ARIZONA DEPARTMENT OF WATER RESOURCES
PRESCOTT ACTIVE MANAGEMENT AREA OFFICE

MEMORANDUM

TO: LIHUA LI, FINANCIAL SERVICES

FROM: JACK MCCORMACK, PRESCOTT AMA

DATE: October 17, 2007

RE: Refund for Application for a Permit to Drill or Operate a Service Area Well

On July 20, 2007, the Prescott Valley Water District submitted an Application for a Permit to Drill or Operate a Non-Exempt Well within an Active Management Area Pursuant to A.R.S. § 45-599. This application pertained to well (55-202384). On October 9, 2007 the Department received a letter from the Prescott Valley Water District requesting that this application be withdrawn. The applicant paid $180 of which $150 was the application fee and $30 was the permit fee. The application fee is non-refundable however unless the agency issues a permit, the permit fee is refundable. Therefore, the Prescott Valley Water District is due a refund. Their check received on July 20, 2007 was check number 3740 in the amount of $410.

Please prepare a refund check from the imprest (revolving) fund in the amount of thirty dollars ($30.00) made payable to:

Prescott Valley Water District
7501 E. Civic Circle
Prescott Valley, AZ 86314

Please mail the check to the attention of John Munderloh.

Please send a copy of the refund check to the Prescott AMA office for our file.

Thank you.

Authorized By:

Guy R. Wildeman

Prescott Active Management Area Director

PRESCOTT VALLEY

Town of Prescott Valley

7501 E. Civic Circle
Prescott Valley
Arizona 86314

October 9, 2007

Jack McCormack
Arizona Department of Water Resources
Prescott Active Management Area
2200 East Hillsdale Road
Prescott AZ 86301-4941

RE: Application for Permit to Drill or Operate a Non-Exempt Wells within an AMA
Well No. 55-202384 (Legend Larry) Application No. S-215982
Well No. 55-541373 (View Point) Application No. S215981

Dear Mr. McCormack

Thank you for the well impact analysis notice dated September 5, 2007 regarding the above mentioned applications. The Town has reevaluated the applications and is asking the Arizona Department of Water Resources (ADWR) for a modification on the applications as follows:

Well No. 55-202384 (Legend Larry) Application No. S-215982: Please withdraw this application for the Legend Larry well (55-202384). The well is not currently equipped and the Town does not plan to equip this well in the near future.

Again, thank you for your consideration.

Sincerely,

John Munderloh
Water Resources Manager

ARIZONA DEPARTMENT OF WATER RESOURCES
PRESCOTT ACTIVE MANAGEMENT AREA
2200 East Hillsdale Road, Prescott Arizona 86301-4941
Telephone (928) 778-7202 Fax (928) 776-4507

September 5, 2007

JANET NAPOLITANO
Governor

HERB GUENTHER
Director

Prescott Valley Water District
Attn: Mark Kieren
7501 E. Civic Circle
Prescott Valley, AZ 86314

RE: Application for Permit to Drill or Operate a Non-Exempt Well within an Active Management Area Pursuant to A.R.S. § 45-599
Well No. 55-202384 (Legand Larry) Application No. S-215982
Well No. 55-541373 (ViewPoint) Application No. S-215981

Dear Mr. Kieren:

The Department of Water Resources (Department) has completed its evaluation of the above reference applications for permits to operate two non-exempt service area wells. A ten-foot drawdown analysis was performed by the Department's Hydrology Division for the subject wells in B-15-01 26 CDC and B-15-1 33 DDA. Due to the proximity of wells 55-541373 and 55-202384, a multiply well impact study was performed and was based on the annual volume of pumpage of 838 and 890 acre-feet. The results of the standard Theis analysis found that the five-year, 10-foot drawdown contour at well 55-541373 would be approximately 234.2 feet. At well 55-202384 the calculated drawdown would be approximately 260.6 feet

Records of the Department indicate that well registration numbers 55-532274, 55-541372, 55-544427, 55-560334 and 55-611904 may fall within the 10-foot drawdown contour and could be impacted by the proposed pumping of the subject wells.

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 those wells that fall within the 10-foot drawdown contour:

1. You may reduce the annual volume of pumpage from the proposed well to an amount that does not affect surrounding wells.

2. You may negotiate and obtain waivers from the impacted well owner(s). For your convenience we have enclosed a Well Impact Waiver. (Although withdrawals from these

wells may have discontinued, the owner(s) of all the wells that lie within the drawdown radius would be required to sign waivers if this option were considered).

3. You may submit evidence that proves that the wells of record are not within the radius of impact. This evidence will be subject to field verification by the Prescott AMA.

4. You may withdraw your application.

Please advise within 60 days of the date of this letter what action you intend to take on the applications. Failure to submit the information requested within 60 days may result in the denial of the application. The Department's substantive review time frame is suspended until all of the requested information is provided.

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. If you have any other questions or need further assistance, please feel free to contact me at (928) 778-7202

Sincerely,

Jack McCormack

Jack McCormack
Water Resource Specialist
Prescott Active Management Area

Enclosures

ARIZONA DEPARTMENT OF WATER RESOURCES
Hydrology Division

MEMORANDUM

TO: Jack McCormack, Phoenix AMA

THRU: Drew Swieczkowski, Manager, Water Resources Section

FROM: Alene McCracken, Hydrologist, Water Resources Section

DATE: August 27, 2007

RE: Town of Prescott Valley/Prescott Valley Water District, Two Applications for a permit to drill or operate non-exempt service area wells in the Prescott AMA.
Numbers: S-215981 & S-215982;
WELL IMPACT ANALYSES for wells numbered:
55-541373, B-15-01 26 CBC (S-215981)
55-202384, B-15-1 33 DDA (S-215982)

Hydrology has completed its evaluation of the above referenced applications for permits to operate two non-exempt service area wells. A ten-foot drawdown analysis was performed by Hydrology for the subject wells in B-15-01 26 CBC and B-15-1 33 DDA. Well 55-541373 was previously evaluated in1996 for the following permit: T-541373. The permit was issued for only 40 acre feet and had a 10-foot impact radius of 407 feet. No other wells were located in that radius. The transmissivity value used for the analysis was 1197 gpd/ft, calculated from ADWR Modeling Report #9. Well 55-202384 was applied for and drilled as a hydro-test well in 2004. The hydro-test was conducted for only eleven hours, far less than the minimum of 48 hours set forth by Hydrology's Assured Water Supply guidelines. The submitted data only includes two drawdown amounts, a starting value and an ending value. A submitted graph of the data shows more data points. Based on a Cooper-Jacobs plot of the two data points a transmissivity value of 7,479 gpd/ft was calculated, practically identical to the value calculated by the applicant (7,500 gpd/ft). This value is more conservative than the value of approximately 13,000 gpd/ft calculated from the Prescott Model (ADWR, 2002).

Hydrology used the transmissivity value calculated from the pump test data of well 55-202384 to conduct both a standard Theis analysis and THWELLS calculation for the drawdown radius. The specific yield chosen is the value for all layers in the Prescott Model. One image well was used in the THWELLS analysis located approximately 17,700 feet to the southwest. The results are presented below:

Well Location & registration number:	Analysis performed by	Transmissivity Value (gpd/ft)	Specific Yield	Pumping Volume AFA	Ten-Foot Drawdown Radii After Five Years
B-15-01 26 CBC 55-541373 and B-15-1 33 DDA 55-202384	ADWR	7,479	0.06	838 (520 gpm) and 890 (552 gpm)	Irregularly shaped: from ~5740-9000

According to the parameters of the application, the calculated drawdown at well 55-541373 is 234.2 feet for

the five-year time period. At well 55-202384 the calculated drawdown is approximately 260.6 feet.

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

Attachments

Well Spacing Review Sheet
(Impact Analysis)

Well Reg. No.	***55-202384***	Well Location:	***B (15-1) 33 DDA***
Applicant:	***Prescott Valley Water District***		
Depth of well:	***940*** feet	Proposed volume:	***890*** acre-ft/yr
Diameter:	***12.75*** in.	Q =	***552*** gpm
Proposed Well:	***no***	Replacement ***NA***	
Existing:	***yes***	Replacement no:	

Well Reg. No.	***55-541373***	Well Location:	***B (15-1) 26 CBC***
Applicant:	***Town of Prescott Valley***		
Depth of well:	***667*** feet	Proposed volume:	***838*** acre-ft/yr
Diameter:	***12.75*** in.	Q =	***520*** gpm
Proposed Well:	***no***	Replacement ***NA***	
Existing:	***yes***	Replacement no:	

T =	***7,479*** gpd/ft	T Source:	***Pump test data from well no. 55-202384***
Sy =	***0.06***	Sy Source:	***Prescott Model***

10 foot drawdown radius = **Irregular, see map** ***feet (see attached map)***

drawdown at well :	260.6	***feet***	at 55-202384
	234.2		at 55-541373

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

Analyzed by: _____ Date: 8/24/07

Checked by: _____ Date: 8-27-07

Revised: 8/24/2007

********** THWELLS - version 4.01 ********** PAGE 1

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

55-541373 and 55-202384

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

UNCONFINED AQUIFER - THEIS EQUATION WITH JACOB'S CORRECTION

WATER TABLE CORRECTION APPLIED; DRAWDOWNS EXCEED 10% OF SATURATED THICKNESS

AQUIFER THICKNESS = 400 [ft]
TRANSMISSIVITY = 7479 [gpd/ft]

STORAGE COEFFICIENT = .06

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; DRAWDOWNS EXCEED 10% OF SATURATED THICKNESS

AQUIFER THICKNESS = 400 [ft]

********** PUMPING/INJECTION WELL DATA **********

WELL NO. 1 (55-202384)

X-COORDINATE = 0 [ft]
Y-COORDINATE = 0 [ft]
PUMPING/INJECTION RATE = 794880 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

WELL NO. 2 (55-541373)

X-COORDINATE = 5875 [ft]
Y-COORDINATE = 5813 [ft]
PUMPING/INJECTION RATE = 748800 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

WELL NO. 3 (Image Well)

X-COORDINATE = -9000 [ft]
Y-COORDINATE = -15250 [ft]
PUMPING/INJECTION RATE = 1543680 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

********** RESULTS **********

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

Y [ft]	<- X [ft] ->					
	-7000	-6750	-6500	-6250	-6000	-5750
-600.00	7.592	8.047	8.533	9.051	9.604	10.195
-300.00	7.545	8.007	8.500	9.027	9.590	10.192
0.00	7.486	7.953	8.451	8.984	9.553	10.162
300.00	7.414	7.884	8.385	8.920	9.492	10.104
600.00	7.329	7.799	8.300	8.835	9.407	10.018

Y [ft]	<- X [ft] ->					
	-1000	-750	-500	-250	0	250
-7200.00	9.388	9.278	9.162	9.038	8.908	8.770
-6900.00	9.701	9.613	9.516	9.409	9.293	9.167
-6600.00	10.066	9.999	9.922	9.832	9.730	9.616
-6300.00	10.485	10.441	10.382	10.310	10.222	10.119
-6000.00	10.962	10.941	10.903	10.847	10.773	10.681
-5700.00	11.502	11.505	11.488	11.450	11.390	11.308
-600.00	38.436	42.196	46.255	49.927	51.636	50.257
-300.00	40.625	45.615	52.039	60.088	65.562	60.466
0.00	41.573	47.189	55.217	69.288	260.603	69.718
300.00	40.918	45.946	52.412	60.509	66.030	60.969
600.00	39.017	42.849	46.986	50.741	52.532	51.231
8100.00	9.609	9.999	10.401	10.816	11.245	11.689
8400.00	9.110	9.482	9.865	10.260	10.669	11.091
8700.00	8.626	8.980	9.344	9.719	10.107	10.506
9000.00	8.158	8.493	8.838	9.193	9.559	9.936
9300.00	7.706	8.022	8.347	8.682	9.026	9.380
9600.00	7.268	7.566	7.873	8.187	8.510	8.842

Y [ft]	<- X [ft] ->					
	8000	8250	8500	8750	9000	9250
-600.00	10.582	10.133	9.695	9.266	8.848	8.440
-300.00	11.090	10.623	10.165	9.716	9.278	8.850
0.00	11.620	11.132	10.653	10.184	9.724	9.274
300.00	12.173	11.664	11.163	10.670	10.186	9.713
600.00	12.753	12.220	11.694	11.176	10.667	10.168

Same analysis with origin moved to 55-541373

PUMPING/INJECTION WELL DATA

WELL NO. 1 (55-202384)

X-COORDINATE = -5875 [ft]
Y-COORDINATE = -5813 [ft]
PUMPING/INJECTION RATE = 794880 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

WELL NO. 2 (55-541373)

X-COORDINATE = 0 [ft]
Y-COORDINATE = 0 [ft]
PUMPING/INJECTION RATE = 748800 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

WELL NO. 3 (Image Well)

X-COORDINATE = -14875 [ft]
Y-COORDINATE = -21063 [ft]
PUMPING/INJECTION RATE = 1543680 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

********** RESULTS **********

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

Y [ft]	<- X [ft] ->					
	-9600	-9300	-9000	-8700	-8400	-8100
-600.00	9.807	10.387	10.981	11.588	12.206	12.831
-300.00	9.347	9.894	10.456	11.030	11.615	12.209
0.00	8.902	9.420	9.951	10.496	11.052	11.617
300.00	8.472	8.963	9.467	9.984	10.513	11.052
600.00	8.059	8.523	9.002	9.493	9.997	10.512

Y [ft]	<- X [ft] ->					
	-600	-300	0	300	600	900
-9600.00	9.847	9.383	8.934	8.500	8.083	7.680
-9300.00	10.402	9.908	9.432	8.973	8.532	8.107
-9000.00	10.974	10.449	9.945	9.461	8.995	8.548
-8700.00	11.560	11.005	10.473	9.963	9.473	9.003
-8400.00	12.158	11.573	11.013	10.478	9.964	9.472
-8100.00	12.766	12.152	11.565	11.005	10.469	9.954
-600.00	44.018	47.882	49.562	47.219	42.709	38.144
-300.00	47.885	55.929	62.079	55.302	46.661	40.222
0.00	49.567	62.081	234.242	61.491	48.431	40.933
300.00	47.227	55.307	61.493	54.773	46.186	39.793
600.00	42.719	46.668	48.435	46.188	41.772	37.293

Y [ft]	<- X [ft] ->					
	-600	-300	0	300	600	900
4500.00	12.605	12.628	12.590	12.491	12.331	12.115
4800.00	11.605	11.622	11.586	11.497	11.357	11.167
5100.00	10.687	10.698	10.665	10.586	10.462	10.295
5400.00	9.842	9.850	9.818	9.747	9.638	9.490
5700.00	9.063	9.068	9.039	8.976	8.878	8.748
6000.00	8.344	8.348	8.321	8.264	8.177	8.062

Y [ft]	<- X [ft] ->					
	4800	5100	5400	5700	6000	6300
-600.00	11.594	10.676	9.831	9.053	8.335	7.672
-300.00	11.611	10.688	9.840	9.059	8.339	7.675
0.00	11.577	10.656	9.810	9.031	8.313	7.651
300.00	11.489	10.577	9.739	8.968	8.257	7.601
600.00	11.349	10.454	9.630	8.871	8.171	7.524

Well Reg. No. 55-202384 Well Location B (15-1) 33 DDA
Applicant: Prescott Valley Water District

			890 acre-ft/yr
t =	1825 days	Q =	552 gpm
s =	25 ft	T =	7479 gpd/ft
u =	3.01E-02	Sy =	0.06

W(u) = 2.9568

25 foot drawdown radius = 1913.55 ft = 0.36 mi

			890 acre-ft/yr
t =	1825 days	Q =	552 gpm
s =	10 ft	T =	7479 gpd/ft
u =	2.10E-01	Sy =	0.06

W(u) = 1.1827

10 foot drawdown radius = 5054.36 ft = 0.96 mi

			890 acre-ft/yr
t =	1825 days	Q =	552 gpm
s =	1 ft	T =	7479 gpd/ft
u =	1.39E+00	Sy =	0.06

W(u) = 0.1183

1 foot drawdown radius = 13003.62 ft = 2.46 mi

r =	1 ft		
u =	8.2203E-09	drawdown at well	
W(u) =	18.038	s =	152.51 ft

Equations:

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

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

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

552 gpm
794880 gpd

Well Reg. No. 55-541373 Well Location B (15-1) 26 CBC
Applicant: Town of Prescott Valley

			838 acre-ft/yr
t =	1825 days	Q =	520 gpm
s =	25 ft	T =	7479 gpd/ft
u =	2.48E-02	Sy =	0.06

W(u) = 3.1402

25 foot drawdown radius = 1736.93 ft = 0.33 mi

			838 acre-ft/yr
t =	1825 days	Q =	520 gpm
s =	10 ft	T =	7479 gpd/ft
u =	1.93E-01	Sy =	0.06

W(u) = 1.2561

10 foot drawdown radius = 4845.46 ft = 0.92 mi

			838 acre-ft/yr
t =	1825 days	Q =	520 gpm
s =	1 ft	T =	7479 gpd/ft
u =	1.44E+00	Sy =	0.06

W(u) = 0.1256

1 foot drawdown radius = 13235.43 ft = 2.51 mi

r =	1 ft		
u =	8.2203E-09		drawdown at well
W(u) =	18.04	s =	143.62 ft

Equations:

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

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

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

520 gpm
748800 gpd

ARIZONA DEPARTMENT OF WATER RESOURCES
HYDROLOGY DIVISION – WATER QUALITY UNIT

MEMORANDUM

TO:	Darlene Sumpter-King Jack McCormack, Prescott AMA
FROM:	Dianna Williams Water Quality Unit
DATE:	August 14, 2007
SUBJECT:	Application for Permit to Drill or Operate a Non-Exempt Well Within an Active Management Area Application S-215982 Well 55-202384 Prescott Valley Water District

Hydrology has reviewed the above referenced application for a permit to drill or operate a non-exempt well within an active management area 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. The ADEQ Groundwater Quality Database does not include any water quality records within one mile of the subject well. No other water quality data are readily available.

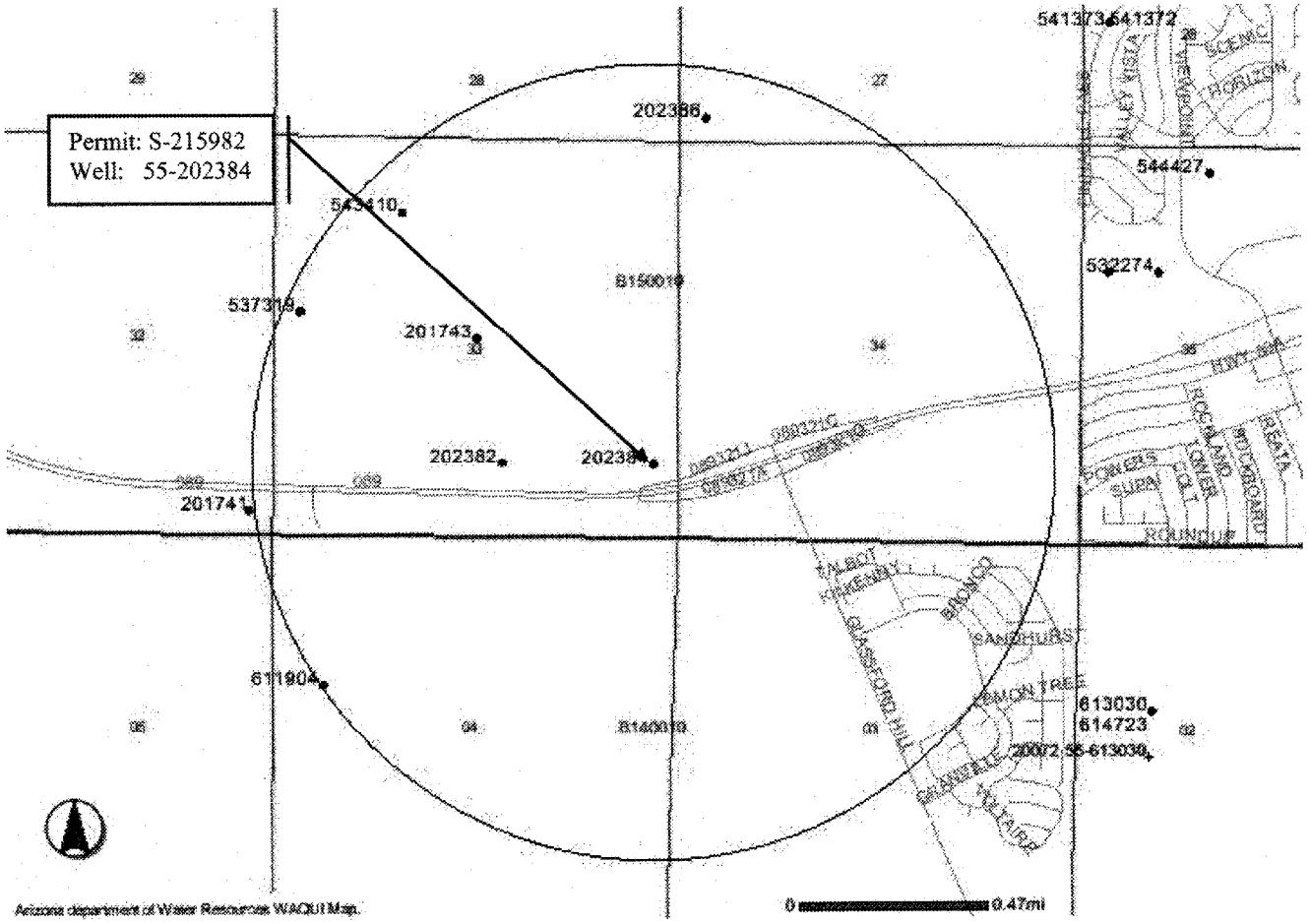
Well Construction Standards

3. The subject well was drilled to 1200 feet below the land surface and screened from 650 to 1200 feet. The well was completed in the upper 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 1-8555.

C:	Alene McCracken, Hydrology
Enclosure	Water Quality map Water Quality Table

S-215982 – 55-202384 PRESCOTT VALLEY WATER DISTRICT PERMIT TO DRILL OR OPERATE A NON EXEMPT WELL WITHIN PRESCOTT AMA, B (15-1) 33 DDA



Legend
- Highlighted Feature
- theBufferPolygons
- theBufferTarget
- ADEQ Wells
- Wells > HBGL
- Wells > Secondary MCL
- Wells > MCL
- No Exceedance
- REGISTERED WELLS
- Streets
- Sections
- Townships
- GWR LUST Buffer
- RCRA Site Buffer
- VRP Site Buffer
- Registry

Working Together

Arizona Department of Environmental Quality

Arizona Department of Water Resources

Map generated on 7/26/2007

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.

From: Joseph Snyder
To: Alene McCracken; David Christiana; Jack McCormack; Seandale Poe
Date: 7/24/07 12:27PM
Subject: Prescott Valley Water District S-215982 55-202384

Prescott Valley Water District
S-215983 55-202384
Conversion of Existing Well to Service Area Well
B915-1)33DDA
34 37 53.7N 112 21 32.3
Service Area Right No: 56-003012.0000

J.R. Snyder Jr.
Water Resources Specialist
jrsnyder@azwater.gov
602-771-8606
Arizona Department of Water Resources
3550 N. Central Ave.
Phoenix, AZ 85012-2105

Mail Envelope Properties (46A65291.EC1 : 20 : 1666)

Subject: Prescott Valley Water District S-215982 55-202384
Creation Date: 7/24/07 12:27PM
From: Joseph Snyder

Created By: wrjzs@azwater.gov

Recipients	**Action**	**Date & Time**
azwater.gov		
PHOENIX.ADWR	Delivered	07/24/07 12:27PM
WRAMM (Alene McCracken)		
WRDGC (David Christiana)		
WRSAP (Seandale Poe)		
azwater.gov		
PRESCOTT.ADWR		
WRJXM (Jack McCormack)		

Post Office	**Delivered**	**Route**
PHOENIX.ADWR	07/24/07 12:27PM	azwater.gov
PRESCOTT.ADWR	Pending	azwater.gov

Files	**Size**	**Date & Time**
MESSAGE	1188	07/24/07 12:27PM
TEXT.htm	982	
PrescottValleyWaterDistrict (S-215982_55-202384) Appl.pdf	1251560	07/24/07 12:07PM

Options

Auto Delete:	No
Expiration Date:	None
Notify Recipients:	Yes
Priority:	Standard
Reply Requested:	No
Return Notification:	None
Concealed Subject:	No
Security:	Standard
To Be Delivered:	Immediate
Status Tracking:	All Information

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

RECEIVED JUL 20 2007 PRESCOTT AMA

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

RECEIVED JUL 23 2007

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
Application No. S-215982 Registration No. 55-202384
File No. B(15-1)33 DDA
Date Received 07-23-07
AMA PRESCOTT
W/S 06 S/B 1

1. Applicant PRESCOTT VALLEY WATER DISTRICT
   Mailing Address 7501 E CIVIC CIRCLE
   PRESCOTT VALLEY AZ 86314
   City State Zip Code
   Contact Person MARK KIEREN
   Telephone Number (928) 759 3085
2. Name of Land Owner PRESCOTT VALLEY WATER DISTRICT
   Mailing Address 7501 E CIVIC CIRCLE
   PRESCOTT VALLEY AZ 86314 (928) 759 3085
   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: 56-003012.0000
   ☐ Irrigation District Right No:
6. The principal use(s) of groundwater will be (**be specific**) MUNICIPAL
7. Well location: NE ¼ (10 Acre) SE ¼ (40 Acre) SE ¼ (160 Acre) Section 33 Township 15 N/S Range 1 E/W
8. Position location of the well: Latitude N 34 ° 37 ' 53.7 " N Longitude W 112 ° 21 ' 32.3 " W
9. Design Pump Capacity 550 gpm Depth 1200 feet
   Diameter 17.5 inches Type of casing STEEL
10. Proposed annual volume of water 890 acre feet
11. Well is located in the LITTLE CHINO subbasin of the PRESCOTT 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 05 YEAR 04

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

14. Legal description of the land where the groundwater will be used:
_____ ¼ _____ ¼ _____ ¼ Section ____ Township 14 N/S Range 1 E/W County YAVAPAI
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 DRILL TECH INC DWR License No: 239 ROC License Category _____

Mailing Address: PO BOX 3568 CHINO VALLEY AZ 86323 928 636 8006
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: _____ 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- 202384 Present pump design capacity 550 gallons per minute.
Present permitted volume 890 acre-feet per year.

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

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

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), JOHN MUNDERLOH **(print name) hereby affirm that all information provided in this application is true and correct to the best of my/our knowledge and belief.**

Signature of Applicant _____ **Date** 7/18/07

NO. 3 LEGEND LARR'

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- 202384
(FOR DEPARTMENT USE ONLY)

1. **Well Location:**

   NE ¼ of the SE ¼ of the SE ¼, Sec. 33, Township 15 N Range 1 W.
   (10AC) (40AC) (160AC)

2. **Position Location of the Well:**

   Latitude 34 ° 37 ' 52 " Longitude 112 ° 21 ' 33 "

3. **County** YAVAPAI.

4. **Date construction to start:** FEBRUARY 2004.

5. **Time period well will remain in use:** 50 YEARS.

6. **Is pump equipment to be installed?** YES **If so, design pump capacity:** 500 **GPM.**

7. **Well construction plan:**

   a. **Drilling method (mud rotary, hollow-stem auger, etc.)** AIR HAMMER.

   b. **Borehole diameters** 24 **inches from** 0 **feet to** 40 **feet.**

   17.5 **inches from** 40 **feet to** 1,200 **feet.**

   c. **Casing materials** STEEL.

   d. **Method of well development (bail, air lift, surge, etc.)** AIR LIFT & VERICAL TURBINE PUMP.

   e. **Will surface or conductor casing extend above grade?** YES.

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):**

   WELL WILL NOT BE ABANDONED

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 __X__No

11. Is this well to monitor existing contamination? ____Yes __X__No

Potential contamination?_____Yes __X__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 __X__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 : SOUTHWEST WATER AND MINERAL RESOURCES, LLC

P.O. BOX 50245	PHOENIX	AZ	85076
Address	City	State	Zip

Contact Person: GARY WEESNER Telephone Number 480.893.2523

14. Drilling firm: DRILLTECH

DWR License Number: 239 ROC License Category: C-53 & A-4

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

_____

_____

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

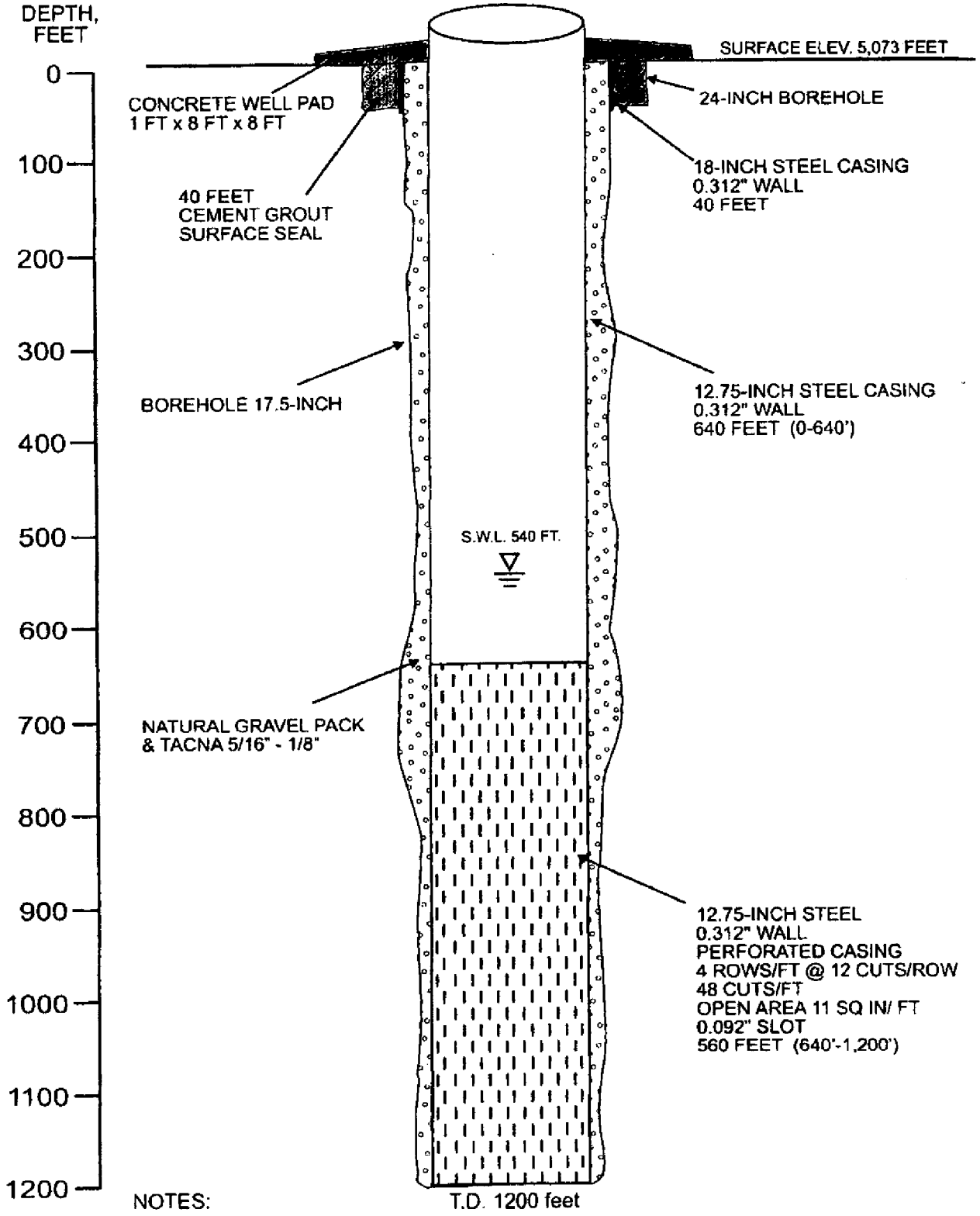
Signature of Applicant _____ Date 1/7/04

DWR-55-90 (Rev 9/02)

Well No. 55-202384

PRESCOTT VALLEY WATER DISTRICT
CONCEPTUAL DRAWING
LEGEND LARRY WELL
(B-15-01)33dda

103-01-011F



NOTES:
1) Not to scale

1/24/2004

ARIZONA DEPARTMENT OF WATER RESOURCES
PRESCOTT ACTIVE MANAGEMENT AREA
2200 East Hillsdale Road, Prescott Arizona 86301-4941
Telephone (928) 778-7202 Fax (928) 776-4507

Transaction Receipt

Date:	**07/ 20/ 07**
Amount:	**$410..00**
Payment type:	**Check**
Received from	**JOHN MUNDERLOUH**
Applicant:	**PRESCOTT VALLEY**
Phone#:	**(928) 759 - 3105**

Check Information if Applicable

Check #:	**3740**
Reference #	**91-2**
Name:	**JOHN MUNDERLOUH**
Address:	**2195 TONTO RIDGE, PRESCOTT, 86305**
Ph#	**(928) -**
Received for:	**MISC. (SEE COMMENTS)**
Comments:	**2 SERVICE AREA WELL APPS AND 5 CHANGE OF WELL INFO**
Received By:	**Amy Levy**

TABLE 1. WELL/TEST HOLE CONSTRUCTION SUMMARY

Well Name/ADWR Registration Number/Legal Location, Latitude/Longitude	Date Completed	Total Depth of Well, feet below land surface (ft bls)	Screened Intervals, ft bls	Surface elevation, feet above mean sea level (ft msl)	Depth to water, ft bls	Groundwater level elevation, ft msl	Date measured	Notes
Legend Larry 55-202384 (B-15-01)33dda N 34° 37' 53.9" W 112° 21' 35.0"	01/30/04	940	617 - 789 Open Hole 789 - 940	5,065	492.7	4,572	06/15/04	TH-3 located 5 feet south
Long Shot 55-202386 (B-15-01)27ccc N 34° 38' 37.5" W 112° 21' 33.4"	05/28/04	920	584 - 756 Open Hole 756 - 920	5,019	475.9	4,543	06/04/04	TH-4 located 29 feet south
Middle Robin 55-202388 (B-15-01)27cbb N 34° 39' 02.2" W 112° 21' 33.6"	06/10/04	930	521 - 691 Open Hole 691 - 930	4,996	461.0	4,535	06/28/04	
Out & Out 55-202390 (B-15-01)27bbb N 34° 39' 28.4" W 112° 21' 33.6"	07/02/04	807	628 - 693 Open Hole 693 - 807	4,967	431.6	4,535	07/07/04	TH-6 located 30 feet south
Double S 55-202392 (B-15-01)35bcb N 34° 38' 21.4" W 112° 20' 30.9"	05/13/04	1,200	535 - 619 708 - 880 Open hole 880 - 1,200	4,999	430.1	4,569	05/19/04	

TABLE 2. CONSTANT RATE AQUIFER TEST SUMMARY

Well Identifier	Date(s) Conducted	Average Discharge Rate, gpm	Maximum Drawdown, End of Pumping Phase, ft	Specfic Capacity, gpm/ft drawdown	Drawdown Test Transmissivity, gpd/ft	Recovery Transmissivity, gpd/ft	Recovery Late Transmissivity, gpd/ft	Saturated Thickness based on pre-test static water level, feet	Estimated Hydraulic Conductivity, ft/day
Double S	5/22/04 - 5/23/04	522	98.4	5	17,800	11,500	19,100	770	2 - 3
Legend Larry	6/15/04 - 5/17/04	535	119.5	4	7,500	11,500	--	447	2 - 3
Long Shot	6/5/04 - 6/6/04	900	29.3	31	95,000	80,000	--	445	24 - 29
Long Shot - Observation Well (TH-4) located 29 feet from Pumping well		NA	10.1	--	297,000	--	--	779	51
Middle Robin	06/28/04 - 06/29/04	960	1.2	800	3,200,000	--	--	469	912
Out & Out	07/08/04	963	13.2	73	860,000	1,270,000	--	375	307 - 453

Abbreviations/Footnotes:

gpm = gallons per minute
gpd/ft gallons per minute per foot aquifer thickness
-- Not calculated
NA Not applicable

TABLE 3. SUMMARY OF RESULTS OF CHEMICAL ANALYSIS OF GROUNDWATER SAMPLES

Well Name	Double S			Legend Larry			Long Shot TH-4		Long Shot		Middle Robin			Out & Out	
Location	(B-15-01)35bch			(B-15-01)33dda			(B-15-01)27ccc,		(B-15-01)27ccc,		(B-15-01)27cbb			(B-15-01)27bbb	
Collection Date	05/13/04	05/20/04	05/24/04	06/07/04	06/09/04	06/17/04	04/23/04	05/20/04	05/28/04	06/07/04	06/08/04	06/10/04	06/29/04	07/01/04	07/08/04
Time	14:30	10:00	11:20	15:15	08:30	09:10	11:30	09:30	14:10	14:00	21:00	04:30	05:50	14:50	09:00
Notes	airlift sample @ 1,180 feet	aquifer testing	Short term test @ 507 gpm	airlift sample @ 940 feet	airlift sample @ 770 feet	aquifer testing @ 535 gpm	Exploration Test Hole 4 pumped	Exploration Test Hole 4 pumped	airlift sample	aquifer testing @ 900 gpm	airlift sample @ 785 feet	airlift sample @ 925 feet	aquifer testing @ 960 gpm	airlift sample @ 790 feet	aquifer testing @ 525 gpm
Laboratory	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech	Aerotech
Temperature, degrees F (field)	76.8	70.2	70.5			73.8				71.4		69.1	70.0	69.9	70.2
Specific conductance µS/cm (field)	290	285	290	315		292			288	320	289	285	322	298	293
Total dissolved solids (mg/l)			150			160				170			140		120
pH (field)		8.08	7.95	8.35		8.10			8.15	8.25	8.33	8.33	7.80		7.98
pH (lab)			8.14			8.11				8.15			7.98		8.02
Antimony, (mg/l as Sb)			<0.0010			0.0015				<0.0010			<0.0010		<0.0010
Arsenic, (mg/l as As)	0.072 [1]	0.0078	0.0050	0.0034	0.0010	0.0059	0.023	0.028	0.0269	0.0031	0.0065	0.0063	0.0047	0.0033	0.0039
Barium, (mg/l as Ba)			0.073			0.025				0.042			0.019		0.013
Beryllium, (mg/l as Be)			<0.0010			<0.0010				<0.0010			<0.0010		<0.0010
Cadmium, (mg/l as Cd)			<0.0010			<0.0010				<0.0010			<0.0010		<0.0010
Chromium, (mg/l as Cr)			0.0059			0.0067	0.0088			0.0039			0.0038		0.0062
Copper, (mg/l as Cu)			0.021			0.0036				0.0051			<0.0010		<0.0010
Lead, (mg/l as Pb)			0.0012			<0.0010				<0.0010			<0.0010		<0.0010
Manganese, (mg/l as Mn)			<0.0050			0.0060				<0.0050			<0.0050		<0.0050
Nickel, (mg/l as Ni)			0.0012			0.0011				<0.0010			<0.0010		<0.0010
Selenium, (mg/l as Se)			<0.0010			<0.0010				0.0020			<0.0010		0.0059
Thallium, (mg/l as Tl)			<0.0010			<0.0010				<0.0010			<0.0010		<0.0010
Mercury, (mg/l as Hg)			<0.00020			<0.00020				<0.00020			<0.00020		<0.00020
Chloride, (mg/l as Cl)			—			8.3				—			9.3		8.3
Fluoride, (mg/l as F)			0.47			<0.40				<0.40			0.43		0.45
Nitrogen - Nitrate, (mg/l as N)			0.63			0.62				0.73			0.67		0.74
Nitrogen, Nitrite (mg/l as N)			<0.20			<0.20				<0.20			<0.20		<0.20
Sulfate, (mg/l as SO_4)			21			11				17			18		11
Alkalinity, Bicarbonate (mg/l as $CaCO_3$)			110			120				130			130		120
Alkalinity, Carbonate (mg/l as $CaCO_3$)			<2.0			<2.0				<2.0			<2.0		<2.0
Alkalinity, Hydroxide (mg/l as $CaCO_3$)			<2.0			<2.0				<2.0			<2.0		<2.0
Alkalinity, Total (mg/l as $CaCO_3$)			110			120				130			130		120
Langelier Saturation Index			-0.56			0.11				0.45			—		—
Asbestos			ND			ND				ND			ND		ND
Cyanide			<0.020			<0.020				<0.020			<0.020		<0.020
Total Coliform / E. Coli			0/0			1/0				0/0			0/0		0/0
524.2 Volatile Organic Compounds (VOCs)			ND			ND				ND			ND		ND
504.1 EDB & DBCP			ND			ND				ND			—		—
505 Pesticides Organohalide			ND			ND				ND			—		—
515.3 Herbicides			ND			ND				ND			—		—
525.2 Semi-Volatile Organics (SVOCs)			ND			ND[2]				—			—		ND[2]
Di(2-ethylhexyl)phthalate, ug/L			ND			0.0084				—			—		0.0046
531.1 Carbamate & Urea Pesticides			ND			ND				ND			—		—
547 Glyphosate			ND			ND				ND			—		—
548.1 Endothall			ND			ND				ND			—		—
549.2 Diquat			ND			ND				ND			—		—
1613 Dioxin			ND			—				—			—		—
Gross Alpha (pCi/l)			1.8±0.6			1.6±0.6				1.9±0.6			1.5±0.6		0.9±0.5
Calcium, (mg/l as Ca)			22			18				27			27		24
Hardness, Ca/Mg (mg/l as $CaCO_3$)			94			70				102			105		98
Magnesium, (mg/l as Mg)			9.4			6.0				8.3			9.1		9.3
Potassium, (mg/l as K)			<2.0			<2.0				<2.0			<2.0		<2.0
Sodium, (mg/l as Na)			23			33				26			24		19

Notes:

[1] airlifted sample contained large quantity of suspended sediment

[2] all non detect except di(2-ethylhexyl)phthalate

ND = Not detected

mg/l = milligrams per liter

Exceeds MCL to take effect 1/06 of 0.01 mg/L, samples collected after development and test pumping meet the MCL standard

ug/L = micrograms per liter

< = not detected, numerical value is limit of detection for constituent

TABLE 4. COMPARISON OF DRILLING FINDINGS TO CURRENT ADWR MODEL ASSUMPTIONS

Well Identifier	Out & Out	Double S	Middle Robin	Long Shot	Legend Larry
Legal Location	B(15-01) 27bbb	B(15-01) 35bcb	B(15-01) 27cbb	B(15-01) 27ccc	B(15-01) 33dda
Land Surface Elevation, feet above mean sea level (ft msl)	4,967	4,999	4,996	5,019	5,065
Depth to Water, feet below land surface (ft bls)	431.6	430.1	461.0	475.9	492.7
Total Depth of Borehole, ft bls	807	1,200	930	1,258	940
ALLUVIUM					
Depth to Bottom, ft bls	666	945	660	680	>940
Elevation Bottom, ft msl	4,301	4,054	4,336	4,339	<4,125
Current Saturated Thickness, feet (ft)	234	515	199	204	>447
VOLCANICS					
Depth to Bottom,feet (ft)	>807	>1,200	>930	>1,258	Unit Not Encountered
Elevation Bottom, ft msl	<4,160	<3,799	<4,065	<3,761	
Current Saturated Thickness, ft	>141	>255	>270	>578	
ADWR MODEL					
Cell Number	1036	1170	1125	1169	1256
Land Surface Elevation for Cell, ft msl	4,950	5,000	5,000	5,025	5,065
Elevation Bottom UAU, ft msl	4,300	4,100	4,200	3,955	4,200
Elevation Bottom LVU, ft msl	4,100	3,900	4,000	3,775	4,000

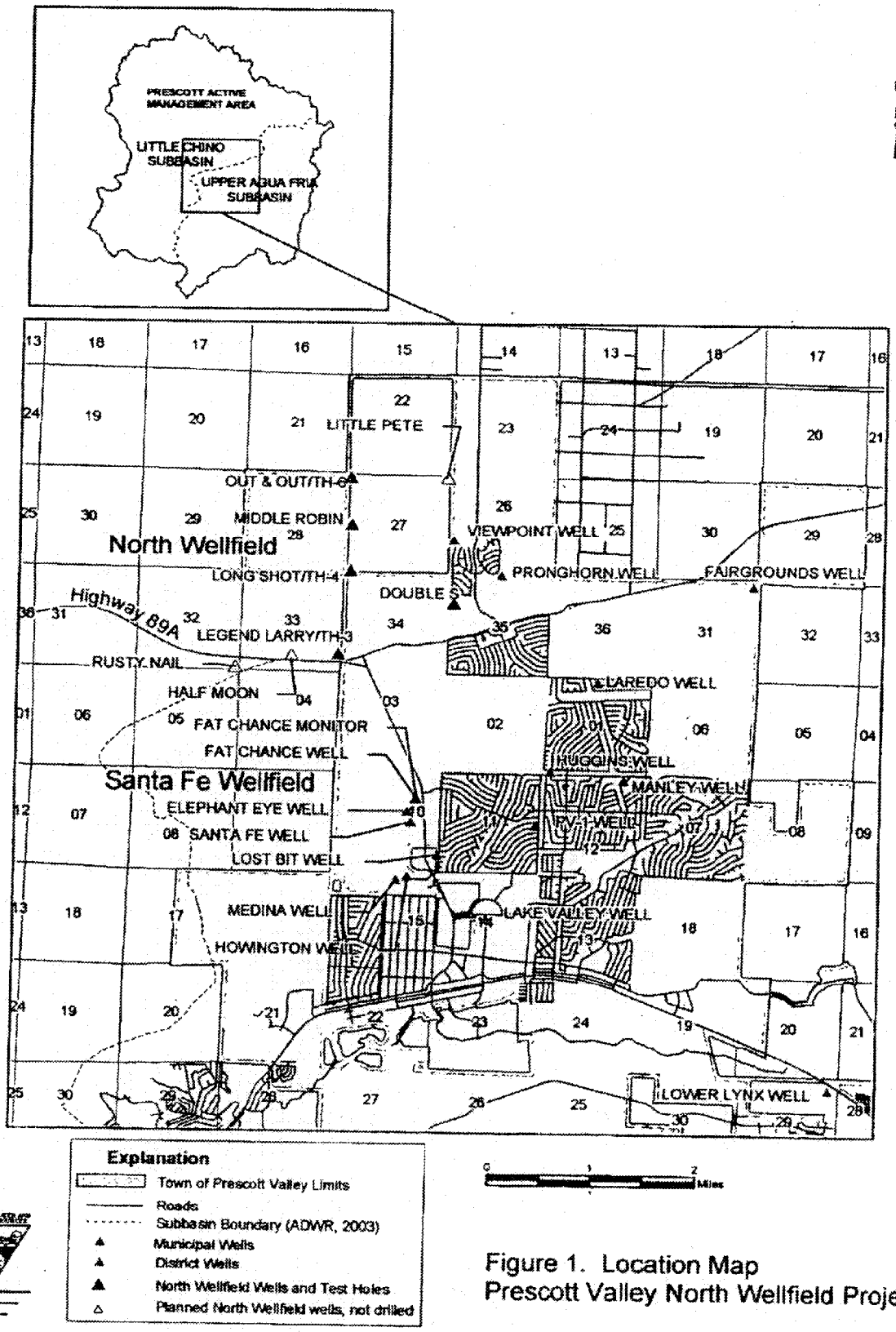
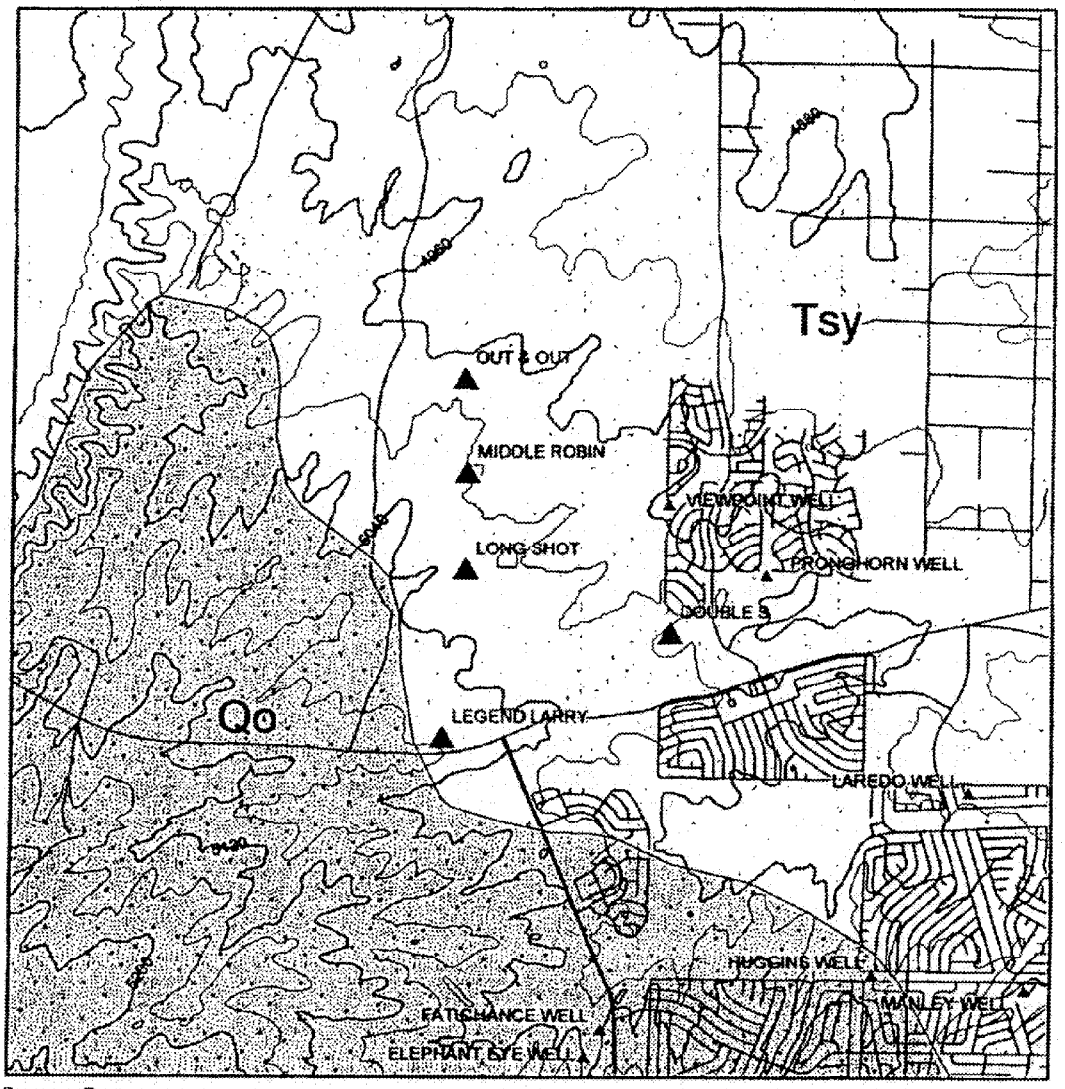


Figure 1. Location Map
Prescott Valley North Wellfield Project



Basemap Sources:

Arizona Geologic Survey (1997) for Surface Geology
Town of Prescott Valley (2004) for topographic contours, well locations, and road features

Explanation

- North Wellfield Wells
- Municipal/District Wells
- Streets
- Land Surface Topographic Contour, 40 feet contour interval, in feet above mean sea level

Geologic Units

- Qo, older surficial deposits
- Tsy, Sedimentary rocks

Figure 2. Surface Geology and Topography
Prescott Valley North Wellfield Project

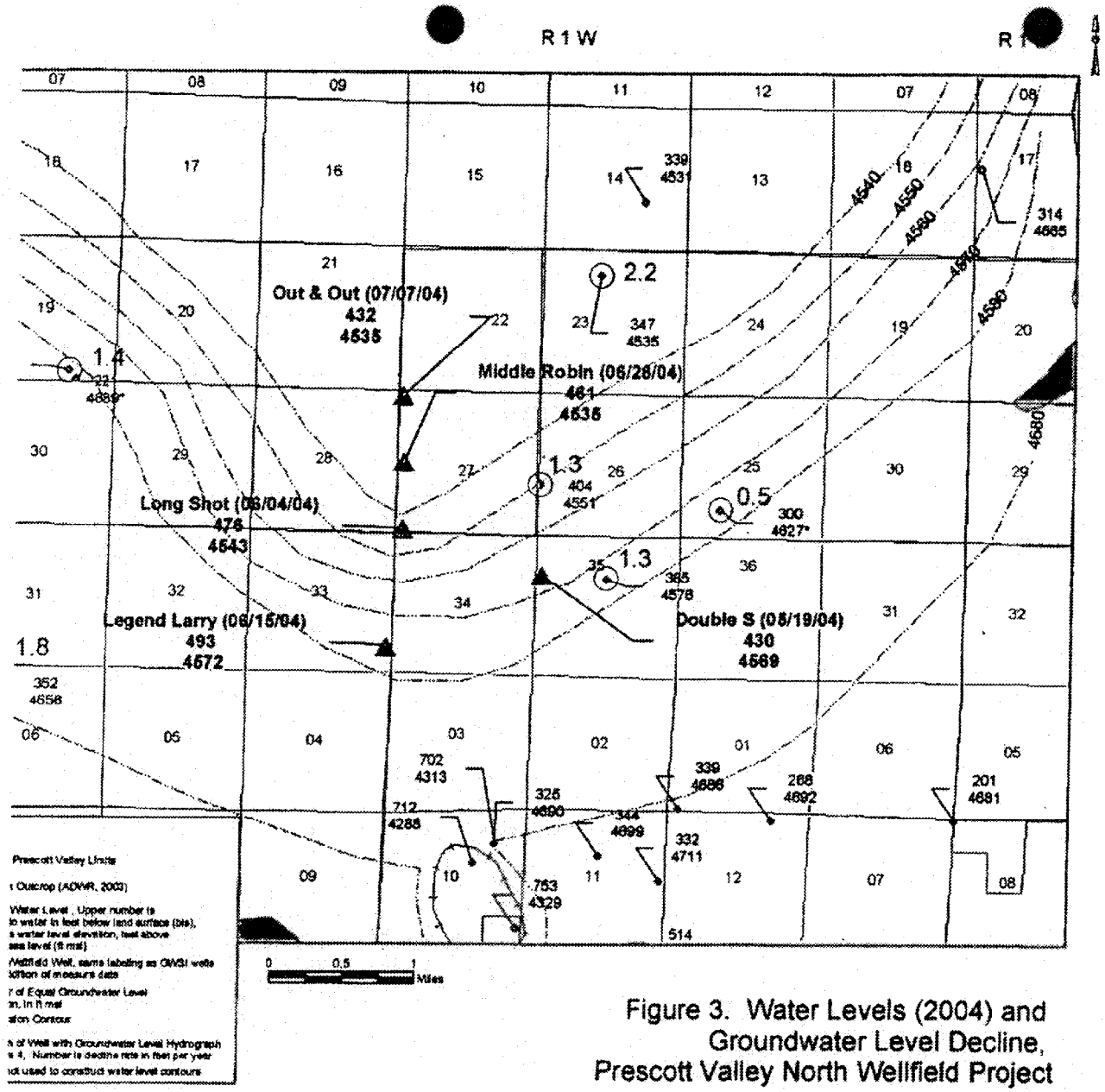


Figure 3. Water Levels (2004) and Groundwater Level Decline, Prescott Valley North Wellfield Project

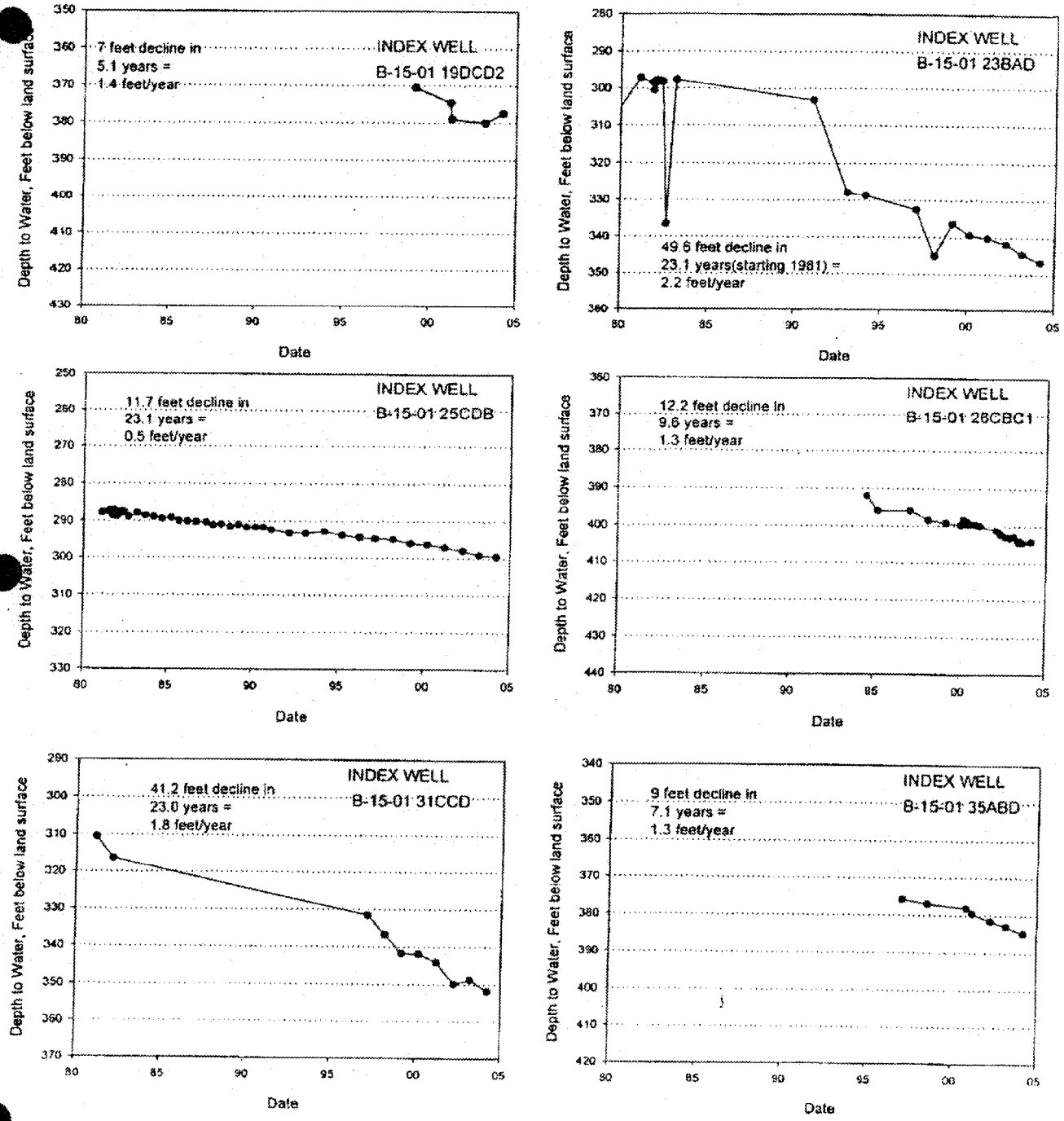


Figure 4. Groundwater Level Hydrographs
Prescott Valley North Wellfield Project

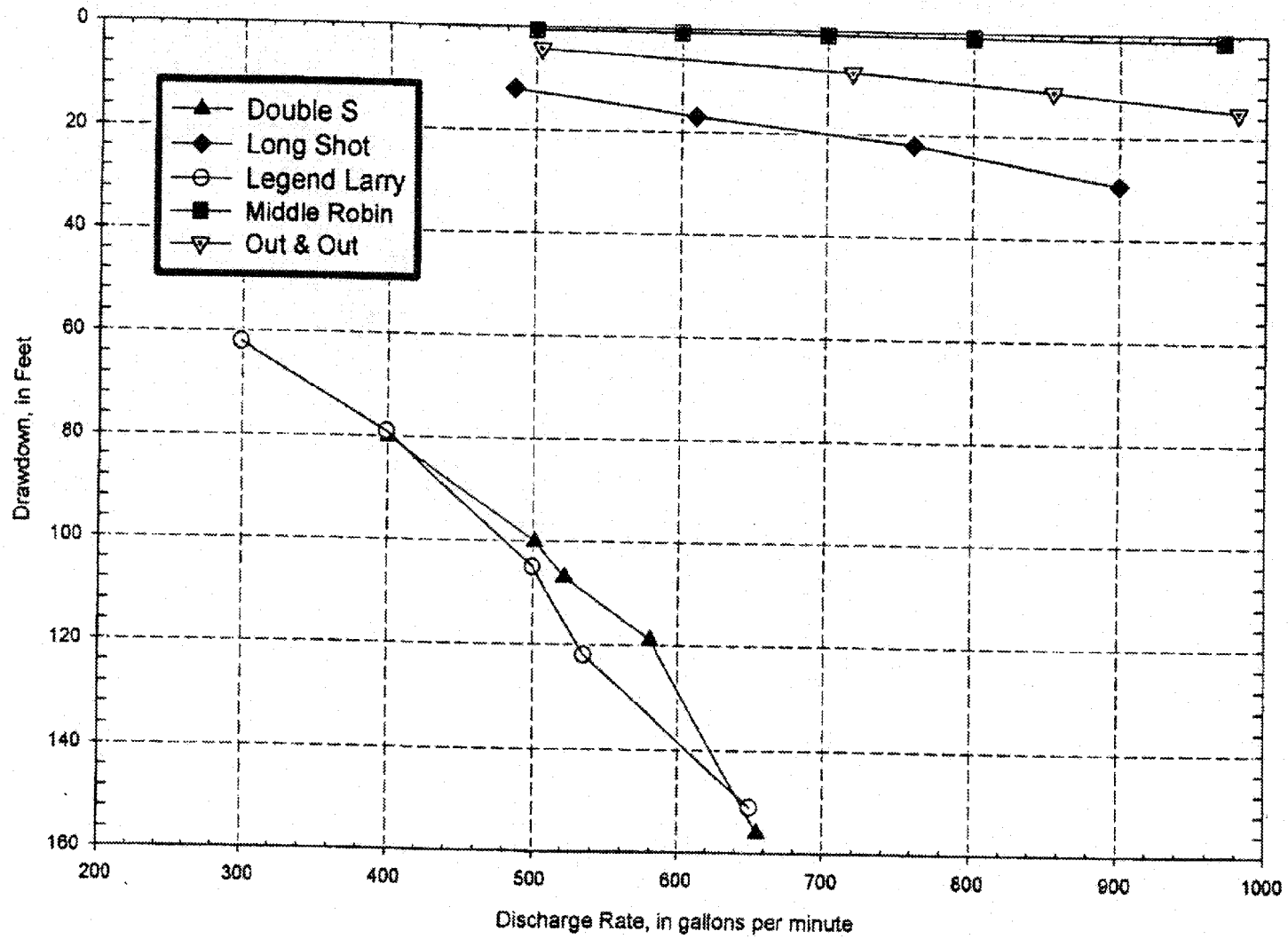


Figure 5. Pumping and Drawdown Summary
Prescott Valley North Wellfield Project

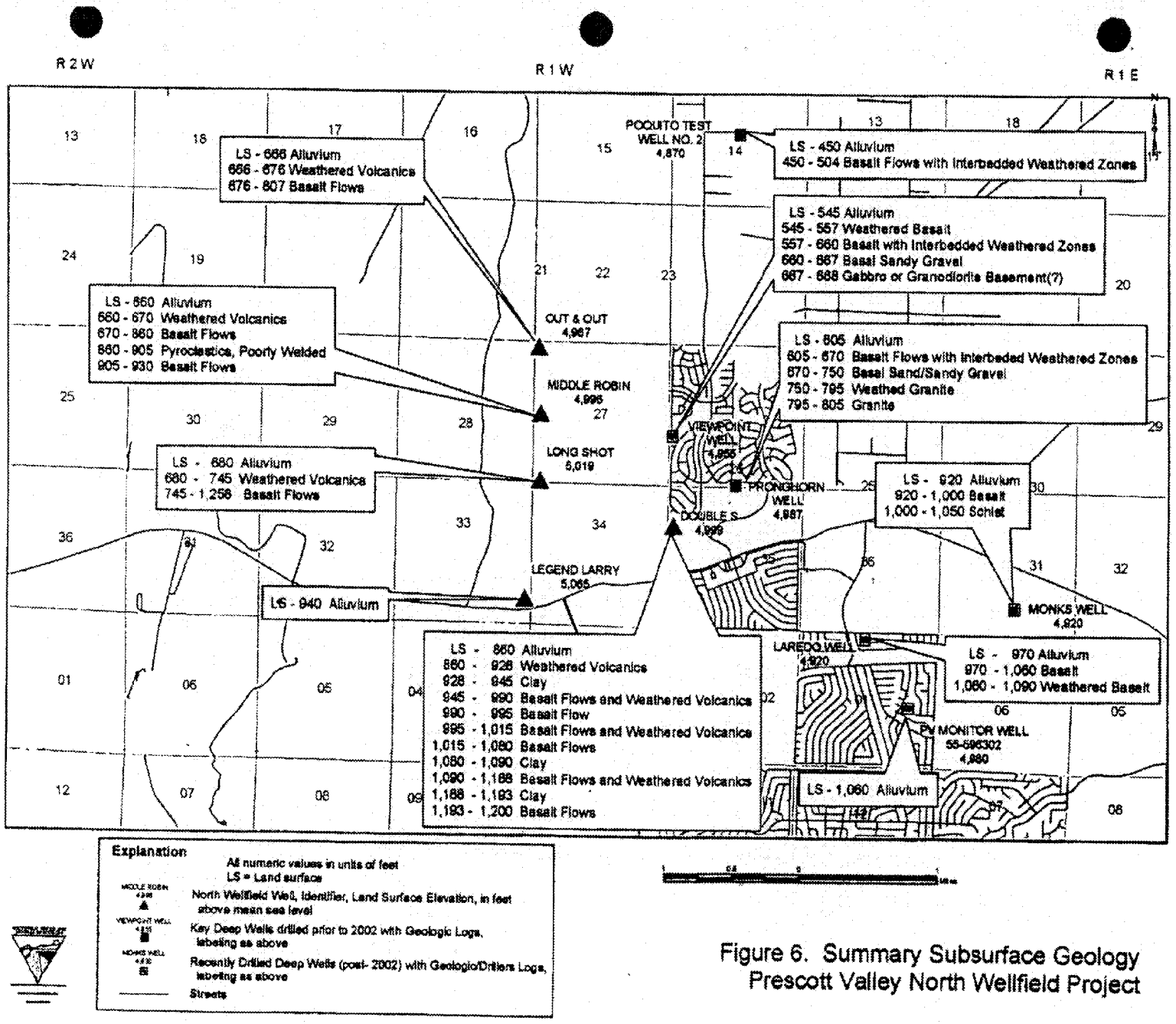
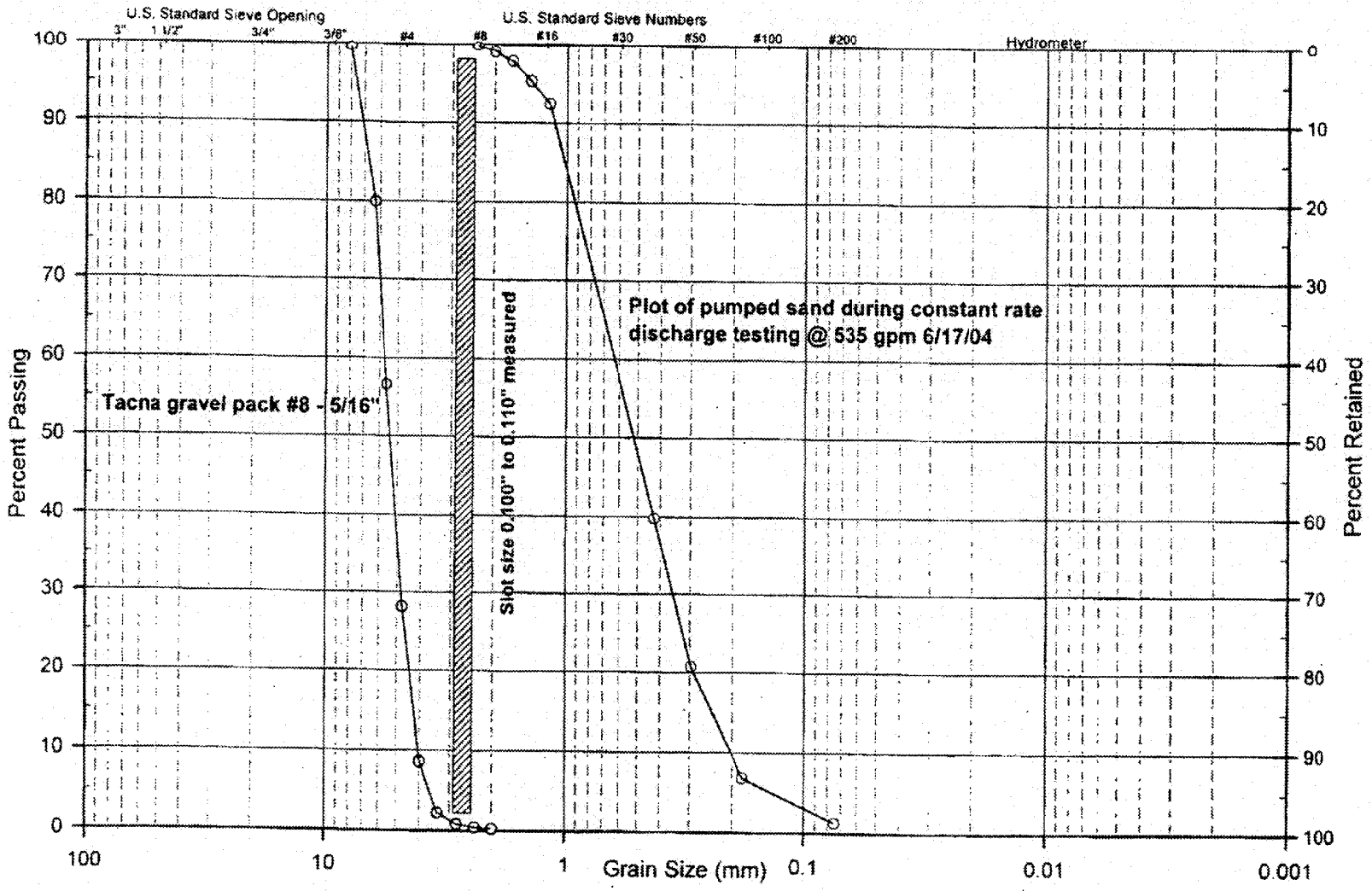


Figure 6. Summary Subsurface Geology
Prescott Valley North Wellfield Project

PVWD - LEGEND LARRY PRODUCTION WELL



Gravel				Sand					Fines	
Cobbles	Pebbles		Granules	V. Coarse	Coarse	Med.	Fine	Very Fine	Silt	Clay
	Coarse	Fine								

SWMR

SOUTHWEST WATER AND MINERAL RESOURCES, LLC, P.O. BOX 50245, PHOENIX, AZ 85076

6/18/04

SOUTHWEST WATER AND MINERAL RESOURCES, L.L.C.
P.O. BOX 50245
PHOENIX, ARIZONA 85076
480.893.2523

SIEVE ANALYSIS

PROJECT NAME: PVWD North Well Field - Legend Larry Well PROJECT NO.: 04-295

SAMPLE I.D. : Tacna #8 - 5/16" well rock
SOURCE LOCATION: Tacna, AZ
DATE: 6/18/2004
BY: G.D. Weesner

TOTAL SAMPLE SIZE: 1,495.5 grams

U.S. Standard Sieve Series	mm	Individual Weight Retained	Individual Percent Retained	Percent passing
5/16" - 0.3125"	8.000	6.8	0.5	99.5
# 3 - 0.2500"	6.300	293.4	19.6	79.9
#3.5 - 0.2230"	5.600	348.2	23.3	56.6
#4 - 0.1870"	4.750	426.6	28.5	28.1
#5 - 0.1570"	4.000	292.4	19.6	8.6
#6 - 0.1320"	3.360	94.8	6.3	2.2
#7 - 0.1100"	2.800	20.8	1.4	0.8
# 8 - 0.0937"	2.360	6.2	0.4	0.4
#10 - 0.0787"	2.000	3.7	0.2	0.2
	TOTALS	1,492.9	99.8	

HYDROMETER ANALYSIS

TIME	HYD READ	HYD. CORR.	CORR. READING	% OF TOTAL PASSING	PARTICLE DIA. (mm)
0.5 min.					0.050
1.0 min.					0.037
4.0 min.					0.019
19.0 min.					0.009
60.0 min.					0.005
7 hr. 15 min.					0.002

Coefficient of Uniformity, Cu = 1.45
Coefficient of Curvature, Cc = 1.01

SOUTHWEST WATER AND MINERAL RESOURCES, L.L.C.
P.O. BOX 50245
PHOENIX, ARIZONA 85076
480.893.2523

SIEVE ANALYSIS

PROJECT NAME: PVWD North Well Field - Legend Larry Well PROJECT NO.: 03-280

SAMPLE I.D. : Pumped sand sample
SOURCE LOCATION: PVWD Legend Larry Production Well
DATE: 6/18/2004
BY: G.D. Weesner

TOTAL SAMPLE SIZE: 813.8 grams

U.S. Standard Sieve Series	mm	Individual Weight Retained	Individual Percent Retained	Percent passing
5/16" - 0.3125"	8.000	0.0	0.0	100.0
# 3 - 0.2500"	6.300	0.0	0.0	100.0
#3.5 - 0.2230"	5.600	0.0	0.0	100.0
#4 - 0.1870"	4.750	0.0	0.0	100.0
#5 - 0.1570"	4.000	0.0	0.0	100.0
#6 - 0.1320"	3.360	0.0	0.0	100.0
#7 - 0.1100"	2.800	0.0	0.0	100.0
# 8 - 0.0937"	2.360	2.5	0.3	99.7
#10 - 0.0787"	2.000	5.3	0.7	99.0
#12 - 0.0661"	1.680	9.7	1.2	97.8
#14 - 0.0555"	1.410	20.6	2.5	95.3
#16 - 0.0469"	1.180	23.8	2.9	92.4
#40 - 0.0165"	0.425	428.2	52.6	39.8
#50 - 0.0117"	0.297	155.5	19.1	20.7
#80 - 0.0070"	0.180	112.2	13.8	6.9
#200 - 0.0029"	0.075	45.4	5.6	1.3
PAN	silt/clay	9.0	1.1	
	TOTALS	812.2	99.8	

HYDROMETER ANALYSIS

TIME	HYD READ	HYD. CORR.	CORR. READING	% OF TOTAL PASSING	PARTICLE DIA. (mm)
0.5 min.					0.050
1.0 min.					0.037
4.0 min.					0.019
19.0 min.					0.009
60.0 min.					0.005
7 hr. 15 min.					0.002

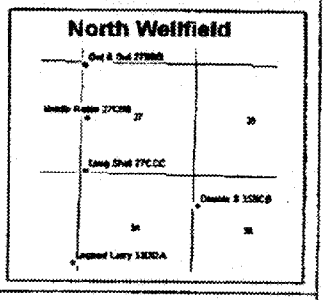
Coefficient of Uniformity, Cu = 3.15
Coefficient of Curvature, Cc = 1.03

Southwest Water and Mineral Resources, LLC
P.O. Box 50245 Phoenix, AZ 85076
Phone and Fax: 480-893-2523

Prepared for Prescott Valley Water District

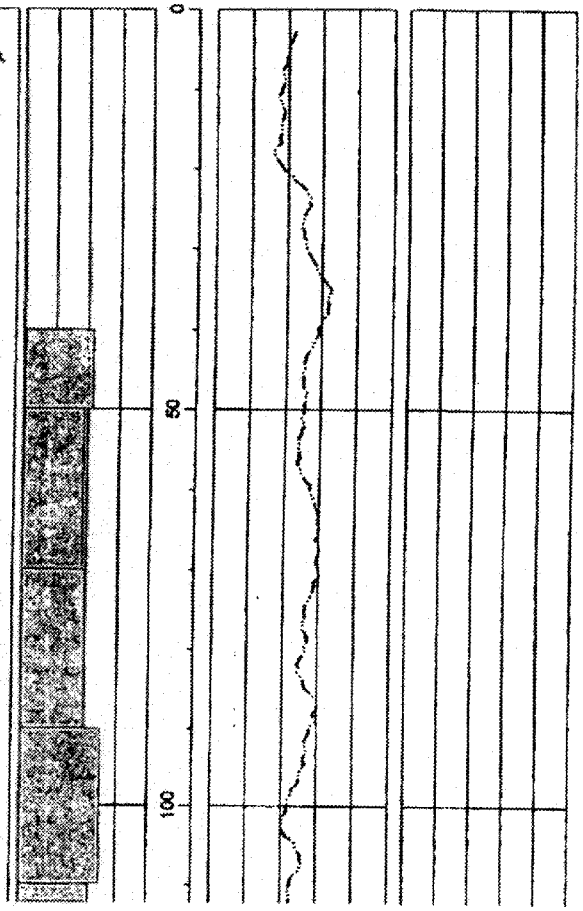
Log ID: Legend Larry/Test Hole TH-3 **55-202384**

Total Depth Borehole: **940 feet below land surface (ft bls)**
Location: **B(15-01)33dda, Prescott Valley, AZ**
Latitude: **34° 37' 53.9" N** Longitude: **112° 21' 35.0" W**
Depth to Water: **492.7 ft bls (06/15/2004)**
Hole Diameter: **8-inches TH-3/ 17.5-inches Legend Larry**
Ground Elevation **5,065 feet above mean sea level**
Drilling Date: **Started 01/29/2004 Completed 01/30/2004**
Drilled By: **Drilltech**
Lithology By: **Gary D. Weesner, SWMR**
Geophysical Log By: **Geophysical Logging Services, Raymond Federwisch**



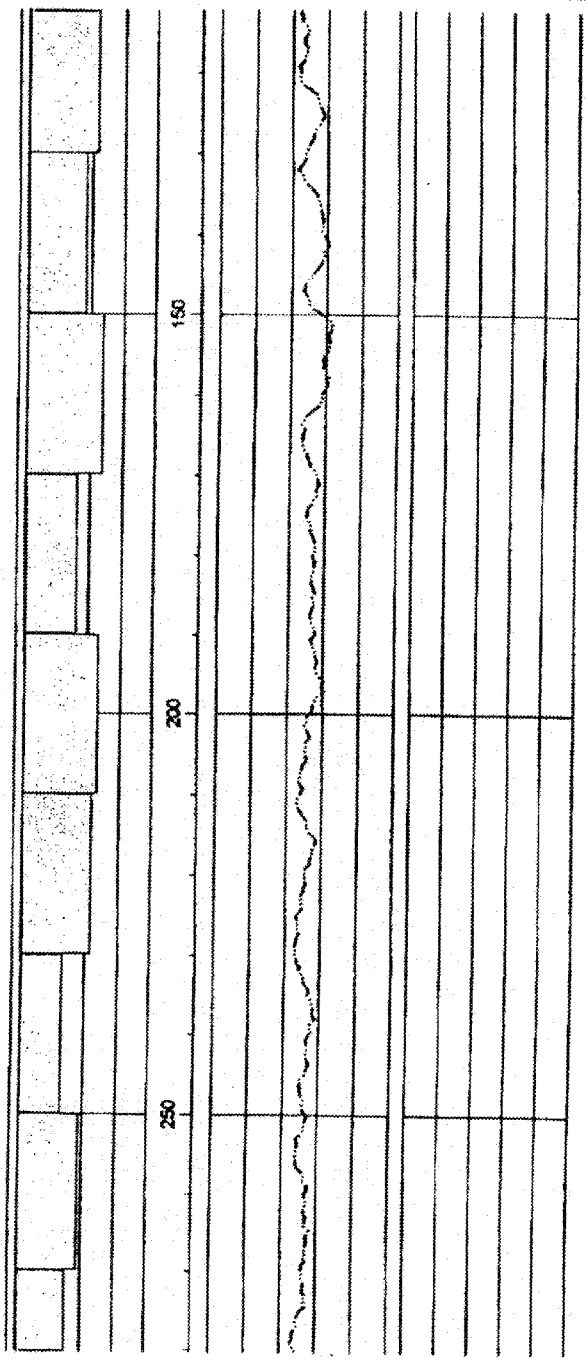
Depth (Feet)	Lithology/Drilling Comments
0–50	SILTY GRAVELLY SAND: color 7.5YR 5/4 brown, poor permeability, poorly sorted, nil plasticity, <1% clay, 25% silt, 55% sand, 15% granules, 5% pebbles,
50–100	SILTY SAND: slight plasticity, mod.-strong rx to HCl, poor perm.
	SILTY SAND/GRAVELLY SAND ZONES: intermixed zones, nil to slight plasticity present, 7.5YR 5/3 brown, pebbles sub-rounded to angular, poorly sort., 20% silt, 70% v. fine to v. crs. sand, 10% granules, 2% pebbles, mod. to strong rx to HCl, litho: 40% granitic, 20% gneissic, 30% volcanics, 3/4" max. size, avg. 1/4"
100–	SANDY GRAVEL: 5% silt, 40% med.-v. crs. sand, 30% granules, 25% pebbles, 1" max. size, avg. 1/4", strong rx to HCl, 7.5YR 5/4 brown, unconsolidated, <1% rounded, 25% sub-rounded, 60% sub-angular, 10% angular, 5% v.-angular, poorly sorted.

all noted colors below are wet, all percentages listed are estimated except sieve samples



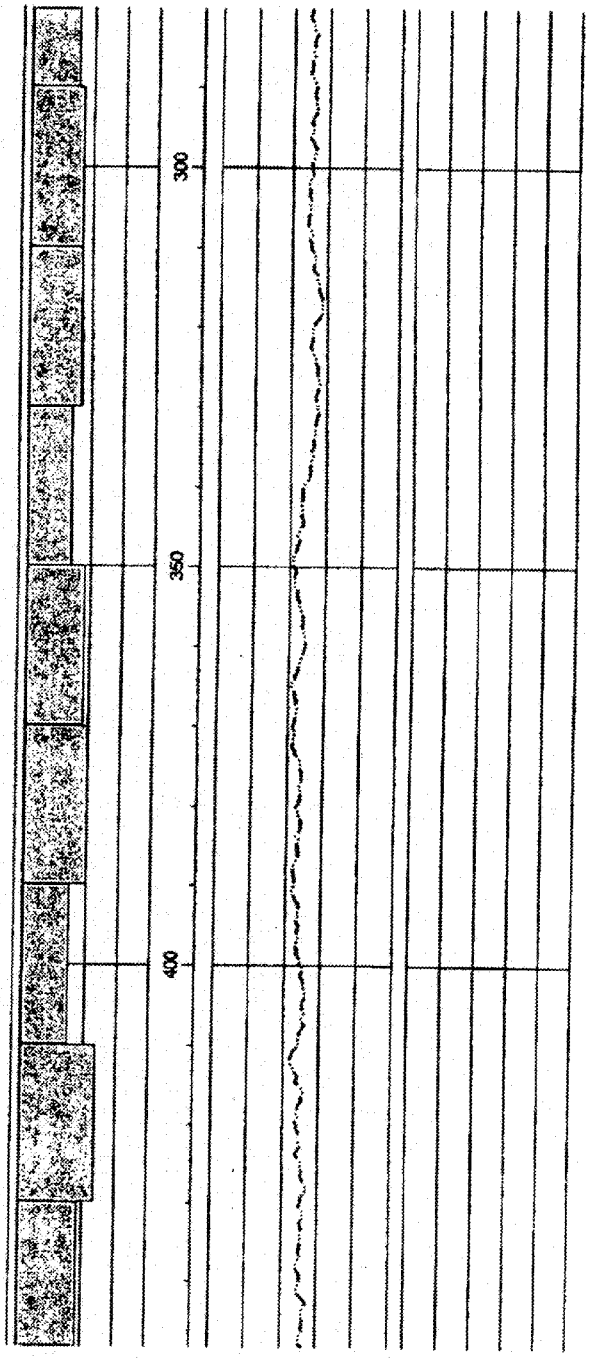
Log ID: **Legend Larry/Test Hole TH-3**

Depth (feet)	Lithology/Drilling Comments
150	SILTY SANDY GRAVEL: 15% silt, 40% med.-v. crs. sand, 25% granules, 20% pebbles, 1" max. size, avg. 1/4", strong rx to HCl, unconsolidated, >170' increase in silt to about 20%, poorly sort., 132-190' intermixed zones, 165-169' very soft formation
200	SANDY GRAVEL: 5-10% silt, 30% med.-v. crs. sand, 25% granules, 35% pebbles, 1 1/4" max. size, avg. 3/8", mod. rx to HCl, unconsolidated, poorly sorted
250	SILTY SANDY GRAVEL
	SANDY GRAVEL: 5-10% silt, 30% crs.-v. crs. sand, 25% granules, 35% pebbles, 5/8" max. size, avg. 1/4", mod. rx to HCl, unconsolidated, poorly sort., 320-340 more silt in this zone 10-15%, <2% well-rounded, 5% rounded, 20% sub-rounded, 50% sub-angular, 20% angular, 5% v.-angular



Log ID: **Legend Larry/Test Hole TH-3**

Depth (feet)	Lithology/Drilling Comments
300	
350	
	GRAVELLY SAND: 10% silt, 65% v. fine to v. crs. sand, 20% granules, 5% pebbles, 3/8" max. size, avg. 1/8", 1/2" rounded to angular, weak to mod. rx HCl
400	SANDY GRAVEL: same formation as 260-360 feet
	SILTY SANDY GRAVEL: 10-15% silt, 45% v. fine to v. crs. sand, 20% granules, 25% pebbles, 3/8" max. size, avg. 1/8", mod. to strong rx to HCl, unconsolidated, poorly sort., poorly indurated to poorly cemented



Log ID: **Legend Larry/Test Hole TH-3**

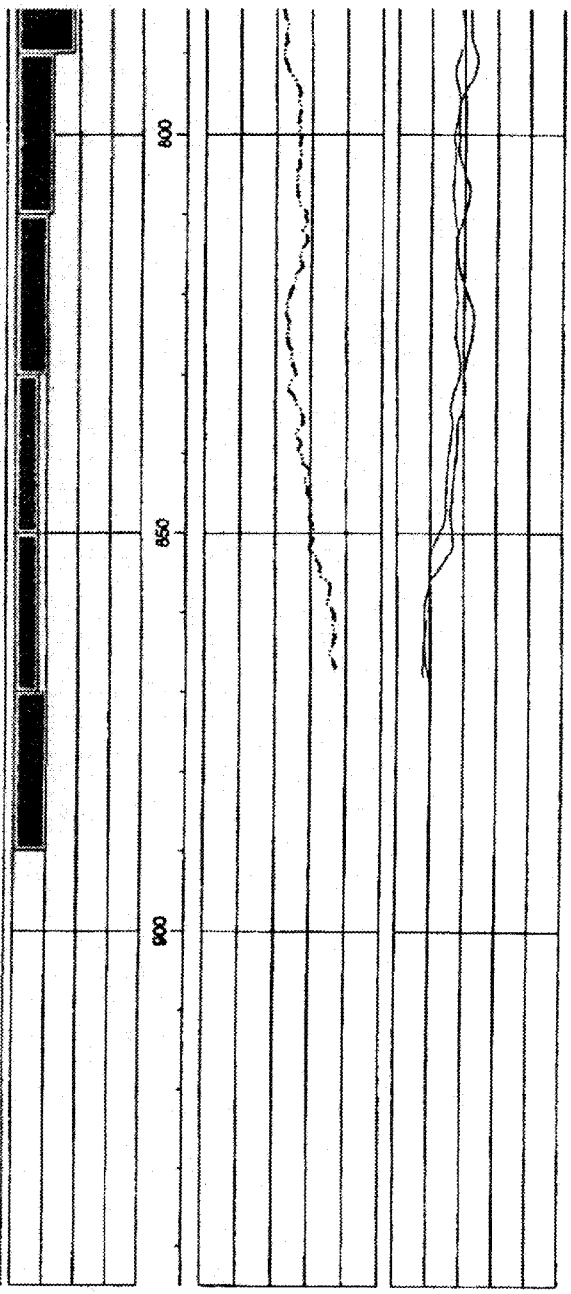
Depth (feet)	Lithology/Drilling Comments		Drilling Rate Feet per hour (0, 100, 150)	Depth (feet)	Natural Gamma (0, 150)	Resistivity 64 (0, 50) / Resistivity 16 (0, 50)
450				450		
500	SANDY GRAVEL: Sandy gravel: same formation as 260-360 feet except is now mod. cemented and well indurated, fair to poor perm., 1 1/4" max. size, 12% v. fine sand, 18% fine sand, 17% med. sand, 37% crs. sand, 14% v. crs. sand, 2% granules	static water level on 2/10/04 492.5' bls static water level 492.7' bls on 8/15/2004 larger gravel zone encountered at large cobble @ 515.5', hard drilling @ 515',		500		
550		@ 550' more silt present 10-15%, still no water during drilling until below 550' sieve sample collected of pumped sand from aquifer test pumping is estimated being produced from about 557-561' based on caliper log and pumpage drawdown data 570' hard packed gravelly sand <10% silt present.		550		
600		587' gravelly sand - clean, <2% silt.		600		

Log ID: **Legend Larry/Test Hole TH-3**

Depth (feet)	Lithology/Drilling Comments	Drilling Rate Feet per hour (0, 100, 150)	Depth (feet)	Natural Gamma (0, 150)	Resistivity 64 (0, 50)	Resistivity 16 (0, 50)
650	621-628' small zone of silty sand 650' 1" frags. of volcanics,		650			
700	680-690', larger pebbles, faster drilling, gravelly sand mostly, 710' very clean material, <3% silt, zones of intermixed sandy gravel, lithology: 10% basalt frags., 90% washed granite, fine - med. sand zones, clean well sorted, little to no water present during air lifting, litho: 10% basalts, 90% granite frags 730' avg. airlift est. 20 gpm, 3/4" frag. of sub-rounded gneiss		700			
750	770' air hammer having problems due to increased volume of water in hole,		750			

Log ID: **Legend Larry/Test Hole TH-3**

Depth (feet)	Lithology/Drilling Comments	
800		
850	SILTY SAND: 45% silt, 55% v. fine to fine sand, 1% granules, mod. rx to HCl, no plasticity, poor perm., well sort., 5YR 5/4 reddish brown, calcite and well indurated material, visible calcite cement present, hard to break by hand	
	SANDY GRAVEL: same formation as 460-840'	
900	SANDY SILT: 80% silt, 20% v. fine to fine sand, mod. rx to HCl, no plasticity, poor perm., well sort., well indurated material, very hard drilling, balling-up on drill bit	890. TD of TH-3
	GRAVELLY SAND: 10% silt, 70% med. to v. crs. sand, 20% granules, 2% pebbles, 3/8" max. size, avg. 1/8", mod. rx to HCl, mod. cemented, mod. sort., 5% well-rounded, 10% rounded, 20% sub-rounded, 25% sub-angular, 20% angular, 20% v.-angular, litho: still granite wash, v. poor perm	940' airlift water sample @ 940 E.C. 315 mS/cm, 8.35 pH
	TD WELL: 940 feet below land surface	



AQUIFER TEST - FIELD DATA SHEET

WELL IDENTIFICATION: Legend Larry 55-202384

N 34° 37' 53.9" W 112° 21' 35.0"
WELL LOCATION: (B-15-01)33dda$_2$

[X] Pumped Well
[ ] Observation Well

WELL OWNER: PVWD

SURFACE ELEVATION: 5,065'

OBSERVER: G.D. Weesner

[ ] MAP
[X] LEVEL
[ ] ALTIMETER/GPS (WAAS)

MEASURING POINT: 1" PVC AIRL, 3.5' abv. ground level

STATIC WATER LEVEL: 496.24'

DATE: 6/15/2004
TIME: 13:05

DISCHARGE RATE OF PUMPED WELL: 299-650 gpm

WELL CASING DIAMETER: 12.75-inch

6/15-19/2004

Development: 24.27 hrs.
Step-drawdown 9.05 hrs.
Constant-rate: 12.00 hrs.
Recovery: 3.68 hrs.

REMARKS: Pump setting 700', 175 hp, 6" drop-pipe, 480 V, 3 phase, 3,450 rpm set by Pumptech, 6" new McCrometer Ultra Mag electromagnetic flowmeter used

Time	Elapsed Time t	Step Time	Discharge Q in GPM	Specific Capacity gpm/ft	Water Level, Ft.	Drawdown feet	Flowmeter Totalizer gals	Time	PSI	Remarks
6/15/2004										
13:05:00					496.24					static water level - pre-development
15:48:00	0.0						4,484,000	15:48:00		start development pumping
6/16/2004										
7:22:00	934.0						4,928,000	7:22:00		end of development pumping
In-Situ miniTROLL pressure transducer installed -- 30 second readings										
Unable to make hand water level measurements due to pump cable snags										
Step-drawdown Test No. 1 (299 gpm)										
10:27:00	0.0	0.0					4,928,000	10:27:00		start pump
10:36:00	9.0	9.0	300						138.2	start Rossum sand tester 2.5 ml @ 10:37
10:41:00	14.0	14.0	300						137.1	Rossum 3.15 ml @ 10:37 = 105 ppm
10:46:00	19.0	19.0	299						136.1	Rossum 4.3 ml @ 10:46 = 96 ppm
10:56:00	29.0	29.0	303						138.0	Rossum 5.2 ml @ 10:57 = 41 ppm
11:04:00	37.0	37.0				miniTROLL reading	4,939,000	11:04:56	136.0	Rossum 6.0 ml @ 11:16 = 21 ppm
11:11:04	44.1	44.1	295	5.5	549.78	53.54			137.0	start Rossum 0.0 ml @ 11:19
11:19:00	52.0	52.0	300						135.0	Rossum 0.55 ml @ 11:51 = 8.5 ppm
11:50:00	83.0	83.0	300						135.0	
12:23:00	116.0	116.0	300						135.0	Rossum 1.0 ml @ 12:24 = 7.0 ppm
12:25:00	118.0	118.0								
Step-drawdown Test No. 2 (400 gpm)										
12:25:00	118.0	0.0								
12:27:00	120.0	2.0	400				4,965,000	12:30:09	107.5	Rossum 2.1 ml @ 12:38 = 39 ppm
12:39:00	132.0	14.0	398						107.0	Rossum 3.6 ml @ 12:52 = 53 ppm
12:50:00	143.0	25.0	401						105.5	E.C. = 295 µS/cm, 74.1°F, pH 8.05
13:12:00	185.0	47.0	398						105.0	Rossum 5.5 ml @ 13:13 = 45 ppm
13:55:00	208.0	90.0	401						105.5	Rossum 8.2 ml @ 13:56 = 31 ppm
14:23:00	236.0	118.0	400			miniTROLL reading			105.0	Rossum 0.23 ml @ 14:00
14:27:00	240.0	122.0	399	5.3	571.46	75.22			104.0	Rossum 6.4 ml @ 14:25 = 125 ppm, 8.0 ml @ 14:38 = 81 ppm
14:40:00	253.0	135.0					5,016,000	14:38:02		398.6 gpm
Step-drawdown Test No. 3 (500 gpm)										
14:40:00	253.0	0.0							84.3	Rossum 0.0 ml @ 14:43
14:41:00	254.0	1.0	504				5,024,000	14:54:29	80.3	Rossum 6.8 ml @ 14:53 = 340 ppm
14:52:00	265.0	12.0	500						79.5	Rossum 0.0 ml @ 15:43
15:35:00	308.0	55.0	502						77.5	E.C. = 294 µS/cm, 73.4°F, pH 8.05
16:13:00	346.0	93.0	502			miniTROLL reading			77.9	Rossum 4.9 ml @ 16:14 = 79 ppm
16:39:00	372.0	119.0	500	5.2	592.78	96.54				Rossum 9.0 ml @ 16:40 = 79 ppm
17:00:00	393.0	140.0	498						79.3	

LLCO

Time	Elapsed Time t	Step Time	Discharge Q in GPM	Specific Capacity gpm/ft	Water Level, Ft	Drawdown n feet	Flowmeter Totalizer gals	Time	PSI	Remarks
Step-drawdown Test No. 4 (650 gpm)										
17:00:00	393.0	0.0	651				5,088,000	17:01:48	79.3	
17:05:00	398.0	5.0	650						37.4	
17:09:00	401.0	8.0	645						37.0	
17:18:00	411.0	18.0	650						36.0	Rossum 0.0 ml @ 18:05
17:31:00	424.0	31.0	645						38.5	Rossum 0.5 ml @ 18:07 = 125 ppm
18:02:00	455.0	62.0	650						33.7	Rossum 5.8 ml @ 18:38 = 85 ppm
18:37:00	490.0	97.0	647						32.0	Rossum 0.0 ml @ 19:16
18:17:00	530.0	137.0	647			miniTROLL reading			33.0	Rossum 0.35 ml @ 19:17 = 180 ppm
19:29:00	542.0	149.0	647	4.8	631.32	135.08	5,183,000	19:28:40	31.7	646.8 gpm, Rossum 0.78 ml @ 19:19 = 108 ppm, 2.4 ml @ 19:27 = 101 ppm
19:30:00	543.0	150.0								pump off
Constant Rate Test (535 gpm)										
8/16/2004										
22:30:00	0.0						5,183,000	22:30:00		start pumping, genset @ 3,320 hrs.
22:35:00	5.0		535				5,188,000	22:36:24	80.3	
22:40:00	10.0		533				5,193,000	22:49:34	78.2	531.6 gpm
22:50:00	20.0		532			miniTROLL reading			75.0	Rossum 0.0 ml @ 22:54
23:08:00	38.0		528	5.5	591.82	95.58	5,202,000	23:06:37	74.0	527.8 gpm, Rossum 4.9 ml @ 22:58 = 900 ppm
23:28:00	58.0		538				5,214,000	23:28:53	69.0	538.9 gpm, Rossum 8.0 ml @ 23:05 = 220 ppm
23:47:00	77.0		535						69.0	
8/17/2004										
0:27:00	117.0		535				5,245,000	0:26:51	68.0	534.8 gpm
1:58:00	209.0		531						66.0	Rossum 0.0 ml @ 02:02, 0.3 ml @ 02:04 = 75 ppm
2:08:00	218.0		540				5,298,000	2:06:37	66.0	531.2 gpm, Rossum 0.8 ml @ 02:09 = 50 ppm
3:59:00	329.0		535				5,359,000	4:00:10	72.0	537.2 gpm, Rossum 2.65 ml @ 04:01 start, 3.9 ml @ 04:04 = 218 ppm
5:47:00	437.0		534						65.5	Rossum 0.0 ml @ 06:18, 0.22 ml @ 06:22 = 27 ppm, 1.95 ml @ 06:40 = 48 ppm
7:02:00	512.0		535				5,455,000	6:59:45	63.2	534.6 gpm
8:18:00	588.0		535				5,496,000	8:20:06	61.2	535.2 gpm, Rossum 4.6 ml @ 08:21 start, 7.5 ml @ 08:37 = 91 ppm
10:20:00	710.0		537			miniTROLL reading	5,563,000	10:21:12	59.7	538.7 gpm, E.C. = 292 mS/cm, 73.80F, pH 8.10
10:25:00	715.0		535	4.5	615.70	119.46				
10:30:00	720.0						5,567,000	10:30:00		pump off, genset 3,332 hrs.

RECOVERY

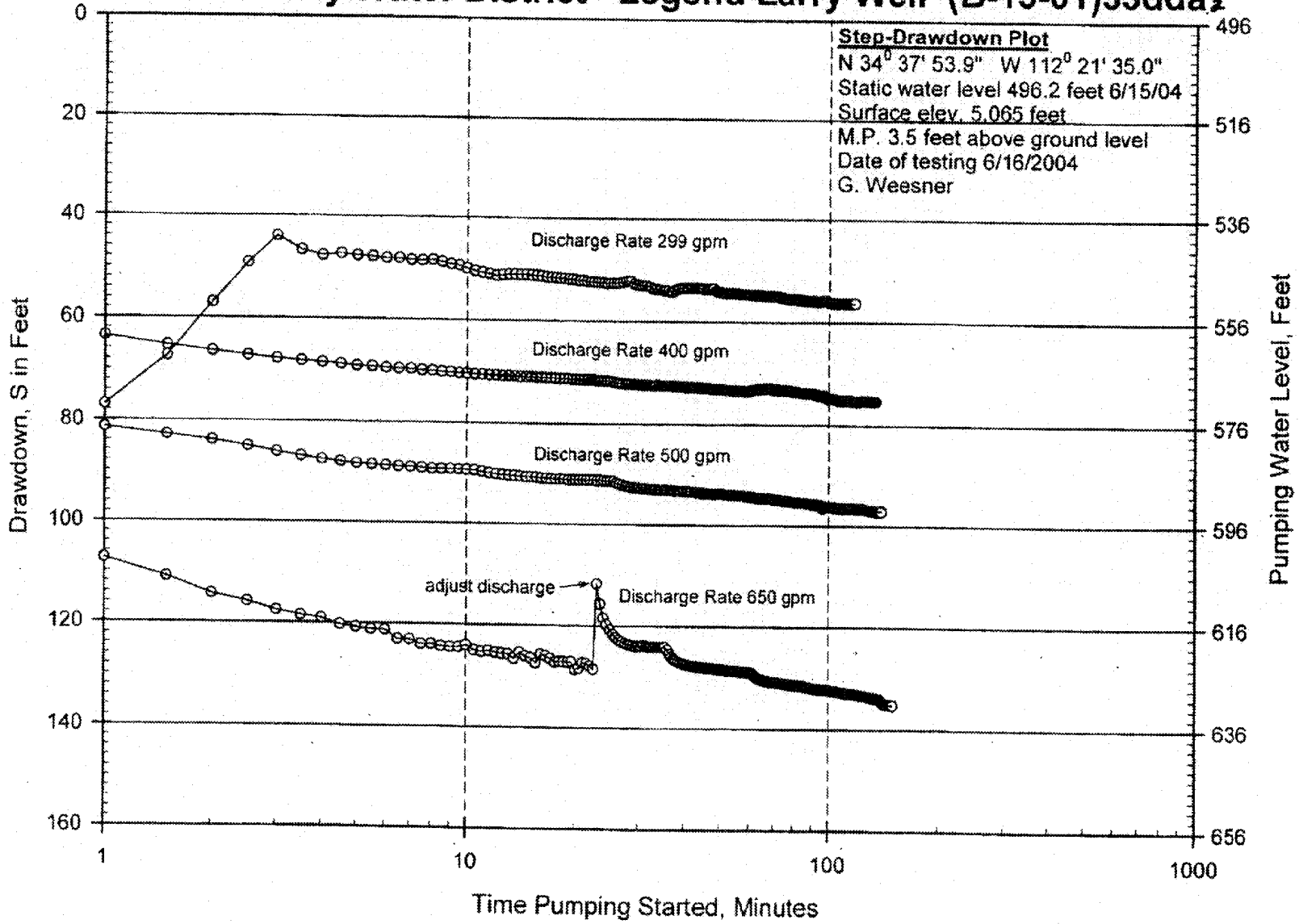
Time	Elapsed Time t	Recovery Time t'	t/t'	Water Level, FT.	Drawdown S', FT					Remarks
10:30:00	720.0	0.0			miniTROLL					pressure transducer data for recovery
14:10:00	940.0	220.0	4.3	504.41	8.17					

LL CQ

Time	Elapsed Time t	Step Time	Discharge Q in GPM	Specific Capacity gpm/ft	Water Level, Ft.	Drawdown feet	Flowmeter Totalizer gals	Time	PSI	Remarks
Install 7 bags = 9 yards of Tacna #8 - 5/16" filter pack gravel										
6/19/2004										
7:45			720				5,567,000	7:45		Drilltech started well and started adding gravel prior to my arrival
8:20:00			720				5,593,000	8:20:48		Rossum 0.0 ml @ 08:19 start, 0.58 ml @ 08:22 = 96 ppm
8:26:00			720							1.15 ml @ 08:26 = 82 ppm
8:31:00			720							0.0 ml @ 08:49, 2.1 ml @ 09:02 = 81 ppm
9:13:00			720							3.8 ml @ 09:13 = 77 ppm, surge pump 1X
9:18:00			720							0.0 ml @ 09:48 start, 1.3 ml @ 09:52 = 160 ppm
9:52:00			720							surge pump 1X
9:59:00			720							dump 50 gpm from water truck on top of gravel to try to move gravel pack
10:10:00			720							0.0 ml @ 10:29 start, 1.5 ml @ 10:34 = 150 ppm, 2.35 ml @ 10:41 = 61 ppm
10:42:00			250							reduce discharge rate
10:53:00			255							pump off, 0.0 ml @ 10:46 start, 0.26 ml @ 10:52 = 21 ppm
Add hose fittings pumphead and flood 160 gpm pack into well on top of gravel filter to move down past bridging										
13:39:00										
14:18:00			725	4.8	646.3	150.0				0.0 ml @ 14:13 start, 1.1 ml @ 14:20 = 78 ppm, 2.5 ml @ 14:31 = 63 ppm
14:31:00			725							pump off
14:36:00	0									start pump
14:47:00	11		243	4.4	551.8	55.6			140	
15:01:00	25		250	4.7	549.9	53.7				0.38 ml @ 14:59 start, 0.50 ml @ 15:07 = 7.5 ppm
15:16:00	42		255	4.8	548.9	52.7				0.70 ml @ 15:19 = 8.3 ppm
15:20:00	44		337							
15:25:00	49		335	5.4	558.5	62.3			120	0.8 ml @ 15:29 = 5.0 ppm
15:40:00	64		332	5.2	559.9	63.7				0.11 ml @ 15:33 start, 0.20 ml @ 15:38 = 9.0 ppm
15:57:00	81		332	5.2	560.0	63.8				0.36 ml @ 15:55 = 4.7 ppm
15:58:00	82									
16:00:00	84		407	5.6	569.0	72.8				
16:19:00	103		400	5.3	571.5	75.3				0.49 ml @ 16:04 = 7.2 ppm
16:51:00	135		400							0.78 ml @ 16:20 = 9.0 ppm
16:52:00	136		480							0.0 ml @ 16:24
17:11:00	155		474	5.3	571.5	89.2			88	0.40 ml @ 16:50 = 7.7 ppm
17:36:00	180		472	5.2	571.5	90.1				1.3 ml @ 17:10 = 23 ppm
17:51:00	195		470						85	1.6 ml @ 17:32 = 6.8 ppm, 0.0 ml @ 17:34
17:52:00	196		560							0.7 ml @ 17:50 = 22 ppm
18:10:00	214		548	5.2	571.5	105.0				
18:43:00	247		545	5.1	571.5	106.8				1.2 ml @ 18:07 = 14 ppm
18:44:00	248									3.1 ml @ 18:24 = 53 ppm
18:56:00	260		725		644.2	148.0				0.0 ml @ 18:25, 1.1 ml @ 18:41 = 34 ppm
19:00:00	264									
19:05:00	269									surge pump 1X
19:19:00	283						5,828,000	19:08		
										pump off, genset 3.344 hrs.

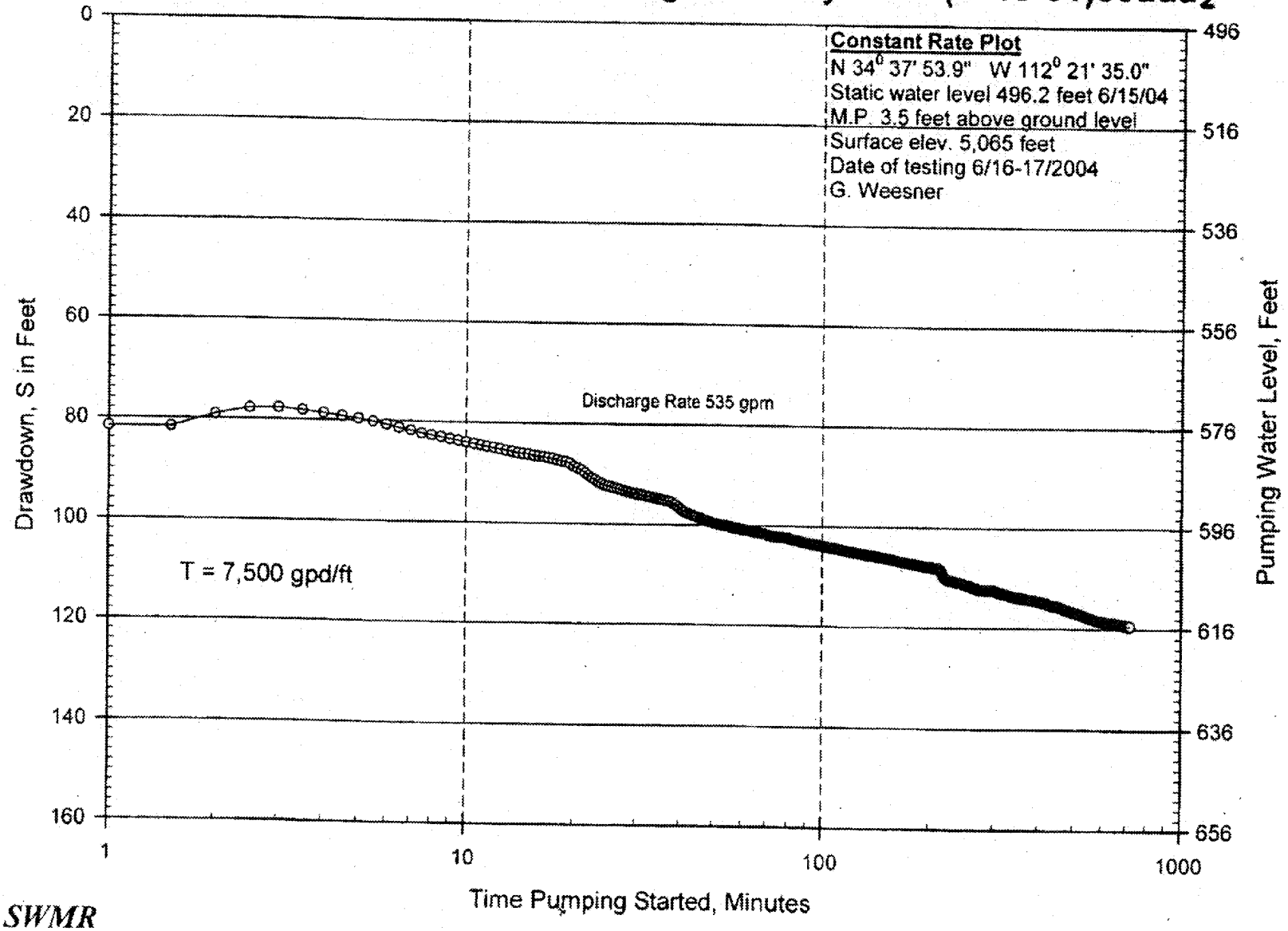
LL CQ

Prescott Valley Water District - Legend Larry Well (B-15-01)33dda



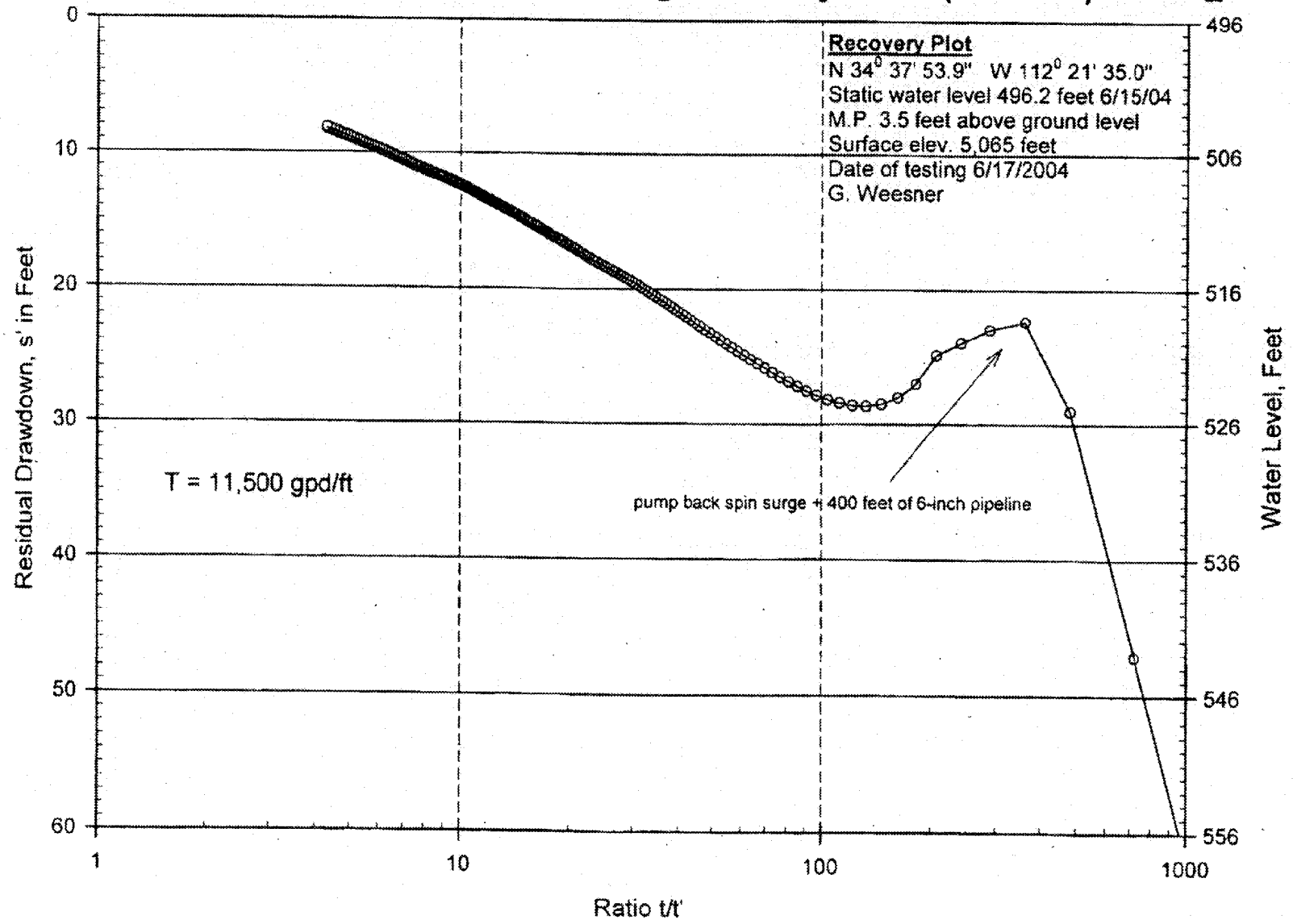
SWMR

Prescott Valley Water District - Legend Larry Well (B-15-01)33dda2



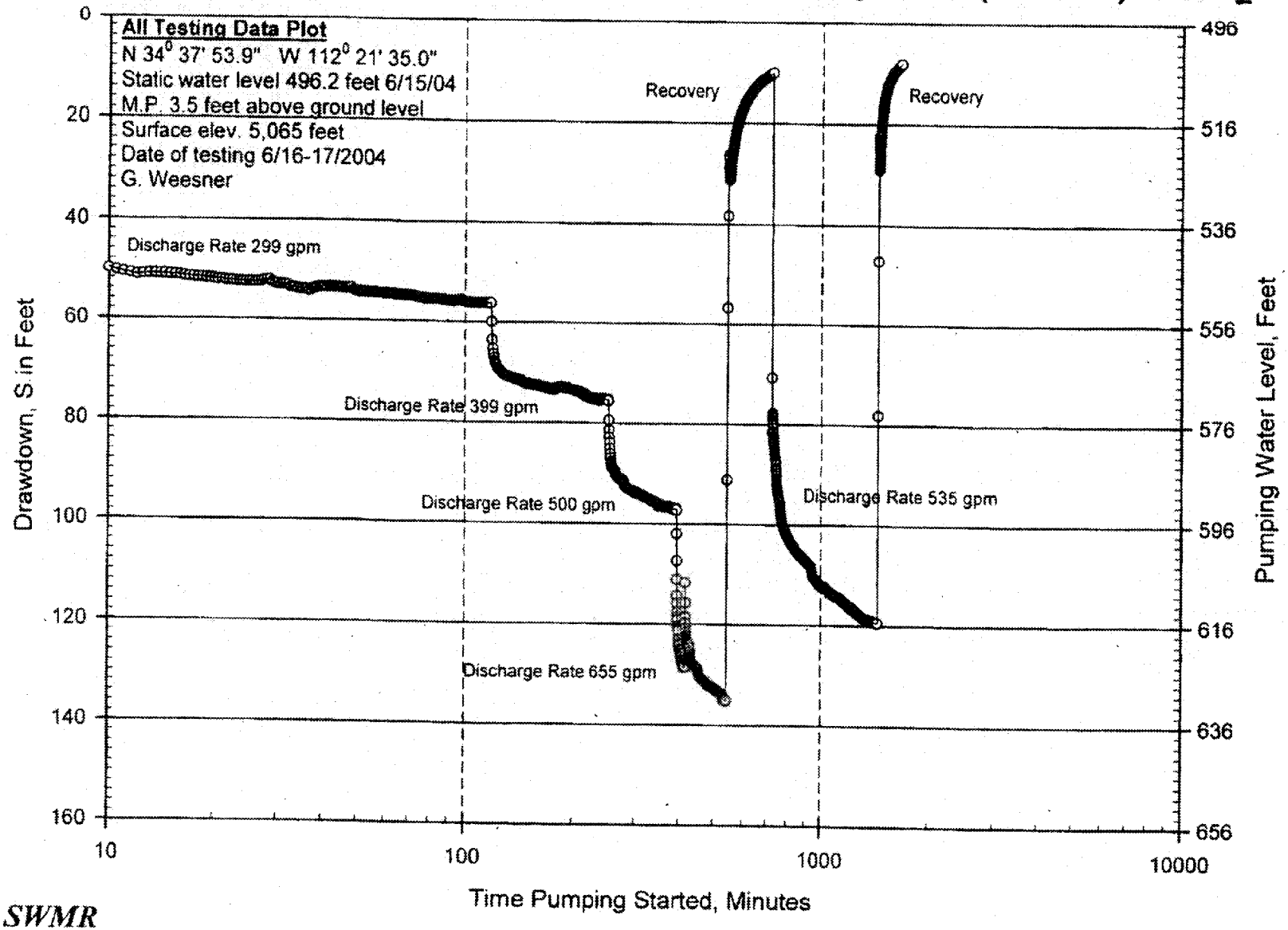
SWMR

Prescott Valley Water District - Legend Larry Well (B-15-01)33dda2



SWMR

Prescott Valley Water District - Legend Larry Well (B-15-01)33dda$_2$



SWMR

Run Date: 07/24/2007

AZ DEPARTMENT OF WATER RESOURCES

WELL REGISTRY REPORT - WELLS55

Location B 15.0 1.0 33 D D A

Well Reg.No 55 - 202384

AMA PRESCOTT AMA

Registered Name PRESCOTT VALLEY WATER DISTRICT
7501 E CIVIC CIRCLE

PRESCOTT VALLEY AZ 86314

File Type NEW WELLS (INTENTS OR APPLICATIONS)
Application/Issue Date 03/26/2004

Owner OWNER
Driller No. 239
Driller Name DRILL-TECH, INC.
Driller Phone 928-636-8006
County YAVAPAI

Intended Capacity GPM 550.00

Well Type WITHDRAWAL PERMIT
SubBasin LITTLE CHINO
Watershed VERDE RIVER
Registered Water Uses MUNICIPAL
Registered Well Uses WATER PRODUCTION
Discharge Method NO DISCHARGE METHOD LISTED
Power NO POWER CODE LISTED

Well Depth	790.00	**Case Diam**	13.00	**Tested Cap**	0.00
Pump Cap.	0.00	**Case Depth**	790.00	**CRT**	
Draw Down	0.00	**Water Level**	0.00	**Log**	X
		Acres Irrig	0.00	**Finish**	STEEL - PERFORATED OR SLOTTED CASING

Contamination Site: NO - NOT IN ANY WQARF SITE

Comments conversion to service area well
56-003012.0000

Places Of Use
B 15 0 1 0 33 D D A

Current Action
7/23/2007 305 APP RCVD FOR A WELL PERMIT FOR A CONVERSION
Action Comment: jrsjr

Action History
11/29/2004 750 WELL LOG RECEIVED
Action Comment: DH
6/9/2004 755 WELL CONSTRUCTION COMPLETED
Action Comment: DH
4/1/2004 700 SITE VERIFIED AS ACCURATE
Action Comment:
3/29/2004 600 PERMIT ISSUED
Action Comment:
3/29/2004 552 DRILL CARD HELD BY AMA PENDING SITE VERIFICATION
Action Comment:
3/22/2004 867 APP/NOI REVIEW BY HYDRO/WQARF COMPLETE
Action Comment:
2/19/2004 400 HYDROLOGY APPLICATION REVIEW COMPLETE
Action Comment:
2/12/2004 355 APP SENT TO AMA FOR REVIEW
Action Comment:
2/12/2004 365 APP SENT TO HYDROLOGY FOR REVIEW
Action Comment:
2/12/2004 866 APP/NOI SENT TO HYDRO/WQARF FOR REVIEW
Action Comment:

Run Date: 07/24/2007

AZ DEPARTMENT OF WATER RESOURCES

WELL REGISTRY REPORT - WELLS55

2/10/2004 315 APP RCVD FOR A WITHDRAWAL PERMIT FOR A NEW WELL
Action Comment: