 6854-44





SRP CANAL SYSTEM



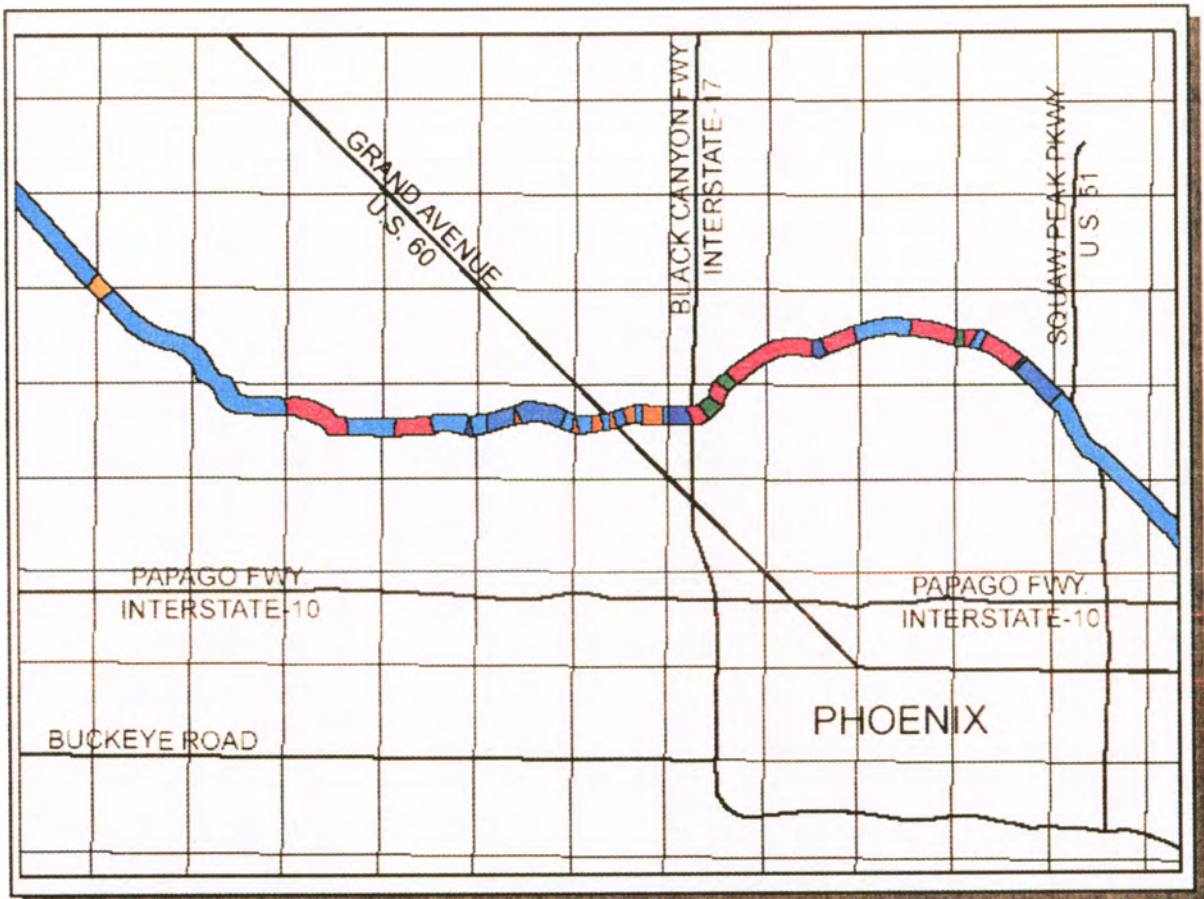
© 2000 Salt River Project (SRP)
 SRP makes no representation as to the accuracy of this mapping product nor as to its fitness for a particular purpose.
 12/15/93 CAR 1140 2003WPCAN.DOC

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Figure 11
SRP Canal System

Project No. 6854-44





- Bottom and Bank Lining
- Bottom Lining Only
- Lining on Both Banks
- Lining on One Bank Only
- Unlined
- Piped
- Lining on Bottom and One Bank

NOTE: Figure adapted from the map of Lined and Unlined Canals by the Salt River Valley Water User's Association.

Arizona Department of Environmental Quality
WCP North Plume Water Quality Assurance Revolving Fund Site
Land & Water Use Report

Figure 12
Lined and Unlined Sections of the Grand Canal

Project No. 6854-44



APPENDICES

APPENDIX A

Appendix A Zoning Code Descriptions

Zoning Code	Name	Description/Purpose
A-1	Light Industrial District	Industrial uses designed to serve the needs of the community for industrial activity not offensive to nearby commercial and residential uses.
A-2	Industrial District	Designed to accommodate uses with one or more of the following characteristics: intensive use of property; open uses and/or storage; industrial processes which may involve significant amounts of heat, mechanical, and chemical processing, large amounts of materials transfer, extended or multiple shift operation, large scaled structures. Such uses often function best in association with other similar or supportive uses. Because of the intensity and characteristics of this use class, specific standards are set to maximize their compatibility when adjacent to residential districts or when located on arterial or collector streets.
C-1	Commercial Neighborhood Retail District	Light neighborhood type retail and customer service uses designed to be compatible with each other and nearby residential districts.
C-2	Commercial Intermediate District	Commercial uses of medium intensity designed to be compatible with each other and to provide for a wide range of types of commercial activity within the district.
C-3	Commercial General District	Designed to provide for the intensive commercial uses necessary to the proper development of the community.
CP/GCP	Commerce Park/General Commerce park option	Provides for a broad range of manufacturing, warehousing, distribution and supportive retail sales and services. It is differentiated from the A-1 and A-2 districts, however, in that environmental and site standards ensure a high degree of compatibility with other commerce park options as well as other adjacent uses.
R1-6	Residential	Single family residence 5.30 dwellings/acre – base intensity.
R-5	Residential	Multi family residence 43.5 dwellings/acre – base intensity.



City of Phoenix

PLANNING DEPARTMENT

Zoning Districts with Brief Descriptions

For additional information, please call the Planning Department at (602) 262-7131, option #6.

Zoning District	Description
S-1	Ranch or Farm
S-2	Ranch or Farm Commercial
RE-43	One Family Residence (43,560 sq. ft. min.) (No longer available for rezoning)
RE-24	One Family Residence (24,000 sq. ft. min.) (No longer available for rezoning)
R1-14	One Family Residence (14,000 sq. ft. min.) (No longer available for rezoning)
RE-35	Single Family Residence (density range of 1.1 to 1.15 or 1.32 w/bonus)
R1-18	Single Family Residence (density range of 1.95 to 2.05 or 2.34 w/bonus)
R1-10	Single Family Residence (density range of 3 to 3.5 or 4.5 w/bonus)
R1-8	Single Family Residence (density range of 4 to 4.5 or 5.5 w/bonus)
R1-6	Single Family Residence (density range of 5 to 5.5 or 6.5 w/bonus)
R-2	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 10 to 10.5 or 12 w/bonus)
R-3	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 14.5 to 15.23 or 17.4 w/bonus)
R-3A	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 22 to 23.1 or 26.4 w/bonus)
R-4	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 29 to 30.45 or 34.8 w/bonus)
R-5	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 43.5 to 45.68 or 52.2 w/bonus)
R-4A	Multiple Family Residence (Dependent on lot area and unit type)
R-O	Residential Office – Restricted Commercial
C-O	Commercial Office – Restricted Commercial (C-O prior to 1986)
C-O/G-O	Commercial Office – General Office Option (Minimum 1 gross acre)
C-O/M-O	Commercial Office – Major Office Option (Minimum 5 gross acres)
C-1	Commercial – Neighborhood Retail
C-2	Commercial – Intermediate Commercial

C-3	Commercial – General Commercial
CP/SU	Commerce Park – Single User Option
CP/RP	Commerce Park – Research Park Option
CP/BP	Commerce Park – Business Park Option
CP/GCP	Commerce Park – General Commerce Park Option
IP or Ind. Pk.	Industrial Park (See CP) (No longer available for rezoning)
A-1	Light Industrial
A-2	Industrial
RH	Resort
RI	Residential Infill (Combined w/underlying zoning)
HR	High-Rise and High Density (Combined w/underlying zoning)
HR1	High-Rise and High Density (Downtown Area) (Combined w/underlying zoning)
HRI	High-Rise Incentive – High-Rise and Mixed Use (Combined w/underlying zoning)
MR	Mid-Rise (Combined w/underlying zoning)
PAD	Planned Area Development (No longer available for rezoning)
PCD	Planned Community District (Combined w/underlying zoning or approved zoning)
PSC	Planned Shopping Center (No longer available for rezoning)
RSC	Regional Shopping Center (No longer available for rezoning)
P-1	Passenger Automobile Parking, Limited (Surface parking)
P-2	Parking (Surface parking and parking structures)
GC	Golf Course
UR	Urban Residential (May apply between 7 th Ave. to 7 th St. & Lincoln St. to Grand Canal)
DC	Downtown Core (Underlying zoning for Fillmore to Harrison & 7 th St. to 3 rd Ave.)
W	Warehouse Overlay (Combined w/underlying zoning) (Applies to specific area near downtown)
Warehouse Parking	(Combined w/underlying zoning)
Capitol Mall Overlay	(Combined w/underlying zoning) (Applies to specific area near the Capitol)
SP	Special Permit (Combined w/underlying zoning) (Allows a number of specific uses not otherwise permitted in the underlying zoning district)
MUA	Mixed Use Agricultural (Should be designated as MUA on the General Plan)
HCRO	Historic Canal-Side Restaurant Overlay (Combined w/underlying zoning) (Applies to site at Central Ave. & The Arizona Canal)
Baseline Area Overlay	(Combined w/underlying zoning) (Applies between Central to 40 th St. & Southern to South Mountain Park)

Arcadia Camelback Special Planning District Camelback Road Overlay	(Combined w/underlying zoning) (Applies along Camelback Rd. from 44 th St. to the City limits to the east)
Desert Character Overlay	(Combined w/underlying zoning) (Applies to North Land Use Plan area)
NBCC	North Black Canyon Overlay (Combined w/underlying zoning) (Specific guidelines for applicability)
RSIO	Rio Salado Interim Overlay (Combined w/underlying zoning) (Applies between I-17/I-10 to Broadway Rd. & 19 th Ave. to 32 nd St.
HP	Historic Preservation Overlay (Combined w/underlying zoning)
CCSIO	Central City South Interim Overlay (Combined w/underlying zoning) (Applies to specific area)
Four Corners Overlay	(Applies to specific area near 24 th St. & Broadway Rd.)
SPVTABDO	South Phoenix Village and Target Area B Design Overlay (Applies to specific areas and residential development of 1 and 2 dwelling units per lot)
PSC Overlay	Planned Shopping Center Overlay
SPD	Special Planning District (Combined w/underlying zoning) (Applies to specific neighborhoods)

Note: See Section 608 of the Zoning Ordinance to calculate bonus points for residential development.

APPENDIX B

Groundwater Wells Located within One Mile Radius of WCP North Plume Site
Land and Water Use Report



ADWR 55 ID Number	Location (T,R Section, Acre 160, Acre 40, Acre 10)	Well Type	Well Use	Water Use	Approved or Installed	Well Depth (ft bgs)	Water Level (ft bgs)	Casing Type	Casing Depth (ft)	Pump Rate (gpm)	Company	Cancelled
ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
626554	2N 2E 15 SW, SW, NE	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	3/1/1959	1200	263	STEEL - PERFORATED OR SLOTTED CASING	1200	450		
546588	2N 2E 15 SE, SE, SE	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0		Y
530697	2N 2E 16 SE, NE, NE	EXPLORATION	CATHODIC	NONE	4/5/1991	260	0	PLASTIC OR PVC	260	0		
565712	2N 2E 16 SE, NE, SW	GEOTECHNICAL	GEOTECHNICAL	NONE	12/1/1997	0	0		0	0	CHRISTY SIGNS	Y
634575	2N 2E 16 SE, NW, NW	EXEMPT	WATER PRODUCTION	DOMESTIC	1/1/1949	0	0	STEEL - PERFORATED OR SLOTTED CASING	410	30		
400203	2N 2E 16 SE, NW, SW	NON-EXEMPT	ABANDONED	MUNICIPAL	6/6/2000	0	0		0	0	COP Water Services	Y
546431	2N 2E 16 SE, SW, NW	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0		Y
086999	2N 2E 16 SE, SE, NE	EXEMPT	WATER PRODUCTION	DOMESTIC	6/1/1981	510	197	STEEL - PERFORATED OR SLOTTED CASING	512	26		
604114	2N 2E 16 SE, SE, SE	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	1/1/1950	1300	253	STEEL - PERFORATED OR SLOTTED CASING	1300	600		
557135	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/19/1996	150	130	PLASTIC OR PVC	130	0		
557138	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/25/1996	150	150	PLASTIC OR PVC	150	0		
557469	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/21/1996	150	130	PLASTIC OR PVC	120	0		
557471	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/26/1996	150	130	PLASTIC OR PVC	130	0		
557473	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/3/1996	150	130	PLASTIC OR PVC	130	0		
557476	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	6/13/1996	150	130	PLASTIC OR PVC	130	0		
557477	2N 2E 22NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
557134	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/17/1996	150	130	PLASTIC OR PVC	130	0		
557136	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/21/1996	150	130	PLASTIC OR PVC	130	0		
557137	2N2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/24/1996	150	130	PLASTIC OR PVC	130	0		
557470	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/26/1996	150	130	PLASTIC OR PVC	130	0		
557472	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/28/1996	150	130	PLASTIC OR PVC	130	0		
557474	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/6/1996	150	130	PLASTIC OR PVC	130	0		
557475	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	6/11/1996	150	0	PLASTIC OR PVC	130	0		
557478	2N 2E 22 NE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
567359	2N 2E 22 NE, NE, NW	GEOTECHNICAL	GEOTECHNICAL	NONE	3/18/1998	125	0		0	0	TOSCO MARKETING CO	
584357	2N 2E 22 NE, NE, NW	GEOTECHNICAL	GEOTECHNICAL	NONE	11/29/2000	0	0		0	0	TOSCO MARKETING CO	
584359	2N 2E 22 NE, NE, NW	MONITOR	MONITOR	TEST	11/27/2000	0	0		0	0	TOSCO MARKETING CO	
546011	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546012	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546013	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y

Groundwater Wells Located within One Mile Radius of WCP North Plume Site
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ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
546014	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546016	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546017	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546019	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546020	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546022	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546023	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546015	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546018	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
546021	2N 2E 22 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
581250	2N 2E 22 NE, SW, SW	MONITOR	ABANDONED	TEST	3/2/2001	0	0		0	0	ADEQ	
526216	2N 2E 22 NE, SW, SW	MONITOR OR PIEZ	MONITOR	MONITORING	10/2/1989	73	0	PLASTIC OR PVC	70	0		
582828	2N 2E 22 NE, SW, SW	MONITOR	MONITOR	TEST	10/22/2000	159	0	STEEL - PERFORATED OR SLOTTED CASING	119	0	ADEQ	
548363	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	4/11/1995	150	129	PLASTIC OR PVC	150	0		
548365	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	4/19/1995	150	129	PLASTIC OR PVC	150	0		
548367	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
552925	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	3/27/1996	150	130	PLASTIC OR PVC	120	0		
552927	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	3/24/1996	150	130	PLASTIC OR PVC	120	0		
552929	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	6/12/1996	150	130	PLASTIC OR PVC	120	0		
552932	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	6/19/1996	150	130	PLASTIC OR PVC	120	0		
552933	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	6/20/1996	150	130	PLASTIC OR PVC	120	0		
548362	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	4/7/1995	150	129	PLASTIC OR PVC	150	0		
548364	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	4/13/1995	150	129	PLASTIC OR PVC	150	0		
548366	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
552924	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	3/26/1996	150	130	PLASTIC OR PVC	120	0		
552926	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	3/28/1996	150	130	PLASTIC OR PVC	146	0		
552928	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	6/5/1996	150	130	PLASTIC OR PVC	120	0		
552930	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	6/4/1996	150	130	PLASTIC OR PVC	120	0		
552931	2N 2E 22 NE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	6/19/1996	150	130	PLASTIC OR PVC	120	0		
634633	2N 2E 22 NE, SE, SE	EXEMPT	WATER PRODUCTION	DOMESTIC	2/15/1979	500	80	PLASTIC OR PVC	500	4		
585103	2N 2E 22 NW, SW, SW	MONITOR	MONITOR	TEST	1/19/2001	0	0		0	0	ADEQ	
585104	2N 2E 22 NW, SW, SW	MONITOR	MONITOR	TEST	1/19/2001	0	0		0	0	ADEQ	
585105	2N 2E 22 NW, SW, SW	MONITOR	MONITOR	TEST	1/19/2001	0	0		0	0	ADEQ	
585106	2N 2E 22 NW, SW, SW	MONITOR	MONITOR	TEST	1/19/2001	0	0		0	0	ADEQ	

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ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
585107	2N 2E 22 NW, SW, SW	MONITOR	MONITOR	TEST	1/19/2001	0	0		0	0	ADEQ	
585575	2N 2E 22 NW, SW, SW	MONITOR	MONITOR	TEST	2/28/2001	0	0		0	0	ADEQ	
585576	2N 2E 22 NW, SW, SE	MONITOR	MONITOR	TEST	2/28/2001	0	0		0	0	ADEQ	
585577	2N 2E 22 NW, SW, SE	MONITOR	MONITOR	TEST	2/28/2001	0	0		0	0	ADEQ	
577656	2N 2E 22 NW, SE, SW	MONITOR	MONITOR	TEST	11/11/1999	150	136	STEEL - PERFORATED OR SLOTTED CASING	150	0	ADEQ	
581249	2N 2E 22 NW, SE, SE	MONITOR	MONITOR	TEST	7/26/2000	150	0	STEEL - PERFORATED OR SLOTTED CASING	110	0	ADEQ	
573075	2N 2E 22 SW, NE, NE	MONITOR	MONITOR	TEST	6/24/1999	550	148		461	0	ADEQ	
573087	2N 2E 22 SW, NE, NE	MONITOR	MONITOR	TEST	7/8/1999	280	139		260	0	ADEQ	Y
576595	2N 2E 22 SW, NE, NE	MONITOR	MONITOR	TEST	8/20/1999	280	143	SCREEN	280	0	ADEQ	
577657	2N 2E 22 SW, NE, NE	MONITOR	MONITOR	TEST	11/7/1999	150	133	STEEL - PERFORATED OR SLOTTED CASING	150	0	ADEQ	
518075	2N 2E 22 SW, NE, NW	MONITOR OR PIEZ	OBSERVATION	MONITORING		0	0		0	0		Y
518076	2N 2E 22 SW, NE, NW	MONITOR OR PIEZ	OBSERVATION	MONITORING		0	0		0	0		Y
523286	2N 2E 22 SW, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	1/20/1989	140	125	PLASTIC OR PVC	140	0		
514743	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	7/30/1986	135	115	PLASTIC OR PVC	135	0		
514746	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/19/1986	135	115	PLASTIC OR PVC	135	0		
514747	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/9/1986	135	115	PLASTIC OR PVC	135	0		
515554	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	11/30/1986	145	115	PLASTIC OR PVC	145	0		
515556	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	12/11/1986	145	115	PLASTIC OR PVC	145	0		
515979	2N 2E 22 SW, NE, SW	NON-EXEMPT	TEST	MONITORING	2/26/1988	130	115		130	0		Y
516111	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	12/10/1986	155	115	STEEL - PERFORATED OR SLOTTED CASING	155	0		
518070	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/14/1987	150	119	PLASTIC OR PVC	150	0		
520313	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	3/7/1988	140	100	PLASTIC OR PVC	140	0		
522164	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	11/21/1988	155	125	STEEL - PERFORATED OR SLOTTED CASING	115	14		
541642	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	1/19/1994	152	0	STEEL - PERFORATED OR SLOTTED CASING	92	0		
541645	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
541646	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
541647	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	10/12/1994	130	127	PLASTIC OR PVC	40	0		

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ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
557376	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
557377	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
557378	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
558018	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
558019	2N 2E 22SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
559537	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
559538	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
515553	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	11/24/1986	145	115	PLASTIC OR PVC	145	0		
515555	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	12/5/1986	145	115	PLASTIC OR PVC	145	0		
515557	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	4/13/1987	150	115	PLASTIC OR PVC	150	0		
515558	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	4/8/1987	140	115	PLASTIC OR PVC	140	0		
516110	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	12/6/1986	155	115	STEEL - PERFORATED OR SLOTTED CASING	155	0		
518071	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/23/1987	150	119	PLASTIC OR PVC	150	0		
518077	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/27/1988	150	120	PLASTIC OR PVC	150	0		
521983	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/22/1988	135	117	PLASTIC OR PVC	135	0		
522163	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	9/1/1988	160	125	STEEL - PERFORATED OR SLOTTED CASING	110	14		
522165	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	OBSERVATION	MONITORING	12/2/1988	155	125	STEEL - PERFORATED OR SLOTTED CASING	115	14		
541643	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	1/13/1994	132	118	PLASTIC OR PVC	130	0		
541644	2N 2E 22 SW, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	10/14/1994	180	127	PLASTIC OR PVC	170	0		
582567	2N 2E 22 SW, NE, SW	MONITOR	MONITOR	TEST	10/19/2000	279	0	STEEL - PERFORATED OR SLOTTED CASING	258	0	ADEQ	
518073	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	OBSERVATION	MONITORING		0	0		0	0		Y
518074	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	OBSERVATION	MONITORING		0	0		0	0		Y
521984	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/22/1988	135	117	PLASTIC OR PVC	135	0		
541538	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	1/19/1994	510	124	PLASTIC OR PVC	505	0		
546836	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
564515	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	117	PLASTIC OR PVC	100	0		
581387	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/7/2000	0	0		0	0	ADEQ	
536084	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	9/2/1992	235	110	STEEL - PERFORATED OR SLOTTED CASING	235	0		

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537658	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	4/23/1993	505	123	PLASTIC OR PVC	505	0		
540127	2N 2E 22 SW, NE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	9/17/1993	520	105	STEEL - PERFORATED OR SLOTTED CASING	510	0		
581388	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/7/2000	0	0		0	0	ADEQ	
567995	2N 2E 22 SW, NE, SE	GEOTECHNICAL	GEOTECHNICAL	NONE	4/15/1998	0	0		0	0	ADEQ	Y
581389	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/7/2000	0	0		0	0	ADEQ	
581385	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/7/2000	0	0		0	0	ADEQ	
581386	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/7/2000	0	0		0	0	ADEQ	
573088	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/28/1999	390	142		385	0	ADEQ	
574155	2N 2E 22 SW, NE, SE	GEOTECHNICAL	CATHODIC	NONE	4/14/1999	0	0		0	0	ADEQ	
574156	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	4/14/1999	0	0		0	0	ADEQ	
574157	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	4/14/1999	0	0		0	0	ADEQ	
574158	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	4/14/1999	0	0		0	0	ADEQ	
581390	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/7/2000	0	0		0	0	ADEQ	
581391	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	6/7/2000	0	0		0	0	ADEQ	
583698	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	11/3/2000	580	160	STEEL - PERFORATED OR SLOTTED CASING	240	0	ADEQ	Y
584274	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	11/18/2000	750	0	STEEL - PERFORATED OR SLOTTED CASING	525	0	ADEQ	
584901	2N 2E 22 SW, NE, SE	GEOTECHNICAL	GEOTECHNICAL	NONE	12/28/2000	0	0		0	0	ADEQ	
584902	2N 2E 22 SW, NE, SE	MONITOR	MONITOR	TEST	1/23/2001	152	127	STEEL - PERFORATED OR SLOTTED CASING	152	0	ADEQ	
518072	2N 2E 22 SW, NW, NE	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/27/1987	150	119	PLASTIC OR PVC	150	0		
568255	2N 2E 22 SW, NW, NE	MONITOR	TEST	MONITORING	6/23/1998	145	118	PLASTIC OR PVC	145	0	ADEQ	
578058	2N 2E 22 SW, NW, NE	MONITOR	MONITOR	TEST	6/25/2000	300	0	PLASTIC OR PVC	280	0	ADEQ	
578059	2N 2E 22 SW, NW, NE	MONITOR	MONITOR	TEST	1/20/2000	160	130	PLASTIC OR PVC	160	0	ADEQ	
578061	2N 2E 22 SW, NW, NE	MONITOR	MONITOR	TEST	1/18/2000	160	128	PLASTIC OR PVC	159	0	ADEQ	
578062	2N 2E 22 SW, NW, NE	MONITOR	MONITOR	TEST	1/23/2000	160	128	PLASTIC OR PVC	159	0	ADEQ	
556532	2N 2E 22 SW, NW, NW	EXPLORATION	GEOTECHNICAL	NONE		125	122		0	0		
568280	2N 2E 22 SW, NW, SE	MONITOR	TEST	MONITORING	6/19/1998	145	118	PLASTIC OR PVC	145	0	ADEQ	
568272	2N 2E 22 SW, NW, SE	MONITOR	TEST	MONITORING	6/18/1998	145	118	PLASTIC OR PVC	145	0	ADEQ	
568271	2N 2E 22 SW, NW, SE	MONITOR	TEST	MONITORING	6/16/1998	145	118	PLASTIC OR PVC	145	0	ADEQ	
568270	2N 2E 22 SW, NW, SE	MONITOR	TEST	MONITORING	6/10/1998	145	118	PLASTIC OR PVC	145	0	ADEQ	

Groundwater Wells Located within One Mile Radius of WCP North Plume Site
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ADWR 55 ID Number	Location (T,R Section, Acre 160, Acre 40, Acre 10)	Well Type	Well Use	Water Use	Approved or Installed	Well Depth (ft bgs)	Water Level (ft bgs)	Casing Type	Casing Depth (ft)	Pump Rate (gpm)	Company	Cancelled
ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
568269	2N 2E 22 SW, NW, SE	MONITOR	TEST	MONITORING	6/9/1998	145	118	PLASTIC OR PVC	145	0	ADEQ	
568256	2N 2E 22 SW, NW, SE	MONITOR	TEST	MONITORING	6/13/1998	145	118	PLASTIC OR PVC	145	0	ADEQ	
578036	2N 2E 22 SW, NW, SE	GEOTECHNICAL	GEOTECHNICAL	NONE	11/19/1999	0	0		0	0	ADEQ	
578024	2N 2E 22 SW, NW, SE	MONITOR	MONITOR	TEST	1/14/2000	154	123	PLASTIC OR PVC	153	0	ADEQ	
578054	2N 2E 22 SW, NW, SE	MONITOR	MONITOR	TEST	1/10/2000	151	121	PLASTIC OR PVC	151	0	ADEQ	
578055	2N 2E 22 SW, NW, SE	MONITOR	MONITOR	TEST	1/4/2000	151	121	PLASTIC OR PVC	150	0	ADEQ	
578056	2N 2E 22 SW, NW, SE	MONITOR	MONITOR	TEST	12/8/1999	0	0		0	0	ADEQ	
578057	2N 2E 22 SW, NW, SE	MONITOR	MONITOR	TEST	1/6/2000	151	121	PLASTIC OR PVC	150	0	ADEQ	
578060	2N 2E 22 SW, NW, SE	MONITOR	MONITOR	TEST	1/12/2000	151	121	PLASTIC OR PVC	150	0	ADEQ	
582629	2N 2E 22 SW, NW, SE	MONITOR	MONITOR	TEST	8/3/2000	0	0		0	0	ADEQ	
533747	2N 2E 22 SW, SW, NE	MONITOR OR PIEZ	MONITOR	MONITORING	12/20/1991	145	110	PLASTIC OR PVC	99	0		
533748	2N 2E 22 SW, SW, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
582566	2N 2E 22 SW, SW, NE	MONITOR	MONITOR	TEST	9/8/2000	160	0	STEEL - PERFORATED OR SLOTTED CASING	110	0	ADEQ	
573084	2N 2E 22 SW, SE, NE	MONITOR			6/7/1999	135	115		135	0	ADEQ	
573085	2N 2E 22 SW, SE, NE	MONITOR	MONITOR	TEST	6/5/1999	380	135		270	0	ADEQ	
573086	2N 2E 22 SW, SE, NE	MONITOR	MONITOR	TEST	6/25/1999	0	0		0	0	ADEQ	Y
575613	2N 2E 22 SW, SE, NE	MONITOR	ABANDONED	TEST	8/26/1999	625	136	SCREEN	625	0	ADEQ	
514562	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	7/4/1986	130	115	PLASTIC OR PVC	130	0		
514564	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	6/28/1986	130	115	PLASTIC OR PVC	130	0		
514565	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	6/20/1986	130	115	PLASTIC OR PVC	130	0		
514745	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/15/1986	135	115	PLASTIC OR PVC	135	0		
581248	2N 2E 22 SW, SE, NW	MONITOR	MONITOR	TEST	8/2/2000	150	0	OR SLOTTED CASING	110	0	ADEQ	
514429	2N 2E 22 SW, SE, NW	EXPLORATION	GEOTECHNICAL	NONE	9/17/1988	125	115	PLASTIC OR PVC	125	0		
514559	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	7/12/1986	130	115	PLASTIC OR PVC	130	0		Y
514561	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	7/8/1987	130	115	PLASTIC OR PVC	130	0		Y
514563	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	7/1/1986	130	115	PLASTIC OR PVC	130	0		
514566	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	PIEZOMETER	TEST	9/24/1986	130	115	PLASTIC OR PVC	130	0		
514744	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	OBSERVATION	MONITORING	8/4/1986	135	115	PLASTIC OR PVC	135	0		
514905	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	OBSERVATION	MONITORING	7/29/1986	142	105	STEEL - PERFORATED OR SLOTTED CASING	90	1		
516109	2N 2E 22 SW, SE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	12/5/1986	147	115	STEEL - PERFORATED OR SLOTTED CASING	147	0		

Groundwater Wells Located within One Mile Radius of WCP North Plume Site
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ADWR 55 ID Number	Location (T,R Section, Acre 160, Acre 40, Acre 10)	Well Type	Well Use	Water Use	Approved or Installed	Well Depth (ft bgs)	Water Level (ft bgs)	Casing Type	Casing Depth (ft)	Pump Rate (gpm)	Company	Cancelled
ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
582565	2N 2E 22 SW, SE, NW	MONITOR	MONITOR	TEST	9/24/2000	279	0	STEEL - PERFORATED OR SLOTTED CASING	0	0	ADEQ	
626551	2N 2E 22 SE, NE, NE	NON-EXEMPT	ABANDONED	MUNICIPAL	10/1/1954	405	200	STEEL - PERFORATED OR SLOTTED CASING	390	450	COP Water Services	Y
582466	2N 2E 22 SE, NW, NE	MONITOR	MONITOR	TEST	8/4/2000	150	0	STEEL - PERFORATED OR SLOTTED CASING	110	0	ADEQ	
573076	2N 2E 22 SE, NW, SW	MONITOR	MONITOR	TEST	7/25/1999	276	144	OTHER - BLACK STEEL - IRON - SEAMLESS	276	0	ADEQ	
573077	2N 2E 22 SE, NW, SW	MONITOR	MONITOR	TEST	7/14/1999	693	136	OTHER - BLACK STEEL - IRON - SEAMLESS	440	0	ADEQ	
581251	2N 2E 22 SE, NW, SE	MONITOR	MONITOR	TEST	8/10/2000	150	0	STEEL - PERFORATED OR SLOTTED CASING	150	0	ADEQ	
573081	2N 2E 22 SE, NW, SE	MONITOR	MONITOR	TEST	2/22/1999	112	110	STEEL - PERFORATED OR SLOTTED CASING	110	0	ADEQ	
573082	2N 2E 22 SE, NW, SE	MONITOR	MONITOR	TEST	5/15/1999	730	110	STEEL - PERFORATED OR SLOTTED CASING	425	0	ADEQ	
573083	2N 2E 22 SE, NW, SE	MONITOR	MONITOR	TEST	2/22/1999	270	110	STEEL - PERFORATED OR SLOTTED CASING	225	0	ADEQ	
581497	2N 2E 22 SE, SW, NE	MONITOR	MONITOR	TEST	9/28/2000	278	0	STEEL - PERFORATED OR SLOTTED CASING	258	0	ADEQ	
581498	2N 2E 22 SE, SW, NE	MONITOR	MONITOR	TEST	10/10/2000	397	0	STEEL - PERFORATED OR SLOTTED CASING	375	0	ADEQ	
573078	2N 2E 22 SE, SW, SW	MONITOR	MONITOR	TEST	2/22/1999	0	0		0	0	ADEQ	
573079	2N 2E 22 SE, SW, SW	MONITOR	MONITOR	TEST	7/25/1999	140	110	STEEL - PERFORATED OR SLOTTED CASING	140	0	ADEQ	
573080	2N 2E 22 SE, SW, SW	MONITOR	MONITOR	TEST	8/10/1999	442	135	SCREEN	442	0	ADEQ	
520570	2N 2E 22 SE, SW, SE	MONITOR OR PIEZ	OBSERVATION	MONITORING	3/22/1988	130	110	PLASTIC OR PVC	130	0		
400185	2N 2E 22 SE, SE, SE	EXEMPT	ABANDONED	NONE	4/6/2000	0	0		0	0		Y
578117	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	11/22/1999	0	0		0	0	TOSCO MARKETING CO	

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ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
578118	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	11/22/1999	0	0		0	0	TOSCO MARKETING CO	
585753	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	3/2/2001	0	0		0	0	TOSCO MKTG CO #2857	
585754	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	3/2/2001	0	0		0	0	TOSCO MKTG CO #2857	
617946	2N 2W 23 NW, NE, NE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION	1/1/1940	840	418	OTHER - BLACK STEEL - IRON - SEAMLESS	840	2000		
802165	2N 2W 23 NW, NW, NW	NON-EXEMPT	WATER PRODUCTION	IRRIGATION	6/1/1977	1552	400	STEEL - PERFORATED OR SLOTTED CASING	1552	750		
555473	2N 2E 26 NW, NE, NE	MONITOR	ABANDONED	MONITORING	3/18/1996	106	96	STEEL - PERFORATED OR SLOTTED CASING	106	0	BIRD INCORPORATED	
547461	2N 2E 26 NW, SW, SW	MONITOR OR PIEZ	MONITOR	MONITORING	2/9/1995	125	95	PLASTIC OR PVC	125	0		
524020	2N 2E 26 NW, SW, SE	MONITOR OR PIEZ	MONITOR	MONITORING	4/17/1989	98	98		0	0		
535334	2N 2E 26 NW, SW, SE	MONITOR OR PIEZ	MONITOR	MONITORING	5/23/1992	130	89	PLASTIC OR PVC	130	10		
537381	2N 2E 26 NW, SW, SE	MONITOR OR PIEZ	MONITOR	MONITORING	11/27/1992	124	99	PLASTIC OR PVC	125	10		
584665	2N 2E 26 NW, SE, NE	MONITOR	MONITOR	TEST	12/13/2000	0	0		0	0	ADEQ	
618512	2N 2E 26 NW, SE, SW	NON-EXEMPT	WATER PRODUCTION	DOMESTIC		0	0		0	0		
577763	2N 2E 26 NW, SE, SE	MONITOR	MONITOR	TEST	11/8/1999	0	0		0	0	ADEQ	
584133	2N 2E 26 NW, SE, SE	MONITOR	MONITOR	TEST	11/14/2000	0	0		0	0	ADEQ	
526752	2N 2E 27	EXPLORATION	GEOTECHNICAL	NONE	1/19/1990	120	105		0	0		
560840	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	2/11/1997	105	90	PLASTIC OR PVC	80	0		
560841	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	2/12/1997	105	90	PLASTIC OR PVC	80	0		
560842	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	2/12/1997	105	90	PLASTIC OR PVC	80	0		
561175	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	2/5/1997	105	90	PLASTIC OR PVC	105	0		
561177	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	2/6/1997	105	90	PLASTIC OR PVC	85	0		
560843	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
561176	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	2/6/1997	105	90	PLASTIC OR PVC	105	0		
561178	2N 2E 27 NE, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	2/10/1997	105	90	PLASTIC OR PVC	80	0		
534948	2N 2E 27 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	5/25/1992	110	88	PLASTIC OR PVC	110	10		
535679	2N 2E 27 NE, NE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	6/26/1992	110	85	PLASTIC OR PVC	110	10		
577546	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/1999	140	109	PLASTIC OR PVC	100	0		
577547	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/1999	140	109	PLASTIC OR PVC	190	0		
577548	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/1999	140	109	PLASTIC OR PVC	100	0		
577549	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/1999	140	109	PLASTIC OR PVC	100	0		
585993	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	3/13/2001	0	0		0	0	ADEQ	
585994	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	3/13/2001	0	0		0	0	ADEQ	

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586133	2N 2E 27 NE, NE, SW	GEOTECHNICAL				0	0		0	0	ADEQ	
585619	2N 2E 27 NE, NW, NE	MONITOR	MONITOR	TEST	2/26/2001	0	0		0	0	ADEQ	
535637	2N 2E 27 NE, NW, NW	MONITOR OR PIEZ	MONITOR	MONITORING	6/20/1992	114	91	PLASTIC OR PVC	114	10		
564217	2N 2E 27 NE, NW, SW	GEOTECHNICAL	GEOTECHNICAL	NONE		0	92		90	0	PRECISE METAL CO	Y
565273	2N 2E 27 NE, NW, SW	GEOTECHNICAL	GEOTECHNICAL	NONE	11/17/1997	0	0		0	0	PRECISE METAL PROD CO	Y
522461	2N 2E 27 NE, NW, SW	EXPLORATION	CATHODIC	NONE	1/5/1989	260	0	PLASTIC OR PVC	260	0		
539518	2N 2E 27 NE, NW, SW	MONITOR	ABANDONED	MONITORING	6/18/1993	105	73	PLASTIC OR PVC	104	0	ADEQ	Y
585992	2N 2E 27 NE, NW, SE	MONITOR	MONITOR	TEST	3/13/2001	0	0		0	0	ADEQ	
585618	2N 2E 27 NE, SW, NE	MONITOR	MONITOR	TEST	2/26/2001	0	0		0	0	ADEQ	
558666	2N 2E 27 NE, SW, NW	MONITOR OR PIEZ	MONITOR	MONITORING	8/21/1996	820	0	STEEL - PERFORATED OR SLOTTED CASING	800	7	UNITED INDUSTRIAL CORP	
608381	2N 2E 27 NE, SW, NW	NON-EXEMPT	WATER PRODUCTION	IRRIGATION	12/16/1948	700	142	STEEL - PERFORATED OR SLOTTED CASING	700	3862		
564731	2N 2E 27 NE, SW, NW	MONITOR	MONITOR	TEST	10/9/1997	325	0	PLASTIC OR PVC	285	0	UNITED INDUSTRIAL CORP	
558664	2N 2E 27 NE, SW, NW	MONITOR OR PIEZ	MONITOR	MONITORING	8/23/1996	108	0	STEEL - PERFORATED OR SLOTTED CASING	104	0	UNITED INDUSTRIAL CORP	
558665	2N 2E 27 NE, SW, NW	WITHDRAWAL PERM	WATER PRODUCTION	MONITORING	8/22/1996	305	0	STEEL - PERFORATED OR SLOTTED CASING	305	12	UNITED INDUSTRIAL CORP	
561071	2N 2E 27 NE, SE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	3/17/1997	136	102	PLASTIC OR PVC	125	0		
561073	2N 2E 27 NE, SE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	3/18/1997	127	102	PLASTIC OR PVC	97	0		
553744	2N 2E 27 NE, SE, NW	MONITOR	ABANDONED	MONITORING	1/22/1996	100	72	PLASTIC OR PVC	100	0	ADEQ	Y
553745	2N 2E 27 NE, SE, NW	MONITOR	ABANDONED	MONITORING	1/23/1996	110	85	PLASTIC OR PVC	110	0	ADEQ	Y
561072	2N 2E 27 NE, SE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	3/19/1997	127	103	PLASTIC OR PVC	97	0		
585616	2N 2E 27 NE, SE, NW	MONITOR	MONITOR	TEST	2/26/2001	0	0		0	0	ADEQ	
585617	2N 2E 27 NE, SE, NW	MONITOR	MONITOR	TEST	2/26/2001	0	0		0	0	ADEQ	
558431	2N 2E 27 NE, SE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	10/15/1996	390	0	STEEL - PERFORATED OR SLOTTED CASING	370	12	UNITED INDUSTRIAL CORP	
562004	2N 2E 27 NE, SE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		160	0	PLASTIC OR PVC	147	0	UNITED INDUSTRIAL CORP	
562005	2N 2E 27 NE, SE, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0	UNITED INDUSTRIAL CORP	
553277	2N 2E 27 NE, SE, SW	MONITOR	ABANDONED	MONITORING	1/5/1996	100	90	STEEL - PERFORATED OR SLOTTED CASING	100	0	ADEQ	Y

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558430	2N 2E 27 NE, SE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	10/27/1996	810	0	STEEL - PERFORATED OR SLOTTED CASING	810	7	UNITED INDUSTRIAL CORP	
558432	2N 2E 27 NE, SE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	10/22/1996	350	0	STEEL - PERFORATED OR SLOTTED CASING	290	12	UNITED INDUSTRIAL CORP	
558433	2N 2E 27 NE, SE, SW	MONITOR OR PIEZ	MONITOR	MONITORING	10/16/1996	290	0	STEEL - PERFORATED OR SLOTTED CASING	285	12	UNITED INDUSTRIAL CORP	
563318	2N 2E 27 NE, SE, SW	WITHDRAWAL PERM	WATER PRODUCTION	INDUSTRIAL	10/28/1997	155	0	PLASTIC OR PVC	140	0	UNITED INDUSTRIAL CORP	
563319	2N 2E 27 NE, SE, SW	WITHDRAWAL PERM	WATER PRODUCTION	INDUSTRIAL	10/24/1997	0	0		0	0	UNITED INDUSTRIAL CORP	Y
563320	2N 2E 27 NE, SE, SW	WITHDRAWAL PERM	WATER PRODUCTION	INDUSTRIAL	10/24/1997	0	0		0	0	UNITED INDUSTRIAL CORP	Y
573809	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/1999	110	0	PLASTIC OR PVC	40	0	UNITED INDUSTRIAL CORP	
573812	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/1999	0	0		0	0	UNITED INDUSTRIAL CORP	
573813	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/1999	0	0		0	0	UNITED INDUSTRIAL CORP	
573814	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/1999	0	0		0	0	UNITED INDUSTRIAL CORP	
573810	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/1999	110	0	PLASTIC OR PVC	40	0	UNITED INDUSTRIAL CORP	
573811	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/1999	110	0	PLASTIC OR PVC	40	0	UNITED INDUSTRIAL CORP	
532373	2N 2E 27 NE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	8/16/1991	100	65	PLASTIC OR PVC	100	0		
532648	2N 2E 27 NE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
534122	2N 2E 27 NE, SE, SE	WITHDRAWAL PERM	WATER PRODUCTION	INDUSTRIAL	1/31/1992	125	95	PLASTIC OR PVC	85	0	UNITED INDUSTRIAL CORP	
555585	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE	4/4/1996	115	97	PLASTIC OR PVC	115	0	TOSCO MARKETING CO	Y
555588	2N 2E 27 NE, SE, SE	MONITOR	MONITOR	MONITORING	11/10/1999	0	0		0	0	TOSCO MARKETING CO	Y
555589	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE	11/10/1999	0	0		0	0	TOSCO MARKETING CO	Y
603866	2N 2E 27 NE, SE, SE	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		0	0		0	50		
532372	2N 2E 27 NE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	8/16/1991	125	91	PLASTIC OR PVC	125	0		
532374	2N 2E 27 NE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
532636	2N 2E 27 NE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	8/16/1991	131	96	PLASTIC OR PVC	90	0		
534123	2N 2E 27 NE, SE, SE	WITHDRAWAL PERM	MONITOR	MONITORING	2/14/1992	135	105	PLASTIC OR PVC	95	0	UNITED INDUSTRIAL CORP	
534444	2N 2E 27 NE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		Y
555584	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE	4/3/1996	115	92	PLASTIC OR PVC	115	0	TOSCO MARKETING COMPAN	Y
555586	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE	4/10/1996	115	97	PLASTIC OR PVC	115	0	TOSCO MARKETING COMPAN	Y
555587	2N 2E 27 NE, SE, SE	MONITOR	MONITOR	MONITORING	4/11/1996	115	97	PLASTIC OR PVC	115	0	TOSCO MARKETING COMPAN	Y
534949	2N 2E 27 NW, NE, NE	MONITOR OR PIEZ	MONITOR	MONITORING	5/25/1992	125	92	PLASTIC OR PVC	125	10		
535636	2N 2E 27 NW, NW, SW	MONITOR OR PIEZ	MONITOR	MONITORING	6/19/1992	120	87	PLASTIC OR PVC	120	10		
563671	2N 2E 27 NW, SW, NW	MONITOR	ABANDONED	MONITORING	9/11/1997	0	70	PLASTIC OR PVC	110	0	RAY STEVENS PAVING CO	
563672	2N 2E 27 NW, SW, NW	MONITOR	ABANDONED	MONITORING	1/25/2001	0	70	PLASTIC OR PVC	100	0	RAY STEVENS PAVING CO	

Groundwater Wells Located within One Mile Radius of WCP North Plume Site
Land and Water Use Report



ADWR 55 ID Number	Location (T,R Section, Acre 160, Acre 40, Acre 10)	Well Type	Well Use	Water Use	Approved or Installed	Well Depth (ft bgs)	Water Level (ft bgs)	Casing Type	Casing Depth (ft)	Pump Rate (gpm)	Company	Cancelled
ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
563674	2N 2E 27 NW, SW, NW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
563673	2N 2E 27 NW, SW, NW	MONITOR	ABANDONED	MONITORING	1/25/2001	0	70	PLASTIC OR PVC	100	0	RAY STEVENS PAVING CO	
585080	2N 2E 27 SW, NW, SW	MONITOR	MONITOR	TEST	2/5/2001	0	0		0	0	UNITED INDUSTRIAL CORP	
585574	2N 2E 27 SW, SW, NE	MONITOR	MONITOR	TEST	2/23/2001	0	0		0	0	UNITED INDUSTRIAL CORP	
559606	2N 2E 27 SW, SW, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0	TOSCO CORP	Y
563425	2N 2E 27 SW, SW, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0	TOSCO MARKETING CO	
564522	2N 2E 27 SW, SW, SW	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0	TOSCO MARKETING CO	
564526	2N 2E 27 SW, SW, SW	MONITOR OR PIEZ	MONITOR	MONITORING		135	110	PLASTIC OR PVC	135	0	TOSCO MARKETING CO	
583166	2N 2E 27 SW, SW, SE	CATHODIC	CATHODIC	NONE	12/7/2000	265	0		0	0	SOUTHWEST GAS CORP	
564732	2N 2E 27 SE, NE, NE	MONITOR	WATER PRODUCTION	TEST	10/9/1997	450	0	PLASTIC OR PVC	380	0	UNITED INDUSTRIAL CORP	
564733	2N 2E 27 SE, NE, NE	MONITOR	WATER PRODUCTION	TEST	10/9/1997	140	95	PLASTIC OR PVC	135	0	UNITED INDUSTRIAL CORP	
534950	2N 2E 27 SE, NE, NW	MONITOR OR PIEZ	MONITOR	MONITORING	5/25/1992	120	82	PLASTIC OR PVC	120	10		
575652	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	7/1/1999	145	111	PLASTIC OR PVC	135	0	DJM CONSTRUCTION	
575653	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	7/1/1999	140	111	PLASTIC OR PVC	130	0	DJM CONSTRUCTION	
575654	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	7/1/1999	140	111	PLASTIC OR PVC	130	0	DJM CONSTRUCTION	
575655	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	7/1/1999	115	111		0	0	DJM CONSTRUCTION	
575656	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	7/1/1999	115	111		0	0	DJM CONSTRUCTION	
575657	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	7/1/1999	115	111		0	0	DJM CONSTRUCTION	
575658	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	9/9/1999	115	111		0	0	DJM CONSTRUCTION	
577622	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	11/16/1999	140	111	PLASTIC OR PVC	130	0	DJM CONSTRUCTION	
577623	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	11/16/1999	115	0		0	0	DJM CONSTRUCTION	
577624	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	11/16/1999	140	111	PLASTIC OR PVC	130	0	DJM CONSTRUCTION	
577625	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	2/14/2000	145	110	PLASTIC OR PVC	130	0	DJM CONSTRUCTION	
577626	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	2/16/2000	145	110	PLASTIC OR PVC	130	0	DJM CONSTRUCTION	
577627	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	11/16/1999	0	0		0	0	DJM CONSTRUCTION	
581193	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	5/30/2000	0	0		0	0	DJM CONSTRUCTION	
581194	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	5/30/2000	0	0		0	0	DJM CONSTRUCTION	
581195	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	5/30/2000	0	0		0	0	DJM CONSTRUCTION	
581196	2N 2E 27 SE, NW, NE	MONITOR	MONITOR	TEST	5/30/2000	0	0		0	0	DJM CONSTRUCTION	
558699	2N 2E 27 SE, SW, NW	MONITOR OR PIEZ	MONITOR	MONITORING	9/17/1996	125	0	STEEL - PERFORATED OR SLOTTED CASING	120	0	UNITED INDUSTRIAL CORP	
626552	2N 2E 27 SE, SW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	4/1/1955	701	203	STEEL - PERFORATED OR SLOTTED CASING	701	700		

Groundwater Wells Located within One Mile Radius of WCP North Plume Site
Land and Water Use Report



ADWR 55 ID Number	Location (T,R Section, Acre 160, Acre 40, Acre 10)	Well Type	Well Use	Water Use	Approved or Installed	Well Depth (ft bgs)	Water Level (ft bgs)	Casing Type	Casing Depth (ft)	Pump Rate (gpm)	Company	Cancelled
ft = feet bgs = below ground surface gpm = gallons per minute PIEZ = Piezometer COP = City of Phoenix ADEQ = Arizona Department of Environmental Quality												
626553	2N 2E 27 SE, SW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	5/1/1957	545	194	STEEL - PERFORATED OR SLOTTED CASING	545	700		
558697	2N 2E 27 SE, SW, NW	WITHDRAWAL PERM	WATER PRODUCTION	MONITORING	9/13/1996	370	0	STEEL - PERFORATED OR SLOTTED CASING	365	12	UNITED INDUSTRIAL CORP	
558698	2N 2E 27 SE, SW, NW	MONITOR OR PIEZ	MONITOR	MONITORING	9/5/1996	820	0	STEEL - PERFORATED OR SLOTTED CASING	780	7	UNITED INDUSTRIAL CORP	
548356	2N 2E 27 SE, SE, NE	MONITOR	ABANDONED	MONITORING	11/8/1999	0	0		0	0	TOSCO CORPORATION	Y
548357	2N 2E 27 SE, SE, NE	MONITOR	ABANDONED	MONITORING	11/10/1999	0	0		0	0	TOSCO MARKETING CO	Y
548358	2N 2E 27 SE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
548359	2N 2E 27 SE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
548360	2N 2E 27 SE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
548361	2N 2E 27 SE, SE, NE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
559528	2N 2E 27 SE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING	5/22/1996	110	90	PLASTIC OR PVC	109	0		
559529	2N 2E 27 SE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
559530	2N 2E 27 SE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
559531	2N 2E 27 SE, SE, SE	MONITOR OR PIEZ	MONITOR	MONITORING		0	0		0	0		
576820	2N 2E 27 SE, SE, SE	MONITOR	MONITOR	TEST	9/14/1999	130	115	PLASTIC OR PVC	130	0	ARCO PRODUCTS CO	
576821	2N 2E 27 SE, SE, SE	MONITOR	MONITOR	TEST	9/15/1999	130	115	PLASTIC OR PVC	130	0	ARCO PRODUCTS CO	
538099	2N 2E 28 NE, NW, NW	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0		Y
626575	2N 2E 28 NE, NW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	1/1/1962	650	184	STEEL - PERFORATED OR SLOTTED CASING	650	750		
626576	2N 2E 28 NE, NW, NW	NON-EXEMPT	WATER PRODUCTION	MUNICIPAL	3/1/1957	630	184	STEEL - PERFORATED OR SLOTTED CASING	630	800		
534875	2N 2E 28 NE, NW, NW	EXPLORATION	GEOTECHNICAL	NONE	8/12/1992	165	0	PLASTIC OR PVC	156	0		
585081	2N 2E 28 NE, SE, SE	MONITOR	MONITOR	TEST	2/5/2001	0	0		0	0	UNITED INDUSTRIAL CORP	

APPENDIX C

SRP 1999 Annual Water Quality Report

Table 06-5E

Irrigation Wells Detectable Organics

IRRIGATION WELLS WITH DETECTABLE ORGANICS, INCLUDING THOSE OVER FULL BODY CONTACT STANDARDS (FBC)										
FBC LIMIT:		NNS	93 UG/L	230 UG/L	70 UG/L				2,800 UG/L	Not Listed
OBS	WELL ID	BDCM (UG/L)	BENZENE (UG/L)	CHLOROF (UG/L)	CIS12DCE (UG/L)				DBCP (UG/L)	DCDFMETH (UG/L)
1	1E7N								0.04	
2	2E5N								0.02	
3	2E8.5N								0.02	
4	2E9N								0.07	
5	3E10N								0.01	
6	3.5E6N									
7	3.5E10N								0.13	
8	4E5N									
9	4E8N								0.03	8.3
10	4E9.1N								0.05	
11	4.2E9.9N								0.02	
12	5E4.5N									
13	5E6N									
14	5E7.5N								0.05	
15	5E8.3N								0.04	
16	6E10.3N			0.5						
17	6E12N									
18	7E9N									
19	7E12.3N								0.09	
20	7E13.4N								0.03	
21	7E14.8N								0.03	
22	8E1N								0.07	
23	8E8.5N			2						
24	8E14.9N									
25	9.5E7.7N									
26	11.2E7.7N									
27	12.8E0.3N								0.16	
28	13E0.1S			1					0.16	
29	13E8.6N			0.8						
30	13E9.1N			3.4						
31	13.1E10.5N			0.5						
32	13.5E9.4N			2.2						

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Table 06-5E

Irrigation Wells Detectable Organics

IRRIGATION WELLS WITH DETECTABLE ORGANICS, INCLUDING THOSE OVER FULL BODY CONTACT STANDARDS (FBC)										
FBC LIMIT:		NNS	93 UG/L	230 UG/L	70 UG/L				2,800 UG/L	Not Listed
OBS	WELL ID	BDCM (UG/L)	BENZENE (UG/L)	CHLOROF (UG/L)	CIS12DCE (UG/L)				DBCP (UG/L)	DCDFMETH (UG/L)
33	14E8.5N			0.6						
34	14E9.6N			2.2						
35	14.7E1.8N			0.7						
36	14.8E0.7N							0.07		
37	15E8.5N			0.9						
38	16E6.8N									
39	16E8N		0.6	1.6						
40	17E8N			1.3						
41	17.9E7.5N									
42	18E5N			0.6						
43	18E7N			0.5						
44	18E8.8N	0.6		6.3						
45	18.6E2.5N			1.8						
46	19E8.1N			0.5						
47	20.4E1.5S							0.03		
48	21E3.5S			0.5						
49	21.1E0S			0.6						
50	21.5E1S			0.9						
51	22E1.5S			0.6						
52	22.3E7N	1.4		2.1	0.5					
53	22.5E5.5N			1.9						
54	22.8E1.5S			2.8						
55	23E2.9N			1.3						
56	23.1E6N			3.7						
57	23.5E1.5S			1						
58	23.5E5.3N			2.9						
59	23.6E6N			7.2						
60	25.3E5.5S			0.6						
61	26.3E3N									
62	26.5E0N			0.6						
63	26.5E3N									
64	27E6.5S							0.1		
65	27.5E1N			0.9						
66	28E0N									
67	28.5E1N				1.5					

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Table 06-5E

Irrigation Wells Detectable Organics

IRRIGATION WELLS WITH DETECTABLE ORGANICS, INCLUDING THOSE OVER FULL BODY CONTACT STANDARDS (FBC)									
FBC LIMIT:		280,000 UG/L	Not Listed	35 UG/L	Not Listed	NNS	7 UG/L		2,600 UG/L 15 UG/L
		TCE	TCFMETH	PCE	TTHM	11DCA	11DCE		111TCA 12DCA
OBS	WELL ID	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)		(UG/L) (UG/L)
1	1E7N								
2	2E5N								
3	2E8.5N								
4	2E9N								
5	3E10N								
6	3.5E6N			2.4					
7	3.5E10N								
8	4E5N	0.6		2					
9	4E8N								
10	4E9.1N								
11	4.2E9.9N								
12	5E4.5N			1.5					
13	5E6N			0.8					
14	5E7.5N								
15	5E8.3N								
16	6E10.3N				0.5				
17	6E12N						1.2		
18	7E9N								0.8
19	7E12.3N								
20	7E13.4N								
21	7E14.8N								
22	8E1N								
23	8E8.5N				2				
24	8E14.9N			1.1					
25	9.5E7.7N	2.2		3.3					
26	11.2E7.7N	2.1							
27	12.8E0.3N								
28	13E0.1S				0.1	6			

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Table 06-5E

Irrigation Wells Detectable Organics

IRRIGATION WELLS WITH DETECTABLE ORGANICS, INCLUDING THOSE OVER FULL BODY CONTACT STANDARDS (FBC)									
FBC LIMIT:		280,000 UG/L	Not Listed	35 UG/L	Not Listed	NNS	7 UG/L		2,600 UG/L 15 UG/L
		TCE	TCFMETH	PCE	TTHM	11DCA	11DCE		111TCA 12DCA
OBS	WELL ID	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)		(UG/L) (UG/L)
29	13E8.6N				0.8				
30	13E9.1N			1.7	3.9				3.9
31	13.1E10.5N				0.5				
32	13.5E9.4N	4.5		21	0.6				0.6
33	14E8.5N			0.7	0.7				
34	14E9.6N			1	1.4				1.4
35	14.7E1.8N	0.5		0.6	2.5		2.5		
36	14.8E0.7N								
37	15E8.5N				0.9				
38	16E6.8N			8	8				
39	16E8N	0.6		1	1				
40	17E8N			9.3	9.3				
41	17.9E7.5N	0.7		210					
42	18E5N				0.6				
43	18E7N				0.5				
44	18E8.8N				6.3				
45	18.6E2.5N	0.6		0.9	1.2		1.2		
46	19E8.1N				0.5				
47	20.4E1.5S								
48	21E3.5S				0.5				
49	21.1E0S				0.6				
50	21.5E1S				0.9				
51	22E1.5S			0.5	0.5				
52	22.3E7N	63		0.7	0.7				
53	22.5E5.5N	20		1.4	20				
54	22.8E1.5S				2.8				
55	23E2.9N	5.6		1.1	0.9	0.5	0.9		
56	23.1E6N	100		6.6	3.6		3.6		
57	23.5E1.5S				1				
58	23.5E5.3N				2.9				
59	23.6E6N	110		3.3	3.3				
60	25.3E5.5S				0.6				

SRP 1999 Annual Water Quality Report

Table 06-5E

Irrigation Wells Detectable Organics

IRRIGATION WELLS WITH DETECTABLE ORGANICS, INCLUDING THOSE OVER FULL BODY CONTACT STANDARDS (FBC)									
FBC LIMIT:		280,000 UG/L	Not Listed	35 UG/L	Not Listed	NNS	7 UG/L		2,600 UG/L 15 UG/L
		TCE	TCFMETH	PCE	TTHM	11DCA	11DCE		111TCA 12DCA
OBS	WELL ID	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)		(UG/L) (UG/L)
61	26.3E3N	1.2							
62	26.5E0N				0.6				
63	26.5E3N	1.3		3.2					
64	27E6.5S								
65	27.5E1N				0.9				
66	28E0N			8.9					
67	28.5E1N			13					

Notes:

NNS = No Numeric Standard
 BDCM = Bromodichloromethane
 CHLOROF = Chloroform
 CIS12DCE = cis-1,2-dichloroethene
 DBCP = 1,2-Dibromo-3-chloropropane
 DCDFMETH = Dichlorodifluoromethane
 TCE = Trichloroethene
 TCFMETH = Trichlorofluoromethane

PCE = Tetrachloroethene
 TTHM = Total Trihalomethane
 11DCA = 1,1-Dichloroethane
 11DCE = 1,1-Dichloroethene
 111TCA = 1,1,1-Trichloroethane
 12DCA = 1,2-Dichloroethane
 UG/L = micrograms per liter

APPENDIX D

ATTENDANCE SHEET
BENEFICIAL USES MEETING WITH CITY OF PHOENIX
MARCH 26, 2001

	NAME	ORGANIZATION	
1.	Lynda Person	ADEQ	
2.	Nancy Nesky	WESTON ph) 602 604-6461	
3.	Bob Forsberg	LFR (480) 905-9311	
4.	Don Reilly	ADEQ	
5.	Karen Gilligan	COP EN 602-256-5669	
6.	Karen Peters	J.S.D 602 528-4041	
7.	Dann Stoltzfus	COP 602-256-5681	
8.	Tamara Huddleston	AGD	
9.	Keith Lamson	COP - Water Services 495-3669	
10.	BOB FICER	COP-PLNG 262-6823	ALHAMBRA VILLAGE
11.	ELAYNE TAYLOR-TYLER	COP-PLNG 261-5771	MARYVALE VILLAGE
12.	Steve Muenkel	COP - Planning 602 261-8289	
13.			
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SHEET ____ of ____

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY Nancy Nesky DEPT _____ DATE _____

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY

DEPT _____ DATE _____

Lynda Person, ADEQ Program Development Manager
Don Richey, ADEQ Superfund
Keith Larson, City of Phx
Karen O'Regan, City of Phx
Karen Peters
Bob F Planning Dept
Elaine Taylor-Tyler " "
Steve Maker " "
Bob Forsberg
Tamara Huddleston, AGO

1. Lynda will oversee URS's Remedial Objectives development to ensure consistency among sites.

2. Water Resources Plan

- Plan has been finalized & changed (copy left w/ ADEQ)
- Letter dated 8/18/00 to ADEQ (copy provided) - from Estes & F
- COP may be limited in north area (better quality) due to 1000ft water level limitations.
- Gw levels are high in Central Phx area so cost to pump is cheaper and less problems w/ 1000 ft limitation
- TDS : Nitrates problems in Central Phx area - in addition to
- As early as 15-20 yrs, COP will look at WCP area for installation of gw wells.
 - ✓ Volumes are undetermined - not enough info known yet
 - ✓ City relies on SW for everyday; GW system as back up



SHEET ____ of ____

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY _____ DEPT _____ DATE _____

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY _____

DEPT _____ DATE _____

- COP has \approx 3.7m credits for GW use
 \approx (37,000 a+lyr over 100 yrs.)
- 5yr CIP identifies improvements & budgets
 \approx 3yr process to site and design well
- COP has contractual limitations on-project -
If well drilled on-project, water must
be used on-project.
- If well next to Grand Canal, pump into
canal, then SRP would give credits
- COP would have problem if DEQ treated
water & put it into
- No WTP on Grand Canal
- ADEQ could discharge to Grand Canal
- might go back to old well sites - already
have land & permits.
- 1 well every sq. mile possible. (current spacing in
highly populated areas)
- COP will provide target (now 2500 gpm)
volume and # of wells in WCP area
(range of wells) (2-3 wks)
typical screened, depth of well
- 1-17 - Canalback - 59th Ave - Encanto
- yearly production target # (vol.) / well would
be good.



SHEET ____ of ____

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY _____ DEPT _____ DATE _____

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY _____

DEPT _____ DATE _____

- Issue - RPs won't want to pay several times for the same volume of water.
- Kts will contact water providers directly. Send questions to Don Stoltzfus and he will route them to the appropriate person.

Land Use

- COP provided zoning maps current as today
- Alhambra Village - E. of Grand Ave (Bob)
- Maryvale Village - W. of Grand Ave (Elaine)
- Zoning is fairly stable
- Steve will get exp. of zoning codes
 - RI = Single family residential
 - A = Industrial
- Property owners can file to change zoning - goes thru public hearing process / City Council approval (unique interest)
- Currently updating general plan (copy provided - current)
 - not much being changed
 - COP advised to use the current plan - don't wait until plan is revised.
- Just west of North Plume is being built out (A-1)



SHEET ____ of ____

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY _____ DEPT _____ DATE _____

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY _____

DEPT _____ DATE _____

Development occurs consistent w/ zoning
✓ site planning review process
✓ permit process
✓ not a public hearings process

No Business Dev Plans / Incentive Plans
Zoning pattern long established

35th Ave : McDowell — Redevelopment area

- going to residential ? commercial a-front
 [&] resid. behind
- 32nd Ave — Brownfield Site
- Isaac School Dist. looking to expand
 estate
- Steve will provide copy of Redevelopment area
- COP = 14 villages. est 1985
 - ✓ Committee made up of ~~town~~
 "Village Planning Committees"
 meet 1x/month
 Mayor has 2 appt. in each
- Neighborhood Services Dept → Neighborhood Assoc.
 maintains list / contacts
- No environmental justice issues raised in the WCP area yet
 (Other areas of Pho-yet)
- NSD → go thru Don
- Villages — go thru Bob/Elaine
 cc Don

SHEET 1 of 3CLIENT/SUBJECT SRP Use of Water W.O. NO. _____TASK DESCRIPTION WCP Sites TASK NO. _____PREPARED BY Nancy Nesty DEPT _____ DATE 4/16/01

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY

DEPT _____ DATE _____

Lynda Person, ADEC
Ara Vargas, ADEC
Bob Forsberg, LFR
Kevin Wanttaja, SRP
Paul Chemington, SRP
Joe Rauch, SRP

Foreseeable Uses Report Answers 3 Questions (100 yrs)

- What is being used?
- What is threatened?
- What is lost?

Info needed from SRP?

- What wells are being used
- Which wells are more critical than others, if any?
- What is volume that wells are producing?
- What is volume that has been lost?
- Are there any new wells planned for WCP area?

SRP wells in WCP area are currently not pumped due to VOC contamination. In the past, these wells were pumped when reservoir needed to be supplemented.

Lands are going from Agricultural to Urban - SRP has no plans to eliminate a well from the system.

SHEET 2 of 3CLIENT/SUBJECT SRP Use of water W.O. NO. _____TASK DESCRIPTION WCP Sites TASK NO. _____PREPARED BY Nancy Nesky DEPT _____ DATE 4/16/01

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY _____

DEPT _____ DATE _____

SRP report to ADEQ on uses will include the criteria used to determine which wells will or will not be pumped.

SRP may, in the future, deliver water to the City of Phoenix since the water rights belong with the land. This would result in a use of canal water for irrigation changing to use of water as drinking water.

City of Phx service system goes all the way north to Lake Pleasant. SRP will be responsible for providing water for drinking water use "on-project". The area north of the Arizona Canal is "off-project".

COP water Treatment Plants on AZ Canal deliver water to areas north of AZ Canal.

F&B Site is scheduled to have Draft RI by end of June 2001. ADEQ requested that SRP's Foreseeable Uses report by first part of June 2001. (6/1/01)

Currently, SRP does not have plans for any new wells within SRP boundary. Well-site location study indicated that there is only 1 possible site in 250,000 acre boundary that meets new-well criteria.

SHEET 3 of 3

CLIENT/SUBJECT SRP Use of Water W.O. NO. _____
TASK DESCRIPTION WCP Sites TASK NO. _____
PREPARED BY Nancy Nesky DEPT _____ DATE 4/16/01
MATH CHECK BY _____ DEPT _____ DATE _____
METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY	
DEPT _____	DATE _____

Demand on-project results for about $\frac{1}{3}$ of the demand to come from GW - the remaining $\frac{2}{3}$ comes from SW.

ERA agreement is in place for 1 more year.

- likely that this agreement will be terminated after R1 is completed.

SRP will provide the following info by June 1, 2001.

- Historical Pumping
- Const. Detail
- Water Quality
- Land uses of Grand Canal Current Proj
- Disc. on Ag use to Urban for drinking water
- Off-Project Water Exchange (new/cap)

* will not include options such as sealing off upper aquifer so VOCs won't migrate to lower aquifer.

Ana will provide 2 tech. memos that summarize what plume looks like for East Grand Ave and North Plume sites.

A210 0007
A212 0007

~~A210 0002~~
~~A212 0001~~

CONTACT REPORT

AGENCY/AFFILIATION: City of Phoenix		CODE:
DEPARTMENT: Water Service Department		
ADDRESS: 6202 North 24th Street, Building #2		CITY: Phoenix
COUNTY: Maricopa	STATE: Arizona	ZIP: 85016
CONTACT(S) Steve Schebler	TITLE Assistant Supervisor, Water Production	PHONE (602) 262-7454
BEI PERSON MAKING CONTACT: Gregory R. Carroll <i>GR</i>		DATE: 8/16/94
SUBJECT: Groundwater use in Phoenix, Arizona		
SITE NAME: F & B Manufacturing Layke, Inc.		EPA ID: AZD 053900729 AZD 981630635

DISCUSSION:

The City of Phoenix operates a blended system of 40 active municipal wells that contributes to its public drinking water supply. The City of Phoenix obtains approximately 4 percent to 6 percent of its total drinking water supply from groundwater. The remaining 94 percent to 96 percent comes from imported surface water (Central Arizona Project and Salt River Project). Salt River Project wells are not used in the municipal drinking water supply. Groundwater and surface water is blended into a single system that serves approximately 330,000 connections (approximately 1 million people). The current trend is to reduce use of groundwater and increase use of imported surface water.

Each well pumps approximately 1 million to 2 million gallons per day with discharge rates of approximately 1,500 gallons per minute. Three wells were closed in 1993 due to high concentrations of nitrates. One or two wells were closed in 1992 due to high concentrations of volatile organic compounds. Mr. Schebler will send a complete list of active and closed wells (including reasons for closure) via facsimile. No single well contributes more than 40 percent of the total amount of groundwater pumped by the system.

The blended system described above constitutes 96 percent of the total water supplied by the City of Phoenix to domestic customers. The City of Phoenix also operates 4 small isolated systems that use groundwater to provide drinking water to small outlying areas. One or two wells serve each system. However, all of the wells serving these systems are more than 4 miles from the West Central Phoenix area.

CONTACT CONCURRENCE: *Steve Schebler*

DATE: *8/29/94*



TELEPHONE MEMORANDUM

ROUTE

DATE 8/28/01 TIME 1:40 PROJECT NO. 6854.00-6
FROM REF TO Elizabeth Kepura, it's
OF F&B Mfg. Co. TELE. # 602-533-1101
SUBJECT Beneficial Uses Study

- 1967

- Same ownership, same location
 - ownership is in 3rd generation, no 4th generation
 - every intention to stay at same place.
 - stay at facility as is planned; No changes; Not easily moved, would cost upwards of \$5 million to move.
 - possibly plan to remodel building or expand as needed
 - equipment is heavy & built into ground Not easily moved
- No plans to put a well in at site to tap groundwater.
Not needed for operations as they currently exist.

Signed

Robert Tashy

6/21/06 3:27 pm

Call to: Elizabeth Kepura 713 - F+B Mfg. Co.

Re: Future use of F+B facility locations (4316 N. 39th Ave)
(4115 W. Turney Ave)

4316 N. 39th Ave

Question 1 - Do you own or lease the property?

Answer 1 - Own property. Same ownership since 1967.

Question 2 - What is the current use of the property?

Answer 2 - Manufacturing metal aircraft + spacecraft parts

Question 3 - What are the foreseeable plans for the property?

Answer 3 - No plan on leaving property. F+B uses heavy equipment which is difficult to move.

4115 W. Turney Ave

Question 1 - Do you own or lease the property?

Answer 1 - F+B leases a portion of the building. There are 3 years remaining on lease and F+B is likely to renew the lease.

6/21/06 3:27pm conversation w Elizabeth Kepuraitis

Question 2 - What is the current use of the property?

Answer 2 - F&B stores tools at the site. F&B also conducts heat, treat, & welding there.

Question 3 - What are the foreseeable plans for the property?

Answer 3 - Three years remaining on lease. F&B plans to renew the lease and continue with the same operations/use of property.

TELEPHONE MEMORANDUM

ROUTE

DATE 6-23-06 TIME _____ PROJECT NO. 014-06854-06-300
 FROM _____ TO _____
 OF _____ TELE. # _____
 SUBJECT _____

Ronald Hill w/ Hill Brothers Chemical 714-998-8800

Answer ① Hill Brothers - owns the property

Answer ② Chemical repackaging

Answer ③ Continuation of current activities in the future

Ron Bratcher w/ Tarr, Inc 800-350-2436

Answer ① Lease building from Harrison Development

Lease expires August 2007, plan to renew

Answer ② Chemical distribution

Answer ③ Continue ramp operations

Placed a call + voicemail w/ James Harrison 602-842-0310 ext. 7

7/25/06 Talked w/ Pam Harrison

Answer ① James Harrison, Jr owns the property @ 4115 W. Turney

Answer ② It is being leased and used for industrial purposes by various clients

Answer ③ Harrison Development plans to continue leasing the property

Questions

① Do you own or lease the property? If lease, are there plans to renew?

② What is the current use of the property?

③ What are the foreseeable plans for the property?

Appendix L
Remedial Objectives Report

Proposed Remedial Objectives Report

West Central Phoenix North Plume WQARF Site Phoenix, Arizona



July 2008

Prepared by
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007
(602) 771-2300 • <http://www.azdeq.gov>

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3.0	REMEDIAL OBJECTIVES FOR GROUNDWATER USE	8

ACRONYMS

A.A.C.	Arizona Administrative Code
A.R.S.	Arizona Revised Statutes
ADEQ	Arizona Department of Environmental Quality
AST	Above Ground Storage Tank
AWQS	Aquifer Water Quality Standard
BDL	Below Detection Limit
1,1-DCE	1,1-dichloroethylene
COC	Chemicals of Concern
COP	City of Phoenix
Cr	Chromium
CVOC	Chlorinated Volatile Organic Compound
DNAPL	Dense Non-Aqueous Phase Liquid
FS	Feasibility Study
GPL	Groundwater Protection Limit
LFR	Levine-Fricke Inc.
PCE	Tetrachloroethene (Perchloroethylene)
RI	Remedial Investigation
RO	Remedial Objective
SRL	Soil Remediation Level
SRP	Salt River Project
SVETS	Soil Vapor Extraction Treatment System
TCE	Trichloroethylene
VOC	Volatile Organic Compound
WCP	West Central Phoenix
WQARF	Water Quality Assurance Revolving Fund

Arizona Department of Environmental Quality

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Phoenix, Arizona 85007
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Cover: SVE Treatment System at the F&B Manufacturing Company

1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Proposed Remedial Objectives (RO) report for the West Central Phoenix North Plume Water Quality Assurance Revolving Fund (WQARF) Registry site to meet the requirements established under Arizona Administrative Code (A.A.C.) R18-16-406. This RO Report has been prepared with consideration for the land and water users of the state, as identified in the Land and Water Use Report prepared by LFR Levine-Fricke Inc. (LFR) dated July 2006.

Remedial Objectives (ROs) are established for the current and reasonably foreseeable uses of land and waters of the state that have been or are threatened to be affected by a release of a hazardous substances. Pursuant to R18-16-406(D), it is specified that reasonably foreseeable uses of land are those likely to occur at the site, and the reasonably foreseeable uses of water are those likely to occur within one hundred years unless site-specific information suggests a longer time period is more appropriate. Reasonably foreseeable uses are those likely to occur, based on information provided by water providers, well owners, land owners, government agencies, and others. Not every use identified in the Land and Water Use Report will have a corresponding RO. Uses identified in the Land and Water Use Report may or may not be addressed based on information gathered during the public involvement process, limitations of WQARF, and whether the use is reasonably foreseeable.

The ROs chosen for the site will be evaluated in the feasibility study (FS) phase of the WQARF process. The FS will evaluate specific remedial measures and strategies required to meet the ROs and propose a reference remedy and at least two alternative remedies, all capable of meeting the ROs. The proposed remedies will also be generally compatible with the future land use specified by land owners.

Definitions

Remedial Strategy: One or a combination of the six general strategies identified in Paragraph B.4 of A.R.S. §49-282.06 and further defined in rules promulgated in accordance with this statute. In general, these strategies are as follows: *plume remediation, physical containment, controlled migration, source control, monitoring, and no action.*

Remedial Measure: A specific action taken in conjunction with remedial strategies as part of the remedy to achieve one or more of the remedial objectives. For example, remedial measures may include well replacement, well modification, water treatment, provision of replacement water supplies, and engineering controls.

Reference Remedy: A combination of remedial strategies and remedial measures which, as a whole, is capable of achieving remedial objectives. The reference remedy is compared with the alternative remedies for purposes of selecting a proposed remedy at the conclusion of the feasibility study.

Alternative Remedy: A combination of remedial strategies and remedial measures different from the reference remedy that is capable of achieving remedial objectives. The alternative remedies are compared with the reference remedy for purposes of selecting a proposed remedy at the conclusion of the feasibility study.

Written comments on this proposed report will be accepted for a period of 30 days following its release. If significant public interest exists or if significant issues or information have been brought to the attention of ADEQ, a public meeting may be held and the comment period may be extended. The final RO Report will be prepared by ADEQ following the comment period and the public meeting, if required. The final report will include a responsiveness summary to written comments received from the public during the comment period. Upon completion of the final RO Report, the final Remedial Investigation (RI) Report will be available to the public.

The ROs must be stated in the following terms: 1) protecting against the loss or impairment of each use; 2) restoring, replacing, or otherwise providing for each use; 3) when action is needed to protect against or provide for the use; and 4) how long an action is needed to protect or provide for the use.

2.0 REMEDIAL OBJECTIVES FOR LAND USE

The zoning pattern in the area of the WCP North Plume area has long been established and there are no foreseeable changes anticipated for the future. All property within WCP North Plume area is designated as A-2 Industrial. The properties are primarily located within the eastern portion of Maryvale Village, and are bordered by the villages of Alhambra on the northeast, Encanto on the east, and Estrella on the south.

Four facilities have been identified as potentially impacting the soils in WCP North Plume project area. Information regarding these facilities and their impact is outlined below.

2.1 F&B Facility

The F&B Manufacturing Company facility is located at 4316 North 39th Avenue. F&B manufactures metal aircraft and spacecraft parts by performing light machining, sheet metal forming, and assembly at the facility. The property that the F&B facility occupies was cultivated land until F&B began leasing the location in 1967. By March of 1967, F&B had completed construction of their facility and began operations. Aerial photographs indicate that F&B twice expanded their facility, once to the west, and once to the south.

Solvents are used as degreasing agents to clean the surface of metals. PCE was used as the degreasing solvent at the F&B facility until approximately October 1987, when it switched to 1,1,1-trichloroethane (TCA). In April 1991, ADEQ discovered that solvents had been leaking from F&B's degreaser into the soil under the building. Following the discovery the release was stopped and a remedial investigative action was initiated. These actions included defining the extent of the release, removal of some of the contaminate soil and the extraction of solvent from the remaining soil utilizing a soil vapor extraction treatment system (SVE).

ADEQ has been operating an SVE system at the F&B facility since August 2001. The SVE system is monitored to ensure that it meets its operational requirements and performance expectations. Operation of the system has been continuously (other than shutdowns for

maintenance and occasional equipment repair) at the F&B facility since the inception of operations in 2001.

PCE concentrations detected in the soil beneath the F&B Mfg. Co. facility exceeded the residential Soil Remediation Levels (SRLs) and Groundwater Protection Limits (GPLs). The highest concentration of VOCs has been detected near the former vapor degreaser.

2.2 Pyramid Facility

Pyramid facility is located at 4330 North 39th Avenue. Pyramid operated a telephone and television cable riser boxes manufacturing facility from 1977 to 1994. Operations at the facility required the use of acids, caustics, heavy metals, paints, and methylene chloride. The facility property consists of two adjoining parcels. Since 1997, National Environmental Waste, a plastic recycling company, and Intermountain Lumber Company have occupied the southern parcel. Since 1999, the northern parcel has been occupied by M&S Enterprise. The property is currently owned by KAL Trust of Phoenix, Arizona.

In a Site Characterization Report prepared for ADEQ on the Pyramid Industries facility (December 2002) it was noted that no soil samples with detectable concentrations of PCE were found that exceeded the Arizona residential or non-residential Soil Remediation Levels (SRLs). Only one sample collected from the soils below the Pyramid facility exceeded the minimum Groundwater Protection Limit (GPL) for PCE [1,300µg/kg]. PCE, TCE, and 1,1-DCE were found in soil samples from various borings below the Pyramid facility and the presence of these VOCs is greatest in the soil near the groundwater interface and is attributed to sorption on the soil from groundwater contamination.

2.3 Rinchem Facility

The Rinchem facility is located at 4115 West Turney Avenue and is currently owned by Harrison Development LLC, of Phoenix, Arizona. The former Rinchem facility operated as a chemical warehouse and distribution facility handling solvents, oils, and fuels. The operation also blended customized solvents. Rinchem was the only company that operated at the facility from its

construction in 1982 through June 1993. Tarr Inc. currently operates a similar chemical distribution operation at this facility. A portion of the building is also now leased by F&B Manufacturing Co. which utilizes it for light assembly and storage.

A groundwater threat model was conducted for the soils beneath the former Rinchem facility. The model analysis incorporated soil sample data that had been collected through the various remedial investigative processes. The chemicals of concern that were investigated in the model at Rinchem facility included: acetone, methyl ethyl ketone (MEK), 1,1,1-trichloroethane (111-TCA), and cis-1,2-dichloroethylene (cis 1,2-DCE). The model utilized was developed for the US Environmental Protection Agency to predict the distribution of contaminants in unsaturated soils. This model predicts the migration of contaminants through soil and their eventual impact on groundwater. By utilizing known concentrations, physical properties of the contaminants, along with the physical characteristics of the soils an evaluation was made with the model. The model conservatively predicts that migration of contaminants through the soil and indicates that these contaminants do not pose a significant threat in the underlying soils or to groundwater.

2.4 Hill Brothers Facility

The Hill Brothers Chemical Company facility is at 4450 North 42nd Avenue. Hill Brothers facility has operated a chemical distribution facility at this location since 1969. Prior to 1969, the location was developed as agricultural land. Areas of concern at the facility include the former solvent packing and storage area on the south side of the facility, the maintenance storage and fuel island area on the southeastern corner of the property, the brine tanks and maintenance shade canopy area on the western side, the retention basin on the northern side, and the drum loading docks just south of the warehouse building.

Bulk chemicals are received at the Hill Brothers facility via railroad cars and tanker trucks. Chemicals have included acids, bases, alcohols, acetone, methylene chloride, PCE, toluene, TCA, xylene, chlorine, and concrete additives. Various chemicals have been and are currently stored in Above Ground Storage Tanks (ASTs) on site prior to transfer into containers for distribution. Wastewater is

treated by neutralizing pH prior to discharge to the COP sewer system. The handling and repackaging of solvents was discontinued however in 1989.

A soil gas investigation was conducted in August 2006 to evaluate the installation and operation of a SVE treatment system to remediate contaminated soils. Chemical constituents relevant to the investigation included PCE, TCE, 1,1-DCE, toluene and chloroform. These contaminants were also detected in groundwater samples. As a result of this investigation it was recognized that a SVE system should be installed to further remove soil contaminants. The system is currently operating and is anticipated to eliminate or minimize contaminants from the soils below Hill Brothers Chemical Company facility.

2.5 Remedial Objectives for Land Use

As previously stated, the land use throughout the WCP North Plume project area has long been established and is designated as A-2 Industrial. With no foreseeable changes in the area zoning pattern the Remedial Objective for land use are:

- *Protect against possible exposure to hazardous substances in surface and subsurface soils that could occur during typical industrial uses.*

3.0 REMEDIAL OBJECTIVES FOR GROUNDWATER USE

There are two current groundwater users identified in the Land and Water Use Report (July 2006): the City of Phoenix (COP) and the Salt River Project (SRP). There are no documented private groundwater users, or non-municipal groundwater users known of in the WCP North Plume project area. The Remedial Objectives therefore identifies the user, the user's needs and the remedial objective that can address these needs in the WCP North Plume site area.

3.1 Chemicals of Concern

The chemicals of concern in the groundwater at the WCP North Plume site area are: tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethylene (1,1-DCE), vinyl chloride (VC), and chromium (Cr).

3.2 City of Phoenix Groundwater Needs

Two COP wells (No. 69 and No. 72) lie within a one mile radius of the North Plume project area. Wells No. 69 and 72 are located approximately 2,300 feet northeast and 4,200 ft north respectively of the F&B facility, which is centrally located in the project area. Use of well No. 69 was discontinued and the well abandoned in October 1989. Well No. 72 is currently active. Both wells are up gradient of the WCP North Plume project area. COP continues to have an interest in future well development in well fields located in Central Phoenix. To aid in the COP's evaluation of water service sources a groundwater utilization appraisal was prepared. Information from various sources were evaluated and used to score current and potential groundwater supply. Based upon a statistical evaluation of scores, COP indicates that areas with scores in at least the 75th percentiles (scores ≥ 81) may warrant consideration for future well development. The area where the WCP North Plume project area is located scores 80, therefore, it may not be considered for future well development. COP has however indicated that site-specific considerations and operational service needs may require the location and use of wells in lower scoring areas. For

this reason COP believes that scores in the 78-80 range, or perhaps lower, may warrant future development.

The City of Phoenix projects the following needs and concerns in regards to groundwater use:

- By 2010 COP estimates a need for 18,000 acre-feet per year of new well capacity to provide back up water supplies.
- Additional new well capacity is to increase to 140,000 acre-feet by 2050. The increases may require up to 80 new wells by 2050.
- Future expansion is limited by concerns over potential land subsidence and competing demand from Scottsdale and other surrounding municipal production wells.

3.3 Salt River Project Groundwater Needs

SRP operates and maintains nine irrigation wells within the WCP project area. SRP well 9.5E-7.7N is within a one mile radius of the WCP North Plume project area. This well lies approximately 2,500 feet south and cross gradient of the contaminant plume. Since 1999 there has existed an agreement between ADEQ and SRP not to pump wells located near WQARF sites in WCP due to the impact of groundwater contamination.

SRP has indicated to ADEQ that it has future plans for the construction of a drinking water treatment plant planned for the Grand Canal. In this event, water source discharges to the canal, such as well 9.5E-7.7N will be held to more stringent water quality criteria. Currently, SRP does not have plans for the installation of any new wells in the WCP North Plume project area.

SRP projects the following needs and concerns in regards to groundwater use:

- SRP operates and/or maintains nine irrigation wells within the WCP area. These wells are not in use at this time. SRP will not permanently remove these wells from their system.
- SRP well 9.5E-7.7N is most directly threatened as it is within a one-mile radius of the WCP North Plume site.
- SRP continues to need these wells in their system.
- SRP needs the possibility to return to operating these wells in dry years.

3.4 Remedial Objectives for Irrigation and Municipal Uses

Remedial Objectives for the current and future use of groundwater supply for irrigation and municipal use are:

To protect the supply of groundwater for municipal and irrigation use and for the associated recharge capacity that is threatened by contamination emanating from the WCP North Plume Site. To restore, replace or otherwise provide for the groundwater supply lost due to contamination associated with the WCP North Plume site. This action will be needed for as long as the need for the water exists, the resource remains available and the contamination associated with the WCP North Plume site prohibits or limits groundwater use.

Appendix M
Responsiveness Summary



PROPOSED REMEDIAL OBJECTIVES

RESPONSIVENESS SUMMARY

WEST CENTRAL PHOENIX NORTH PLUME REGISTRY SITE

PHOENIX, ARIZONA

December 2, 2008

PROPOSED REMEDIAL OBJECTIVES

RESPONSIVENESS SUMMARY

WEST CENTRAL PHOENIX NORTH PLUME REGISTRY SITE

PHOENIX, ARIZONA

December 2, 2008

INTRODUCTION

Pursuant to the requirements of the Arizona Administrative Code (AAC) R18-16-406(H) the Arizona Department of Environmental Quality (ADEQ) has prepared this comprehensive responsiveness summary for comments received on the West Central Phoenix North Plume Water Quality Assurance Revolving Fund (WQARF) Registry Site Proposed Remedial Objectives (RO) report that was opened up for final public comment on October 14th, 2008 for 30 days.

1) Comments from the City of Phoenix dated June 29th, 2007 were made in response to the invitation to provide input in the development of the Remedial Objectives Report.

Comment:

A remedial objective for the Site should be to clean up soil, soil vapors and groundwater over the entire area to concentrations that would not be predicted through application of peer-review models to exceed indoor air quality standards

Response:

ADEQ is currently operating a Soil Vapor Extraction (SVE) Treatment System beneath the F&B Manufacturing facility. At this facility there exists the highest concentration of contaminated soils and groundwater at the project site. To date this system has removed over 41,800 pounds of PCE. A SVE Treatment System is operating at the Hill Brothers Chemical Company to remediate soils at this facility. The SVE Treatment systems will be operated as long as there is an appreciable threat. ADEQ has conducted testing of soil vapor at several facilities in the Project Site area including, the former Rinchem and former Pyramid facilities. The results of these tests did not indicate the presence of acute hazards. A Groundwater Threat Modeling Report for the former Rinchem facility was prepared. This report concluded that there are no long-term threats from the contaminated soil to the groundwater.

Comment:

While certain portions of the central Phoenix aquifer are of more immediate priority and utility for municipal water supplies, *(the City of)* Phoenix is advocating the removal of environmental contaminants throughout the aquifer over the long term.

Response:

ADEQ concurs with the City of Phoenix that the long term goal should be to eliminate contaminants in the aquifer. This can be achieved through the process of removing contaminants from the source area. Upon addressing source reduction the goal it is to remove, reduce or allow for attenuation of contaminants to levels that are below the Aquifer Water Quality Standards (AWQS). Site remediation remedies will be evaluated in the Feasibility Study (FS) phase of the process. The different elements of the contamination plume will be addressed by examining risk data from models, use of remedial remedies, and continuation of remedial systems currently in place.

Comment:

A suitable remedial objective statement would be..."to protect for the use of the COP *(City of Phoenix)* municipal groundwater supply and associated recharge capacity that is threatened by contamination emanating from the WCP North Plume Site."

Response:

The comment is noted, the final statement in the RO for groundwater reads, ***"To protect the supply of groundwater for municipal and irrigation use and for the associated recharge capacity that is threatened by contamination emanating from the WCP North Plume Site. To restore, replace or otherwise provide for the groundwater supply lost due to contamination associated with the WCP North Plume site. This action will be needed for as long as the need for the water exists, the resource remains available and the contamination associated with the WCP North Plume site prohibits or limits groundwater use."***

Comment:

More specifically a remedial objective could be: "To contain the contaminant plume to an area east of 39th Avenue and north of Indian School Road" so as to minimize the increased contamination of the municipal water supply that has occurred in recent years as the plume has continued to spread.

Response:

The North Plume WQARF Registry Site is one of five sites in West Central Phoenix. Plume containment could affect remedial efforts at some of the other project sites. ADEQ will address the North Plume as its own entity so as to best direct remedies for the contamination in the aquifer.

Comment:

Towards that end, it would be helpful if ADEQ would calculate on an annual basis the approximate volume of water contaminated above AWQS as a result of this plume, and consider taking interim remedial actions to begin reducing that volume.

Response:

Although very rough estimates, using known aquifer parameters, can be made of the total volume of water contamination, such information adds little to the remedial efforts. ADEQ is actively conducting remedial measures to reduce the volume along with exploration of further interim remedial measures. Contaminant reduction will be addressed in the FS stage of the process.

2) Comments from the City of Phoenix via email dated October 24th, 2008 were made during the comment period following the issuance of the Remedial Objective report.

Comment:

My comment relates to section 2.5, Remedial Objectives for Land Use. The stated RO is to "Protect against possible exposure to hazardous substances in surface and subsurface soils that could occur during typical industrial uses".

It seems that the qualifier "in surface and subsurface soils" is unnecessarily limiting if read literally... I suggest altering the RO to "Protect against possible exposure to hazardous substances resulting from the release that could occur during typical industrial uses".

Response:

The comment is noted, the final statement in the RO for land use reads, "***Protect against possible exposure to hazardous substances from the release that could occur during typical industrial and residential use.***"