

**ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION**

3550 North Central Avenue, Phoenix, Arizona 85012
Telephone 602 771-8585
Fax 602 771-8688



Janet Napolitano
Governor

Herbert R. Guenther
Director

November 8, 2007

Avra Water Co-op
Attn: Chris Ward
11821 W. Picture Rocks Rd.
Tucson, AZ 85743

RE: Non-Exempt Well Permit No. S-215994
Well Registration No. 55-207058; File No. D (13-11) 07 BDB

Dear Permittee:

Your permit for the conversion and operation of the above-referenced well is enclosed. The authority to increase the permitted annual volume of this well is granted on the condition that all applicable provisions of the Groundwater Code are met.

Pursuant to the provisions of A.R.S. § 45-604, any person withdrawing groundwater from a well is required to use a water measuring device to record rates of withdrawal in order to provide or allow the computation of an annual volume of pumpage from the well. The total volume of pumpage from the well shall be reported on your Annual Water Withdrawal and Use Report for each calendar year.

The Department has issued the authorization to convert and operate this well pursuant to A.R.S. §§ 45-598 and 45-599 of the Groundwater Code. The legal nature of the water withdrawn from the well may be the subject of court action in the future as part of a determination of surface water rights in your area. If there are court proceedings that could affect your well, you will be notified and be given the opportunity to participate.

Under A.R.S. § 45-593, the person to whom a well is registered must notify the Department of a change in ownership, physical characteristics or any other data about the well in order to keep the well registration records current and accurate. For future changes, a *Request to Change Well Information* form is enclosed.

Your permit has been issued by this Department without a hearing. As such, it is an appealable agency action. You are entitled to appeal and your rights are described in the enclosed notice of right to appeal.

If you have any questions about your permit, please call Linda Ingraham of the Tucson AMA office at 520-770-3800.

Sincerely,

Jeff Tannler
Water Resources Supervisor

Enclosures

cc: Linda Ingraham, Tucson AMA
File

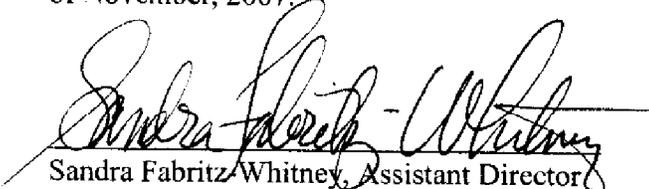
PERMIT NO. S-215994

Depth: 722 feet
Casing Material: Low-Carbon Steel
Casing Diameter: 16 inches
Maximum Pumping Capacity: 1,150 gallons per minute
Maximum Annual Volume: 1,855 acre-feet
Authorized Place of Use for Groundwater Withdrawn: As Authorized by Water Provider Right No. 56-000019.0000
Authorized Use of Groundwater: As Authorized by Water Provider Right No. 56-000019.0000

Permit Conditions

1. This permit is issued pursuant to A.R.S. § 45-599 and authorizes the permittee to operate a non-exempt well for the purpose of withdrawing groundwater for the use or uses set forth in the permit. This permit does not authorize the permittee to withdraw surface water from the well. If the permittee withdraws surface water from the well in any year, the permittee shall do so only pursuant to a decreed or appropriative surface water right and shall separately report in the annual report filed pursuant to A.R.S. § 45-632 the amount of groundwater and surface water withdrawn from the well.
2. The proposed well shall be constructed in accordance with the minimum well construction standards, pursuant to A.A.C. R12-15-811.
3. The issuance of the permit does not waive any federal, state, county or local government ordinances, regulations or permits for which the facility may have to comply.

WITNESS my hand and seal of office this 8th day of November, 2007.


Sandra Fabritz-Whitney, Assistant Director

IPR SUMMARY REVIEW SHEET

Prepared by Linda Ingraham, Tucson AMA

November 5, 2007

APPLICANT: Avra Water Co-op
APPLICATION NO: 55-207058, S-215994
APPLICATION TYPE: Service Area Well Application

Background Summary: On August 6, 2007, Avra Water Co-op submitted an application for a Permit to Drill or Operate a Service Area Well for conversion (enlargement) of existing well 55-207058 located in D(13-11) 7 BDB.

The proposed well will be operated pursuant to Avra Water Co-op's Service Area right #56-000019.0000. The well is located within 660 feet of their operating distribution lines.

Hydrology and Hydro/WQARF divisions have both reviewed the application and support issuance.

Issues: The original application requested a maximum annual volume of 2,100 acre-feet per year with a pump capacity of 1,300gpm. Hydrology's review of the original impact study indicated a 5-year 10-foot drawdown radius of 1,240 feet, which would impact two wells (55-579455 and 55-584244). On October 3, 2007, Avra Water Co-op amended the well permit application with a lower proposed annual volume. Based on withdrawals of 1,150gpm and an annual volume of 1,855 acre-feet per year, using Tucson Model for Layer 3 produced an impact radius of 812.5 feet which continued to impact well 55-579455. On October 10, 2007, Golder Associates (consultants) amended the application again using Tucson Model for Layer 2. Most of the water that enters the well will come from this portion of the aquifer. Hydrology's third review indicated a 5-year, 10-foot drawdown radius of 630'. Well 55-579455 is approximately 699' feet from conversion well; no wells are impacted.

Recommendations: The Tucson AMA recommends approval to permit the well as requested for 1,150 gpm and 1,855 acre-feet per year.

IPR Committee Comments:

IPR Committee Recommendations:

- Approve
- Deny
- Other (explanation) _____

Special Conditions to be included in permit:


11-7-07
 IPR Chairperson Date

ARIZONA DEPARTMENT OF WATER RESOURCES
Hydrology Division

M E M O R A N D U M

TO: Linda Ingraham, Tucson AMA

THRU: Drew Swieczkowski, Manager, Water Resources Section *DMS*

FROM: Alene McCracken, Hydrologist, Water Resources Section *Amc*

DATE: October 31, 2007

RE: Avra Water Co-op, Application for a permit to operate a non-exempt service well in the Tucson AMA, No. S-215994; **REVISED WELL IMPACT ANALYSIS** for well number 55-207058, D (13-11) 7 BDB

Hydrology has completed its re-evaluation of the above referenced application for a permit to drill or operate a non-exempt non-service area well. A ten-foot drawdown analysis was performed by Hydrology for the well in D (13-11) 7 BDB. Hydrology analyzed pump test data to determine the transmissivity of the well. The Specific Yield was more problematic to determine. Hydrology's original analysis used the specific yield value for layer 3 from the Tucson model. The consultant used a significantly higher specific yield calculated from an observation well during the pump test. Hydrology analyzed the data but could not duplicate the specific yield values derived by the consultant. In fact the analysis program determined the specific yield to be two magnitudes smaller than even the model value. This seems to indicate some problem with the test data or the program itself. Because Hydrology could not rectify the large differences in specific yield another examination was made of the as-built diagram of the subject well. The screened interval of the well begins at approximately the Layer 2/Layer 3 boundary. Hydrology decided to use the specific yield value from Layer 2 of the Tucson model, the layer where most of the water is being drawn. Hydrology used these parameters to conduct both a standard Theis analysis and THWELLS calculation for the drawdown radius for the revised specific yield. No image wells were used in the THWELLS analysis. The results are presented below:

Well Location & registration number:	Analysis performed by	Transmissivity Value (gpd/ft)	Specific Yield	Pumping Volume AFA	Ten-Foot Drawdown Radius After Five Years
D (13-11) 7 BDB 55-207058	Applicant	99,138	0.096	1,855 (1,150 gpm)	~530 feet
	ADWR	99,138	0.08	1,855 (1,150 gpm)	~630 feet
			0.05		~812.5 feet

According to the parameters of the application, the calculated drawdown at the well is 31.2 feet for the five-year time period. For the purpose of AMA review, please use Hydrology's calculated radius.

The location of the proposed well was also reviewed for water quality and subsidence. No additional monitoring is required.

Attachments

Well Reg. No. **55-207058**
Applicant: **Avra Water Co-op**

Well Location: **D (13-11) 7 BDB**

Depth of well: **722** feet
Diameter: **16** in.

Proposed Well: **no** Replacement: **NA**
Existing: **yes** Replacement no:

Proposed volume: **1,855** acre-ft/yr
Q = **1150** gpm
T = **99,138** gpd/ft T Source: **Based on pump test of well**

Sy = **0.08** Sy Source: **Tucson Model**

10 foot drawdown radius = **~630** feet (see attached map)

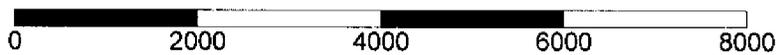
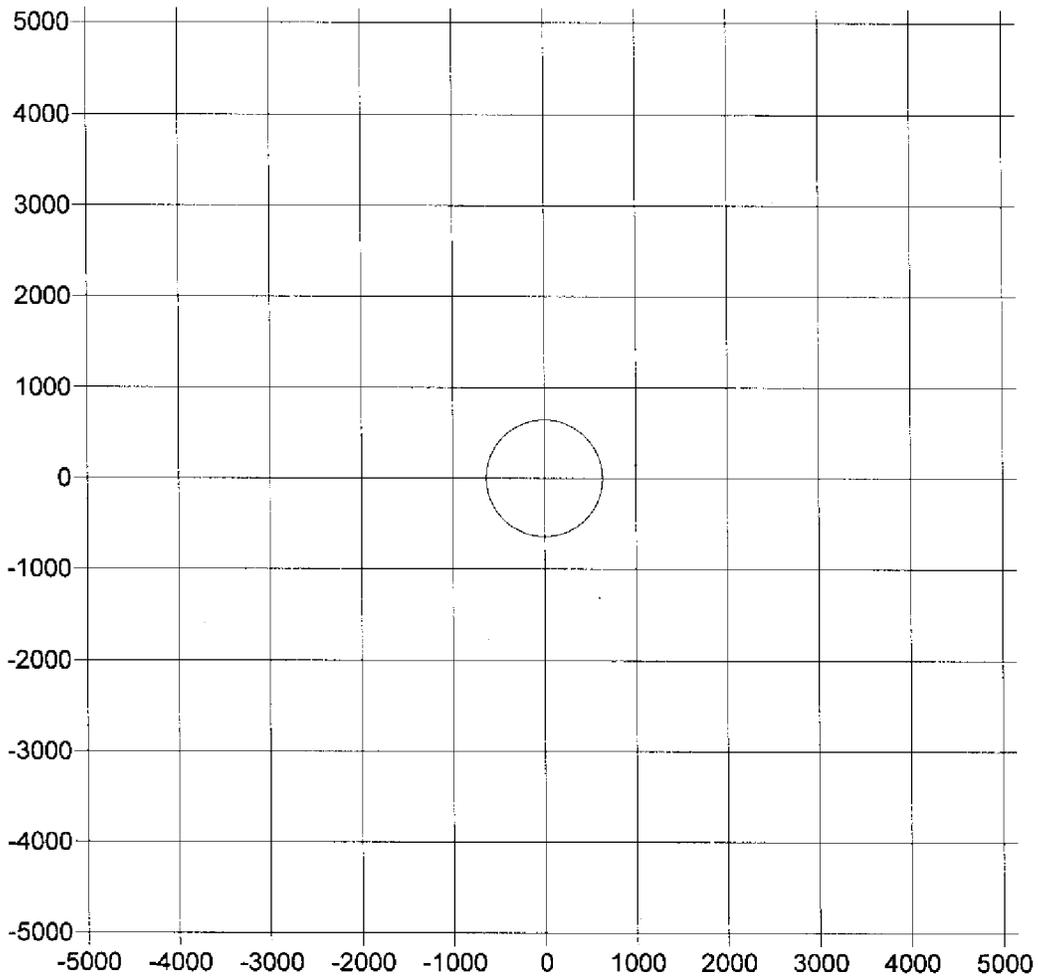
drawdown at well = **31.2** feet

WQARF Concerns: **none**
Subsidence Concerns: **none**

Analyzed by: *Ammy*
Date: 10/24/07

Checked by: *S. P...*
Date: 10-24-07

Avra Water Co-op
55-207058
S-215994
D (13-11) 7 BDB
T=99,138 gpd/ft
Sy=0.08
Q=1150 gpm



CALCULATION OF DRAWDOWN IN A HOMOGENEOUS, ISOTROPIC, CONFINED, LEAKY
CONFINED OR UNCONFINED AQUIFER WITH MULTIPLE PRODUCTION AND INJECTION
WELLS AND UNIFORM REGIONAL FLOW

55-207058 (@1855 AFA)

***** INPUT DATA *****

UNCONFINED AQUIFER - THEIS EQUATION WITH JACOB'S CORRECTION

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 394 [ft]
TRANSMISSIVITY = 99138 [gpd/ft]

STORAGE COEFFICIENT = .08

REGIONAL FLOW GRADIENT
(positive--downwards--in flow direction) = 0

REGIONAL FLOW DIRECTION
(horizontal angle in degrees
counter-clockwise from positive x-axis) = 0

REGIONAL FLOW OFFSET AT ORIGIN
(positive in downwards direction) = 0 [ft]

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 394 [ft]

PUMPING/INJECTION WELL DATA

WELL NO. 1

X-COORDINATE = 0 [ft]
Y-COORDINATE = 0 [ft]
PUMPING/INJECTION RATE = 1656000 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

***** RESULTS *****

----- Drawdown in [ft] -----

Y [ft]	<- X [ft] ->					
	-640	-620	-600	-580	-560	-540
-40.00	9.976	10.062	10.151	10.243	10.338	10.437
-20.00	9.980	10.066	10.155	10.248	10.343	10.443
0.00	<u>9.981</u>	<u>10.067</u>	10.157	10.249	10.345	10.444
20.00	9.980	10.066	10.155	10.248	10.343	10.443
40.00	9.976	10.062	10.151	10.243	10.338	10.437

Y [ft]	<- X [ft] ->					
	-40	-20	0	20	40	60
-680.00	9.811	9.814	9.816	9.814	9.811	9.805
-660.00	9.892	9.896	9.897	9.896	9.892	9.886
-640.00	9.976	9.980	<u>9.981</u>	9.980	9.976	9.969
-620.00	10.062	10.066	<u>10.067</u>	10.066	10.062	10.055
-600.00	10.151	10.155	10.157	10.155	10.151	10.143
-580.00	10.243	10.248	10.249	10.248	10.243	10.235
-60.00	15.982	16.346	16.492	16.346	15.982	15.532
-40.00	16.656	17.309	17.619	17.309	16.656	15.982
-20.00	17.309	18.585	19.553	18.585	17.309	16.346
0.00	17.619	19.553	<u>31.233</u>	19.553	17.619	16.492
20.00	17.309	18.585	19.553	18.585	17.309	16.346
40.00	16.656	17.309	17.619	17.309	16.656	15.982
60.00	15.982	16.346	16.492	16.346	15.982	15.532
580.00	10.243	10.248	10.249	10.248	10.243	10.235
600.00	10.151	10.155	10.157	10.155	10.151	10.143
620.00	10.062	10.066	<u>10.067</u>	10.066	10.062	10.055
640.00	9.976	9.980	<u>9.981</u>	9.980	9.976	9.969
660.00	9.892	9.896	9.897	9.896	9.892	9.886
680.00	9.811	9.814	9.816	9.814	9.811	9.805

Y [ft]	<- X [ft] ->					
	560	580	600	620	640	660
-40.00	10.338	10.243	10.151	10.062	9.976	9.892
-20.00	10.343	10.248	10.155	10.066	9.980	9.896
0.00	10.345	10.249	10.157	10.067	9.981	9.897
20.00	10.343	10.248	10.155	<u>10.066</u>	<u>9.980</u>	9.896
40.00	10.338	10.243	10.151	10.062	9.976	9.892
60.00	10.330	10.235	10.143	10.055	9.969	9.886

Theis Calculation

Well Reg. No. 55-207058
 Applicant: Avra Water Co-op

Well Location D (13-11) 7 BDB

t =	1825 days	Q =	1855 acre-ft/yr
s =	25 ft	T =	1150 gpm
u =	3.86E-09	T =	99138 gpd/ft
		Sy =	0.08

$W(u) = 18.8044$

25 foot drawdown radius = 2.16 ft = 0.00 mi

t =	1825 days	Q =	1855 acre-ft/yr
s =	10 ft	T =	1150 gpm
u =	3.04E-04	T =	99138 gpd/ft
		Sy =	0.08

$W(u) = 7.5218$

10 foot drawdown radius = 606.35 ft = 0.11 mi

t =	1825 days	Q =	1855 acre-ft/yr
s =	1 ft	T =	1150 gpm
u =	3.72E-01	T =	99138 gpd/ft
		Sy =	0.08

$W(u) = 0.7522$

1 foot drawdown radius = 21210.81 ft = 4.02 mi

r =	1 ft		
u =	8.2685E-10	drawdown at well	
W(u) =	20.34	s =	27.04 ft

Equations:

$$s = \frac{114.6 Q}{T} W(u) \quad W(u) = \frac{sT}{114.6Q}$$

$$u = \frac{1.87 r^2 Sy}{Tt} \quad r = \sqrt{\frac{Tut}{1.87 Sy}}$$

where:

- s = drawdown, ft
- r = radius from well, ft
- t = time, days
- Q = well discharge, gpm
- T = transmissivity, gpd/ft
- Sy = specific yield or storage coeff., %
- u, W(u) = argument, well function

1150 gpm
 1656144 gpd

ARIZONA DEPARTMENT OF WATER RESOURCES

Tucson Active Management Area
400 W. Congress, Suite 518 • Tucson, Arizona 85701
Telephone (520) 770-3800 • Fax (520) 628-6759



Janet Napolitano
Governor

Herbert R. Guenther
Director

October 12, 2007

Chris Ward
Avra Water Co-op
11821 W Picture Rocks Rd
Tucson AZ 85743

RE: Application for a Permit to Operate a Non-Exempt Well
Well Registration No. 55-207058, Permit Application No. S-215994

Dear Mr. Ward:

The Department of Water Resources has reviewed the above-referenced application to determine if the application meets the substantive requirements of A.R.S. § 45-599. Pursuant to A.R.S. § 41-1075, the Department has determined that the application does not appear to be substantively correct. The following information must be addressed before the Department can complete the application review:

- The Department's review of the *amended* decrease in proposed annual volume from 2,100 acre-feet per year to 1,855 acre-feet per year indicates that the 5-year 10-foot drawdown impact radius would be 812.5 feet. The two wells that were impacted, Registration Nos. 55-579455 and 55-584244, remain located within this 812.5 foot impact radius. Enclosed is a copy of the Department's review of the impact study. If you have any questions regarding the values used in calculating the area of impact, please contact Alene McCracken, Hydrology Division at 602-771-8535.

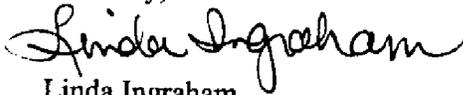
The Department of Water Resources may not grant a well permit that will cause unreasonable increasing damage to surrounding land and water users. The following options area available to you for addressing the issue of adverse impact:

1. You may reduce the annual volume of pumpage from the well to an amount that does not affect the surrounding wells. Please note that if you opt to reduce the proposed annual volume, the Department will require that the applicant submit a revised well impact analysis. If the Department's review of the revised impact analysis indicates that registered wells may still be located within the 10-foot drawdown radius, the Department may deny the application.
2. You may amend the location of the proposed well to a site that does not contain a concentration of wells.

3. You may negotiate and obtain waivers from the impacted well owners. A Blank waiver form is enclosed for your use.
4. You may submit evidence which proves that the wells of recode are not within the radius of impact. This evidence will be subject to field verification by Tucson AMA staff.
5. You may withdraw your application.

Please advise within 60 days of the date of this letter what action you intend to take on the application. Failure to address the issue outlined above within 60 days may result in the denial of the application. The Department's substantive review time frame for Service Area Well Permit Application No. S-215994 is suspended until the issue is fully resolved. Please direct the additional information to Danita Haywood of the Department's Water Management Division, 3550 N Central Avenue, Phoenix AZ 85012

Sincerely,



Linda Ingraham
Water Resources Specialist

cc: Jeff Tannler, ADWR Tucson AMA
Danita Haywood, Water Management Support
Alene McCracken, ADWR Hydrology
Dale Armstrong, Golder Associates

Enclosures

ARIZONA DEPARTMENT OF WATER RESOURCES

Tucson Active Management Area
400 W. Congress, Suite 518 • Tucson, Arizona 85701
Telephone (520) 770-3800 • Fax (520) 628-6759



Janet Napolitano
Governor

Herbert R. Guenther
Director

September 26, 2007

Chris Ward
Avra Water Co-op
11821 W Picture Rocks Rd
Tucson AZ 85743

RE: Application for a Permit to Operate a Non-Exempt Well
Well Registration No. 55-207058, Permit Application No. S-215994

Dear Mr. Ward:

The Department of Water Resources has reviewed the above-referenced application to determine if the application meets the substantive requirements of A.R.S. § 45-599. Pursuant to A.R.S. § 41-1075, the Department has determined that the application does not appear to be substantively correct. The following information must be addressed before the Department can complete the application review:

- The Department's review of the hydrologic impact study indicates that the 5-year 10-foot drawdown impact radius would be approximately 1,240 feet. Two wells, Registration No. 55-579455 and 55-584244 appear to be located within this impact radius. Enclosed is a report showing registration information for the potentially impacted wells, as well as a copy of the Department's review of the impact study.

The Department of Water Resources may not grant a well permit that will cause increasing damage to surrounding land and water users. The following options are available to you for addressing the issue of adverse impact for any wells that fall within the 10-foot impact radius:

- a. You may reduce the proposed annual volume of pumpage from your proposed well to an amount that does not affect surrounding wells.
- b. You may negotiate and obtain waivers from the impacted well owners. Waiver forms for wells located within the 10-foot drawdown radius are enclosed.
- c. You may submit evidence that proves that the wells of record are not located within the radius of impact. This evidence will be subject to field verification by the Tucson AMA.
- d. You may withdraw your application.

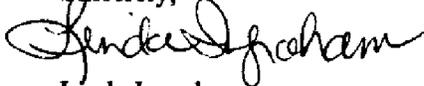


Avra Water Co-op
September 26, 2007
Page 2 of 2

Please advise within 60 days of the date of this letter what action you intend to take on the application. Failure to address the issue outlined above within 60 days may result in the denial of the application. The Department's substantive review time frame for Service Area Well Permit Application No. S-215994 is suspended until the issue is fully resolved.

If you have any questions regarding the values used in calculating the area of impact, please contact Alene McCracken, ADWR Hydrology Division at 602-717-8535.

Sincerely,



Linda Ingraham
Water Resources Specialist

cc: Jeff Tannler, ADWR Tucson AMA
Darlene Sumpter-King, Water Management Support
Alene McCracken, ADWR Hydrology
Dale Armstrong – Golder Associates

Enclosures



ARIZONA DEPARTMENT OF WATER RESOURCES
Hydrology Division

M E M O R A N D U M

TO: Linda Ingraham, Tucson AMA

THRU: Drew Swieczkowski, Manager, Water Resources Section *DMS*

FROM: Alene McCracken, Hydrologist, Water Resources Section *AMM*

DATE: September 24, 2007

RE: Avra Water Co-op, Application for a permit to operate a non-exempt service well in the Tucson AMA. No. S-215994; **REVISED WELL IMPACT ANALYSIS** for well number 55-207058, D (13-11) 7 BDB

Hydrology has completed its re-evaluation of the above referenced application for a permit to drill or operate a non-exempt non-service area well. A ten-foot drawdown analysis was performed by Hydrology for the well in D (13-11) 7 BDB. Hydrology analyzed pump test data to determine the transmissivity of the well. The Specific Yield was determined from Layer 3 of the Tucson model, the layer where the well is screened. These are the same values used in the previous analysis although the specific yield was incorrectly listed on the summary sheet. Hydrology used these values to conduct both a standard Theis analysis and THWELLS calculation for the drawdown radius for the corrected pumping rate supplied by the applicant. No image wells were used in the THWELLS analysis. The results are presented below:

Well Location & registration number:	Analysis performed by	Transmissivity Value (gpd/ft)	Specific Yield	Pumping Volume AFA	Ten-Foot Drawdown Radius After Five Years
D (13-11) 7 BDB 55-207058	ADWR	99,138	0.05	1,855 (1,150 gpm)	~812.5

According to the parameters of the application, the calculated drawdown at the well is 31.9 feet for the five-year time period. For the purpose of AMA review, please use Hydrology's calculated radius.

The location of the proposed well was also reviewed for water quality and subsidence. No additional monitoring is required.

Attachments

Well Reg. No. **55-207058**
Applicant: **Avra Water Co-op**

Well Location: **D (13-11) 7 BDB**

Depth of well: **722** feet
Diameter: **16** in.

Proposed Well: **no** Replacement: **NA**
Existing: **yes** Replacement no:

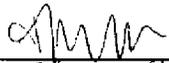
Proposed volume: **1,855** acre-ft/yr
Q = **1150** gpm
T = **99,138** gpd/ft T Source: **Based on pump test of well**

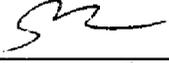
Sy = **0.05** Sy Source: **Tucson Model**

10 foot drawdown radius = **~812.5** feet (see attached map)

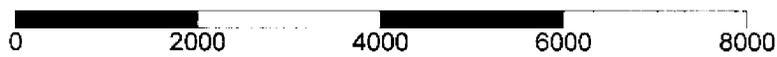
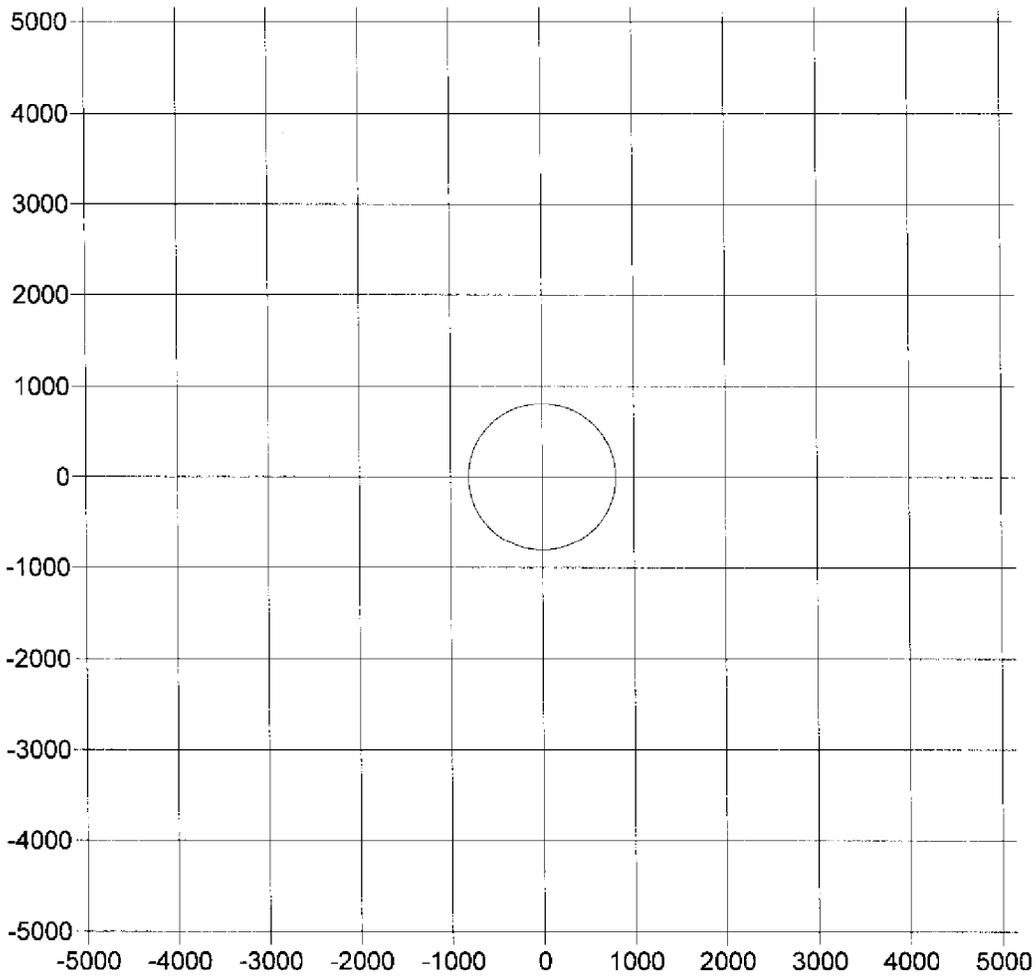
drawdown at well = **31.9** feet

WQARF Concerns: **none**
Subsidence Concerns: **none**

Analyzed by: 
Date: 10/3/07

Checked by: 
Date: 10-5-07

Avra Water Co-op
55-207058
S-215994
D (13-11) 7 BDB
T=99,138 gpd/ft
Sy=0.05
Q=1150 gpm



CALCULATION OF DRAWDOWN IN A HOMOGENEOUS, ISOTROPIC, CONFINED, LEAKY
CONFINED OR UNCONFINED AQUIFER WITH MULTIPLE PRODUCTION AND INJECTION
WELLS AND UNIFORM REGIONAL FLOW

55-207058 (@1855 AFA)

***** INPUT DATA *****

UNCONFINED AQUIFER - THEIS EQUATION WITH JACOB'S CORRECTION

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 394 [ft]
TRANSMISSIVITY = 99138 [gpd/ft]

STORAGE COEFFICIENT = .05

REGIONAL FLOW GRADIENT
(positive--downwards--in flow direction) = 0

REGIONAL FLOW DIRECTION
(horizontal angle in degrees
counter-clockwise from positive x-axis) = 0

REGIONAL FLOW OFFSET AT ORIGIN
(positive in downwards direction) = 0 [ft]

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 394 [ft]

PUMPING/INJECTION WELL DATA

WELL NO. 1 (55-207058)

X-COORDINATE = 0 [ft]
Y-COORDINATE = 0 [ft]
PUMPING/INJECTION RATE = 1656000 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

***** RESULTS *****

----- Drawdown in [ft] -----

Y [ft]	<- X [ft] ->					
	-880	-860	-840	-820	-800	-780
-60.00	9.747	9.809	9.873	9.939	10.006	10.074
-40.00	9.751	9.813	9.877	9.943	10.010	10.079
-20.00	9.753	9.815	9.879	9.945	10.012	10.081
0.00	9.753	9.816	9.880	9.946	10.013	10.082
20.00	9.753	9.815	9.879	9.945	10.012	10.081
40.00	9.751	9.813	9.877	9.943	10.010	10.079
60.00	9.747	9.809	9.873	9.939	10.006	10.074

Y [ft]	<- X [ft] ->					
	-40	-20	0	20	40	60
-860.00	9.813	9.815	9.816	9.815	9.813	9.809
-840.00	9.877	9.879	9.880	9.879	9.877	9.873
-820.00	9.943	9.945	9.946	9.945	9.943	9.939
-800.00	10.010	10.012	10.013	10.012	10.010	10.006
-780.00	10.079	10.081	10.082	10.081	10.079	10.074
-760.00	10.149	10.152	10.153	10.152	10.149	10.145
-60.00	16.634	16.998	17.145	16.998	16.634	16.183
-40.00	17.309	17.963	18.273	17.963	17.309	16.634
-20.00	17.963	19.241	20.211	19.241	17.963	16.998
0.00	18.273	20.211	31.913	20.211	18.273	17.145
20.00	17.963	19.241	20.211	19.241	17.963	16.998
40.00	17.309	17.963	18.273	17.963	17.309	16.634
60.00	16.634	16.998	17.145	16.998	16.634	16.183
760.00	10.149	10.152	10.153	10.152	10.149	10.145
780.00	10.079	10.081	10.082	10.081	10.079	10.074
800.00	10.010	10.012	10.013	10.012	10.010	10.006
820.00	9.943	9.945	9.946	9.945	9.943	9.939
840.00	9.877	9.879	9.880	9.879	9.877	9.873
860.00	9.813	9.815	9.816	9.815	9.813	9.809

Y [ft]	<- X [ft] ->					
	800	820	840	860	880	900
-60.00	10.006	9.939	9.873	9.809	9.747	9.686
-40.00	10.010	9.943	9.877	9.813	9.751	9.689
-20.00	10.012	9.945	9.879	9.815	9.753	9.691
0.00	10.013	9.946	9.880	9.816	9.753	9.692
20.00	10.012	9.945	9.879	9.815	9.753	9.691
40.00	10.010	9.943	9.877	9.813	9.751	9.689
60.00	10.006	9.939	9.873	9.809	9.747	9.686

Theis Calculation

Well Reg. No. 55-207058
 Applicant: Avra Water Co-op

Well Location D (13-11) 7 BDB

t =	1825 days	Q =	1855 acre-ft/yr
s =	25 ft	T =	1150 gpm
u =	3.86E-09	Sy =	99138 gpd/ft
			0.05

$W(u) = 18.8044$

25 foot drawdown radius = 2.73 ft = 0.00 mi

t =	1825 days	Q =	1855 acre-ft/yr
s =	10 ft	T =	1150 gpm
u =	3.04E-04	Sy =	99138 gpd/ft
			0.05

$W(u) = 7.5218$

10 foot drawdown radius = 766.98 ft = 0.15 mi

t =	1825 days	Q =	1855 acre-ft/yr
s =	1 ft	T =	1150 gpm
u =	3.72E-01	Sy =	99138 gpd/ft
			0.05

$W(u) = 0.7522$

1 foot drawdown radius = 26829.78 ft = 5.08 mi

r =	1 ft		
u =	5.1678E-10		drawdown at well
$W(u) =$	20.809	s =	27.67 ft

Equations:

$$s = \frac{114.6 Q}{T} W(u) \quad W(u) = \frac{sT}{114.6 Q}$$

$$u = \frac{1.87 r^2 Sy}{Tt} \quad r = \sqrt{\frac{Tut}{1.87 Sy}}$$

where:

- s = drawdown, ft
- r = radius from well, ft
- t = time, days
- Q = well discharge, gpm
- T = transmissivity, gpd/ft
- Sy = specific yield or storage coeff., %
- u, W(u) = argument, well function

~~1302~~ gpm
~~1874880~~ gpd
 1656000

**ARIZONA DEPARTMENT OF WATER RESOURCES
Hydrology Division**

M E M O R A N D U M

TO: Linda Ingraham, Phoenix AMA

THRU: Drew Swieczkowski, Manager, Water Resources Section *DWS*

FROM: Alene McCracken, Hydrologist, Water Resources Section *amc*

DATE: September 24, 2007

RE: Avra Water Co-op, Application for a permit to operate a non-exempt service well in the Tucson AMA. No. S-~~216249~~ *215494*; **WELL IMPACT ANALYSIS** for well no. 55-207058, D (13-11) 7 BDB

Hydrology has completed its evaluation of the above referenced application for a permit to drill or operate a non-exempt non-service area well. A ten-foot drawdown analysis was performed by Hydrology for the well in D (13-11) 7 BDB. Hydrology analyzed pump test data to determine the transmissivity of the well and used parameters from the Tucson model to conduct both a standard Theis analysis and THWELLS calculation for the drawdown radius. One image well was used in the THWELLS analysis. The results are presented below:

Well Location & registration number:	Analysis performed by	Transmissivity Value (gpd/ft)	Specific Yield	Pumping Volume AFA	Ten-Foot Drawdown Radius After Five Years
D (13-11) 7 BDB 55-207058	ADWR	99,138	0.1	2,100 (1,302 gpm)	~1,240

According to the parameters of the application, the calculated drawdown at the well is 36.3 feet for the five-year time period. For the purpose of AMA review, please use Hydrology's calculated radius.

The location of the proposed well was also reviewed for water quality and subsidence. No additional monitoring is required.

Attachments

Well Reg. No. **55-207058**
Applicant: **Avra Water Co-op**

Well Location: **D (13-11) 7 BDB**

Depth of well: **722** feet
Diameter: **16** in.

Proposed Well: **no** Replacement: **NA**
Existing: **yes** Replacement no:

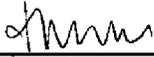
Proposed volume: **2,100** acre-ft/yr
Q = **1302** gpm
T = **99,138** gpd/ft T Source: **Based on pump test of well**

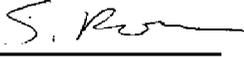
Sy = **0.1** Sy Source: **Tucson Model**

10 foot drawdown radius = **~1240** feet (see attached map)

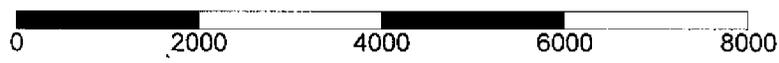
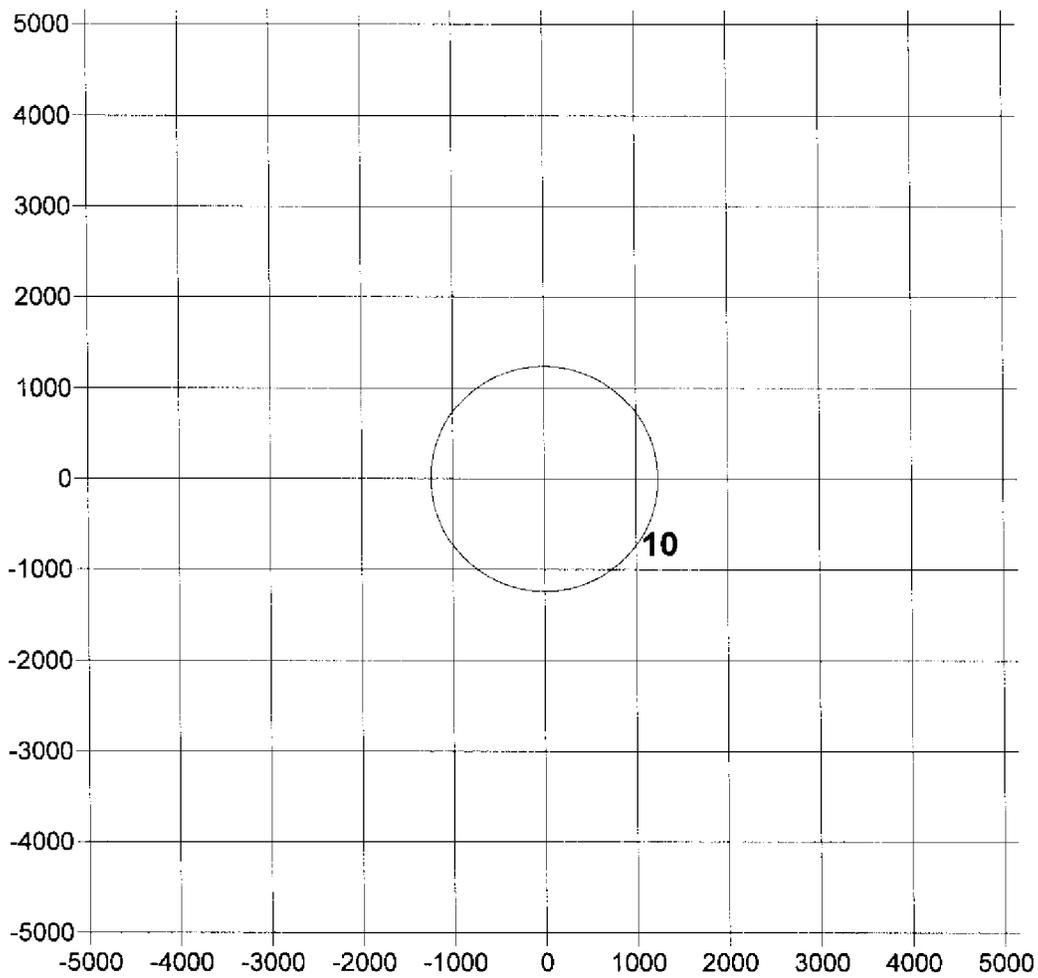
drawdown at well = **36.3** feet

WQARF Concerns: **none**
Subsidence Concerns: **none**

Analyzed by: 
Date: 9/17/07

Checked by: 
Date: 9-18-07

Avra Water Co-op
55-207058
S-215994
D (13-11) 7 BDB
T=99,138 gpd/ft
Sy=0.1
Q=1302 gpm



CALCULATION OF DRAWDOWN IN A HOMOGENEOUS, ISOTROPIC, CONFINED, LEAKY
CONFINED OR UNCONFINED AQUIFER WITH MULTIPLE PRODUCTION AND INJECTION
WELLS AND UNIFORM REGIONAL FLOW

207058

***** INPUT DATA *****

UNCONFINED AQUIFER - THEIS EQUATION WITH JACOB'S CORRECTION

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 394 [ft]
TRANSMISSIVITY = 99138 [gpd/ft]

STORAGE COEFFICIENT = .05

REGIONAL FLOW GRADIENT
(positive--downwards--in flow direction) = 0

REGIONAL FLOW DIRECTION
(horizontal angle in degrees
counter-clockwise from positive x-axis) = 0

REGIONAL FLOW OFFSET AT ORIGIN
(positive in downwards direction) = 0 [ft]

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 394 [ft]

PUMPING/INJECTION WELL DATA

WELL NO. 1 (55-207058)

X-COORDINATE = 0 [ft]
Y-COORDINATE = 0 [ft]
PUMPING/INJECTION RATE = 1874880 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

***** RESULTS *****

----- Drawdown in [ft] -----

Y [ft]	<- X [ft] ->					
	-1280	-1240	-1200	-1160	-1120	-1080
-120.00	9.890	9.987	10.087	10.191	10.298	10.409
-80.00	9.897	9.995	10.095	10.200	10.307	10.419
-40.00	9.902	9.999	10.101	10.205	10.313	10.426
0.00	<u>9.903</u>	<u>10.001</u>	10.102	10.207	10.315	10.428
40.00	9.902	9.999	10.101	10.205	10.313	10.426
80.00	9.897	9.995	10.095	10.200	10.307	10.419
120.00	9.890	9.987	10.087	10.191	10.298	10.409

Y [ft]	<- X [ft] ->					
	-80	-40	0	40	80	120
-1360.00	9.711	9.715	9.716	9.715	9.711	9.704
-1320.00	9.803	9.807	9.808	9.807	9.803	9.796
-1280.00	9.897	9.902	<u>9.903</u>	9.902	9.897	9.890
-1240.00	9.995	9.999	<u>10.001</u>	9.999	9.995	9.987
-1200.00	10.095	10.101	10.102	10.101	10.095	10.087
-1160.00	10.200	10.205	10.207	10.205	10.200	10.191
-120.00	16.703	17.115	17.281	17.115	16.703	16.192
-80.00	17.467	18.208	18.560	18.208	17.467	16.703
-40.00	18.208	19.656	20.756	19.656	18.208	17.115
0.00	18.560	20.756	<u>36.344</u>	20.756	18.560	17.281
40.00	18.208	19.656	20.756	19.656	18.208	17.115
80.00	17.467	18.208	18.560	18.208	17.467	16.703
120.00	16.703	17.115	17.281	17.115	16.703	16.192
1160.00	10.200	10.205	10.207	10.205	10.200	10.191
1200.00	10.095	10.101	10.102	10.101	10.095	10.087
1240.00	9.995	9.999	<u>10.001</u>	9.999	9.995	9.987
1280.00	9.897	9.902	<u>9.903</u>	9.902	9.897	9.890
1320.00	9.803	9.807	9.808	9.807	9.803	9.796
1360.00	9.711	9.715	9.716	9.715	9.711	9.704

Y [ft]	<- X [ft] ->					
	1120	1160	1200	1240	1280	1320
-120.00	10.298	10.191	10.087	9.987	9.890	9.796
-80.00	10.307	10.200	10.095	9.995	9.897	9.803
-40.00	10.313	10.205	10.101	9.999	9.902	9.807
0.00	10.315	10.207	10.102	<u>10.001</u>	<u>9.903</u>	9.808
40.00	10.313	10.205	10.101	9.999	9.902	9.807
80.00	10.307	10.200	10.095	9.995	9.897	9.803
120.00	10.298	10.191	10.087	9.987	9.890	9.796
160.00	10.284	10.178	10.075	9.976	9.879	9.786

Theis Calculation

Well Reg. No. 55-207058
 Applicant: Avra Water Co-op

Well Location D (13-11) 7 BDB

t =	1825 days	Q =	2100 acre-ft/yr
s =	25 ft	T =	1302 gpm
u =	3.45E-08	Sy =	99138 gpd/ft
			0.1

$W(u) = 16.6106$

25 foot drawdown radius = 5.78 ft = 0.00 mi

t =	1825 days	Q =	2100 acre-ft/yr
s =	10 ft	T =	1302 gpm
u =	7.30E-04	Sy =	99138 gpd/ft
			0.1

$W(u) = 6.6442$

10 foot drawdown radius = 840.41 ft = 0.16 mi

t =	1825 days	Q =	2100 acre-ft/yr
s =	1 ft	T =	1302 gpm
u =	4.23E-01	Sy =	99138 gpd/ft
			0.1

$W(u) = 0.6644$

1 foot drawdown radius = 20230.23 ft = 3.83 mi

r =	1 ft		
u =	1.0336E-09	drawdown at well	
$W(u) =$	20.14	s =	30.31 ft

Equations:

$$s = \frac{114.6 Q}{T} W(u) \quad W(u) = \frac{sT}{114.6Q}$$

$$u = \frac{1.87 r^2 Sy}{Tt} \quad r = \sqrt{\frac{Tut}{1.87 Sy}}$$

where:

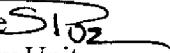
- s = drawdown, ft
- r = radius from well, ft
- t = time, days
- Q = well discharge, gpm
- T = transmissivity, gpd/ft
- Sy = specific yield or storage coeff., %
- u, W(u) = argument, well function

1302 gpm
 1874880 gpd

ARIZONA DEPARTMENT OF WATER RESOURCES
HYDROLOGY DIVISION – WATER QUALITY UNIT

MEMORANDUM

TO: Darlene Sumpter-King
Jeff Tannler, Tucson AMA
Linda Ingraham, Tucson AMA
Dawne Wilson, Tucson AMA

FROM: Seandale Poe 
Water Quality Unit

DATE: August 21, 2007

SUBJECT: **Application for Permit to Drill or Operate a Non-Exempt well
within an AMA**
Application S-215994 Well 55-207058
Avra Water Co-op

Hydrology has reviewed the above referenced application for a permit to drill or operate a Non-Exempt well for water quality concerns and well construction for conformance to Arizona well construction standards.

Water Quality

1. The subject well is not near an area of known groundwater contamination that is being remediated pursuant to an U.S. Environmental Protection Agency, Arizona Department of Environmental Quality (ADEQ), or Department of Defense program.
2. According to the ADEQ Groundwater Database, no sample results from wells located within one mile of the proposed well; therefore, current aquifer conditions are unknown. No other water quality data are readily available.

Well Construction Standards

3. The subject well was drilled to 722 feet below the land surface and screened from 399 to 699 feet. The well will be completed in the lower alluvial unit. The well meets minimum well construction standards. No special well construction requirements are necessary.

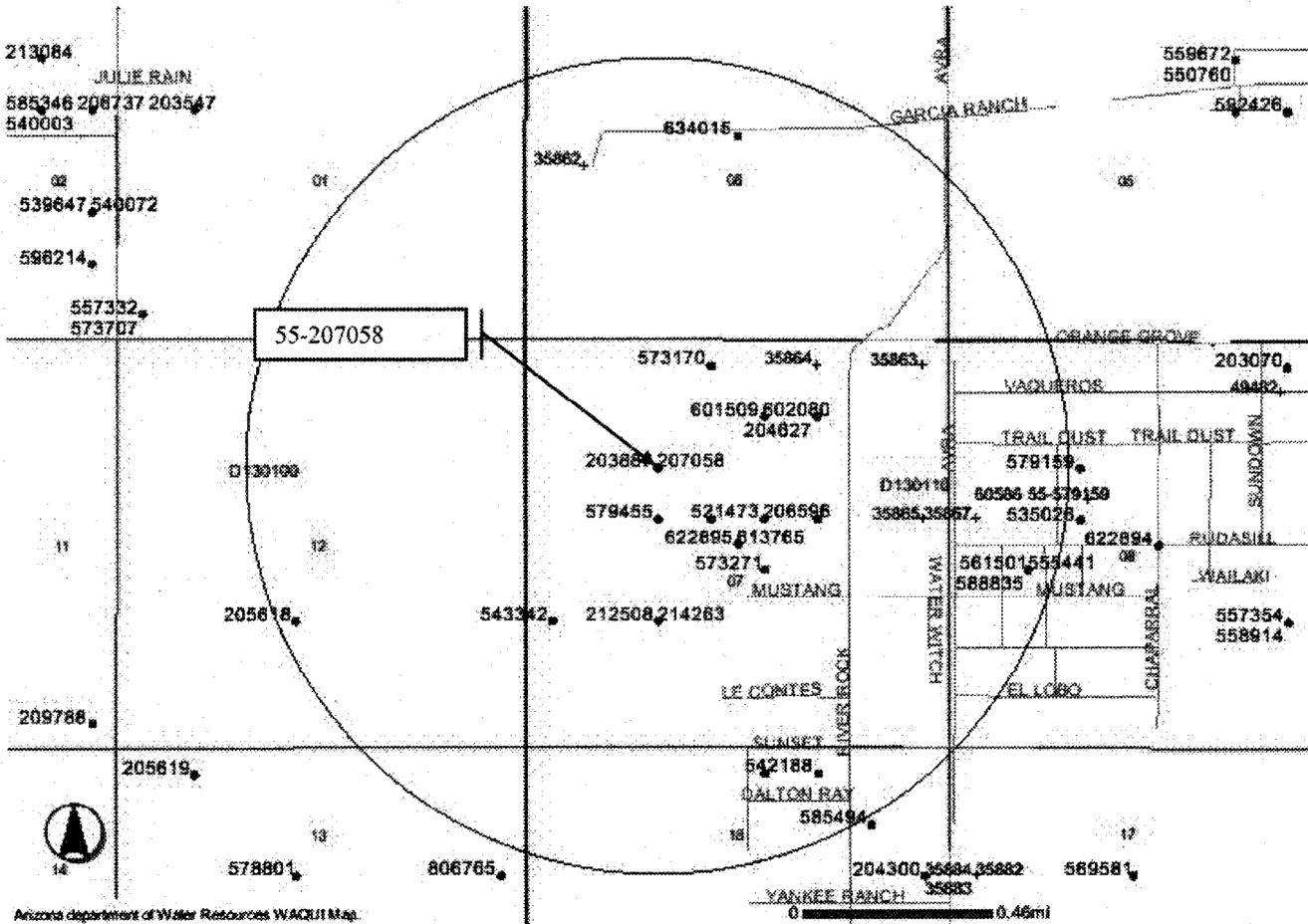
The Hydrology Water Quality Unit has no objections to approving this permit. If additional information is needed, please contact me at extension 1-8565.

C: Alene McCracken, Hydrology
Enclosure Water Quality map



55-207058 / S-215994 / Avra Water Co-op

Permit to Drill or Operate a Non-Exempt Well within an AMA, D(13-11)7BDB



Arizona Department of Water Resources WACRIT Map

0 0.46mi

- Legend**
- Highlighted Feature
 - ▨ theBufferPolygons
 - theBufferTarget
 - ADEQ Wells
 - Wells > MCL
 - ⊗ Wells > Secondary MCL
 - ★ Wells > MCL
 - + No Exceedence
 - REGISTERED WELLS
 - Streets
 - Sections
 - Townships
 - ▨ GWR LUST Buffer
 - ▨ RCRA Site Buffer
 - ▨ VRP Site Buffer
 - Registry
 - 1 MI. WQARF Buffer
 - ▨ WQARF Zone

Working Together



Arizona Department of Environmental Quality



Arizona Department of Water Resources

Map generated on 8/21/2007

Water Quality Sample Test Results for ADEQ Wells

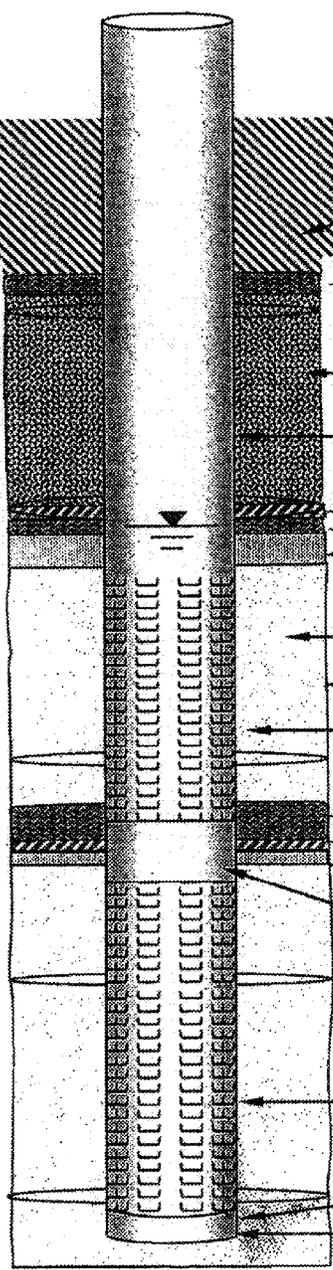
Information provided is preliminary and subject to revision.

It may not represent the full extent of known water quality concerns.

♻️ Printed on recycled paper. Each ton of recycled paper saves 7,000 gallons of water.

RECEIVED
 AUG 13 - 2007
 WATER MGMT

5-Foot Stickup
 3-Foot Stickup
 Land Surface
 2-Feet below grade
 34 feet
 38 feet
 SWL = 328 ft
 (5/31/05)
 305 feet
 320 feet
 329 feet
 372 feet
 399 feet
 541 feet
 549 feet
 569 feet
 573 feet
 579 feet
 589 feet
 699 feet
 710 feet
 722 feet



Monolithic Concrete Pedestal
 Cement Grout Seal
 30-inch Surface Borehole
 24-inch LCS Surface Casing
 (0.375-inch wall thickness)
 Bentonite Pellets
 (Approximately 10-ft thick)
 Formation Stabilizer: 5-ft bentonite pellet
 seals between 50-ft sections of pea gravel
 16-inch nominal LCS Well Casing
 (0.312-inch wall thickness)
 Cement Grout Seal
 Bentonite Pellets
 Fine #30-grade Sand
 Sand Filter Pack (8-12)
 22-inch Borehole
 16-inch LCS Louvered screen
 (0.050" slots, 0.312-inch wall thickness)
 Bentonite Pellets
 Cement Grout Seal
 Fine #30-grade Sand
 (Approximately 5-ft thick)
 16-inch LCS Pump Gallery
 (0.312-inch wall thickness)
 Casing Centralizers (approximate
 80-foot spacing)
 16-inch LCS Louvered screen
 (0.050" slots, 0.312-inch wall thickness)
 16-inch nominal LCS Well Casing
 (0.312-inch wall thickness)
 LCS Well End Cap

Not To Scale



Notes: LCS = Low Carbon Steel
 All casing diameters are nominal O.D.
 unless noted otherwise

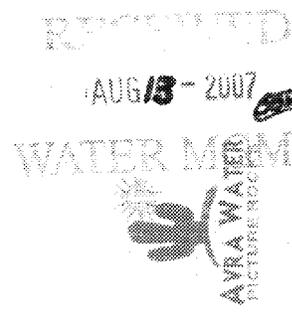
Figure 3
AS-BUILT DRAWING
 Avra Water Co-Op
 Well No. 10 ADWR # 55-207058
 Avra Valley, Arizona
 6/29/2005



LEGEND

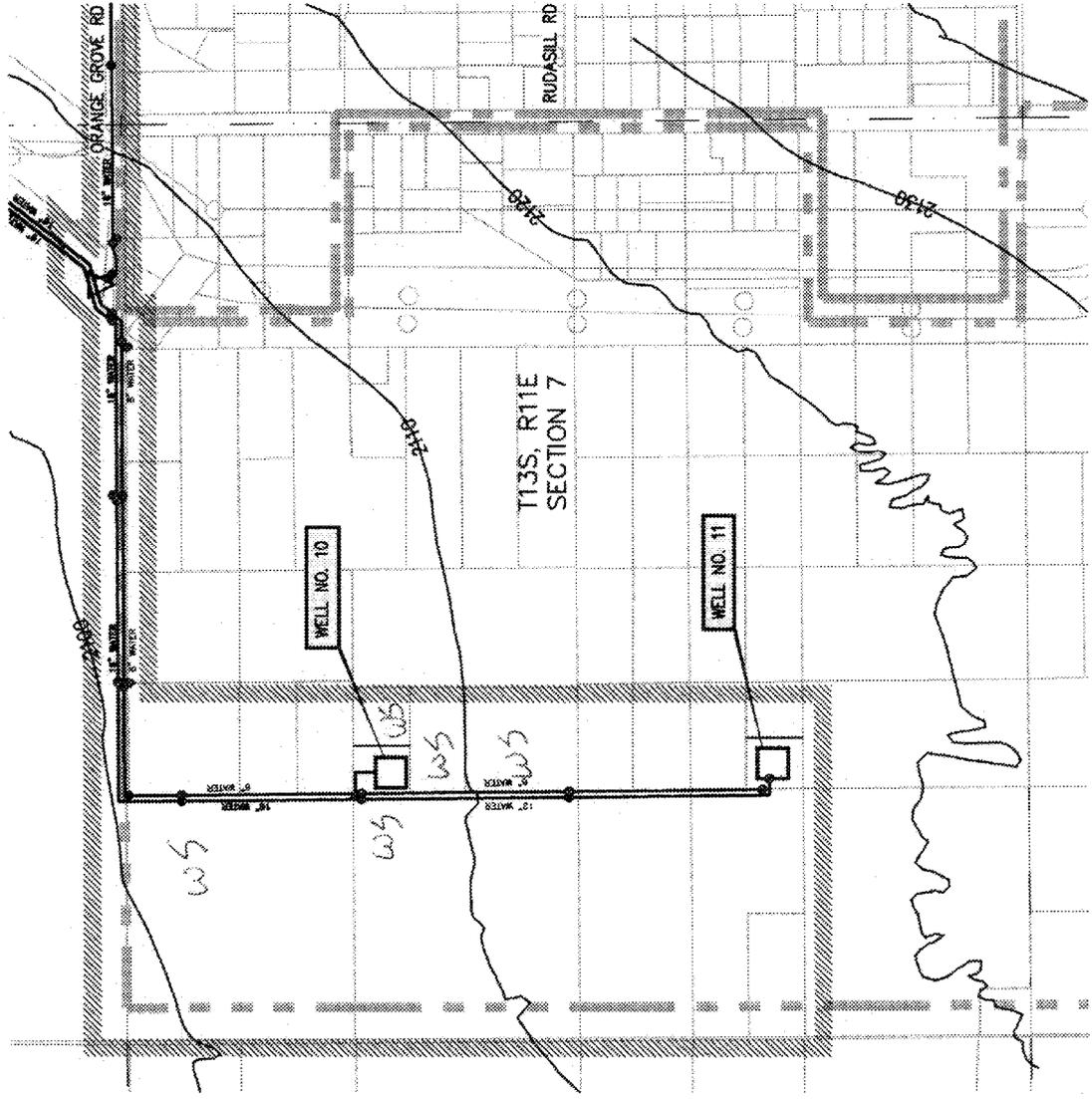
- EXIST. DISTRIBUTION SYSTEM
- ZONE BOUNDARY
- EXIST. CC&N BOUNDARY
- RANCHO DE CONEJO WATER SERVICE BOUNDARY
- SERVICE AREA
- WELL
- PRV STATION
- VALVE

Water Services



AVRA WATER CO-OP
WELL PERMITTING FOR SECTION 7

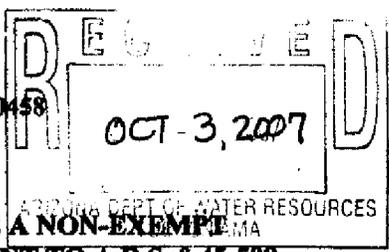
AUGUST 02, 2007



WestLand Resources Inc.
 Engineering and Environmental Consultants
 2343 S. Broadway Blvd., Suite 203
 Tucson, AZ 85716 (520) 285-0683

*Amended -
Decreased Annual
Volume from 2700 to 1855 AF*

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT SUPPORT SECTION
MAIL TO: P.O. BOX 458, PHOENIX, ARIZONA 85001-0458
3550 North Central Avenue, Phoenix, Arizona 85012
Phone (602) 771-8585 Fax (602) 771-8688



APPLICATION FOR A PERMIT TO DRILL OR OPERATE A NON-EXEMPT WELL WITHIN AN ACTIVE MANAGEMENT AREA PURSUANT TO A.R.S. § 45-599

I. INSTRUCTIONS:

1. This application should be used to obtain a permit to:
 - (a) Drill a non-exempt well in conjunction with a new or existing General Industrial Use Permit Application, a Certificate of Grandfathered Right, a Service Area Right, or an Irrigation District Right.
 - (b) Convert an existing well to a non-exempt well, or increase the annual permitted volume to be withdrawn from the well.
2. Complete all appropriate items on this application, sign in the appropriate place and mail to P.O. Box 458, Phoenix, Arizona 85001-0458 or hand deliver to 3550 North Central Avenue, Phoenix, Arizona 85012
3. Pursuant to A.R.S. § 45-599, the application fee is \$150.00. Pursuant to A.A.C. R12-15-151(B)(4), the permit fee is \$30.00. You may submit both fees at the time of filing the application.

II. GENERAL DATA:

FOR DEPARTMENT USE ONLY

1. Applicant Avra Water Co-op
Mailing Address 11821 W. Picture Rocks Rd.
Avra Valley Arizona 85743
City State Zip Code
Contact Person Chris Ward
Telephone Number (520) 682-7331

Application No. _____ Registration No. _____
File No. _____
Date Received _____
AMA _____
W/S _____ S/B _____

2. Name of Land Owner Avra Water Co-op
Mailing Address 11821 W. Picture Rocks Rd.
Avra Valley Arizona 85743 (520) 682-7331
City State Zip Telephone Number

3. Applicant is: Owner Lessee
4. Proposed well is: New well Conversion (enlargement) of existing well Replacement well in a new location.
5. Claim of entitlement to withdraw groundwater is based upon:
 Certificate of Grandfathered Right No: _____
 General Industrial Use Permit No. 59- _____
 Service Area Right No: 56-000019-0000
 Irrigation District Right No: _____

6. The principal use(s) of groundwater will be (be specific) municipal supply water

7. Well location: NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 7 Township 13 N S Range 11 W
10 Acre 40 Acre 160 Acre

8. Position location of the well: Latitude 32 ° 19 ' 00.2 " N Longitude 111 ° 15 ' 53.4 " W

9. Design Pump Capacity 1300 gpm Depth 573 feet
Diameter 16 inches Type of casing Low-Carbon Steel

10. Proposed annual volume of water: 1855 acre feet

11. Well is located in the _____ subbasin of the Tucson Active Management Area.

12. If the well is located in the Santa Cruz AMA, please attach documentation and explanation showing that the location of the proposed well will not result in local water tables experiencing a long-term decline.

13. Approximate date construction will begin: MONTH April YEAR 2005

Estimated time to complete new well 2 months. (If longer than 1 year, attach explanation.)

14. Legal description of the land where the groundwater will be used:

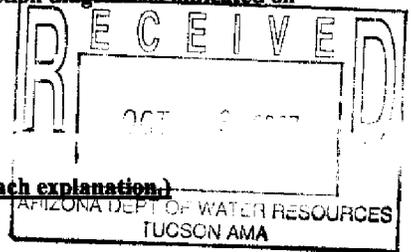
NW 1/4 SE 1/4 NW 1/4 Section 7 Township 13 NS Range 11 EW. County Pima
10 Acre 40 Acre 160 Acre

15. Is the proposed well site within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility or storage area of hazardous materials? Yes No (if yes, a request for a variance must accompany this application pursuant to R12-15-820.)

16. Driller's Name AZCA Drilling & Pump DWR License No: 621 ROC License Category A

Mailing Address: 50078 Parker Poston Rd. Ehrenberg Arizona 85334 (928) 923-9118
Street City State Zip Telephone Number

17. Attach a Well Construction Supplement, DWR form 55-90, and include a detailed construction diagram as indicated on the form.



III. FOR SERVICE AREA WELLS AND IRRIGATION DISTRICT WELLS ONLY:

18. Is the proposed well located in your service area? Yes No

19. Will groundwater withdrawn be used in your service area? Yes No (If answer is no, attach explanation.)

IV. FOR REPLACEMENT WELL IN NEW LOCATION ONLY:

20. Registration number of original well 55- _____

21. Location of the original well: _____ 1/4 _____ 1/4 _____ 1/4 Section _____ Township _____ N/S Range _____ E/W
10 Acre 40 Acre 160 Acre

22. Distance between original well and proposed replacement well _____ feet.

23. When determining impacts under the Department's well spacing rules, the director will take into account the collective efforts of reducing or terminating withdrawals from the well being replaced combined with the proposed withdrawals from the replacement well if the applicant submits a hydrological study demonstrating those collective effects to the satisfaction of the director.

Will a hydrological study be submitted? Yes No

24. Will the original well be abandoned if applicant receives a permit to drill a replacement well? Yes No.

(If yes, please submit a completed Notice of Intent to Abandon a Well along with this application.)

If no, explain the planned use of the original well _____

V. FOR CONVERSION (ENLARGEMENT) OF EXISTING WELL ONLY:

25. Registration number of the existing well 55- _____ Present pump design capacity _____ gallons per minute.
Present permitted volume _____ acre-feet per year.

26. The new design pump capacity will be _____ gallons per minute. New permitted volume will be _____ acre-feet per year.

27. The existing well has previously been used in conjunction with or for the following: _____

It is understood that the permit, if granted, will be in accordance with the Groundwater Management Act (Title 45, Chapter 2), and the rules adopted thereunder. The permittee will be bound by the provisions of such law and the provisions of the permit issued.

I (we), Chris E. Ward hereby affirm that all information provided in this application is true and correct to the best of my/our
(print name) knowledge and belief.

Signature of Applicant [Signature] Date 10-1-07

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT SUPPORT SECTION
MAIL TO: P.O. BOX 458, PHOENIX, ARIZONA 85001-0458
3550 North Central Avenue, Phoenix, Arizona 85012
Phone (602) 771-8585 Fax (602) 771-8688

AUG 13 2007

**APPLICATION FOR A PERMIT TO DRILL OR OPERATE A NON-EXEMPT
WELL WITHIN AN ACTIVE MANAGEMENT AREA PURSUANT TO A.R.S. § 45-599**

I. INSTRUCTIONS:

1. This application should be used to obtain a permit to:
 - (a) Drill a non-exempt well in conjunction with a new or existing General Industrial Use Permit Application, a Certificate of Grandfathered Right, a Service Area Right, or an Irrigation District Right.
 - (b) Convert an existing well to a non-exempt well, or increase the annual permitted volume to be withdrawn from the well.
2. Complete all appropriate items on this application, sign in the appropriate place and mail to P.O. Box 458, Phoenix, Arizona 85001-0458 or hand deliver to 3550 North Central Avenue, Phoenix, Arizona 85012
3. Pursuant to A.R.S. § 45-599, the application fee is \$150.00. Pursuant to A.A.C. R12-15-151(B)(4), the permit fee is \$30.00. You may submit both fees at the time of filing the application.

II. GENERAL DATA:

FOR DEPARTMENT USE ONLY

1. Applicant Avra Water Co-op
Mailing Address 11821 W. Picture Rocks Rd.
Avra Valley Arizona 85743
City State Zip Code
Contact Person Chris Ward
Telephone Number (520) 682-7331

Application No. S-215994 Registration
No. 55-207058
File No. D(13-11)7 BDB
Date Received 8-6-2007
AMA TUCSON
W/S 09 S/B 15

2. Name of Land Owner Avra Water Co-op
Mailing Address 11821 W. Picture Rocks Rd.
Avra Valley Arizona 85743 (520) 682-7331
City State Zip Telephone Number

3. Applicant is: Owner Lessee
4. Proposed well is: New well Conversion (enlargement) of existing well Replacement well in a new location.

5. Claim of entitlement to withdraw groundwater is based upon:
 Certificate of Grandfathered Right No: _____
 General Industrial Use Permit No. 59- _____
 Service Area Right No: 56-000019.0000
 Irrigation District Right No: _____

6. The principal use(s) of groundwater will be (be specific) municipal supply water

7. Well location: NW ¼ SE ¼ NW ¼ Section 7 Township 13 N Range 11 W
10 Acre 40 Acre 160 Acre

8. Position location of the well: Latitude 32 ° 19 ' 00.2 " N Longitude 111 ° 15 ' 53.4 " W

9. Design Pump Capacity 1300 gpm Depth 573 feet
Diameter 16 inches Type of casing Low-Carbon Steel

10. Proposed annual volume of water 2100 acre feet

11. Well is located in the _____ subbasin of the Tucson Active Management Area.

12. If the well is located in the Santa Cruz AMA, please attach documentation and explanation showing that the location of the proposed well will not result in local water tables experiencing a long-term decline.

13. Approximate date construction will begin: MONTH April YEAR 2005

Estimated time to complete new well 2 months. (If longer than 1 year, attach explanation.)

14. Legal description of the land where the groundwater will be used:

NW ¼ SE ¼ NW ¼ Section 7 Township 13 N S Range 11 EW. County Pima
10 Acre 40 Acre 160 Acre

15. Is the proposed well site within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility or storage area of hazardous materials? Yes No (if yes, a request for a variance must accompany this application pursuant to R12-15-820.)

16. Driller's Name AZCA Drilling & Pump DWR License No: 621 ROC License Category A

Mailing Address: 50078 Parker Poston Rd. Ehrenberg Arizona 85334 (928) 923-9118
Street City State Zip Telephone Number

17. Attach a Well Construction Supplement, DWR form 55-90, and include a detailed construction diagram as indicated on the form.

III. FOR SERVICE AREA WELLS AND IRRIGATION DISTRICT WELLS ONLY:

AUG 18 - 2007 034

18. Is the proposed well located in your service area? Yes No

19. Will groundwater withdrawn be used in your service area? Yes No (If answer is no, attach explanation.)

IV. FOR REPLACEMENT WELL IN NEW LOCATION ONLY:

20. Registration number of original well 55- _____

21. Location of the original well: _____ ¼ _____ ¼ _____ ¼ Section _____ Township _____ N/S Range _____ E/W
10 Acre 40 Acre 160 Acre

22. Distance between original well and proposed replacement well _____ feet.

23. When determining impacts under the Department's well spacing rules, the director will take into account the collective efforts of reducing or terminating withdrawals from the well being replaced combined with the proposed withdrawals from the replacement well if the applicant submits a hydrological study demonstrating those collective effects to the satisfaction of the director.

Will a hydrological study be submitted? Yes No

24. Will the original well be abandoned if applicant receives a permit to drill a replacement well? Yes No.

(If yes, please submit a completed Notice of Intent to Abandon a Well along with this application.)

If no, explain the planned use of the original well _____

V. FOR CONVERSION (ENLARGEMENT) OF EXISTING WELL ONLY:

25. Registration number of the existing well 55- 20705 Present pump design capacity N/A gallons per minute.
Present permitted volume 10 acre-feet per year.

26. The new design pump capacity will be 1300 gallons per minute. New permitted volume will be 2100 acre-feet per year.

27. The existing well has previously been used in conjunction with or for the following: hydrologic testing

It is understood that the permit, if granted, will be in accordance with the Groundwater Management Act (Title 45, Chapter 2), and the rules adopted thereunder. The permittee will be bound by the provisions of such law and the provisions of the permit issued.

I (we), Chris E. Ward hereby affirm that all information provided in this application is true and correct to the best of my/our
(print name) knowledge and belief.

Signature of Applicant Chris E. Ward Date 7-20-07

ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION

3550 North Central Avenue, Phoenix, Arizona 85012
Phone (602) 771-8585 Fax (602) 771-8688

AUG 18 - 2007



WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)

Well Registration Number 55- 207058

1. Well Location:

NW ¼ of the SE ¼ of the NW ¼, Sec. 7, Township 13 N Range 11 E.
10AC 40AC 160AC (circle appropriate direction)

2. Position Location of the Well:

Latitude 32 ° 19 ' 00.2 " Longitude 111 ° 15 ' 53.4 "

Datum: NAD 83 NAD 27 Other: _____

3. County Pima

4. Construction date of well: 04 / 2005

5. Time period well will remain in use: 50 years

6. Is pump equipment to be installed? yes If so, design pump capacity: 1300 GPM.

7. Well construction plan:

a. Drilling method (mud rotary, hollow-stem auger, etc.) Flooded reverse drilling

b. Borehole diameters 30 inches from 0 feet to 34 feet.
22 inches from 34 feet to 722 feet.

c. Casing materials 16 inch Low-Carbon Steel

d. Method of well development (bail, air lift, surge, etc.) Swab & Air Lift / Pump & Surge

e. Will surface or conductor casing extend above grade? Yes

8. Include a detailed construction diagram of the well design. The diagram should verify consistency with minimum construction requirements specified in the Department's well construction rules found in Arizona Administrative Code (A.A.C.) R12-15-801 et seq. Specifically, the diagram should include borehole diameters; casing materials and diameters; perforation intervals; the expected water level; depth and thickness of the surface seal; proposed grouting materials; and the length that the surface or conductor casing will extend above grade, or vault details, if specified.

Pursuant to Arizona Revised Statutes (A.R.S.) § 45-594.B, all well construction, replacement, deepening and abandonment operations shall comply with the rules adopted pursuant to this section. Therefore, any existing well that is deepened or modified must be brought into compliance with minimum well construction standards specified above, if not already in compliance.

9. Proposed materials and method of abandonment if well is to be abandoned after project is completed (Minimum requirements per A.A.C. R12-15-816):

10. Is the wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? ___ Yes X No

11. Is this well to monitor existing contamination? ___ Yes X No

Potential contamination? ___ Yes X No If yes, please provide explanation: _____

12. Name of Consulting firm, if any: Golder Associates

4730 N. Oracle Rd., Suite 210 Tucson Arizona 85705
Address City State Zip

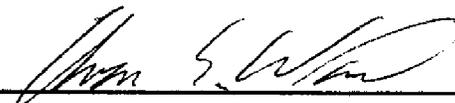
Contact Person: Dale Armstrong Telephone Number: (520) 888-8818

13. Drilling firm AZCA Drilling & Pump

DWR License Number: 621 ROC License Category: A

14. Special construction standards, if any, required pursuant to A.A.C. R12-15-821: _____

I (we), Chris E. Ward hereby affirm that all information provided in this
(print name) application is true and correct to the best of my/our
knowledge and belief.

Signature of Applicant  Date 7-20-07

RECEIVED
AUG 13 - 2007
WATER DIVISION

**PHOENIX AMA
CHECK DEPOSIT REQUEST**

Submitted By:	Sharon Ward	Date:	8/15/07
Right Owner or Applicant:	Avra Water Co-op		
GFR or Permit No(s):	S-215994 (55-207058)		

CHECK INFORMATION

Check Number: 8310
Check Amount: \$180.00
Name on Check: Avra Water Co-op
Address: 11821 W. Picture Rocks Rd.
City, ST, Zip: Avra Valley AZ 85743
Telephone: 520-682-7331

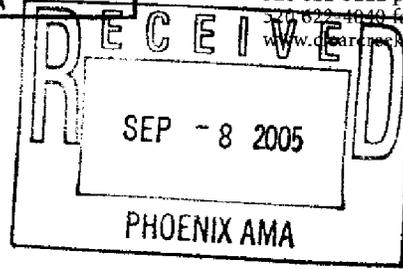
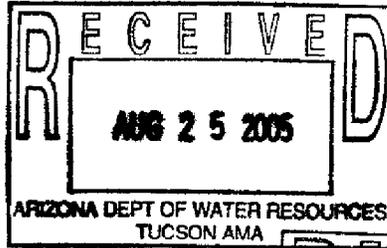
Code	Type of Fee:	Amount:	Check No.
55	Application for Well Permit (\$150.00)	\$ 150.00	8310
55	Well Permit Fee (\$30.00)	\$ 30.00	8310
58	Type I Conversion Request Flex Account Transfers (\$100.00)		
58	Notification of Change of Ownership of an Irrigation Grandfathered Right (\$35.00)		
60	Application to Substitute Irrigation Acres		
59	Applications for Permit to Withdraw (\$50.00 or \$150.00)		
59	Withdrawal Permit Fee (\$50.00)		
59	Conveyance of Groundwater Withdrawal Application and/or Permit (\$35.00)		
Gen Fund	Legal Noticing Fees (Various)		
55	Notice of Intent for Non-Exempt Wells (\$150.00)		



Practical Solutions
in Groundwater Science

August 17, 2005

Mr. Jeff Tannler
Arizona Department of Water Resources
Southern Regional Office
400 W. Congress, Suite 518
Tucson, AZ 85701



59-207057
55-207058
221 N. Court Avenue, Suite 101
Tucson, Arizona 85701
520 622-3222 phone
520 622-4040 fax
www.clearcreekassociates.com

Hydrologic Test Results from Avra Water Co-Op Hydrologic Test Well No. 10, Avra Valley, Arizona

Dear Jeff,

Clear Creek Associates has completed testing of the Avra Water Co-op Hydrologic Test Well No. 10. The attachments contain graphic representations of the Constant-rate and recovery aquifer testing data. The groundwater produced during the aquifer testing was discharged to a local arroyo system and allowed to recharge the regional aquifer.

Clear Creek Associates was contracted to oversee the testing activities of the new aquifer test well. The well is located near the western end of Orange Grove Road, Avra Valley, Arizona. The legal location of the well is the NW ¼ (10-acre) of the SE ¼ (40-acre) of the NE ¼ (160-acre) of Section 7, in Township 13 South, Range 11 East (also designated as D(13-11)7bdb). Figure 1 shows the location of Avra Water Co-Op Aquifer Test Well.

Copies can be produced of the field data collection sheets if you would like. Please do not hesitate to contact us for further information.

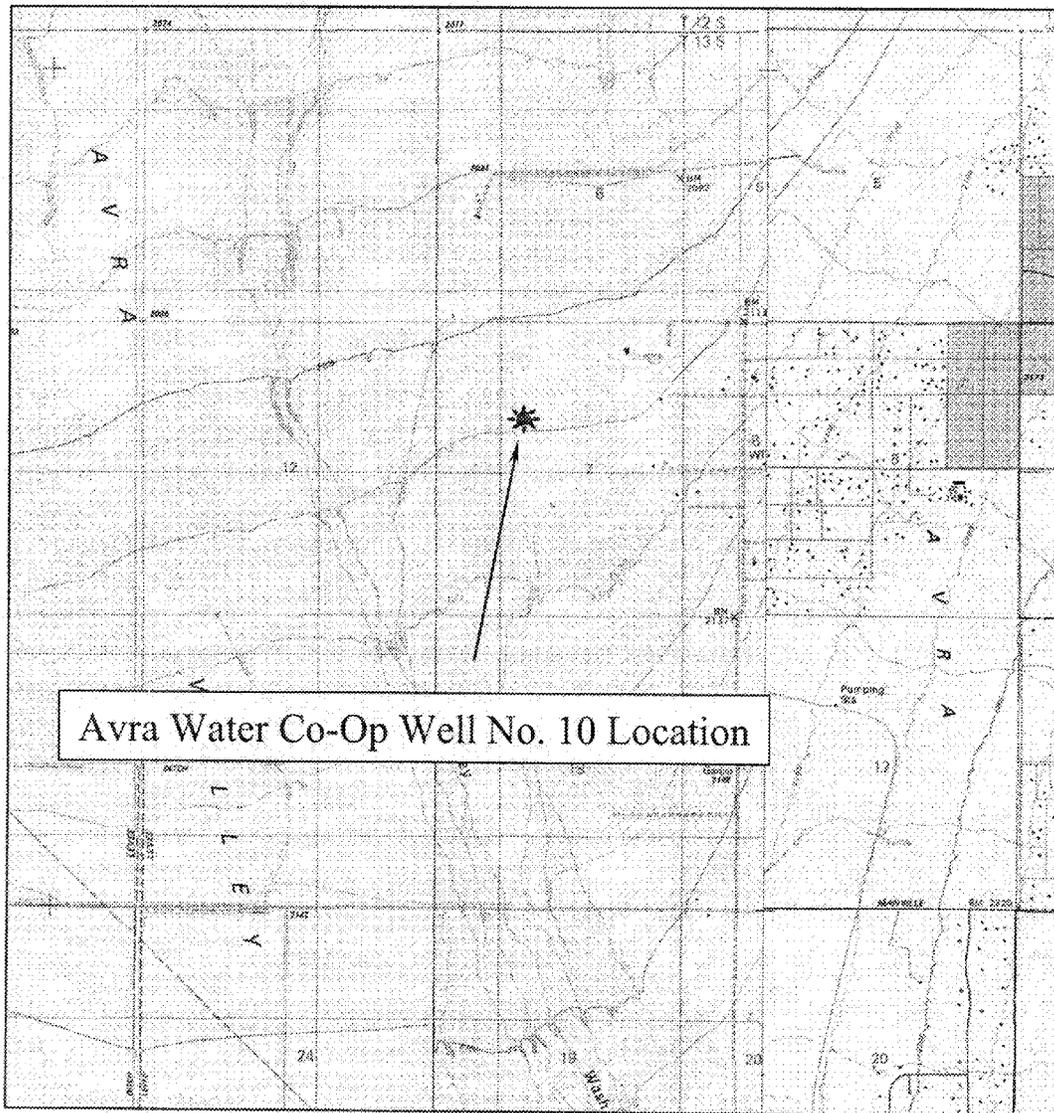
Sincerely,

CLEAR CREEK ASSOCIATES

Dale G. Armstrong, R.G.

Senior Hydrogeologist

CC: Chris Ward -- Avra Water Co-op
Attachments -- Avra Water Co-op Aquifer Test Well Location Map
Well Design Drawing, Avra Water Co-Op Aquifer Test Well
Test data and Plots.



Avra Water Co-Op Well No. 10 Location



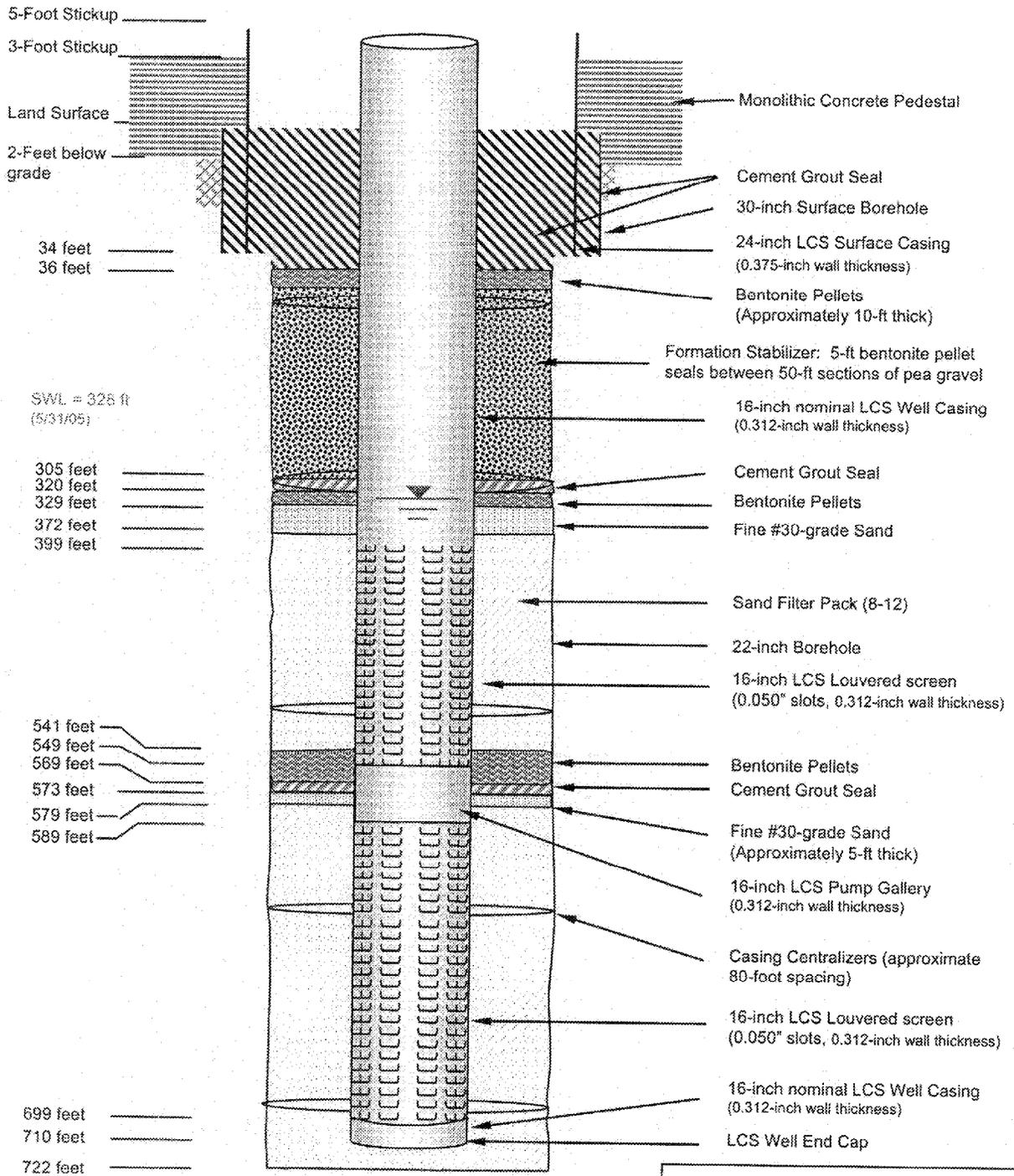
R 10 E

R 11 E

* Avra Water Co-Op Well No. 10 Location



Location Map
Avra Water Co-Op Well No. 10
ADWR #55-207058
AVRA VALLEY
Avra Valley, Arizona
 June 29, 2005



Not To Scale

CLEAR CREEK ASSOCIATES

Notes: LCS = Low Carbon Steel
All casing diameters are nominal O.D.
unless noted otherwise

AS-BUILT DRAWING
Avra Water Co-Op
Well No. 10 ADWR # 55-207058
Avra Valley, Arizona

6/29/2005

24-Hour Constant-Rate Test, Avra Water Co-op Well No. 10

Aquifer Test Data		Project No.: 2026		SWL (feet bis)		Page 1 of 1					
Project: Avra Water Co-Op Well #10		Well No.: AWC Well #10		328.15							
Well Location: Avra Valley, AZ		Measured By: PAB, RAB, KZ		Elev. of M. Point:							
Well Diameter: 16 in		Pump On Date: 5/31/2005		Available Drawdown (feet):		251.85					
Pump Setting: 580 Ft bis		Time: 6:00		Totalizer Start =		63204					
Screen Interval: 399-549 + 589-710		Time: 6:00		Totalizer End =		56823					
How Q Measured: Flowmeter		Duration of Aquifer Test: 24 hrs				Flowmeter Q = 2516 gpm					
Time of Measurement	Time since Pumping Started (min)	Recovery Time (T') (min)	u ^t	Sounder Reading (ft)	Correction (feet)	Water Level (feet)	Drawdown (feet)	Discharge Q (gpm) Flowmeter	Time Weighted Discharge	Specific Capacity (gpm/ft)	Remarks
6:01:00	1	NA	NA	356.25	2.70	353.55	25.40	2505	2505	NA	Observation Well (No Pumping)
6:02:00	2	NA	NA	364.00	2.70	381.30	53.15	2468	2505	NA	
6:03:00	3	NA	NA	386.40	2.70	383.70	55.55	2476	2468	NA	
6:04:00	4	NA	NA	387.45	2.70	384.75	56.60	2493	2476	NA	
6:05:00	5	NA	NA	388.00	2.70	385.30	57.15	2492	2493	NA	
6:06:00	6	NA	NA	388.20	2.70	385.50	57.35	2490	2492	NA	
6:07:00	7	NA	NA	388.80	2.70	386.10	57.95	2490	2490	NA	
6:08:00	8	NA	NA	388.85	2.70	386.15	58.00	2490	2490	NA	
6:09:00	9	NA	NA	390.40	2.70	387.70	59.55	2470	2505	NA	
6:10:00	10	NA	NA	390.75	2.70	388.05	59.90	2485	2470	NA	
6:12:00	12	NA	NA	391.35	2.70	388.85	60.50	2496	2470	NA	
6:14:00	14	NA	NA	391.85	2.70	389.15	61.00	2507	4992	NA	
6:16:00	16	NA	NA	392.00	2.70	389.30	61.15	2500	5014	NA	
6:18:00	18	NA	NA	392.60	2.70	389.90	61.75	2502	5000	NA	
6:20:00	20	NA	NA	392.85	2.70	390.15	62.00	2495	5004	NA	
6:25:00	25	NA	NA	393.45	2.70	390.75	62.60	2490	12475	NA	
6:30:00	30	NA	NA	394.50	2.70	391.80	63.65	2475	12450	NA	
6:35:00	35	NA	NA	394.75	2.70	392.45	64.30	2508	12400	NA	
6:40:00	40	NA	NA	395.15	2.70	392.85	65.15	2506	12540	NA	
6:45:00	45	NA	NA	396.00	2.70	393.30	65.15	2506	12540	NA	
6:50:00	50	NA	NA	397.00	2.70	394.30	66.15	2506	12530	NA	
6:55:00	55	NA	NA	397.25	2.70	394.55	66.40	2532	12530	NA	
7:00:00	60	NA	NA	397.85	2.70	395.15	67.00	2538	12660	NA	
7:10:00	70	NA	NA	398.10	2.70	395.40	67.25	2504	25380	NA	
7:20:00	80	NA	NA	398.55	2.70	395.85	67.70	2520	25040	NA	
7:30:00	90	NA	NA	399.10	2.70	396.40	68.25	2553	25200	NA	
7:40:00	100	NA	NA	399.20	2.70	396.50	68.35	2545	25530	NA	
7:50:00	110	NA	NA	399.50	2.70	396.80	68.65	2499	25450	NA	
8:00:00	120	NA	NA	399.85	2.70	397.15	69.00	2502	24990	NA	
8:15:00	135	NA	NA	399.95	2.70	397.25	69.10	2551	37530	NA	
8:30:00	150	NA	NA	400.33	2.70	397.63	69.48	2552	36265	NA	
8:45:00	165	NA	NA	400.65	2.70	397.95	69.80	2536	36280	NA	
9:00:00	180	NA	NA	401.00	2.70	398.30	70.15	2530	36040	NA	
9:15:00	195	NA	NA	401.15	2.70	398.45	70.30	2524	37950	NA	
9:30:00	210	NA	NA	401.25	2.70	398.55	70.40	2509	37860	NA	

Cooper-Jacob Time/Drawdown Avra Water Co-Op Well No. 10 Aquifer Test 5/31/2005-6/1/2005

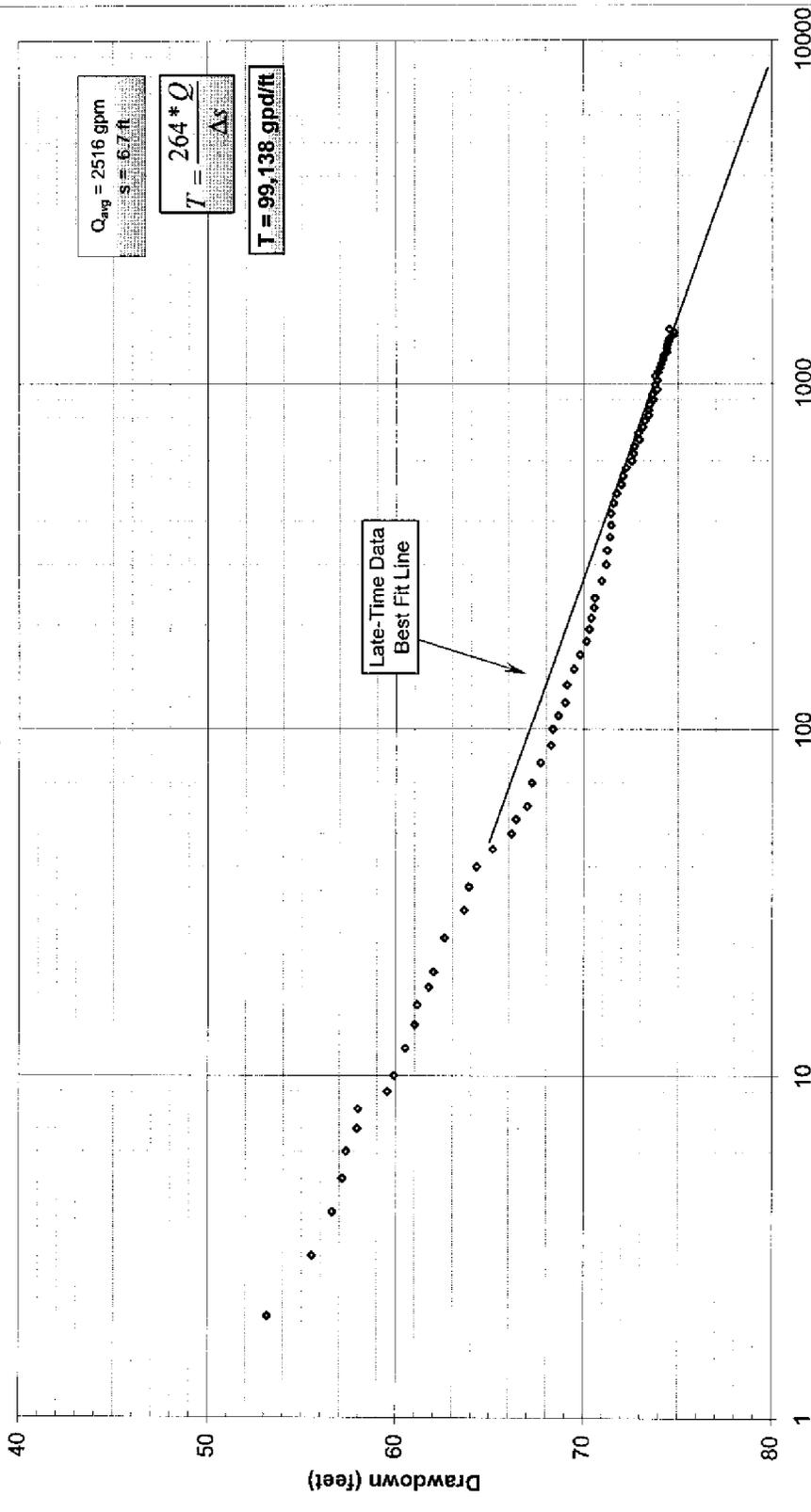


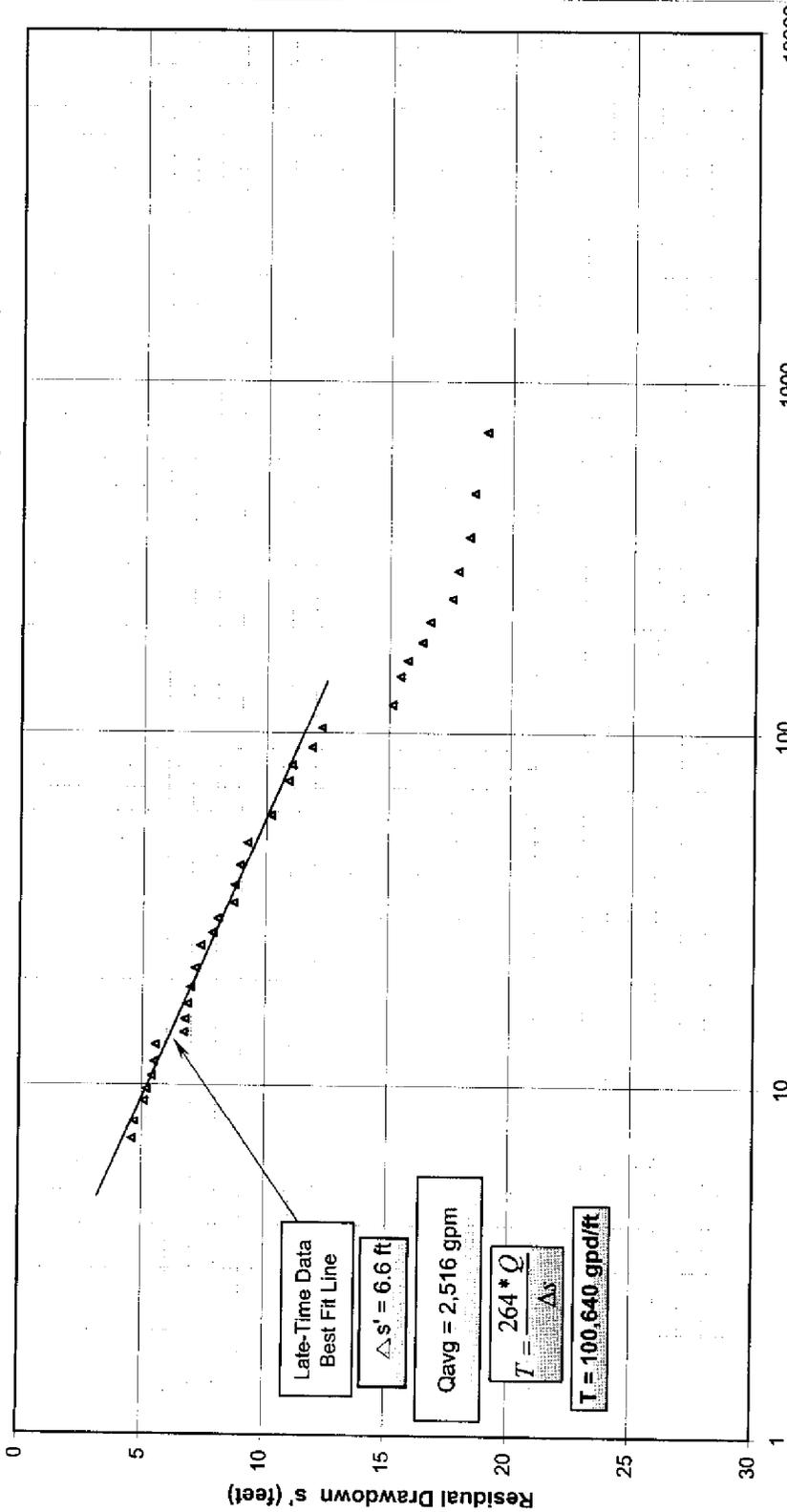
Figure 1
 Constant-Discharge Test
 Semi-Logarithmic Plot of Drawdown Verses Time
 Avra Water Co-Op Well No. 10, ADWR # 55-207058
 Avra Valley, Arizona
 June 29, 2005



24-Hour Constant-Rate Test, Avra Water Co-op Well No. 10 Recovery Data

Time of Measurement		Time Since Pumping Started (min.)	Recovery Time (t') (min.)	Wt'	Sounder Reading (ft)	Correction (ft)	Water Level (feet)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
Project: Avra Water Co-Op Well #10 Well Location: Well No.: AWC Well No. 10 Pump Diameter: 16 in Pump Setting: 580 ft bls Screen Interval: 399-549 + 589-710 How Q Measured: Flowmeter											
Project No.: 002026 Well No.: AWC Well No. 10 Measured By: Pump On Date: 5/31/2005 Pump Off Date: 6/1/2005 Duration of Aquifer Test: 24 hrs											
SWL (feet bls) M. Point: (feet above land surface) Elev. of M. Point: Available Drawdown (feet): 63204 66829 Average Q =											
Flowmeter Q = 2516 gpm											
6:01:00	1441	1	1441.00	369.60	2.7	366.90	38.75	35.80	48.02		
6:02:00	1442	2	721.00	349.80	2.7	347.10	18.95	55.60	74.58		
6:03:00	1443	3	481.00	349.30	2.7	346.60	18.45	56.10	75.25		
6:04:00	1444	4	361.00	349.10	2.7	346.40	18.25	56.30	75.52		
6:05:00	1445	5	289.00	348.65	2.7	345.95	17.80	56.75	76.12		
6:06:00	1446	6	241.00	348.40	2.7	345.70	17.55	57.00	76.46		
6:07:00	1447	7	206.71	347.50	2.7	344.80	16.65	57.90	77.67		
6:08:00	1448	8	181.00	347.20	2.7	344.50	16.35	58.20	78.07		
6:09:00	1449	9	161.00	346.60	2.7	343.90	15.75	58.80	78.87		
6:10:00	1450	10	145.00	346.30	2.7	343.60	15.45	59.10	79.28		
6:12:00	1452	12	121.00	345.99	2.7	343.29	15.14	59.41	79.69		
6:14:00	1454	14	103.86	343.10	2.7	340.40	12.25	62.30	83.57		
6:16:00	1456	16	91.00	342.70	2.7	340.00	11.85	62.70	84.10		
6:18:00	1458	18	81.00	341.90	2.7	339.20	11.05	63.50	85.18		
6:20:00	1460	20	73.00	341.75	2.7	339.05	10.90	63.65	85.38		
6:25:00	1465	25	58.60	341.05	2.7	338.35	10.20	64.35	86.32		
6:30:00	1470	30	49.00	340.10	2.7	337.40	9.25	65.30	87.59		
6:35:00	1475	35	42.14	339.80	2.7	337.10	8.95	65.60	87.98		
6:40:00	1480	40	37.00	339.60	2.7	336.90	8.75	65.80	88.26		
6:45:00	1485	45	33.00	339.65	2.7	336.85	8.70	65.85	88.33		
6:50:00	1490	50	29.80	338.90	2.7	336.20	8.05	66.50	89.20		
6:55:00	1495	55	27.18	338.70	2.7	336.00	7.85	66.70	89.47		
7:00:00	1500	60	25.00	338.20	2.7	335.50	7.35	67.20	90.14		
7:10:00	1510	70	21.57	338.00	2.7	335.30	7.15	67.40	90.41		
7:20:00	1520	80	19.00	337.80	2.7	335.10	6.95	67.60	90.68		
7:30:00	1530	90	17.00	337.70	2.7	335.00	6.85	67.70	90.81		
7:40:00	1540	100	15.40	337.60	2.7	334.90	6.75	67.80	90.95		
7:50:00	1550	110	14.08	337.55	2.7	334.85	6.70	67.85	91.01		
8:00:00	1560	120	13.00	336.40	2.7	333.70	5.55	69.00	92.56		
8:15:00	1575	135	11.67	336.35	2.7	333.65	5.50	69.05	92.62		
8:30:00	1590	150	10.60	336.25	2.7	333.55	5.20	69.15	92.76		
8:45:00	1605	165	9.73	336.05	2.7	333.35	5.40	69.35	93.02		
9:00:00	1620	180	9.00	335.95	2.7	333.25	5.10	69.45	93.16		
9:30:00	1650	210	7.86	335.55	2.7	332.85	4.70	69.85	93.70		
10:00:00	1680	240	7.00	335.45	2.7	332.75	4.60	69.95	93.83		

Semilogarithmic Plot of Residual Drawdown (s') Verses t/t' For Avra Water Co-Op Well No. 10, 6/1/2005



**CLEAR
CREEK
ASSOCIATES**

Figure 2
Recovery Test
Semi-Logarithmic Plot of Residual Drawdown Verses t/t'
Avra Water Co-Op Test Well, ADWR # 55-207058
Avra Valley, Arizona
June 29, 2005

Avra Water Co-op Observation Well AWC-T1

Aquifer Test Data		Project No.: 2026	SWL (feet/bis)	Page 1 of 1							
Project: Avra Water Co-Op Well #10		Well No.: AWC-T1 (Observation Well, 75 ft from AWC Well #10)		3259							
Well Location: Avra Valley, AZ		Measured By: PAB, RAB, KZ	Elev. of M. Point:								
Well Diameter: 8" (0-480); 5" (480-1,010)		Pump On Date: 5/31/2005	Available Drawdown (feet):	371.25							
Pump Setting: NA		Pump Off Date: 6/1/2005	Totalizer Start =	63204							
Screen Interval: 353-458 + 480-1,010		Duration of Aquifer Test: 24 hrs	Totalizer End =	66829							
Flow Q Measured: Flowmeter				Flowmeter Q = 2516 gpm							
Time of Measurement	Time since Pumping Started (min)	Recovery Time (t*) (min)	U'	Sounder Reading (ft)	Correction (feet)	Water Level (feet)	Drawdown (feet)	Discharge Q (gpm) Flowmeter	Time Weighted Discharge	Specific Capacity (gpm/ft)	Remarks
6:01:00	1	NA	NA	335.90	5.30	330.60	4.70	2505	2505	NA	Observation Well (No Pumping)
6:02:00	2	NA	NA	339.05	5.30	333.75	7.85	2468	2505	NA	
6:03:00	3	NA	NA	339.15	5.30	333.85	7.95	2476	2468	NA	
6:04:00	4	NA	NA	340.30	5.30	335.00	9.10	2493	2476	NA	
6:05:00	5	NA	NA	341.00	5.30	335.70	9.80	2493	2493	NA	
6:06:00	6	NA	NA	341.55	5.30	336.25	10.35	2490	2490	NA	
6:07:00	7	NA	NA	342.05	5.30	336.75	10.85	2490	2490	NA	
6:08:00	8	NA	NA	342.50	5.30	337.20	11.30	2505	2490	NA	
6:09:00	9	NA	NA	342.80	5.30	337.50	11.60	2470	2505	NA	
6:10:00	10	NA	NA	343.25	5.30	337.95	12.05	2485	2470	NA	
6:12:00	12	NA	NA	344.15	5.30	338.85	12.95	2496	2470	NA	
6:14:00	14	NA	NA	344.80	5.30	339.50	13.60	2507	4992	NA	
6:16:00	16	NA	NA	344.85	5.30	339.55	13.65	2500	5014	NA	
6:18:00	18	NA	NA	345.15	5.30	339.85	13.95	2502	5000	NA	
6:20:00	20	NA	NA	345.35	5.30	340.05	14.15	2495	5004	NA	
6:25:00	25	NA	NA	345.66	5.30	340.36	14.46	2490	12475	NA	
6:30:00	30	NA	NA	348.10	5.30	342.80	16.90	2475	12450	NA	
6:35:00	35	NA	NA	347.10	5.30	341.80	15.90	2480	12375	NA	
6:40:00	40	NA	NA	348.94	5.30	343.64	17.74	2508	12400	NA	
6:45:00	45	NA	NA	349.27	5.30	343.97	18.07	2506	12540	NA	
6:50:00	50	NA	NA	349.73	5.30	344.43	18.53	2506	12530	NA	
6:55:00	55	NA	NA	350.17	5.30	344.87	18.97	2532	12530	NA	
7:00:00	60	NA	NA	350.42	5.30	345.12	19.22	2538	12660	NA	
7:10:00	70	NA	NA	351.25	5.30	345.95	20.05	2504	25380	NA	
7:20:00	80	NA	NA	351.60	5.30	346.20	20.30	2520	25040	NA	
7:30:00	90	NA	NA	352.45	5.30	346.30	20.40	2553	25200	NA	
7:40:00	100	NA	NA	352.45	5.30	347.15	21.25	2545	25630	NA	
7:50:00	110	NA	NA	352.50	5.30	347.20	21.30	2499	25450	NA	
8:00:00	120	NA	NA	352.65	5.30	347.35	21.45	2502	24990	NA	
8:15:00	135	NA	NA	353.00	5.30	347.70	21.80	2551	37530	NA	
8:30:00	150	NA	NA	353.15	5.30	347.85	21.95	2552	38265	NA	
8:45:00	165	NA	NA	353.30	5.30	348.00	22.10	2536	38280	NA	
9:00:00	180	NA	NA	353.50	5.30	348.20	22.30	2530	38040	NA	
9:15:00	195	NA	NA	353.85	5.30	348.55	22.65	2524	37950	NA	
9:30:00	210	NA	NA	354.10	5.30	348.80	22.90	2508	37860	NA	

Cooper-Jacob Time/Drawdown Avra Water Co-op Observation Well AWC-T1 Aquifer Test 5/31/2005-6/1/2005

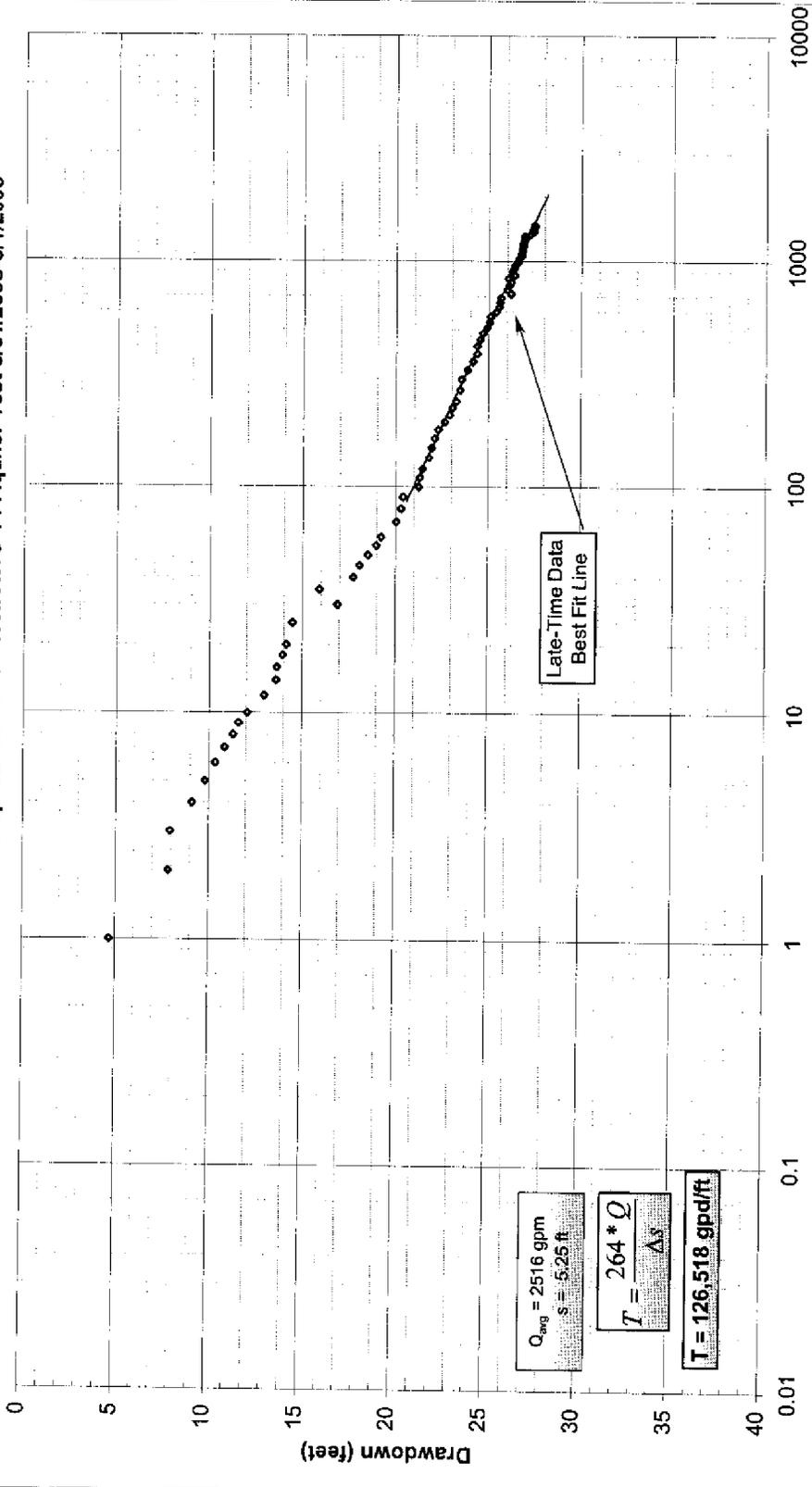


Figure 3
 Constant-Discharge Test
 Semi-Logarithmic Plot of Drawdown Verses Time
 Observation Well AWC-T1, ADWR # 55-203887
 Avra Valley, Arizona June 29, 2005



Avra Water Co-op Observation Well AWC-T1 Recovery Data

Aquifer Test Data		Project No.: 002026		Page 1 of 1						
Project: Avra Water Co-Op Well #10		Well No.: AWC Test Well		325.9						
Well Diameter: 10"		Measured By:		5.3						
Pump Setting: 10"		Pump On Date: 5/31/2005		Elev. of M. Point:						
Screen Interval:		Pump Off Date: 6/1/2005		Available Drawdown (feet):						
How Q Measured: Sounder		Duration of Aquifer Test:		63204						
Time		Time: 6:00		Average Q =						
Since Pumping Started (min.)		Time: 6:00		66829						
Recovery Time (min.)		24 hrs		Flowmeter Q = 2516 gpm						
Time of Measurement	Since Pumping Started (min.)	Recovery Time (min.)	ft'	Sounder Reading (ft)	Correction (ft)	Water Level (feet)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
6:01:00	1441	1	1441.00	351.00	5.3	345.70	19.80	6.68	25.23	
6:02:00	1442	2	721.00	348.92	5.3	343.62	17.72	8.76	33.08	
6:03:00	1443	3	481.00	348.69	5.3	343.39	17.49	8.99	33.95	
6:04:00	1444	4	361.00	348.05	5.3	342.75	16.85	9.63	36.37	
6:05:00	1445	5	289.00	347.54	5.3	342.24	16.34	10.14	38.29	
6:06:00	1446	6	241.00	347.06	5.3	341.76	15.86	10.62	40.11	
6:07:00	1447	7	206.71	346.63	5.3	341.33	15.43	11.05	41.73	
6:08:00	1448	8	181.00	346.22	5.3	340.92	15.02	11.46	43.28	
6:09:00	1449	9	161.00	345.90	5.3	340.60	14.70	11.78	44.49	
6:10:00	1450	10	145.00	345.57	5.3	340.27	14.37	12.11	45.73	
6:12:00	1452	12	121.00	345.01	5.3	339.71	13.81	12.67	47.85	
6:14:00	1454	14	103.86	344.55	5.3	339.25	13.35	13.13	49.58	
6:16:00	1456	16	91.00	344.13	5.3	338.83	12.93	13.55	51.17	
6:18:00	1458	18	81.00	343.45	5.3	338.15	12.25	14.23	53.74	
6:20:00	1460	20	73.00	343.23	5.3	337.93	12.03	14.45	54.57	
6:25:00	1465	25	58.60	342.50	5.3	337.20	11.30	15.18	57.33	
6:30:00	1470	30	49.00	342.10	5.3	336.80	10.90	15.58	58.84	
6:35:00	1475	35	42.14	341.63	5.3	336.33	10.43	16.05	60.61	
6:40:00	1480	40	37.00	341.21	5.3	335.91	10.01	16.47	62.20	
6:45:00	1485	45	33.00	340.83	5.3	335.53	9.63	16.85	63.63	
6:50:00	1490	50	29.80	340.50	5.3	335.20	9.30	17.18	64.88	
6:55:00	1495	55	27.18	340.21	5.3	334.91	9.01	17.47	65.97	
7:00:00	1500	60	25.00	340.03	5.3	334.73	8.83	17.65	66.65	
7:10:00	1510	70	21.57	339.70	5.3	334.40	8.50	17.98	67.90	
7:20:00	1520	80	19.00	339.40	5.3	334.10	8.20	18.28	69.03	
7:30:00	1530	90	17.00	339.00	5.3	333.70	7.80	18.68	70.54	
7:40:00	1540	100	15.40	338.90	5.3	333.60	7.70	18.78	70.92	
7:50:00	1550	110	14.09	338.30	5.3	333.00	7.10	19.38	73.19	
8:00:00	1560	120	13.00	338.10	5.3	332.80	6.90	19.58	73.94	
8:15:00	1575	135	11.67	337.90	5.3	332.60	6.70	19.78	74.70	
8:30:00	1590	150	10.60	337.70	5.3	332.40	6.50	19.98	75.47	
8:45:00	1605	165	9.73	337.40	5.3	332.10	6.20	20.28	76.23	
9:00:00	1620	180	9.00	337.15	5.3	331.85	5.95	20.53	76.98	
9:15:00	1635	195	8.38	336.78	5.3	331.48	5.36	20.90	77.71	
9:30:00	1650	210	7.86	336.56	5.3	331.26	5.38	21.12	78.41	
9:45:00	1665	225	7.40	336.38	5.3	331.08	5.18	21.30	79.08	
10:00:00	1680	240	7.00	335.95	5.3	330.65	4.75	21.73		

Semilogarithmic Plot of Residual Drawdown (s') Verses t/t' For Avra Water Co-Op Test Well, 6/1/2005
 (Observation Well AWC-T1)

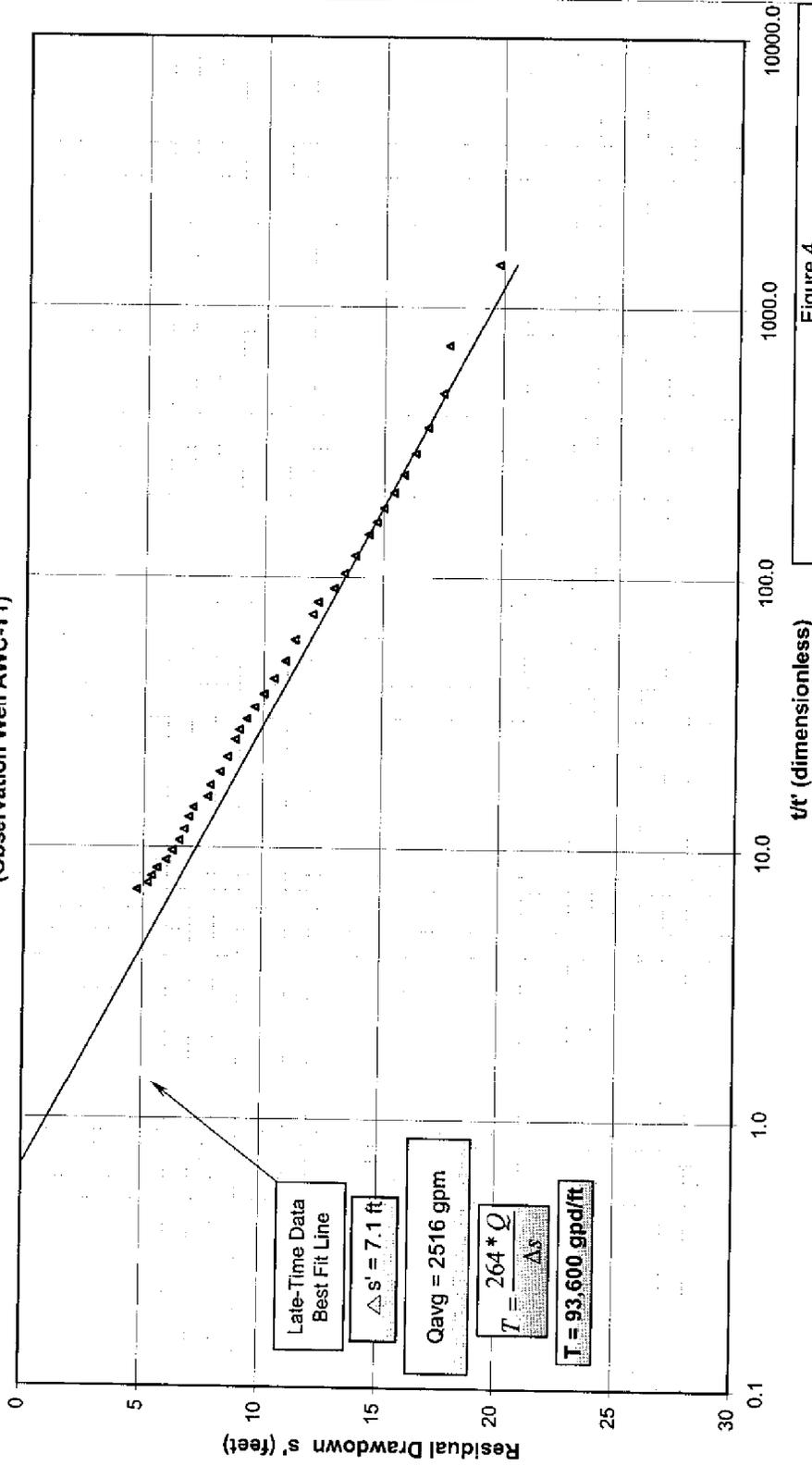


Figure 4
 Recovery Test
 Semi-Logarithmic Plot of Residual Drawdown Verses t/t'
 Observation Well AWC-T1, ADWR # 55-203887
 Avra Valley, Arizona
 June 29, 2005

Semilogarithmic Plot of Calculated Recovery (ft) Verses Time Since Pumping Stopped
For Avra Water Co-Op Test Well, 6/1/2005
(Observation Well AWC-T1)

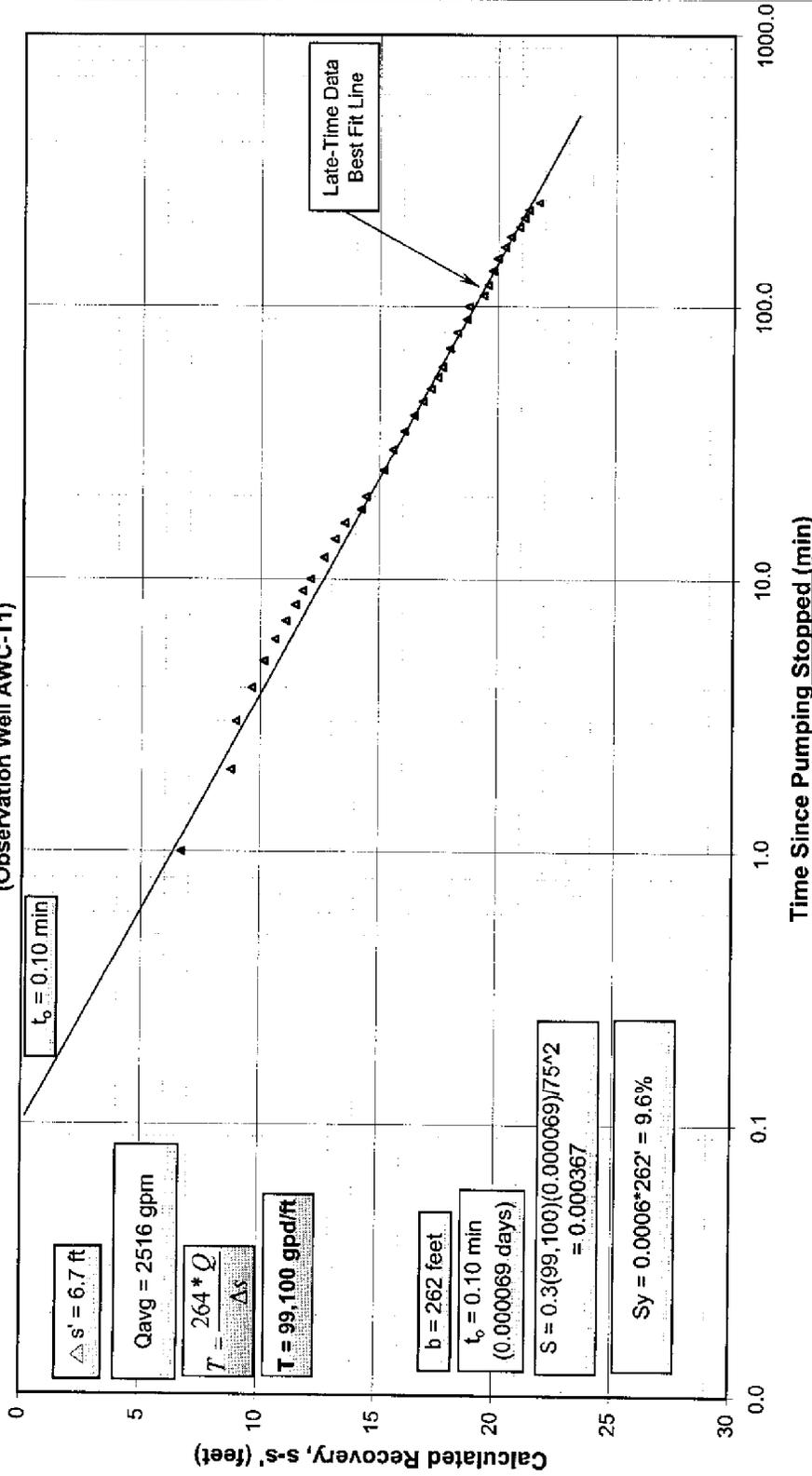
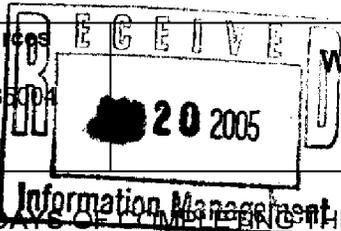


Figure 5
Semi-Logarithmic Plot of Residual Drawdown Verses Recovery Time
AWC-T1 Observation Well, ADWR # 55-203887
Avra Valley, Arizona June 29, 2005





Arizona Department of Water Resources
 Information Management Unit
 500 N. 3rd Street • Phoenix, Arizona 85004
 (602) 417-2405 • (800) 352-8488
 www.water.az.gov



Well Driller Report
 and
 Well Log

THIS REPORT MUST BE FILED WITHIN 30 DAYS OF COMPLETING THE WELL.
 PLEASE PRINT CLEARLY USING BLACK OR BLUE INK.

FILE NUMBER
D(13-11) 7 BDB
 WELL REGISTRATION NUMBER
55-207058
 PERMIT NUMBER (IF ISSUED)
59-207057

SECTION 1. DRILLING AUTHORIZATION	
Drilling Firm	
NAME N.C.C.I. INC.	DWR LICENSE NUMBER 682
ADDRESS 16222 GUNDRY AVE.	TELEPHONE NUMBER 562-220-1120
CITY / STATE / ZIP PARAMOUNT, CA. 90723-	FAX 562.220.1133

SECTION 2. REGISTRY INFORMATION								
Well Owner			Location of Well					
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL AVRA WATER Co-Op.			WELL LOCATION ADDRESS (IF ANY)					
MAILING ADDRESS 11821 W. PICTURE ROCKS RD.			TOWNSHIP (N/S) 13S	RANGE (E/W) 11E	SECTION 7	160 ACRE NW 1/4	40 ACRE SE 1/4	10 ACRE NW 1/4
CITY / STATE / ZIP CODE TUCSON, AZ 85743			LATITUDE 32° 19' 0.2"N Degrees Minutes Seconds		LONGITUDE 111° 15' 53.4"W Degrees Minutes Seconds			
CONTACT PERSON NAME AND TITLE CHRIS WARD, GEN. MGR.			METHOD OF LATITUDE / LONGITUDE (CHECK ONE) <input checked="" type="checkbox"/> GPS: Hand-Held <input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input type="checkbox"/> GPS: Survey-Grade					
TELEPHONE NUMBER 520-682-7331			LAND SURFACE ELEVATION AT WELL Feet Above Sea Level 520-682-8933					
WELL NAME WELL #10			METHOD OF ELEVATION (CHECK ONE) <input type="checkbox"/> GPS: Hand-Held <input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input type="checkbox"/> GPS: Survey-Grade					
ASSESSOR'S PARCEL ID NUMBER								
COUNTY		BOOK		MAP		PARCEL		

ANSWERED JUN 23 2005

SECTION 3. WELL CONSTRUCTION DETAILS		
Drill Method	Method of Well Development	Method of Sealing at Reduction Points
CHECK ALL THAT APPLY <input type="checkbox"/> Air Rotary <input type="checkbox"/> Bored or Augered <input type="checkbox"/> Cable Tool <input type="checkbox"/> Dual Rotary <input type="checkbox"/> Mud Rotary <input checked="" type="checkbox"/> Reverse Circulation <input type="checkbox"/> Driven <input type="checkbox"/> Jetted <input type="checkbox"/> Air Percussion / Odex Tubing <input type="checkbox"/> Other (please specify):	CHECK ALL THAT APPLY <input checked="" type="checkbox"/> Airlift <input type="checkbox"/> Bail <input checked="" type="checkbox"/> Surge Block <input checked="" type="checkbox"/> Surge Pump <input type="checkbox"/> Other (please specify): Condition of Well CHECK ONE <input checked="" type="checkbox"/> Capped <input type="checkbox"/> Pump Installed	CHECK ONE <input checked="" type="checkbox"/> None <input type="checkbox"/> Packed <input type="checkbox"/> Swedged <input type="checkbox"/> Welded <input type="checkbox"/> Other (please specify): Construction Dates DATE WELL CONSTRUCTION STARTED 4-24-05 DATE WELL CONSTRUCTION COMPLETED 6-7-05

I state that this notice is filed in compliance with A.R.S. §45-596 and is complete and correct to the best of my knowledge and belief.

SIGNATURE OF QUALIFYING PARTY: *Scary J. [Signature]* DATE: **6-8-05**

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 207058

SECTION 4. WELL CONSTRUCTION DESIGN (AS BUILT) (attach additional page if needed)

DEPTH OF BORING 720 Feet Below Land Surface	DEPTH OF COMPLETED WELL 710 Feet Below Land Surface
--	--

Water Level Information			
STATIC WATER LEVEL 328 Feet Below Land Surface	DATE MEASURED 5-31-05	TIME MEASURED 9:00 AM	IF FLOWING WELL, METHOD OF FLOW REGULATION <input type="checkbox"/> Valve <input type="checkbox"/> Other:

Borehole			Installed Casing													
DEPTH FROM SURFACE		BOREHOLE DIAMETER (inches)	DEPTH FROM SURFACE		OUTER DIAMETER (inches)	MATERIAL TYPE (✓)				PERFORATION TYPE (✓)					SLOT SIZE IF ANY (inches)	
FROM (feet)	TO (feet)		FROM (feet)	TO (feet)		STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED		IF OTHER TYPE, DESCRIBE
0	34	30	+5	34	24	X					X					
34	722	22	+5	399	16	X					X					
			399	549	16	X						X				0.050
			549	589	16	X					X					
			589	699	16	X						X				0.050
			699	710	16	X					X					

Installed Annular Material												
DEPTH FROM SURFACE		ANNULAR MATERIAL TYPE (✓)								FILTER PACK		
FROM (feet)	TO (feet)	NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE			IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	SAND	GRAVEL	SIZE
						GROUT	CHIPS	PELLETS				
									SEE AS BUILT DRAWING			

5-Foot Stickup
 3-Foot Stickup
 Land Surface
 2-Feet below grade

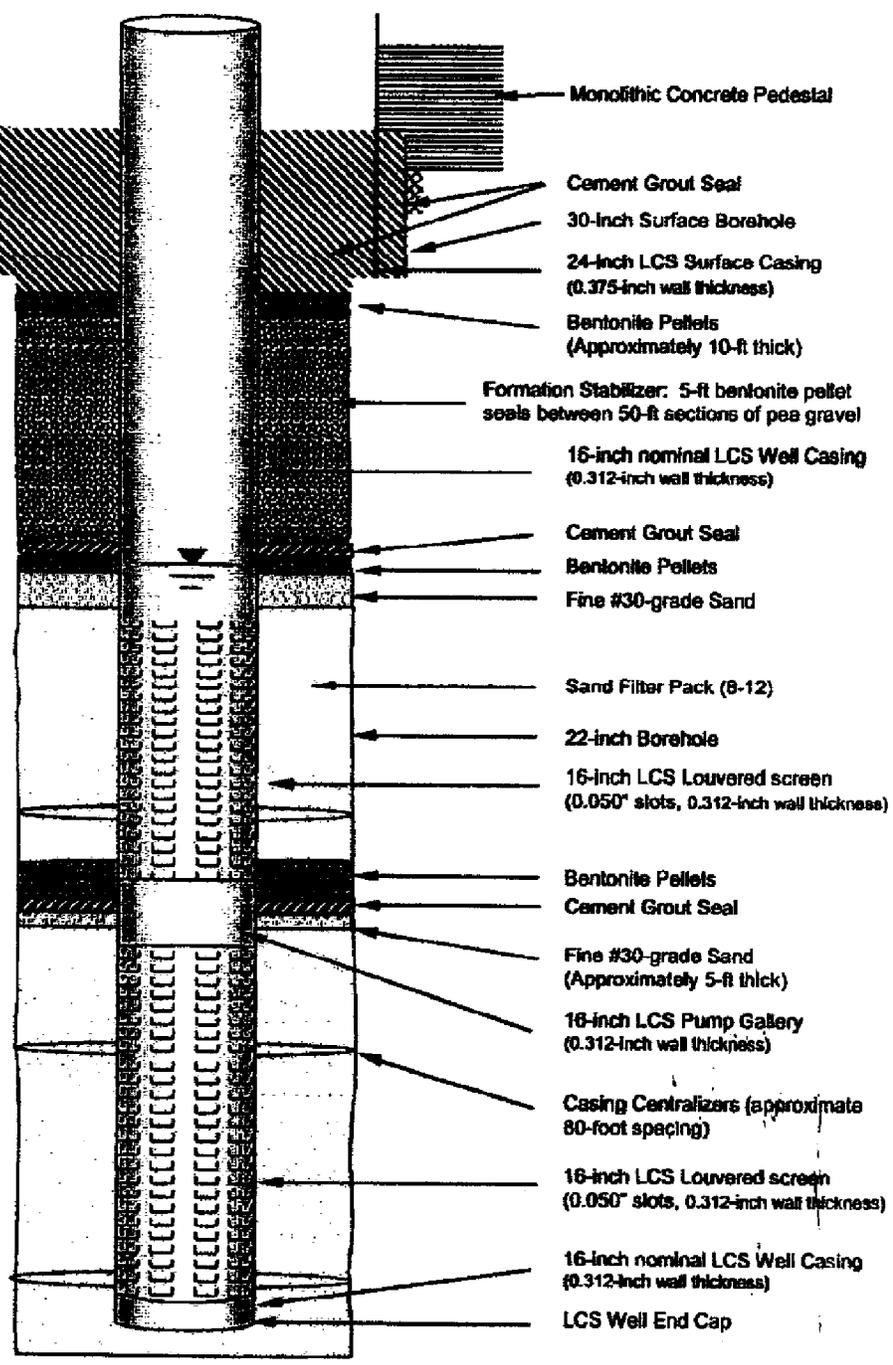
34 feet
 36 feet

SWL = 328 ft
 (5/31/05)

305 feet
 320 feet
 329 feet
 372 feet
 399 feet

541 feet
 549 feet
 569 feet
 573 feet
 579 feet
 589 feet

699 feet
 710 feet
 722 feet



Not To Scale



Notes: LCS = Low Carbon Steel
 All casing diameters are nominal O.D.
 unless noted otherwise

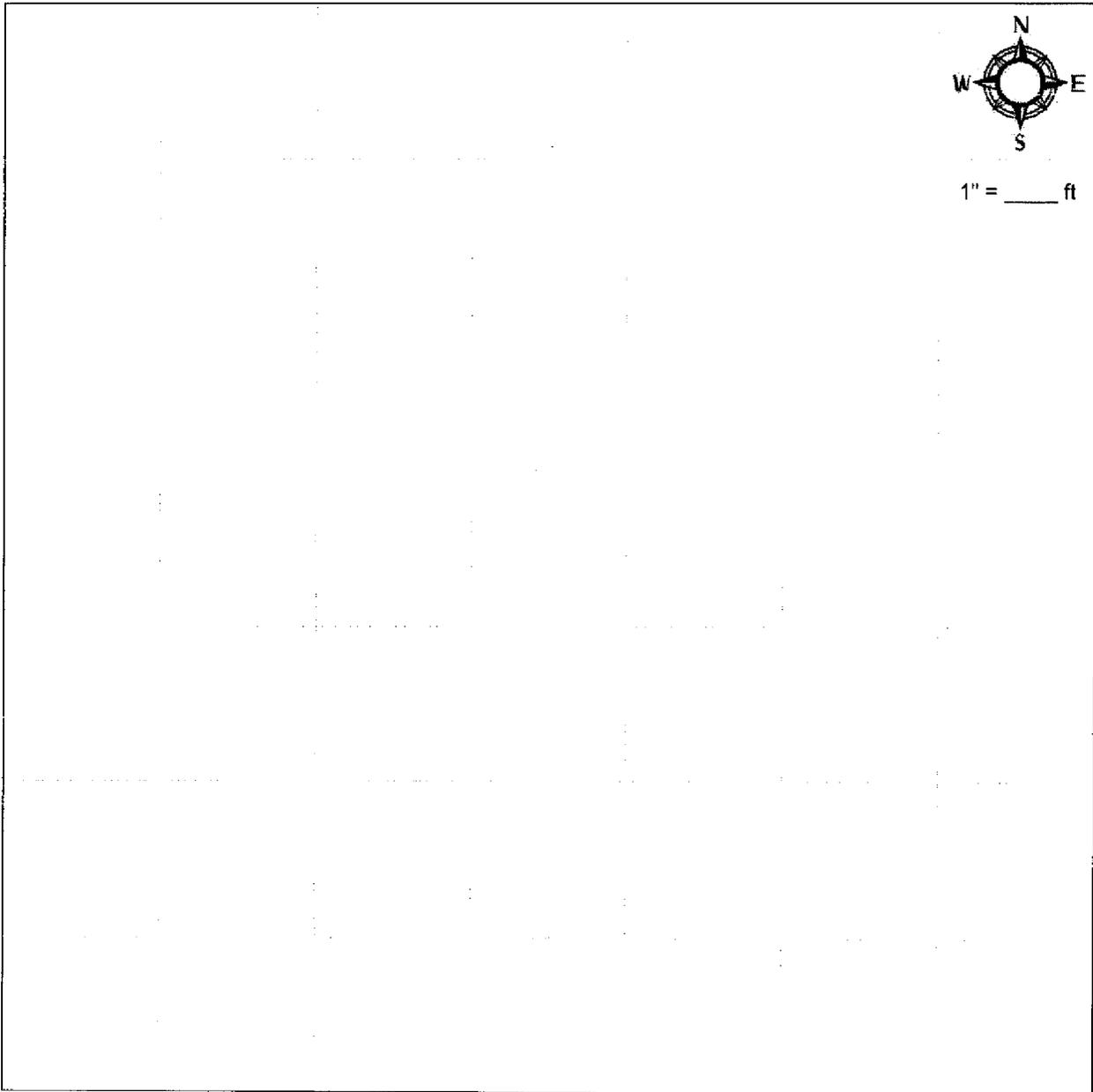
AS-BUILT DRAWING
 Avra Water Co-Op
 Well No. 10
 Avra Valley, Arizona
 8/07/2005

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55-207058

SECTION 6. WELL SITE PLAN		
NAME OF WELL OWNER	COUNTY ASSESSOR'S PARCEL ID NUMBER	
AVRA WATER CO-OP.	BOOK	MAP
		PARCEL

- ❖ Please draw the following: (1) the boundaries of property on which the well was located; (2) the well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well.
- ❖ Please indicate the distance between the well location and any septic tank system or sewer system.

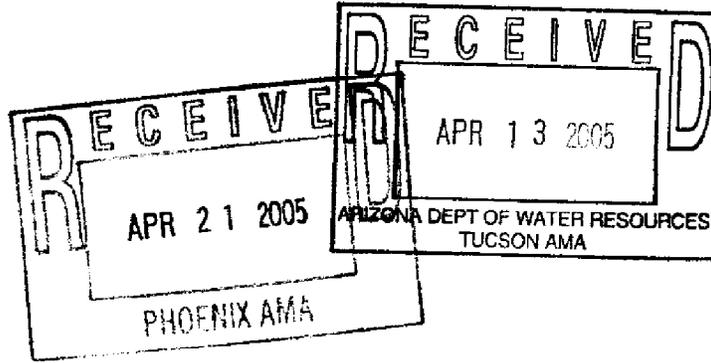




Practical Solutions
in Groundwater Science

April 11, 2005

Mr. Jeff Tannler
Arizona Department of Water Resources
Southern Regional Office
400 W. Congress, Suite 518
Tucson, AZ 85701



59-207057.0

221 N. Court Avenue, Suite 101
Tucson, Arizona 85701
520 622-3222 phone
520 622-4040 fax
www.clearcreekassociates.com

COPY

Hydrologic Test Results from well AWC-T1, Avra Water Co-Op Aquifer Test Well, Avra Valley, Arizona

Dear Jeff,

Clear Creek Associates has completed testing of the AWC-T1 test well. The attachments contain graphic representations of the Constant-rate aquifer testing. The groundwater produced during the aquifer testing was discharged to a local arroyo system and allowed to recharge the regional aquifer.

Clear Creek Associates was contracted to oversee the testing activities of the new aquifer test well. The well is located near the western end of Orange Grove Road, Avra Valley, Arizona. The legal location of the well is the NW ¼ (10-acre) of the SE ¼ (40-acre) of the NE ¼ (160-acre) of Section 7, in Township 13 South, Range 11 East (also designated as D(13-11)7bdb). Figure 1 shows the location of Avra Water Co-Op Aquifer Test Well.

Copies can be produced of the field data collection sheets if you would like. Please do not hesitate to contact us for further information.

Sincerely,

CLEAR CREEK ASSOCIATES

Dale G. Armstrong, R.G.
Senior Hydrogeologist

CC: Chris Ward – Avra Water Co-op
Attachments – Avra Water Co-Op Aquifer Test Well Location Map
Preliminary Well Design Drawing, Avra Water Co-Op Aquifer Test Well
Test data and Plots.

AWC-T1 Constant Rate Aquifer Test Data

Aquifer Test Data		Project No.:	57002	SWL (feet bis)	337.33	Page 1 of 1					
Project: Avra Water Co-Op Test Well		Well No.:	AWC-T1	Elevation of Measuring Point							
Well Location: Avra Valley, AZ.		Measured By:	PAB	Available Drawdown (feet):	130.37						
Well Diameter: 8" (0-480); 5" (480-1,010)		Pump On date:	5/19/2004	Totalizer Start =	0.00						
Pump Setting: 452 ft b/c		Pump off Date:	5/19/2004	Totalizer End =	0.00						
Screen Interval: 333-458 + 480-1,010		Duration of Aquifer Test:	10 hrs	Flowmeter Q =	207 gpm						
How Q Measured: Flowmeters (2)											
Time of Measurement	Time since Pumping Started (min)	Recovery Time (T) (min)	ft'	Sounder Reading (feet)	Correction (feet)	Water Level (feet)	Drawdown (feet)	Discharge Q (gpm) Flowmeter	Time Weighted Discharge	Specific Capacity (gpm/ft) (Flowmeter)	Remarks
1	NA	NA	NA	345.75	6.40	339.35	8.02	200	200	24.94	
2	NA	NA	NA	346.37	6.40	339.97	8.64	200	200	23.15	
3	NA	NA	NA	346.9	6.40	340.50	9.17	200	200	21.81	
4	NA	NA	NA	347.05	6.40	340.65	9.32	200	200	21.46	
5	NA	NA	NA	347.15	6.40	340.75	9.42	200	200	21.23	
6	NA	NA	NA	347.25	6.40	340.85	9.52	200	200	21.01	
7	NA	NA	NA	347.32	6.40	340.92	9.59	200	200	20.86	
8	NA	NA	NA	347.36	6.40	340.96	9.63	200	200	20.77	
9	NA	NA	NA	347.4	6.40	341.00	9.67	207	207	21.41	
10	NA	NA	NA	347.45	6.40	341.05	9.72	207	207	21.30	
12	NA	NA	NA	347.53	6.40	341.13	9.80	207	207	21.12	
14	NA	NA	NA	347.57	6.40	341.17	9.84	207	207	21.04	
16	NA	NA	NA	347.63	6.40	341.23	9.90	207	207	20.91	
18	NA	NA	NA	347.65	6.40	341.25	9.92	207	207	20.87	
20	NA	NA	NA	347.69	6.40	341.29	9.96	207	207	20.78	
25	NA	NA	NA	347.77	6.40	341.37	10.04	207	1035	20.62	
30	NA	NA	NA	347.82	6.40	341.42	10.09	207	1035	20.52	
40	NA	NA	NA	347.9	6.40	341.50	10.17	207	1035	20.35	
45	NA	NA	NA	347.93	6.40	341.53	10.20	207	1035	20.29	
50	NA	NA	NA	347.98	6.40	341.56	10.23	207	1035	20.23	
55	NA	NA	NA	348.04	6.40	341.60	10.27	207	1035	20.18	
60	NA	NA	NA	348.08	6.40	341.64	10.31	207	1035	20.08	
70	NA	NA	NA	348.11	6.40	341.66	10.33	207	1035	20.04	
80	NA	NA	NA	348.15	6.40	341.71	10.38	207	2070	19.94	
90	NA	NA	NA	348.21	6.40	341.75	10.42	207	2070	19.87	
100	NA	NA	NA	348.23	6.40	341.81	10.48	207	2070	19.75	
110	NA	NA	NA	348.26	6.40	341.83	10.50	207	2070	19.71	
120	NA	NA	NA	348.28	6.40	341.86	10.53	207	2070	19.66	
135	NA	NA	NA	348.32	6.40	341.89	10.56	207	2070	19.60	
150	NA	NA	NA	348.35	6.40	341.92	10.59	207	3105	19.55	
165	NA	NA	NA	348.4	6.40	341.95	10.62	207	3105	19.49	
180	NA	NA	NA	348.44	6.40	342.00	10.67	207	3105	19.40	
195	NA	NA	NA	348.45	6.40	342.04	10.71	207	3105	19.33	
210	NA	NA	NA	348.48	6.40	342.05	10.72	207	3105	19.31	
225	NA	NA	NA	348.48	6.40	342.06	10.73	207	3105	19.29	
240	NA	NA	NA	348.47	6.40	342.07	10.74	207	3105	19.27	
270	NA	NA	NA	348.51	6.40	342.11	10.78	207	3105	19.20	
300	NA	NA	NA	348.55	6.40	342.15	10.82	207	6210	19.13	
330	NA	NA	NA	348.54	6.40	342.14	10.81	207	6210	19.15	
360	NA	NA	NA	348.6	6.40	342.20	10.87	207	6210	19.04	
390	NA	NA	NA	348.65	6.40	342.25	10.92	207	6210	18.96	
420	NA	NA	NA	348.64	6.40	342.24	10.91	207	6210	18.97	
450	NA	NA	NA	348.68	6.40	342.28	10.95	207	6210	18.90	
480	NA	NA	NA	348.71	6.40	342.31	10.98	207	6210	18.85	
510	NA	NA	NA	348.73	6.40	342.33	11.00	207	6210	18.82	
540	NA	NA	NA	348.74	6.40	342.34	11.01	207	6210	18.80	
570	NA	NA	NA	348.78	6.40	342.38	11.05	207	6210	18.73	
600	NA	NA	NA	348.8	6.40	342.40	11.07	207	6210	18.70	
				348.81	6.40	342.41	11.08	207	6210	18.68	
									124.44		

Constant Rate Test

Cooper-Jacob Time/Drawdown Avra Water Co-Op Test Well AWC-T1 Aquifer Test 9/19/2004

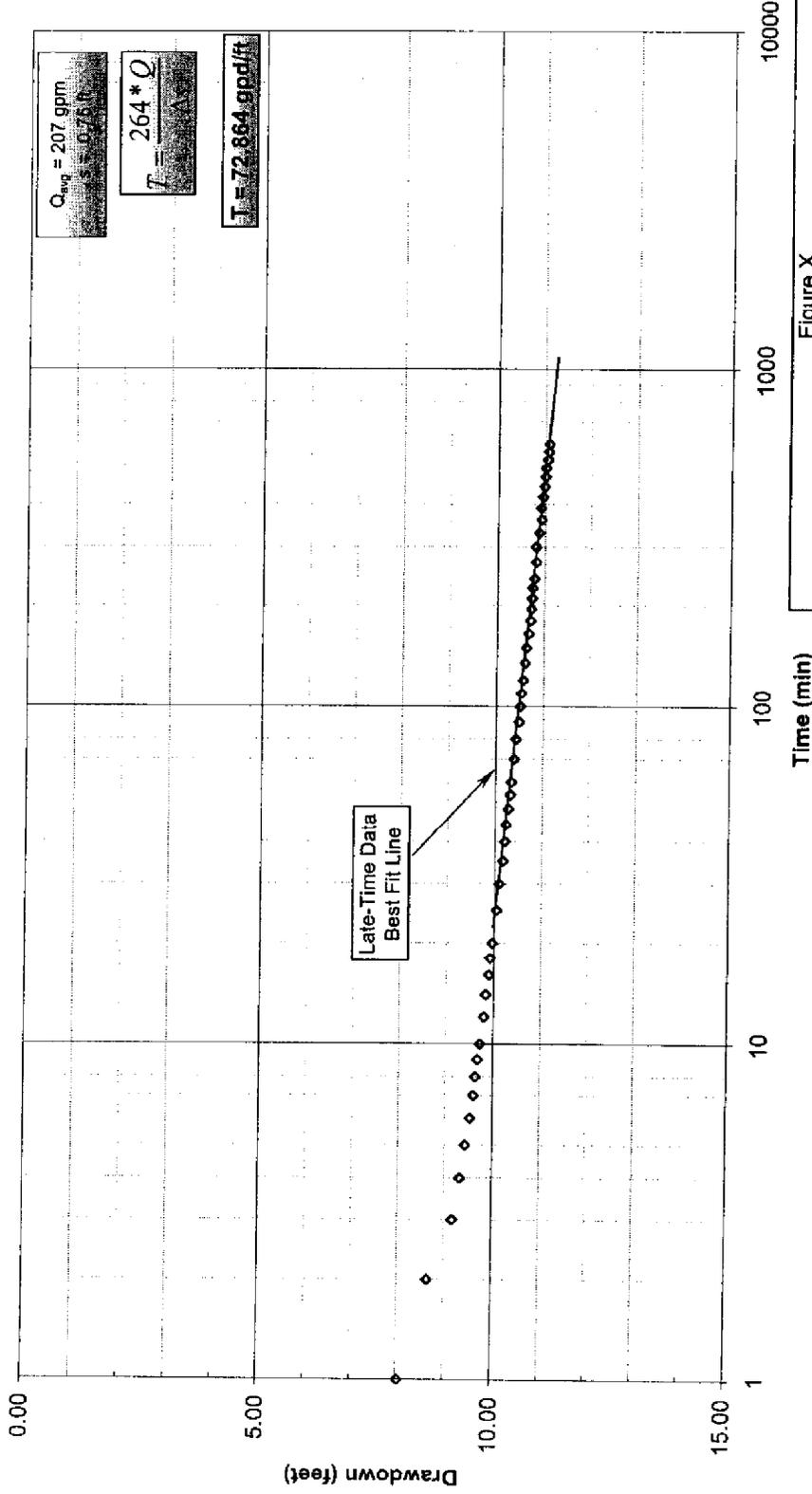


Figure X
 Constant-Discharge Test
 Semi-Logarithmic Plot of Drawdown Verses Time
 Avra Water Co-Op Test Well AWC-T1
 Avra Valley, Arizona

From: Linda Ingraham
To: Sumpter-King, Darlene
Date: 4/11/05 12:06PM
Subject: Avra Water Coop 55-207058

Well site inspection was completed this morning. Location is correct.

Please release drill card. However, instead of mailing it to NCCI in California; mail it to c/o Saguaro Well & Pump 7752 E Wrightstown Rd, Suite 110, Tucson AZ 85715 (Gary Hix is the qualifying party for both drilling companies).

Gary Hix also requested a faxed copy of the drill card to him at 520-290-8928.

Completed well site inspection paperwork will be faxed to you shortly at 602-417-2422.

ARIZONA DEPARTMENT OF WATER RESOURCES

Tucson Active Management Area Office
400 West Congress Street
Suite #518
Tucson, Arizona 85701
Telephone 520-770-3800
Fax 520-628-6759



JANET NAPOLITANO
Governor

HERB GUENTHER
Director

April 11, 2005

Avra Water Co-op
11821 W Picture Rocks Rd
Tucson AZ 85743

Dear ^{Chris} Mr. Ward:

This letter is to inform you that the Arizona Department of Water Resources (Department) has conducted a well site inspection for Well No. 55-207058 to be drilled pursuant to Hydrologic Testing Permit No. 59-207057.0000. The well will be located on the west side of the CAP canal and south of Orange Grove Road in the NW¼ SE¼ NW¼ of Section 07, Township 13 South, Range 11 East in Avra Valley.

Per A.R.S. § 41-1009 the Department is required to provide a copy of the inspection report within 30 days after the inspection.

Enclosed is a copy of the Field Verification Report and a Notification of Inspection and Due Process Rights, which were completed during the site inspection. At this time no further action is required.

If you have any questions or need further assistance, please contact me at (520) 770-3812.

Sincerely,

A handwritten signature in cursive script that reads "Linda G. Ingraham".

Linda G. Ingraham
Water Resources Specialist

Enclosures

Well Registration No. 55-207058 Application/Right No. _____ Permit/License No. 59-207057
 Regulated Person: Avra Water Co-Op Address: 11821 W Picture Rocks Rd., Tucson AZ 85743
 Phone: _____

ARIZONA DEPARTMENT OF WATER RESOURCES
500 North Third Street, Phoenix, Arizona 85004
NOTIFICATION OF INSPECTION AND DUE PROCESS RIGHTS

In compliance with A.R.S. § 41-1009, this document is being provided to you by the Arizona Department of Water Resources (ADWR) to inform you of your rights concerning this inspection of the following described property:

D(13-11)7BDB NW 1/4 of SE 1/4 of NW 1/4 Section 7, Township 13 S, Range 11 E

on the following date(s): Monday, April 11, 2005 9am

ADWR must present this document for your signature, or the signature of an authorized representative, indicating that you have been informed of your rights concerning this inspection and have read both sides of this document. If you decline to sign, or signature is unavailable, ADWR must note that fact on this document and the inspection will proceed.

1. **ADWR Inspector.** This inspection is being conducted by an inspector for ADWR who must present photo identification upon entry of the inspected property, and whose name and phone number are indicated below. The ADWR inspector will be available to answer questions regarding this inspection.

Name: Linda G. Ingraham Phone: 520-770-3800

2. **Purpose of Inspection.** This inspection is being conducted by an ADWR inspector either for the purpose of issuing a permit/license, or determining compliance with permit/license requirements.

3. **Legal Authority.** This inspection is being conducted under the following legal authority: _____

A. R. S. 45-633

4. **Fees.** The following inspection fees apply and will be billed separately: N/A

5. **Ombudsmen.** Questions regarding due process rights described in paragraph 10 on the reverse should be directed to one of the following Ombudsmen:

Name (ADWR): Jack Lavelle - PIO Phone: 602-417-2400 x7133

Name (Arizona): Patrick Shannahan Phone: 800-872-2879

(continued on reverse)

Signature. This signature below is made by either the regulated person or the regulated person's authorized representative who has been informed of inspection and due process rights relating to this inspection and who has read both sides of this Notification.

* Name (please print): Chris Ward

* Signature: [Handwritten Signature] Title: General Manager

Signature Declined. The regulated person or the regulated person's authorized representative indicated below was present during the inspection but declined to sign this Notification.

Name: _____ Title: _____

Signature Unavailable. Neither the regulated person nor the regulated person's authorized representative was present during this inspection. The ADWR inspector contacted or attempted to contact the regulated person by the following method:

ARIZONA DEPARTMENT OF WATER RESOURCES

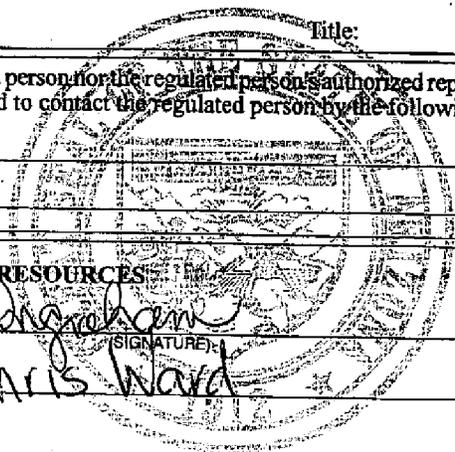
Agency Inspector: Linda Ingraham

Photo identification presented.

Copy provided prior to inspection to: Chris Ward

Date: 4-11-05

Time: 9:05 a.m.



ARIZONA DEPARTMENT OF WATER RESOURCES

Tucson Active Management Area Office
400 West Congress Street
Suite #518
Tucson, Arizona 85701
Telephone 520-770-3800
Fax 520-628-6759



April 11, 2005

FIELD VERIFICATION REPORT NEW OR REPLACEMENT WELL

JANET NAPOLITANO
Governor

HERB GUENTHER
Director

File Number: D (13-11) 07 B D B
Quadrant Tns & Rng Section 160ac 40ac 10ac

Registration Number: 55-207058

Permit Number: 59-207057.0000

Location of Permit: NW¼ SE¼ NW¼ Section 07, T13S, R11E
10 Acre 40 Acre 160 Acre

Verified Location: NW¼ SE¼ NW¼ Section 07, T13S, R11E
10 Acre 40 Acre 160 Acre

Latitude: N 32° 19' ³⁶00" 32.316766

Longitude: W 111° 15' ⁵³88" 111.264766

Latitude/Longitude Determined By: GPS: Topo Map Other

Copy of Drill Card in possession: Driller: Owner: Consultant: Hydrologist:

Well Site location verified with:

Chris Ward - Avra Water Co-op 682-7331

Dale Armstrong - Clear Creek Associates 622-3222

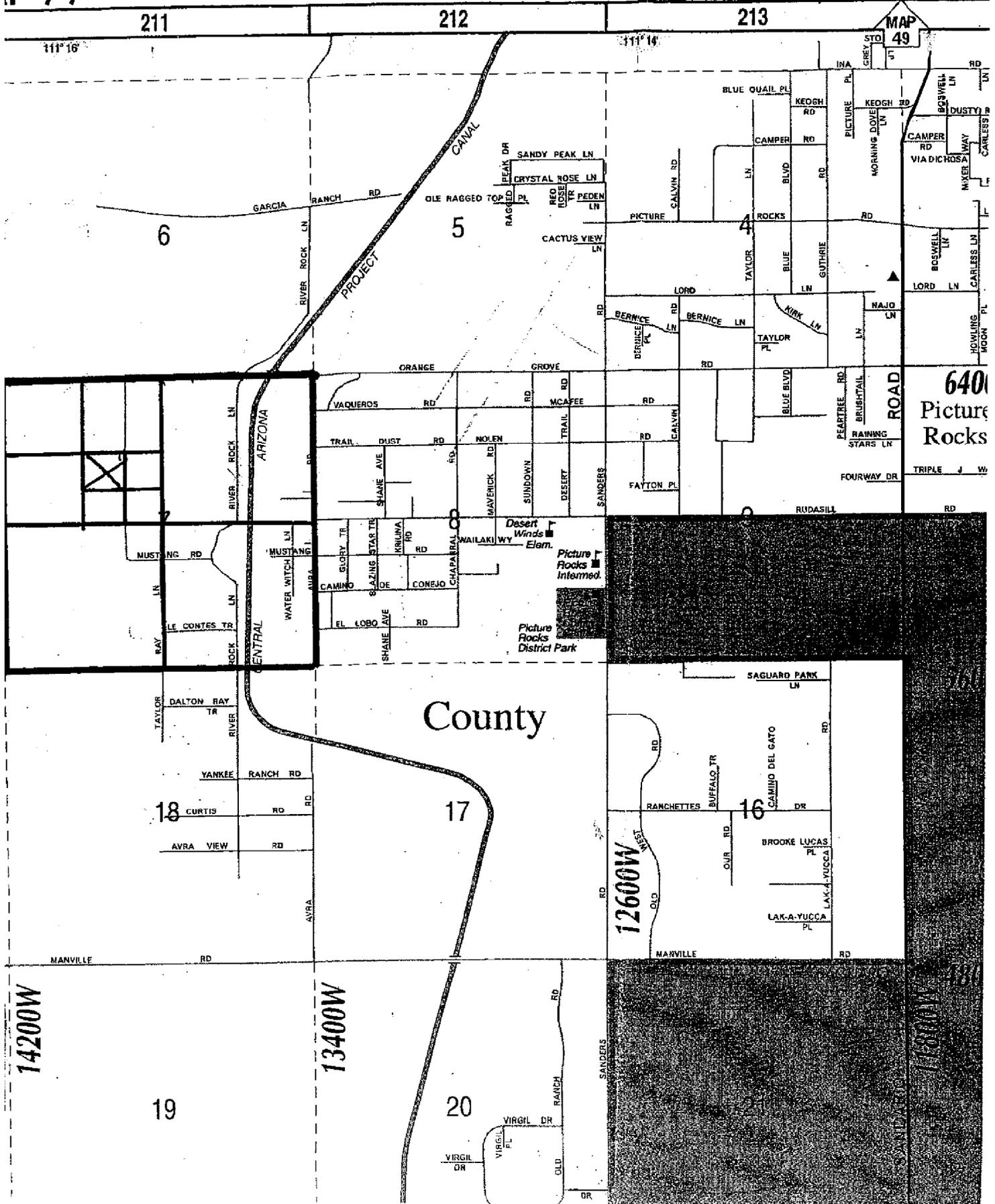
Date and time of inspection: Monday April 11, 2005 at 9:00 a.m.

Driller on card? YES: NO

Comments: West on Orange Grove Road (passed CAP canal).

Replacement - Distance from the original well: _____ feet

Report filed by: (ADWR Employee Name): Linda Ingraham and Dawne Wilson



County

6400
Picture
Rocks

MAP
49

14200W

13400W

12600W

211

212

213

6

5

4

18

17

16

19

20

180

COPY

**ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION**

500 North Third Street, Phoenix, Arizona 85004
Telephone 602 417-2470
Fax 602 417-2423



JANET NAPOLITANO
Governor

HERB GUENTHER
Director

March 30, 2005

Mr. Chris E. Ward
Avra Water Co-Op
11821 W. Picture Rocks Road
Tucson, Arizona 85743

RE: Permit to Withdraw Groundwater for Hydrologic Testing No. 59-207057.0000
Well Registration No. 55-207058; File No. D (13-11) 7 BDB

Dear Permittee:

Your permit as referenced above is enclosed for your records. However, drilling of the well may not proceed until a site inspection has been completed and the drill card released to the driller.

The drill card for the proposed well has been delivered to the Tucson Active Management Area (AMA) office. The well owner or representative of the driller must make an appointment with personnel of the AMA office for a site inspection. AMA personnel must be shown, on-site, the location of the proposed well. After the location of the proposed well has been verified, the drill card will be released and drilling may begin. It is suggested that arrangements for a site inspection be made at least 96 hours in advance of the time you intend to have drilling begin.

The total volume of pumpage shall be reported on an annual report. The first annual reporting period shall be from the date of issuance of this permit through December 31, 2005 or the expiration date of the permit.

Under A.R.S. § 45-593, the person to whom a well is registered must notify the Department of a change in ownership, physical characteristics or any other data about the well in order to keep the well registration records current and accurate. For such future use, a Request to Change Well Information form is enclosed.

The Department has issued the authorization of this hydrologic testing permit pursuant to A.R.S. § 45-519.01 of the Groundwater Code. The legal nature of the water withdrawn from your well may be the subject of court action in the future as part of a determination of surface water rights in your area. If there are court proceedings that could affect your well, you will be notified and be given the opportunity to participate.

A condition of your permit requires that all results from the hydrologic test(s) shall be submitted to Darlene Sumpter-King, Water Management Division, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004, within 60 days upon completion of the hydrologic testing.

Avra Water Co-Op
March 30, 2005
Page two

The permit has been issued by this Department without a hearing. As such, it is an appealable agency action. You are entitled to appeal and your rights are described in the enclosed notice of right to appeal.

If you have any questions about the permit, please call Linda Ingraham of the Tucson AMA office at 520-770-3812.

Sincerely,

A handwritten signature in cursive script, appearing to read "Darlene Sumpter-King".

Darlene Sumpter-King
Water Resource Specialist

Enclosure

cc: Clear Creek Associates
Linda Ingraham, Tucson Active Management Area
ADWR Hydrology Division

PERMIT NO. 59-207057.0000

Maximum Authorized Withdrawals: 10.00 acre-feet.

Disposition of Groundwater: No beneficial use.

Authorized Well Registration Number	File Number	Depth of Well	Casing Diameter	Casing Material
55-207058	D (13-11) 7 BDB	720 feet	16 inches	LCS

Effective Date of Permit: March 30, 2005.

Expiration Date of Permit: August 29, 2005.

Permit Conditions

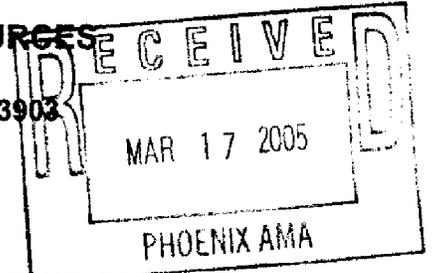
1. Within sixty (60) days of the expiration date of the permit, the permittee shall provide the results of the test data to the Arizona Department of Water Resources for evaluation. Results shall be mailed to Darlene Sumpter-King, Water Management Division, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004.
2. This approval for test wells and pump test does not constitute a commitment by the Department for the granting of a right to withdraw groundwater or converting the test well into a production well.
3. The wells drilled for this project shall be drilled in compliance with the Arizona Department of Water Resources minimum well construction standards, A.A.C. R12-15-811.
4. The issuance of the permit does not waive any federal, state, county or local government ordinances, regulations or permits for which the facility may have to comply.
5. The permittee shall monitor withdrawals of groundwater and shall report the total amount of groundwater withdrawn on an annual water withdrawal and use report. The first annual reporting period shall be from the date of issuance of this permit through December 31, 2005, or the expiration date of this permit, whichever comes first.

WITNESS my hand and seal of office this 30th day of March, 2005.



Mark Frank, Acting Assistant Director

ARIZONA DEPARTMENT OF WATER RESOURCES
GROUNDWATER MANAGEMENT DIVISION
500 North Third Street - Phoenix, Arizona 85004-3903
Telephone 602-417-2470
Fax 602-417-2422



NEW WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)

Well Registration Number 55- 207058
(FOR DEPARTMENT USE ONLY)

1. Well Location:

NW 1/4 of the SE 1/4 of the NW 1/4, Sec. 7, Township 13S Range 11E.
10AC 40AC 160AC

2. Position Location of the Well:

Latitude 32 ° 19 ' 00 " Longitude 111 ° 15 ' 53.8 "

3. County Pima

4. Date construction to start: March 1, 2005

5. Time period well will remain in use: 6 months

6. Is pump equipment to be installed? Yes If so, design pump capacity: 1,200 GPM.
Testing Only

7. Well construction plan:

a. Drilling method (mud rotary, hollow-stem auger, etc.) Mud Rotary

b. Borehole diameters 30 inches from 0 feet to 40 feet.
22 inches from 40 feet to 720 feet.

c. Casing materials Low Carbon Steel

d. Method of well development (bail, air lift, surge, etc.) Air lift, pump discharge

e. Will surface or conductor casing extend above grade? Yes, 5 feet, see attached diagram.

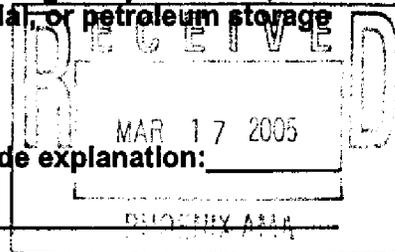
8. Include a detailed construction diagram of the proposed well design. The diagram should verify consistency with minimum construction requirements specified in the Department's well construction rules found in Arizona Administrative Code (A.A.C.) R12-15-801 et. seq. Specifically, the diagram should include borehole diameters; casing materials and diameters; perforation intervals; the expected water level; depth and thickness of the surface seal; proposed grouting materials; and the length that the surface or conductor casing will extend above grade, or vault details, if specified.

9. Proposed materials and method of abandonment if well is to be abandoned after project is completed (Minimum requirements per A.A.C. R12-15-816):

10. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? ___ Yes No

11. Is this well to monitor existing contamination? ___ Yes No

Potential contamination? ___ Yes No If yes, please provide explanation:



12. Will the proposed well be a replacement well in the same location (A.R.S. §§ 45-596 and 45-597, A.A.C. R12-15-840)? A replacement well is one located no more than 660 feet from the original well that it is replacing, and which is not expected to withdraw on an annual basis more groundwater than historical annual withdrawals from the original well. ___ Yes No

If yes then indicate the following:

(a) Record the registration number for the well that will be replaced: 55-_____

(b) Will the original well to be replaced be ___ Capped, ___ Abandoned ___ Other.

If Other, please explain: _____

13. Name of Consulting firm, if any : Clear Creek Associates

221 North Court Ave Suite 101 Tucson AZ 85701
Address City State Zip

Contact Person: Dale Armstrong Telephone Number (520) 622-322

14. Drilling firm: NCCI, Inc.

DWR License Number: 682 ROC License Category: A, B-01

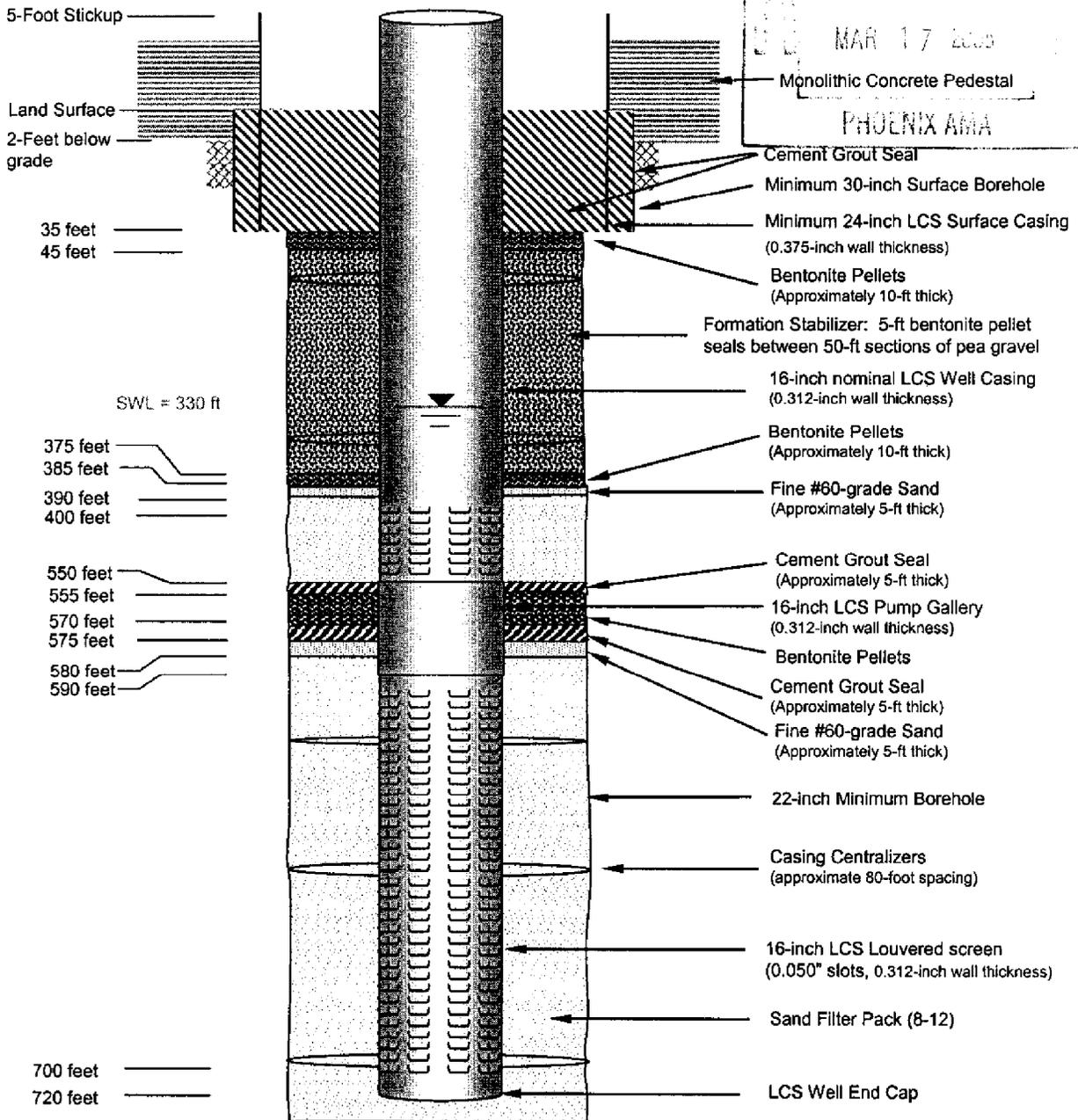
15. Special construction standards, if any, required pursuant to A.A.C. R12-15-821: _____

I (we), Chris Ward hereby swear that all information provided in this
(print name) application is true and correct to the best of my/our
knowledge and belief.

Signature of Applicant

3-15-05
Date

WELL REG- No. 55-207058



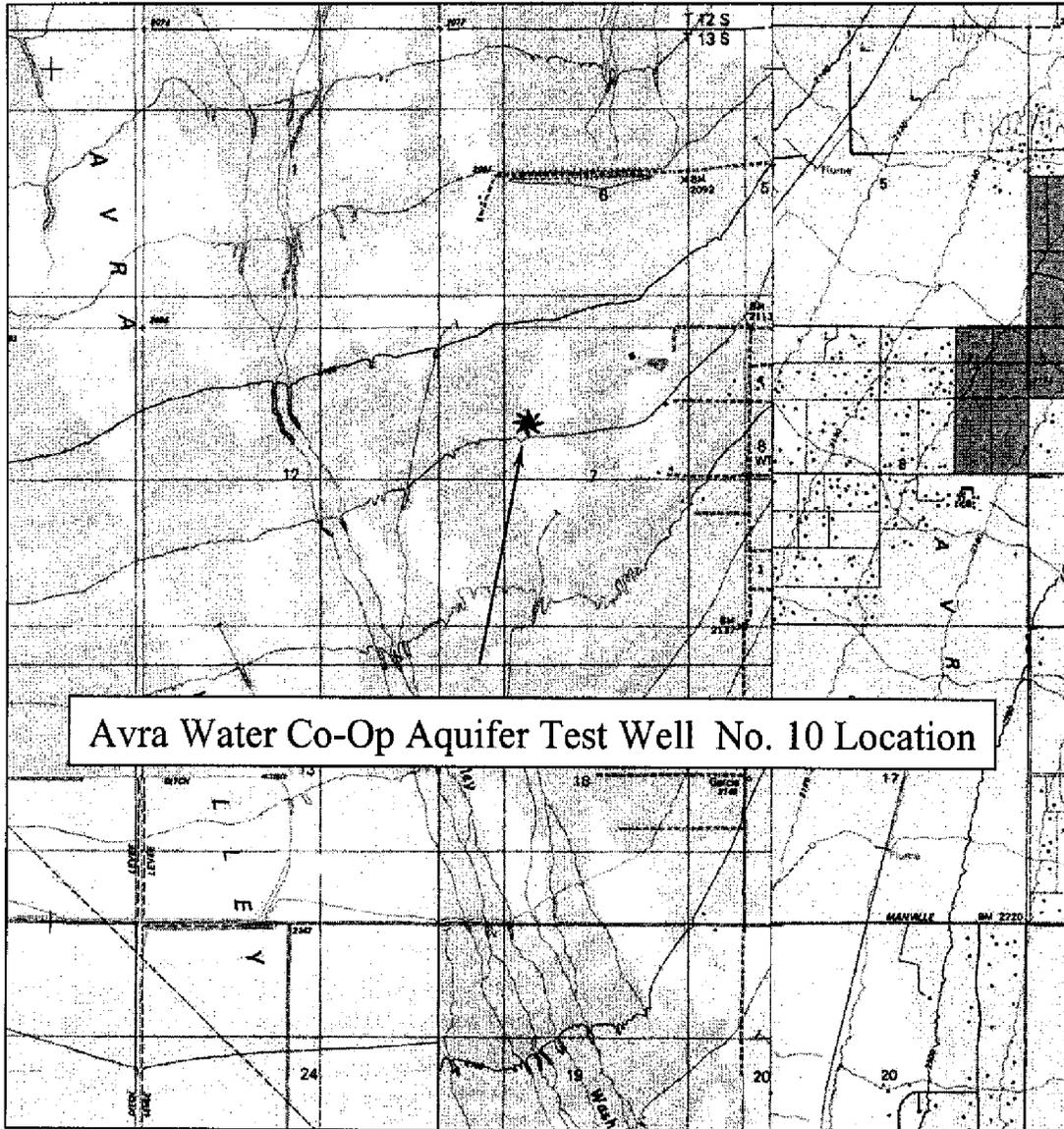
Not To Scale

PRELIMINARY WELL DESIGN DRAWING

Avra Water Co-Op
Well No. 10



Notes: LCS = Low Carbon Steel
All casing diameters are nominal O.D.
unless noted otherwise



T
13
S

Avra Water Co-Op Aquifer Test Well No. 10 Location

R 10 E

R 11 E



Avra Water Co-Op Aquifer Test Well Location

**CLEAR
CREEK
ASSOCIATES**



FIGURE 1
LOCATION MAP
AVRA WATER CO-OP AQUIFER TEST WELL
No. 10
AVRA VALLEY, ARIZONA

COPY

**ARIZONA DEPARTMENT OF WATER RESOURCES
HYDROLOGY DIVISION
TECHNICAL SUPPORT SECTION - WQARF UNIT**

MEMORANDUM

DATE: March 31, 2005

TO: Darlene Sumpter-King, Groundwater Management Support
Jeff Tannler, Tucson AMA

FROM: Mark Holmes, WQARF Unit 

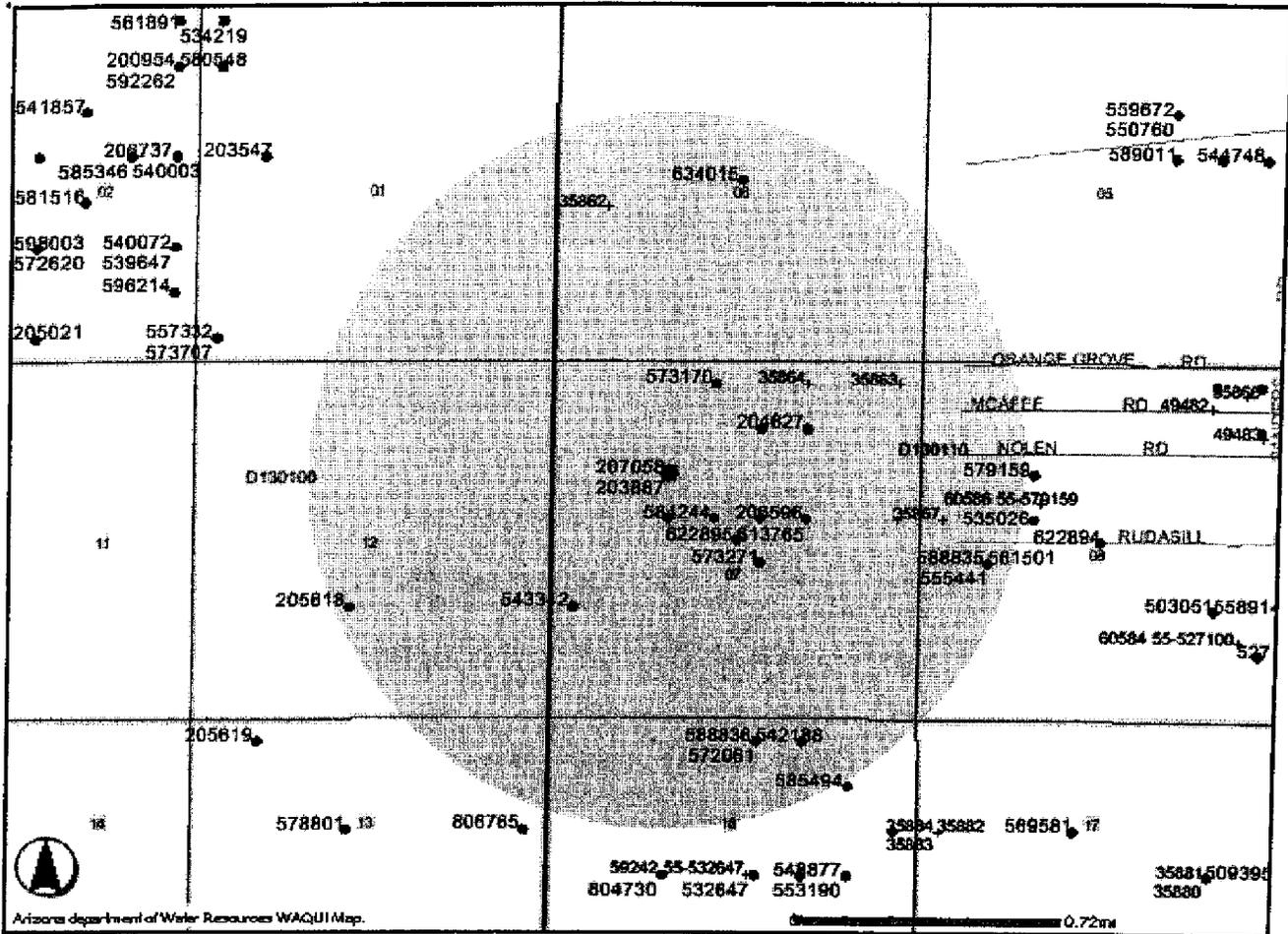
SUBJECT: **55-207058 – Avra Water Co**
(59-207057)

APPLICATION: **Permit to Withdraw GW for Hydrologic Testing**

1. The area of groundwater withdrawal activities is not located within or in proximity to an area of known significant groundwater contamination. According to the Arizona Department of Environmental Quality (ADEQ) Groundwater Database, there is no water quality sampling data for any groundwater wells within 1 mile of the proposed well site. Therefore, water quality is unknown. See attached map and supporting information.
2. The WQARF Unit has no objections to issuance of this permit, however it is recommended that a water-quality sampling plan be established as part of the hydrologic testing.
3. References: Water Quality Information Maps Program (attached), The Groundwater Code (Arizona Revised Statutes, Title 45, Chapter 2), and the rules adopted thereunder.
4. If more information is needed, contact me at (602) 417-2400, ext. 7344. Thank you.

attachments: as stated

59-207057, 55-207058



Working Together



Arizona Department of Environmental Quality



Arizona Department of Water Resources

Map generated on 3/31/2005

Water Quality Sample Test Results for ADEQ Wells

Information provided is preliminary and subject to revision.

It may not represent the full extent of known water quality concerns.

- Legend**
- Highlighted Feature
 - theBufferPolygons
 - theBufferTarget
 - ADEQ Wells
 - Wells > HBGL
 - Wells > Secondary MCL
 - Wells > MCL
 - No Exceedence
 - REGISTERED WELLS
 - Streets
 - Sections
 - Townships
 - GWR LUST Buffer

COPY

From: Linda Ingraham
To: Sumpter-King, Darlene
Date: 3/29/05 3:35PM
Subject: Avra Water Co-op

The Tucson AMA has reviewed the Application for Permit to Withdraw Groundwater for Hydrologic Testing Purposes within an Active Management Area for Avra Water Co-op. We find no issues and recommend approval.

COPY

From: Carol Norton
To: Sumpter-King, Darlene
Date: 3/25/05 1:20PM
Subject: 59-207057 Avra Water Co-op Hydro Test

The Hydrology Division is in receipt of the above referenced Application to Withdraw Groundwater for Hydrologic Testing. The applicant intends to withdraw 10 acre feet of groundwater from one new well to be drilled, no. 55-207058 D(13-11)07 bdb. The purpose of the test is to determine aquifer characteristics. Groundwater withdrawn will be put to beneficial use via recharge to the regional aquifer in a local arroyo.

The Hydrology Division supports issuance of this permit with the following Special Condition:

1. Test results shall be submitted to Darlene Sumpter-King, Phoenix Active Management Area, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004, within 60 days upon completion of the test(s). 3/25/5

CC: Modesto, Karen; wrjmt



COPY

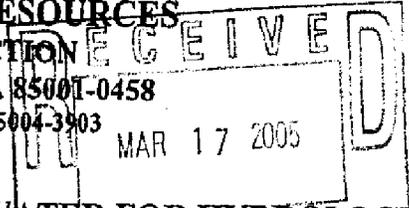
ARIZONA DEPARTMENT OF WATER RESOURCES

WATER MANAGEMENT SUPPORT SECTION

MAIL TO: P.O. BOX 458, PHOENIX, ARIZONA 85001-0458

500 NORTH 3RD STREET - PHOENIX, ARIZONA 85004-3903

Phone (602) 417-2470 Fax (602) 417-2422



APPLICATION FOR PERMIT TO WITHDRAW GROUNDWATER FOR HYDROLOGIC TESTING PURPOSES WITHIN AN ACTIVE MANAGEMENT AREA (A.R.S. §45-519.01)

I. INSTRUCTIONS

1. COMPLETE ALL APPROPRIATE ITEMS ON THIS APPLICATION AND SIGN IN DESIGNATED PLACE.
2. Mail to: P.O. Box 458, Phoenix, Arizona 85001-0458 or deliver in person to the above address.
3. Pursuant to A.R.S. § 45-113, the application fee is \$50.00, and the permit fee is \$50.00. You may submit both checks at the time of filing the application.

FOR DEPARTMENT USE ONLY	
Application/Permit No.	59-207057
Filed	3-17-2005
AMA	Tucson
S/B	15 W/S 09

II. GENERAL DATA

Please check one:

- New Application
 Renewal or Modification of Permit No. 59-_____

1. NAME OF APPLICANT Avra Water Co-Op

Mailing Address 11821 W. Picture Rocks Rd.

Tucson.	Arizona	85743	(520) 682-7331
City	State	Zip Code	Telephone Number

2. NAME OF LAND OWNER where groundwater will be withdrawn Avra Water Co-Op

Mailing address 11821 West Picture Rocks Road

Tucson.	Arizona	85743	(520) 682-7331
City	State	Zip Code	Telephone Number

3. PURPOSE OF THIS TESTING PERMIT (check only one box):

- To obtain groundwater samples not exceeding 3 acre feet per annum for testing groundwater quality in order to comply with applicable environmental controls for a period of up to 10 years (A.R.S. § 45-519.01.A.)
- To test hydrologic characteristics and conditions, including groundwater quality. Groundwater withdrawn shall not exceed 10 acre feet nor shall the period of withdrawal exceed 90 days, (A.R.S. § 45-519.01.B.)
- To withdraw more than 10 acre feet of groundwater for hydrologic testing purposes, and/or for a period greater than 90 days include specifics of testing circumstances that require such withdrawal and/or period, (A.R.S. § 45-519.01.D.)
- To withdraw groundwater to test the hydrologic characteristics of a potential artificial groundwater recharge project site, or a potential underground storage and recovery project site. The period of withdrawal may not exceed 2 years (A.R.S. § 45-519.01.E.)

4. Groundwater will be withdrawn within the Avra Valley sub-basin of the Tucson Active Management Area.

5. The specific purpose for the hydrologic testing is: Aquifer Testing, Groundwater Quality

6. Please be specific how the groundwater withdrawn will be put to beneficial use and the groundwater right number for that use if applicable. Groundwater will be discharged to a local arroyo system and allowed to recharge the regional aquifer

COPY

7. If applicant cannot reasonably put the withdrawn groundwater to a beneficial use or provide it to a rightholder, explain why. There are no potential beneficial uses anywhere nearby.

8. Legal description of land where groundwater will be used: NW 1/4, SE 1/4, NW 1/4, of Section 7, T13S, R11E

9. Name and mailing address of the owner of the land where groundwater will be used: N/A

Mailing Address City State Zip Code Telephone No.

RECEIVED
MAR 17 2005
PHOENIX AMA

10. Total amount of groundwater for which application is being made: 10 acre feet

11. Anticipated duration of the hydrologic testing 3 to 5 Days 3 Months

12. Requested duration of the hydrologic testing permit 3 Days 3 Months

13. State the testing circumstances that require withdrawals in excess of 10 acre feet or a testing period for more than 90 days: The location of the test well is within the FEMA 100 year floodplain. Rainy weather may force delays in the completion of the project

14. Indicate the system by which the groundwater withdrawn for a test involving a potential recharge or storage and recovery project will be added back to the aquifer.

Natural Drainage Infiltration

15. Groundwater to be withdrawn by means of:

A. WELLS ALREADY IN EXISTENCE:

Registration No.	Location	Depth	Diameter of Casing	Case Type
55- _____	_____	_____	_____	_____
55- _____	_____	_____	_____	_____

B. WELLS TO BE NEWLY CONSTRUCTED:

Complete and attach New Well Construction Supplement, DWR form 55-90, for each new well to be drilled.

16. State your plans for the well(s) after testing is completed: _____

Well to be capped until further notice.

It is understood that the Permit, if granted, will be in accordance with the Groundwater Management Code (Title 45, Chapter 2). The permittee will be bound by the provisions of such law and the provisions of the Permit issued.

I (we) Chris E. Wall hereby swear that all information provided in this application is true and correct to the best of my/our knowledge and belief.
(print name)

Signature of Applicant Chris E. Wall

Date 3-15-05

Drilling Authorities

Registry ID	License #	Issue Date	Expiration Date
55-207058	682 ...	03/30/2005	08/29/2005

Comments

Driller Licenses

Company		Qualifying Party	
NCCI, INC		GARY L. HIX	<input checked="" type="checkbox"/> Active License
Address1		Address2	
P.O. BOX 1422		16222 GUNDREY AVENUE	
City	State	Zip Code	Phone
PARAMOUNT	CA	90723-14	562-220-1120
			ROC Licenses
			A & B-1

Comments

GARY LEE HIX (2000-2005) ACTIVE (SEE 580)
 dba Nationwide Construction Co., Inc

COPY

**Arizona Dept of Water Resources - Darlene Sumpter-King
PHOENIX AMA - CHECK DEPOSIT REQUEST**

Date: March 17, 2005

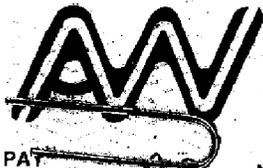
Applicant: Avra Water Co-op

Payment submitted by: same as applicant

Address on Check: 11821 W. Picture Rocks Rd., Tucson, AZ 85743

Application No. 59-207057 and (55-207058)

Code	Type of Fee:	Amount:	Check No.
55	Application for Well Permit (\$150.00)		
55	Well Permit Fee (\$30.00)		
58	Type I Conversion Request Flex Account Transfers (\$100.00)		
59	Application for Permit to Withdraw (\$50.00 or \$150.00)	\$50.00	17771
59	Withdrawal Permit Fee (\$50.00)	\$50.00	17772



AVRA WATER CO-OP, INC.
GENERAL OPERATING ACCOUNT
PH. 682-7331 624-7628
11821 W. PICTURE ROCKS RD.
TUCSON, AZ 85743

17771

DATE 3-15-05 91-260
1221

PAY TO THE ORDER OF ADWR

P. Sumpter and Assoc

\$ 50.00

DOLLARS



AVRA WATER CO-OP, INC.
GENERAL OPERATING ACCOUNT
PH. 682-7331 624-7628
11821 W. PICTURE ROCKS RD.
TUCSON, AZ 85743

17772

DATE 3-15-05 91-260
1221

PAY TO THE ORDER OF ADWR

Fifty and 00/100

\$ 50.00

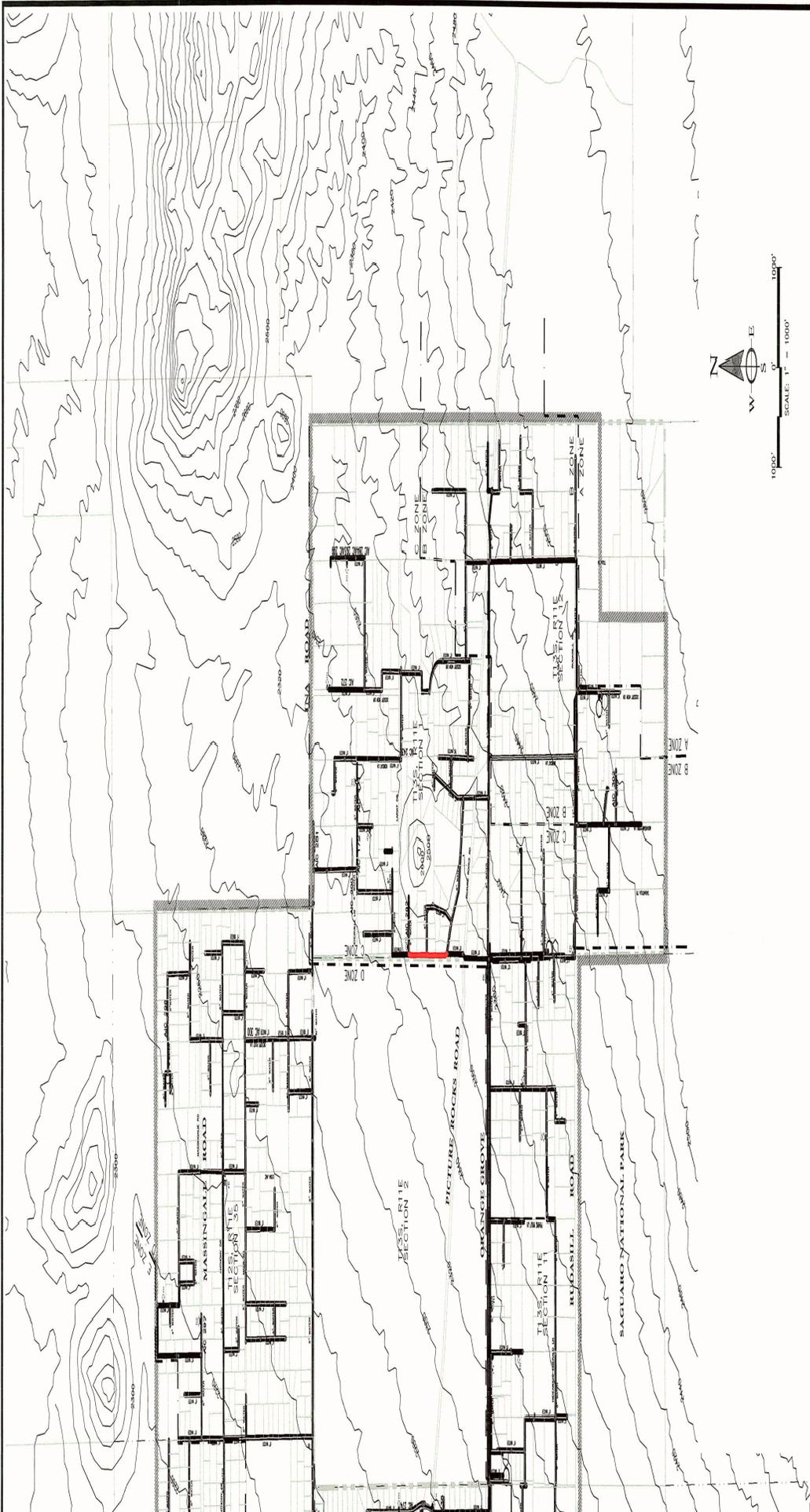
DOLLARS

BANK ONE.

Bank One, Arizona, NA
Ina - Thornydale Office (260)
Tucson, Arizona

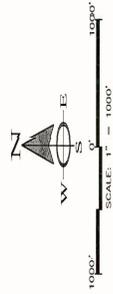
OR Pay with 50.00 cash





THE INFORMATION CONTAINED WITHIN THESE DOCUMENTS IS FOR INFORMATIONAL PURPOSES ONLY. AVRA WATER COMPANY AND ITS AGENTS AND CONTRACTORS MAKE NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY OF THIS INFORMATION. ALL INFORMATION IS THE RESPONSIBILITY OF THE USER.

- LEGEND**
- EXISTING DISTRIBUTION SYSTEM
 - NEW DISTRIBUTION SYSTEM
 - ZONE BOUNDARY
 - EXISTING CC&N BOUNDARY
 - RANCHO DE CONEJO WATER SERVICE BOUNDARY
 - SERVICE AREA
 - RESERVOIR
 - BOOSTER STATION
 - WELL
 - PRV STATION
 - VALVE
 - FIRE HYDRANT



AVRA WATER CO-OP DATE 5/23/07



RECEIVED
AUG 6 - 2007
WATER MGMT

AVRA WATER COMPANY
WATER SYSTEM BASE MAP
JULY 11, 2007

S-215994 55-207058