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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

GARY PIERCE - Chairman
BOB STUMP
SANDRA D. KENNEDY
PAUL NEWMAN
BRENDA BURNS

2011 JUN 21 P 2:42

AZ CORP COMMISSION
DOCKET CONTROL

IN THE MATTER OF THE APPLICATION
OF ARIZONA-AMERICAN WATER
COMPANY, AN ARIZONA CORPORATION,
FOR A DETERMINATION OF THE
CURRENT FAIR VALUE OF ITS UTILITY
PLANT AND PROPERTY AND FOR
INCREASES IN ITS RATES AND CHARGES
BASED THEREON FOR UTILITY SERVICE
BY ITS AGUA FRIA WATER DISTRICT,
HAVASU WATER DISTRICT, AND MOHAVE
WATER DISTRICT.

DOCKET NO. W-01303A-10-0448

STAFF'S NOTICE OF FILING
DIRECT TESTIMONY AND REQUEST
FOR EXTENSION

By procedural order dated June 15, 2011, the date for the filing of Staff and intervener direct testimony is June 27, 2011. Staff hereby provides notice of filing the direct testimony of Dorothy Hains. Due to internal backlog in the review of staff testimony to be filed in various cases, the testimony of Gerald Becker and Juan Manrique will not be ready to be filed on June 27, 2011. The departure of Staff members to retirement as well as the Utilities Division Director's shared responsibility for the Safety Division, has accentuated existing resource constraints. Staff is making best efforts to review and correct these two additional direct testimonies for filing on or before June 29, 2011. Staff believes that granting the extension to June 29 would be appropriate so as to avoid confusing the record with two filings of the same testimony that may have significant corrections between the schedules.

RESPECTFULLY SUBMITTED this 27th day of June, 2011.

Arizona Corporation Commission

DOCKETED

JUN 27 2011

DOCKETED BY

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BEFORE THE ARIZONA CORPORATION COMMISSION

GARY PIERCE
Chairman

BOB STUMP
Commissioner

SANDRA D. KENNEDY
Commissioner

PAUL NEWMAN
Commissioner

BRENDA BURNS
Commissioner

IN THE MATTER OF THE APPLICATION OF)
ARIZONA-AMERICAN WATER COMPANY,)
AN ARIZONA CORPORATION, FOR A)
DETERMINATION OF THE CURRENT FAIR)
VALUE OF ITS UTILITY PLANT AND)
PROPERTY AND FOR INCREASES IN ITS)
RATES AND CHARGES BASED THEREON FOR)
UTILITY SERVICE BY ITS AGUA FRIA WATER)
DISTRICT, HAVASU WATER DISTRICT, AND.)
MOHAVE WATER DISTRICT.)

DOCKET NO. W-01303A-10-0448

DIRECT TESTIMONY

OF

DOROTHY HAINS, P. E.

UTILITIES ENGINEER

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

JUNE 27, 2011

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Engineering Report for Arizona-American Mohave Water District	DMH-3

1 **INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Dorothy Hains. My business address is 1200 West Washington Street,
4 Phoenix, Arizona 85007.

5
6 **Q. By whom and in what position are you employed?**

7 A. I am employed by the Arizona Corporation Commission (“Commission” or “ACC”) as a
8 Utilities Engineer - Water/Wastewater in the Utilities Division.

9
10 **Q. How long have you been employed by the Commission?**

11 A. I have been employed by the Commission since January 1998.

12
13 **Q. What are your responsibilities as a Utilities Engineer - Water/Wastewater?**

14 A. My main responsibilities are to inspect, investigate and evaluate water and wastewater
15 systems. This includes obtaining data, preparing reconstruction cost new and/or original
16 cost studies, cost of service studies and investigative reports, interpreting rules and
17 regulations, and to suggest corrective action and provide technical recommendations on
18 water and wastewater system deficiencies. I also provide written and oral testimony in
19 rate cases and other cases before the Commission.

20
21 **Q. How many companies have you analyzed for the Utilities Division?**

22 A. I have analyzed more than 90 companies fulfilling these various responsibilities for
23 Commission Utilities Division Staff (“Staff”).

24
25 **Q. Have you previously testified before this Commission?**

26 A. Yes, I have testified on numerous occasions before this Commission.

1 **Q. What is your educational background?**

2 A. I graduated from the University of Alabama in Birmingham in 1987 with a Bachelor of
3 Science degree in Civil Engineering.

4
5 **Q. Briefly describe your pertinent work experience.**

6 A. Before my employment with the Commission, I was an Environmental Engineer for the
7 Arizona Department of Environmental Quality ("ADEQ") for ten years. Prior to that time,
8 I was an Engineering Technician with C. F. Hains, Hydrology in Northport, Alabama for
9 approximately five years.

10

11 **Q. Please state your professional membership, registrations, and licenses.**

12 A. I have been a registered Civil Engineer in Arizona since 1990. I am a member of the
13 American Society of Civil Engineering, American Water Works Association and Arizona
14 Water & Pollution Control Association.

15

16 **PURPOSE OF TESTIMONY**

17 **Q. What was your assignment in this rate proceeding?**

18 A. My assignment was to provide Staff's engineering evaluation for the subject Arizona-
19 American Water Company ("Company") rate proceeding. Three of the Company's
20 districts are included in this rate application: Agua Fria Water District ("Agua Fria"),
21 Havasu Water District ("Havasu") and Mohave Water District ("Mohave").

22

23 **Q. What is the purpose of your testimony in this proceeding?**

24 A. To present the findings of Staff's engineering evaluation of the operations for Agua Fria,
25 Havasu and Mohave. The findings are contained in the Engineering Reports that I have

1 prepared for this proceeding. The reports are included as Exhibits DMH-1 through DMH-
2 3 in this pre-filed testimony.

3
4 **ENGINEERING REPORTS**

5 **Q. Would you briefly describe what was involved in preparing your Engineering**
6 **Reports for this rate proceeding?**

7 A. After reviewing the application for the Agua Fria, Havasu and Mohave Districts, I
8 physically inspected the systems in the Districts to evaluate their operation and to
9 determine if any plant items were not used and useful. I contacted the Maricopa County
10 Department of Environmental Services ("MCDES") and the ADEQ to determine if the
11 water systems were in compliance with the Safe Drinking Water Act water quality
12 requirements. After I obtained information from the Company regarding plant
13 improvements, permits, chemical testing expenses, water usage data, I analyzed that
14 information. I also contacted the Arizona Department of Water Resources ("ADWR") to
15 determine if the water systems were in compliance with the ADWR's requirements
16 governing water providers and/or community water systems. Based on all the above, I
17 prepared the attached Engineering Reports.

18
19 **Q. Please describe the information contained in your Engineering Reports.**

20 A. The Reports are divided into three general sections: 1) *Executive Summary*;
21 2) *Engineering Report Discussion*, and 3) *Engineering Report Exhibits*. The *Discussions*
22 section for Havasu and Mohave can be further divided into ten subsections: A)
23 Introduction and Location of Company; B) Description of the Water Systems; C) ADEQ
24 Compliance; D) ACC Compliance; E) ADWR Compliance; F) Water Testing Expenses;
25 G) Water Usage; H) Growth; I) Depreciation Rates and J) Other Issues. These subsections
26 provide information about the water systems serving Havasu and Mohave. The

1 *Discussions* section for Agua Fria can be further divided into eleven subsections: A)
2 Introduction and Location of Company; B) Description of the Water Systems; C) MCESD
3 Compliance; D) ACC Compliance; E) ADWR Compliance; F) Water Testing Expenses;
4 G) Water Usage; H) Growth; I) Depreciation Rates; J) White Tanks Regional Water
5 Treatment Plant (“White Tanks”); and K) Other Issues. These subsections provide
6 information about the water systems serving Agua Fria Water District.

7
8 **RECOMMENDATIONS AND CONCLUSIONS**

9 **Q. What are Staff’s conclusions and recommendations regarding the Company’s**
10 **operations?**

11 A. Staff’s conclusions and recommendations regarding the Company’s operations are listed
12 below.

13
14 ***Agua Fria***

15 **Recommendations:**

16 I. Staff recommended average service lives and the resulting depreciation rates are listed by
17 National Association of Regulatory Utility Commissioners’ (“NARUC”) plant account in
18 Figure 6 in Report DMH-1.

19
20 II. Staff has no objection to the continued use of the currently authorized meter and service
21 line installation charges as proposed by the Agua Fria and recommends approval of
22 charges shown under the column headings “Staff Recommended” in Table 6 in Report
23 DMH-1.

24

1 III. Staff recommends that \$321,906 of expenses associated with fluoride injection equipment
2 and the addition of sodium fluoride at the White Tanks Plant not be included in
3 determining rates in this proceeding.

4
5 IV. Staff recommends disallowance of \$298,399 of plant investment at the White Tanks Plant that
6 Staff believes is excess capacity.

7
8 V. Staff recommends that total annual water testing costs of \$149,228 for the Agua Fria be used
9 for purposes of the proceeding.

10

11 **Conclusions:**

12 I. MCDES has determined that Agua Fria is delivering water that meets the water quality
13 standards required by Arizona Administrative Code, Title 18, Chapter 4.

14

15 II. Agua Fria is within the Phoenix Active Management Area and is in compliance with ADWR
16 departmental requirements governing water providers and/or community water systems.

17

18 III. Agua Fria has approved cross connection and curtailment tariffs.

19

20 IV. Agua Fria has adequate storage and well production to serve its existing customers and
21 projected growth for a five-year planning horizon.

22

23 V. The Sierra Montana storage tank and White Tanks Plant were in service at the time of
24 Staff's inspection. Therefore, the plant investment amounts, as adjusted by Staff, may be
25 considered for purposes of establishing rates in this proceeding.

26

- 1 VI. A check of the Commission Utilities Division Compliance Database indicates there are no
2 delinquent compliance items for the Agua Fria.
3
- 4 VII. At the time of Staff's inspection, the Route 303 Water Line Relocation Project had been
5 completed and was in service. Therefore, the associated plant investment may be
6 considered for purposes of establishing rates in this proceeding.
7
- 8 VIII. Lost water in Agua Fria was within 10% acceptable limit during the test year.
9

10 ***Havasu***

11 **Recommendations:**

- 12 I. Staff recommended average service lives and the resulting depreciation rates are listed by
13 NARUC plant account in Figure 6 in Report DMH-2.
14
- 15 II. Lost water for Havasu was calculated to be 15.58 percent based on test year water use data
16 which exceeds acceptable limits. Staff recommends that any rate increase resulting from
17 this Application not become effective until the annual water loss in the Havasu service
18 area is below 10 percent.
19
- 20 III. Staff recommends that estimated annual water testing costs of \$5,616 for Havasu be used for
21 purposes of the proceeding.
22
- 23 IV. Staff has no objection to the continued use of the currently authorized meter and service
24 line installation charges as proposed by Havasu and recommends approval of the charges
25 shown under the column headings "Staff Recommended" in Table 3 in Report DMH-2.
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Conclusions:

- I. ADEQ has determined that Havasu is currently delivering water that meets the water quality standards required by Arizona Administrative Code, Title 18, Chapter 4.
- II. ADWR has determined that Havasu is compliant with departmental requirements governing water providers and/or community water systems.
- III. Havasu has approved cross connection and curtailment tariffs.
- IV. Havasu has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon.
- V. A check of the Commission Utilities Division Compliance Database indicates there are no delinquent compliance items for Havasu.

Mohave

Recommendations:

- I. Staff recommended average service lives and the resulting depreciation rates are listed by NARUC plant account in Figure 6 in Report DMH-3.
- II. Lost water for Mohave, Lake Mohave Highlands and Desert Foothills in the Mohave was calculated to be 11.08, 18.76 and 14.63 respectively which exceeds acceptable limits. Staff recommends that any rate increase resulting from this Application not become effective until the annual water loss in the Mohave service area is below 10 percent.
- III. Staff recommends estimated annual water testing costs of \$15,595 for Mohave.

1 IV. Staff has no objection to the continued use of the currently authorized meter and service
2 line installation charges as proposed by the Mohave and recommends approval of charges
3 shown under the column headings "Staff Recommended" in Table 5 in Report DMH-3.

4
5 **Conclusions:**

6 I. ADEQ has determined that all water systems in the Mohave are currently delivering water that
7 meets the water quality standards required by Arizona Administrative Code, Title 18, Chapter
8 4.

9
10 II. ADWR has determined that Mohave is compliant with departmental requirements
11 governing water providers and/or community water systems.

12
13 III. Mohave has approved cross connection and curtailment tariffs.

14
15 IV. Mohave has adequate storage and well production to serve its existing customers and
16 projected growth for a five-year planning horizon.

17
18 V. A check of the Commission Utilities Division Compliance Database indicates there are no
19 delinquent compliance items for Mohave.

20
21 VI. The 250,000 gallon storage tank located at Big Bend Acres Well Site # , and the 150,000
22 gallon storage tank in Lake Mohave Highlands Well Site were in service at the time of
23 Staff's inspection. Therefore, the plant investment amounts, as adjusted by Staff, may be
24 considered for purposes of establishing rates in this proceeding.

25

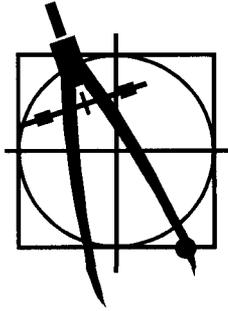
1 **Q. Does this conclude your Direct Testimony?**

2 A. Yes, it does.

ENGINEERING REPORT FOR ARIZONA-AMERICAN WATER COMPANY, INC.,
AGUA FRIA WATER DISTRICT

BY DOROTHY HAINS

JUNE 20, 2011



**Engineering Report
For Arizona-American Water
Company's Agua Fria Water District
Docket No. W-01303A-10-0448
(Rate Increase Application)**

By Dorothy Hains

June 27, 2011

EXECUTIVE SUMMARY

Recommendations:

- I. Arizona Corporation Commission ("Commission") Utilities Division Staff ("Staff") recommended average service lives and the resulting depreciation rates are listed by National Association of Regulatory Utility Commissioners' plant account in Figure 6. (See §I of report for discussion and details.)
- II. Staff has no objection to the continued use of the currently authorized meter and service line installation charges as proposed by the Arizona-American Water Company ("Company") Agua Fria Water District ("Agua Fria") and recommends approval of charges shown under the column headings "Staff Recommended" in Table 6. (See §K of report for discussion and details.)
- III. Staff recommends that \$321,906 of expenses associated with fluoride injection equipment and the addition of sodium fluoride at the White Tanks Regional Water Treatment Plant ("White Tanks Plant") not be included in determining rates in this proceeding. (See §J of report for discussion and details.)
- IV. Staff recommends disallowance of \$298,399 of plant investment at the White Tanks Plant that Staff believes is excess capacity. (See §J of report for discussion and details.)
- V. Staff recommends that total annual water testing costs of \$149,228 for Agua Fria be used for purposes of the proceeding. (See §F of report for discussion and details.)

Conclusions:

- I. Maricopa County Environmental Services Department has determined that Agua Fria is delivering water that meets the water quality standards required by Arizona Administrative Code, Title 18, Chapter 4. (See §C for a discussion and details.)
- II. Agua Fria is within the Phoenix Active Management Area and is in compliance with the Arizona Department of Water Resources departmental requirements governing water providers and/or community water systems. (See §E of report for discussion and details.)

- III. Agua Fria has approved cross connection and curtailment tariffs. (See §K of report for discussion and details.)
- IV. Agua Fria has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. (See §B of report for discussion and details.)
- V. The Sierra Montana storage tank and White Tanks Plant were in service at the time of Staff's inspection, therefore, the plant investment amounts, as adjusted by Staff, may be considered for purposes of establishing rates in this proceeding. (See §J and §K of report for discussion and details.)
- VI. A check of the Commission Utilities Division Compliance Database indicates there are no delinquent compliance items for Agua Fria. (See §D of report for discussion and details.)
- VII. At the time of Staff's inspection, the Route 303 Water Line Relocation Project had been completed and was in service. Therefore, the associated plant investment may be considered for purposes of establishing rates in this proceeding. (See §J and §K of report for discussion and details.)
- VIII. Lost water in Agua Fria was within 10% acceptable limit during the test year. (See §G of report for discussion and details.)

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A. INTRODUCTION AND LOCATION OF COMPANY

Arizona American – Agua Fria Water District (“Agua Fria” or “Company”) has submitted an application with the Arizona Corporation Commission (“ACC” or “Commission”) for approval of a rate increase in Docket No. W-01303A-10-0448. This report constitutes Staff’s engineering evaluation of the subject rate proceeding. Agua Fria serves over 36,400 customers in the unincorporated Agua Fria area which is located northwest of the City of Phoenix in Maricopa County. Figure 1 describes the location of the Company within Maricopa County, and Figure 2 describes the CC&N area of Agua Fria.

B. DESCRIPTION OF THE WATER SYSTEMS

The plant facilities were visited on February 22, February 24, March 7 and March 8, 2011, by Dorothy Hains, Commission Staff Engineer, accompanied by the Company’s representatives, Jeremiah Mecham (Company’s Operation Supervisor), Paul Taylor (Water Plant Operations Supervisor), Tom DeYoung (Manager), Jo Cornejo (White Tanks’ Chief Operator), Travis Nuttall, P. E. (Engineering Project Manager), Alex Lovisetto (Senior Planning Engineer) and Ed Radwanski, P.E. (Construction Manager).

System Analysis

During the test year, the Company operated two separate systems. Detailed descriptions are provided below for the Agua Fria Water System and the North East Agua Fria Water System:

(1) Agua Fria System (Arizona Department of Environmental Quality (“ADEQ”) PWS #07-695)

Agua Fria System consists of thirty-one drinking water wells that are capable of producing a total flow of 23,085 gallons per minute (“GPM”), five arsenic treatment plants (“ATP”)¹ and a total of 16.7 million gallons (“MG”) of storage capacity. The system also includes one 20 million gallons per day (“MGD”) surface water treatment plant (White Tanks Regional Water Treatment Plant)² and 1,914 GPM water supply from two leased wells. The water system has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. Figures 3A through 3P provide a process schematic showing both the active and inactive components of the water system.

¹ ATP #1 has 6.9 million gallons per day (“MGD”) treatment capacity; ATP #2 has 3.5 MGD treatment capacity; ATP #5 has 2 MGD treatment capacity; ATP #9 has 2.8 MGD treatment capacity and Agua Fria Trak-a-Line (“AFTL”) ATP has 1.47 MGD treatment capacity..

² See §J for detail discussion of White Tanks Plant.

Table 1 Plant Data in Agua Fria System (PWS #07-695)

Active Drinking Water Wells (Agua Fria System)

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
1.1	55-623682	1956	20	1,000	12	250	1,200	17823 N White Feather Path
1.2	55-575445	2000	18	1,200	10	200	1,000	14362 W Carlin Dr
1.4	55-605761	1946	18	1,200	10	250	1,000	13843 W Bell Rd
1.5	55-587293	2001	18	950	10	250	1,200	14270 W Mtn View Blvd
2.1	55-553671	1996	16	1,060	10	250	1,200	14837 W Yorkshire Dr.
2.3	55-573654	2000	18	1,140	10	250	800	15341 W Mountain View Blvd
2.4	55-200558	2004	19	1,150	10	250	1,200	18510 N Reems Rd, Surprise, AZ
3.1	55-565447	1999	18	1,100	10	250	1,200	17961 Goldwater Canyon Dr.
3.2	55-565446	2002	18	1,200	10	200	1,000	17760 Estrella Vista Dr.
3.3	55-591439	2002	19	1,080	10	250	1,133	16734 W Stevenage St., Surprise, Az
3.4	55-202096	2004	19	1,150	10	250	1,200	16664 W Cabrera Court, Surprise, Az
4.1	55-604498	1948	20	1,200	8	250	1,200	17800 N Citrus Rd
4.3	55-590166	2002	18	1,050	10	250	888	17626 W Sabrina Dr.
4.4	55-576971	2000	16	1,575	10	200	1,000	17116 W Paradise Ln
4.5	55-593407	2003	19	1,205	10	200	990	16797 W Statler St.
4.6	55-202092	2004	19	1,055	8	125	514	545 W Surprise Farms Loop Dr., Surprise, AZ
4.7	55-204414	2005	19	1,480	8	250	950	352 N NW Ranch Park, Surprise, AZ
5.1	55-514145	1986	16	1,000	8	150	800	7502 N Cotton Ln
5.2	55-624692	1954	18	888	4	125	600	17540 W Olive Ave
5.3	55-604500	1954	20	1,000	8	200	800	16095 N Cotton Ln
8.1	55-592749	2003	18	980	4	100	400	17897 W Spring Ln, Surprise, AZ
8.2	55-595241	2004	18	1,103	8	125	540	17211 W Greenway Rd, Surprise, AZ
8.3	55-598979	2003	15	841	6	75	240	15024 N 181 st Ave, Surprise, AZ
9.1	55-585407	2001	12	900	6	100	320	19784 W Indian School Rd, Buckeye, AZ
9.2	55-595267	2003	16	660	8	125	500	3860 N Citrus Ln, Goodyear, AZ
9.3	55-592226	2002	12	1,520	6	125	530	17257 W Indian School Dr., Goodyear, AZ
9.4	55-591437	2002	16	610	8	100	500	4350 N Cotton Ln, Goodyear, AZ
AFTL 1	55-205432	2005	18	1,606	8	200	500	9050 N Cortessa PKW, Waddell, AZ
AFTL 3	55-213859	2007	20	890	6	200	350	17912 W Mountain

								View Rd, Waddell, AZ
AFTL 4	55-212434	2006	18	720	6	150	600	8850 N 183 rd Ave
11.2	55-215441	2007	18	1,058	10	250	800	11695 N Sarival Ave, Surprise, AZ
14.3	55-215441	2007	18	1,200	8	125	570	15111 N Cotton Lane, Surprise, AZ

Leased Wells (from Maricopa Water District (“MWD”))

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
MWD Well 6-10-C	N/A	N/A	N/A	N/A	8	N/A	897	18250 W Acoma Rd
MWD Well 7-22	55-612997	N/A	N/A	N/A	8	N/A	1,017	N/A

Other Sources (Surface Water received via CAP and Beardsley Canals)

Source	WTP	Pump Yield (GPM)	Location
CAP water	White Tanks Regional Water Treatment Plant	9,375	Sec 16, T3N, R2W (@ Cactus & Perryville Rd next to Beardsley Canal in Maricopa Co.)

Inactive Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
2.2	55-554002	1997	18	1,170	10	250	1,200	18031 N Reems Rd
4.2	55-555779	1996	16	1,150	6	200	800	17811 N Thornberry Dr.

Active Storage, Pump

Location	Structure or equipment	Capacity
WP #1 (17823 N White Feather Path)	Booster Pumps	four 150-HP & one 75-HP
	Storage Tank s	Two 1,325,000 gal (underground, concrete)
	Pressure Tanks	one 10,000 gal
WP #2 (14837 W Yorkshire Dr)	Booster Pumps	Three 60-HP Three 200-HP One 100-HP One 75-HP
	Storage Tanks	Two 1,000,000 gal
	Pressure Tanks	Two 10,000 gal
WP #3 (19508 N Papago Dr.)	Booster Pumps	Three 75-HP One 50-HP
	Storage Tanks	Two 1,000,000 gal
	Pressure Tanks	One 10,000 gal
WP #4 (17630 W Bell Rd)	Booster Pumps	Five 125-HP Two 60-HP
	Storage Tanks	One 2,000,000 gal One 1,500,000 gal
	Pressure Tanks	One 10,000 gal
WP #5 (7502 N Cotton Ln)	Booster Pumps	Two 150-HP Two 125-HP Two 50-HP
	Storage Tanks	One 1,250,000 gal (underground)
	Pressure Tanks	Two 10,000 gal
WP #8 (17897 W Spring Ln., Surprise, AZ)	Booster Pumps	Two 125-HP Two 100-HP Two 40-HP
	Storage Tanks	One 1,500,000 gal One 2,200,000 gal
	Pressure Tanks	Two 13,000 gal
WP #9 (19784 W Indian School Rd, Buckeye, Az)	Booster Pumps	Four 150-HP
	Storage Tanks	One 100,000 gal
	Pressure Tanks	One 10,000 gal
WP #10 (21513 W Sunrise Lane)	Booster Pumps	Five 50-HP One 40-HP
	Storage Tanks	Two 1,735,000 gal (underground, concrete)
	Pressure Tanks	One 10,000 gal
WP #14 (12732 N 163 rd Dr., Surprise, AZ)	Booster Pumps	Three 125-HP Two 75-HP

	Storage Tanks	One 1,800,000 gal
	Pressure Tanks	One 7,500 gal
White Tanks Regional Water Treatment Plant (@ Cactus & Perryville Rd next to Beardsley Canal in Maricopa Co.)	Booster Pumps	Two 250-HP One 150-HP
	Storage Tanks	Two 1,200,000 (underground) concrete tanks
	Pressure Tanks	One 50,000 gal

Water Treatment Plants

Location	Type of Treatment	equipment	size	Capacity (in MGD)
WP #1 (17823 N White Feather Path)	Arsenic Removal	Media	Six (14'-diameter vessels)	5.5 - 6.9
WP #2 (14837 W Yorkshire Dr)	Arsenic Removal	Media	four (14'-diameter vessels)	3.5 - 4.3
WP #5 (7502 N Cotton Ln)	Arsenic Removal	Media	four (11'-diameter vessels)	2 - 3.2
WP #9 (19784 W Indian School Rd, Buckeye, Az)	Arsenic Removal	Ion Exchange	16 ion exchange units	2.8
AFTL #1 Plant (9050 N Cortessa PKW, Waddell, AZ)	Arsenic Removal	Media	two (9'- diameter vessels)	1.47
White Tanks Regional Treatment Plant (Cactus/PerryvilleRd in Maricopa Co.)	Surface Water	Headworks, storage ponds, pretreatment, flocculation, dissolved air floatation, UV/chlorine disinfection		13.4

Distribution Mains

Diameter (inches)	Material	Length (feet)
4	Various	70,252
6	Various	706,229
8	Various	1,663,450
10	Various	140,592
12	Various	1,013,467
14	Various	4,976
16	Various	189,893
18	Various	6,711
20	Various	46,619
24	Various	15,458
30	Various	46,174
36	Various	15
48	Various	6,470
undetermined	Various	60,737

Meters

Size (inches)	Quantity
3/8 x 3/4	18,653
3/4	8,949
1	4,839
1 1/2	399
2	545
3	31
4	1
6	5
8	2

(2) North East Agua Fria System (PWS #07-531)

The North East Agua Fria (“NEAF”) Water System consists of two drinking water wells that are capable of producing a total flow of 2,600 GPM, an on-site hypochlorite generating plant and a total of 1.25 MG of storage capacity. The NEAF Water System also operates two irrigation wells that produce water at a rate of 3,500 GPM. The water system has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. Figures 3Q and 3R provide process schematic diagrams showing the drinking water and irrigation water components of the NEAF System.

Table 2 Plant Data in NEAF System (PWS #07-531)

Active Drinking Water Wells (NEAF System)

Well #	ADWR No.	Year Drilled	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
100.1	55-595221	2003	18	1,100	8	200	1,000	22926 N Carrera Dr., Sun City West
100.2	55-595224	2004	18	1,208	12	300	1,600	12153 W Pinnacle Peak Rd, Sun City West

Irrigation Wells

Well #	ADWR No.	Year Drilled	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Irrigation well #2	55-611448	1982	20	1,066	12	400	1,550	13100 W Junipero Dr, Sun City West
Irrigation well #1	55-611447	1982	20	1,075	12	400	1,950	13480 W Junipero Dr., Sun City West

Active Storage, Pumping

Location	Structure or equipment	Capacity
WP #100 (13040 W Junipero Dr., Sun City West)	Booster Pumps	Two 125-HP One 60-HP
	Storage Tank s	One 1,250,000 gal
	Pressure Tanks	One 15,000 gal
Booster Pump Station #300 (El Mirage Rd nr Loop 303)	Booster Pumps	Three 75-HP
	Pressure Tank	One 5,000 gallon tank

Distribution Mains

Diameter (inches)	Material	Length (feet)
4	Various	4,583
6	Various	26,761
8	Various	140,551
10	Various	N/A
12	Various	25,126
14	Various	N/A
16	Various	13,203
18	Various	N/A
20	Various	N/A
24	Various	N/A
30	Various	N/A
36	Various	N/A
48	Various	N/A
undetermined	Various	136,413

Meters

Size (inches)	Quantity
5/8 X 3/4	171
3/4	1,758
1	1,143
1 1/2	14
2	50
6	1
8	1

**C. MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT
 ("MCESD") COMPLIANCE**

Based on memorandums dated April 25, 2011 and November 16, 2010, MCESD has determined that both water systems serving Agua Fria are currently in compliance with its requirements. MCESD also stated that it has determined that the system is currently delivering

water that meets water quality standards required by Arizona Administrative Code, Title 18, Chapter 4.

D. ACC COMPLIANCE

A check of the Commission Utilities Division Compliance Database indicates there are no delinquent ACC compliance items for Agua Fria.

E. ARIZONA DEPARTMENT OF WATER RESOURCES (“ADWR”) COMPLIANCE

Both Agua Fria systems are in ADWR’s Phoenix Active Management Area (“AMA”). Staff received a Compliance Status Report from ADWR for Agua Fria on December 9, 2010. In its reports, ADWR stated that Agua Fria is compliant with departmental requirements governing water providers and/or community water systems.

F. WATER TESTING EXPENSES

(1) Agua Fria System

The Company’s estimated annual water testing expense for the Agua Fria System is \$126,940. Staff concludes that this estimate is reasonable. Therefore, for purposes of this rate case, Staff recommends water testing expenses of \$126,940. (See Table 3)

(2) NEAF System

NEAF System is subject to mandatory participation in the ADEQ Monitoring Assistance Program (“MAP”), the estimated annual test costs were based on combined systems. Staff calculated the testing costs based on the following assumptions:

1. MAP will do baseline testing on everything except copper, lead, bacteria and disinfection by-products.
2. ADEQ testing is performed in 3-year compliance cycles. Therefore, monitoring costs are estimated for a 3-year compliance period and then presented as a pro forma expense on an annualized basis.
3. All monitoring expenses are based on Staff’s best knowledge of lab costs and methodology and one point of entry.
4. The estimated water testing expenses represent a minimum cost based on no “hits” other than lead and copper, and assume compositing of well samples. If any constituents were found, then the testing costs would dramatically increase

Table 3 shows the estimated annual monitoring expense, assuming participation in the MAP program. Water testing expenses should be adjusted to the annual expense amount of \$22,288 (rounded). (See Table 3)

Table 3 Water Testing Cost (Agua Fria Water District)

Monitoring	Cost per test		No. of tests per three year period		Total cost per three year period		Annual Cost		
	Aqua Fria (PWS #07-695)	NEAF (PWS #07-531)	Aqua Fria (PWS #07-695)	NEAF (PWS #07-531)	Aqua Fria (PWS #07-695)	NEAF (PWS #07-531)	Aqua Fria (PWS #07-695)	NEAF (PWS #07-531)	Agua Fria Water District
Bacteriological – monthly	\$11	\$11	34,560	3,888	\$380,160	\$42,768	\$126,720	\$14,256	\$140,976
Customer requested bact	\$11		60	0	\$660	\$0	\$220	\$0	\$220
Customer requested HPC	\$35		0	0	\$0	\$0	\$0	\$0	\$0
Inorganics – Priority Pollutants		MAP				MAP		MAP	
Radiochemical* – (1/3 yr)						MAP		MAP	
Gross Alpha	\$0		45 ¹	MAP	\$0				
Uranium	\$0	MAP					\$0		
Radium 228	\$0		45 ¹						
Radium 226	\$0								
Phase II and V:									
IOC's*	\$0	MAP	27 ¹	MAP	\$0	MAP	\$0	MAP	
SOC's*	\$0	MAP	42 ¹	MAP	\$0	MAP	\$0	MAP	
VOC's*	\$0	MAP	45 ¹	MAP	\$0	MAP	\$0	MAP	
Dioxin*	\$0	MAP	42 ¹	MAP	\$0	MAP	\$0	MAP	
Nitrites* per 9 yrs	\$0	MAP	27 ¹	MAP	\$0	MAP	\$0	MAP	
Nitrates* – annual	\$0	MAP	81 ¹	MAP	\$0	MAP	\$0	MAP	
Asbestos* – per 9 years	\$0	MAP	27 ¹	3	\$0	MAP	\$0	MAP	
Lead & Copper* – Triennial	\$0	\$0	0	60	\$0	\$0	\$0	\$0	
TTHM/HHAs*&*** – annual	\$0	\$0	432	3	\$0	\$0	\$0	\$0	
Maximum chlorine* residual levels	\$0	\$0	2,880	324	\$0	\$0	\$0	\$0	
MAP fees (annual)		\$8,031.96 ¹						\$8,031.96 ¹	\$8,031.96 ¹
Arsenic*&***	\$0		60 ¹				\$0	\$0	
Total							\$126,940	\$22,287.96	\$149,228

Notes: * The test will be done in the Company's Lab in Belleville.

** To comply with ADEQ requirement, the Company has to conduct quarterly arsenic testing at each well site and ADEQ designed sampling points aka Points of Entry.

The total estimated annual water quality testing costs for Agua Fria is \$149,228 (the sum of \$126,940 and \$22,288).

G. WATER USAGE

Figures 4A through 4D are graphs that show water consumption data in gallons per day (“GPD”) per customer for the Agua Fria and NEAF Systems for the test year period of July 2009 through June 2010.

1. Water Sold

Based on information provided by the Company, water use for the test year is presented in the Table below and in Figure 4.

	Agua Fria System	NEAF System
High usage month	June 2010	September 2009
Average daily flow in high usage month (in GPD)	590	606
Low usage month	February 2010	February 2010
Average daily flow in low usage month (in GPD)	229	200
Annual average daily flow (in GPD)	398	363

2. Lost Water

Lost water should be 10 percent or less and never more than 15 percent. It is important to be able to reconcile the difference between water sold and the water produced by the source. A water balance will allow a water company to identify water and revenue losses due to leakage, fire fighting, and flushing. Listed in the Table below is the lost water percentage for each Agua Fria Water System:

	Agua Fria System	NEAF System
Water Loss (%)	4.45	2.16

Lost water for both systems were within acceptable limits during the test year.

H. GROWTH

(1) Agua Fria System (PWS #07-695)

Figure 5A shows customer growth based on the service connection data contained in the Company’s annual reports, the number of customers increased from 30,322 at the end of 2007 to 33,880 by the end of 2010 in Agua Fria System, with an average growth rate of 453 customers per year from 2007 to 2010. Based on the linear regression analysis, Staff estimates that the

Company could have over 35,700 customers by the end of 2014. The following table summarizes Staff's projected growth.

Table 4 Actual and Projected Growth in the Agua Fria System

Year	Nos. of Customers	
2007	30,322	Reported
2008	32,974	Reported
2009	33,482	Reported
2010	33,880	Reported
2011	34,351	Estimated
2012	34,804	Estimated
2013	35,257	Estimated
2014	35,710	Estimated

(2) NEAF System (PWS #07-531)

Figure 5B shows customer growth based on the service connection data contained in the Company's annual reports, the number of customers increased from 2,014 at the end of 2007 to 3,236 by the end of 2010 in NEAF System, with an average growth rate of 141 customers per year from 2007 to 2010. Based on the linear regression analysis, Staff estimates that the Company could have over 3,700 customers by the end of 2014. The following table summarizes Staff's projected growth.

Table 5 Actual and Projected Growth in the NEAF System

Year	Nos. of Customers	
2007	2,014	Reported
2008	2,954	Reported
2009	3,031	Reported
2010	3,236	Reported
2011	3,356	Estimated
2012	3,497	Estimated
2013	3,638	Estimated
2014	3,779	Estimated

I. DEPRECIATION RATES

The Company factored in an expected net salvage value for each plant account in developing its proposed depreciation rates. The Company's proposal to factor in net salvage value in establishing depreciation rates for the Company is addressed in the testimony of Staff witness Gerald Becker. Staff's recommended average service lives and the resulting depreciation rates are listed by National Association of Regulatory Utility Commissioners' ("NARUC") plant account in Figure 6.

The Company did not propose a service life for backflow prevention devices; Staff recommends a 15 year service live for backflow prevention devices (NARUC Account no. 336).

J. WHITE TANKS REGIONAL WATER TREATMENT PLANT (“WHITE TANKS”) PLANT ADJUSTMENTS

(1) System Introduction

The White Tanks Water Treatment Plant is a surface water treatment plant that has an installed capacity of 20 MGD and was placed into service in November 2009. The White Tanks Plant primarily treats Central Arizona Project water delivered to the White Tanks Plant through the Maricopa Water District Beardsley Canal. Treated water is delivered to customers via multiple storage facilities located throughout the Agua Fria service area.

(2) Plant Adjustments

The installation of fluoride injection equipment had not been completed and was not in use at the time of Staff’s inspection. (See §K). In addition it is Staff’s opinion that the addition of sodium fluoride to the treated water is not necessary. Therefore, Staff recommends that \$321,906 expense associated with fluoride injection not be included in determining rates in this proceeding. (See §K of report for discussion and details.)

K. OTHER ISSUES

1. Service Line and Meter Installation Charges

The Company did not propose any changes to its currently authorized meter and service line installation charges; Staff has no objection to the continued use of the currently authorized charges and recommends approval of the separate meter and service line installation charges shown under the column headings “Staff Recommended” in Table 6.

Table 6 Service Line and Meter Installation Charges (Agua Fria)

Meter Size	Current Meter Installation Charges	Current Service Line Installation Charges	Proposed Meter Installation Charges	Proposed Service Line Installation Charges	Staff Recommendation (Service Line)	Staff Recommendation (meter installation)	Staff Recommendation total charges
5/8 x 3/4-inch	\$155	\$445	\$155	\$445	\$445	\$155	\$600
3/4-inch	\$255	\$445	\$255	\$445	\$445	\$255	\$700
1-inch	\$315	\$495	\$315	\$495	\$495	\$315	\$810
1½-inch	\$525	\$550	\$525	\$550	\$550	\$525	\$1,075
2-inch (Turbine)	\$1,045	\$830	\$1,045	\$830	\$830	\$1,045	\$1,875
2-inch (Compound)	\$1,890	\$830	\$1,890	\$830	\$830	\$1,890	\$2,720
3-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
3-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
4-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
4-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
6-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
6-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
Over 6-inch	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost

2. *Curtailment Tariff*

The Company has an approved Curtailment Tariff.

3. *Cross Connection & Backflow Tariff*

The Company has an approved Cross Connection & Backflow Tariff.

4. *Sierra Montana Storage Tank*

The 2.2 MG Sierra Montana storage tank, located in Plant No. 8 of Agua Fria System, was completed in November 2008. An Approval of Construction was issued by MCESD on November 25, 2008, at the time of Staff's inspection this tank was in service, therefore, the 2.2 MG Sierra Montana storage tank may be considered when determining rates in this proceeding.

5. Route 303 Water Line Relocation

The water line relocation project was completed in November, 2010. The project located between west Bell Rd, State HWY 303 and west Waddell Rd. included replacement of 161 feet of existing 12” polyvinyl chloride (“PVC”) water line with 147 feet of 12” ductile iron (“DIP”) water line to accommodate a newly established easement. The new water line was in service at the time of Staff inspection therefore, this water line relocation project may be considered when determining rates in this proceeding.

6. Adjustments to the White Tanks Plant

(a) Adjustments Related to Fluoride Injection Plant

Per the Company’s Response to Staff Data Request # 1.2, the table below lists capital costs associated with fluoride treatment equipment that should not be included in determining rates in this proceeding.

Plant description	Costs (\$)	Staff’s adjustment (\$)	Accounts to be adjusted (NARUC Acct #)	Account Description
Fluoride Injection	115,612.52	115,612.52	320100	Water Treatment Plant
Fluoride Storage Tanks	25,751.22	25,751.22	320100	Water Treatment Plant
Fluoride Injection /Storage Area	180,542.48	180,542.48	304300	Structure & Improvement – Water Treatment
Total	321,906.22	321,906.22		

(b) Adjustments to Oversized Treatment Plant

Per the Company’s revised Response to Staff Data Request # 9.4-9.7, the table below lists plant items that Staff has determined to be excess capacity based on those responses referenced that should not be included in determining rates in this proceeding.

Plant description	Costs (\$)	Staff’s adjustment (\$)	Accounts to be adjusted (NARUC Acct #)	Account Description
Raw Water Storage Supply RWSS-48”(40 MGD)	379,942	104,716	304100	Structure & Improvement – Source Supply
Raw Water Bypass RWB-30”(40 MGD)	103,088	22,680	304300	Structure & Improvement – Water Treatment
Intake Structure (canal turnout)	1,141,251	159,775	306000	Lakes, Rivers, or Intakes
Raw Water Pump Suction RWS-42”	66,673	11,228	31120	Electric Pump Equipment
Total	1,690,954	298,399		

FIGURES

FIGURE 1

LOCATION OF AGUA FRIA WATER DISTRICT

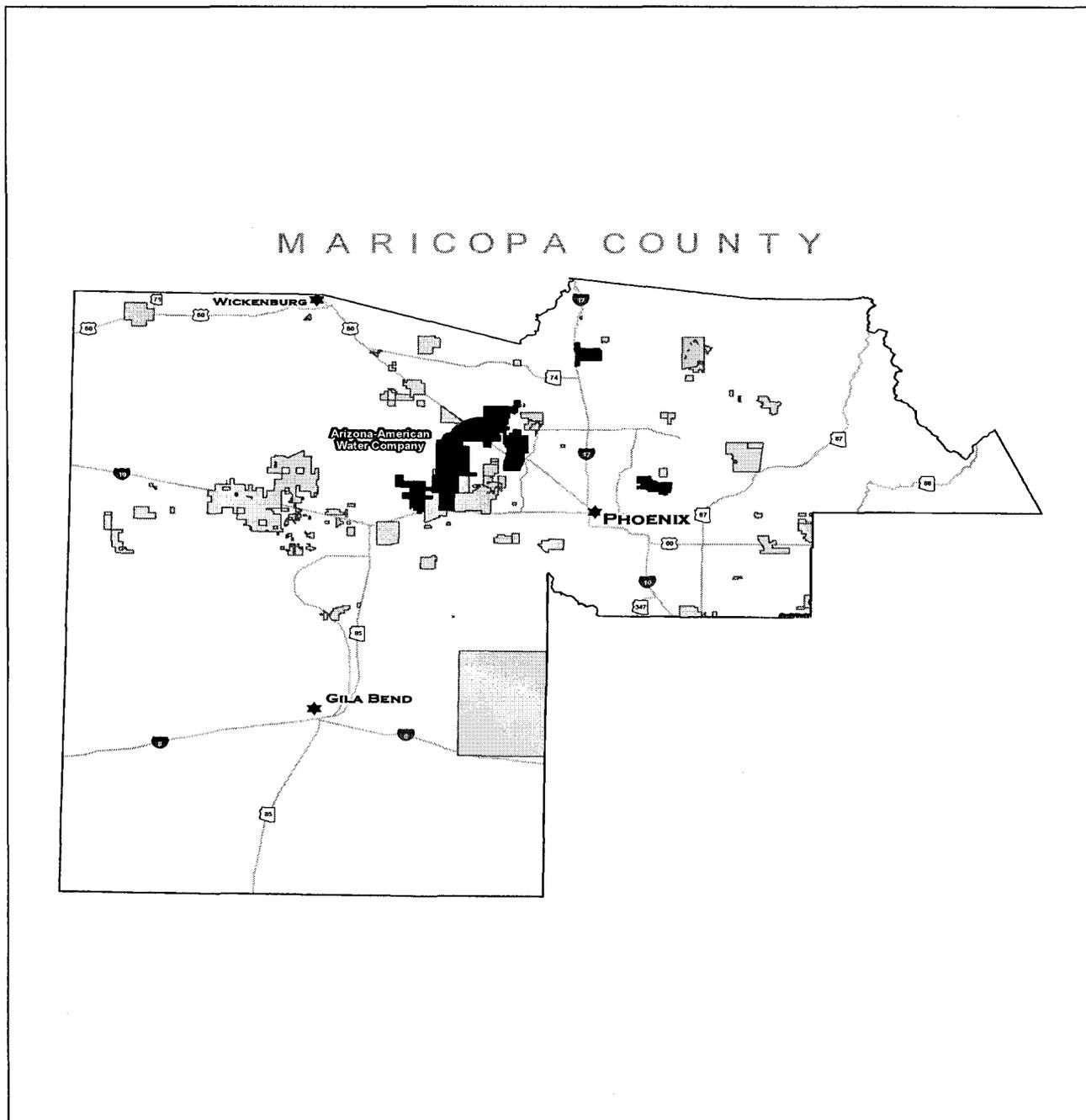


FIGURE 2

AGUA FRIA WATER DISTRICT CERTIFICATED AREA

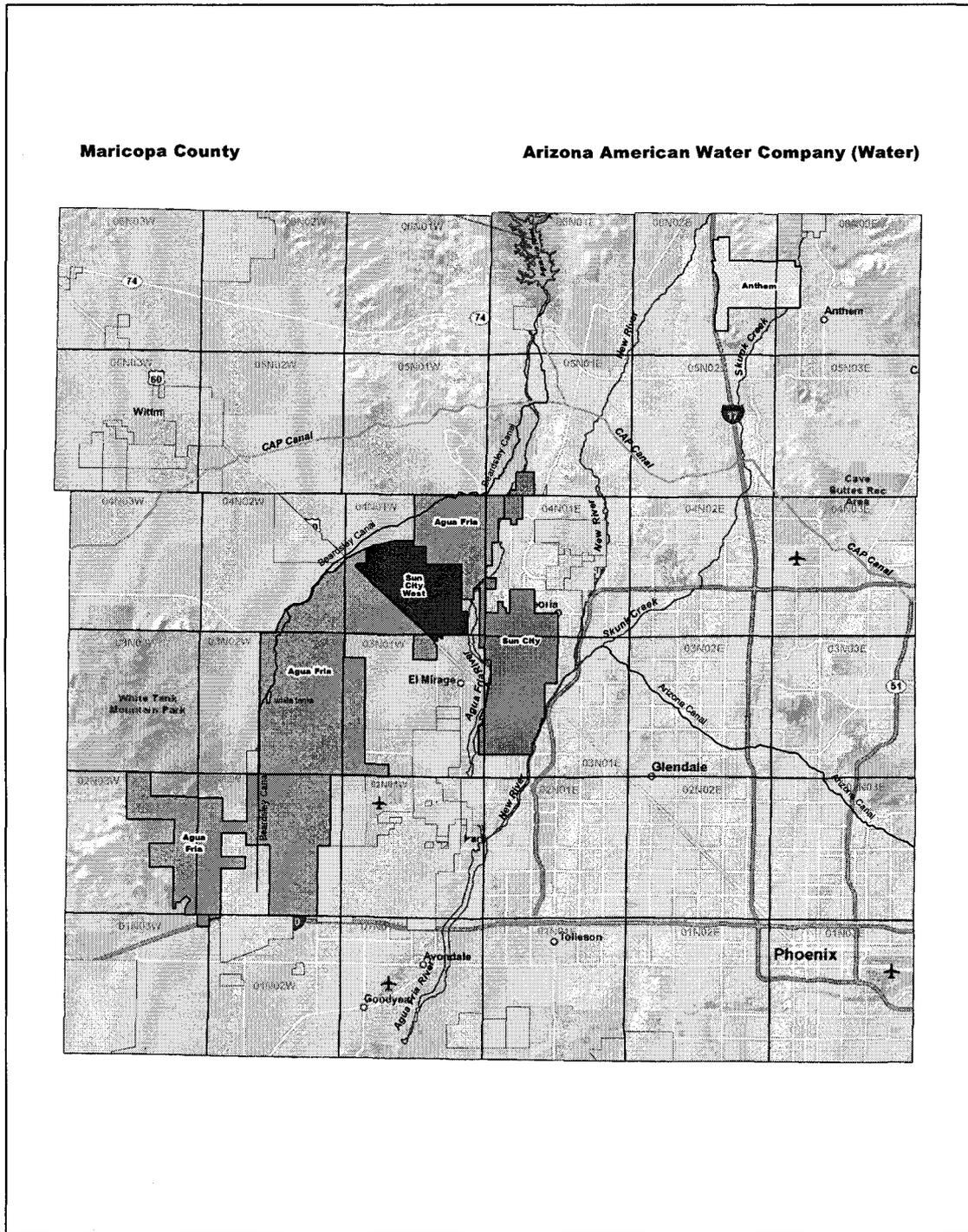


FIGURE 3A

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM
 FOR EXISTING SYSTEMS (AGUA FRIA SYSTEM)

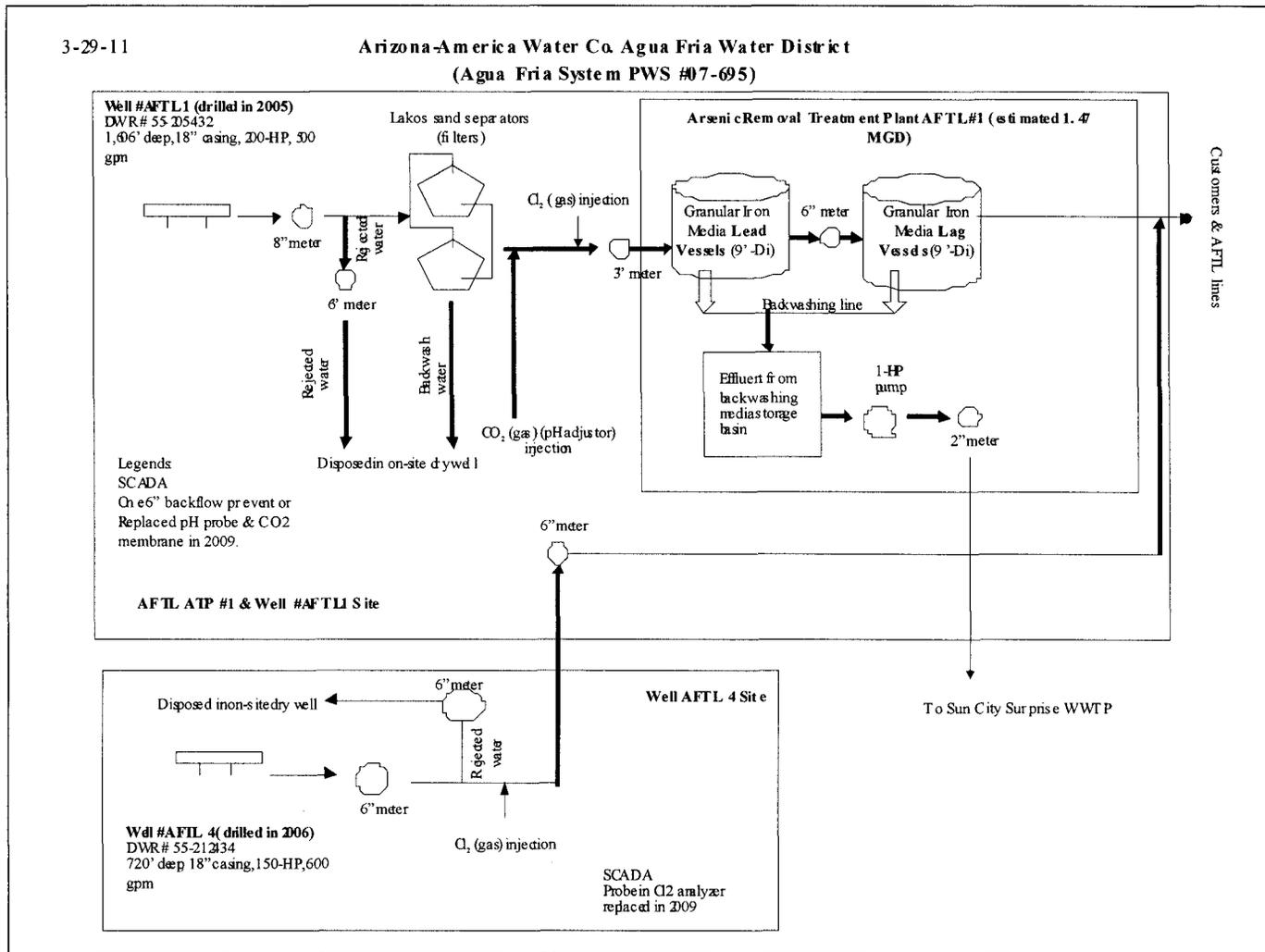


FIGURE 3B

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

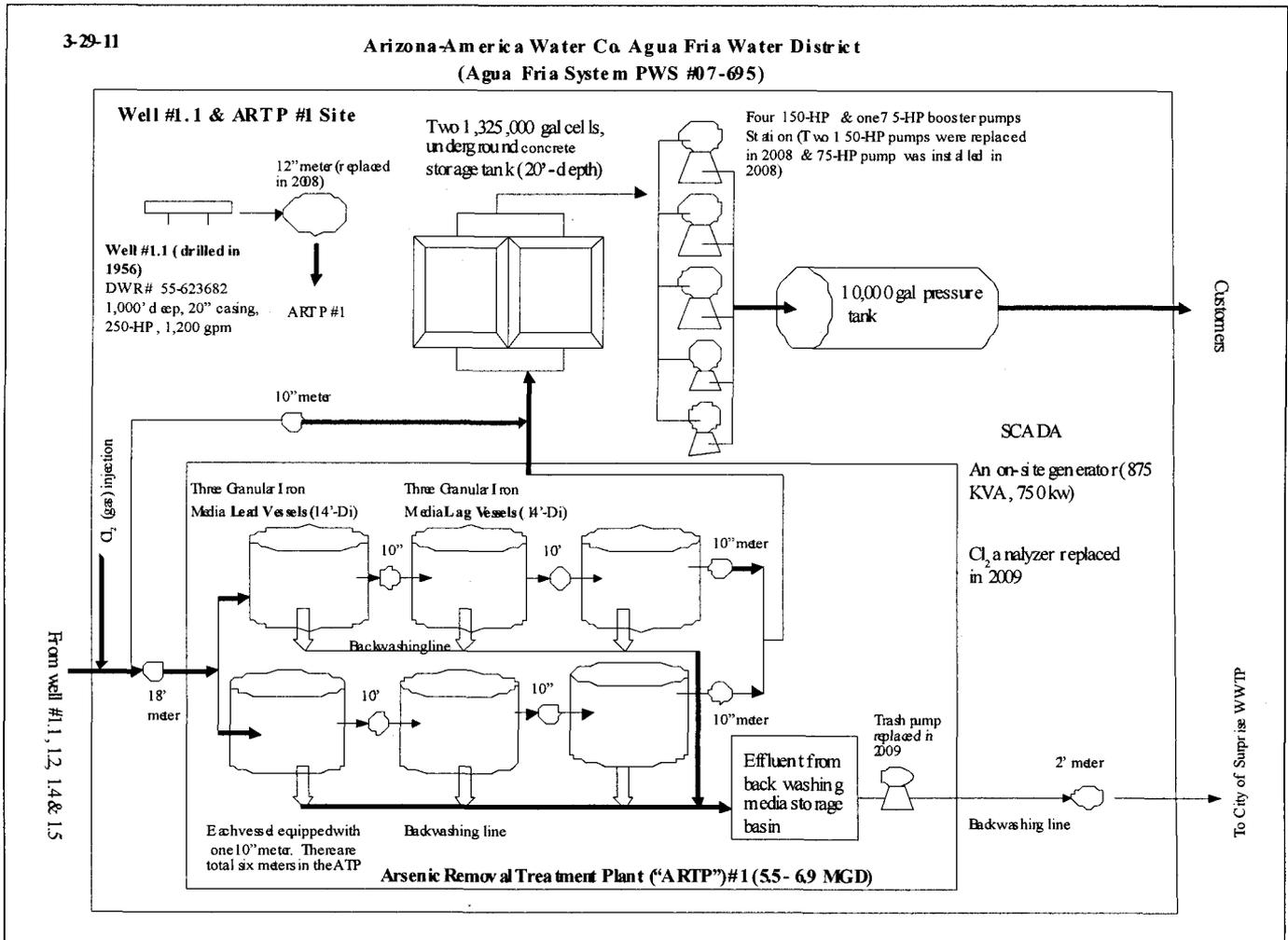


FIGURE 3C

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

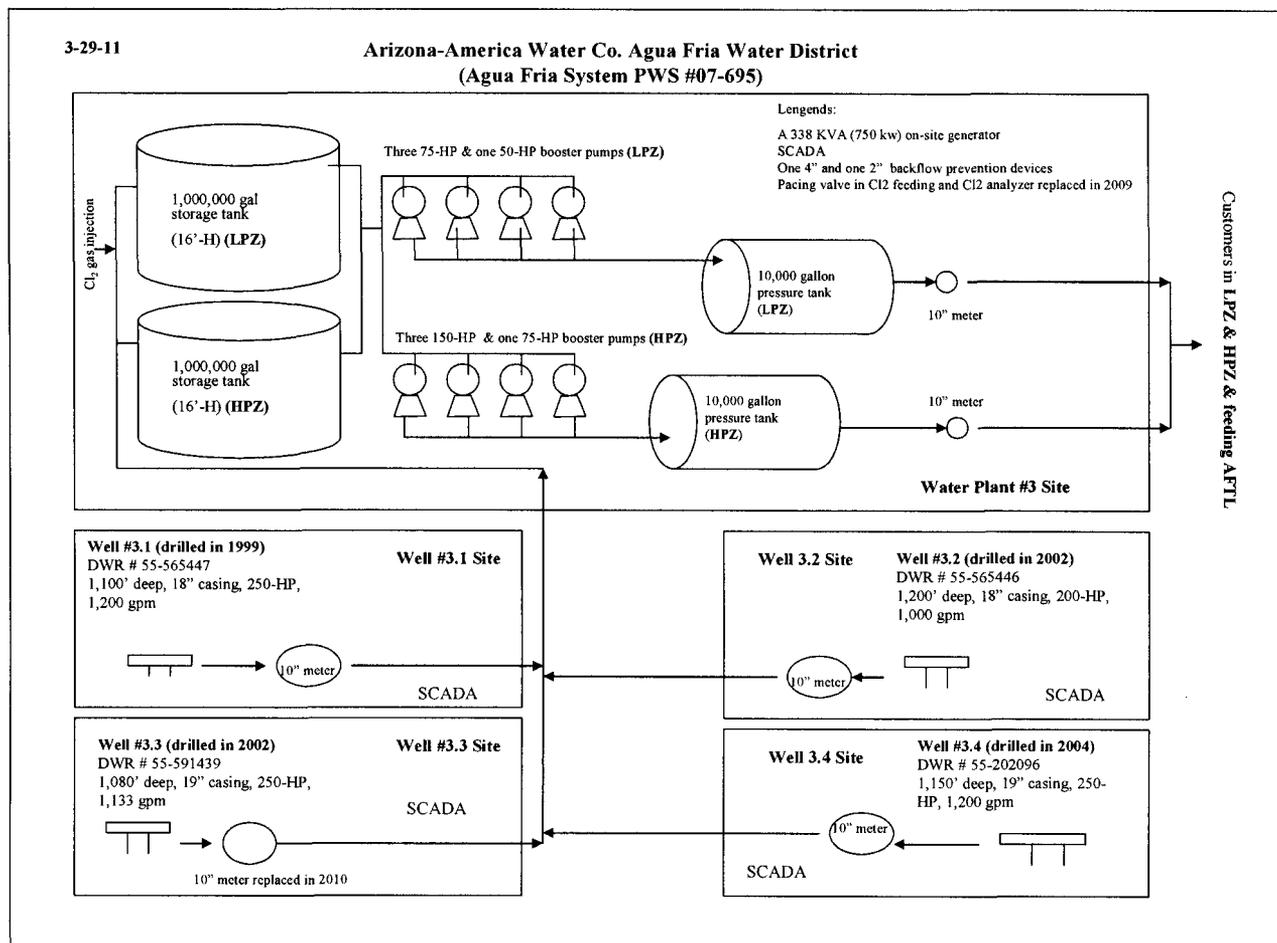


FIGURE 3D

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

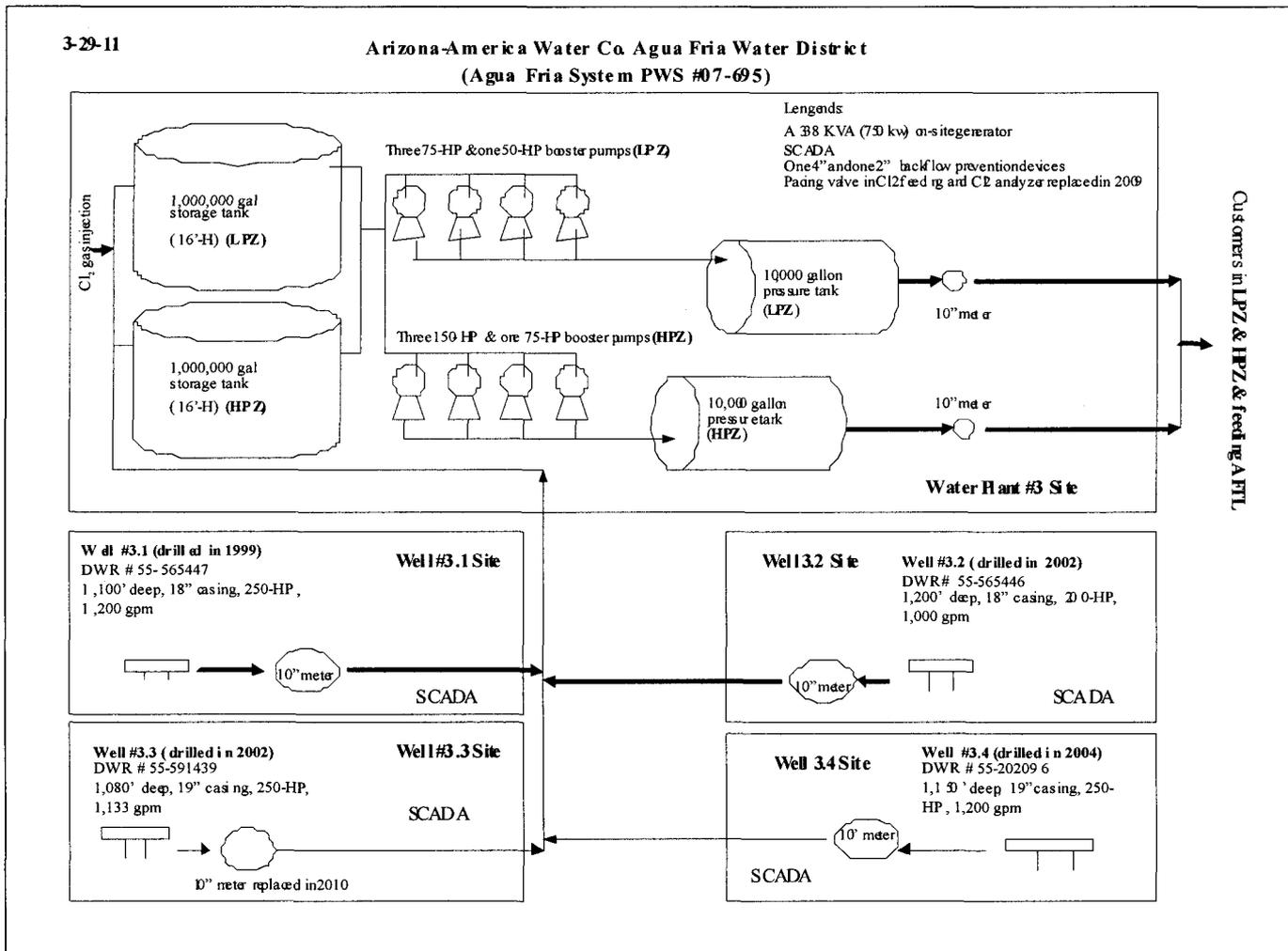


FIGURE 3E

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

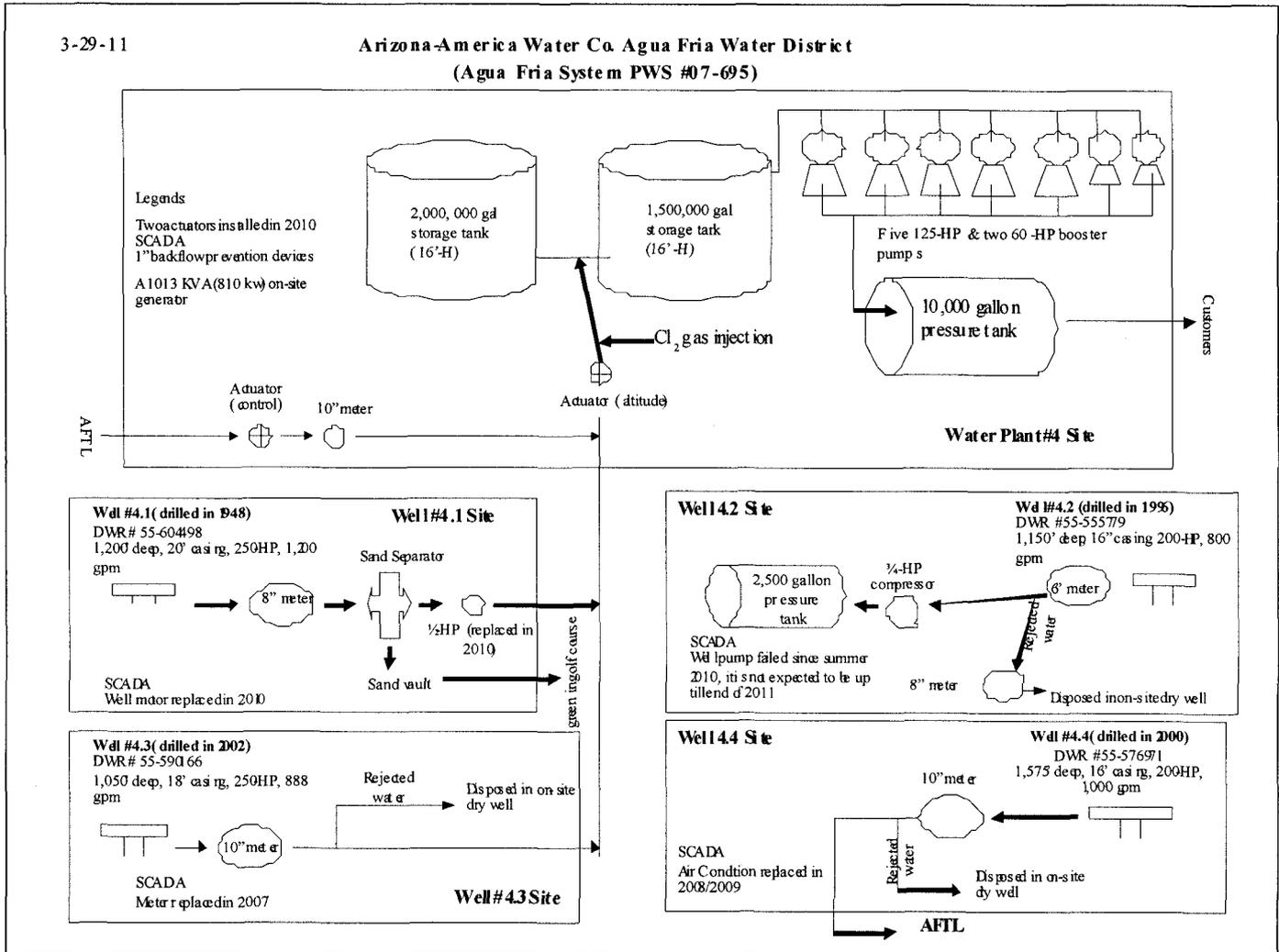


FIGURE 3F

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

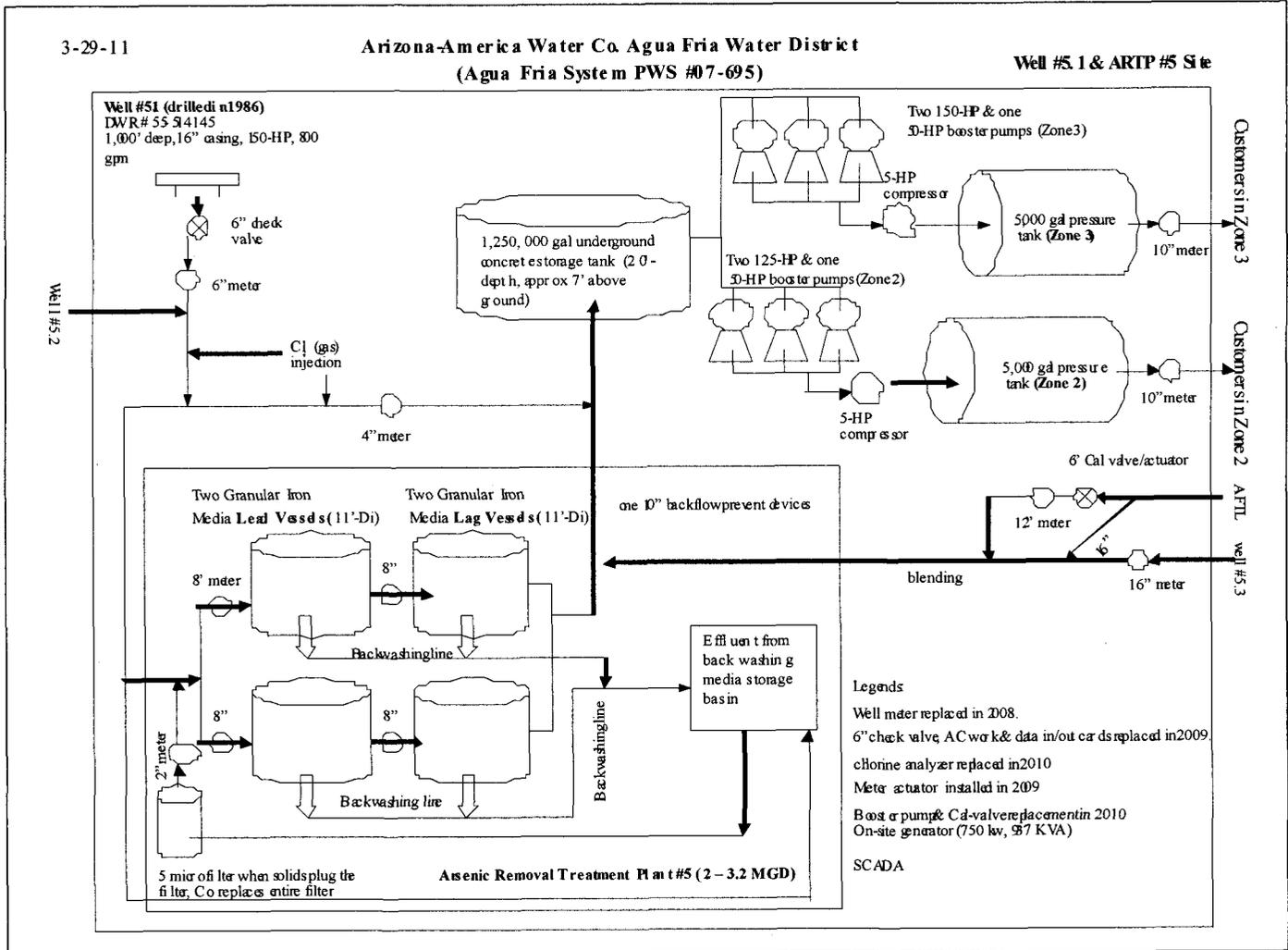


FIGURE 3G

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

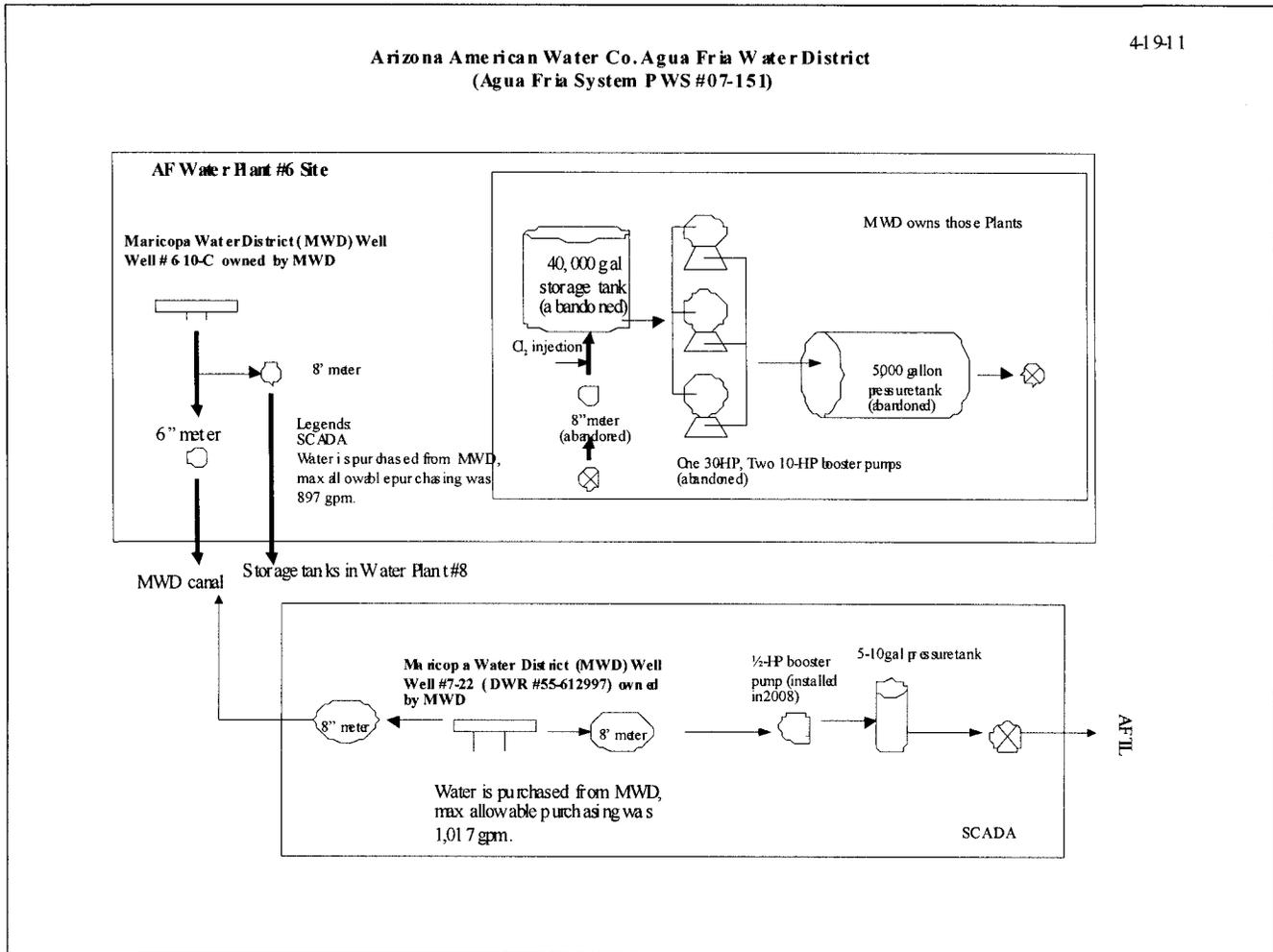


FIGURE 3H

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

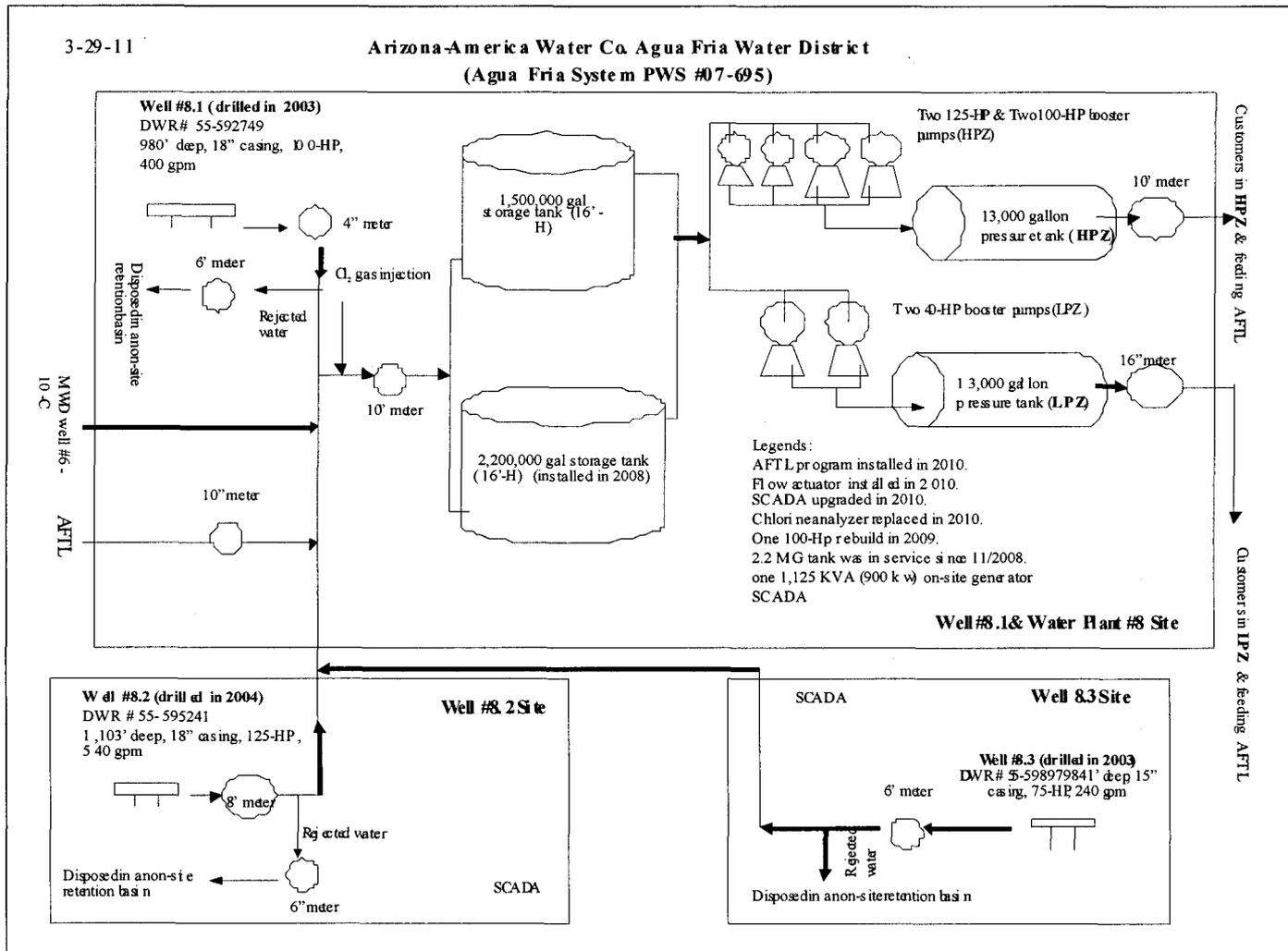


FIGURE 31

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

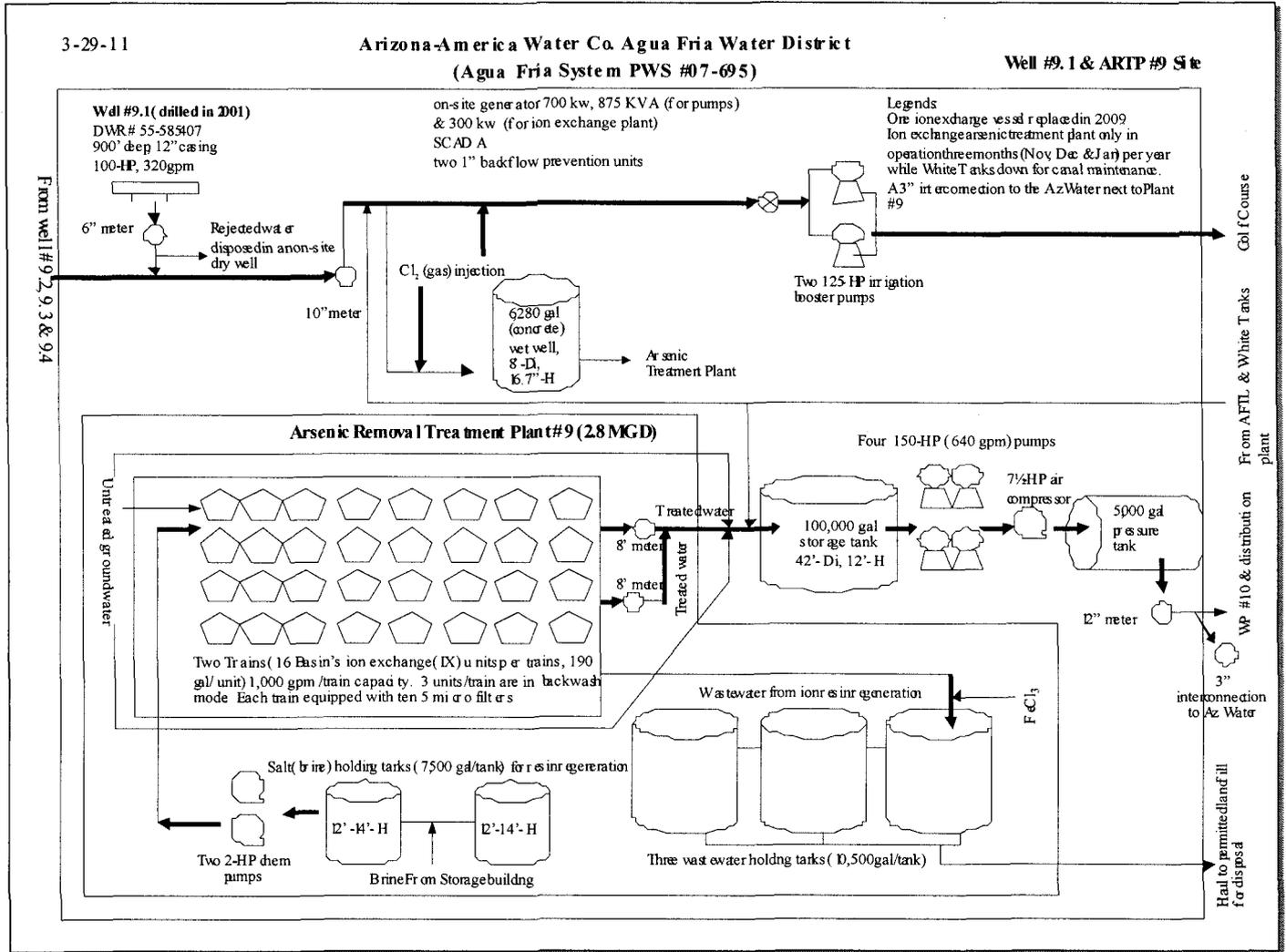


FIGURE 3J

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

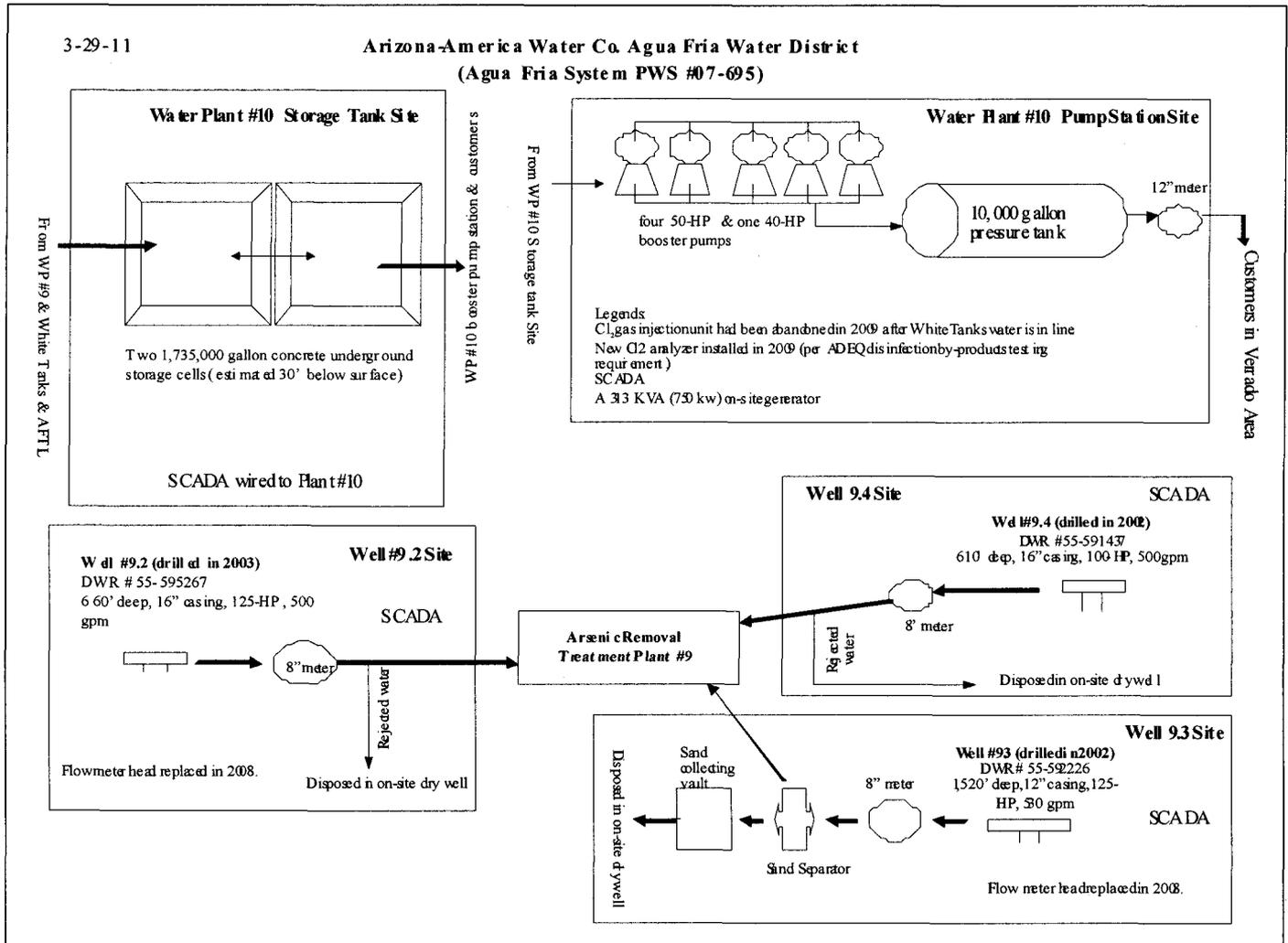


FIGURE 3K

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

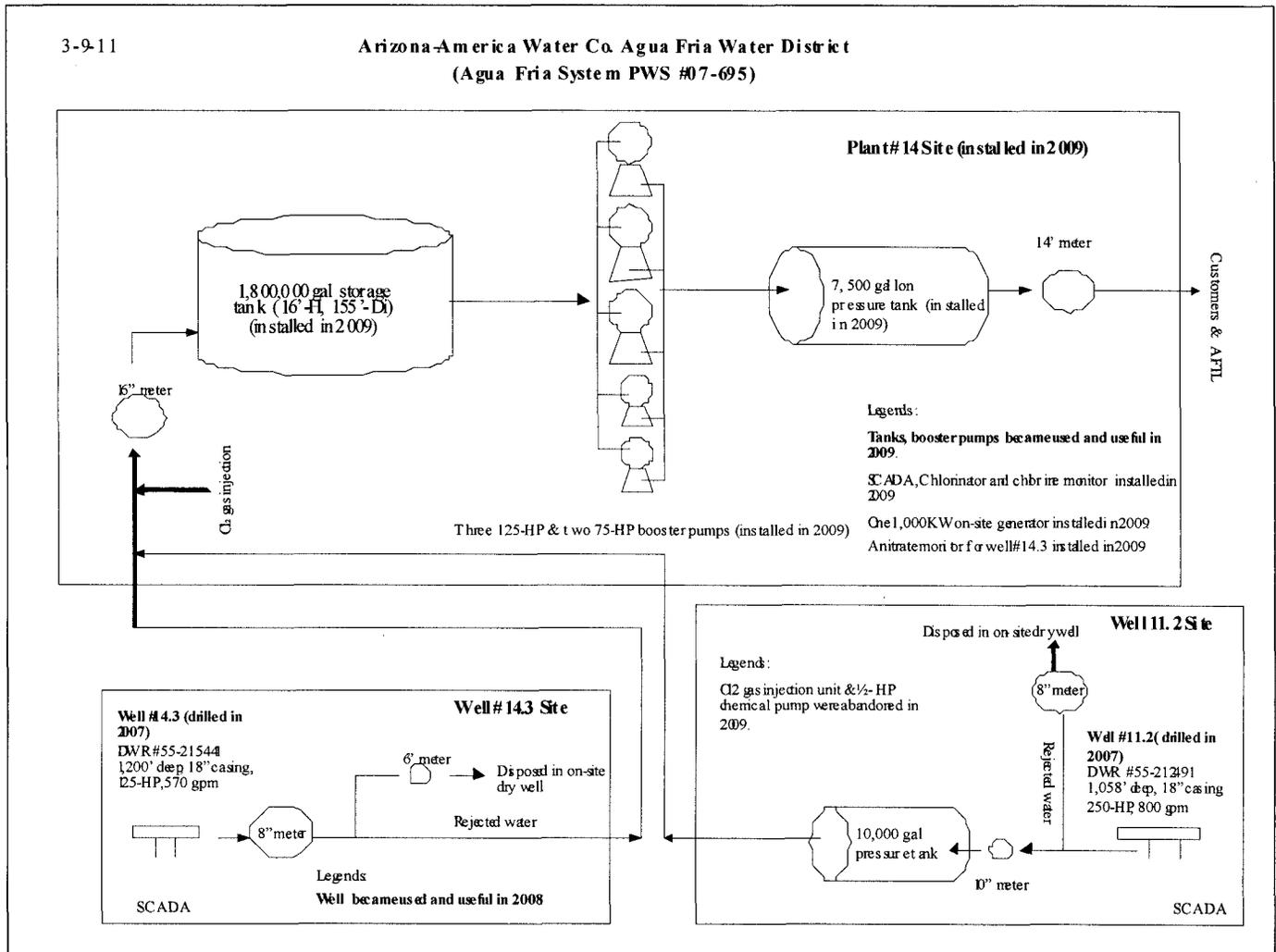


FIGURE 3L

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

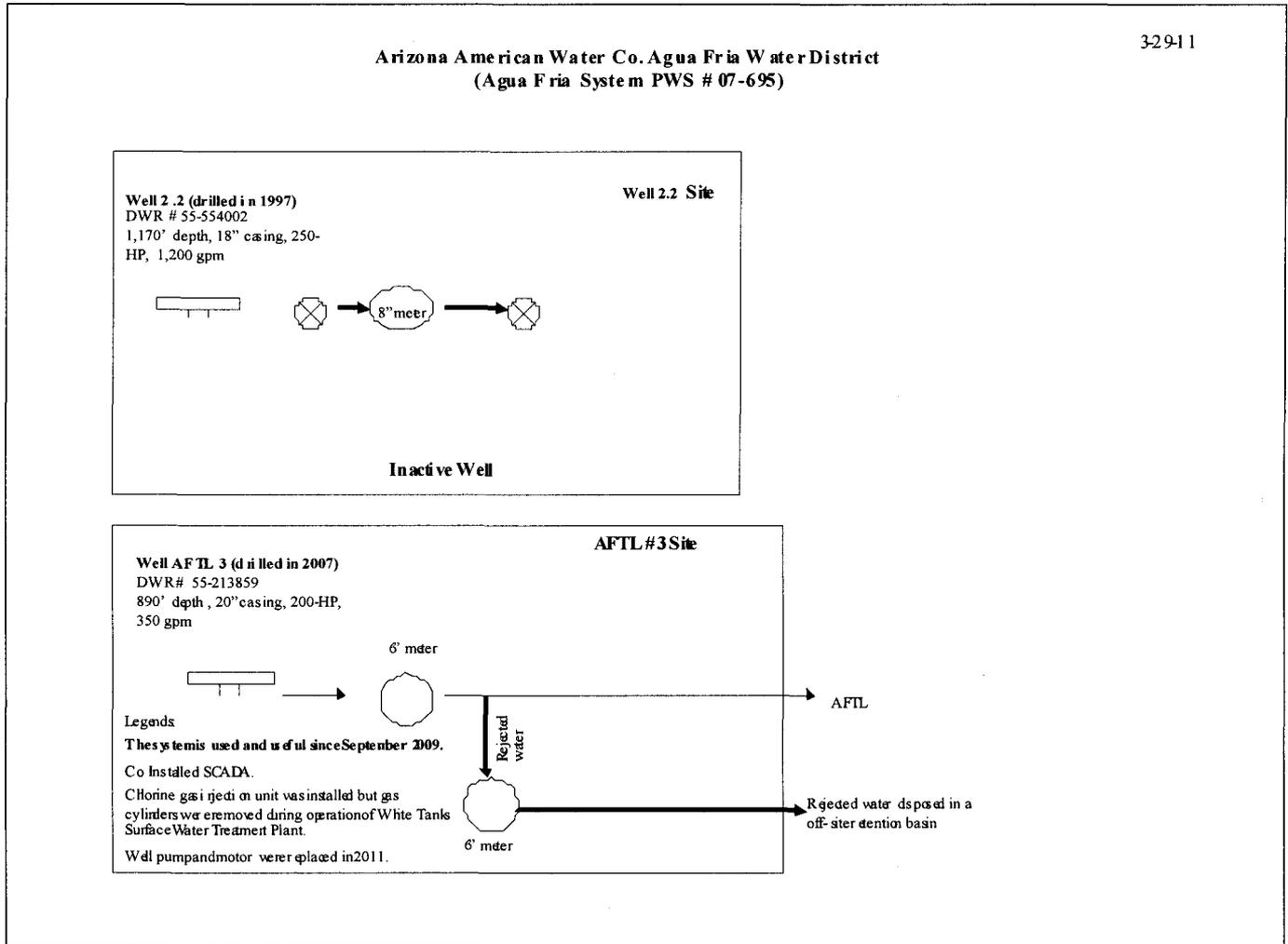


FIGURE 3M

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

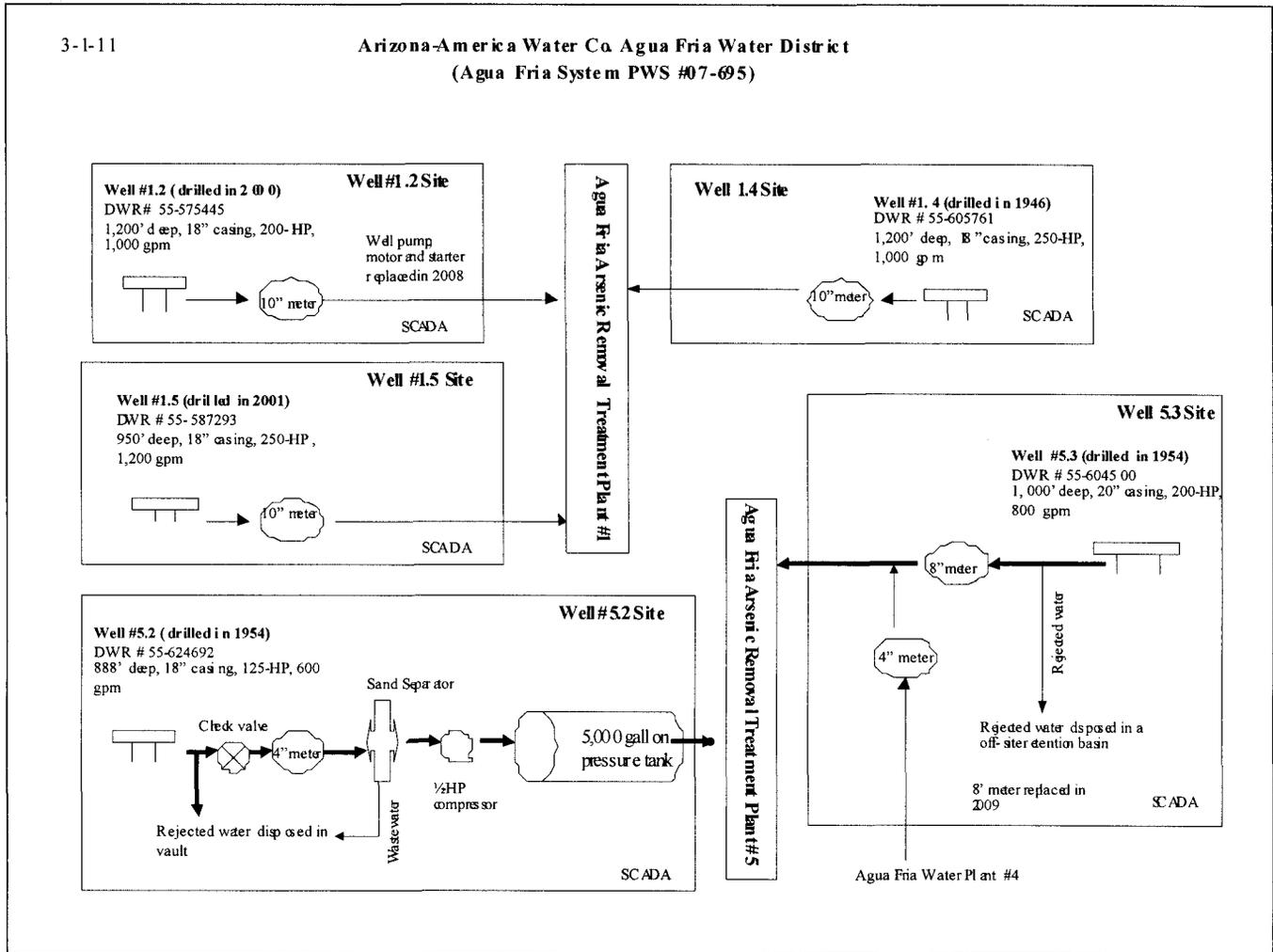


FIGURE 3N

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

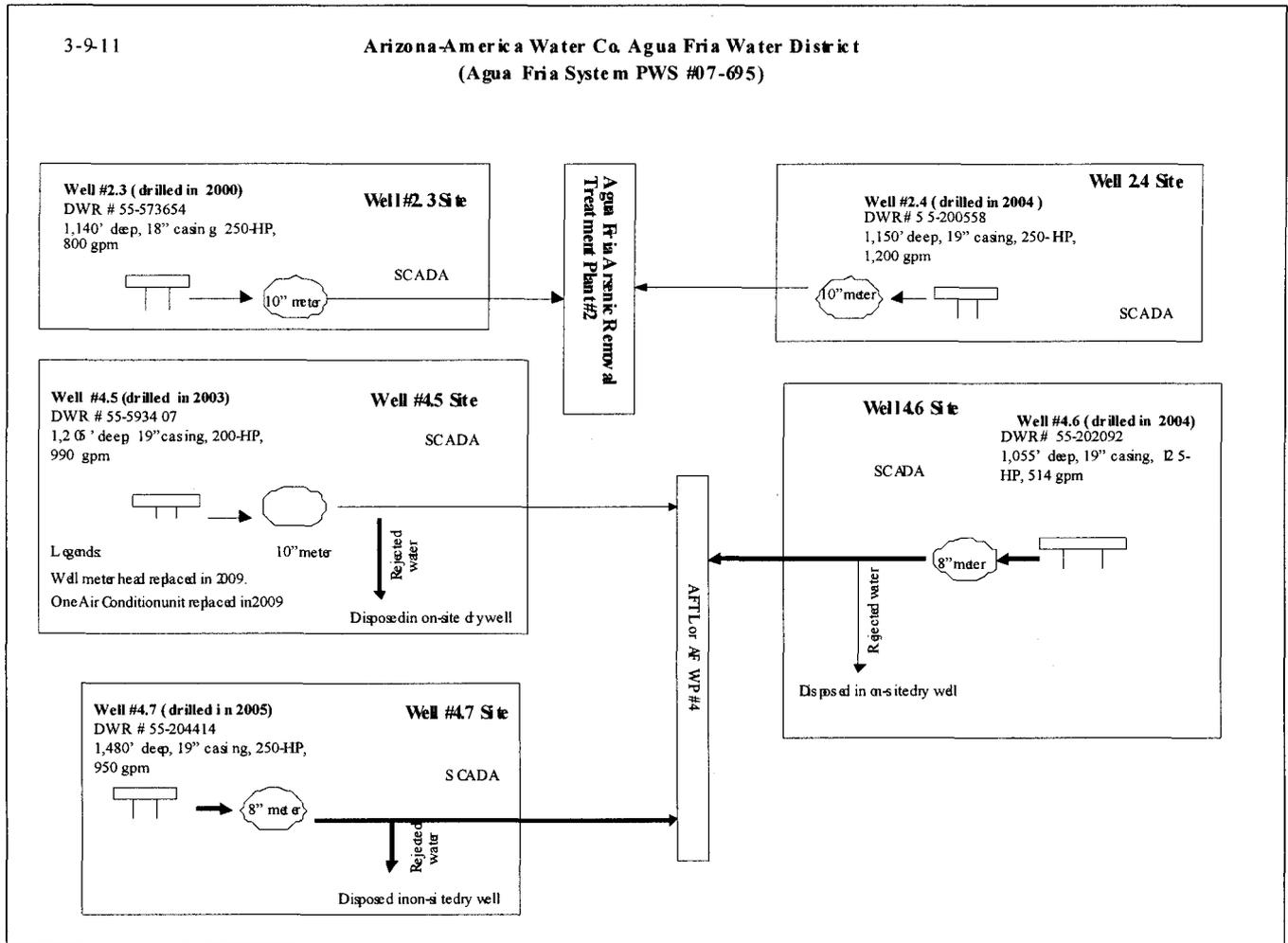


FIGURE 3P

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (AGUA FRIA SYSTEM)

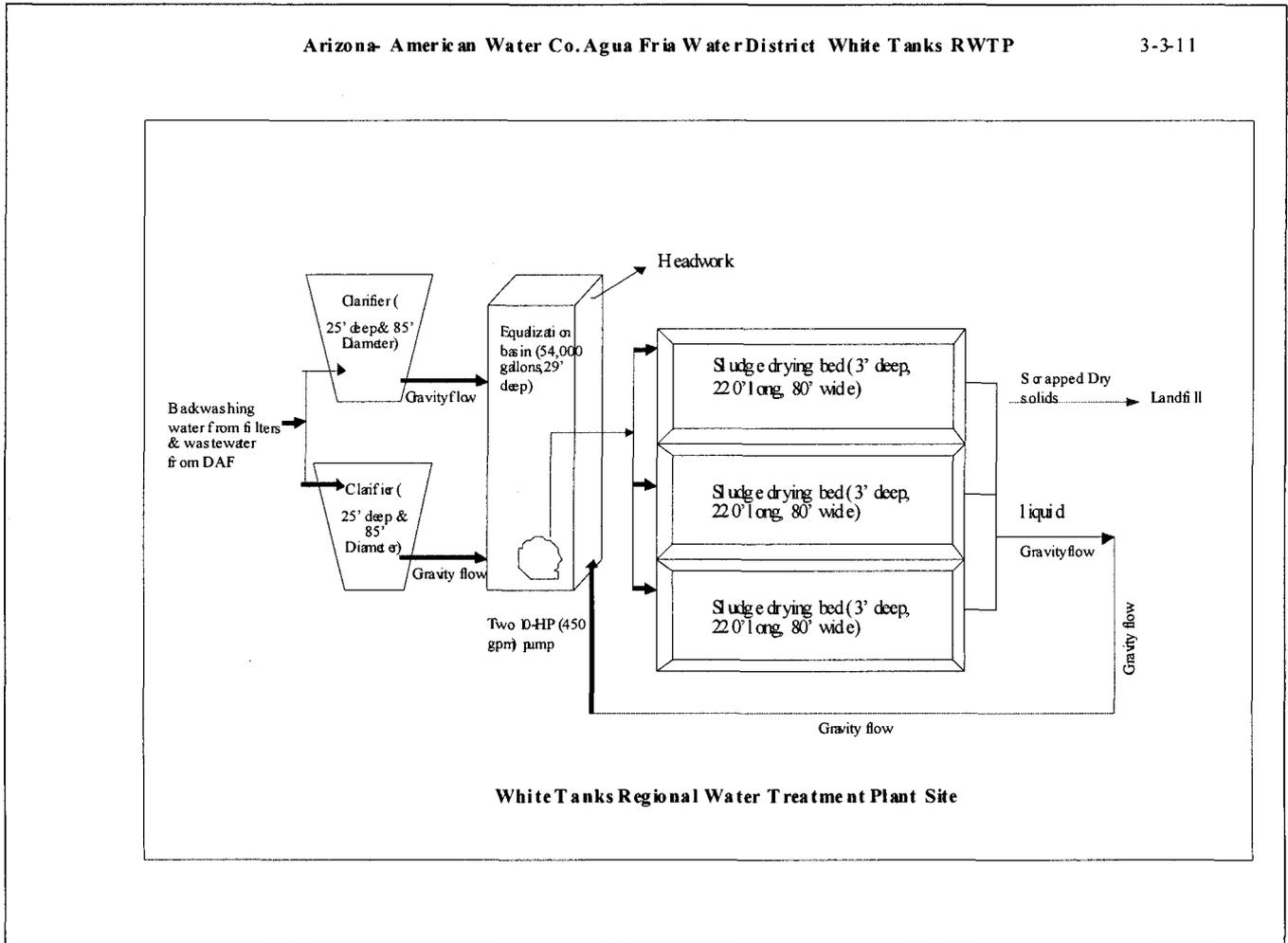


FIGURE 3Q

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (NEAF SYSTEM)

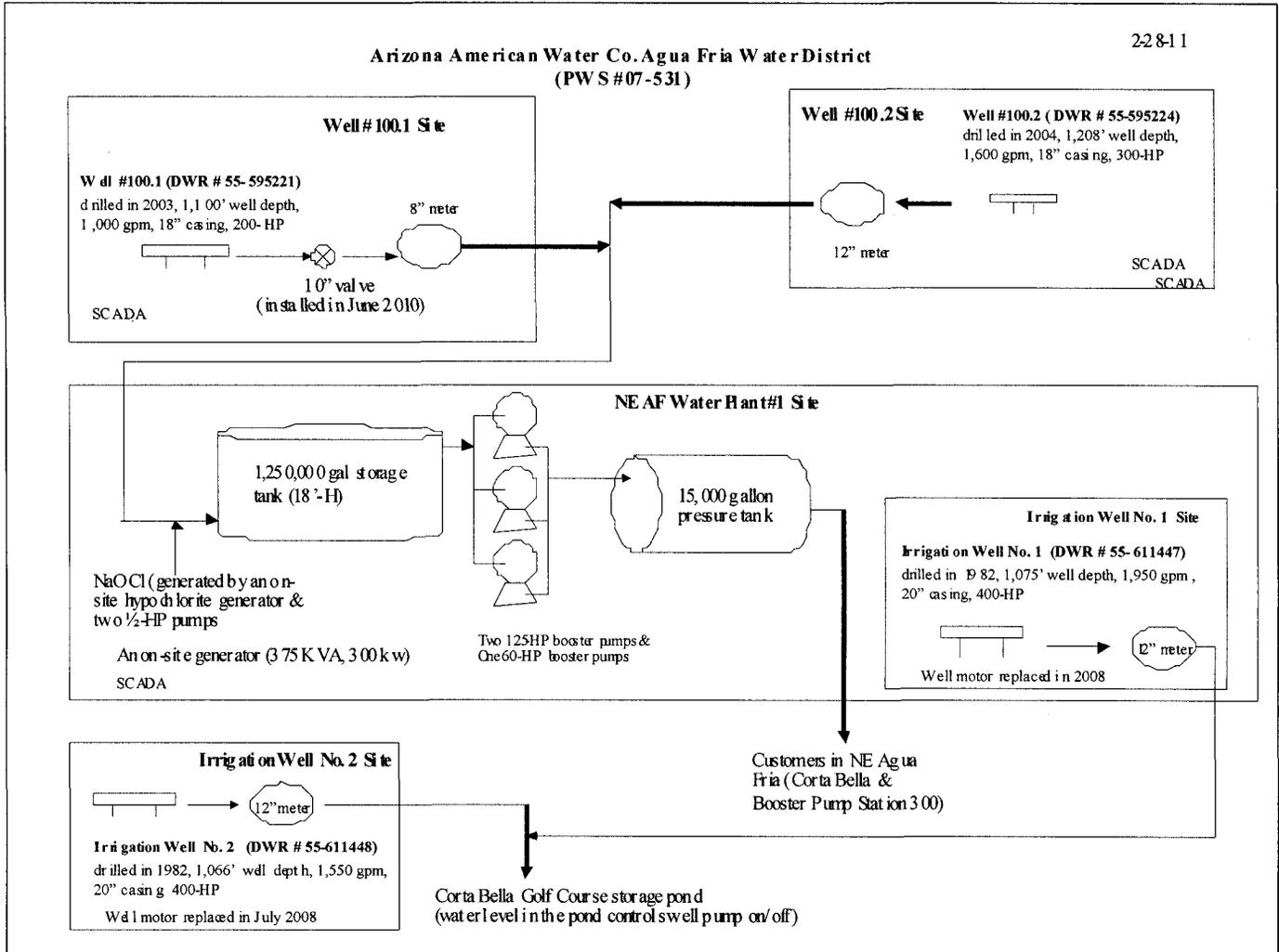


FIGURE 3R

AGUA FRIA WATER DISTRICT SCHEMATIC DIAGRAM (NEAF SYSTEM)

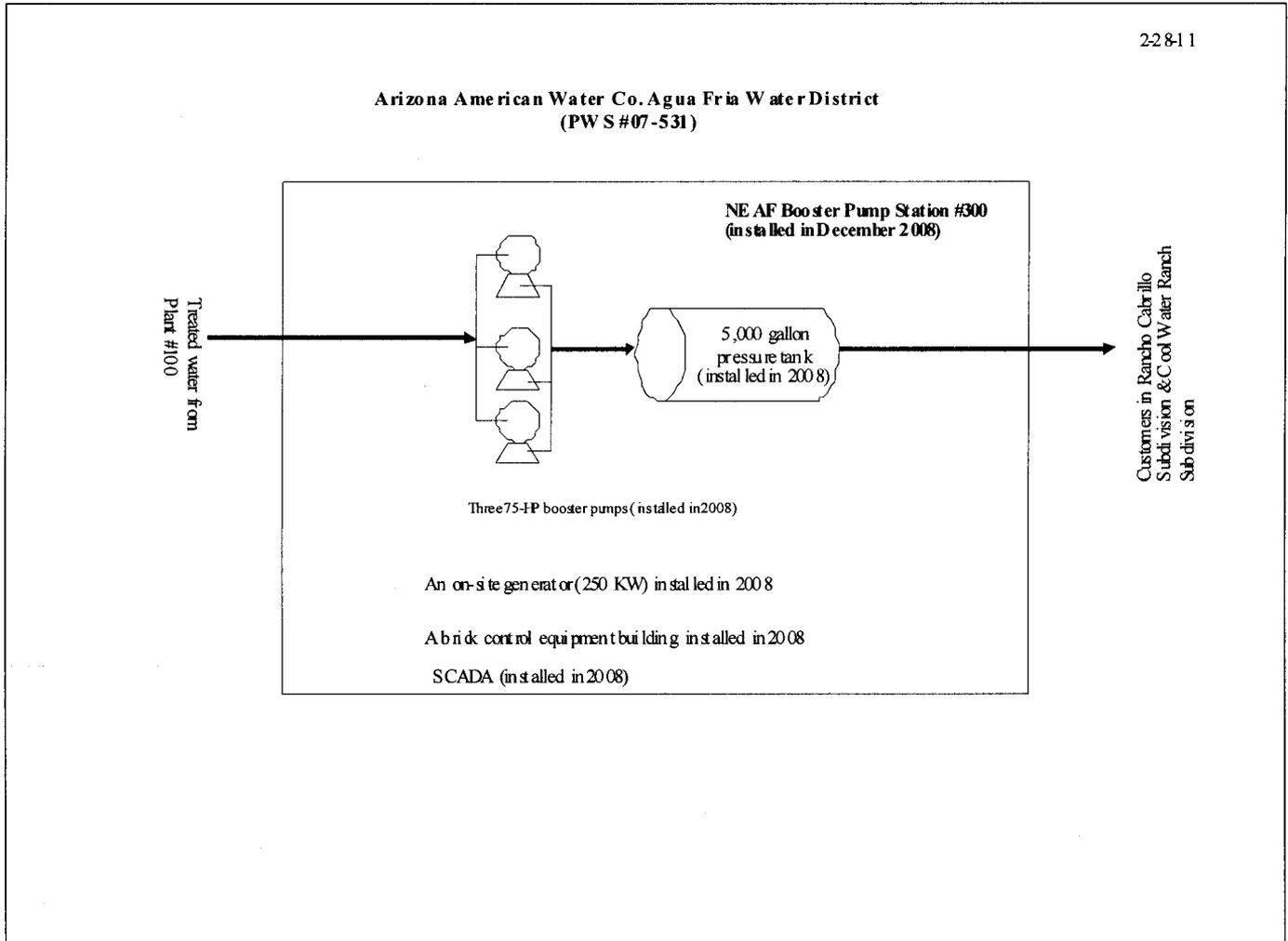


FIGURE 4A

AGUA FRIA WATER DISTRICT WATER USAGE (AGUA FRIA SYSTEM)

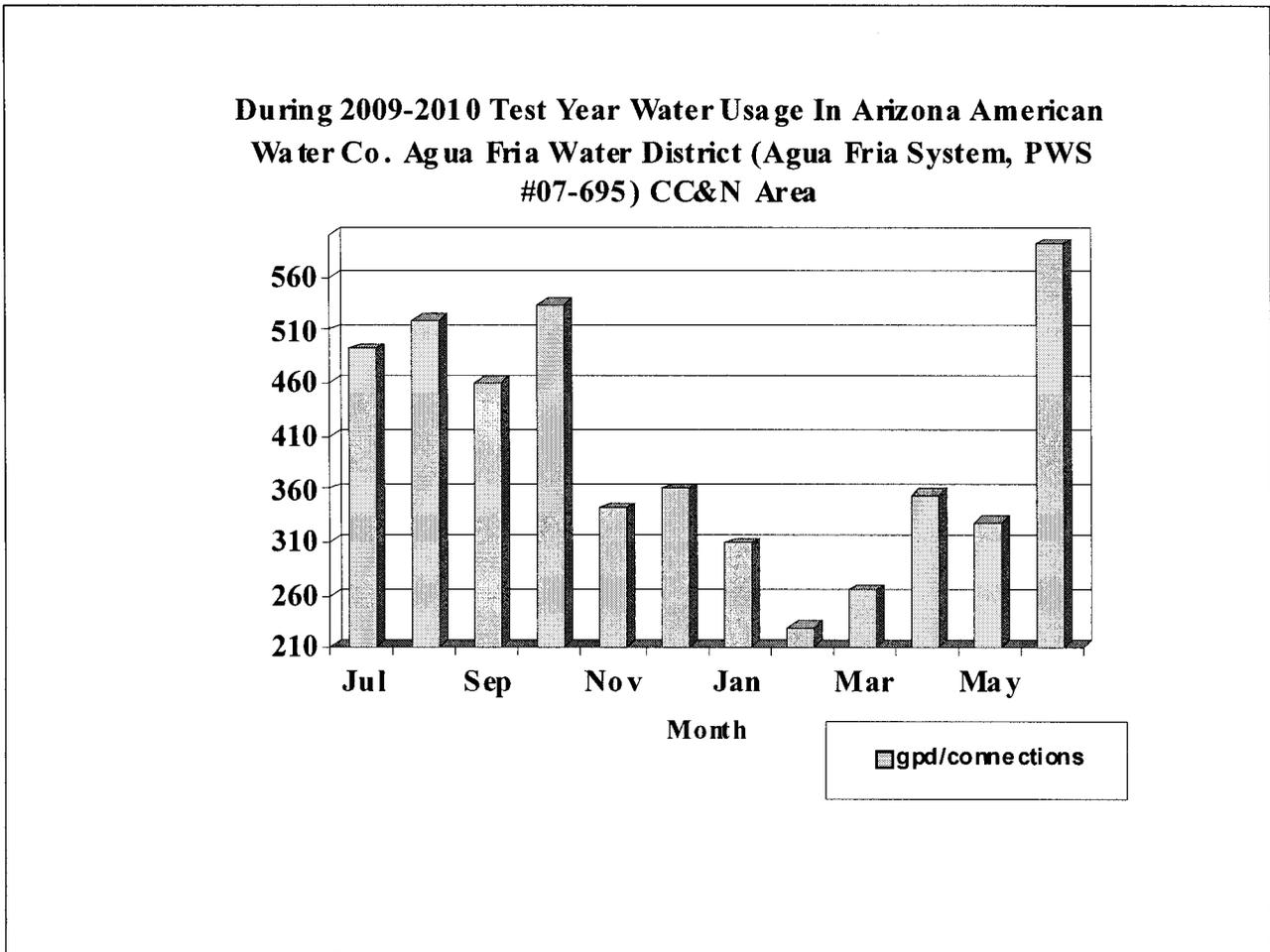


FIGURE 4B

**AGUA FRIA WATER DISTRICT WATER USAGE (AGUA FRIA SYSTEM- WHITE
TANKS PRODUCTIONS)**

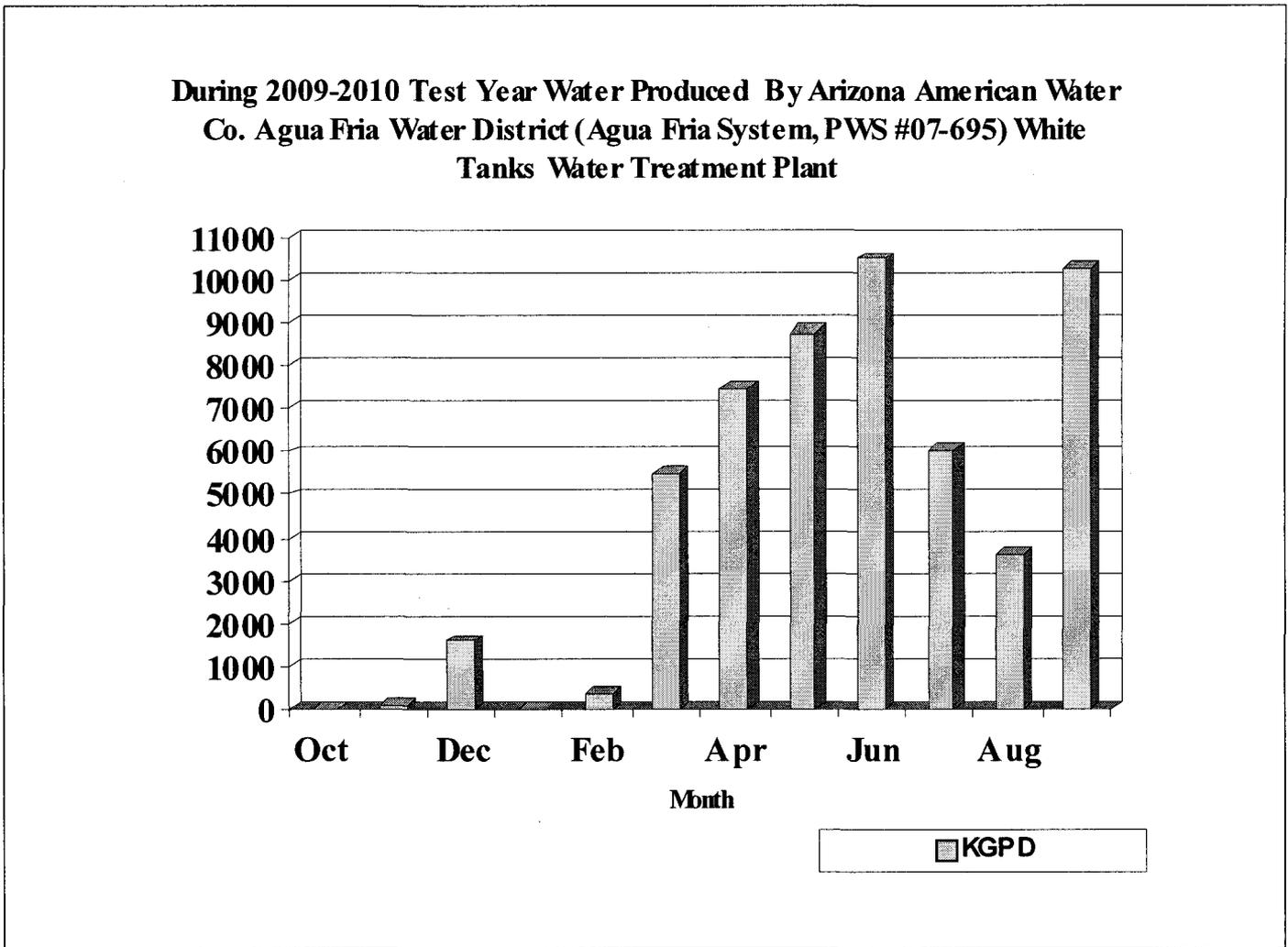


FIGURE 4C

AGUA FRIA WATER DISTRICT WATER USAGE (NEAF SYSTEM)

During 2009-2010 Test Year Water Usage In Arizona American Water Co. Agua Fria Water District - North East Agua Fria System (07-531) CC&N Area

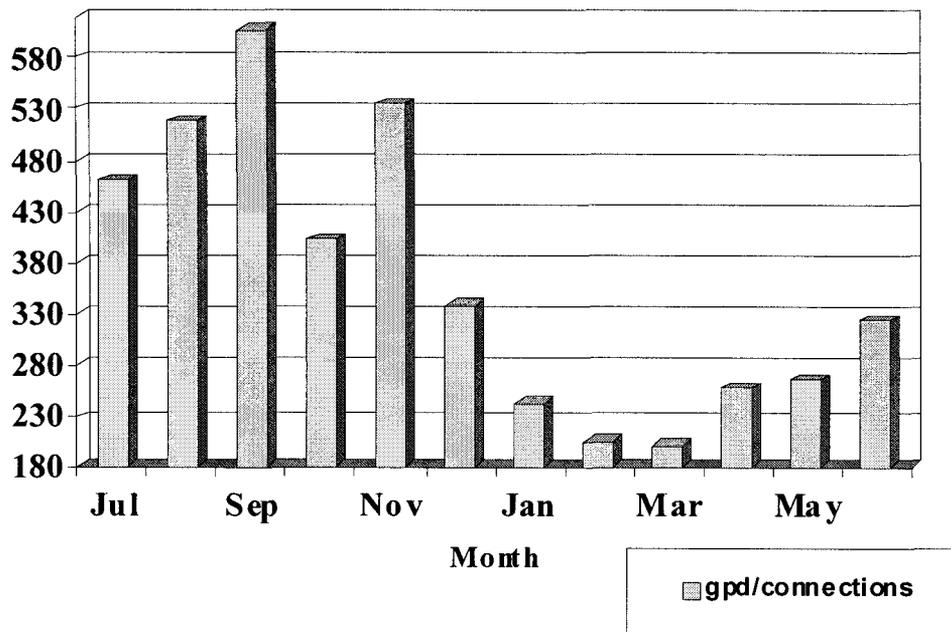


FIGURE 4D

AGUA FRIA WATER DISTRICT WATER USAGE (NEAF IRRIGATION SYSTEM)

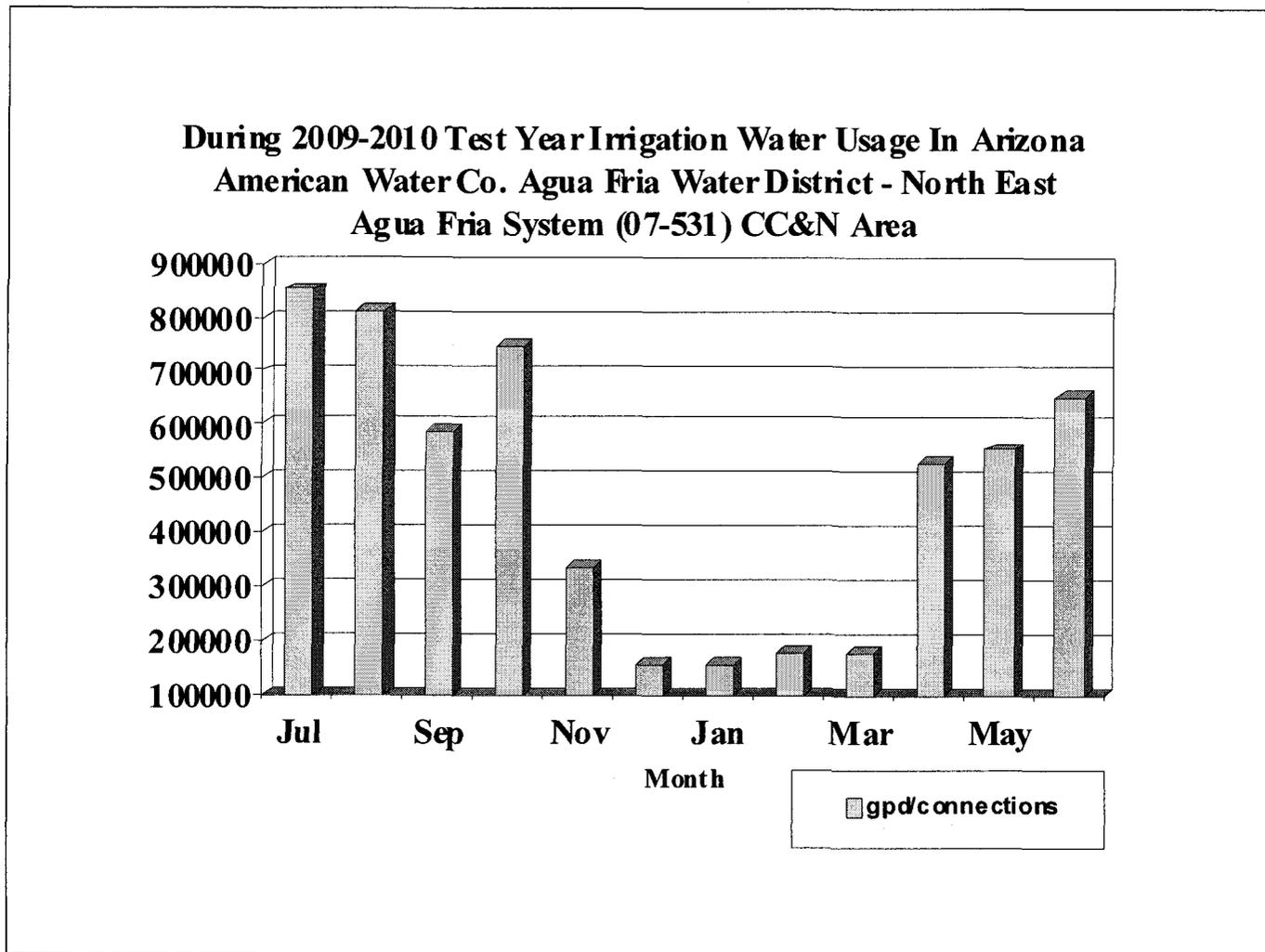


FIGURE 5A

GROWTH IN AGUA FRIA WATER DISTRICT (AGUA FRIA SYSTEM)

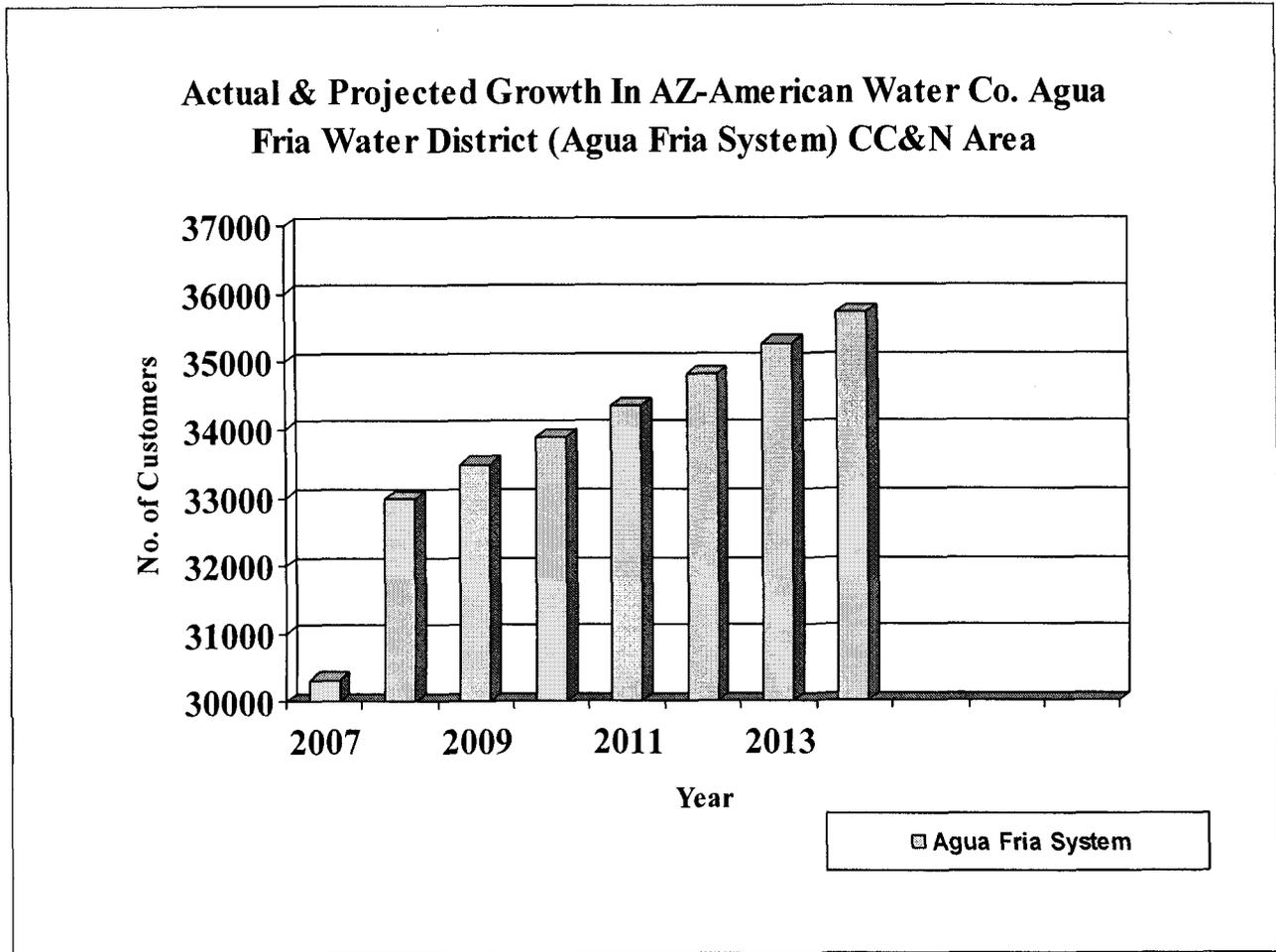


FIGURE 5B

GROWTH IN AGUA FRIA WATER DISTRICT (NEAF SYSTEM)

**Actual & Projected Growth In AZ-American Water Company
Agua Fria Water District (NEAF System) CC&N Area**

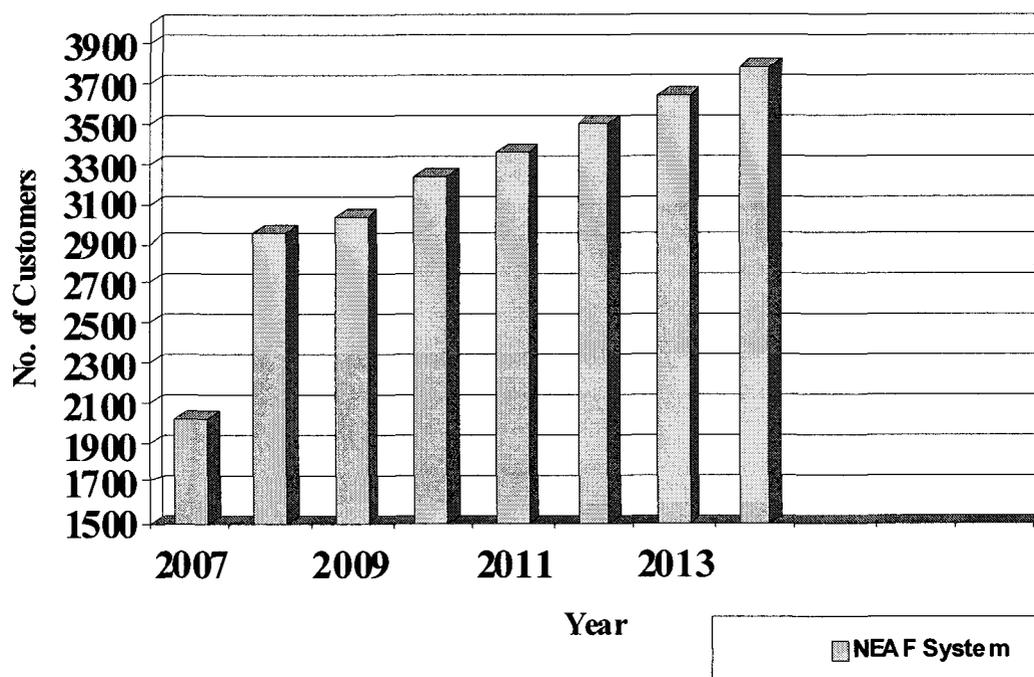


FIGURE 6

AVERAGE SERVICES LIVES FOR AGUA FRIA DISTRICT - water

NARUC Acct #	Company's Account #.	Depreciable Plant	Proposed service lives (in years)	Staff Recommended service lives (in years)
301	301000	Organization	0	0
302	302000	Franchises	0	0
303		Land & Land Rights		
	303200	Land & Land Rights SS	0	0
	303300	Land & Land Rights P	0	0
	303500	Land & Land Right TD	0	0
	303600	Land & Land Right AG	0	0
304		Structures & Improvements		
	304100	Structure & Improvement – Source of Supply	40	40
	304200	Structure & Improvement - Pumping	50	50
	304300	Structures and Improvements – Water Treatment Equipment	50	50
	304400	Structure & Improvement – Transmission and Distribution	50	50
	304500	Structure & Improvement – General Plant	40	40
	304600	Structure & Improvement – offices (General Plant)	40	40
	304620	Structure & Improvement – Leasehold (General Plant)	40	40
	304700	Structure & Improvement – store, shop & garage (general plant)	40	40
	304800	Structure & Improvement Misc (general plant)	40	40
305	305000	Collection & Impounding reservoirs (source & pumping)	60	60
	306000	Lake & River Intakes (source & pumping)	60	60
307	307000	Wells & Springs (source & pumping)	40	40
	308000	Infiltration Galleries (source & pumping)	40	40
309	309000	Supply Mains (source & pumping)	60	60
310	310100	Power Generation Equip Other (source & pumping)	30	30
311		Pumping Equipment		
	311200	Pump Equipment - Electric (source & pumping)	25	25
	311300	Pump Equipment – Diesel (source & pumping)	25	25
	311400	Pump Equipment – Hydraulic (source & pumping)	25	25
	311540	Pumping Equipment – TD (transmission & distribution)	25	25
	311600	Other Pump Equipment (source & pumping)	25	25
320		Water Treatment Equipment		
320.1	320000	Purification Equipment (water treatment equipment) ¹	20	20
	320100	Water Treatment Plant - Non-Media (water treatment equipment) ¹	20	20
	320200	Water Treatment Equipment - Filter Media (water treatment equipment) ²	10	10
330		Distribution Reservoirs & Standpipes		
	330000	Distribution Reservoirs & Standpipes (transmission & distribution plant)	65	65
	330100	Elevated Tanks & Standpipes (water treatment equipment)	65	65
	330200	Ground Level Tanks (water treatment equipment)	65	65
	330300	Below Ground Tanks (water treatment equipment)	65	65
	330400	Clearwell (water treatment equipment)	50	50
331		Transmission and Distribution		
	331000	Transmission & Distribution Mains (water treatment equipment)	70	70
	331001	TD mains 4-inch & less (water treatment equipment)	50	50
	331100	TD mains 6-inch to 8-inch (water treatment equipment)	70	70
	331200	TD mains 10-inch to 16-inch (water treatment equipment)	70	70

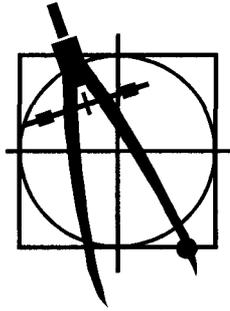
	331300	TD Mains larger than 16" (water treatment equipment)	70	70
	332000	Fire mains (water treatment equipment)	70	70
333	333100	Services (water treatment equipment)	40	40
334		Meters		
	334100	Meter installations (transmission & distribution plant)	15	15
	334200	Meter installations (transmission & distribution plant)	40	40
	334300	Meter Vaults (transmission & distribution plant)	40	40
335	335000	Hydrants (water treatment equipment)	50	50
336	N/A	Backflow Prevention Devices	N/A	15
339		Other Plant & Misc Equipment		
	339000	Other Plant & Misc Equipment (transmission & distribution plant)	30	30
340		Office Furniture & Equipments		
	340000	Office Furniture & Equipments (general plant) ³	20	20
	340200	Computer & periph equipment (general plant)	10	10
	340300	Computer Software (general plant)	5	5
	340310	Computer Software (general plant)	5	5
	340325	Computer Software (general plant)	5	5
	340330	Computer Software (general plant)	5	5
	340400	Date Handling Equipment (general plant)	5	5
	340500	Other Office Equipment (general plant) ⁵	15	15
341		Transportation Equipment		
	341000	Transportation Equipment (general plant)	5	5
	341100	Transportation Equip, Lt Duty Trucks (general plant)	5	5
	341200	Transportation Equip, heavy Duty Trucks (general plant)	7	7
	341300	Transportation Equip, Autos (general plant)	6	6
	341400	Transportation Equip other (general plant)	6	6
342	342000	Store Equipments (general plant)	25	25
343	343000	Tools Shop & Garage Equipments (general Plant)	25	25
344	344000	Lab equipments (general plant)	25	25
345	345000	Power operated equipments (general plant)	20	20
346		Communication Equipments		
	314600	Communication Equip (general plant)	10	10
	346100	Communication Equip non-telephone (general plant)	10	10
	346200	Remote Control & Instrument (general plant)	10	10
	346200	Communication Equip – telephone (general plant)	10	10
	346300	Communication Equip Other (general plant)	10	10
	348000	Other Miscellaneous Equipment (general plant)	16	16

- Notes: 1. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are aerators, chemical treatment equipment, filter, mixing chambers, clear water basins, water softer, etc. Those plant items are more mechanical devices than steel structural plants.
2. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are sand, gravel, anthracite, membranes. The Company replaces those materials in 7 to 12 years.
3. Via April 29, 2011 e-mail, the Company indicated that plant items are furniture oriented equipments included in this account are desks, tables, chairs, file cabinets, safes, book shelves.
4. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are smaller office equipments such as fax machines, copiers, binding machines, shredders.

**ENGINEERING REPORT FOR ARIZONA-AMERICAN WATER COMPANY, INC.,
HAVASU WATER DISTRICT**

BY DOROTHY HAINS

JUNE 20, 2011



**Engineering Report
For Arizona-American Water
Company's Havasu Water District
Docket No. W-01303A-10-0448
(Rate Increase Application)**

By Dorothy Hains

June 27, 2011

EXECUTIVE SUMMARY

Recommendations:

- I. Arizona Corporation Commission ("Commission") Utilities Division Staff ("Staff") recommended average service lives and the resulting depreciation rates are listed by National Association of Regulatory Utility Commissioners' plant account in Figure 6. (See §I of report for discussion and details.)
- II. Lost water for the Arizona-American Water Company ("Company") Havasu Water District ("Havasu") was calculated to be 15.58 percent based on test year water use data which exceeds acceptable limits. Staff recommends that any rate increase resulting from this Application not become effective until the annual water loss in the Havasu service area is below 10 percent. (See §G of report for discussion and details.)
- III. Staff recommends that estimated annual water testing costs of \$5,616 for Havasu be used for purposes of the proceeding. (See §F of report for discussion and details.)
- IV. Staff has no objection to the continued use of the currently authorized meter and service line installation charges as proposed by the Company and recommends approval of the charges shown under the column headings "Staff Recommended" in Table 3. (See §J of report for discussion and details.)

Conclusions:

- I. Arizona Department of Environmental Quality has determined that Havasu system is currently delivering water that meets the water quality standards required by Arizona Administrative Code, Title 18, Chapter 4. (See §C for a discussion and details.)
- II. Arizona Department of Water Resource has determined that Havasu is compliant with departmental requirements governing water providers and/or community water systems. (See §E of report for discussion and details.)
- III. Havasu has approved cross connection and curtailment tariffs. (See §J of report for

discussion and details.)

- IV. Havasu has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. (See §B of report for discussion and details.)
- V. A check of the Commission Utilities Division Compliance Database indicates there are no delinquent compliance items for Havasu. (See §D of report for discussion and details.)

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A. INTRODUCTION AND LOCATION OF COMPANY

Arizona American – Havasu Water District (“Havasu” or “Company”) has submitted an application with the Arizona Corporation Commission (“ACC” or “Commission”) for approval of a rate increase in Docket No. W-01303A-10-0448. This report constitutes Staff’s engineering evaluation of the subject rate proceeding. Havasu serves water to approximately 1,640 customers and is located north of the City of Lake Havasu in Mohave County. Figure 1 describes the location of Havasu, and Figure 2 describes the Certificate of Convenience and Necessity (“CC&N”) area of Havasu.

B. DESCRIPTION OF THE WATER SYSTEM

The plant facilities were visited on January 25, 2011, by Dorothy Hains, Commission Staff Engineer, accompanied by Company representatives, Garry Burthon and James Lands (Company Operations Supervisors).

System Analysis

Havasu consists of three drinking water wells that are capable of producing a total flow of 850 gallons per minute (“GPM”), a 1.1 million gallon per day (“MGD”) arsenic treatment plant and 1.85 million gallons (“MG”) of storage capacity. The water system has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. Figures 3A, 3B, 3C and 3D provide a process schematic showing both the active and inactive components of the water system.

Active Drinking Water Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)
3	55-601831	1972	8	160	4	15	250
8	55-512988	1986	8	420	4	15	100
9	55-594370	2003	16	790	8	20	500

In-active Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)
1	55-601829	N/A	6	180	N/A	7½	50
2	55-534237	1992	12	355	6	N/A	N/A
4	55-601832 ¹	1970	10	245	3	5	75
5	55-601833	1980	8	150	6	30	175
6	55-601830	1968	10	148	N/A	N/A	N/A
N/A	55-210908 ²	2007	N/A	770	N/A	N/A	N/A
7	55-539646	1993	10	150	6	20	550

Note: 1. The water produced by this well was used for non-potable construction purposes.
2. Aka the North Point Well.

Arsenic Treatment Plant ("ATP")

Number of treatment plant	1
Plant location	At Well #8 & #9 site
Type	Granular Ferric Media filtration
treatment capacity (normal operation condition)	1.1 million gallons per day ("MGD")
# of vessels in the plant	2
Diameter of vessel	14 ft
Year installed	2005

Active Storage, Pumping

Location	Structure or equipment	Capacity
North Point Well & Booster Station Site	Booster Pumps	Two 25-HP One 5-HP One 50-HP One 15-HP
	Storage Tank	One 750,000 gal
	Pressure Tank	Two 211 gal
Booster Station #3 Site	Booster Pumps	Two 20-HP One 30-HP
	Storage Tank	One 125,000 gal
	Pressure Tank	One 5,000 gal
Booster Station #1 Site	Booster Pumps	Two 25-HP
	Storage Tank	One 125,000 gal
	Pressure Tank	One 10,000 gal
Well #8/Well #9 Site	Booster Pumps	Two 25-HP Two 20-HP

		Four 50-HP
	Storage Tank	One 250,000 gal One 500,000 gal
	Pressure Tank	One 10,000 gal One 200 gal
Well #3/ Well #5 Site	Booster Pumps	Two 25-HP One 30-HP
	Storage Tank	One 100,000 gal
	Pressure Tank	One 8,000 gal

Distribution Mains

Diameter (inches)	Material	Length (feet)
2	N/A	691
3	N/A	1,959
4	N/A	36,322
6	N/A	58,721
6	N/A	5,611
8	N/A	28,812
10	N/A	1,346
12	N/A	519
16	N/A	469

Meters

Size (inches)	Quantity
$\frac{5}{8} \times \frac{3}{4}$	1,233
$\frac{3}{4}$	6
1	11
1½	442
2	19
3	
4	5
6	1

C. ARIZONA DEPARTMENT OF ENVIORNMENTAL QUALITY (“ADEQ”) COMPLIANCE

Based on a memorandum dated October 4, 2010, ADEQ has determined that Havasu is currently in compliance with its requirements and has determined that the system is currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, Chapter 4.

D. ACC COMPLIANCE

A check of the Commission Utilities Division Compliance Database indicates there are no delinquent ACC compliance items for Agua Fria.

E. ARIZONA DEPARTMENT OF WATER RESOURCES (“ADWR”) COMPLIANCE

Havasu is not within any ADWR’s Active Management Area (“AMA”). Staff received a Compliance Status Report from ADWR for Havasu on December 9, 2010. In its report ADWR stated that Havasu is compliant with departmental requirements governing water providers and/or community water systems.

F. WATER TESTING EXPENSES

Havasu is subject to mandatory participation in the ADEQ Monitoring Assistance Program (“MAP”). Staff calculated the testing costs based on the following assumptions:

1. MAP will do baseline testing on everything except copper, lead, bacteria and disinfection by-products.
2. ADEQ testing is performed in 3-year compliance cycles. Therefore, monitoring costs are estimated for a 3-year compliance period and then presented as a pro forma expense on an annualized basis.
3. All monitoring expenses are based on Staff’s best knowledge of lab costs and methodology and two points-of-entries.
4. The estimated water testing expenses represent a minimum cost based on no “hits” other than lead and copper, and assume compositing of well samples. If any constituents were found, then the testing costs would dramatically increase.

Table 1 shows the estimated annual monitoring expense, assuming participation in the MAP program. Water testing expenses should be adjusted to the annual expense amount of \$5,616 shown in Table 1.

Table 1 Water Testing Cost (Havasu)

Monitoring – 3 wells & 2 POE (Tests per 3 years, unless noted.)	Cost per test	No. of tests per three year period	Total cost per three year period	Annual Cost
Bacteriological – monthly	\$20	180	\$3,600	\$1,200
Inorganics – Priority Pollutants	\$300	MAP	MAP	MAP
Radiochemical – (1/4 yr)	\$60	MAP	MAP	MAP
Phase II and V:				
IOC's, SOC's, VOC's	\$2,805	MAP	MAP	MAP
Nitrites**	\$20	MAP	MAP	MAP
Nitrates – annual**	\$0	12	480	\$0
Asbestos – per 9 years**	\$0	3	MAP	MAP
Lead & Copper – annual**	\$0	60	\$0	\$0
TTHM/HHAs **	\$0	6	\$0	\$0
Maximum chlorine residual levels	\$20	0	\$0	\$0
MAP fees (annual)				\$4,415.97
Arsenic***	\$0	15	\$0	\$0
Total				\$5,616

Notes: * To comply with ADEQ requirement, the Company has to conduct quarterly arsenic testing at each well site and ADEQ sampling points aka Points Of Entry.

** This test is performed by the Company's Lab in Belleville.

G. WATER USAGE

Figure 4 is a graph that shows water consumption data in gallons per day (“GPD”) per customer for the system for the test year period of July 2009 through June 2010.

1. Water Sold

Based on information provided by the Company, water use for the test year of July 2009 to June 2010 is presented in Figure 4. The high monthly water use was 480 gallons per day (“GPD”) per connection in August, and the low monthly water use was 252 GPD per connection in March. The average annual use was 358 GPD per connection.

2. Lost Water

Lost water for Havasu was calculated to be 15.58 percent which exceeds acceptable limits.

In Decision No. 71410 (issued on December 8, 2009), the Commission ordered that the Company reduce its water loss to below 10 percent in its Havasu service area by June 30, 2010 or before it files its next rate case whichever comes first. The Company has not reduced its water loss to less than 10 percent; therefore, Staff recommends that any rate increase resulting from this Application not become effective until the annual water loss for each water system in the Havasu service area is below 10 percent.

H. GROWTH

Figure 5 shows customer growth based on the service connection data contained in the Company’s annual reports. The number of customers increased from 1,248 at the end of 2002 to 1,637 by the end of 2009 in the Havasu Water District, with an average growth rate of 57 customers per year from 2002 to 2009; however, growth has declined in recent years (since 2007) due to poor economic conditions.. The annual growth rate declined to 25 customers from 2007 to 2009. Based on the linear regression analysis, Staff estimates that the Company could have over 1,750 customers by the end of 2015. The following table summarizes Staff and the Company’s projected growth.

Table 2 Actual and Projected Growth

Year	Nos. of Customers	
2002	1,248	Reported
2003	1,299	Reported
2004	1,422	Reported
2005	1,485	Reported
2006	1,507	Reported
2007	1,528	Reported
2008	1,645	Reported
2009	1,637	Reported
2010	1,644	Estimated
2011	1,670	Estimated
2012	1,695	Estimated
2013	1,720	Estimated
2014	1,745	Estimated
2015	1,771	Estimated

I. DEPRECIATION RATES

The Company factored in an expected net salvage value for each plant account in developing its proposed depreciation rates. The Company's proposal to factor in net salvage value in establishing depreciation rates for the Company is addressed in the testimony of Staff witness Gerald Becker. Staff's recommended average service lives and the resulting depreciation rates are listed by National Association of Regulatory Commissioners' ("NARUC") plant account in Figure 6.

The Company did not propose a service life for backflow prevention devices, Staff recommends a 15 year service life for backflow prevention devices (NARUC Account no. 336).

J. OTHER ISSUES

1. Service Line and Meter Installation Charges

The Company did not propose any changes to its currently authorized meter and service line installation charges; Staff has no objection to the continued use of the currently authorized charges and recommends approval of the separate meter and service line installation charges shown under the column headings "Staff Recommended" in Table 3.

Table 3 Service Line and Meter Installation Charges (Havasu)

Meter Size	Current Meter Installation Charges	Current Service Line Installation Charges	Proposed Meter Installation Charges	Proposed Service Line Installation Charges	Staff Recommendation (Service Line)	Staff Recommendation (meter installation)	Staff Recommendation total charges
5/8 x 3/4-inch	\$155	\$445	\$155	\$445	\$445	\$155	\$600
3/4-inch	\$255	\$445	\$255	\$445	\$445	\$255	\$700
1-inch	\$315	\$495	\$315	\$495	\$495	\$315	\$810
1½-inch	\$525	\$550	\$525	\$550	\$550	\$525	\$1,075
2-inch (Turbine)	\$1,045	\$830	\$1,045	\$830	\$830	\$1,045	\$1,875
2-inch (Compound)	\$1,890	\$830	\$1,890	\$830	\$830	\$1,890	\$2,720
3-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
3-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
4-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
4-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
6-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
6-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
Over 6-inch	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost

2. Curtailment Tariff

The Company has an approved curtailment tariff on file with the Commission.

3. Cross Connection & Backflow Tariff

The Company has an approved Cross Connection & Backflow Tariff.

FIGURES

FIGURE 1

HAVASU WATER DISTRICT CERTIFICATED AREA

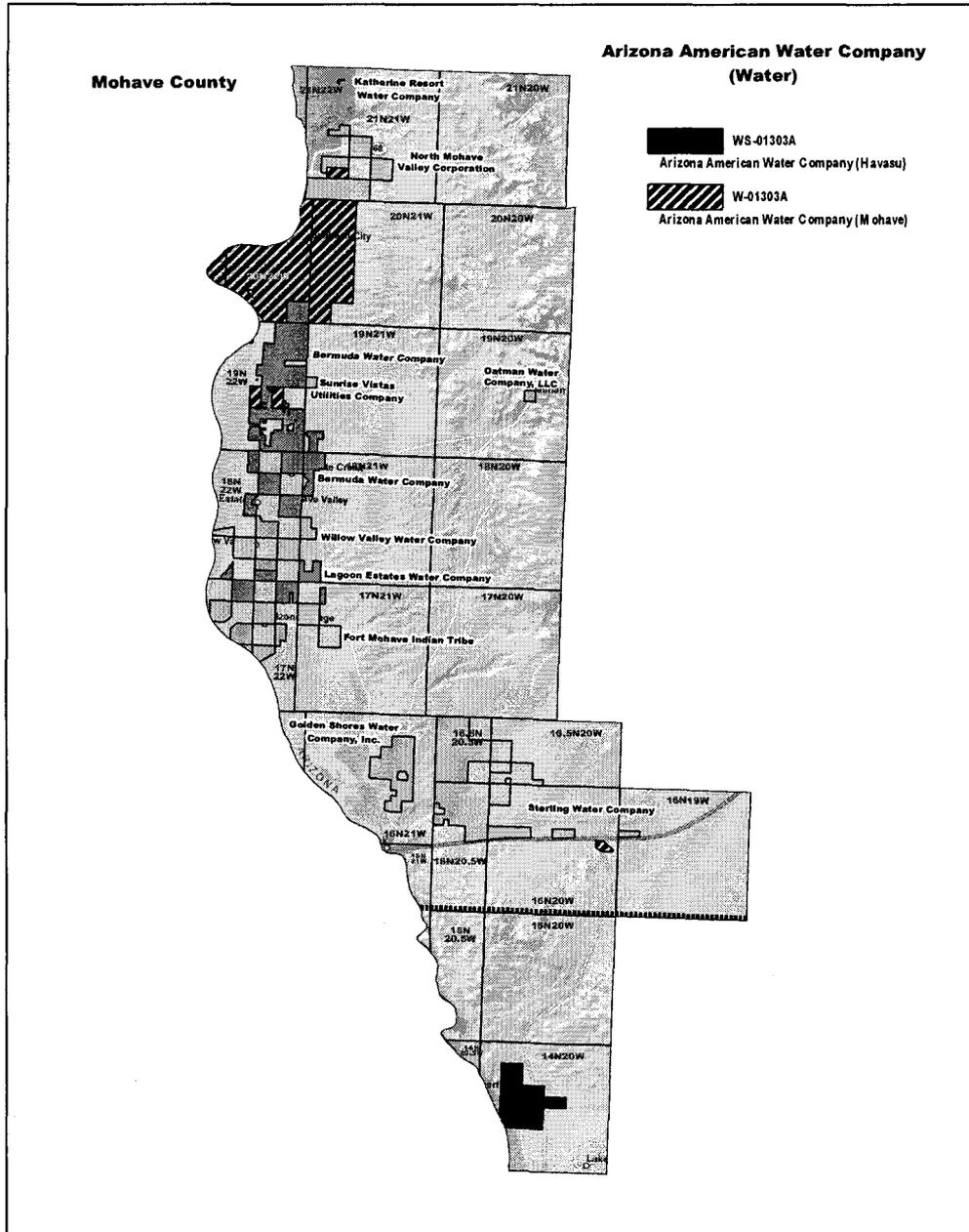


FIGURE 2

LOCATION OF HAVASU WATER DISTRICT

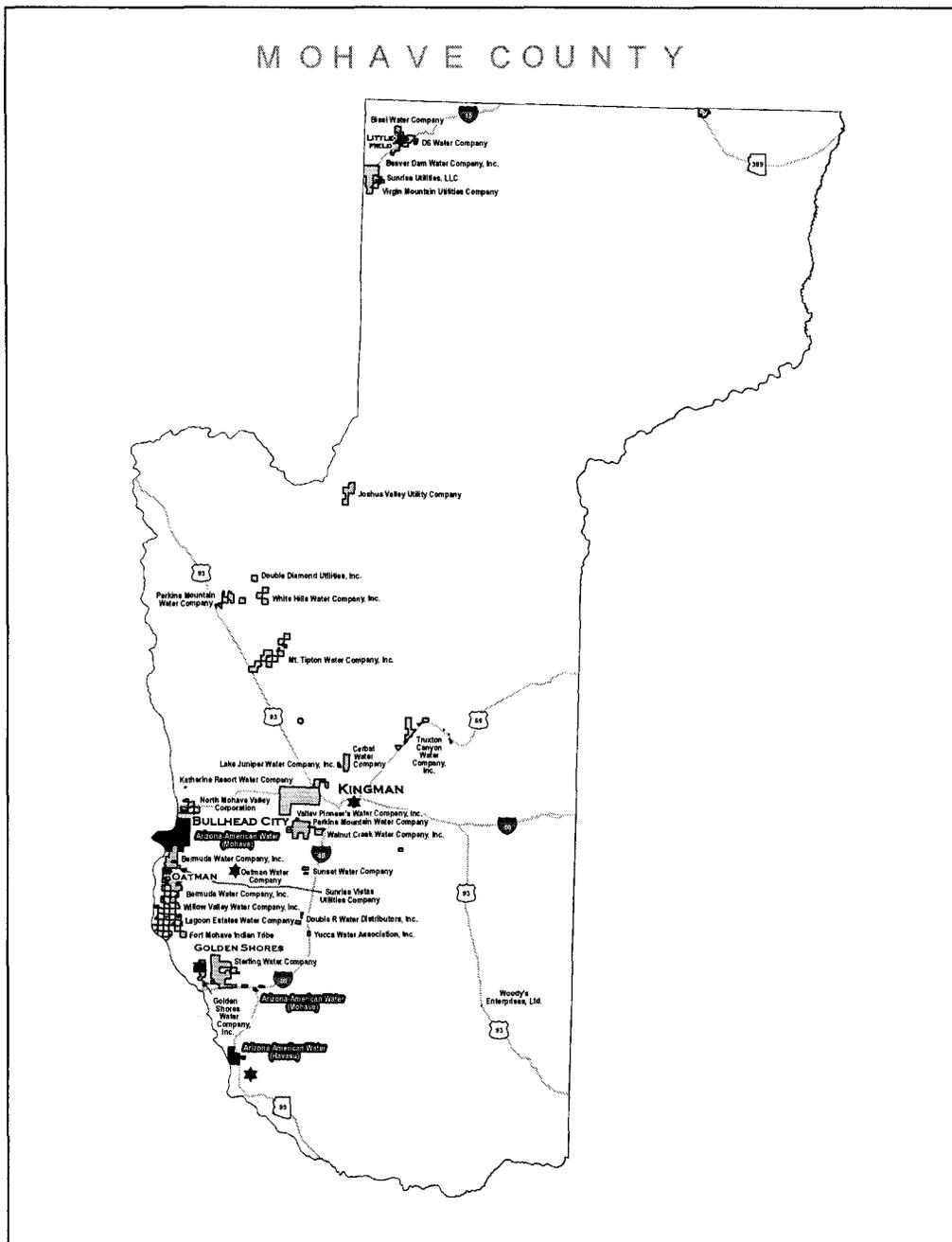


FIGURE 3A

HAVASU WATER DISTRICT PROCESS SCHEMATIC DIAGRAM

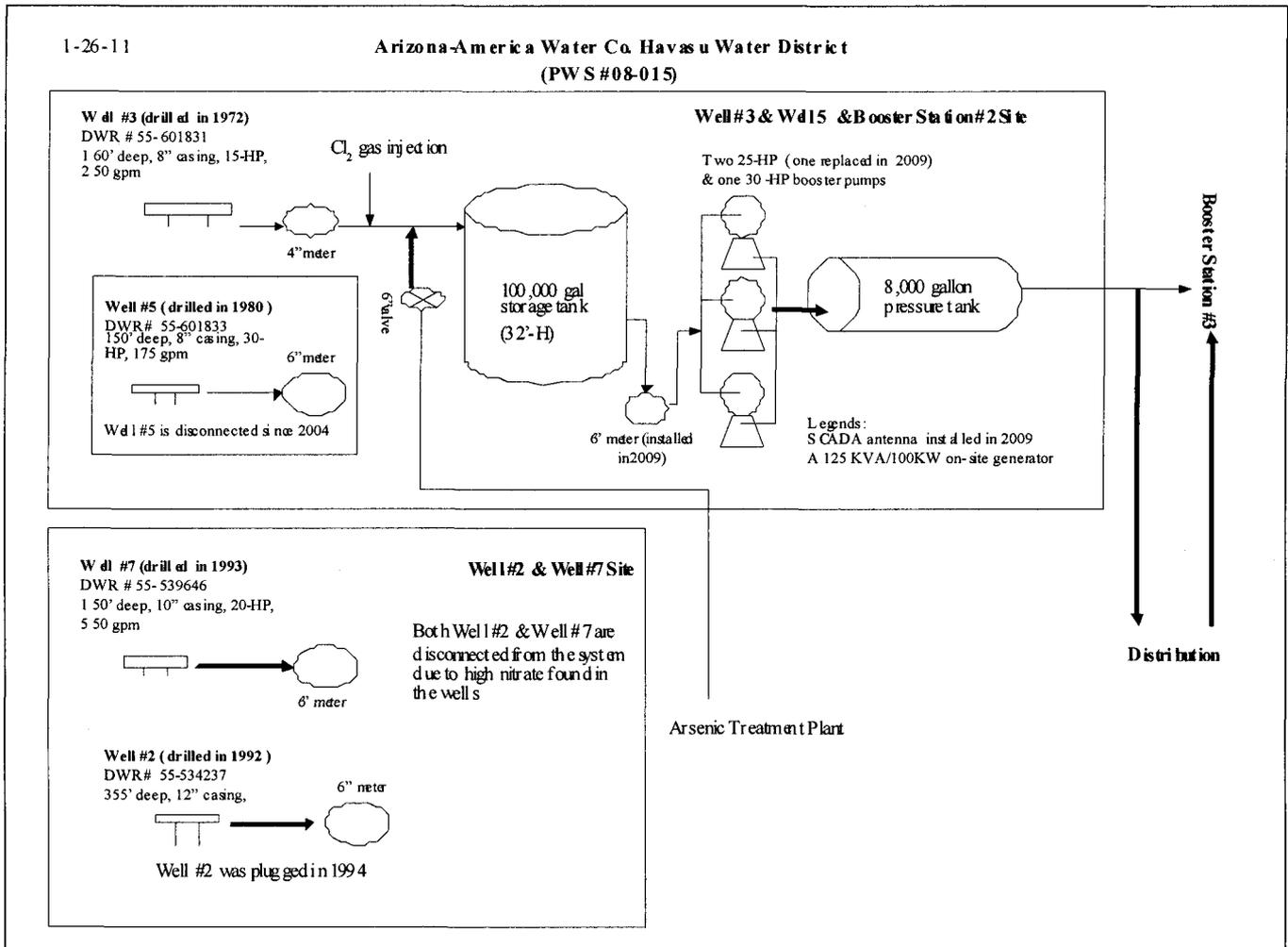


FIGURE 3B

HAVASU WATER DISTRICT PROCESS SCHEMATIC DIAGRAM

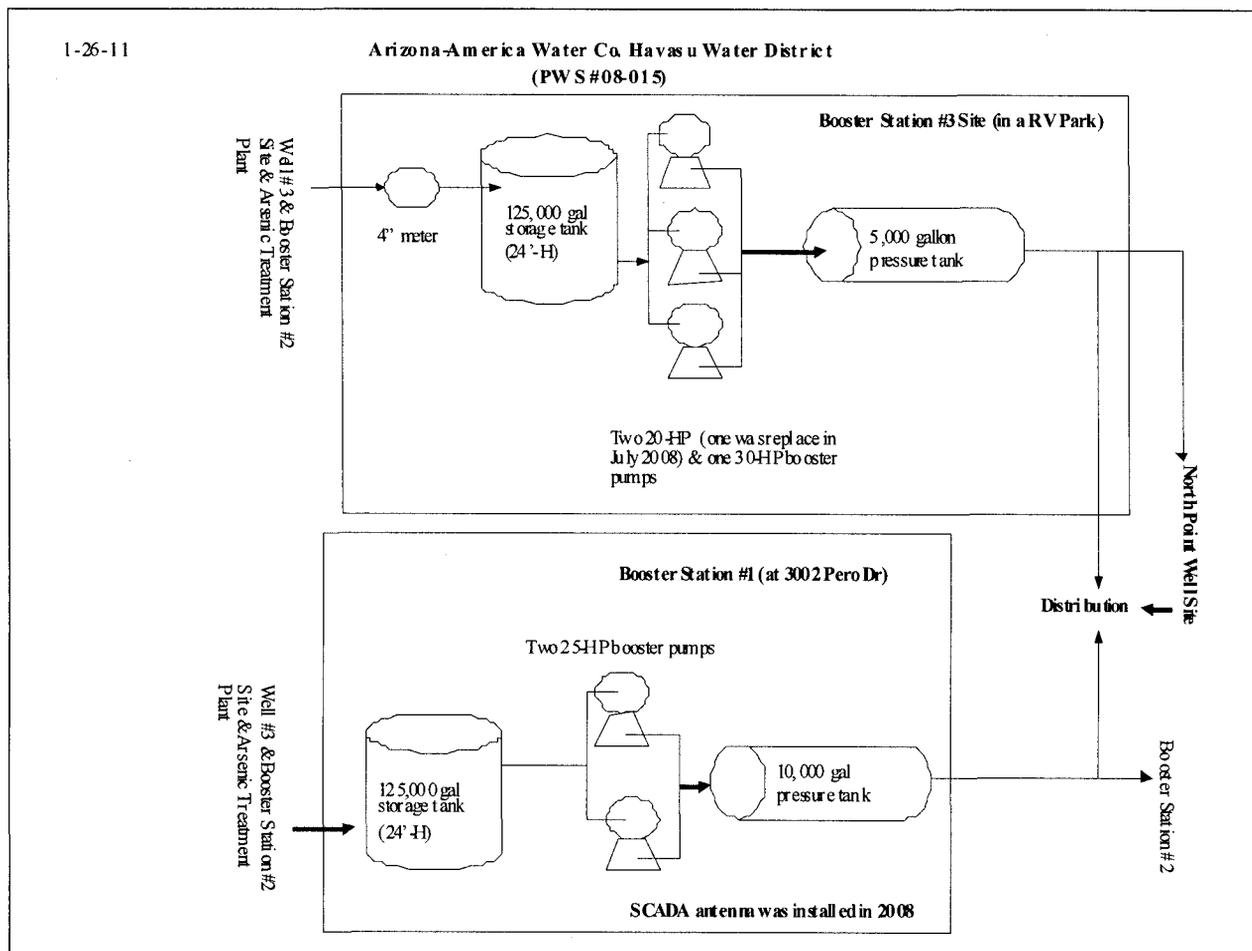


FIGURE 3C

HAVASU WATER DISTRICT PROCESS SCHEMATIC DIAGRAM

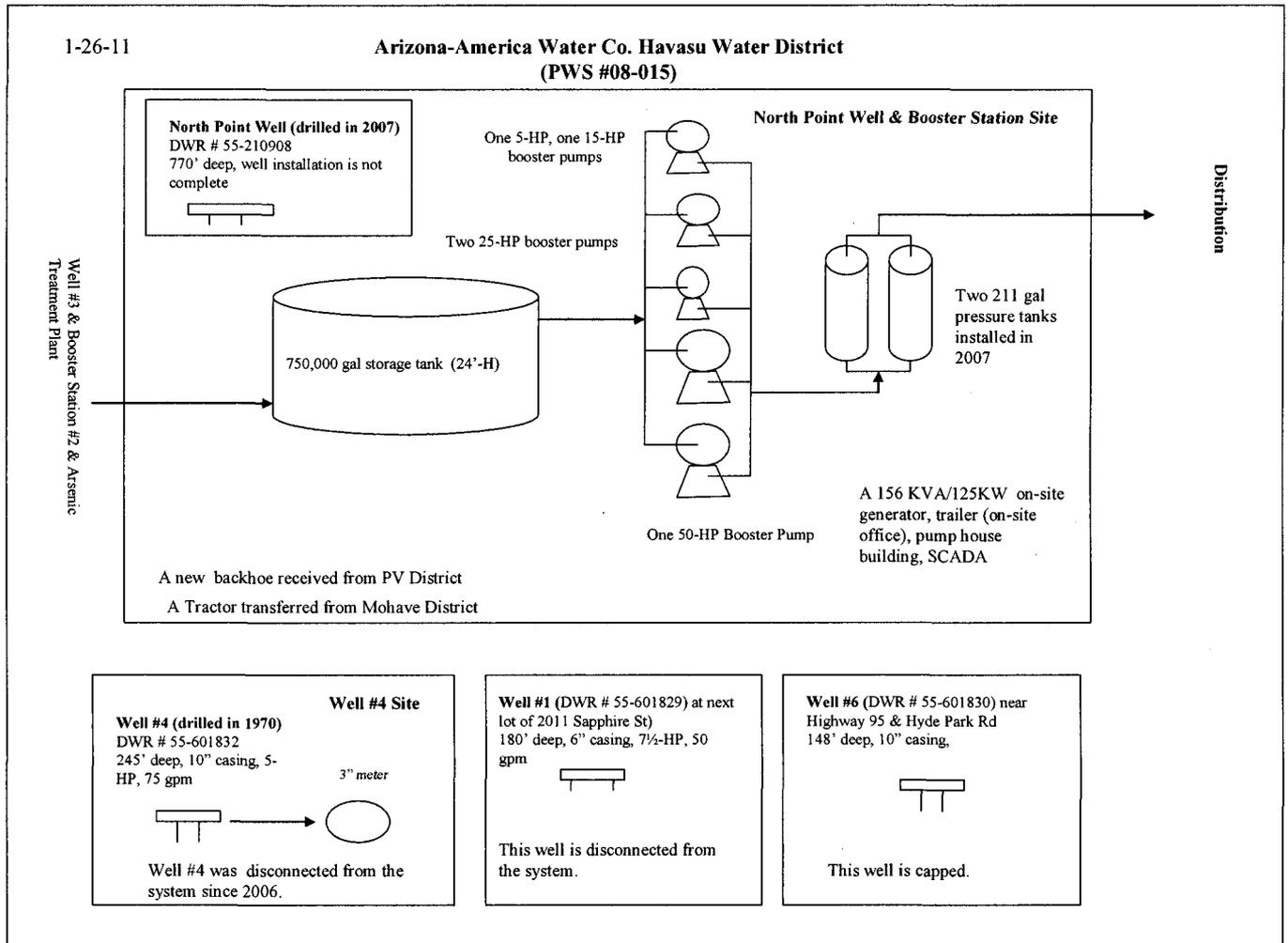


FIGURE 3D

HAVASU WATER DISTRICT PROCESS SCHEMATIC DIAGRAM

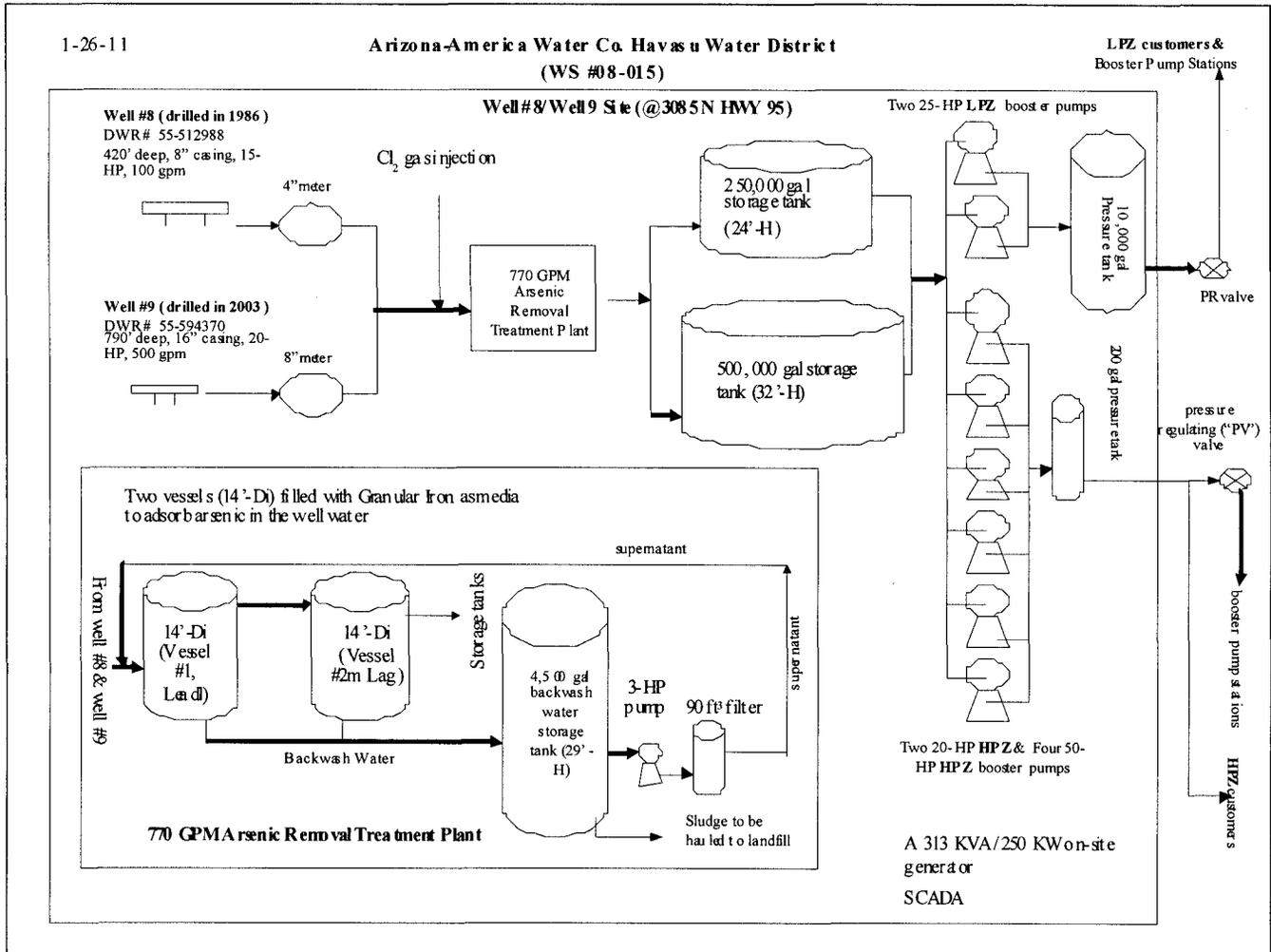


FIGURE 4

HAVASU WATER DISTRICT WATER USAGE

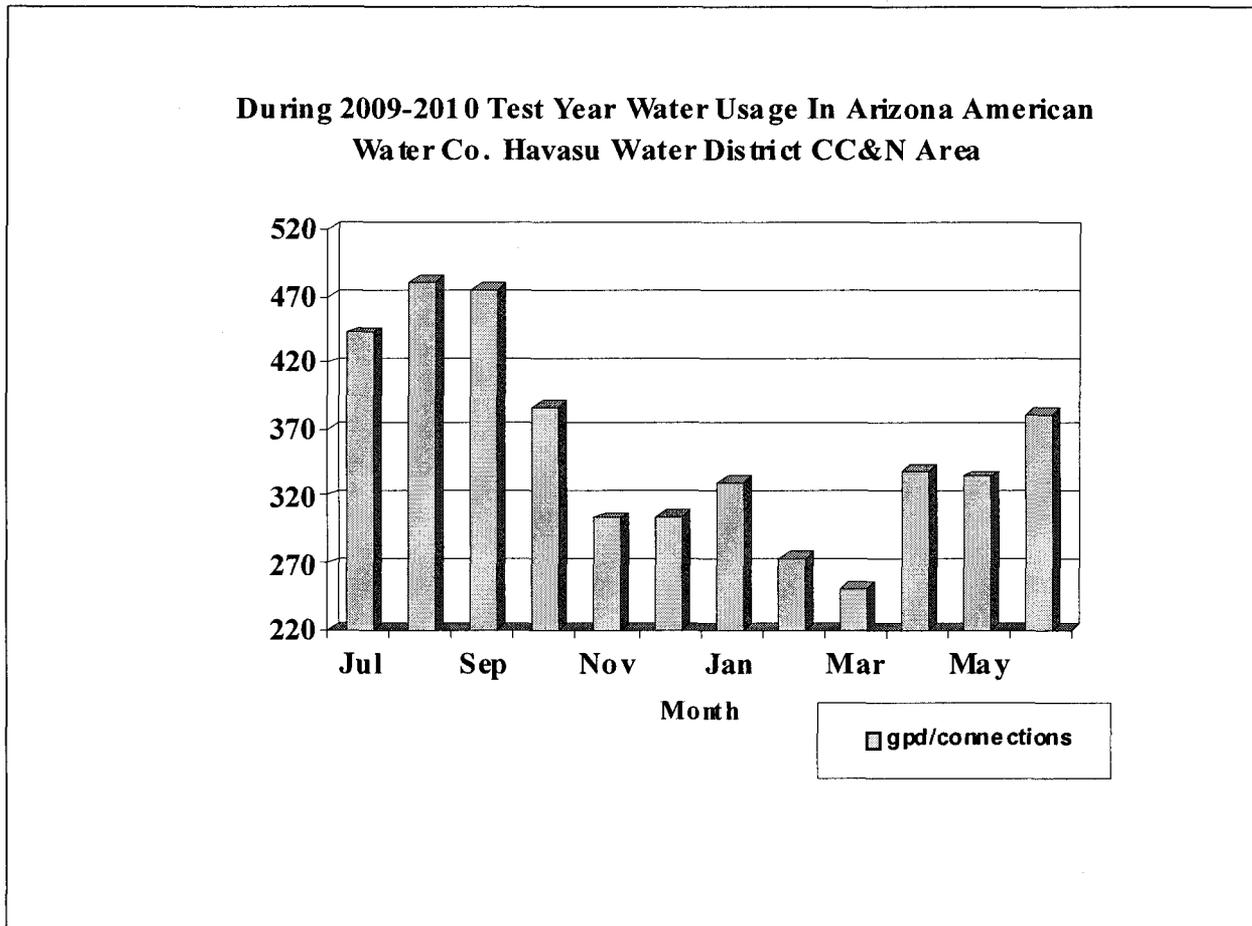
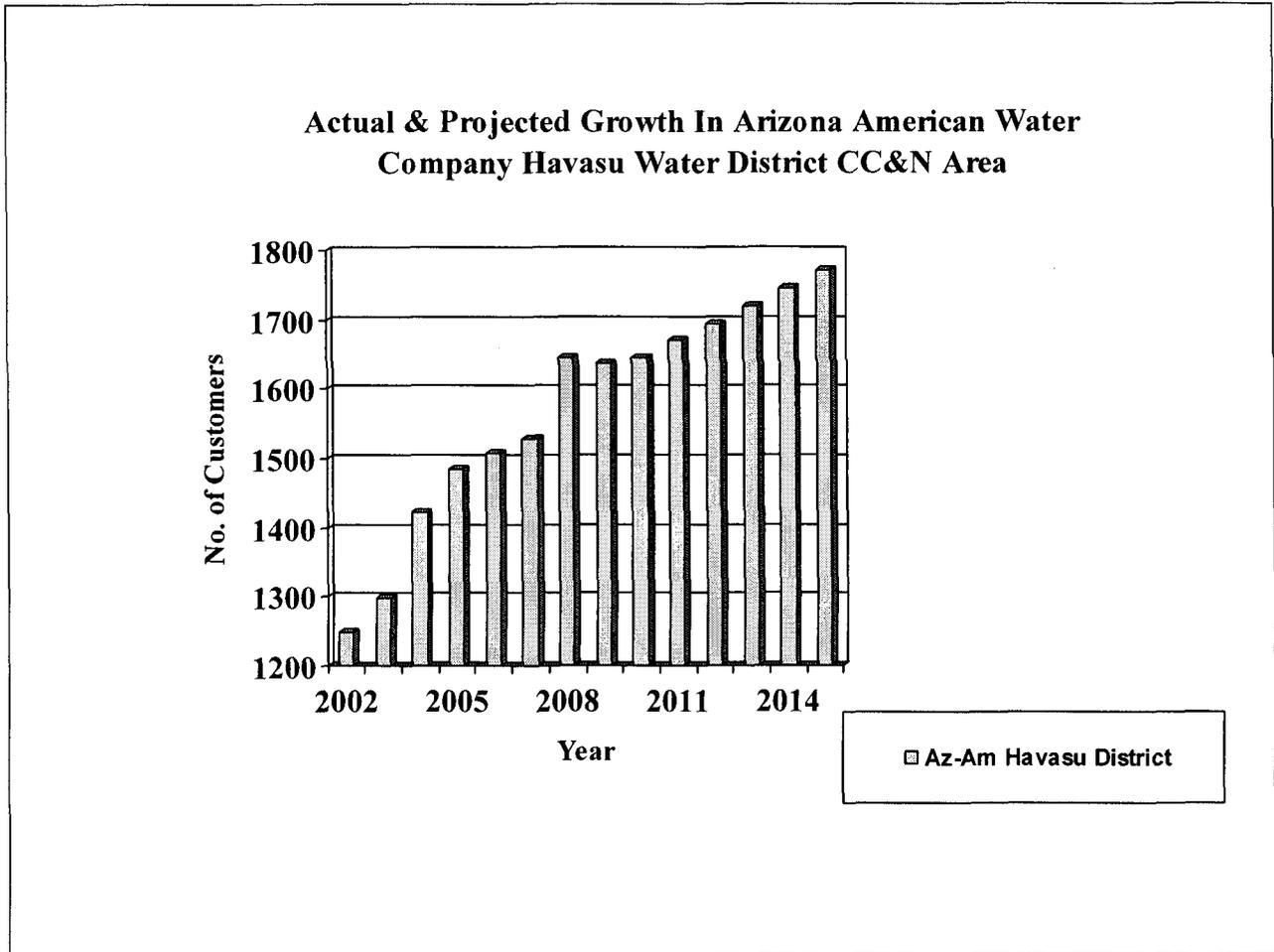


FIGURE 5
GROWTH IN HAVASU WATER DISTRICT



**FIGURE 6
AVERAGE SERVICE LIVES FOR HAVASU WATER DISTRICT - water**

NARUC Acct #	Company's Account #.	Depreciable Plant	Proposed service lives (in years)	Staff Recommended service lives (in years)
301	301000	Organization	0	0
302	302000	Franchises	0	0
303		Land & Land Rights		
	303200	Land & Land Rights SS	0	0
	303300	Land & Land Rights P	0	0
	303500	Land & Land Right TD	0	0
	303600	Land & Land Right AG	0	0
304		Structures & Improvements		
	304100	Structure & Improvement – Source of Supply	40	40
	304200	Structure & Improvement - Pumping	50	50
	304300	Structures and Improvements – Water Treatment Equipment	50	50
	304400	Structure & Improvement – Transmission and Distribution	50	50
	304500	Structure & Improvement – General Plant	40	40
	304600	Structure & Improvement – offices (General Plant)	40	40
	304620	Structure & Improvement – Leasehold (General Plant)	40	40
	304700	Structure & Improvement – store, shop & garage (general plant)	40	40
	304800	Structure & Improvement Misc (general plant)	40	40
305	305000	Collection & Impounding reservoirs (source & pumping)	60	60
	306000	Lake & River Intakes (source & pumping)	60	60
307	307000	Wells & Springs (source & pumping)	40	40
	308000	Infiltration Galleries (source & pumping)	40	40
309	309000	Supply Mains (source & pumping)	60	60
310	310100	Power Generation Equip Other (source & pumping)	30	30
311		Pumping Equipment		
	311200	Pump Equipment - Electric (source & pumping)	25	25
	311300	Pump Equipment – Diesel (source & pumping)	25	25
	311400	Pump Equipment – Hydraulic (source & pumping)	25	25
	311540	Pumping Equipment – TD (transmission & distribution)	25	25
	311600	Other Pump Equipment (source & pumping)	25	25
320		Water Treatment Equipment		
	320000	Purification Equipment (water treatment equipment) ¹	20	20
320.1	320100	Water Treatment Plant - Non-Media (water treatment equipment) ¹	20	20
	320200	Water Treatment Equipment - Filter Media (water treatment equipment) ²	10	10
330		Distribution Reservoirs & Standpipes		
	330000	Distribution Reservoirs & Standpipes (transmission & distribution plant)	65	65
	330100	Elevated Tanks & Standpipes (water treatment equipment)	65	65
	330200	Ground Level Tanks (water treatment equipment)	65	65
	330300	Below Ground Tanks (water treatment equipment)	65	65
	330400	Clearwell (water treatment equipment)	50	50
331		Transmission and Distribution		
	331000	Transmission & Distribution Mains (water treatment equipment)	70	70
	331001	TD mains 4-inch & less (water treatment equipment)	50	50
	331100	TD mains 6-inch to 8-inch (water treatment equipment)	70	70
	331200	TD mains 10-inch to 16-inch (water treatment equipment)	70	70
	331300	TD Mains larger than 16" (water treatment equipment)	70	70

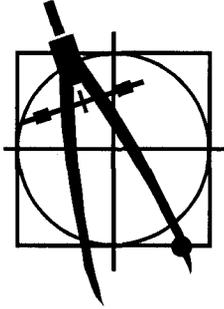
	332000	Fire mains (water treatment equipment)	70	70
333	333100	Services (water treatment equipment)	40	40
334		Meters		
	334100	Meter installations (transmission & distribution plant)	15	15
	334200	Meter installations (transmission & distribution plant)	40	40
	334300	Meter Vaults (transmission & distribution plant)	40	40
335	335000	Hydrants (water treatment equipment)	50	50
336	N/A	Backflow Prevention Devices	N/A	15
339		Other Plant & Misc Equipment		
	339000	Other Plant & Misc Equipment (transmission & distribution plant)	30	30
340		Office Furniture & Equipments		
	340000	Office Furniture & Equipments (general plant) ³	20	20
	340200	Computer & periph equipment (general plant)	10	10
	340300	Computer Software (general plant)	5	5
	340310	Computer Software (general plant)	5	5
	340325	Computer Software (general plant)	5	5
	340330	Computer Software (general plant)	5	5
	340400	Date Handling Equipment (general plant)	5	5
	340500	Other Office Equipment (general plant) ⁵	15	15
341		Transportation Equipment		
	341000	Transportation Equipment (general plant)	5	5
	341100	Transportation Equip, Lt Duty Trucks (general plant)	5	5
	341200	Transportation Equip, heavy Duty Trucks (general plant)	7	7
	341300	Transportation Equip, Autos (general plant)	6	6
	341400	Transportation Equip other (general plant)	6	6
342	342000	Store Equipments (general plant)	25	25
343	343000	Tools Shop & Garage Equipments (general Plant)	25	25
344	344000	Lab equipments (general plant)	25	25
345	345000	Power operated equipments (general plant)	20	20
346		Communication Equipments		
	314600	Communication Equip (general plant)	10	10
	346100	Communication Equip non-telephone (general plant)	10	10
	346200	Remote Control & Instrument (general plant)	10	10
	346200	Communication Equip – telephone (general plant)	10	10
	346300	Communication Equip Other (general plant)	10	10
	348000	Other Miscellaneous Equipment (general plant)	16	16

- Notes: 1. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are aerators, chemical treatment equipment, filter, mixing chambers, clear water basins, water softer, etc. Those plant items are more mechanical devices than steel structural plants.
2. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are sand, gravel, anthracite, membranes. The Company replaces those materials in 7 to 12 years.
3. Via April 29, 2011 e-mail, the Company indicated that plant items are furniture oriented equipments included in this account are desks, tables, chairs, file cabinets, safes, book shelves.
4. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are smaller office equipments such as fax machines, copiers, binding machines, shredders.

**ENGINEERING REPORT FOR ARIZONA-AMERICAN WATER COMPANY, INC.,
MOHAVE WATER DISTRICT**

BY DOROTHY HAINS

JUNE 20, 2011



**Engineering Report
For Arizona-American Water
Company's Mohave Water District
Docket No. W-01303A-10-0448
(Rate Increase Application)**

By Dorothy Hains

June 27, 2011

EXECUTIVE SUMMARY

Recommendations:

- I. Arizona Corporation Commission ("Commission") Utilities Division Staff ("Staff") recommended average service lives and the resulting depreciation rates are listed by National Association of Regulatory Utility Commissioners' plant account in Figure 6. (See §I of report for discussion and details.)
- II. Lost water for Mohave, Lake Mohave Highlands and Desert Foothills in the Arizona-American Water Company ("Company") Mohave Water District ("Mohave") was calculated to be 11.08, 18.76 and 14.63, respectively, which all exceed acceptable limits. Staff recommends that any rate increase resulting from this Application not become effective until the annual water loss in the Mohave service area is below 10 percent. (See §G of report for discussion and details.)
- III. Staff recommends estimated annual water testing costs of \$15,595 for Mohave. (See §F of report for discussion and details.)
- IV. Staff has no objection to the continued use of the currently authorized meter and service line installation charges as proposed by the Company and recommends approval of charges shown under the column headings "Staff Recommended" in Table 5. (See §J of report for discussion and details.)

Conclusions:

- I. Arizona Department of Environmental Quality has determined that all water systems in Mohave are currently delivering water that meets the water quality standards required by Arizona Administrative Code, Title 18, Chapter 4. (See §C for a discussion and details.)
- II. Arizona Department of Water Resource has determined that Mohave is compliant with departmental requirements governing water providers and/or community water systems. (See §E of report for discussion and details.)

- III. Mohave has approved cross connection and curtailment tariffs. (See §J of report for discussion and details.)
- IV. Mohave has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. (See §B of report for discussion and details.)
- V. A check of the Commission Utilities Division Compliance Database indicates there are no delinquent compliance items for Mohave. (See §D of report for discussion and details.)
- VI. The 250,000 gallon storage tank located at Big Bend Acres Well Site # , and the 150,000 gallon storage tank in Lake Mohave Highlands Well Site were in service at the time of Staff's inspection. Therefore, the plant investment amounts, as adjusted by Staff, may be considered for purposes of establishing rates in this proceeding. (See §J of report for discussion and details.)

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A. INTRODUCTION AND LOCATION OF COMPANY

Arizona American – Mohave Water District (“Mohave” or “Company”) has submitted an application with the Arizona Corporation Commission (“ACC” or “Commission”) for approval of a rate increase in Docket No. W-01303A-10-0448. This report constitutes Staff’s engineering evaluation of the subject rate proceeding. Mohave serves over 16,000 customers in the Bullhead City area and unincorporated areas in western Mohave County. Figure 1 describes the location of the Company within Mohave County, and Figure 2 describes the CC&N area of Mohave Water District.

B. DESCRIPTION OF THE WATER SYSTEM

The plant facilities were visited on March 22 and 23, 2011, by Dorothy Hains, Commission Staff Engineer, accompanied by Company representatives, James Lands (Company Operations Supervisor) and David Evans (Company Operation Superintendent).

System Analysis

During the test year, the Mohave Water District operated six separate systems. A detailed description of each system is presented below:

(2) Mohave System (PWS #08-032)

The Mohave System consists of six drinking water wells that are capable of producing a total flow of 6,670 gallons per minute (“GPM”) and storage capacity totaling 5.8 million gallons. The water system has adequate well production and storage capacity to serve its existing customers and projected growth for a five-year planning horizon. Figures 3A through 3E provide a process schematic showing both the active and inactive components of this water system.

Active Drinking Water Wells

Well #	ADWR No.	Year Drilled	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
24-1	55-506309	1983	16	515	10	250	1,400	2599 Black Mtn Rd, Bullhead City
16-3	55-509446	1985	14	602	6	75	500	1874 Arena Dr., Bullhead City
BBA-2	55-519149	1987	18	280	10	100	2,100	2264 Kaibab Dr., Bullhead City
16-2	55-603472	1975	12-10	610	6	75	600	1742 Arriba Dr., Bullhead City
16-1	55-603473	1970	14-16	400	12	200	1,810	1742 Mesa Vista Dr., Bullhead City
BHC-5	55-603477	1975	12	450	6	40	350	2495 E 2 nd Ave., Bullhead City

In active Wells

Well #	ADWR No.	Year Drilled	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
BBH-1	55-603415	N/A	16	200	6	25	112	2264 Kaibab Dr., Bullhead City
Riveria Well	55-603474	1959	16	101	6	18	450	N/A
BBA-1	55-603476	1961	8	115	N/A	N/A	250	N/A
BBH-3	55-603478	N/A	12	157	3	8	83	N/A
BBH-4	55-603479	N/A	12	580	N/A	N/A	220	N/A

Active Storage, Pumping

Location	Structure or equipment	Capacity
Big Bend Acres Well Site (2264 Kaibab Dr., Bullhead City)	Booster Pumps	Three 50-HP
	Storage Tank s	One 250,000 gal
Mohave Drive Booster Pump Station Site	Booster Pumps	One 50-HP One 2-HP One 1½-HP
	Pressure Tanks	One 5,000 gal
Desert Glen Booster Pump Station Site	Booster Pumps	One 100-HP Two 15-HP
	Storage Tanks	One 200,000 gal
	Pressure Tanks	One 5,000 gal
Mountain View Booster Pump Station Site	Booster Pumps	Two 20-HP
	Pressure Tanks	One 70 gal

Upper Zone Tank Site	Storage Tanks	One 123,000 gal
Well 24-1 Site (2599 Black Mtn Rd, Bullhead City)	Booster Pumps	Two 100-HP
	Storage Tanks	One 1,000,000 gal
Silver Creek Tank Site (3002 Silver Creek Rd)	Storage Tanks	One 300,000 gal
Laurado Tank Site	Storage Tanks	One 250,000 gal One 750,000 gal
Well 16-1 Site (1742 Mesa Vista Dr., Bullhead City)	Booster Pumps	one 15-HP
	Storage Tanks	One 500,000 gal One 1,000,000 gal
Well 16-2 Site (1742 Arriba Dr., Bullhead City)	Booster Pumps	One 100-HP
	Storage Tanks	One 424,000 gal One 1,000,000 gal
	Pressure Tanks	One 10,000 gal
Riverview Mall Booster Pump Station Site (2350 Miriacle Mile Dr.)	Booster Pumps	Two 15-HP One 50-HP
	Storage Tanks	One 35,000 gal
	Pressure Tanks	One 3,000 gal

Distribution Mains

Diameter (inches)	Material	Length (feet)
2	N/A	13,253
3	N/A	78,472
4	Polyvinyl chloride ("PVC")	237,914
6	PVC	446,850
8	PVC	261,527
10	PVC	19,640
12	PVC	98,498
16	Various	3,823
18	Various	1,443

Meters

Size (inches)	Quantity
5/8 x 3/4	12,292
3/4	10
1	332
1 1/2	2,644
2	437
3	3
4	6
6	5

(3) Camp Mohave System (PWS #08-037)

The Camp Mohave System consists of one drinking water well that is capable of producing a total flow of 140 GPM and storage capacity totaling 250,000 gallons. The water system has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. Figure 3F provides a process schematic showing both the active and inactive components of the water system.

Active Drinking Water Wells

Well #	ADWR No.	Year Drilled	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Well #2	55-559559	1996	8	312	6	10	140	1360 E Camp Mohave Rd, Bullhead City

In active Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Well #1	55-603416	1995	8	200	N/A	N/A	55	1360 E Camp Mohave Rd, Bullhead City

Active Storage, Pumping

Location	Structure or equipment	Capacity
Well Site (1360 E Camp Mohave Rd, Bullhead City)	Booster Pumps	Two 40-HP One 15-HP
	Storage Tank s	One 250,000 gal
	Pressure Tanks	One 5,000 gal

Distribution Mains

Diameter (inches)	Material	Length (feet)
4	various	6,569
6	various	1,828
8	various	2,309
10	various	4,080

Meters

Size (inches)	Quantity
$\frac{5}{8} \times \frac{3}{4}$	62
$\frac{3}{4}$	0
1	9
1½	11
2	11

(4) Arizona Gateway System (PWS #08-163)

The Arizona Gateway System, a transient, non-community water system, consists of two drinking water wells that are capable of producing a total flow of 329 GPM and storage capacity totaling 300,000 gallons. The water system has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. Figure 3F provides a process schematic showing both the active and inactive components of the water system.

Active Drinking Water Wells

Well #	ADWR No.	Year Drilled	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Well #1	55-586016	2001	8	290	6	7½	29	14762 S HWY 95 (east of Well #2)
Well #2	55-200219	2003	6	750	6	60	300	14762 S HWY 95

Active Storage, Pumping

Location	Structure or equipment	Capacity
N/A	Booster Pumps	Four 40--HP
	Storage Tank s	One 300,000 gal
	Pressure Tanks	One 190 gal

Distribution Mains

Diameter (inches)	Material	Length (feet)
8	Various	187
10	Various	1,537

Meters

Size (inches)	Quantity
$\frac{3}{8} \times \frac{3}{4}$	1
2	6

(5) Lake Mohave Highlands System (PWS #08-062)

The Lake Mohave Highlands System consists of two drinking water wells that are capable of producing a total flow of 200 GPM and storage capacity totaling 373,000 gallons. The water system has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. Figure 3G provides a process schematic showing both the active and inactive components of the water system.

Active Drinking Water Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Well #2	55-556101	1996	8	505	3	20	100	3000 Locust Dr., Bullhead City
Well #1	55-603417	1973	10	500	3	20	100	3000 Locust Dr., Bullhead City

Non-Drinking Water Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Well #3	55-548414	1995	24	760	6	40	500	Tamarack Dr. & Locust Dr., Bullhead City

Active Storage, Pumping

Location	Structure or equipment	Capacity
Well Site (3000 Locust Dr. ,Bullhead City)	Booster Pumps	Two 20-HP
	Storage Tank s	One 100,000 gal One 150,000 gal
	Pressure Tanks	One 1,000 gal
Upper Booster Pump Station Site	Booster Pumps	Two 5-HP
	Pressure Tanks	One 3,000 gal
Pegasus Ranch Booster Pump Station Site (Tamarack Dr. & Locust Dr., Bullhead City)	Booster Pumps	Two 25-HP One 7½- HP
	Pressure Tanks	One 1,000 gal
	Storage Tanks	One 123,000 gal

Distribution Mains

Diameter (inches)	Material	Length (feet)
2	Various	451
3	Various	169
4	Various	10,313
6	Various	10,387
8	Various	6,011

Meters

Size (inches)	Quantity
5/8 x 3/4	266
3/4	0
1	6

(5) Desert Foothills System (PWS #08-137)

The Desert Foothills System consists of one drinking water well that is capable of producing a total flow of 820 GPM and storage capacity totaling 1,000,000 gallons. The water system has adequate storage and well production to serve its existing customers and projected growth for a five-year planning horizon. Figure 3H provides a process schematic showing both the active and inactive components of the water system.

Active Drinking Water Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Well #2	55-557919	1996	12	1,073	6	100	600	29010 Desert Vista Dr., Bullhead City
Laughlin Ranch #1	55-204657	2005	16 - 3/4	1,100	4	75	220	Laughlin Ranch Blvd/William Hardy Dr.

In active Wells

Well #	ADWR No.	Year Drilled (19xx)	Casing Size (inches)	Well Depth (ft)	Well Meter Size (inches)	Pump (HP)	Pump Yield (GPM)	Location
Well #1	55-551125	1995	5	1,212	N/A	10	25	29010 Desert Vista Dr., Bullhead City

Active Storage, Pumping

Location	Structure or equipment	Capacity
Well Site (29010 Desert Vista Dr., Bullhead City)	Booster Pumps	Three 15-HP One 25-HP
	Storage Tank s	Two 500,000 gal
	Pressure Tanks	One 5,000 gal
Terrances Booster Pump Station Site (11046 Desert Canyon Dr., Bullhead City)	Booster Pumps	two 10-HP One 40-HP
	Pressure Tanks	One 5,000 gal

Distribution Mains

Diameter (inches)	Material	Length (feet)
6	Various	12,545
8	Various	42,710
10	Various	1,999
12	Various	6,598

Meters

Size (inches)	Quantity
$\frac{5}{8} \times \frac{3}{4}$	849
$\frac{3}{4}$	1
1	6
1½	177
2	24
4	1

(6) Rio Vista System (PWS #08-333)

The Rio Vista System is a consecutive water system with water purchased from the Bermuda Water Company (PWS #08-063).

Distribution Mains

Diameter (inches)	Material	Length (feet)
4	various	861
6	various	10,279
8	various	1,118
10	various	6,638
12	various	648

Meters

Size (inches)	Quantity
$\frac{5}{8} \times \frac{3}{4}$	109
1	2
1½	12

C. ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (“ADEQ”) COMPLIANCE

ADEQ has determined that all systems in Mohave Water District are currently in full compliance with its requirements.³ ADEQ also determined that Bermuda Water Company is currently in full compliance with its requirements.⁴ ADEQ further stated that the Mohave Water District systems and the Bermuda Water system are currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, Chapter 4.

³ ADEQ correspondence dated October 4, 2010 and November 22, 2010.

⁴ ADEQ correspondence dated October 5, 2010.

D. ACC COMPLIANCE

A check of the Commission Utilities Division Compliance Database indicates there are no delinquent ACC compliance items for Agua Fria.

E. ARIZONA DEPARTMENT OF WATER RESOURCES (“ADWR”) COMPLIANCE

Mohave Water District is not within any ADWR’s Active Management Area (“AMA”). Staff received a Compliance Status Report from ADWR for Mohave Water District on December 9, 2010. In its report ADWR stated that Mohave Water District is compliant with departmental requirements governing water providers and/or community water systems.

F. WATER TESTING EXPENSES

(1) Mohave System

The Company’s estimated annual water testing expense for the Mohave System (PWS #08-032) is \$9,600. Staff concludes that this estimate is reasonable. Therefore, Staff recommends annual water testing expenses in the amount of \$9,600 be used for the Mohave system for purposes of this rate case. (See Table 1 below.)

Table 1 Water Testing Cost (Mohave System - PWS #08-032)

Monitoring – 6 wells (Tests per 3 years, unless noted.)	Cost per test	No. of tests per three year period	Total cost per three year period	Annual Cost
Bacteriological – monthly	\$20	1,440	\$28,800	\$9,600
Inorganics – Priority Pollutants	\$300			
Radiochemical* – (1/ 3 yr) Gross Alpha Uranium Radium 228 Radium 226	\$410	18	0	0
Phase II and V:				
IOC’s*		6		
SOC’s*		12		
VOC’s*		6		
Dioxin*	\$500	3		0
Nitrites* per 9 yrs	\$20	3		
Nitrates – annual*	\$40	6		
Asbestos – per 9 years*	\$180	18		

Nitrates – annual	\$40	MAP	MAP	MAP	MAP	MAP	MAP	MAP
Asbestos – per 9 years	\$180	MAP	MAP	MAP	MAP	MAP	MAP	MAP
Lead & Copper – annual*	\$0	10	10	5	0	0	\$0	0
TTHM/HHAs – per 3 years*	\$0	1	1	1	0	0	\$0	0
Maximum chlorine residual levels*	\$20	0	0	0	0	0	\$0	0
MAP fees (annual)					\$943. ⁹⁰	\$2,868. ⁸³	\$501. ⁸⁶	\$4,314. ⁵⁹
Total					\$1,184	\$3,589	\$742	\$5,515

*: The test will be done in the Company’s Lab in Belleville. .

(3) *Arizona Gateway System & Rio Vista System*

Because the Arizona Gateway System (PWS #08-163) is a semi-public system and the Rio Vista System (PWS #08-333) is a consecutive water system, these systems are exempt from participating in the MAP program. The Company only monitors biological bacteria for these systems. The Company’s estimated annual water testing expenses for Arizona Gateway System and Rio Vista System are \$480. Staff concludes that this estimate is reasonable. Therefore, Staff recommends annual water testing expenses in the amount of \$480 be used for these systems for purposes of this rate case. (See Table 3 below.)

Table 3 Water Testing Cost (Arizona Gateway (PWS #08-163) & Rio Vista (PWS #08-333))

	Cost per test (\$)	No. of tests per three year period		Total cost per three year period		Annual Cost		
		333	163	037	062	037	062	Total
PWS # 08-xxx		333	163	037	062	037	062	Total
Bacteriological – monthly	\$20	36	36	\$720	\$720	\$240	\$240	\$480
Lead & Copper – Triennial*	0	0	0	0	0	0	0	0
TTHM/HHAs – per 3 years*	0	0	0	0	0	0	0	0
Maximum chlorine residual levels	0			0	0	0	0	0
MAP fees (annual)						N/A	N/A	N/A
Total								\$480

Notes: Notes:

* The test will be done in the Company’s Lab in Belleville.

Staff's recommended total estimated annual water testing expenses for the Mohave Water District is \$15,595 (the sum of \$480, \$5,515 and \$9,600).

G. WATER USAGE

Figures 4A through 4F are graphs that show water consumption data in gallons per day ("GPD") per customer for each Mohave Water District water system for the test year period of July 2009 through June 2010.

1. Water Sold

Based on information provided by the Mohave Water District, water use for the test year is presented in the Table below and in Figure 4.

System Name	Mohave	Camp Mohave	Lake Mohave Highlands	Desert Foothills	Arizona Gateway	Rio Vista
High usage month	Jul 2009	Jun 2010	Aug 2009	Aug 2009	Jul 2009	May 2010
Highest daily average usage in test year (in GPD/metered customer)	454	973	361	800	8,318	465
Low usage month	Feb 2010	Feb 2010	Mar 2010	Feb 2010	Feb 2010	Jan 2010
Lowest daily average usage in test year (in GPD/metered customer)	308	580	169	413	1,500	225
Annual average daily flow (in GPD/metered customer)	379	702	246	624	3,322	352

2. Lost Water

Lost water should be 10 percent or less and never more than 15 percent. It is important to be able to reconcile the difference between water sold and the water produced by the source. A water balance will allow a water company to identify water and revenue losses due to leakage and any non-metered water use such as construction, fire fighting and line flushing. Lost water percentages for each system in the Mohave Water District are listed in the Table below:

System Name	Mohave	Camp Mohave	Lake Mohave Highlands	Desert Foothills	Arizona Gateway	Rio Vista
PWS #	08-032	08-037	08-062	08-137	08-163	08-333
Water Loss (%)	11.08	4.92	18.76	14.63	4.71	0.00
Does water loss Exceeding the 10% limit?	Yes	No	Yes	Yes	No	No

Lost water for Mohave, Lake Mohave Highlands and Desert Foothills was calculated to be 11.08, 18.76 and 14.63 separately which exceeds acceptable limits.

In Decision No. 71410 (issued on December 8, 2009), the Commission ordered that the Company reduce its water loss to below 10 percent in its Mohave service area by June 30, 2010 or before it files its next rate case whichever comes first. The Company has not reduced its water loss to less than 10 percent, therefore, Staff recommends that any rate increase resulting from this Application not become effective until the annual water loss for each water system in the Havasu service area is below 10 percent.

H. GROWTH

Figure 5 shows customer growth based on the service connection data contained in the Company's annual reports. The number of customers increased from 13,637 at the end of 2002 to 15,956 by the end of 2009 in the Mohave Water District, with an average growth rate of 384 customers per year from 2002 to 2009; however, growth has declined in recent years (since 2007) due to poor economic conditions. The annual growth rate declined to 67 customers from 2007 to 2009. Based on the linear regression analysis, Staff estimates that the Company could have over 16,300 customers by the end of 2014. The following table summarizes Staff and the Company's projected growth.

Table 4 Actual and Projected Growth

Year	Nos. of Customers	
2002	13,637	Reported
2003	13,716	Reported
2004	14,495	Reported
2005	15,427	Reported
2006	16,013	Reported
2007	15,822	Reported
2008	16,015	Reported
2009	15,956	Reported
2010	16,065	Estimated
2011	16,132	Estimated
2012	16,199	Estimated
2013	16,266	Estimated
2014	16,333	Estimated

I. DEPRECIATION RATES

The Company factored in an expected net salvage value for each plant account in developing its proposed depreciation rates. The Company's proposal to factor in net salvage value in establishing depreciation rates for the Company is addressed in the testimony of Staff witness Gerald Becker. Staff's recommended average service lives and the resulting

depreciation rates are listed by National Association of Regulatory Commissioners' ("NARUC") plant account in Figure 6.

The Company did not propose a service life for backflow prevention devices, Staff recommends a 15 year service live for backflow prevention devices (NARUC Account no. 336).

J. OTHER ISSUES

1. Service Line and Meter Installation Charges

The Company did not propose any changes to its currently authorized meter and service line installation charges; Staff has no objection to the continued use of the currently authorized charges and recommends approval of the separate meter and service line installation charges shown under the column headings "Staff Recommended" in Table 5.

Table 5 Service Line and Meter Installation Charges (Mohave Water District)

Meter Size	Current Meter Installation Charges	Current Service Line Installation Charges	Proposed Meter Installation Charges	Proposed Service Line Installation Charges	Staff Recommendation (Service Line)	Staff Recommendation (meter installation)	Staff Recommendation total charges
5/8 x 3/4-inch	\$155	\$445	\$155	\$445	\$445	\$155	\$600
3/4-inch	\$255	\$445	\$255	\$445	\$445	\$255	\$700
1-inch	\$315	\$495	\$315	\$495	\$495	\$315	\$810
1½-inch	\$525	\$550	\$525	\$550	\$550	\$525	\$1,075
2-inch (Turbine)	\$1,045	\$830	\$1,045	\$830	\$830	\$1,045	\$1,875
2-inch (Compound)	\$1,890	\$830	\$1,890	\$830	\$830	\$1,890	\$2,720
3-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
3-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
4-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
4-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
6-inch (Turbine)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
6-inch (Compound)	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost
Over 6-inch	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost	Actual Cost

2. Curtailment Tariff

The Company has an approved Curtailment Tariff.

3. *Cross Connection & Backflow Tariff*

The Company has an approved Cross Connection & Backflow Tariff.

4. *Recent Plant Additions Concluded to be Used and Useful*

The following plant items which were put into service since the Company's last rate proceeding were found to be in-service when the plant facilities were visited by Staff in March of this year.

- A 250,000 gallon storage tank located at Big Bend Acres Well Site #2 (in-service in the Mohave water system since November 2008).
- A 150,000 gallon storage tank located at Lake Mohave Well Site (in-service in the Lake Mohave Highlands water system since March 2011; ADEQ issued an Approval of Construction for this tank installation on April 4, 2011).

FIGURES

FIGURE 1
LOCATION OF MOHAVE WATER DISTRICT

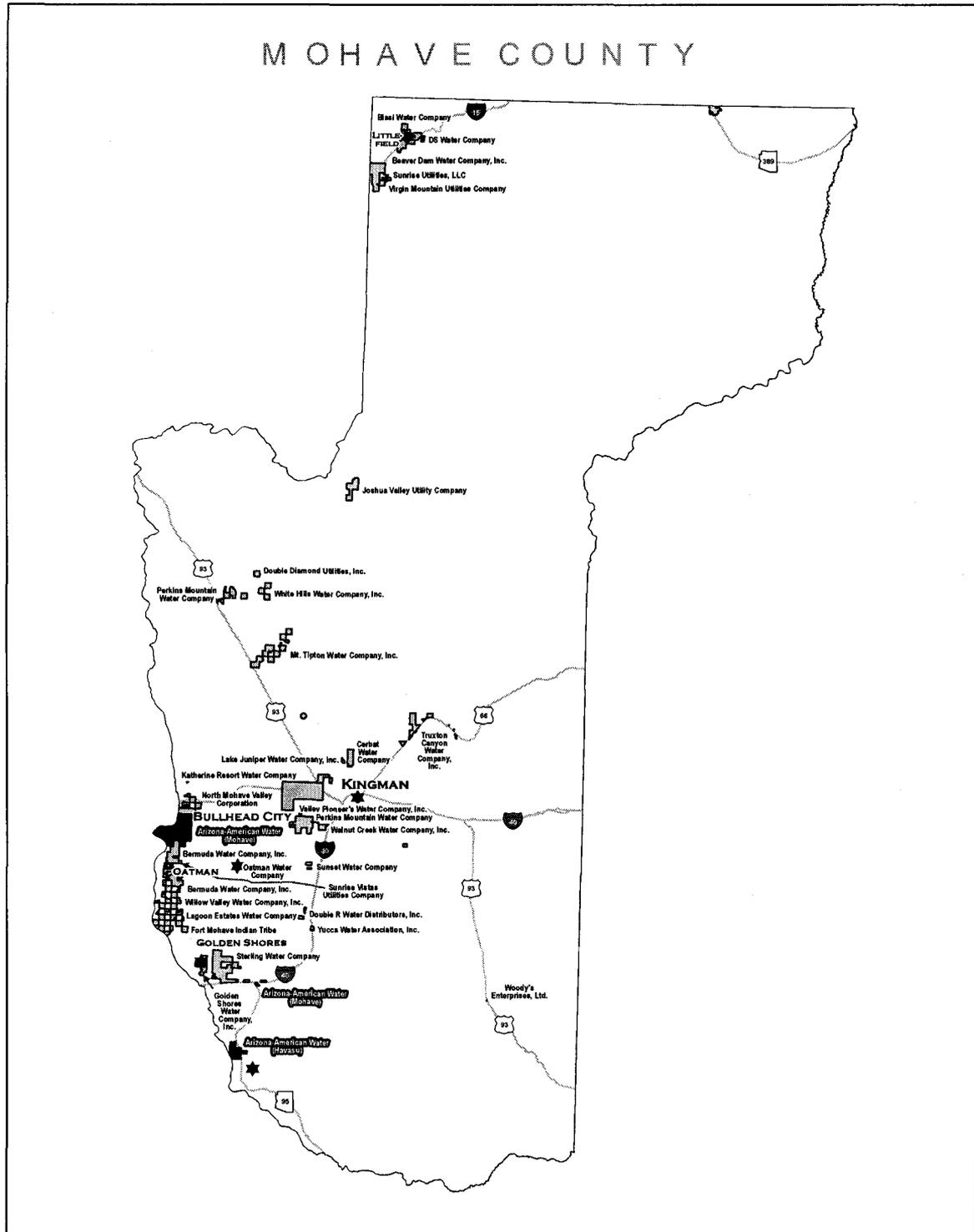


FIGURE 2

MOHAVE WATER DISTRICT CERTIFICATED AREA

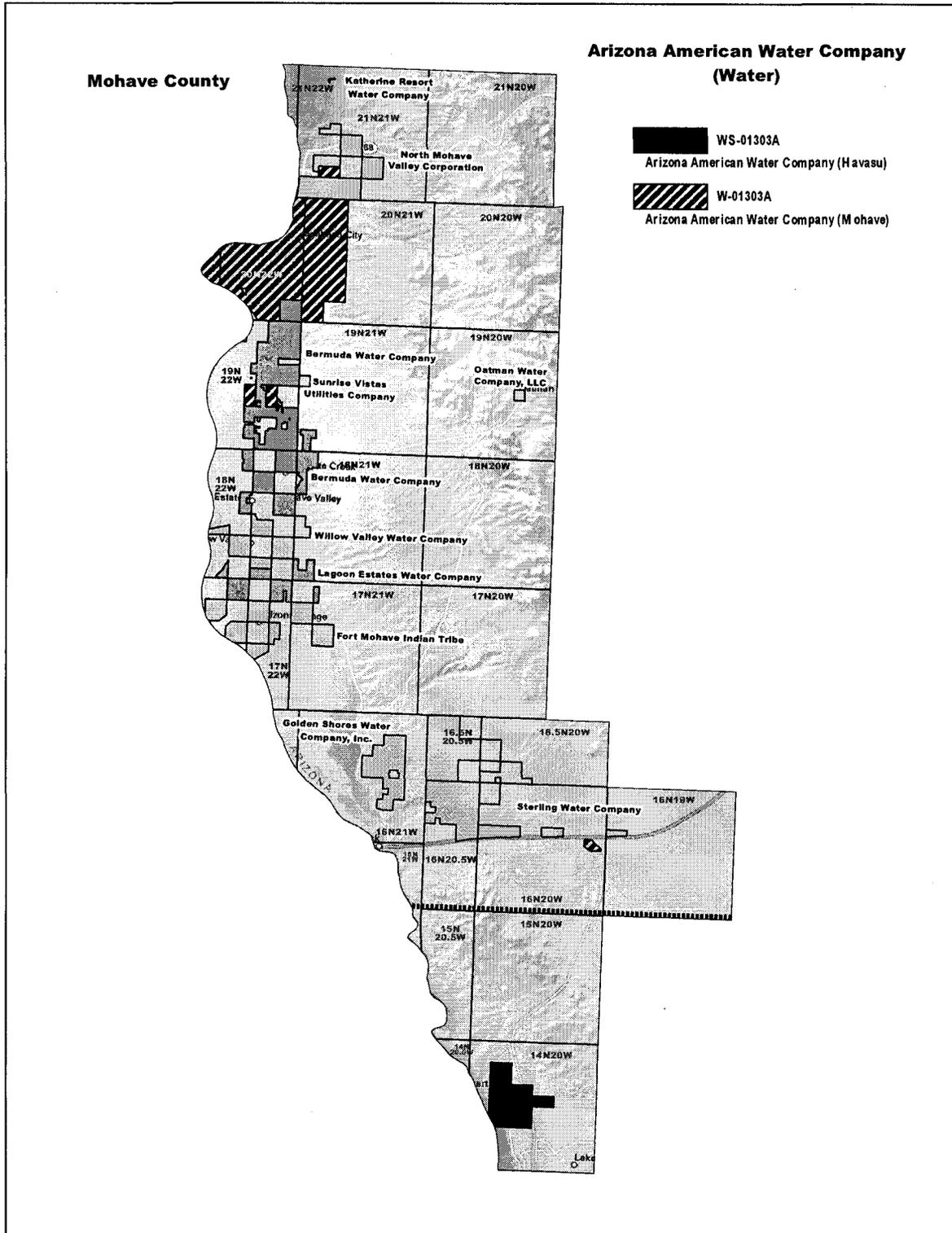


FIGURE 3A

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM
 FOR EXISTING SYSTEMS (MOHAVE SYSTEM)

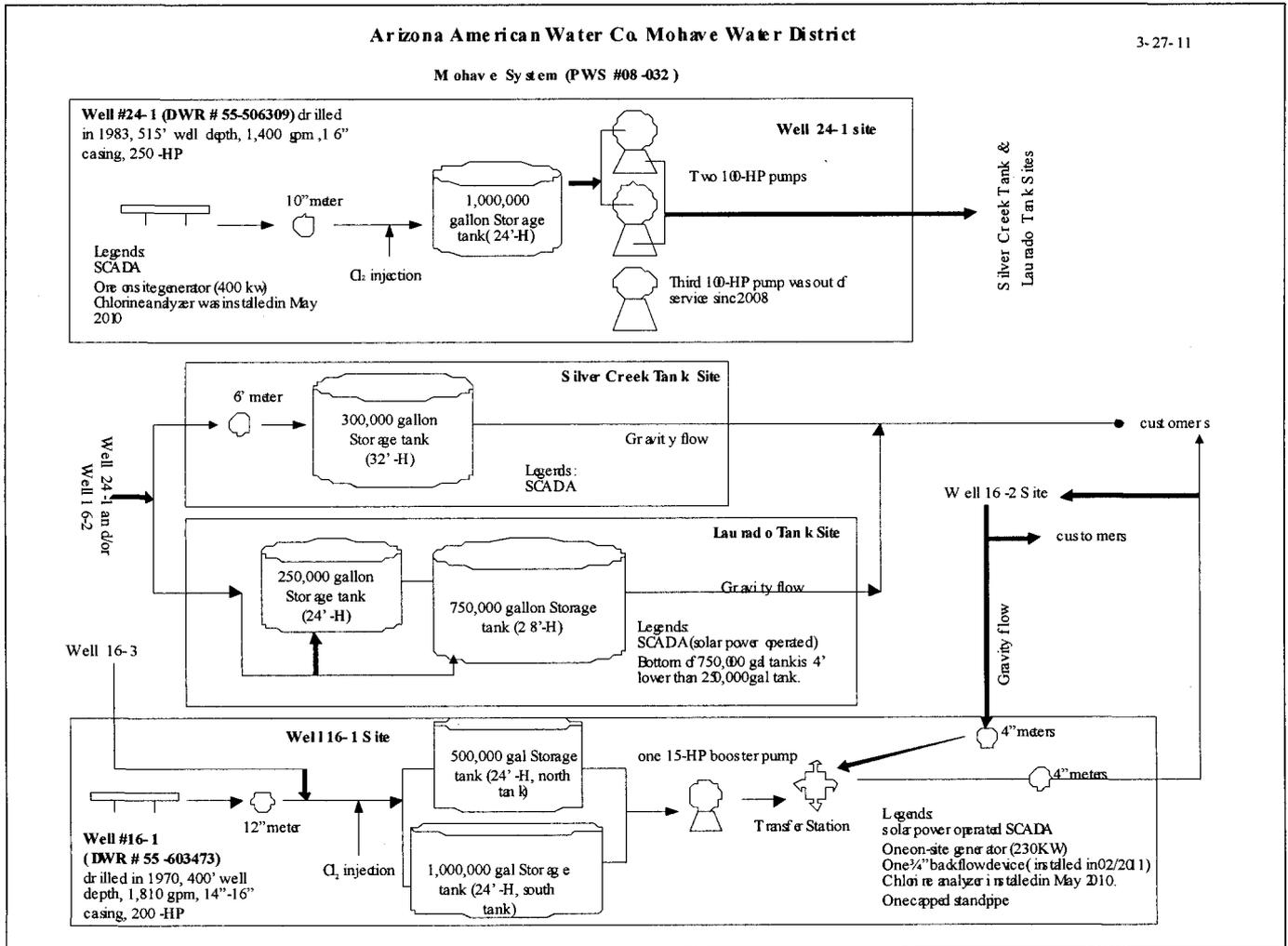


FIGURE 3B

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM (MOHAVE SYSTEM)

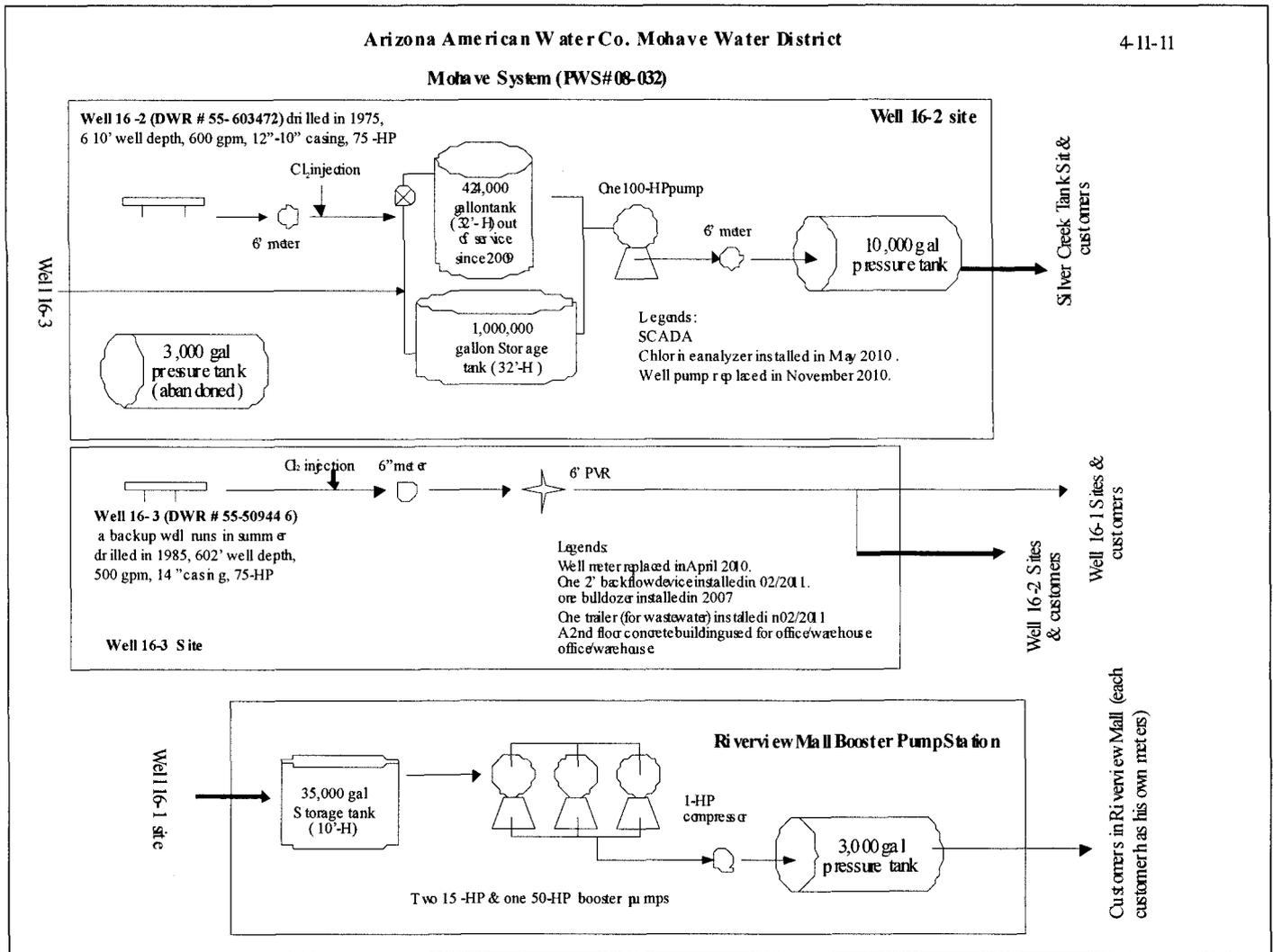


FIGURE 3C

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM (MOHAVE SYSTEM)

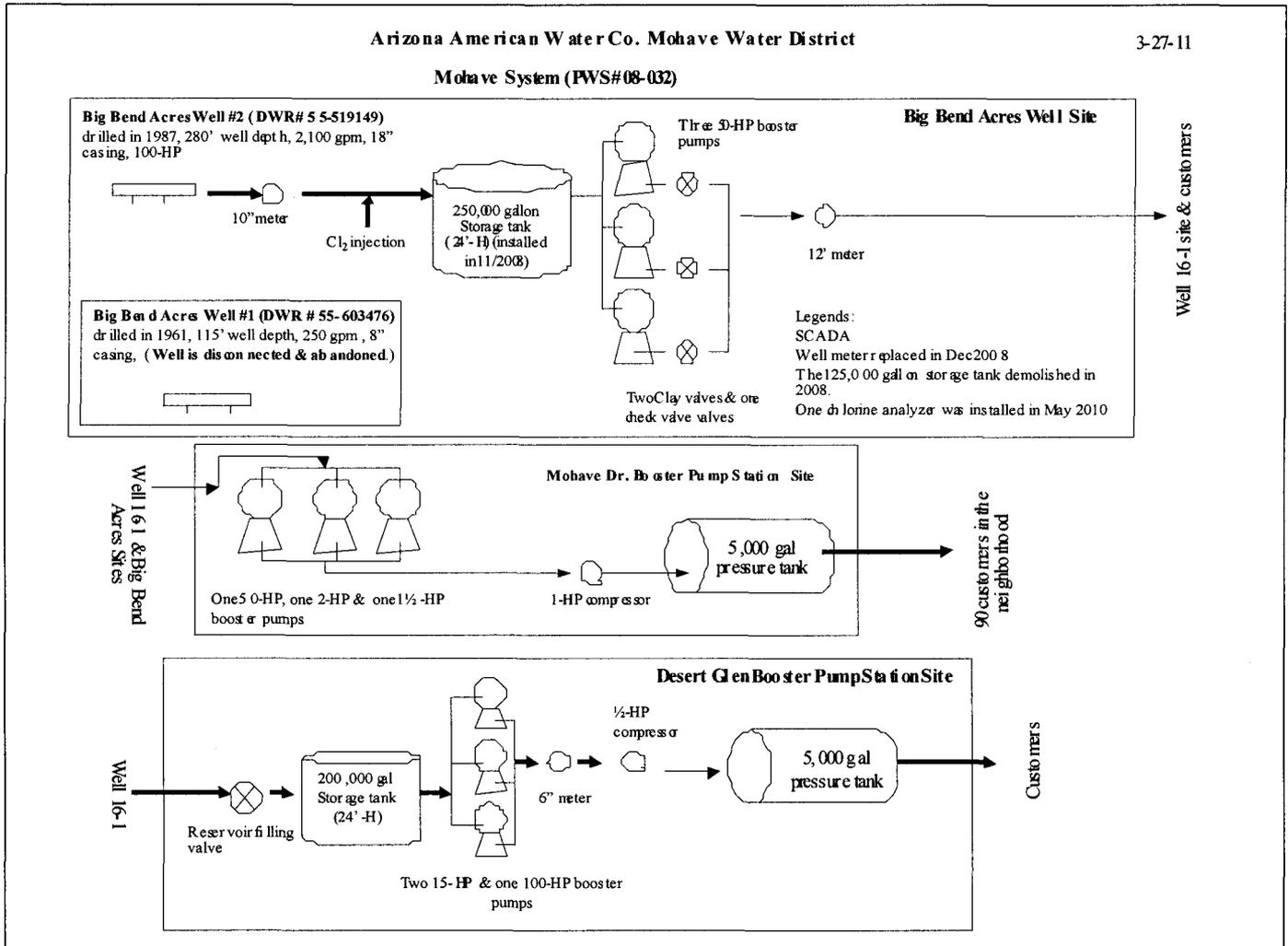


FIGURE 3D

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM (MOHAVE SYSTEM)

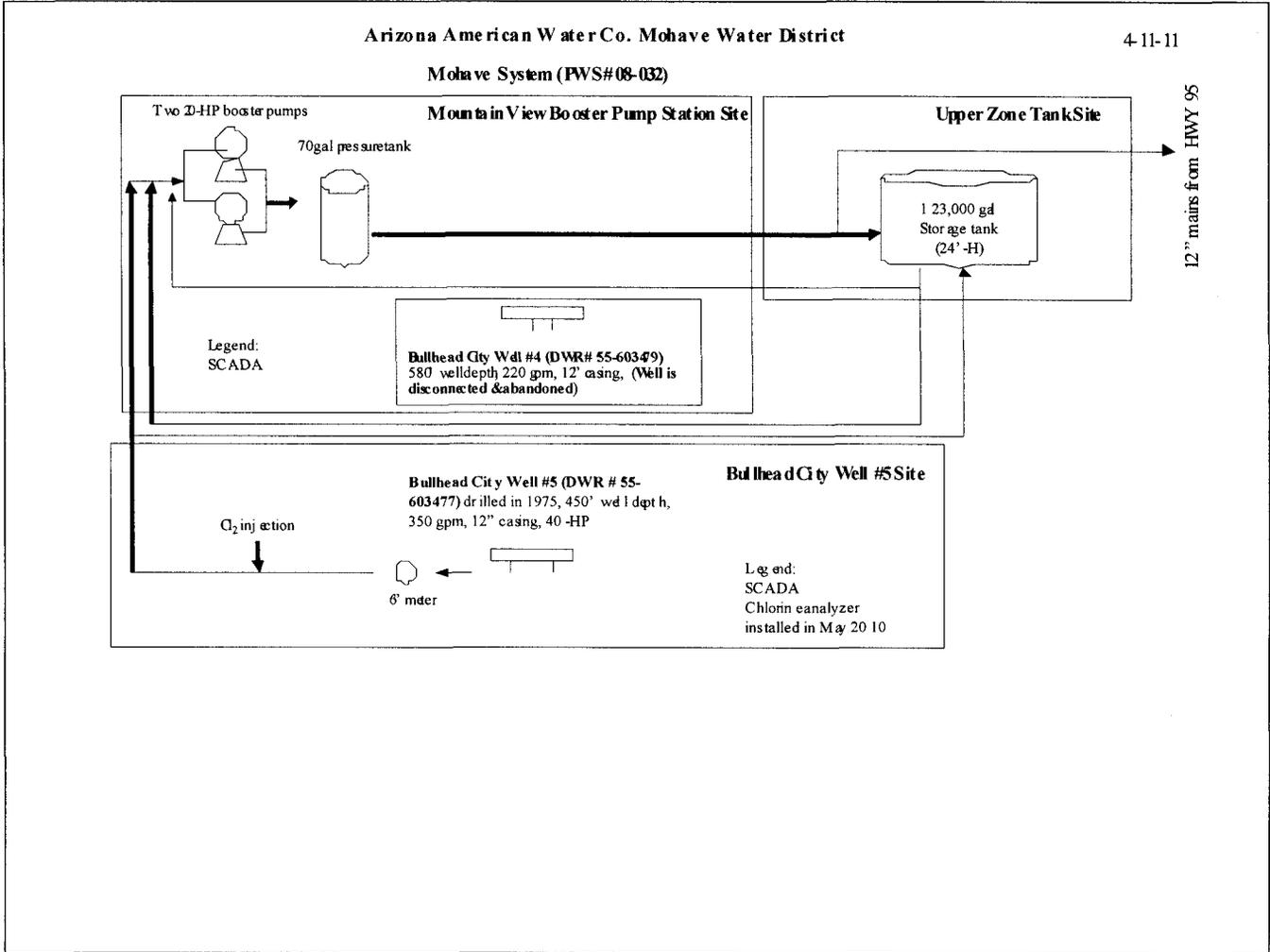


FIGURE 3E

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM (MOHAVE SYSTEM & RIO VISTA SYSTEM)

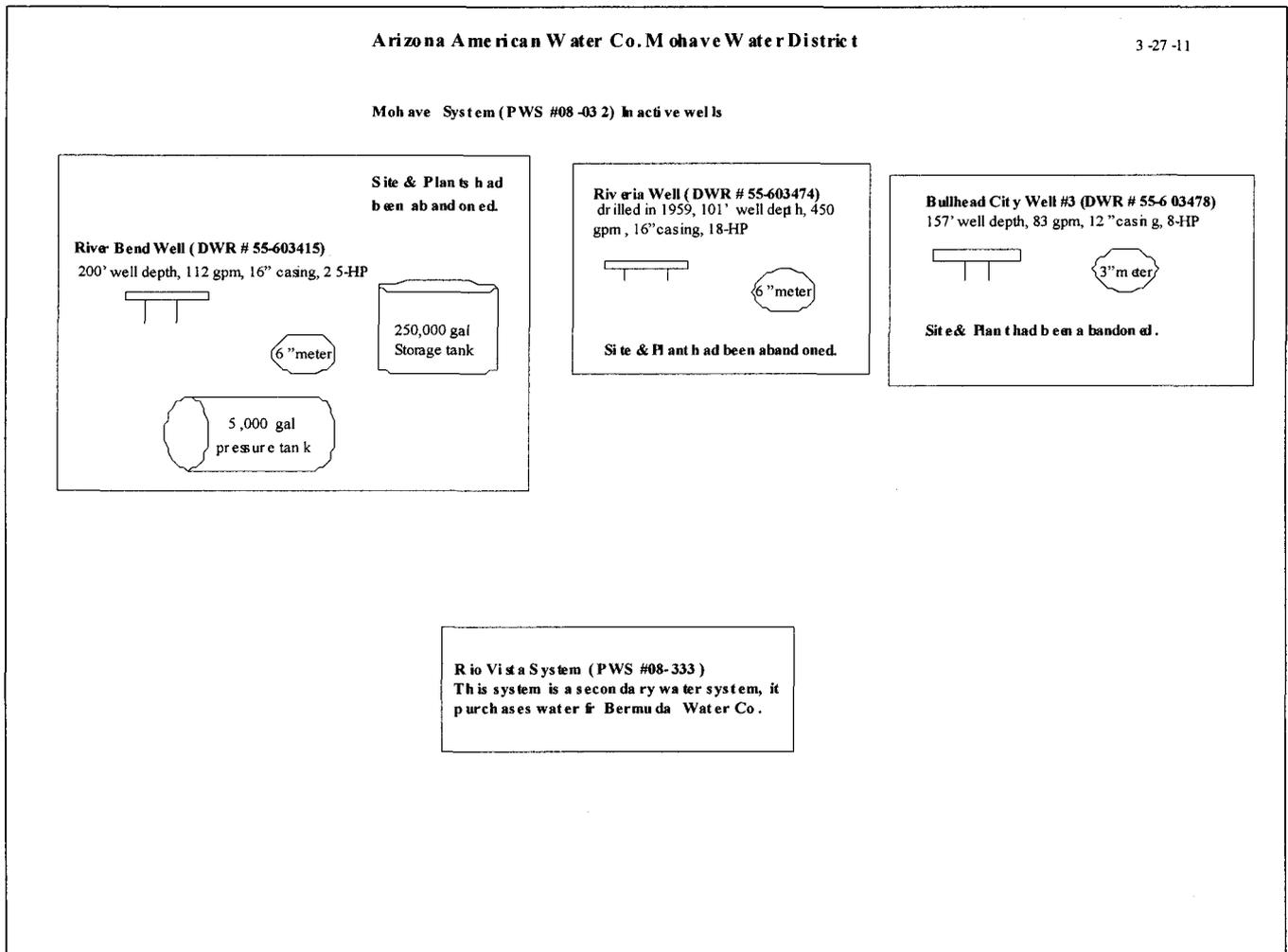


FIGURE 3F

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM (CAMP MOHAVE SYSTEM & ARIZONA GATEWAY SYSTEM)

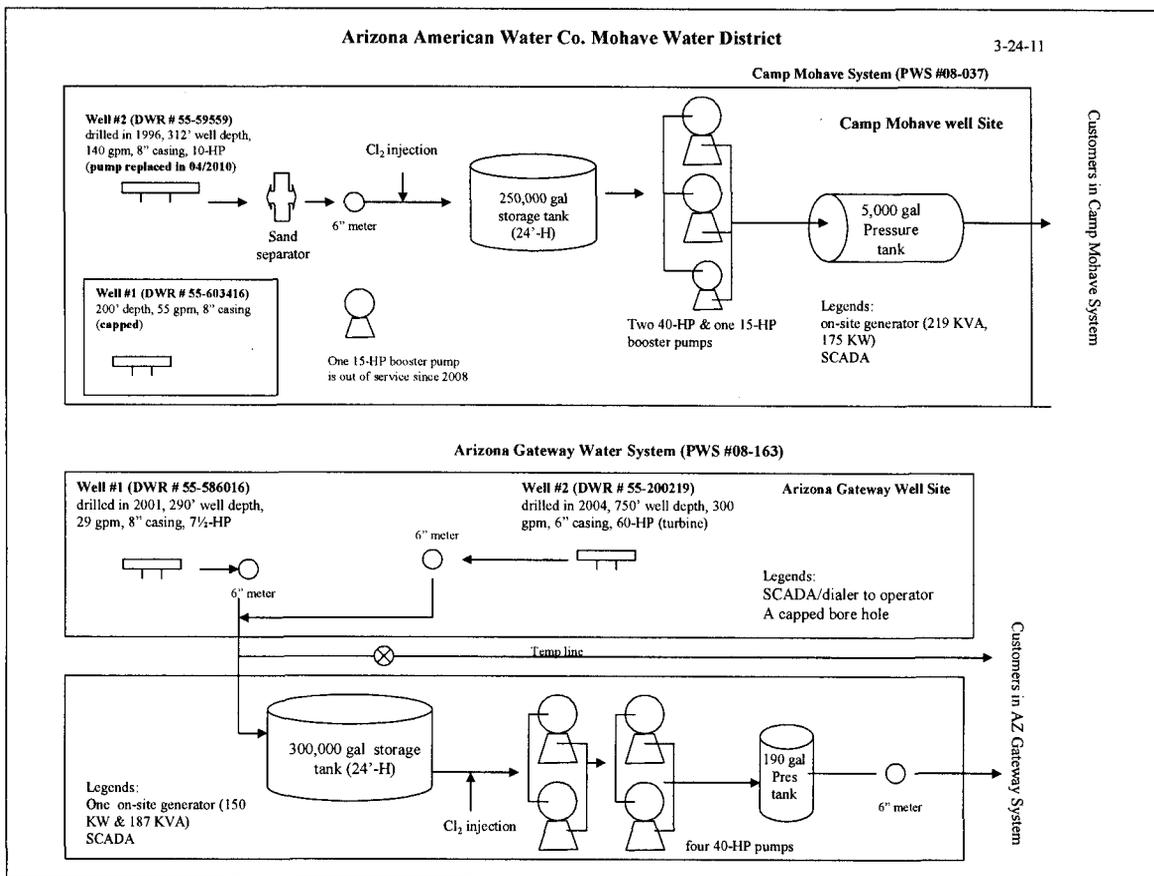


FIGURE 3G

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM (LAKE MOHAVE HIGHLANDS SYSTEM)

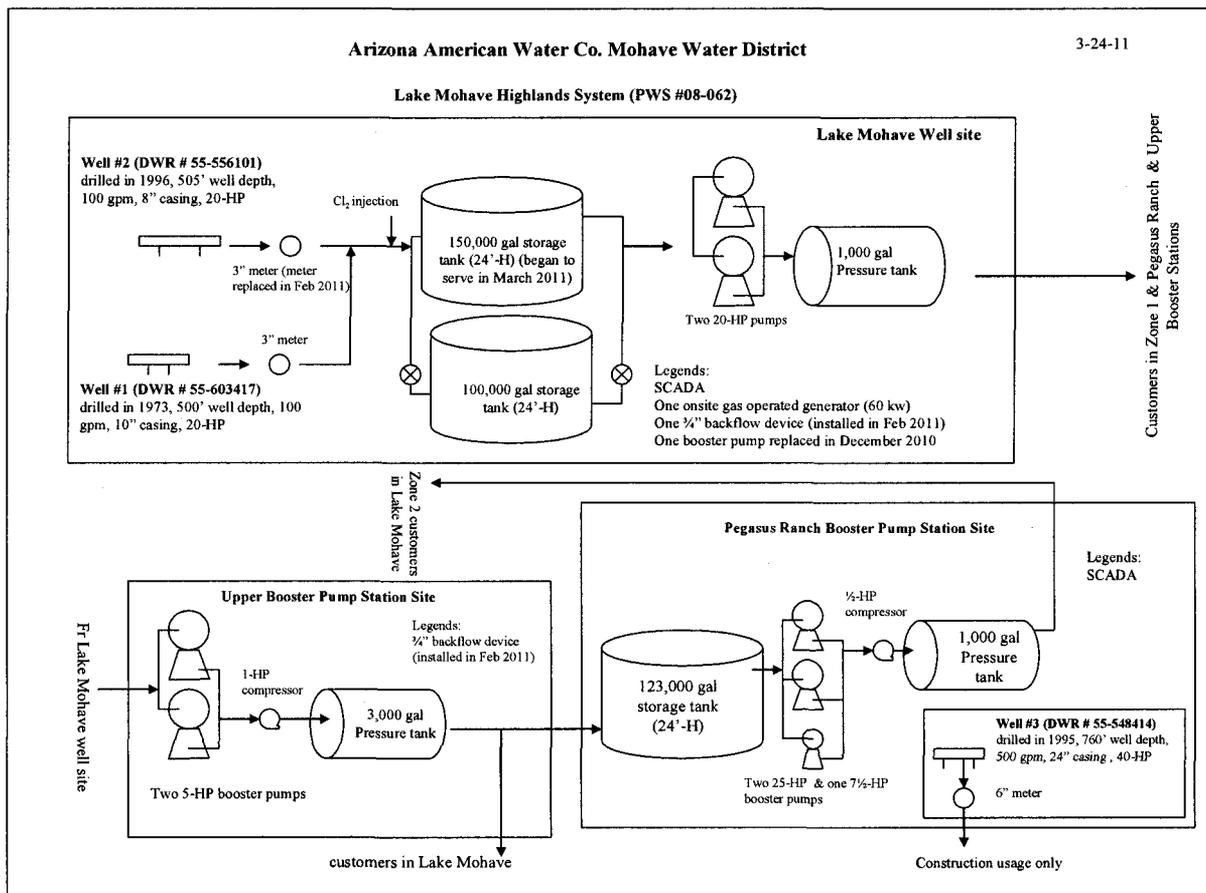


FIGURE 3H

MOHAVE WATER DISTRICT SCHEMATIC DIAGRAM (DESERT FOOTHILLS SYSTEM)

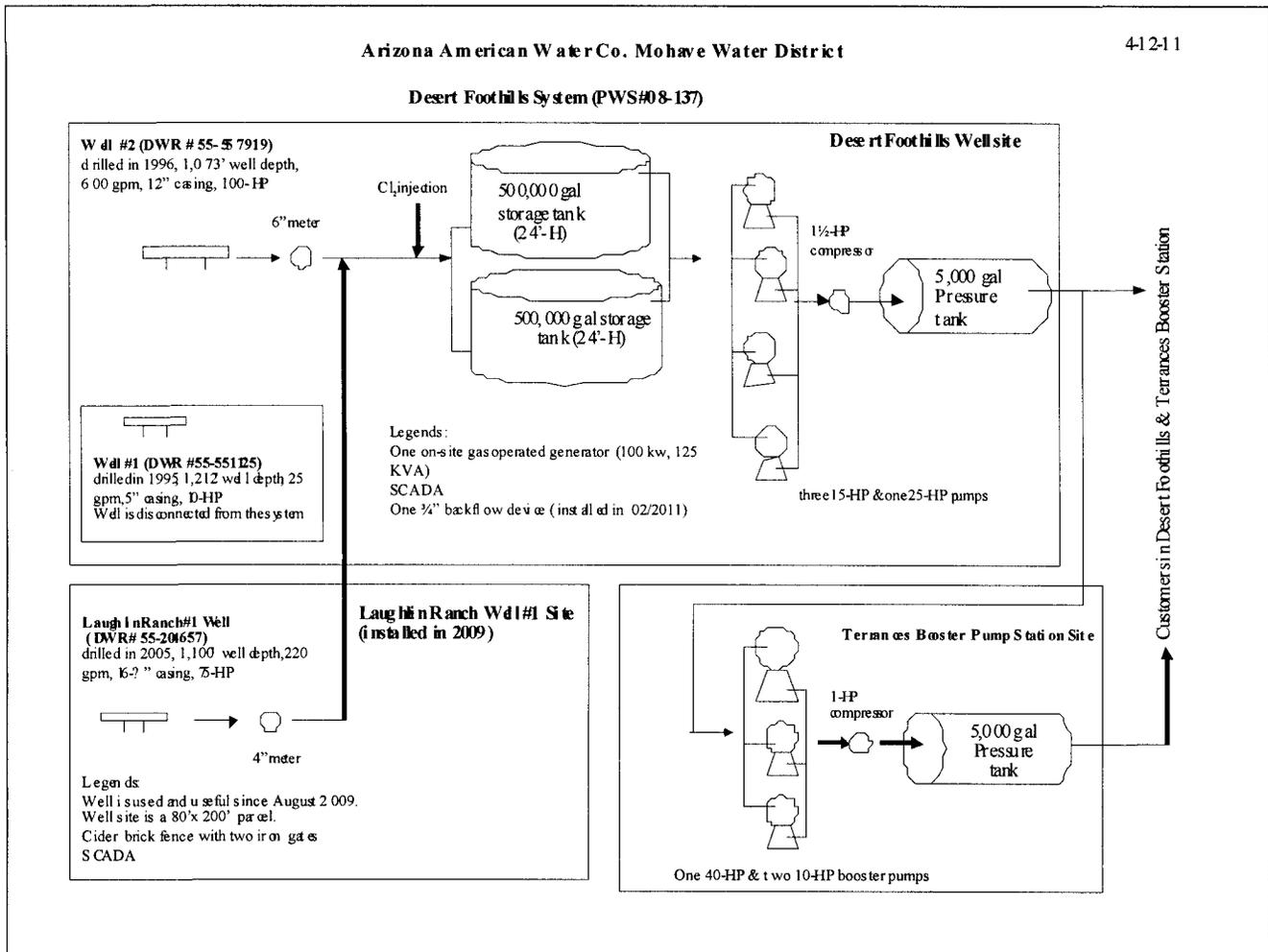


FIGURE 4A

MOHAVE WATER DISTRICT WATER USAGE (MOHAVE SYSTEM)

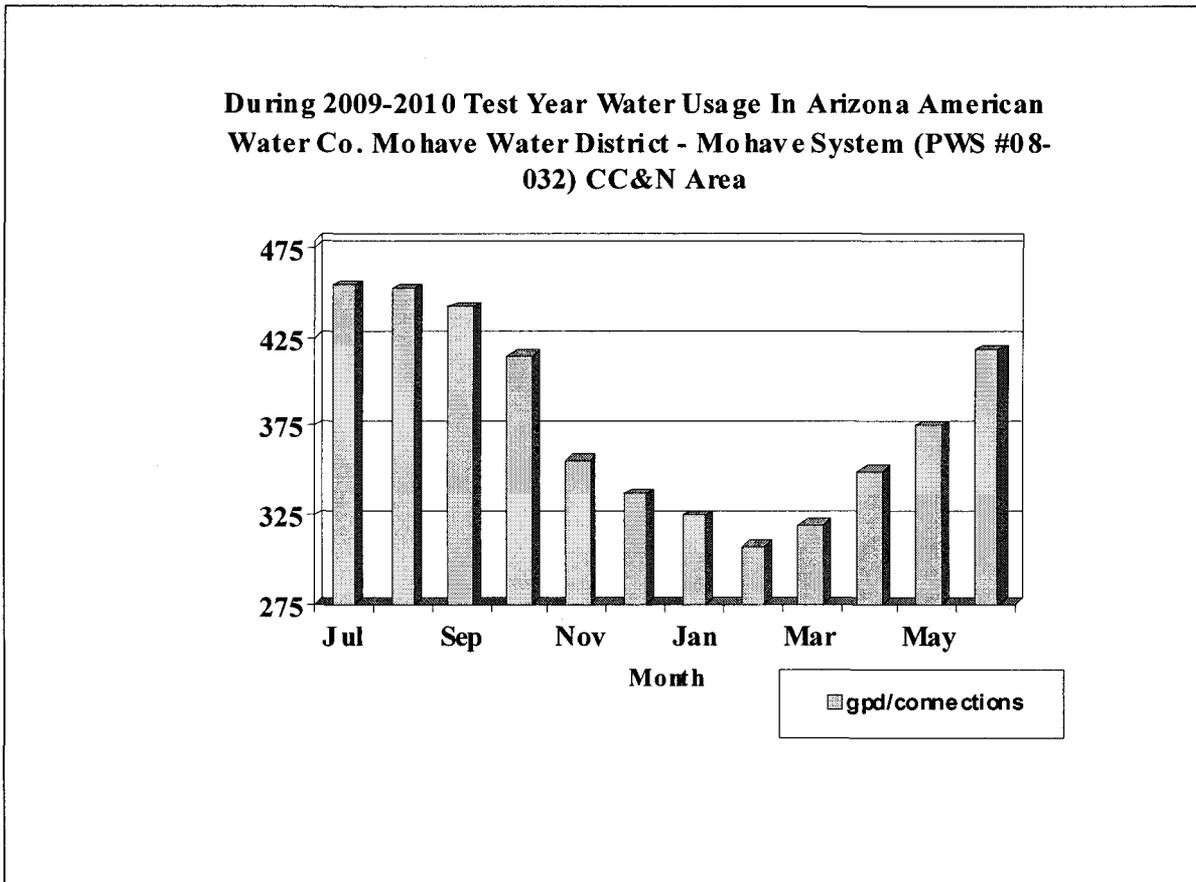


FIGURE 4B

MOHAVE WATER DISTRICT WATER USAGE (CAMP MOHAVE SYSTEM)

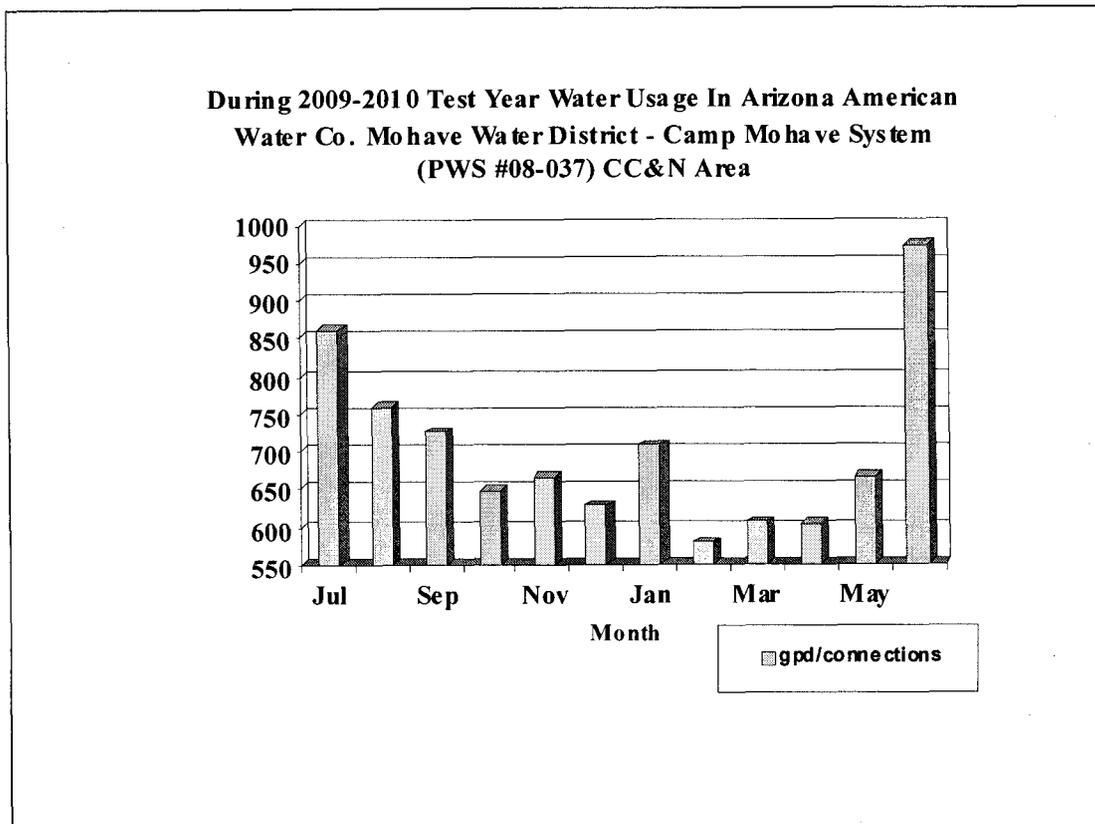


FIGURE 4C

MOHAVE WATER DISTRICT WATER USAGE (LAKE MOHAVE HIGHLANDS SYSTEM)

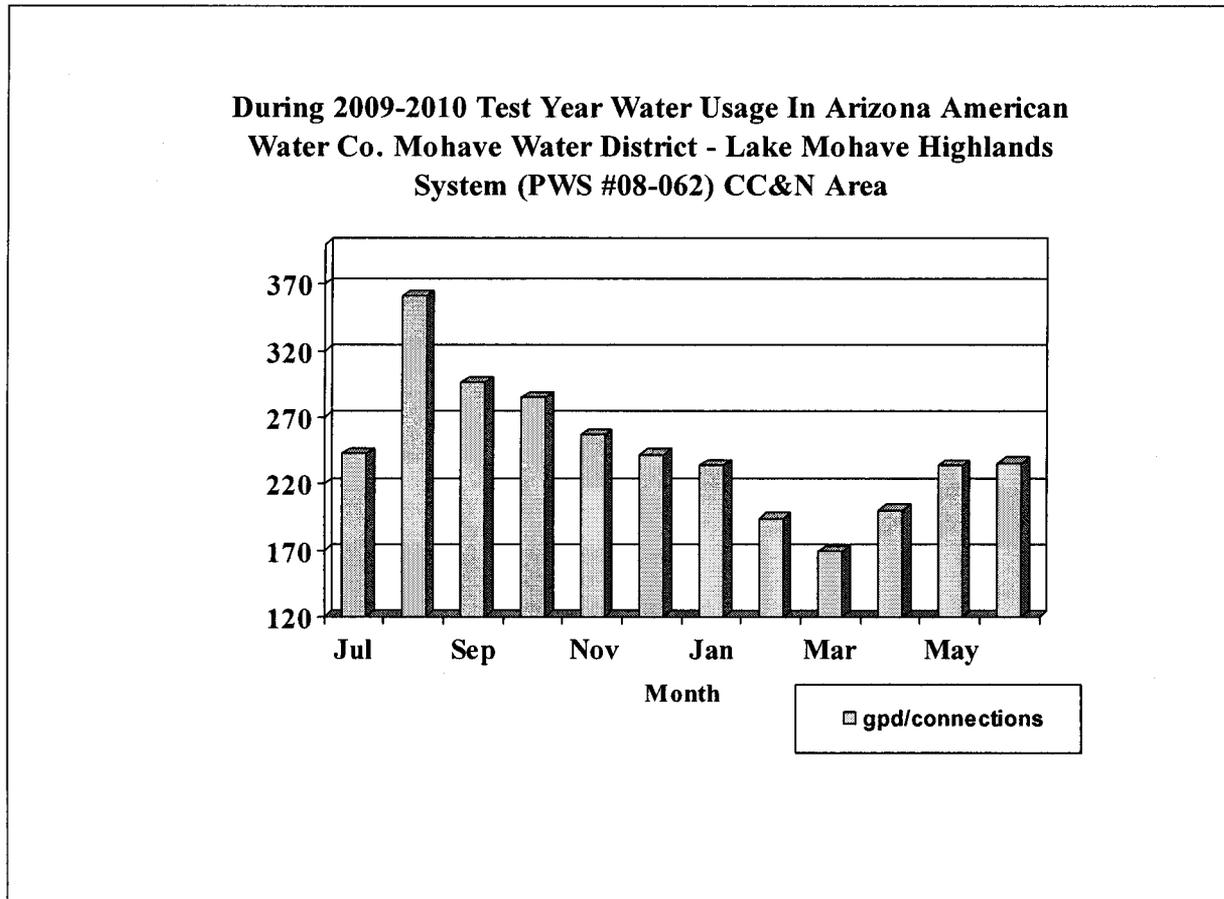


FIGURE 4D

MOHAVE WATER DISTRICT WATER USAGE (DESERT FOOTHILLS SYSTEM)

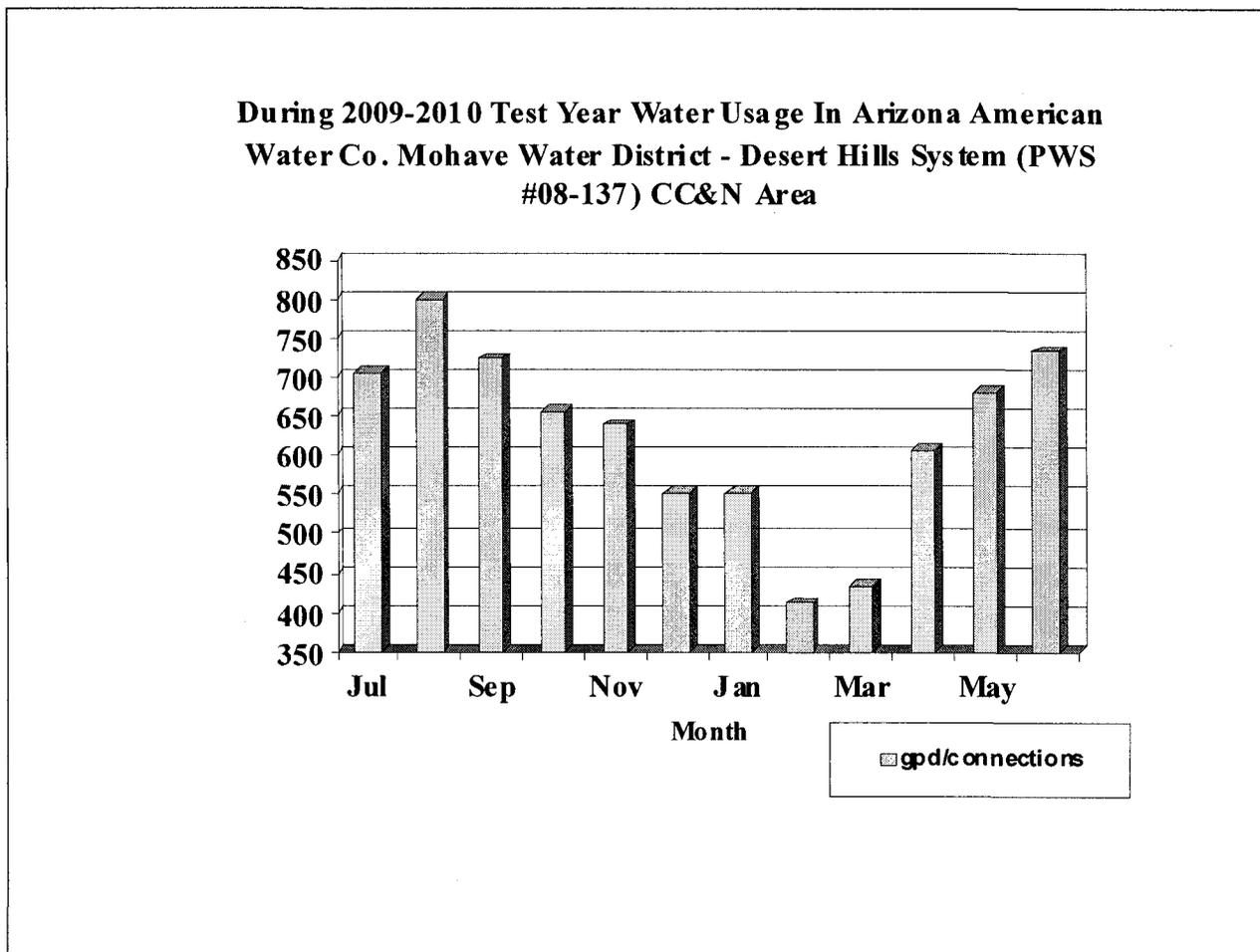


FIGURE 4E

MOHAVE WATER DISTRICT WATER USAGE (ARIZONA GATEWAY SYSTEM)

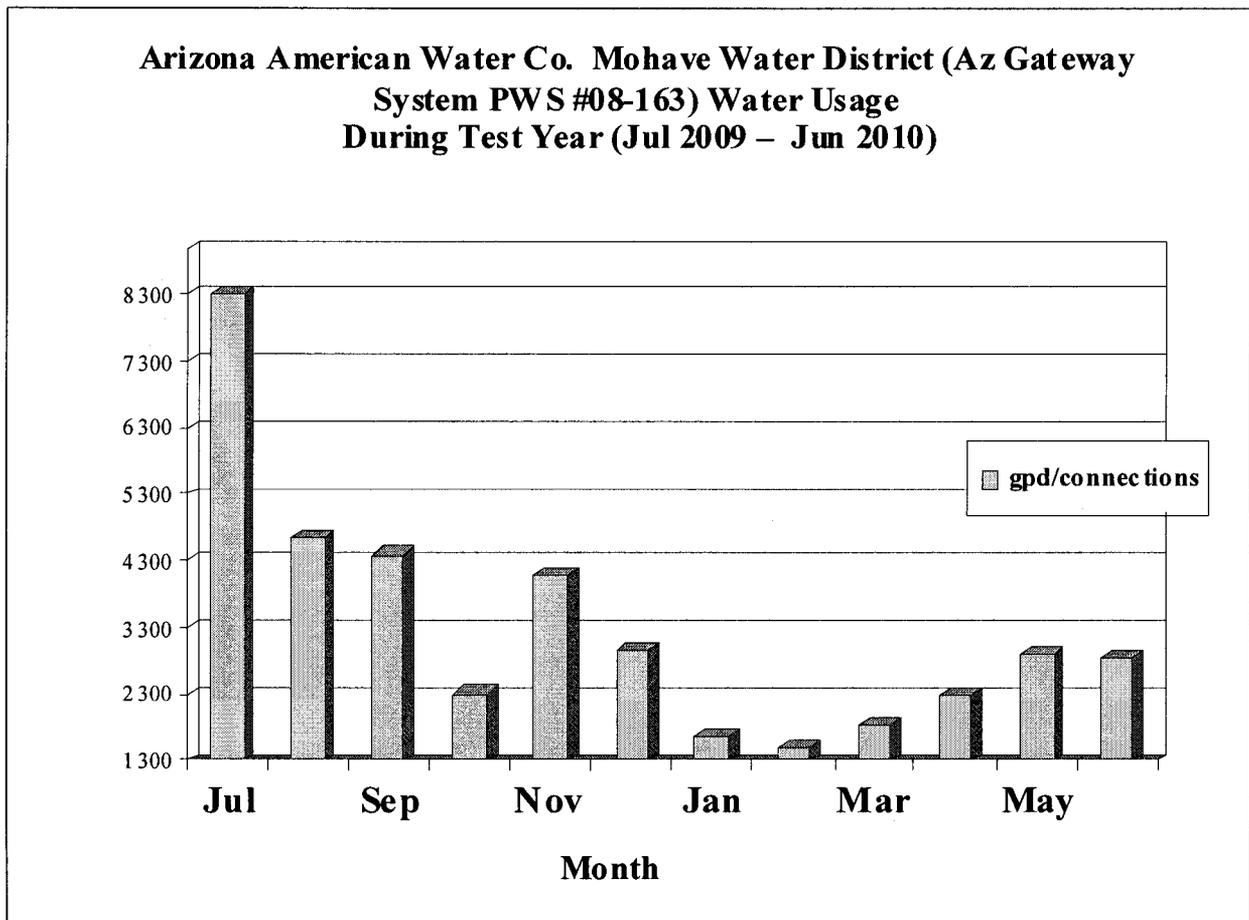


FIGURE 4F

MOHAVE WATER DISTRICT WATER USAGE (RIO VISTA SYSTEM)

During 2009-2010 Test Year Water Usage In Arizona American Water Co. Mohave Water District -Rio Vista System (PWS #08-333) CC&N Area

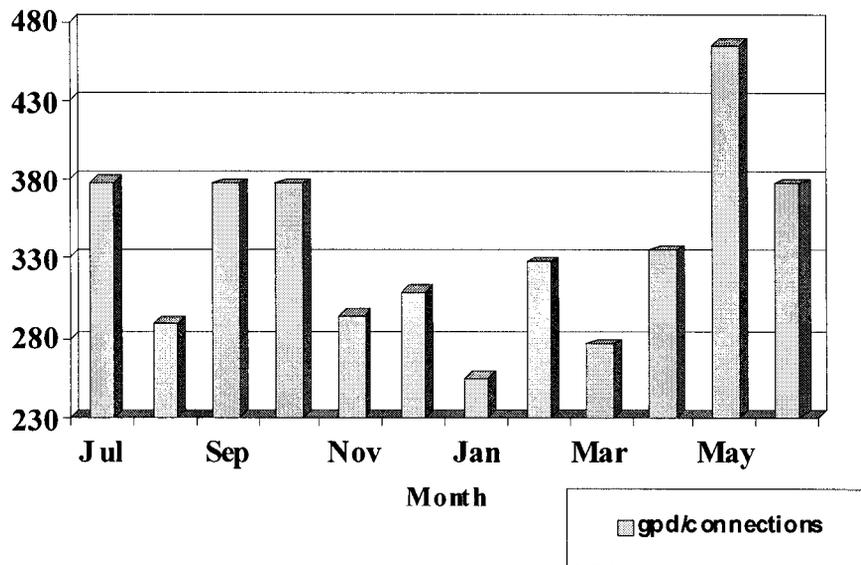


FIGURE 5

GROWTH IN MOHAVE WATER DISTRICT

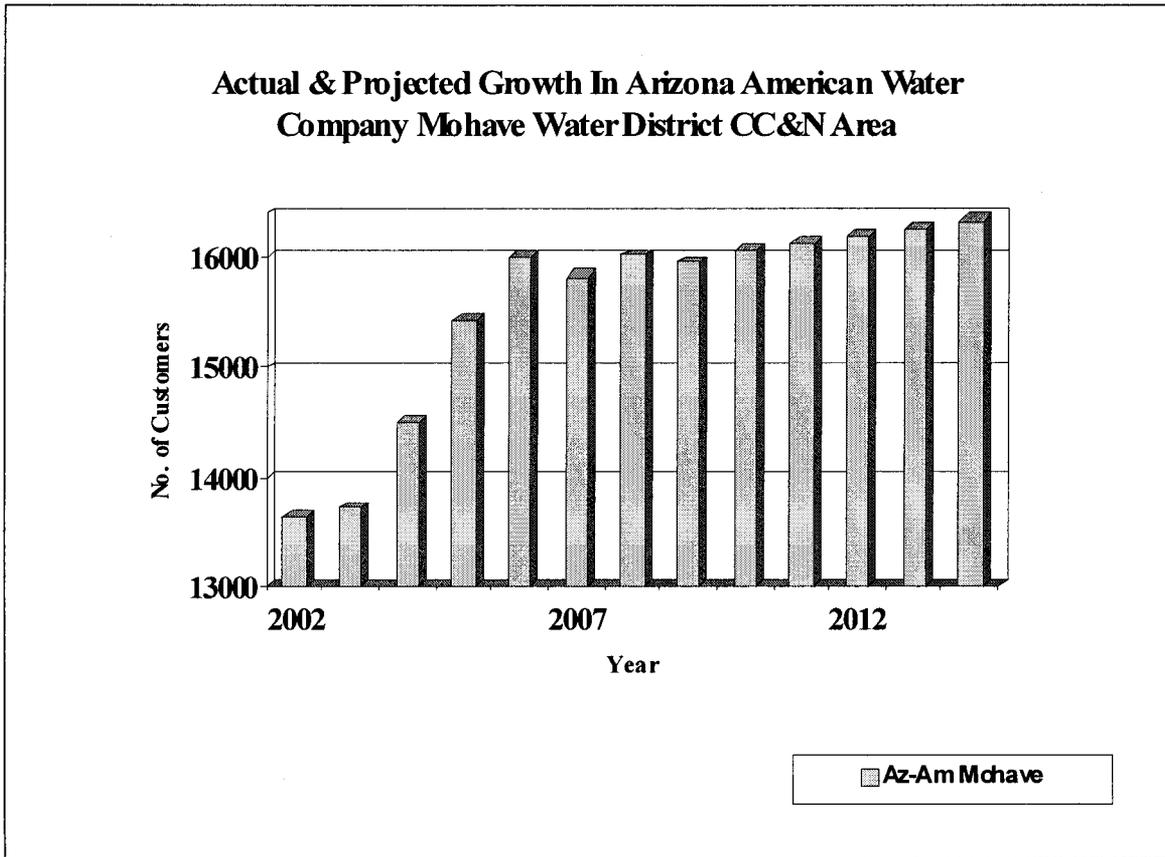


FIGURE 6

AVERAGE SERVICES LIVES FOR MOHAVE WATER DISTRICT - water

NARUC Acct #	Company's Account #.	Depreciable Plant	Proposed service lives (in years)	Staff Recommended service lives (in years)
301	301000	Organization	0	0
302	302000	Franchises	0	0
303		Land & Land Rights		
	303200	Land & Land Rights SS	0	0
	303300	Land & Land Rights P	0	0
	303500	Land & Land Right TD	0	0
	303600	Land & Land Right AG	0	0
304		Structures & Improvements		
	304100	Structure & Improvement – Source of Supply	40	40
	304200	Structure & Improvement - Pumping	50	50
	304300	Structures and Improvements – Water Treatment Equipment	50	50
	304400	Structure & Improvement – Transmission and Distribution	50	50
	304500	Structure & Improvement – General Plant	40	40
	304600	Structure & Improvement – offices (General Plant)	40	40
	304620	Structure & Improvement – Leasehold (General Plant)	40	40
	304700	Structure & Improvement – store, shop & garage (general plant)	40	40
	304800	Structure & Improvement Misc (general plant)	40	40
305	305000	Collection & Impounding reservoirs (source & pumping)	60	60
	306000	Lake & River Intakes (source & pumping)	60	60
307	307000	Wells & Springs (source & pumping)	40	40
	308000	Infiltration Galleries (source & pumping)	40	40
309	309000	Supply Mains (source & pumping)	60	60
310	310100	Power Generation Equip Other (source & pumping)	30	30
311		Pumping Equipment		
	311200	Pump Equipment - Electric (source & pumping)	25	25
	311300	Pump Equipment – Diesel (source & pumping)	25	25
	311400	Pump Equipment – Hydraulic (source & pumping)	25	25
	311540	Pumping Equipment – TD (transmission & distribution)	25	25
	311600	Other Pump Equipment (source & pumping)	25	25
320		Water Treatment Equipment		
	320000	Purification Equipment (water treatment equipment) ¹	20	20
320.1	320100	Water Treatment Plant - Non-Media (water treatment equipment) ¹	20	20
	320200	Water Treatment Equipment - Filter Media (water treatment equipment) ²	10	10
330		Distribution Reservoirs & Standpipes		
	330000	Distribution Reservoirs & Standpipes (transmission & distribution plant)	65	65
	330100	Elevated Tanks & Standpipes (water treatment equipment)	65	65
	330200	Ground Level Tanks (water treatment equipment)	65	65
	330300	Below Ground Tanks (water treatment equipment)	65	65
	330400	Clearwell (water treatment equipment)	50	50
331		Transmission and Distribution		
	331000	Transmission & Distribution Mains (water treatment equipment)	70	70
	331001	TD mains 4-inch & less (water treatment equipment)	50	50
	331100	TD mains 6-inch to 8-inch (water treatment equipment)	70	70
	331200	TD mains 10-inch to 16-inch (water treatment equipment)	70	70

	331300	TD Mains larger than 16" (water treatment equipment)	70	70
	332000	Fire mains (water treatment equipment)	70	70
333	333100	Services (water treatment equipment)	40	40
334		Meters		
	334100	Meter installations (transmission & distribution plant)	15	15
	334200	Meter installations (transmission & distribution plant)	40	40
	334300	Meter Vaults (transmission & distribution plant)	40	40
335	335000	Hydrants (water treatment equipment)	50	50
336	N/A	Backflow Prevention Devices	N/A	15
339		Other Plant & Misc Equipment		
	339000	Other Plant & Misc Equipment (transmission & distribution plant)	30	30
340		Office Furniture & Equipments		
	340000	Office Furniture & Equipments (general plant) ³	20	20
	340200	Computer & periph equipment (general plant)	10	10
	340300	Computer Software (general plant)	5	5
	340310	Computer Software (general plant)	5	5
	340325	Computer Software (general plant)	5	5
	340330	Computer Software (general plant)	5	5
	340400	Date Handling Equipment (general plant)	5	5
	340500	Other Office Equipment (general plant) ⁵	15	15
341		Transportation Equipment		
	341000	Transportation Equipment (general plant)	5	5
	341100	Transportation Equip, Lt Duty Trucks (general plant)	5	5
	341200	Transportation Equip, heavy Duty Trucks (general plant)	7	7
	341300	Transportation Equip, Autos (general plant)	6	6
	341400	Transportation Equip other (general plant)	6	6
342	342000	Store Equipments (general plant)	25	25
343	343000	Tools Shop & Garage Equipments (general Plant)	25	25
344	344000	Lab equipments (general plant)	25	25
345	345000	Power operated equipments (general plant)	20	20
346		Communication Equipments		
	314600	Communication Equip (general plant)	10	10
	346100	Communication Equip non-telephone (general plant)	10	10
	346200	Remote Control & Instrument (general plant)	10	10
	346200	Communication Equip – telephone (general plant)	10	10
	346300	Communication Equip Other (general plant)	10	10
	348000	Other Miscellaneous Equipment (general plant)	16	16

- Notes: 1. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are aerators, chemical treatment equipment, filter, mixing chambers, clear water basins, water softer, etc. Those plant items are more mechanical devices than steel structural plants.
2. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are sand, gravel, anthracite, membranes. The Company replaces those materials in 7 to 12 years.
3. Via April 29, 2011 e-mail, the Company indicated that plant items are furniture oriented equipments included in this account are desks, tables, chairs, file cabinets, safes, book shelves.
4. Via April 29, 2011 e-mail, the Company indicated that plant items included in this account are smaller office equipments such as fax machines, copiers, binding machines, shredders.