

**ARIZONA DEPARTMENT OF WATER RESOURCES**  
3550 North Central Avenue, Phoenix, Arizona 85012  
Telephone 602 771-8585  
Fax 602 771-8688



Janet Napolitano  
Governor

Herbert R. Guenther  
Director

January 22, 2008

Sonoran Valley Management  
Attn: Tim Keenan  
6720 N. Scottsdale Rd., Suite 335  
Scottsdale, AZ 85253

RE: Non-Exempt Well Permit No. T-216835  
Well Registration No. 55-206033; File No. D (4-1) 15 CCC

Dear Permittee:

Your permit for the conversion 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 this 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 The legal nature of the water withdrawn from the well may be the subject of court action in the future as part of a determination of surface water rights in your area.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.

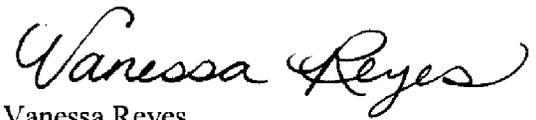
Under A.R.S. § 45-593, the person to whom a well is registered must notify the Department of a change in ownership, physical characteristics or any other data about the well in order to keep the well registration records current and accurate. For future changes, *Request to Change Well Information* forms are 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 Sharon Ward of the Phoenix AMA office at 602-771-8585.

Sincerely,

A handwritten signature in black ink that reads "Vanessa Reyes". The signature is written in a cursive, flowing style.

Vanessa Reyes  
Water Resources Specialist

Enclosures

cc: Don Hanson, Clear Creek Associates  
Sharon Ward, Phoenix AMA  
File





PERMIT NO. T-216835

Depth: 1400 ft.  
Casing Material: Low Carbon Steel  
Casing Diameter: 16 inches

Maximum Pumping Capacity: 850 gallons per minute

Maximum Annual Volume: 758 acre-feet

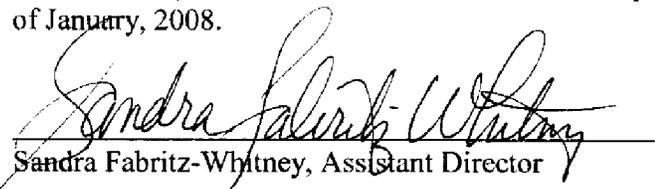
Authorized Place of Use for  
Groundwater Withdrawn: As Authorized by Right No. 58-111856.0001

Authorized Use of Groundwater: As Authorized by Right No. 58-111856.0001

**Permit Conditions**

1. 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 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 22nd day  
of January, 2008.

  
Sandra Fabritz-Whitney, Assistant Director

**IPR SUMMARY REVIEW MEMORANDUM**

*Prepared by Sharon Ward, Phoenix AMA*

*January 10, 2008*

**APPLICANT:** Sonoran Valley Management (Tim Keenan)  
**APPLICATION NO:** Permit # T-216835, Well # 55-206033  
**APPLICATION TYPE:** Non-Exempt, Non-Service Area Well

**Summary of the facts:** On November 2, 2007, Clear Creek Associates filed on behalf of Sonoran Valley Management an *Application for a Permit to Drill or Operate a Non-Exempt, Non-Service Area Well within an Active Management Area* in order to convert a Hydrotest well to a water production well. The applicant has requested an allotment of 758 acre-feet a year with a pump capacity of 850gpm. The well is located in the SW¼ SW¼ NW¼ of Section 15, T2S R1E, which is in the area of Butterfield Stage Road and 91<sup>st</sup> Avenue. The principal use of groundwater will be for construction water for a new development.

**Issues:** The applicant's Claim of Entitlement to withdraw groundwater is based on a leased Type 2 Non-Irrigation Grandfather Groundwater Right No. 58-111856.0001. The application was submitted on November 2, 2007 with a Type 2 Non-Irrigation lease agreement for 758 acre-feet a year to expire on December 31, 2007. No option to renew was noted on the agreement. Clear Creek Associates has received an unsigned agreement to extend the lease and is awaiting the signed copy which will be forwarded to the Department upon receipt.

The results of the impact analysis found the five-year, 10-foot drawdown contour to be 2,428 thru 2,625 feet. The drawdown at the well after five years would be 70.9 feet. No wells of record were impacted. The well location was also reviewed for subsidence. No subsidence monitoring is required.

The well is not located in an area of known groundwater contamination that is currently being remediated and no special well construction requirements are necessary.

Hydrology and Water Quality support the issuance of the permit.

The well site was verified on November 7, 2007.

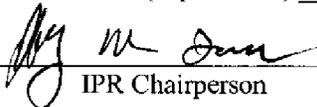
**AMA Recommendations:** The Phoenix AMA recommends approval of the *Application for a Permit to Drill or Operate a Non-Exempt, Non-Service Area Well within an Active Management Area* with an annual allotment of 758 acre-feet and a pump capacity of 850gpm, pending the receipt of the Type 2 Non-Irrigation lease agreement.

IPR Committee Comments:

IPR Special Conditions:

IPR Committee Recommendations:

- Approved
- Denied
- Other (explanation) \_\_\_\_\_

  
\_\_\_\_\_  
IPR Chairperson

*1/10/08*  
\_\_\_\_\_  
Date

**Mail Envelope Properties** (4786498A.3C9 : 24 : 33737)

**Subject:** FW: Type 2 Right Lease - LP Water and Sonoran Valley  
**Creation Date:** 1/10/08 9:30AM  
**From:** Don Hanson <[DHanson@clearcreekassociates.com](mailto:DHanson@clearcreekassociates.com)>  
**Created By:** [DHanson@clearcreekassociates.com](mailto:DHanson@clearcreekassociates.com)

**Recipients**

azwater.gov

PHOENIX.ADWR

ssward (Sharon Ward)

montage-holdings.com

AmyQ CC (Amy Quint)

GarrettW CC (GarrettWieger)

TimK CC (Tim Keenan)

felaw.com

mgallogl CC

**Post Office**

PHOENIX.ADWR

**Route**

azwater.gov

montage-holdings.com

felaw.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	2389	01/10/08 09:30AM
SDOC3698.pdf	338364	
Mime.822	467980	

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**Reply Requested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**From:** Don Hanson <DHanson@clearcreekassociates.com>  
**To:** Sharon Ward <ssward@azwater.gov>  
**Date:** 1/10/08 9:36AM  
**Subject:** FW: Type 2 Right Lease - LP Water and Sonoran Valley`

Sharon,

Here is a signed electronic copy of the Sonoran Valley Type 2 lease for 2008. A hard copy will be mailed shortly.

We appreciate you help on this application.

Don Hanson

Clear Creek Associates

-----Original Message-----

**From:** GALLOGLY, MARGARET [mailto:MGALLOGL@FCLAW.com]  
**Sent:** Thursday, January 10, 2008 9:27 AM  
**To:** Don Hanson  
**Cc:** Tim Keenan; Garrett Wieger; Amy Quint  
**Subject:** FW: Type 2 Right Lease - LP Water and Sonoran Valley`

Don,

Attached is the First Amendment, which confirms that the lessee renewed the lease for 2008, along with a copy of the notification. Once I receive the original notification from Kim, I'll file it with ADWR.

Maggie

-----Original Message-----

**From:** Kim Korp [mailto:KimKorp@harvardinvestments.com]  
**Sent:** Thursday, January 10, 2008 9:16 AM  
**To:** GALLOGLY, MARGARET  
**Subject:** Type 2 Right Lease - LP Water and Sonoran Valley`

Maggie -

Attached are copies of the fully executed First Amendment to Type 2 Right Lease and Notification of All or a Portion of a Type 2 Non-Irrigation Grandfathered Right. I will forward the original Notification to you today.

Thank you.

Kimberley Korp  
Harvard Investments  
17700 N. Pacesetter Way  
Scottsdale, AZ 85255  
(480)348-1118  
(480)348-8976 (Fax)

-----Original Message-----

**From:** Kim Korp [mailto:kimkorp@harvardinvestments.com]  
**Sent:** Thursday, January 10, 2008 8:39 AM

**From:** Kevin Hebert <khebert@sgcground-water.com>  
**To:** Sharon Ward <ssward@azwater.gov>  
**Date:** 1/10/08 11:00AM  
**Subject:** Spurlock Land Permit

Sharon,

As discussed, attached is the letter specifying a driller for the Spurlock application. A hard copy has been mailed. Please let me know if you need anything else.

Thanks for your help!

Kevin D. Hebert, R.G.

Southwest Ground-water Consultants, Inc.

3033 North 44th Street, Suite 120

Phoenix, Arizona 85018

Office: 602-955-5547

Direct: 602-515-0295

Fax: 602-955-7585

[www.sgcground-water.com](http://www.sgcground-water.com)

To: Kim Korp  
Subject:

This E-mail includes attached file(s) sent from "RNP81699C" (Aficio 1060).

Scan Date: 01.10.2008 10:39:24 (-0500)  
Queries to: ricoh1060@harvardinvestments.com

[www.fennemorecraig.com](http://www.fennemorecraig.com)

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CC: Tim Keenan <TimK@montage-holdings.com>, <mgallogl@fclaw.com>, GarrettWieger <GarrettW@montage-holdings.com>, Amy Quint <AmyQ@montage-holdings.com>

**First Amendment to Lease of Type 2 Water Right for 2007  
with Option for 2008**

This First Amendment to Lease of Type 2 Water Right for 2007 with Option for 2008 (this "First Amendment") is entered into effective as of December 31, 2007 by and between LP WATER, L.L.C. ("Lessor") and SONORAN VALLEY PROPERTY LLC ("Lessee").

**Recitals**

A. Lessor and Lessee entered into that Lease of Type 2 Water Right for 2007 with Option for 2008 dated as of October 17, 2007 (the "Lease");

B. Pursuant to paragraph 3 of the Lease, Lessee has exercised its option to renew the lease for calendar year 2008; and

C. Lessor and Lessee now wish to amend the Lease to change the date on which the payment of the balance of the rent for the 2008 renewal term is due, on the terms and conditions stated herein.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Lessor and Lessee agree as follows:

1. Acknowledgement of Exercise of Option. Lessor and Lessee hereby acknowledge that Lessee has exercised its option to renew the Lease for calendar year 2008, and the Lease is now effective and binding upon Lessor and Lessee for calendar year 2008.

2. Amendment to Paragraph 3(d). Lessor and Lessee hereby amend paragraph 3(d) of the Lease by deleting the phrase "Along with its written notice of renewal", and inserting the phrase "On or before January 31, 2008" in its stead. Following the execution of this First Amendment, Lessee shall pay to Lessor the balance of the rent due for calendar year 2008 on or before January 31, 2008.

3. No Further Amendment. Except as stated in Section 2 hereof, the terms of the Lease remain in full force and effect following the execution of this First Amendment.

4. ADWR Documents. Upon the execution of this Amendment, Lessor and Lessee will execute such documents as may reasonably necessary to notify the Arizona Department of Water Resources of the exercise of the option for calendar year 2008.

5. Counterparts. This First Amendment may be executed in counterparts and all of the counterparts so executed shall together constitute a single agreement.

IN WITNESS WHEREOF, the undersigned have executed this First Amendment effective as of the date first stated above.

**[Signature Page to Follow.]**

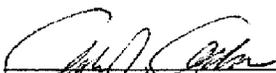
**LESSOR:**

LP WATER, L.L.C.,  
an Arizona limited liability company,

By: Lake Pleasant 5000, L.L.C.,  
an Arizona limited liability company,  
Its Manager,

By: Harvard 5K, L.L.C.,  
an Arizona limited liability company,  
Its Manager

By: Harvard Investments, Inc.  
a Nevada corporation,  
Its Manager

By:   
Name: Christopher J. Cacheris  
Title: Vice President

Dated this 31<sup>st</sup> day of December, 2007.

**LESSEE:**

SONORAN VALLEY PROPERTY LLC,  
a Delaware limited liability company,

By:   
Name: TIM KESHANOS  
Its: PRINCIPAL

Dated this 31<sup>st</sup> day of December, 2007.

**ARIZONA DEPARTMENT OF WATER RESOURCES**  
3550 North Central Avenue, Phoenix, Arizona 85012

**NOTIFICATION OF LEASE OF ALL OR A PORTION OF A  
TYPE 2 NON-IRRIGATION GRANDFATHERED RIGHT**

**INSTRUCTIONS**

- Both the owner and the lessee must print name and sign this form.
- This form is for a lease of a Type 2 Grandfathered Right. If there is a change of ownership of the Type 2 Grandfathered Right, please contact the conveyance department of 602-771-8585.
- If a new certificate is requested, please provide the original certificate of Grandfathered Right. If the original certificate has been lost or destroyed, a notarized statement to this effect must be submitted, along with a \$35.00 certificate re-issue fee made payable to the Department of Water Resources.

AMA:  Phoenix     Pinal     Prescott     Santa Cruz     Tucson

Notification of:  Lease     Sub-Lease

The undersigned parties hereby notify the Arizona Department of Water Resources of the lease of all or a portion of the following Certificate of Type 2 Non-Irrigation Grandfathered Right:

1. Certificate of Grandfathered Right Number: 111856.0001
2. Amount of right indicated on the Certificate: 2,087 acre-feet per annum.
3. Amount of right to be assigned to lessee: 758 acre-feet per annum.
4. Amount of right still available for leasing: 1,298 acre-feet per annum.
5. Duration of lease: from 01/01/08 to 12/31/08  
month/day/yr                      month/day/yr
6. Describe the lessee's intended non-irrigation use: Well permit; construction water; service area establishment
  - a. Is this right associated with an industrial facility (i.e. golf course, etc)? If so, please enter the name and/or ADWR facility number: No
  - b. List other rights associated with the proposed use: \_\_\_\_\_
7. Well information  
Will the lease result in the temporary addition of one or more points of withdrawal from the wells currently listed on the above referenced Certificate of Grandfathered Right?     Yes     No

**OWNER**  
(Print or Type)

**LESSEE**  
(Print or Type)

NAME <u>SEE ATTACHED SIGNATURE PAGE</u>	NAME <u>SEE ATTACHED SIGNATURE PAGE</u>
Print Name _____	Print Name _____
COMPANY _____	COMPANY _____
ADDRESS _____	ADDRESS _____
PHONE _____	PHONE _____

SIGNATURE

DATE

SIGNATURE

DATE

**If you have questions regarding this notification, please call your local Active Management Area office:**  
Phoenix: 602-771-8585    Pinal: 520-836-4857    Prescott: 520-778-7202    Tucson: 520-770-3800    Santa Cruz: 520-761-1814

**SIGNATURE PAGE FOR NOTIFICATION OF LEASE OF ALL OR A PORTION OF A  
TYPE 2 NON-IRRIGATION GRANDFATHERED RIGHT – Right No. 111856.0001**

**OWNER**

LP WATER, L.L.C.,  
an Arizona limited liability company,

By: Lake Pleasant 5000, L.L.C.,  
an Arizona limited liability company,  
Its Manager  
By: Harvard 5K, L.L.C.,  
an Arizona limited liability company,  
Its Manager  
By: Harvard Investments, Inc.,  
a Nevada corporation,  
Its Manager

By:   
Name: Christopher J. Cochran  
Title: Vice President

Dated this 31<sup>st</sup> day of December, 2007.

ADDRESS: LP Water, L.L.C.  
17700 N. Pacesetter Way  
Scottsdale, AZ 85255  
PHONE: (480) 348-1118

**LESSEE**

SONORAN VALLEY PROPERTY LLC,  
a Delaware limited liability company,

By:   
Name: TIM KEENAN  
Title: PRINCIPAL

Dated this 31<sup>st</sup> day of December, 2007.

ADDRESS: Sonoran Valley Property LLC  
6720 N. Scottsdale Road, Suite 335  
Scottsdale, AZ 85253  
PHONE: (480) 346-9696

**From:** Don Hanson <DHanson@clearcreekassociates.com>  
**To:** Sharon Ward <ssward@azwater.gov>  
**Date:** 1/9/08 5:15PM  
**Subject:** Sonoran Valley GFR

Sharon,

I spoke with Sonoran and their legal council today and was hoping to get a fax of the signed lease agreement for 08 today but it has not come yet. As soon as I get it, I'll forward it over via email and send a hard copy.

Thx, Don

Don Hanson

Clear Creek Associates  
6155 E. Indian School Road, Suite 200  
Scottsdale, AZ 85251  
Ph: 480/659-7131  
Mo: 602/809-0557  
Fx: 480/659-7143

dhanson@clearcreekassociates.com

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**CC:** Tim Keenan <TimK@montage-holdings.com>, <mgallogl@fclaw.com>

**ARIZONA DEPARTMENT OF WATER RESOURCES**  
**Hydrology Division**

**MEMORANDUM**

**TO:** Vanessa Reyes, Phoenix AMA

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

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

**DATE:** January 4, 2008

**RE:** Tim Keenan/Sonoran Valley Management, Application for a permit to drill non-exempt non-service area well within the Phoenix Active Management Area No. T-216835;  
**WELL IMPACT ANALYSIS** for well no. 55-206033, D-04-01 15 CCC

Hydrology has completed its evaluation of the above referenced amendment to an application for a permit to drill a non-exempt non-service area well. A ten-foot drawdown analysis was performed by Hydrology for the well in D-04-01 15 CCC, outside of the SRV Model boundary. Hydrology used a transmissivity value calculated from a pump test of the well and parameters from nearby sections within the Pinal 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 Radii After Five Years
D-04-01 15 CCC 55-206033	Applicant	18,590	0.08	758 (470 gpm)	2,083
	ADWR	16,454	0.08	758 (470 gpm)	~2,438-2,625

According to the parameters of the application, the calculated drawdown at the well is 70.9 feet for the 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 Spacing Review Sheet**

Well Reg. No. **55-206033**  
Applicant: **Tim Keenan**

Well Location: **D (4-1) 15 CCC**

Depth of well: **1410** feet  
Diameter: **16** in.

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

Proposed volume: **758** acre-ft/yr  
Q = **470** gpm  
T = **16,454** gpd/ft

T Source: **Derived from pump test of well (K=2.2 ft/d)**

Sy = **0.08**

Sy Source: **Value from nearby analysis and from nearby values in Pinal Model to east**

10 foot drawdown radius = **~2,438-2,625** feet (see attached map)

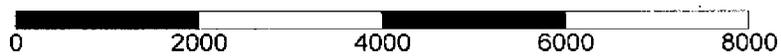
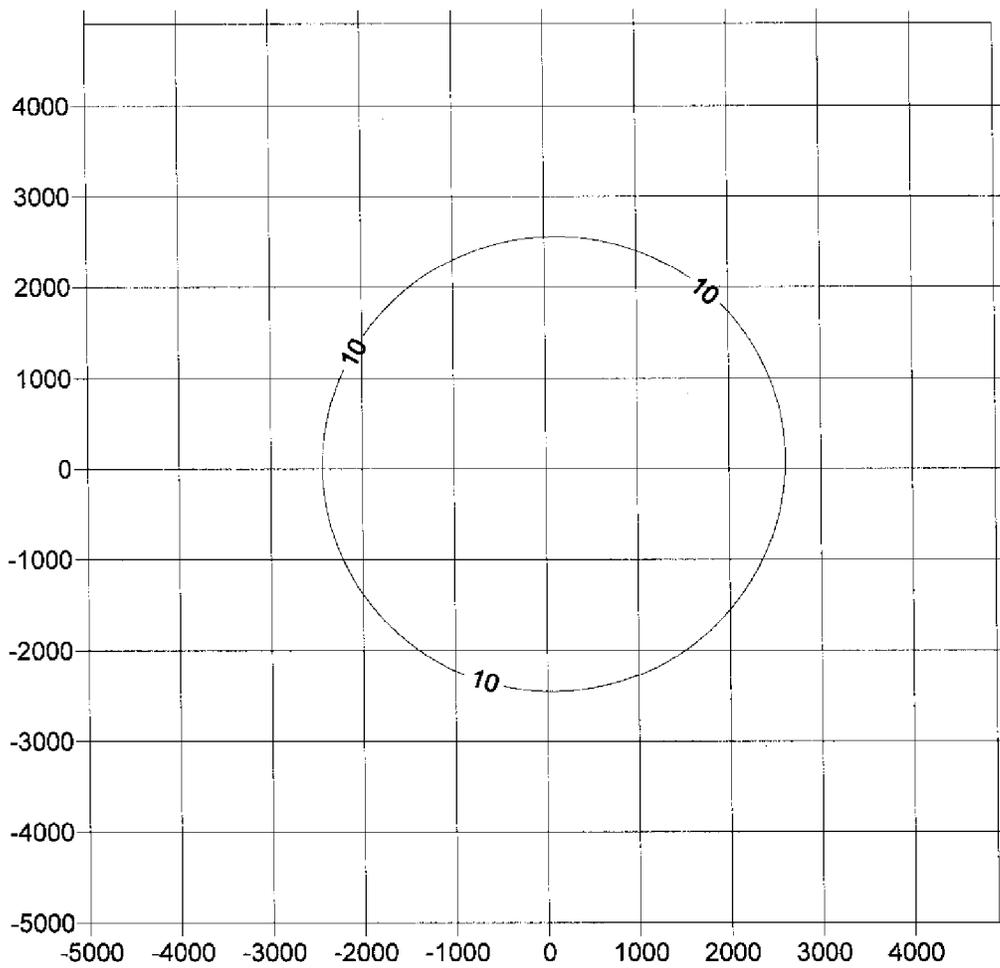
drawdown at well = **70.9** feet

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

Analyzed by: *AMM*  
Date: *12/28/07*

Checked by: *S. R.*  
Date: *1-3-08*

Tim Keenan  
55-206033  
D (4-1) 15 CCC  
T=16,454 gpd/ft  
Sy=0.08  
Q=470 gpm



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

-----  
55-206033  
-----

\*\*\*\*\* INPUT DATA \*\*\*\*\*

UNCONFINED AQUIFER - THEIS EQUATION WITH JACOB'S CORRECTION

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 995 [ft]  
TRANSMISSIVITY = 16454 [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 = 995 [ft]

-----  
PUMPING/INJECTION WELL DATA

WELL NO. 1 (55-206033)

X-COORDINATE = 0 [ft]  
Y-COORDINATE = 0 [ft]  
PUMPING/INJECTION RATE = 676742 [gpd]  
TIME SINCE START PUMPING/INJECTION = 1825 [day]

WELL NO. 2 (Image Well)

X-COORDINATE = 14125 [ft]  
Y-COORDINATE = 8844 [ft]  
PUMPING/INJECTION RATE = 676742 [gpd]  
TIME SINCE START PUMPING/INJECTION = 1825 [day]  
-----

\*\*\*\*\* RESULTS \*\*\*\*\*

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

Y [ft]	<- X [ft] ->					
	-2600	-2500	-2400	-2300	-2200	-2100
-200.00	9.557	9.811	10.077	10.354	10.644	10.947
-100.00	9.574	9.829	10.096	10.375	10.667	10.972
0.00	9.581	<u>9.837</u>	<u>10.105</u>	10.384	10.676	10.983
100.00	9.579	9.835	10.102	10.381	10.673	10.979
200.00	9.568	9.822	10.088	10.366	10.656	10.960

Y [ft]	<- X [ft] ->					
	-200	-100	0	100	200	300
-2700.00	9.355	9.374	9.383	9.384	9.377	9.361
-2600.00	9.599	9.618	9.629	9.629	9.621	9.603
-2500.00	9.853	9.873	<u>9.884</u>	9.884	9.875	9.855
-2400.00	10.117	10.139	<u>10.150</u>	10.151	10.140	10.118
-2300.00	10.393	10.417	10.429	10.429	10.416	10.392
-2200.00	10.682	10.708	10.720	10.719	10.705	10.679
-200.00	24.394	25.980	26.738	25.996	24.427	22.809
-100.00	25.977	29.069	31.417	29.086	26.011	23.693
0.00	26.732	31.414	<u>70.894</u>	31.431	26.766	24.052
100.00	25.987	29.079	31.428	29.097	26.022	23.705
200.00	24.414	26.001	26.760	26.018	24.450	22.832
2300.00	10.620	10.649	10.667	10.672	10.666	10.648
2400.00	10.353	10.381	10.398	10.404	10.399	10.384
2500.00	10.098	10.124	<u>10.141</u>	10.148	10.145	10.132
2600.00	9.853	9.879	<u>9.895</u>	9.903	9.901	9.890
2700.00	9.619	9.643	9.660	9.668	9.667	9.658
2800.00	9.393	9.417	9.433	9.442	9.442	9.435

Y [ft]	<- X [ft] ->					
	2200	2300	2400	2500	2600	2700
-200.00	11.008	10.735	10.475	10.227	9.990	9.762
-100.00	11.037	10.763	10.501	10.252	10.013	9.785
0.00	11.053	10.778	10.516	10.266	<u>10.028</u>	<u>9.799</u>
100.00	11.055	10.781	10.520	10.271	10.033	9.805
200.00	11.044	10.772	10.512	10.265	10.028	9.802

**THEIS CALCULATION**

Well Reg. No. 55-206033  
 Applicant: Tim Keenan

Well Location D (4-1) 15 CCC

t =	1825 days	Q =	758 acre-ft/yr 470 gpm
s =	25 ft	T =	16454 gpd/ft
u =	2.73E-04	Sy =	0.08

$W(u) = 7.6378$

25 foot drawdown radius = 234.09 ft = 0.04 mi

t =	1825 days	Q =	758 acre-ft/yr 470 gpm
s =	10 ft	T =	16454 gpd/ft
u =	2.73E-02	Sy =	0.08

$W(u) = 3.0551$

10 foot drawdown radius = 2340.90 ft = 0.44 mi

t =	1825 days	Q =	758 acre-ft/yr 470 gpm
s =	1 ft	T =	16454 gpd/ft
u =	8.10E-01	Sy =	0.08

$W(u) = 0.3055$

1 foot drawdown radius = 12750.20 ft = 2.41 mi

r =	1 ft	
u =	4.98193E-09	drawdown at well
W(u) =	18.54	s = 60.69 ft

**Equations:**

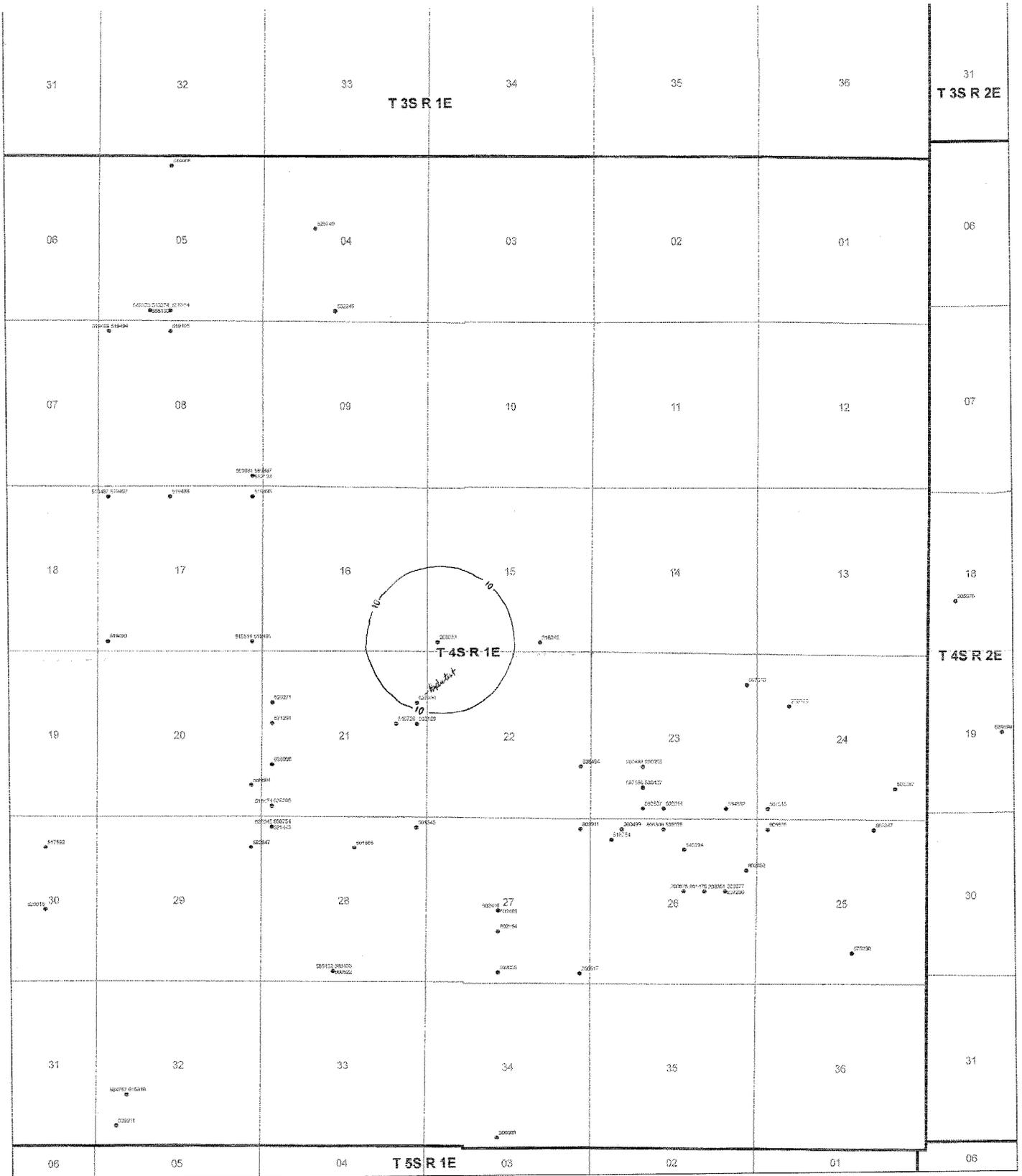
$$s = \frac{114.6 Q}{T} W(u) \quad W(u) = \frac{sT}{114.6Q}$$

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

470 gpm  
676742 gpd

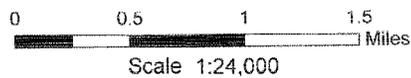
**where:**

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



T4S, R1E, Section 15

55-206033



Map Printed: 1/9/2008 9:31:24 AM

Arizona Department of Water Resources  
3650 North Central Ave  
Phoenix, AZ 85012  
Phone: (602) 771-8500 or 1-800-352-8488

**From:** Sharon Ward  
**To:** Don Hanson  
**Date:** 12/12/07 10:30AM  
**Subject:** RE: 55-206033 D(4-1)15ccc

Will do. Thanks.

Sharon Ward  
Water Resources Specialist  
Phoenix Active Management Area  
Department of Water Resources  
3550 N. Central Avenue, Phoenix AZ 85012  
Phone: 602-771-8614  
Fax: 602-771-8688  
Email: [ssward@azwater.gov](mailto:ssward@azwater.gov)

>>> Don Hanson <[DHanson@clearcreekassociates.com](mailto:DHanson@clearcreekassociates.com)> 12/12/07 07:22AM >>>  
Tim Keenan is an employee of Sonoran Valley Management. I guess I was considering them one and the same. Can we just modify the applicant to Sonoran Valley Management?

Thx for your quick response.

-----Original Message-----

From: Sharon Ward [<mailto:ssward@azwater.gov>]  
Sent: Tuesday, December 11, 2007 4:51 PM  
To: Don Hanson  
Cc: Wayne Feller  
Subject: Re: 55-206033 D(4-1)15ccc

Don,

I am waiting for Hydro's sign-off on this application.

Other Issues:

The application lists the applicant as Tim Keenan, however, the land and the Type 2 lease are in the name of Sonoran Valley Management. The "Claim of Entitlement" needs to be in the name of Tim Keenan, since he is listed as the applicant. The Department will also need a letter of authorization from the landowner giving Tim Keenan authority to access the well.

Let me know if you have any questions.

Thanks,  
Sharon

Sharon Ward  
Water Resources Specialist  
Phoenix Active Management Area  
Department of Water Resources

3550 N. Central Avenue, Phoenix AZ 85012  
Phone: 602-771-8614  
Fax: 602-771-8688  
Email: [ssward@azwater.gov](mailto:ssward@azwater.gov)

>>> Don Hanson <[DHanson@clearcreekassociates.com](mailto:DHanson@clearcreekassociates.com)> 12/11/07 11:56AM >>>  
Hi Sharon,

I was wondering if you could give a status of a Non-Exempt, Non Service Area Well application for the above referenced well? It was submitted in mid October. A copy of the application is attached.

I have a meeting with the client tomorrow after lunch so if you could let me know prior to then, I would greatly appreciate it.

Thx, Don

Don Hanson

Clear Creek Associates  
6155 E. Indian School Road, Suite 200  
Scottsdale, AZ 85251  
Ph: 480/659-7131  
Mo: 602/809-0557  
Fx: 480/659-7143

[dhanson@clearcreekassociates.com](mailto:dhanson@clearcreekassociates.com)

This e-mail together with any attachments is confidential and may be the subject of legal privilege. If you are not the intended recipient please reply to this e-mail and delete this message. You are not permitted to print, copy, disclose or use the content in any way. Clear Creek Associates accepts no responsibility for changes made to this e-mail or any attachments after transmission from Clear Creek Associates. Thank you.

**Mail Envelope Properties** (47601ACB.4E4 : 6 : 13608)**Subject:** RE: 55-206033 D(4-1)15ccc**Creation Date:** 12/12/07 10:30AM**From:** Sharon Ward**Created By:** [ssward@azwater.gov](mailto:ssward@azwater.gov)

<b>Recipients</b>	<b>Action</b>	<b>Date &amp; Time</b>
clearcreekassociates.com DHanson (Don Hanson)	Transferred	12/12/07 10:31AM

<b>Post Office</b>	<b>Delivered</b>	<b>Route</b>
		clearcreekassociates.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	6315	12/12/07 10:30AM

**Options**

<b>Auto Delete:</b>	No
<b>Expiration Date:</b>	None
<b>Notify Recipients:</b>	Yes
<b>Priority:</b>	Standard
<b>Reply Requested:</b>	No
<b>Return Notification:</b>	None

<b>Concealed Subject:</b>	No
<b>Security:</b>	Standard

<b>To Be Delivered:</b>	Immediate
<b>Status Tracking:</b>	Delivered & Opened

ARIZONA DEPARTMENT OF WATER RESOURCES  
HYDROLOGY DIVISION – WATER QUALITY UNIT

MEMORANDUM

---

**TO:** Danita Haywood, Phoenix AMA  
Sharon Ward, Phoenix AMA  
Tana Zachreson, Phoenix AMA  
Kevin Crago, Phoenix AMA  
**FROM:** Dani Williams *drw*  
Water Quality Unit  
**DATE:** November 7, 2007  
**SUBJECT:** Application for Permit to Drill or Operate a Non-Exempt Well within a AMA  
Application T-216835 Well 55-206033  
Tim Keenan

Hydrology has reviewed the above referenced application for a permit to drill or operate a non-exempt well within the Phoenix AMA for water quality concerns and well construction conformance to Arizona well construction standards.

**Water Quality**

1. The 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 well was drilled to 1420 feet below the land surface and screened from 579 to 700 feet and 720 to 1410 feet. The well met minimum well construction standards. No special well construction requirements were necessary.

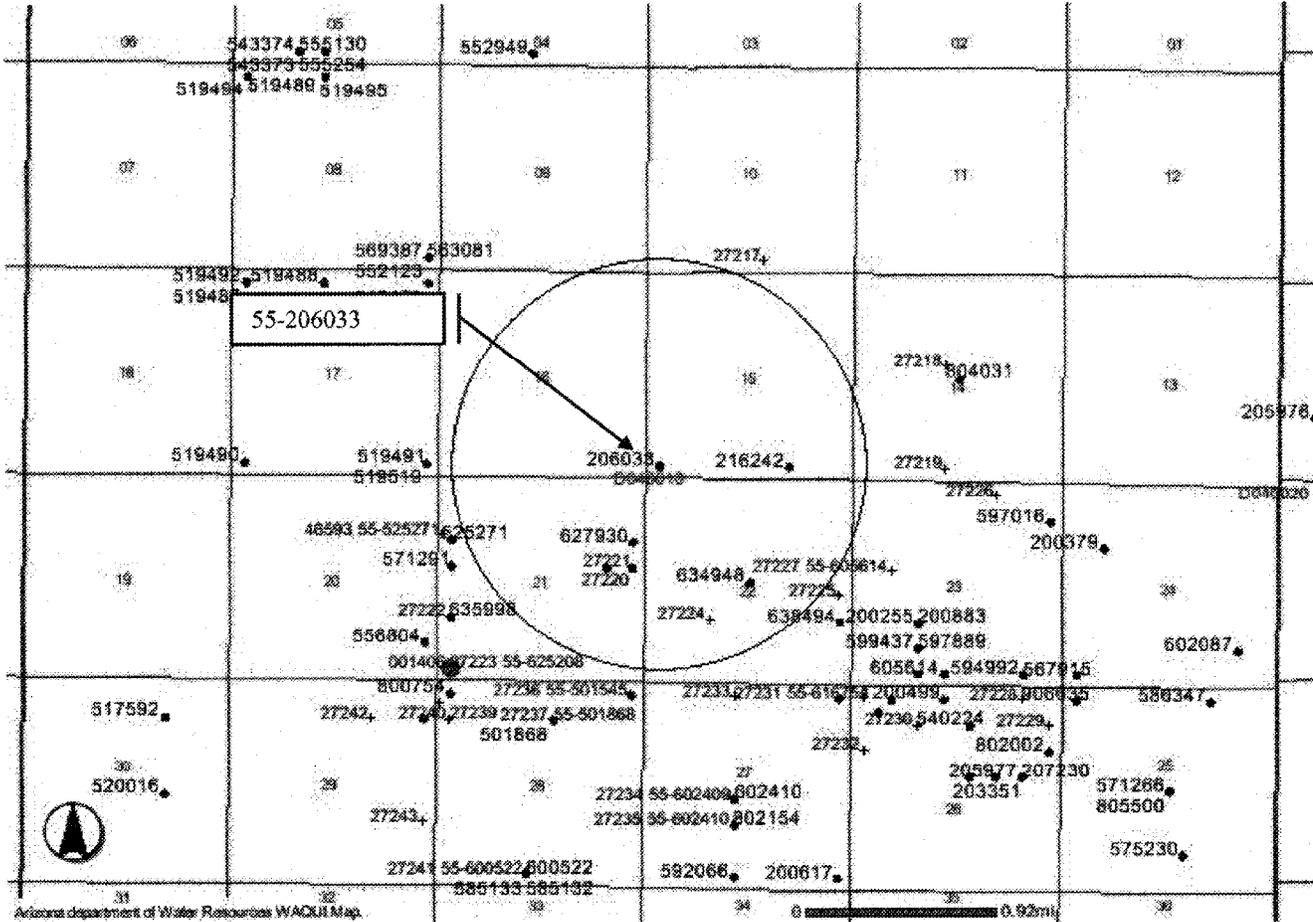
The Hydrology Water Quality Unit has no objections to approving this permit. If additional information is needed, please contact me at extension 1-8555.

C: Alene McCracken, Hydrology  
Enclosure Water Quality map



# 55-206033 Tim Keenan

## Permit to Drill or Operate a Non-Exempt Well in an AMA D (4-1) 15 CCC



Working Together



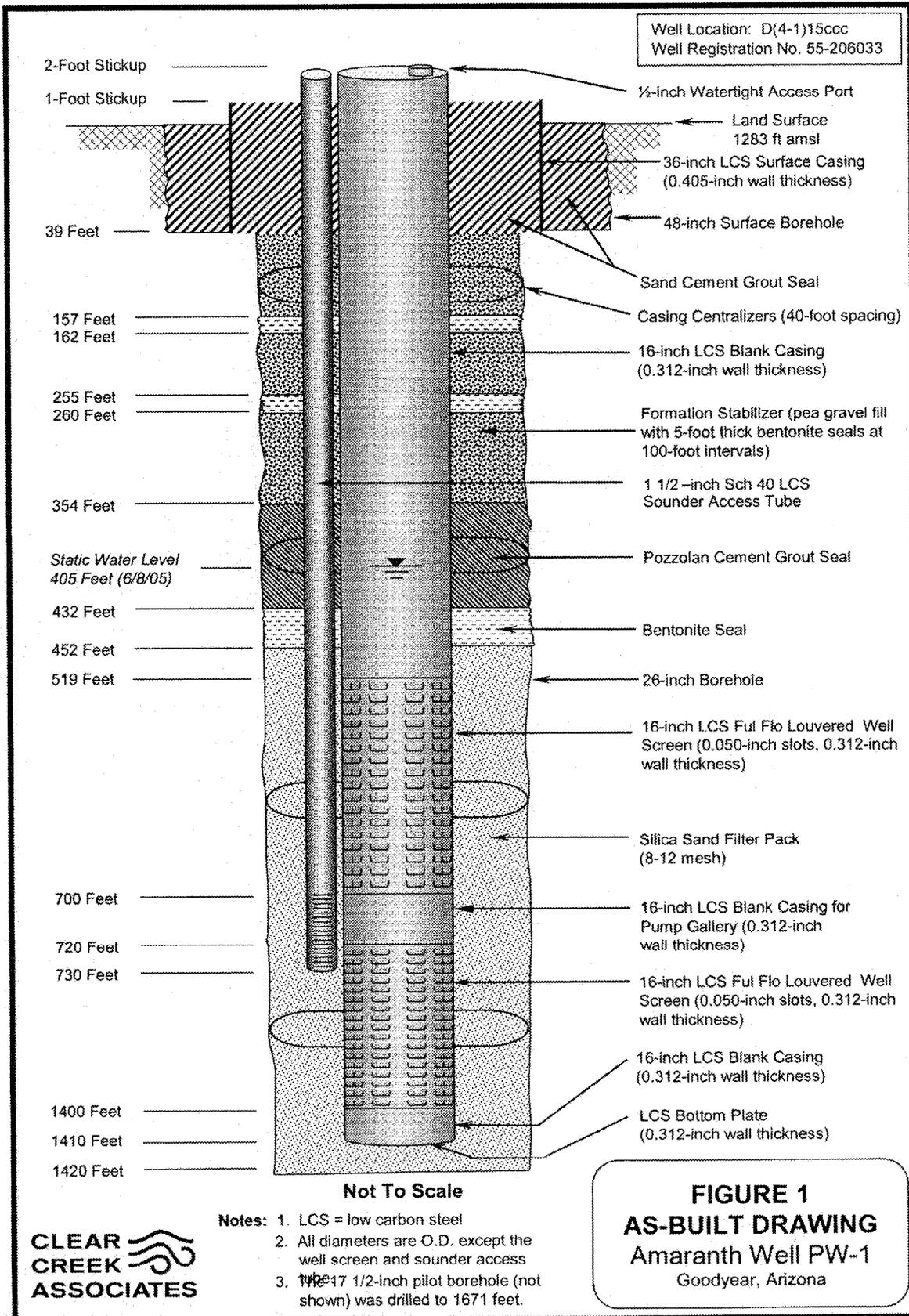
**Arizona  
Department  
of Environmental  
Quality**



**Arizona  
Department  
of Water  
Resources**

Map generated on 11/7/2007  
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.**

- 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
  - ▨ VRF Site Buffer
  - Registry
  - 1 MI WQARF Buffer





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

Amaranth PW1

RECEIVED  
 NOV - 2 2007  
 INFO MGMT

**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 Sonoran Valley Management Attn: Tim Keenan *Per email dated 12/2/07* Application No. T-216835 Registration No. 55-206033  
 Mailing Address 6720 N Scottsdale Rd, Ste 335 File No. D(4-1)15000  
Scottsdale AZ 85253 Date Received 11/2/07  
 City State Zip Code AMA Phx  
 Contact Person Tim Keenan W/S 08 S/B 09  
 Telephone Number (480) 346-9614

2. Name of Land Owner Sonoran Valley Management  
 Mailing Address 6720 N Scottsdale Rd, Ste 335  
Scottsdale AZ 85253 (480) 346-9614  
 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: 58-111856.0001  
 General Industrial Use Permit No. 59- \_\_\_\_\_  
 Service Area Right No: \_\_\_\_\_  
 Irrigation District Right No: \_\_\_\_\_

6. The principal use(s) of groundwater will be (be specific) Construction water for new development

7. Well location: SW SW SW Section 15 Township 4S N/S Range 1E E/W  
 10 Acre 40 Acre 160 Acre

8. Position location of the well: Latitude 33 ° 04 ' 18.2 " N Longitude 112 ° 15 ' 28.1 " W

9. Design Pump Capacity 850 gpm Depth 1400 feet  
 Diameter 16 inches Type of casing Low Carbon Steel

10. Proposed annual volume of water 758 acre feet

11. Well is located in the Rainbow Valley subbasin of the Phoenix 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 \_\_\_\_\_ YEAR \_\_\_\_\_

Estimated time to complete new well Completed June, 2005 (If longer than 1 year, attach explanation.)

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

SW ¼ SW ¼ SW ¼ Section 15 Township 4 N/S Range 1 E/W. County MARICOPA  
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 WDC DWR License No: 161 ROC License Category C53 & A4

Mailing Address: 1421 S 39th Ave Phoenix AZ 85009 (602)254-6586  
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. As-Built diagram attached.

**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- 206033 Present pump design capacity Not Equipped gallons per minute.  
Present permitted volume N/A acre-feet per year. Hydrotest only

26. The new design pump capacity will be 800 gallons per minute. New permitted volume will be 758 acre-feet per year.

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

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), Tim Keenan 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  Date 10/19/07



**SIGNATURE PAGE FOR NOTIFICATION OF LEASE OF ALL OR A PORTION OF A  
TYPE 2 NON-IRRIGATION GRANDFATHERED RIGHT – Right No. 111856.0001**

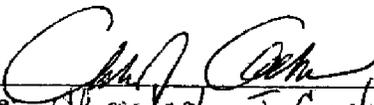
**OWNER**

LP WATER, L.L.C.,  
an Arizona limited liability company,

By: Lake Pleasant 5000, L.L.C.,  
an Arizona limited liability company,  
Its Manager

By: Harvard 5K, L.L.C.,  
an Arizona limited liability company,  
Its Manager

By: Harvard Investments, Inc.,  
a Nevada corporation,  
Its Manager

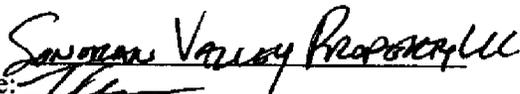
By:   
Name: Christopher J. Cacheris  
Title: Vice President

Dated this <sup>th</sup>12 day of October, 2007.

ADDRESS: LP Water, L.L.C.  
17700 N. Pacesetter Way  
Scottsdale, AZ 85255  
PHONE: (480) 348-1118

**LESSEE**

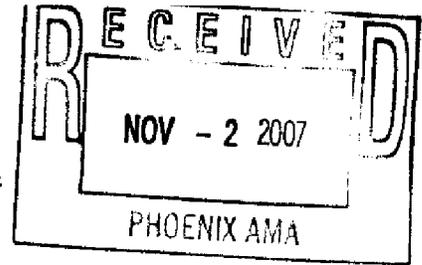
SONORAN VALLEY PROPERTY LLC,  
a Delaware limited liability company,

By:   
Name: Sonoran Valley Property LLC  
Title: MEMBER

Dated this <sup>th</sup>16 day of October, 2007.

ADDRESS: Sonoran Valley Property LLC  
6720 N. Scottsdale Road, Suite 335  
Scottsdale, AZ 85253  
PHONE: (480) 346-9696  
ATTN: Tim Keenan

ARIZONA DEPARTMENT OF WATER RESOURCES  
WATER MANAGEMENT SUPPORT SECTION  
P.O. BOX 458 PHOENIX, ARIZONA 85001-0458



**NOTIFICATION OF CHANGE OF OWNERSHIP OF A TYPE 2 NON-IRRIGATION GRANDFATHERED RIGHT AND/OR APPLICATION FOR REVISED CERTIFICATE TO REFLECT NEW OR ADDITIONAL POINTS OF WITHDRAWAL FOR A TYPE 2 NON-IRRIGATION GRANDFATHERED RIGHT**

**INSTRUCTIONS AND REQUIRED ATTACHMENTS**

- COMPLETE PART I AND PART IV OF THIS FORM. IF YOU ARE REPORTING AN OWNERSHIP CHANGE, PART II MUST ALSO BE COMPLETED. IF YOU ARE REQUESTING A REVISED CERTIFICATE TO REFLECT NEW OR ADDITIONAL POINTS OF WITHDRAWAL, PART III MUST BE COMPLETED. OBTAIN ALL REQUIRED SIGNATURES. MAIL THE COMPLETED FORM TO THE ABOVE ADDRESS OR HAND DELIVER IT TO ADWR AT 500 NORTH THIRD STREET, PHOENIX.
- PURSUANT TO A.A.C. R12-15-401, IF YOU REQUEST A REVISED CERTIFICATE TO REFLECT NEW OR ADDITIONAL POINTS OF WITHDRAWAL, THE DEPARTMENT WILL ISSUE A WRITTEN NOTICE GRANTING OR DENYING YOUR APPLICATION WITHIN 180 DAYS AFTER RECEIPT OF THE APPLICATION. THE DEPARTMENT WILL FIRST DETERMINE WHETHER THE APPLICATION IS ADMINISTRATIVELY COMPLETE (ADMINISTRATIVE REVIEW PERIOD) AND THEN WHETHER THE APPLICATION MEETS THE SUBSTANTIVE CRITERIA ESTABLISHED BY STATUTE OR RULE (SUBSTANTIVE REVIEW PERIOD). THE TIME FRAME FOR ADMINISTRATIVE COMPLETENESS REVIEW IS 45 DAYS. THE TIME FRAME FOR SUBSTANTIVE REVIEW IS 135 DAYS. THE OVERALL TIME FRAME OF 180 DAYS ENCOMPASSES BOTH THE ADMINISTRATIVE COMPLETENESS REVIEW AND THE SUBSTANTIVE REVIEW TIME FRAMES. THESE TIME FRAMES MAY BE SUSPENDED IF THE DEPARTMENT DETERMINES THAT THE APPLICATION IS NOT COMPLETE AND REQUESTS ADDITIONAL INFORMATION IN WRITING.
- ENCLOSE THE ORIGINAL CERTIFICATE OF GRANDFATHERED GROUNDWATER RIGHT. THIS DOCUMENT IS AVAILABLE FROM THE SELLER/GRANTOR OR CURRENT OWNER. IF THE ORIGINAL CERTIFICATE HAS BEEN LOST, A NOTARIZED STATEMENT TO THIS EFFECT MUST BE SUBMITTED.
- ENCLOSE A \$35.00 FEE TO COVER ISSUANCE OF A NEW CERTIFICATE. CHECKS MUST BE MADE PAYABLE TO ARIZONA DEPARTMENT OF WATER RESOURCES. THIS FEE IS REQUESTED BY A.A.C. RULE R12-15-151 (B)(5)(C).
- IF THE TYPE 2 RIGHT WILL BE LEASED IN FULL OR IN PART, A NOTIFICATION OF LEASE OF TYPE 2 NON-IRRIGATION GRANDFATHERED RIGHT (FORM 58-800) MUST BE FILED ALSO.
- IF YOU NEED ANY ASSISTANCE PLEASE CONTACT THE CONVEYANCE UNIT AT 602-417-2465 (PHOENIX AREA) OR 800-352-8488 (STATEWIDE). TO ACCESS ADWR REQUIRED GRANDFATHERED RIGHT CONVEYANCE FORMS, VISIT OUR WEBSITE ADDRESS: [www.water.az.gov](http://www.water.az.gov).

**PART I. GENERAL INFORMATION**

1. Certificate of Grandfathered Groundwater Right number: 58 - 111856.0001
2. Amount of right indicated on certificate: 2.087 acre-feet annually.
3. Active Management Area: Phoenix
4. Describe the intended non-irrigation use(s). (Note: in accordance with A.R.S. § 45-474(A), the owner of a Type 2 Non-Irrigation Grandfathered Right that is issued for the purposes of mineral extraction or processing, or for purposes of electrical energy generation, may not convey the right for any other purpose.)

**CONTINUED ON REVERSE SIDE**

**PART II. NOTIFICATION OF CHANGE OF OWNERSHIP**

In accordance with A.R.S. § 45-482(B), the undersigned parties hereby notify the Arizona Department of Water Resources of the conveyance of this Type 2 Non-irrigation Grandfathered Right:

1. Please specify the effective date of this ownership change \_\_\_\_/\_\_\_\_/\_\_\_\_ and the quantity of groundwater withdrawn between January 1 of that calendar year and the effective date: \_\_\_\_\_ acre-feet.

**PART III. APPLICATION FOR REVISED CERTIFICATE TO REFLECT NEW OR ADDITIONAL POINTS OF WITHDRAWAL**

In accordance with A.R.S. § 45-471(C), the undersigned hereby requests the Arizona Department of Water Resources to issue a revised certificate of Type 2 Non-irrigation Grandfathered Right to reflect different points of withdrawal or to remove all wells from this certificate.

1. Wells to be added to the certificate (list by ADWR registration number; non-exempt wells only). If no new wells are to be added, write "None."

	Twp	Rng	Sec	160	Quarters	40	10	Owner Name	Proposed Type 2 Withdrawals
55-208033	<u>4S</u>	<u>1E</u>	<u>5</u>	<u>SW</u>	<u>SW</u>	<u>SW</u>		<u>Sonoran Valley Management, LLC</u>	<u>758</u> acre-feet annually
55-_____	_____	_____	_____	_____	_____	_____	_____	_____	_____ acre-feet annually
55-_____	_____	_____	_____	_____	_____	_____	_____	_____	_____ acre-feet annually

2. Wells to be removed from the certificate (list by ADWR registration number) and status of removed wells. If no wells are to be removed, write "None":

55-_____	_____ not in use	_____ capped	_____ abandoned	_____ exempt	pump cap: _____ gpm
55-_____	_____ not in use	_____ capped	_____ abandoned	_____ exempt	pump cap: _____ gpm
55-_____	_____ not in use	_____ capped	_____ abandoned	_____ exempt	pump cap: _____ gpm

**PART IV. GRANTOR AND GRANTEE OR CURRENT OWNER INFORMATION**

GRANTOR (SELLER)  
OR CURRENT OWNER

(Print or Type)

NAME SEE ATTACHED SIGNATURE PAGE

ADDRESS \_\_\_\_\_

PHONE (\_\_\_\_) \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

GRANTEE (BUYER  
OR OTHER OWNERS OF  
NEW POINTS OF WITHDRAWAL

(Print or Type)

NAME SEE ATTACHED SIGNATURE PAGE

ADDRESS \_\_\_\_\_

PHONE (\_\_\_\_) \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**SIGNATURE PAGE FOR CHANGE IN POINTS OF WITHDRAWAL FOR A TYPE 2  
NON-IRRIGATION GRANDFATHERED RIGHT – Right No. 111856.0001**

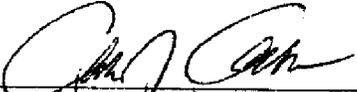
**OWNER**

LP WATER, L.L.C.,  
an Arizona limited liability company,

By: Lake Pleasant 5000, L.L.C.,  
an Arizona limited liability company,  
Its Manager

By: Harvard 5K, L.L.C.,  
an Arizona limited liability company,  
Its Manager

By: Harvard Investments, Inc.,  
a Nevada corporation,  
Its Manager

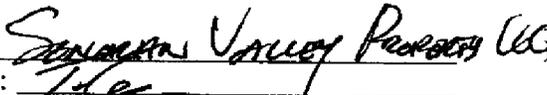
By:   
Name: Christopher J. Cacheris  
Title: Vice President

Dated this 17<sup>th</sup> day of October, 2007.

ADDRESS: LP Water, L.L.C.  
17700 N. Pacesetter Way  
Scottsdale, AZ 85255  
PHONE: (480) 348-1118

**LESSEE**

SONORAN VALLEY PROPERTY LLC,  
a Delaware limited liability company,

By:   
Name: Sonoran Valley Property LLC  
Title: MEMBER

Dated this 16<sup>th</sup> day of October, 2007.

ADDRESS: Sonoran Valley Property LLC  
6720 N. Scottsdale Road, Suite 335  
Scottsdale, AZ 85253  
PHONE: (480) 346-9696

**OWNER OF NEW POINT OF WITHDRAWAL**

SONORAN VALLEY MANAGEMENT LLC,  
a Delaware limited liability company,

By: Sonoran Valley Management LLC Dated this 16<sup>th</sup> day of October, 2007.  
Name: Tim  
Title: MEMBER

ADDRESS: Sonoran Valley Management LLC  
6720 N. Scottsdale Road, Suite 335  
Scottsdale, AZ 85253  
PHONE: (480) 346-9696  
ATTN: Tim Keenan

**WELL SPACING-WELL IMPACT INVESTIGATION  
AMARANTH WELL PW-1  
ADWR #55-206033  
D(4-1)15ccc  
GOODYEAR, ARIZONA**



Prepared For:

**Montage Holdings, LLC.**  
6720 N. Scottsdale Rd  
Suite 335  
Scottsdale, AZ 85253

Prepared By:

**Clear Creek Associates, PLC**  
6155 E. Indian School Road, Suite 200  
Scottsdale, Arizona 85251

**September, 2007**

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- Appendix B. Records for Well No. 55-525271
- Appendix C. Image Well Impact Analysis Output



## 1.0 INTRODUCTION

### 1.1 BACKGROUND

Montage Holdings, also known as Sonoran Valley Management/Properties, is planning to permit and operate one (1) new Non-Exempt, Non Service Area well within the Phoenix Active Management Area (AMA). The existing well (PW-1) is located within the Amaranth development on the northeast corner of 91<sup>st</sup> Avenue and Butterfield Station Access Road (Figure 1). Well PW-1 is located in the SW ¼ (10-acre) of the SW ¼ (40-acre) of the SW ¼ (160-acre) of Section 15, in Township 4 South, Range 1 East of the Gila and Salt River Baseline and Meridian (also referenced as D(4-1)15ccc). Well PW-1 was drilled and constructed between March 18 and June 9, 2005 under hydrologic testing permit number 59-206032.0000 and assigned registration number 55-206033. Well PW-1 was completed to a depth of 1,410 feet bls with screened intervals from 519 to 700 feet bls and 720 to 1400 feet bls (Figure 2). Well PW-1 has a designed pumping capacity of 850 gallons per minute (gpm). The as-built well drawing for well PW-1 is presented on Figure 2.

### 1.2 PURPOSE AND SCOPE

This report has been prepared to satisfy the requirements of the Arizona Department of Water Resources (ADWR) Rule R12-15-830. That rule requires a hydrological study projecting the local groundwater level declines that result from pumping of the proposed well. This report presents a determination of the extent of the 10-foot drawdown impact area attributable to pumping the proposed well continuously for a 5-year period. Characteristics of the local aquifer were based upon a 24-hour aquifer test conducted by Clear Creek Associates at well PW-1 on June 8-9, 2005. The well impact-area calculation was based on the Theis (1935) non-equilibrium formula with adjustments for changing aquifer characteristics due to projected aquifer dewatering.

## 2.0 HYDROLOGIC SETTING

### 2.1 HYDROGEOLOGY

The Amaranth Development is located within the Basin and Range Physiographic province. The Basin and Range Province is characterized by northwest-trending mountain ranges with deep intervening, alluvium-filled basins. The nearby Sevenmile and Palo Verde Mountain ranges provide a bedrock boundary to the Rainbow Valley Sub-basin in which well PW-1 resides (Figure 1).

When a well is located within three miles of a bedrock or other hydrological boundary, ADWR requires a modification to the hydrological analysis to accommodate the impact of that boundary. Because well PW-1 lies within three miles of the Sevenmile and Palo Verde ranges, this additional analysis is required to evaluate the impact of well PW-1. In order to analyze a well impact under these conditions, the mathematical simulation of the aquifer's behavior must address the lack of groundwater contribution from bedrock or other aquitards in the vicinity of the well. This condition necessitates that one or more "image wells" are added to the calculation. An "image well" is a hypothetical well that is located an equal distance from the hydrologic boundary as the evaluated well, but in the opposite direction. The image well is considered to be pumping simultaneous as the proposed well and at the same pumping rate, which provides a reasonable representation of the additional drawdown that will be caused by the hydrologic boundary.

In order to determine the distance from well PW-1 to the bedrock boundary, a straight line was drawn connecting the bases of the Sevenmile and Palo Verde mountain ranges. Because the ranges are bedrock-cored, this line approximates the edge of Rainbow Valley and the position of the hydrologic boundary. The distance from the boundary to well PW-1, measured perpendicular to the boundary, is 2.4 miles (12,672 feet) (Figure 1).

Three general lithologic units were encountered during the drilling of PW-1. Clay and fines with sand and gravel were encountered from the land surface to 200 feet below land surface (bls).

From 200 to 1,660 feet bls, cemented sand and gravel with clay and fines were encountered. Decomposed granite or quartzite bedrock was reached at a depth of 1,660 feet bls. Well PW1 is screened entirely within the middle cemented sand and gravel unit.

## 2.2 AQUIFER COEFFICIENTS

A 24-hour constant-rate pumping test was conducted at Amaranth Well PW-1 to estimate the local aquifer characteristics. Data from this aquifer test can be found in Appendix A. The aquifer transmissivity (T) generally describes the ability of the penetrated aquifer to supply water to a pumping well. The T value is dependent upon the hydraulic conductivity (K) and the aquifer thickness (b), and is defined by the relationship  $T = Kb$ . Transmissivity is expressed in terms of gallons per day per foot (gpd/ft) or square feet per day ( $\text{ft}^2/\text{day}$ ). Hydraulic conductivity is expressed in units of gallons per day per square foot ( $\text{gpd}/\text{ft}^2$ ) or feet per day (ft/day).

The 24-hour aquifer test was begun at approximately 900 gpm. Several pump rate adjustments were made in an attempt to maintain this rate. Because drawdown was encroaching on the pump bowl assembly, the pumping rate was reduced for the final 12 hours of the test. Over the 24-hour period of test pumping, the average discharge rate was 845 gpm.

The static water level was measured at 405.24 feet bls prior to starting the pump. The maximum recorded drawdown was 207.74 feet, which equates to a pumping water level of 612.98 feet bls. At maximum drawdown, specific capacity was 4.1 gpm per foot of drawdown (gpm/ft).

Results of the aquifer test at well PW-1 yielded a transmissivity value of 18,590 gpd/ft. This value is based upon the Cooper-Jacob analysis of the drawdown data and an average pumping rate of 845 gpm. This well impact uses the site-specific transmissivity value obtained during the 24-hour aquifer test. A copy of the Cooper-Jacob plot is included as Figure 3. The aquifer test data are included in Appendix A.

The ADWR model for the Phoenix AMA (Corell and Corkhill, 1994) does not cover the Rainbow Valley Sub-basin. Depths of units, and aquifer coefficients from the model could,

therefore, not be applied to the alluvium below the Amaranth development. The ADWR model for the Pinal AMA (Corkhill and Hill, 1990) does cover the Maricopa-Stanfield Sub-basin immediately to the east of Rainbow Valley. The nearest cell in the Pinal AMA model is about 6 miles to the east of Amaranth Well PW-1. The storage coefficient (S) for the Lower Colluvial Unit (LCU) within that cell is 0.08. A well about 1 mile west of Amaranth Well PW-1, owned by Waste Management of Arizona (ADWR registration No. 525271), used an S value of 0.08 for impact calculations. This investigation also uses a storage coefficient of 0.08, based on an aquifer test performed for Provident Energy Company and evaluated by Manera in 1982. The ADWR imaged records for the Waste Management well (including impact calculations) are included in Appendix B.

### 3.0 IMPACT OF WELL PW-1

#### 3.1 WELL INVENTORY

A well inventory for the study area was conducted based on the ADWR “Wells 55” database (ADWR, July, 2007). The approximately nine-square mile study area is centered about Amaranth Well PW-1. Within the study area, the ADWR database indicated 21 active water production wells and 1 hydrologic testing (test) well. Information relating to the wells within the study area is summarized in Table 1, and the well locations are illustrated on Figure 4. The well categories on Figure 4 include domestic wells, industrial wells, irrigation wells, municipal wells, and test (hydrologic testing) wells. Piezometers, geotechnical borings, and monitoring wells are not considered water production wells for purposes of well impact studies, so those wells are not plotted on the well inventory map or included in the well inventory table. Wells that were listed as abandoned or cancelled in the ADWR database were not included in the well inventory table or map because the current ADWR well impact rules do not apply to those wells. Wells that were listed as test (hydrologic testing) wells in the ADWR database were included in the well inventory table and map. The current ADWR well impact rules do not apply to those types of wells either; however, they should be taken note of since they may be re-permitted as another type of well in the future.

#### 3.2 WELL IMPACT ANALYSIS

The total annual groundwater production from PW-1 will be approximately 758 acre feet per year (ac-ft/yr) based on a continuous pumping rate of 470 gpm. The anticipated maximum pumping capacity for well PW-1 is 850 gpm. The impact analysis for well PW-1 is based on a pumping rate of 470 gpm, 24 hours per day, for a 5-year period.

A Theis non-equilibrium drawdown spreadsheet was used to estimate the impact radius of well PW-1 after a 5-year period of continuous pumping. Clear Creek Associates’ calculation of the 5-year water-level drawdown takes into account variations in aquifer transmissivity due to aquifer dewatering as the well is pumped. The drawdown for each time interval is calculated and

subsequently, the saturated thickness is recalculated and a new transmissivity value is determined for the next time interval.

The following criteria were used to calculate the impact of the proposed groundwater withdrawal (758 ac-ft/yr) on the underlying source aquifer:

- The transmissivity (T) is considered to be approximately 18,590 gpd/ft (2,485 ft<sup>2</sup>/day) based on the pumping data from the constant-rate test at the well site.
- The estimated aquifer thickness (b) is based on the screened interval of 881 feet (519 feet bls to 1400 feet bls).
- The hydraulic conductivity (K) value is estimated to be about 21 gpd/ft<sup>2</sup> (2.8 ft/day) based on the relationship  $T=Kb$ .
- The storage coefficient of the source aquifer is 0.08.
- Because the site is near a bedrock boundary, a boundary condition and image well were incorporated into the analysis. The boundary is estimated at 2.4 miles (12,672 feet).

As a well is pumped, it creates a cone-shaped depression in the water table surface, called a “drawdown cone”. At some distance away from the pumping well, the water-level drawdown will be 10 feet after a 5-year pumping duration. When the 10-foot drawdown is projected to the land surface, it will be expressed as a circle around the pumping well. The diameter of the well impact circle will depend on the aquifer characteristics and the pumping rate that are applied for the Theis calculation. An impact circle’s radius (r) is expressed in units of feet from the pumping well.

The 5-year, 10-foot drawdown circle is presented on Figure 5. The radius of the 5-year 10-foot drawdown impact is 2,053 feet and takes into account the pumping well and image well across the boundary condition (Figure 6). The maximum drawdown after 5-years was calculated to be about 34 feet at PW-1. The locations of neighboring wells in the study area are also shown on Figure 5. A summary of registered well locations and owners in the vicinity of the proposed well is presented in Table 1. The output data from the Theis spreadsheet are included in Appendix C.

ADWR records indicate that the nearest well to Amaranth Well PW-1 is located 2,085 feet (0.4 miles) to the southwest and is owned by Waste Management of Arizona (ADWR No. 55-627930) (Figure 4, Table 1). The distance between the two wells was calculated using the UTM coordinates for both wells as provided in the ADWR wells 55 database. Clear Creek's analysis shows that pumping Amaranth Well PW-1 at a continuous rate of 470 gpm (758 af/yr) for 5 years will not draw down the Waste Management well (55-627930) more than 10 feet.

#### 4.0 SUMMARY AND CONCLUSIONS

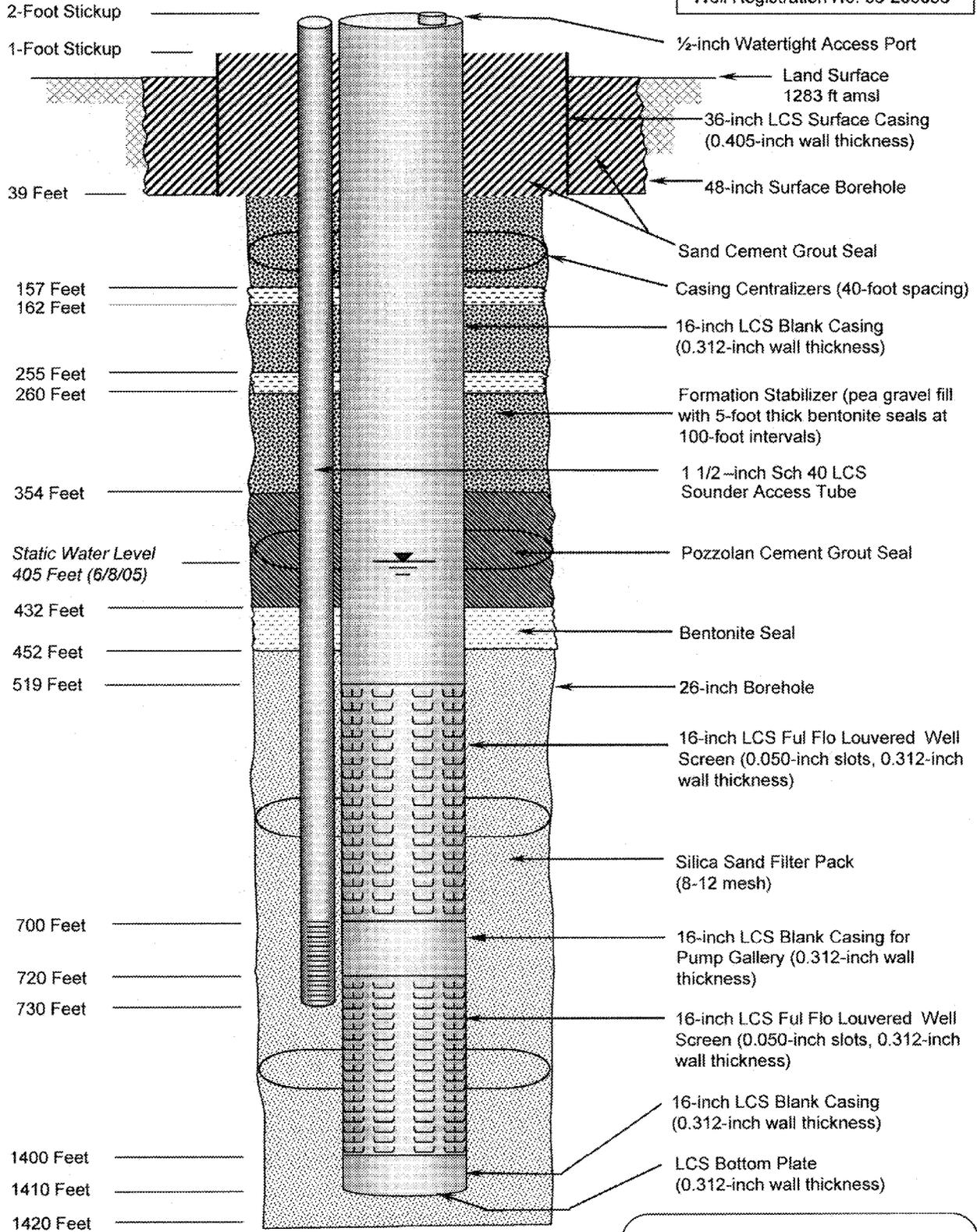
The analyses presented herein indicates that groundwater production of approximately 758 ac-ft/yr (470 gpm, continuous flow) from the Amaranth Well PW-1 will not adversely impact any existing wells of record. Based on the drawdown analyses and the legal locations of neighboring wells as indicated in the ADWR database, no existing wells receiving water from the regional aquifer will be impacted greater than 10 feet after 5 years of continuous pumping at well PW-1.

## 5.0 REFERENCES

1. Clear Creek Associates, 2006. Completion Report , Mobile Land No. 1, Broadstone Preserve Development, Mobile, Arizona. Prepared for Mobile Land, L.L.C. c/o Elliott Homes of Arizona, May 18, 2006, Clear Creek Associates Job No. 114001
2. Corell, S.W. and Corkhill, E.F., 1994. A Regional Groundwater Flow Model of the Salt River Valley – Phase II, Phoenix Active Management Area Numerical Model, Calibration, and Recommendations. ADWR Hydrology Division, Modeling Report No. 8, March 1994, 92 p.
3. Corkhill, E.F., and Hill, B.M., 1990. Pinal Active Management Area Regional Groundwater Flow Model – Phase Two: Numerical Model, Calibration, Sensitivity and Recommendations. ADWR Hydrology Division, Modeling Report No. 2, 59 p.
4. Manera, Inc., 1982. Hydrologic Evaluation of Mobile Valley and Southern Waterman Wash, Maricopa County, Arizona. Prepared for Provident Energy Company, Inc., May 18, 1982, 14 p.
5. Theis, C.V., 1935. The relation between the lowering of piezometric surface and the rate and duration of discharge of a well using ground-water storage. Trans. Am. Geophys. Union, v. 16, p. 519-524.

## FIGURES

Well Location: D(4-1)15ccc  
Well Registration No. 55-206033

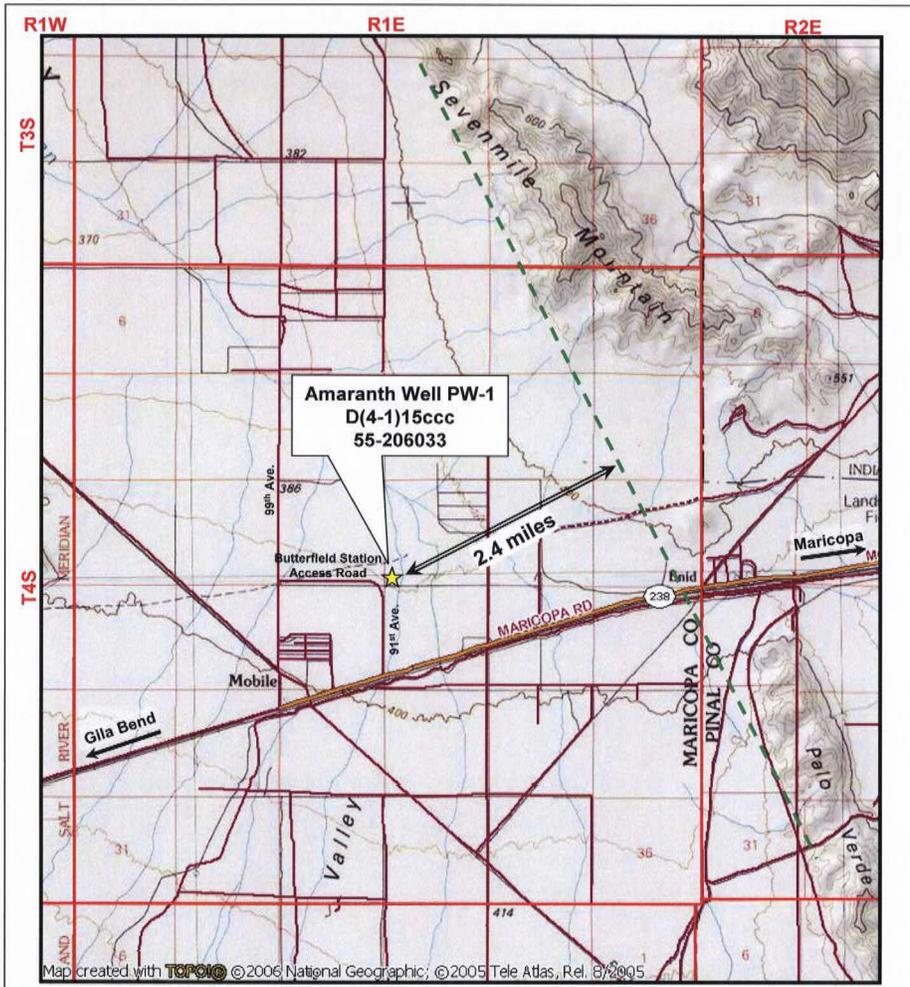


Not To Scale

- Notes:
1. LCS = low carbon steel
  2. All diameters are O.D. except the well screen and sounder access tube.
  3. The 17 1/2-inch pilot borehole (not shown) was drilled to 1671 feet.

**CLEAR  
CREEK  
ASSOCIATES**

**FIGURE 2**  
**AS-BUILT DRAWING**  
**Amaranth Well PW-1**  
Goodyear, Arizona



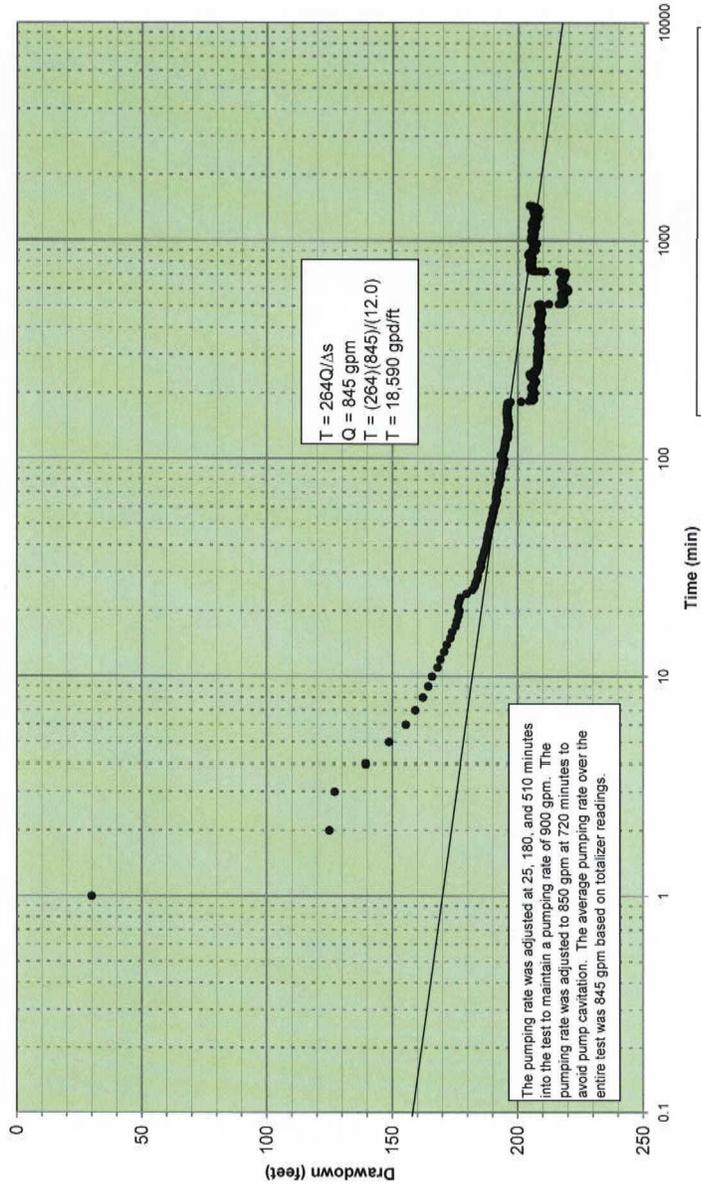
**Explanation**

- ★ Amaranth Well PW-1
- - - - - Approximate location of hydrologic bedrock boundary



**FIGURE 1**  
**VICINITY MAP**  
**Amaranth Well PW-1**  
 Goodyear, Arizona

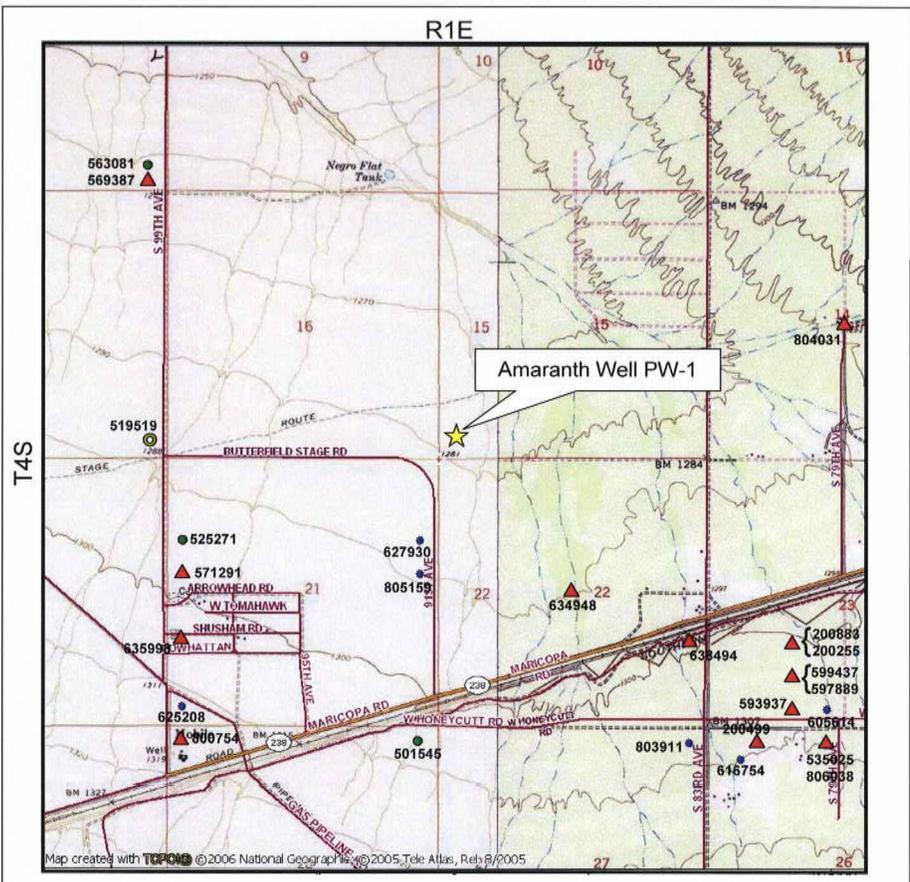




**FIGURE 3**  
**COOPER-JACOB PLOT**  
 Constant-Rate Aquifer Test  
 Amaranth Well PW-1  
 Goodyear, Arizona



Fig 3 Cooper-Jacob

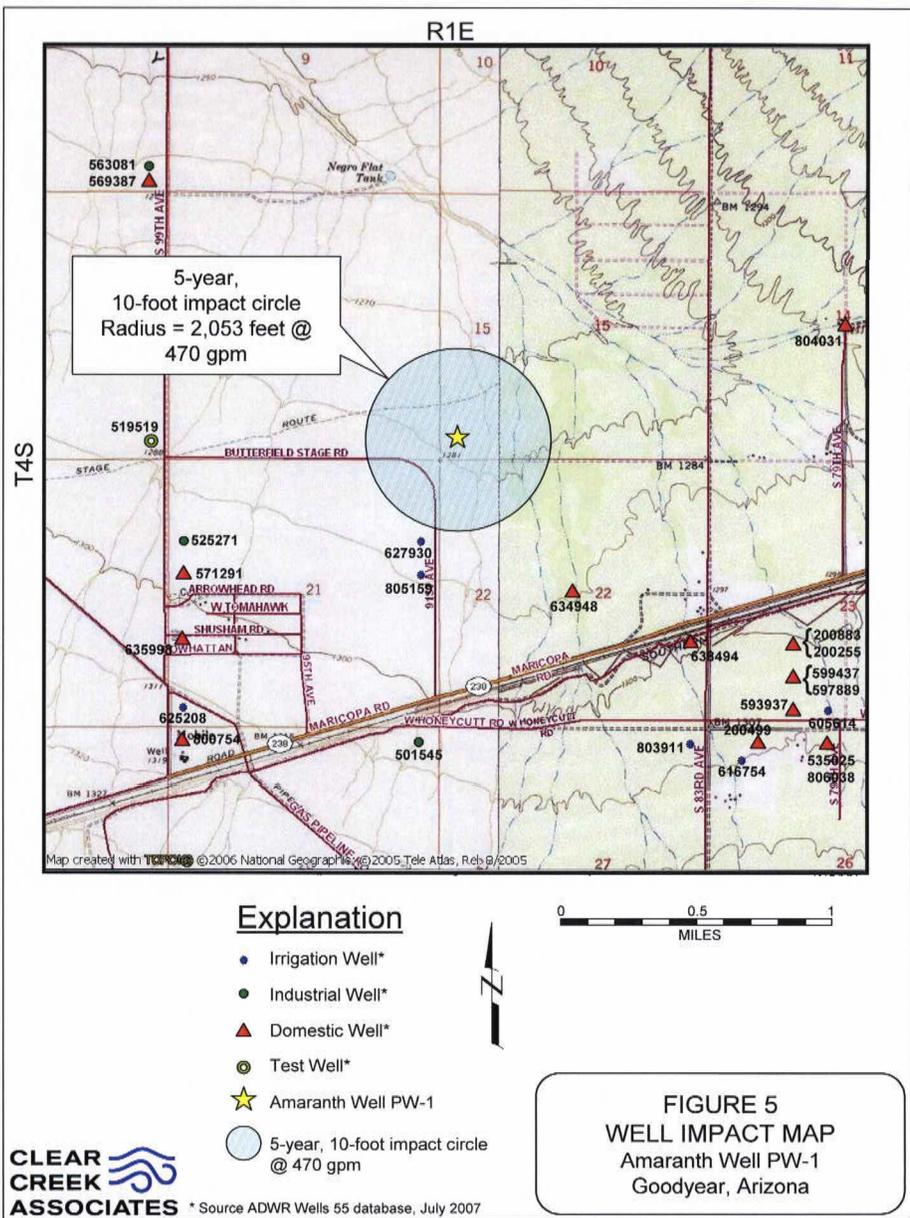


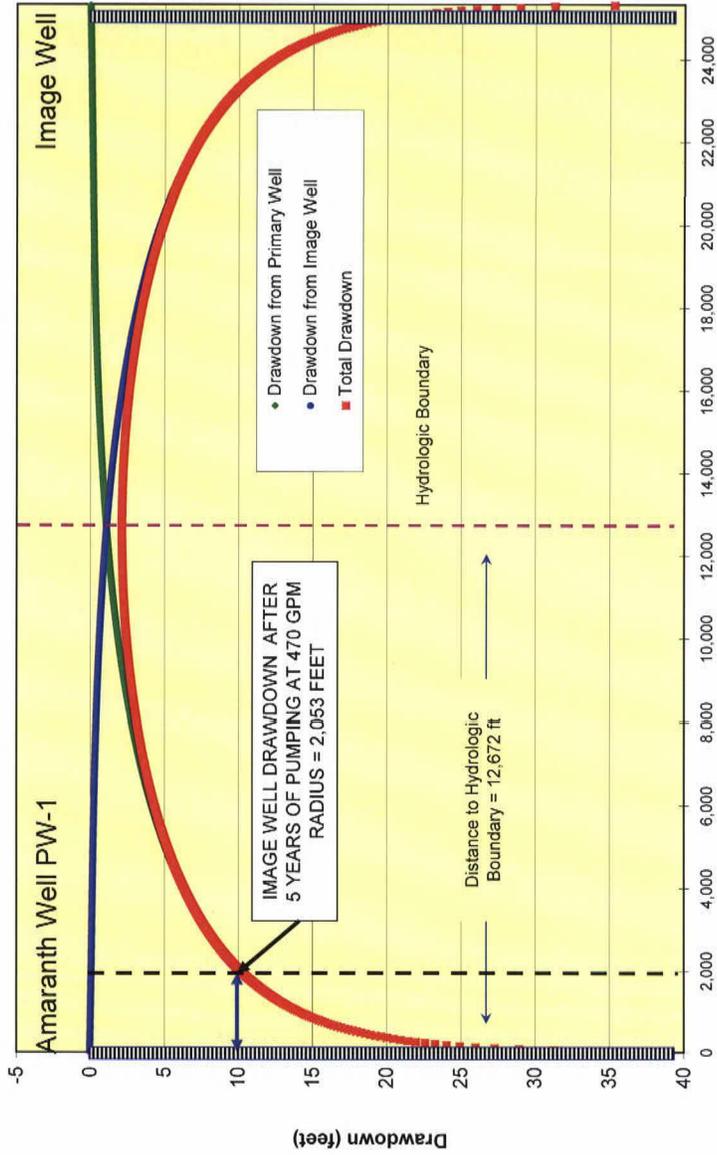
**Explanation**

- Irrigation Well\*
- Industrial Well\*
- ▲ Domestic Well\*
- Test Well\*
- ★ Amaranth Well PW-1



**FIGURE 4**  
**WELL INVENTORY MAP**  
 Amaranth Well PW-1  
 Goodyear, Arizona





**FIGURE 6**  
**THEIS IMAGE WELL ANALYSIS**  
 Amaranth Well PW-1  
 Goodyear, Arizona

**TABLES**



Well Spacing-Well Impact Investigation  
Amaranth Well PW-1  
Goodyear, Arizona

September, 2007

199001



\*Source: ADIWR Wells 55 Database, July, 2007.

**TABLE 1**  
**WELL INVENTORY TABLE**  
 Wells in the Vicinity Amaranth Well PW-1  
 Montage Holdings, LLC  
 Goodyear, Arizona

ADWR No.	Cadastral location	UTMX	UTMY	WELL TYPE	WELL USE	APPROVED	INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	CASING WIDTH	PUMP TYPE	PUMP RATE	TEST RATE	DRAW DOWN	DRILL LOG	OWNER
804031	D\4\11714	355900.8	3560623.7	EXEMPT	WATER PRODUCTION		01-Jun-75	600	0		600	0		0	0	0		COBB, LONNIE H
519519	D\4\1170dd	351247.7	3559877.1	NON-EXEMPT	WATER PRODUCTION		05-Dec-87	460	388	STEEL - PERFORATED	450	10	SUBMERSIBLE	10	30	6 X		WASTE MANAGEMENT.
627930	D\4\1210da	352652.8	3559315.6	NON-EXEMPT	WATER PRODUCTION		01-Jan-57	368	390	STEEL - PERFORATED	0	20		700	700	0		WASTE MANAGEMENT.
805159	D\4\1210ad	352650.5	3559150.4	NON-EXEMPT	WATER PRODUCTION		31-Jan-58	557	390	STEEL - PERFORATED	557	20		900	0	0		GATES, ELI AND WILLIAM
525271	D\4\1210bb	351440.7	3559371.2	NON-EXEMPT	WATER PRODUCTION		21-Oct-89	1165	415	STEEL - PERFORATED	1165	18	TURBINE	750	800	225 X		WASTE MANAGEMENT.
571291	D\4\1210bc	351438	3559170.2	EXEMPT	WATER PRODUCTION	03-Nov-98	19-Nov-98	560	390	STEEL - PERFORATED	520	8	SUBMERSIBLE	15	25	419 X		LUCAS, MARY ANN
695998	D\4\1210ba	351432.7	3558768.2	EXEMPT	WATER PRODUCTION			0	0		0	0		0	0	0		GATES & BROWN,
625208	D\4\1210cc	351427.3	3559366.2	NON-EXEMPT	WATER PRODUCTION		01-Jan-62	846	390	STEEL - PERFORATED	846	16		1000	1000	0		ADA,
634948	D\4\122	353755.1	3559035.3	EXEMPT	WATER PRODUCTION		06-Jul-68	420	394	OTHER - BLACK STEEL - IRON - SEAMLESS	0	6		26	26	0		WALKER H
638494	D\4\1220ad	354453.8	3558721.3	EXEMPT	WATER PRODUCTION	19-Apr-00	01-Jun-75	404	375	STEEL - PERFORATED	404	8		10	20	0 X		COLEMAN, JOLIOUS L
202055	D\4\1220ac	355062.8	3558112.2	EXEMPT	WATER PRODUCTION	11-Sep-08	25-Nov-03	525	336	PLASTIC OR PVC	525	5		0	0	0 X		WESTERN INVESTMENTS
250083	D\4\1220bc	355062.8	3558112.2	EXEMPT	WATER PRODUCTION		21-Oct-08	525	387	PLASTIC OR PVC	525	5		0	0	0 X		WESTERN INVESTMENTS
597899	D\4\1220bd	355060.6	3558810.4	EXEMPT	WATER PRODUCTION		08-Apr-09	500	400	PLASTIC OR PVC	500	5		0	0	0 X		BARONES RESOURCES LP
589437	D\4\1220db	355060.6	3558510.4	EXEMPT	WATER PRODUCTION		1-Oct-09	520	320	PLASTIC OR PVC	520	5		0	0	0 X		PINNACLE SOUTHWEST PROPER
593937	D\4\1220dc	355059.4	3558308.6	EXEMPT	WATER PRODUCTION		06-Aug-02	520	362	PLASTIC OR PVC	520	8	SUBMERSIBLE	12	12	0 X		HORTON, DAVID
605614	D\4\1220dd	355261.7	3558308.3	NON-EXEMPT	WATER PRODUCTION		11-Apr-79	468	366	STEEL - PERFORATED	468	8		75	75	0		MCINTOSH, E. NOEL
555025	D\4\1280aa	355257.9	3558104.7	EXEMPT	WATER PRODUCTION		15-May-92	480	380	STEEL - PERFORATED	480	6	SUBMERSIBLE	20	20	5 X		KINNEY, NATHAN H
806300	D\4\1280aa	355257.9	3558104.7	EXEMPT	WATER PRODUCTION		31-Dec-88	400	372	STEEL - PERFORATED	388	8		20	20	0		KINNEY, NATHAN H
616754	D\4\1280bb	354748.3	3558008.2	NON-EXEMPT	WATER PRODUCTION		01-Sep-76	642	365	STEEL - PERFORATED	642	10		205	0	0		BESLER, DONALD S & CARO
200499	D\4\1280ba	354851.3	3558108.9	EXEMPT	WATER PRODUCTION	25-Sep-03	14-Oct-03	525	346	PLASTIC OR PVC	525	5		0	0	0 X		MOBIL LAND LLC
803911	D\4\1280aa	354445.8	3558113.9	NON-EXEMPT	WATER PRODUCTION		09-Mar-77	640	327	STEEL - PERFORATED	600	8		160	0	0		MCGUADE, JOHN C
501545	D\4\1280aa	352937.5	3558144.6	NON-EXEMPT	WATER PRODUCTION		22-Jan-82	1504	400	STEEL - PERFORATED	1500	18		0	0	0 X		WASTE MANAGEMENT.
800754	D\4\1280bb	351424.3	3558164.9	NON-EXEMPT	WATER PRODUCTION		01-Jan-62	500	0	STEEL - PERFORATED	425	8		35	35	0		MOBILE ELEMENTARY#86
563081	D\4\1280dd	351265.8	3561587.1	NON-SERVICE	WATER PRODUCTION			0	0		0	0		0	0	0		WEINBERGER, GLENN.
569387	D\4\1280dd	351265.8	3561587.1	NON-SERVICE	WATER PRODUCTION	20-Aug-98	14-Aug-99	1030	463		1015	18		0	0	0 X		GMW ENTERPRISES, INC.

**APPENDIX A**  
**AQUIFER TEST DATA**  
**AMARANTH WELL PW1**



Well Spacing-Well Impact Investigation  
Amaranth Well PW-1  
Goodyear, Arizona

September, 2007  
199001

Aquifer Test Data									
Project: Mobilia Land Well No.1		Project No.: 1114001		Well Location: D (4-11)5ccc		Well No.: 55-206033		Recovery by MWF	
Well Diameter: 18" OD		Measured By: EAA & KKH		Pump On Date: 6/8/2005		Time: 07:00		Time: 07:00	
Screen Interval: 700'-700" 720"-1400"		Pump Off Date: 6/9/2005		Time: 07:00		Time: 07:00		Time: 07:00	
How Q Measured: flow-meter/manometer		Duration of Aquifer Test: 24 hr.		Recovery Time (T) (min)		Recovery Time (T) (min)		Recovery Time (T) (min)	
Time of Measurement	Time since Pumping Started (t) (min)	Recovery Time (T) (min)	Q (gpm)	Water Level (feet)	Drawdown (feet)	Discharge Rate (gpm)	Totalizer Readings (x 100 gal)	Specific Capacity Based on Manometer Readings (gpm/ft)	Remarks
6:25	1	1	407.34	2.1	405.24	N.A.	N.A.	N.A.	SWL
7:01	1	1	530.35	2.1	528.25	123.01	940	7.64	Begin pumping
7:02	2	2	530.94	2.1	530.94	125.60	940	7.48	
7:03	3	3	547.84	2.1	545.54	140.30	940	5.379	
7:04	4	4	557.59	2.1	555.45	150.25	940	6.26	
7:05	5	5	563.25	2.1	561.15	155.91	940	5.381	
7:06	6	6	566.50	2.1	564.40	159.16	928	5.83	
7:07	7	7	569.84	2.1	567.74	162.50	928	5.71	
7:08	8	8	571.65	2.1	569.55	164.31	917	5.75	
7:09	9	9	573.29	2.1	571.19	166.12	917	5.82	
7:10	10	10	575.49	2.1	573.39	168.15	940	5.59	
7:12	12	12	578.42	2.1	576.32	171.08	940	5.386	
7:14	14	14	580.54	2.1	578.44	173.20	940	5.389	
7:16	16	16	582.36	2.1	580.26	175.02	940	5.37	
7:18	18	18	583.55	2.1	581.45	176.21	917	5.393	
7:20	20	20	583.77	2.1	581.67	176.43	917	5.395	
7:25	25	25	590.18	2.1	588.08	182.84	928	5.399	
7:30	30	30	592.19	2.1	590.09	184.85	917	5.403	
7:40	40	40	595.15	2.1	593.05	187.81	917	5.413	
7:50	50	50	598.85	2.1	596.75	190.77	917	5.420	
8:00	60	60	600.12	2.1	598.02	192.78	906	5.443	
8:10	70	70	601.26	2.1	599.16	193.92	906	5.456	
8:30	90	90	602.00	2.1	599.90	194.66	906	5.469	
8:45	105	105	603.06	2.1	600.96	195.72	884	5.482	
9:00	120	120	603.89	2.1	601.79	196.35	882	5.495	
9:15	135	135	603.85	2.1	601.55	196.31	882	5.507	
9:30	150	150	603.14	2.1	601.04	195.80	894	5.519	
9:45	165	165	603.32	2.1	602.22	196.98	894	5.532	
10:00	180	180	613.38	2.1	611.28	206.04	894	5.544	
10:15	195	195	613.00	2.1	610.90	205.68	894	5.557	
10:30	210	210	613.55	2.1	611.45	206.21	894	5.570	
10:45	225	225	613.55	2.1	611.45	206.21	894	5.583	
11:00	240	240	615.56	2.1	613.46	208.22	894	5.608	
11:30	270	270	615.48	2.1	613.38	208.14	894	5.634	
12:00	300	300	616.40	2.1	614.30	209.06	894	5.660	
12:30	330	330	616.06	2.1	613.96	208.72	894	5.686	
13:00	360	360	615.86	2.1	613.76	208.52	894	5.713	
13:30	390	390	616.44	2.1	614.34	209.10	894	5.737	
14:00	420	420	616.85	2.1	614.75	209.51	894	5.761.5	
14:30	450	450	616.73	2.1	614.63	209.39	894	5.785.5	
15:00	480	480	616.96	2.1	614.86	209.22	894	5.812	
15:30	510	510	616.93	2.1	614.83	209.10	894	5.838	
16:00	540	540	616.53	2.1	614.43	208.72	894	5.865	
16:30	570	570	616.25	2.1	614.15	208.34	894	5.892	
17:00	600	600	625.25	2.1	625.13	218.89	917	5.916	
17:30	630	630	625.45	2.1	625.35	218.11	917	5.944	
18:00	660	660	625.39	2.1	623.29	218.05	906	5.944	
18:30	690	690	626.49	2.1	624.39	219.15	917	5.970	Discharge suddenly dirty



Aquifer Test Data		Project No.: 114001		Corrected SWL (feet bis):		Page 1 of 1	
Project: Mobile Land Well No.1		Well No.: 55-206033		Measuring Point:		405.24	
Well Location: D (4-1)5ccc		Measured By: EAA & KKH		Correction (feet):		Top of sounder tube	
Well Diameter: 18" OD		Pump On Date: 6/9/2005		Available Drawdown (feet):		2.1	
Pump Setting: 700 ft bis		Pump Off Date: 6/9/2005		Totalizer Start (X1000gal) =		5377.5	
Screen Interval: 520'-700' 720'-1400'		Duration of Aquifer Test:		Totalizer End (X1000gal) =		1,217,500	
How Q Measured: flow-meter/manometer		Recovery by MWF		Specific Capacity Based on Manometer Readings (gpm/ft)		845	
Time since Pumping Started (t) (min)		Recovery Time (T) (min)		Correction (feet)		Water Level (feet)	
Time of Measurement		Sounder Reading (feet)		Drawdown (feet)		Discharge Rate (gpm)	
t'		t/T		Drawdown (feet)		Discharge Rate (gpm)	
7:03	1443	3	481.00	443.42	37.72		
7:04	1444	4	361.00	450.21	44.51		
7:05	1445	5	289.00	453.36	47.65		
7:06	1446	6	241.00	452.86	47.16		
7:07	1447	7	206.71	452.66	46.96		
7:08	1448	8	181.00	451.81	46.11		
7:09	1449	9	161.00	451.52	45.82		
7:10	1450	10	145.00	449.55	43.85		
7:11	1451	11	130.00	448.71	43.71		
7:12	1452	12	115.86	446.27	46.57		
7:13	1453	13	103.00	444.31	38.61		
7:14	1454	14	91.00	443.08	37.38		
7:15	1455	15	81.00	443.79	38.09		
7:16	1456	16	73.00	443.33	38.09		
7:17	1457	17	66.00	439.02	33.32		
7:18	1458	18	58.60	436.71	31.01		
7:19	1459	19	49.00	433.45	27.75		
7:20	1460	20	37.00	430.64	24.94		
7:21	1461	21	28.80	428.61	22.91		
7:22	1462	22	25.00	426.33	20.63		
7:23	1463	23	20.20	423.97	18.63		
7:24	1464	24	14.70	422.81	17.11		
7:25	1465	25	10.00	421.54	15.84		
7:26	1466	26	7.00	420.22	14.52		
7:27	1467	27	5.00	419.26	13.56		
7:28	1468	28	3.50	419.26	13.56		
7:29	1469	29	2.50	418.80	13.56		
7:30	1470	30	1.80	418.80	13.56		
7:31	1471	31	1.30	417.67	11.97		
7:32	1472	32	1.00	416.57	11.27		
7:33	1473	33	0.80	416.51	10.96		
7:34	1474	34	0.60	415.80	10.56		
7:35	1475	35	0.50	415.26	10.09		
7:36	1476	36	0.40	415.33	9.78		
7:37	1477	37	0.30	415.02	9.78		
7:38	1478	38	0.20	415.48	9.78		
7:39	1479	39	0.15	415.02	9.78		
7:40	1480	40	0.10	414.36	8.60		
7:41	1481	41	0.08	414.36	8.60		
7:42	1482	42	0.06	414.36	8.60		
7:43	1483	43	0.05	414.36	8.60		
7:44	1484	44	0.04	414.36	8.60		
7:45	1485	45	0.03	414.36	8.60		
7:46	1486	46	0.02	414.36	8.60		
7:47	1487	47	0.01	414.36	8.60		
7:48	1488	48	0.01	414.36	8.60		
7:49	1489	49	0.01	414.36	8.60		
7:50	1490	50	0.01	414.36	8.60		
7:51	1491	51	0.01	414.36	8.60		
7:52	1492	52	0.01	414.36	8.60		
7:53	1493	53	0.01	414.36	8.60		
7:54	1494	54	0.01	414.36	8.60		
7:55	1495	55	0.01	414.36	8.60		
7:56	1496	56	0.01	414.36	8.60		
7:57	1497	57	0.01	414.36	8.60		
7:58	1498	58	0.01	414.36	8.60		
7:59	1499	59	0.01	414.36	8.60		
8:00	1500	60	0.01	414.36	8.60		
8:01	1501	61	0.01	414.36	8.60		
8:02	1502	62	0.01	414.36	8.60		
8:03	1503	63	0.01	414.36	8.60		
8:04	1504	64	0.01	414.36	8.60		
8:05	1505	65	0.01	414.36	8.60		
8:06	1506	66	0.01	414.36	8.60		
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8:10	1510	70	0.01	414.36	8.60		
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8:12	1512	72	0.01	414.36	8.60		
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8:14	1514	74	0.01	414.36	8.60		
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8:17	1517	77	0.01	414.36	8.60		
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8:20	1520	80	0.01	414.36	8.60		
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8:22	1522	82	0.01	414.36	8.60		
8:23	1523	83	0.01	414.36	8.60		
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8:25	1525	85	0.01	414.36	8.60		
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8:27	1527	87	0.01	414.36	8.60		
8:28	1528	88	0.01	414.36	8.60		
8:29	1529	89	0.01	414.36	8.60		
8:30	1530	90	0.01	414.36	8.60		
8:31	1531	91	0.01	414.36	8.60		
8:32	1532	92	0.01	414.36	8.60		
8:33	1533	93	0.01	414.36	8.60		
8:34	1534	94	0.01	414.36	8.60		
8:35	1535	95	0.01	414.36	8.60		
8:36	1536	96	0.01	414.36	8.60		
8:37	1537	97	0.01	414.36	8.60		
8:38	1538	98	0.01	414.36	8.60		
8:39	1539	99	0.01	414.36	8.60		
8:40	1540	100	0.01	414.36	8.60		
8:41	1541	101	0.01	414.36	8.60		
8:42	1542	102	0.01	414.36	8.60		
8:43	1543	103	0.01	414.36	8.60		
8:44	1544	104	0.01	414.36	8.60		
8:45	1545	105	0.01	414.36	8.60		
8:46	1546	106	0.01	414.36	8.60		
8:47	1547	107	0.01	414.36	8.60		
8:48	1548	108	0.01	414.36	8.60		
8:49	1549	109	0.01	414.36	8.60		
8:50	1550	110	0.01	414.36	8.60		
8:51	1551	111	0.01	414.36	8.60		
8:52	1552	112	0.01	414.36	8.60		
8:53	1553	113	0.01	414.36	8.60		
8:54	1554	114	0.01	414.36	8.60		
8:55	1555	115	0.01	414.36	8.60		
8:56	1556	116	0.01	414.36	8.60		
8:57	1557	117	0.01	414.36	8.60		
8:58	1558	118	0.01	414.36	8.60		
8:59	1559	119	0.01	414.36	8.60		
9:00	1560	120	0.01	414.36	8.60		
9:01	1561	121	0.01	414.36	8.60		
9:02	1562	122	0.01	414.36	8.60		
9:03	1563	123	0.01	414.36	8.60		
9:04	1564	124	0.01	414.36	8.60		
9:05	1565	125	0.01	414.36	8.60		
9:06	1566	126	0.01	414.36	8.60		
9:07	1567	127	0.01	414.36	8.60		
9:08	1568	128	0.01	414.36	8.60		
9:09	1569	129	0.01	414.36	8.60		
9:10	1570	130	0.01	414.36	8.60		
9:11	1571	131	0.01	414.36	8.60		
9:12	1572	132	0.01	414.36	8.60		
9:13	1573	133	0.01	414.36	8.60		
9:14	1574	134	0.01	414.36	8.60		
9:15	1575	135	0.01	414.36	8.60		
9:16	1576	136	0.01	414.36	8.60		
9:17	1577	137	0.01	414.36	8.60		
9:18	1578	138	0.01	414.36	8.60		
9:19	1579	139	0.01	414.36	8.60		
9:20	1580	140	0.01	414.36	8.60		
9:21	1581	141	0.01	414.36	8.60		
9:22	1582	142	0.01	414.36	8.60		
9:23	1583	143	0.01	414.36	8.60		
9:24	1584	144	0.01	414.36	8.60		
9:25	1585	145	0.01	414.36	8.60		
9:26	1586	146	0.01	414.36	8.60		
9:27	1587	147	0.01	414.36	8.60		
9:28	1588	148	0.01	414.36	8.60		
9:29	1589	149	0.01	414.36	8.60		
9:30	1590	150	0.01	414.36	8.60		
9:31	1591	151	0.01	414.36	8.60		
9:32	1592	152	0.01	414.36	8.60		
9:33	1593	153	0.01	414.36	8.60		
9:34	1594	154	0.01	414.36	8.60		
9:35	1595	155	0.01	414.36	8.60		
9:36	1596	156	0.01	414.36	8.60		
9:37	1597	157	0.01	414.36	8.60		
9:38	1598	158	0.01	414.36	8.60		
9:39	1599	159	0.01	414.36	8.60		
9:40	1600	160	0.01	414.36	8.60		
9:41	1601	161	0.01	414.36	8.60		
9:42	1602	162	0.01	414.36	8.60		
9:43	1603	163	0.01	414.36	8.60		
9:44	1604	164	0.01	414.36	8.60		
9:45	1605	165	0.01	414.36	8.60		
9:46	1606	166	0.01	414.36	8.60		
9:47	1607	167	0.01	414.36	8.60		
9:48	1608	168	0.01	414.36	8.60		
9:49	1609	169	0.01	414.36	8.60		
9:50	1610	170	0.01	414.36	8.60		
9:51	1611	171	0.01	414.36	8.60		
9:52	1612	172	0.01	414.36	8.60		
9:53	1613	173	0.01	414.36	8.60		
9:54	161						

**APPENDIX B**

**RECORDS FOR WELL 55-525271**

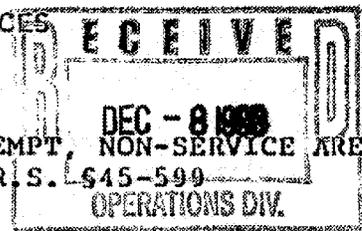


Well Spacing-Well Impact Investigation  
Amaranth Well PW-1  
Goodyear, Arizona

September, 2007

199001

ARIZONA DEPARTMENT OF WATER RESOURCES  
15 South 15th Avenue  
Phoenix, Arizona 85007



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

INSTRUCTIONS:

- This application should be used to obtain a permit to:
  - Drill a non-exempt well in conjunction with a General Industrial Use Application, Groundwater Withdrawal Permit or a Certificate of Grandfathered Right
  - Convert (enlarge) an existing well to a non-exempt use
- CITIES, TOWNS, PRIVATE WATER COMPANIES OR IRRIGATION DISTRICTS WISHING TO DRILL OR OPERATE A SERVICE AREA WELL SHOULD USE DWR FORM 55-64-B/88 (Rev.).
- Complete all appropriate items on this application, sign in the appropriate place and mail to the Department of Water Resources at 15 South 15th Avenue, Phoenix, Arizona 85007.
- Application fee is \$20.00. The permit fee is \$30.00. You may submit both checks at the time of filing of the application.
- If multiple wells are involved or if the proposed design pump capacity is in excess of 500 gallons per minute, the applicant must attach a hydrological study which delineates projected declines in water levels due to the operation of the proposed well or wells as required by Department Rule R12-15-830.

Applicant Waste Management of Arizona  
Address 40404 S. 99th Ave  
Mobile AZ 85239  
Contact Person Stephen B. Smith  
Telephone (602) 470-0225  
Land Owner Waste Management of Arizona  
Address Same as above  
Telephone (602) 256-0630

FOR DEPARTMENT USE ONLY

Application No.	_____
Registration No.	<u>55-525271</u>
File No.	<u>D(4-1)21 bob</u>
Date Received	<u>12-8-93</u>
AMA	<u>Phoenix</u>
W/S	<u>L8</u> S/B <u>09</u>

- Applicant is:  Owner  Lessee
- Proposed well is:  New well  
 Conversion (enlargement) or existing well  
 Replacement well in a new location
- Claim of entitlement to withdraw groundwater is based upon:  
 Certificate of Grandfathered Right No. 58-100217.000  
 Groundwater Withdrawal Permit No. \_\_\_\_\_  
 Application for General Industrial Use No. \_\_\_\_\_
- The principal use(s) of groundwater will be (be specific) Industrial Process  
Water, Process Cooling Water, Process Cleaning Water, Landscape  
Watering
- Well location: NW 1/4 SW 1/4 NW 1/4, Section 21, Township 04 N(S), Range 01 EW
- County: Maricopa Design pump capacity: 750  
Depth 1165 feet Diameter 8 1/2 inches Type of casing: Steel
- Proposed annual volume of water \_\_\_\_\_ acre feet.
- Well is located in the Rainbow Valley subbasin of the Phoenix Active Management Area.

... (if longer than 1 year, attach explanation)

10. Legal description of the land where the groundwater will be used: Section 17 Township 4 N Range 3 E  
(quarter/quarter/quarter/section, township and range)

11. 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.)

FOR NEW WELL ONLY

12. Driller name and address \_\_\_\_\_  
License No. \_\_\_\_\_

FOR REPLACEMENT WELL ONLY

13. Registration number of existing well 55-525271. Location of the original well: \_\_\_\_\_, Section \_\_\_\_\_, Township \_\_\_\_\_ N/S, Range \_\_\_\_\_ E/W  
Depth \_\_\_\_\_ feet Diameter \_\_\_\_\_ inches

14. Distance between original well and proposed replacement well \_\_\_\_\_ feet

15. Will the original well be abandoned if applicant receives a permit to drill a replacement well? \_\_\_\_\_ If answer is yes, Form DWR 55-46-12/83 must be submitted to this Department within 30 days after abandonment. If answer is no, explain the planned use of the original well \_\_\_\_\_

FOR CONVERSION (ENLARGEMENT) OF EXISTING WELL ONLY

16. Registration number of the existing well 55-525271. The present pump design capacity of the existing well is 750 gallons per minute.

17. The new design pump capacity will be Same gallons per minute.

18. The well will pump \_\_\_\_\_ acre feet per annum.

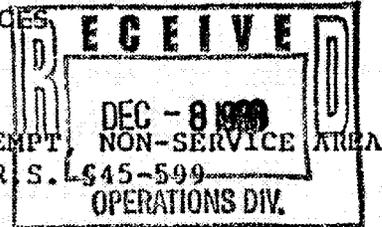
19. The existing well has previously been used in conjunction with or for the following: Same as line 4 on front page

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

12/8/93  
Date

Richard Allen  
Signature of Applicant

ARIZONA DEPARTMENT OF WATER RESOURCES  
15 South 15th Avenue  
Phoenix, Arizona 85007



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

INSTRUCTIONS:

- This application should be used to obtain a permit to:
  - Drill a non-exempt well in conjunction with a General Industrial Use Application, Groundwater Withdrawal Permit or a Certificate of Grandfathered Right
  - Convert (enlarge) an existing well to a non-exempt use
- CITIES, TOWNS, PRIVATE WATER COMPANIES OR IRRIGATION DISTRICTS WISHING TO DRILL OR OPERATE A SERVICE AREA WELL SHOULD USE DWR FORM 55-64-8/88 (Rev.1).
- Complete all appropriate items on this application, sign in the appropriate place and mail to the Department of Water Resources at 15 South 15th Avenue, Phoenix, Arizona 85007.
  - Application fee is \$20.00. The permit fee is \$30.00. You may submit both checks at the time of filing of the application.
  - If multiple wells are involved or if the proposed design pump capacity is in excess of 500 gallons per minute, the applicant must attach a hydrological study which delineates projected declines in water levels due to the operation of the proposed well or wells as required by Department Rule R12-15-830.

Applicant Waste Management of Arizona  
Address 40404 S. 99th Ave  
Mobile AZ 85239  
Contact Person Stephen B. Smith  
Telephone (602) 470-0225  
Land Owner Waste Management of Arizona  
Address Same as above  
Telephone (602) 256-0630

FOR DEPARTMENT USE ONLY

Application No.	_____
Registration No.	<u>55-525271</u>
File No.	<u>D(4-1)21 bob</u>
Date Received	<u>12-8-93</u>
AMA	<u>Phoenix</u>
W/S	<u>L8</u> S/B <u>09</u>

- Applicant is:  Owner  Lessee
- Proposed well is:  New well  Conversion (enlargement) or existing well  Replacement well in a new location
- Claim of entitlement to withdraw groundwater is based upon:  
 Certificate of Grandfathered Right No. 58-100217,000  
 Groundwater Withdrawal Permit No. \_\_\_\_\_  
 Application for General Industrial Use No. \_\_\_\_\_
- The principal use(s) of groundwater will be (be specific) Industrial Process Water, Process Cooling Water, Process Cleaning Water, Landscape Watering
- Well location: NW 1/4 SW 1/4 NW 1/4, Section 21, Township 04 N1/2, Range 01 E/W
- County: Maricopa Design pump capacity: 750  
Depth 1,165 feet Diameter 8 1/2 inches Type of casing: Steel
- Proposed annual volume of water \_\_\_\_\_ acre feet.
- Well is located in the Rainbow Valley subbasin of the Phoenix Active Management Area.

9. Estimated time to complete well completed. (If longer than 1 year, attach explanation)
10. Legal description of the land where the groundwater will be used:  
Section 17 Township 4 N Range 3 E  
(quarter/quarter/quarter/section, township and range)
11. Is the proposed wellsite 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.)

FOR NEW WELL ONLY

12. Driller name and address \_\_\_\_\_  
 \_\_\_\_\_  
 License No. \_\_\_\_\_

FOR REPLACEMENT WELL ONLY

13. Registration number of existing well 55-52524. Location of the original well: \_\_\_\_\_  
 \_\_\_\_\_  
 Section \_\_\_\_\_, Township \_\_\_\_\_ N/S, Range \_\_\_\_\_ E/W  
 Depth \_\_\_\_\_ feet Diameter \_\_\_\_\_ inches
14. Distance between original well and proposed replacement well \_\_\_\_\_ feet
15. Will the original well be abandoned if applicant receives a permit to drill a replacement well? \_\_\_\_\_ If answer is yes, Form DWR 55-46-12/BJ must be submitted to this Department within 30 days after abandonment. If answer is no, explain the planned use of the original well \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

FOR CONVERSION (ENLARGEMENT) OF EXISTING WELL ONLY

16. Registration number of the existing well 55-525271. The present pump design capacity of the existing well is \_\_\_\_\_  
750 gallons per minute.
17. The new design pump capacity will be same gallons per minute.
18. The well will pump \_\_\_\_\_ acre feet per annum.
19. The existing well has previously been used in conjunction with or for the following:  
Same as line 4 on front page  
 \_\_\_\_\_  
 \_\_\_\_\_

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

12/8/93  
 \_\_\_\_\_  
 Date

Richard Allen  
 \_\_\_\_\_  
 Signature of Applicant

# RECEIPT

40 9601

Richard Allen  
1001 E. Glenhaven Dr.  
Phoenix, AZ 85044

STATE OF ARIZONA  
DEPARTMENT OF WATER RESOURCES  
OPERATIONS DIVISION  
15 SOUTH 15TH AVENUE  
PHOENIX, ARIZONA 85007  
(602) 542-1581

ENTRY CODE \_\_\_\_\_

FILE NO.

THRU

ITEM DESCRIPTION	RATE	AMOUNT
APPLICATION FOR A PERMIT TO OPERATE A NON-		50.00
EXEMPT WELL WITHIN AN AMA		
88-525271 D(4-1)21 bcb		

CHECK NO. 2556 FEE ACCOUNT NO. \_\_\_\_\_ TOTAL \$ 50.00

CHIT NO. \_\_\_\_\_ RECEIVED BY S. Valdez DATE 12-9-93

Phoenix Active Management Area  
15 South 15th Avenue  
Phoenix, Arizona 85007

MEMORANDUM

TO: File  
FROM: Flaminio Caravetta  
DATE: 1-20-92  
SUBJ: Field Verification (8-10-89)

The Phoenix Active Management Area has site inspected the following well and finds it to be correctly located:

Well Registration No. 55-525271  
Permit No. T-525271  
File No. D(4-1)21 RCB  
Location of well: NW 1/4 SW 1/4 NW 1/4 Sec. 21  
Township 4 N(S) Range 1 E(W)

ENTERED JAN 20 1992

ARIZONA DEPARTMENT OF WATER RESOURCES

P E R M I T

PERMIT NO. 55-525271

STATE OF ARIZONA        )  
  )ss.  
County of Maricopa        )

Approval is herein granted, pursuant to A.R.S. § 45-598 and 45-599, for the Permittee to construct and/or operate a conversion (enlargement) of an existing well, a new well or a replacement well in a new location. This approval is expressly limited to the specific location, pumping requirements and use of groundwater as set forth below. If the Permittee wishes the Department to review the imposition of any of these conditions, he may ask for such a review within fifteen (15) days of receipt of this permit.

Permittee: Waste Management of Arizona 40404 S. 99th Ave. Mobile, AZ 85239

Registration No. 55-525271

File No. D(4-1)21 bcb

Well location:

NW¼, SW¼, NW¼ of Section 21, Township 4 South, Range 1 East

Depth: 1,165 feet

Diameter: 16 inches

Type of casing: Steel

Pumping conditions:

Maximum pumping capacity: 750 gallons per minute

Other: Limited to an annual volume of 537.15 acre feet

Groundwater from the permitted well may only be used on the following lands:

As authorized by Grandfathered Right 58-100217.0010

Authorized use of groundwater:

As authorized by Grandfathered Right 58-100217.0010

Witness my hand and seal of office this 25th day of March, 1994.



---

Herb Dishlip, Deputy Director

**From:** Kathy M. Willman (PHXKMW)  
**To:** oprsnv  
**Date:** Thursday, December 9, 1993 9:17 am  
**Subject:** Waste Management

Phoenix AMA has no problem with this one of course and the well spacing should be done on an additional 304.35 acre feet per annum. The previous well spacing had been done on 232.8 acre feet.

This really needs to be expedited as they're in a crunch with year end. Also, there's a good possibility that Mobile School's well is going to be impacted by this one.

Oh, the new GFR will be 58-100217.0010!

STATE OF ARIZONA  
DEPARTMENT OF WATER RESOURCES  
15 South 15th Avenue  
Phoenix, Arizona 85007

WELL DRILLER REPORT

This report should be prepared by the driller in all detail and filed with the Department within 30 days following completion of the well.

- Owner WASTE MANAGEMENT OF NORTH AMERICA, INC  
Name  
2902 NORTH 44th STREET, PHOENIX, ARIZONA 85040  
Mailing Address
- Driller ALL AMERICAN WATER SUPPLY CONTRACTORS  
Name  
12601 N. CAVE CREEK RD. #108, PHOENIX, AZ. 85022  
Mailing Address
- Location of well: NW 1/4 OF SW 1/4 OF NW 1/4, SECTION 21, TOWNSHIP 4 SOUTH, RANGE 1 EAST
- Permit No. 55-525271  
(If issued)

DESCRIPTION OF WELL

- Total depth of hole 1165 ft.
- Type of casing Steel
- Diameter and length of casing 16 in. from 0 to 1165 in from \_\_\_\_\_ to \_\_\_\_\_
- Method of sealing at reduction points THE 16" X 26" ANULUS WAS CEMENT GROUTED  
FROM 0 TO 410' FROM GROUND LEVEL
- Perforated from 515 to 1165. from \_\_\_\_\_ to \_\_\_\_\_, from \_\_\_\_\_ to \_\_\_\_\_
- Size of cuts 1/2" X 3" Number of cuts per foot 60
- If screen was installed: Length \_\_\_\_\_ ft. Diam \_\_\_\_\_ in. Type \_\_\_\_\_
- Method of construction DRILLED BY REVERSE ROTARY METHOD  
drilled, dug, driven, bofed, jetted, etc
- Date started 8 23 1989  
Month Day Year
- Date completed 10 21 1989  
Month Day Year
- Depth to water 415' ft. (If flowing well, so state)
- Describe point from which depth measurements were made, and give sea-level elevation if available GROUND LEVEL
- If flowing well, state method of flow regulation: \_\_\_\_\_
- Remarks: NEW PUMP TO BE  
INSTALLED LATER

DO NOT WRITE IN THIS SPACE OFFICE RECORD	
REG. No.	<u>55-525271</u>
File No.	<u>D(4-1)21 bcb</u>
Entered	By <b>ENTERED NOV 28 1989</b>



Grandfathered Right # 36.100211.0000  
304.35 afy

Application Number: 55-52527  
Location: 0(4-1)212

WELL SPACING REVIEW SHEET  
(Distance Drawdown Analysis)

Applicant: Waste Management of AZ Regional Decline Rate

Well Location: TWN 04S, RGE 01E, Rate (ft/yr): ~1 ft/yr.

SEC 21, NW<sup>1/4</sup> SW<sup>1/4</sup> NW<sup>1/4</sup> Period: 1955-1986

Depth of Well (ft): 1165 feet Source of Data: 1991 GWSI printout

Diameter (in): 16 inches Analyzed by: Genie Howell

Pumping Rate (gpm): 189 gpm Date: 12/15/93

Proposed  Existing

Estimated Transmissivity (gpd/ft): 6000 Data Source: } previous review

Estimated Specific Yield (%): 8 Data Source: } 55-525271 3/09/92

DRAWDOWN CAUSED BY PUMPED WELL AFTER 5 YEARS

Radius of 10 foot drawdown contour: 1623 feet

Radius of 25 foot drawdown contour: 193 feet

Drawdown at the well site: 63 feet

Remarks (land subsidence, etc.): No apparent land subsidence concerns

Analyzed by: Genie Howell Checked by: Steven Jupp Date: 12/16/93

WATER QUALITY

Analyzed By: MRB Date: 12/15/93

Comments: No known water quality concerns.

Attachments: Maps , Graphs , Other

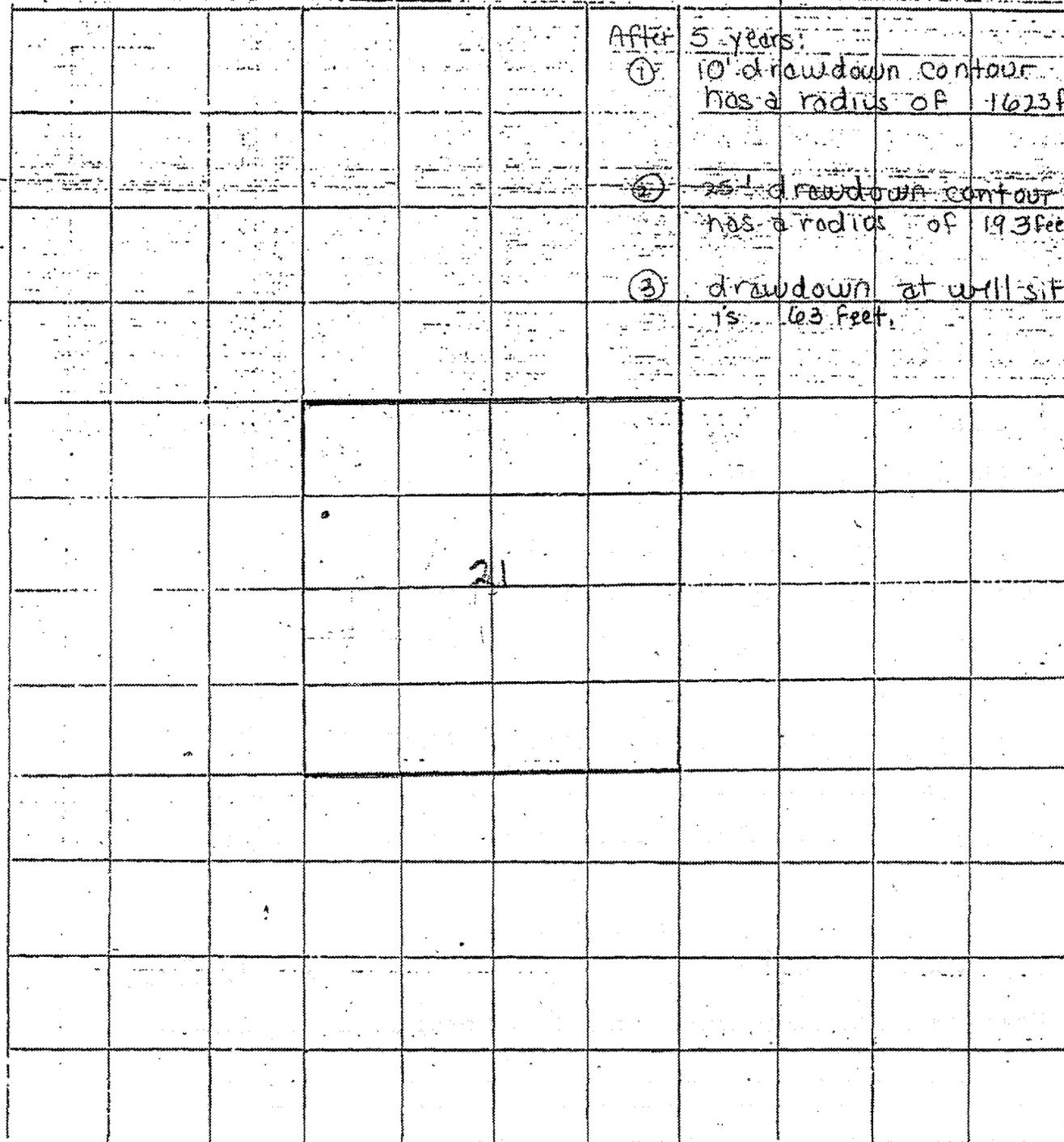
55-525271  
FILE # D(4-1)21 bed

Waste Management of AZ, Inc

SEC. 21

TWP 4 S

RGE 1 E



SCALE 1:24,000

1 MILE = 5280'

ARIZONA DEPARTMENT OF WATER RESOURCES

P E R M I T

PERMIT NO. 55-525271(T)

STATE OF ARIZONA        )  
                                  ) ss.  
County of Maricopa        )

Approval is herein granted, pursuant to A.R.S. §45-598 and 45-599, for the Permittee to construct and/or operate a conversion (enlargement) of an existing well, a new well or a replacement well in a new location. This approval is expressly limited to the specific location, pumping requirements and use of groundwater as set forth below. If the Permittee wishes the Department to review the imposition of any of these conditions, he may ask for such a review within fifteen (15) days of receipt of this permit. Such a request must be made prior to the commencement of drilling. The well authorized by this permit shall be drilled and constructed in accordance with applicable statutes and Department regulations.

Permittee:                   Waste Management of Arizona, Inc.  
                                  432 N. 44th Street, Suite 424  
                                  Phoenix, Arizona 85008

Registration No. 55-525271

File No. D(4-1)21 bcb

Well location:

NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , NW $\frac{1}{4}$  of Section 21, Township 4 South, Range 1 East

Depth: 1,265 feet        Diameter: 16 inches        Type of casing: steel

Pumping conditions:

Maximum pumping capacity: 650 gallons per minute

Other: Limited to an annual volume of 145.5 acre feet

Groundwater from the permitted well may only be used on the following lands:

As authorized by Grandfathered Right No. 58-100217.0008

Authorized use of groundwater:

As authorized by Grandfathered Right No. 58-100217.0008

Permit No. 525271

If the Permitted well is not completed on or before March 30, 1993, the Permittee will be required to file a new application, and secure a new permit before proceeding with construction.

Witness my hand and seal of office this 31st day of March, 1992.



*Herb Dishlip*

Herb Dishlip  
Deputy Director

15 South 15th Avenue  
Phoenix, Arizona 85007

Registration No. 55-525271

OCT - 1 1990

File No. D-(40-01)-21 BCB

COMPLETION REPORT

1. Per A.R.S. §45-600, the Completion Report is to be filed with the Department within 30 days after installation of pump equipment by the registered well owner.
2. Drawdown of the water level for a non-flowing well should be measured in feet after not less than 4 hours of continuous operation and while still in operation and for a flowing well the shut-in pressure should be measured in feet above the land or in pounds per square inch at the land surface.
3. The static groundwater level should be measured in feet from the land surface immediately prior to the well capacity test.
4. The tested pumping capacity of the well in gallons per minute for a non-flowing well should be determined by measuring the discharge of the pump after continuous operation for at least 4 hours and for a flowing well by measuring the natural flow at the land surface.

LOCATION OF THE WELL:

<u>4 South</u>	<u>1 East</u>	<u>21</u>	<u>NW SW NW</u>
Township	Range	Section	$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

EQUIPMENT INSTALLED:

Kind of pump Turbine  
Turbine, centrifugal, etc.

Kind of power Electric H.P. Rating of Motor 150  
Electric, natural gas, gasoline, etc.

Pumping Capacity 750 Date pump installed: December 1989  
Gallons per minute

WELL TEST:

Test pumping capacity 800 Date Well Tested: Oct. 27,28, 1989  
Gallons per minute

Method of Discharge Measurement Flow Meter  
Weir, orifice, current meter, etc.

Static Groundwater Level 411 ft. Drawdown 224.5 ft.

Total Pumping Lift 635.5 ft. Drawdown NA lbs.  
(Flowing Well)

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief.

Waste Management of Arizona, Inc.

Print Well Owner's Name

September 18, 19 90  
Date

James J. Teter  
Signature of Well Owner or Agent

432 North 44th Street, #424  
Address

Phoenix Arizona 85008  
City State Zip

DATA ENTRY WORKSHEET

To: Ursula

From: Sylvia

Date 4/8/92

Add

Change

Cancel

File No: \_\_\_\_\_

Registration No. 55-52527

Name: \_\_\_\_\_ C/O \_\_\_\_\_

Address \_\_\_\_\_

AMA \_\_\_\_\_ Subbasin \_\_\_\_\_ Watershed \_\_\_\_\_

Well Type \_\_\_\_\_ County \_\_\_\_\_

Owner \_\_\_\_\_ Water Use \_\_\_\_\_

Well Use \_\_\_\_\_ Date Issued \_\_\_\_\_

Driller No. \_\_\_\_\_ Planned Pump Capacity 650 CPI \_\_\_\_\_

Log \_\_\_\_\_ CRT \_\_\_\_\_ PO Number \_\_\_\_\_

IPO Status 58-100217-8

Place of use \_\_\_\_\_ † \_\_\_\_\_ † \_\_\_\_\_ † Sec. \_\_\_\_\_, Township \_\_\_\_\_ Range \_\_\_\_\_

\_\_\_\_\_ † \_\_\_\_\_ † \_\_\_\_\_ † Sec. \_\_\_\_\_, Township \_\_\_\_\_ Range \_\_\_\_\_

Comments \_\_\_\_\_

ENTERED APR 13 1992

**ARIZONA DEPARTMENT OF WATER RESOURCES**

15 South 15th Avenue  
Phoenix, Arizona 85007

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

INSTRUCTIONS:

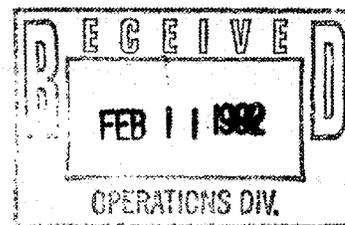
- This application should be used to obtain a permit to:
  - Drill a non-exempt well in conjunction with a General Industrial Use Application or a Certificate of Grandfathered Right.
  - Convert (*enlarge*) an existing well to a non-exempt use.
- CITIES, TOWNS, PRIVATE WATER COMPANIES OR IRRIGATION DISTRICTS WISHING TO DRILL OR OPERATE A SERVICE AREA WELL SHOULD USE *DWR FORM 55-64-8/88 (Rev.)*.
- Complete all appropriate items on this application, sign in the appropriate place and mail to the Department of Water Resources at 15 South 15th Avenue, Phoenix, Arizona 85007.
- Application fee is \$20.00. The permit fee is \$30.00. You may submit both checks at the time of filing of the application.
- If multiple wells are involved or if the proposed design pump capacity is in excess of 500 gallons per minute, the applicant must attach a hydrological study which delineates projected declines in water levels due to the operation of the proposed well or wells as required by Department Rule R12-15-830.

Applicant Waste Management of Arizona, Inc.  
 Address 432 N. 44th Street, Suite 424  
Phoenix, Arizona 85008  
 Contact Person Doug Sawyer  
 Telephone 602/267-1616  
 Land Owner Waste Management of Arizona, Inc.  
 Address 432 N. 44th Street, Suite 424  
Phoenix, Arizona 85008  
 Telephone 602/267-1616

FOR DEPARTMENT USE ONLY

Application No.	
Registration No.	<u>55-525271</u>
File No.	<u>D(4-1)21 beb</u>
Date Received	<u>2-11-92</u>
AMA	<u>Phx</u>
W/S	<u>L8 S/B 09</u>

- Applicant is:  Owner  Lessee
- Proposed well is:
  - New Well
  - Conversion (*enlargement*) or existing well
  - Replacement well in a new location



- Claim of entitlement to withdraw groundwater is based upon:
  - Certificate of Grandfathered Right No. 58-100217.0005 58-100217.8
  - Groundwater Withdrawal Permit No. \_\_\_\_\_
  - Application for General Industrial Use No. \_\_\_\_\_

4. The principal use(s) of groundwater will be (*be specific*) Industrial use associated with a municipal solid waste landfilling including dust control, construction, landscape watering, and domestic/  
potable uses.

5. Well location: NW 1/4 SW 1/4 NW 1/4, Section 21, Township 4 N/S, Range 1 E/W

6. County: Maricopa Design pump capacity: 650 gpm  
 Depth 1265 feet Diameter 16 inches Type of casing: Steel

7. Proposed annual volume of water 145.5 acre feet. Increase

8. Well is located in the Lower Gila subbasin of the Phoenix Active Management Area.
9. Estimated time to complete well N/A. (If longer than 1 year, attach explanation.)
10. Legal description of the land where the groundwater will be used: Section 17, T4S, R1E  
 \_\_\_\_\_  
 (quarter/quarter/quarter/section, township and range)
11. Is the proposed wellsite 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.)

FOR NEW WELL ONLY

12. Driller name and address N/A  
 \_\_\_\_\_  
 License No. \_\_\_\_\_

FOR REPLACEMENT WELL ONLY

13. Registration number of existing well \_\_\_\_\_ . Location of the original well: 1/4 1/4 1/4, Section \_\_\_\_\_, Township \_\_\_\_\_ N/S, Range \_\_\_\_\_ E/W  
 Depth \_\_\_\_\_ feet Diameter \_\_\_\_\_ inches
14. Distance between original well and proposed replacement well \_\_\_\_\_ feet.
15. Will the original well be abandoned if applicant receives a permit to drill a replacement well? \_\_\_\_\_ If answer is yes, Form DWR 55-46-12/83 must be submitted to this Department within 30 days after abandonment. If answer is no, explain the planned use of the original well \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

FOR CONVERSION (ENLARGEMENT) OF EXISTING WELL ONLY

16. Registration number of the existing well 55-525271 . The present pump design capacity of the existing well is 650 gallons per minute.
17. The new design pump capacity will be 650 gallons per minute.
18. The well will pump 232.8 acre feet per annum.
19. The existing well has previously been used in conjunction with or for the following: Industrial uses associated with the Butterfield Station Facility including dust control, construction, landscaping and domestic.  
 \_\_\_\_\_  
 \_\_\_\_\_

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

February 5, 1992  
 Date

James O. Teter  
 Signature of Applicant

ARIZONA DEPARTMENT OF WATER RESOURCES

15 South 15th Avenue  
Phoenix, Arizona 85007

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

INSTRUCTIONS:

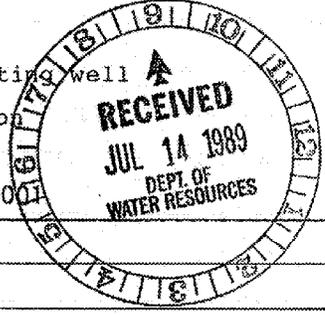
- This application should be used to obtain a permit to:
  - Drill a non-exempt well in conjunction with a General Industrial Use Application, Groundwater Withdrawal Permit or a Certificate of Grandfathered Right
  - Convert (enlarge) an existing well to a non-exempt use
- CITIES, TOWNS, PRIVATE WATER COMPANIES OR IRRIGATION DISTRICTS WISHING TO DRILL OR OPERATE A SERVICE AREA WELL SHOULD USE DWR FORM 55-64-8/88 (Rev.).
- Complete all appropriate items on this application, sign in the appropriate place and mail to the Department of Water Resources at 15 South 15th Avenue, Phoenix, Arizona 85007.
- Application fee is \$20.00. The permit fee is \$30.00. You may submit both checks at the time of filing of the application.
- If multiple wells are involved or if the proposed design pump capacity is in excess of 500 gallons per minute, the applicant must attach a hydrological study which delineates projected declines in water levels due to the operation of the proposed well or wells as required by Department Rule R12-15-830.

Applicant WASTE MANAGEMENT OF NORTH AMERICA, INC.  
 Address 2902 South 44th Street  
Phoenix, AZ 85040  
 Contact Person Stuart M. Baker  
 Telephone 473-1177  
 Land Owner Same  
 Address \_\_\_\_\_  
 Telephone \_\_\_\_\_

FOR DEPARTMENT USE ONLY

Application No. 55-525271  
 Registration No. 55-525271  
 File No. D(4-1)21 bcb  
 Date Received 7-14-89  
 AMA Phx  
 W/S 48 S/B 09

- Applicant is:  Owner  Lessee
- Proposed well is:  New well  
 Conversion (enlargement) or existing well  
 Replacement well in a new location
- Claim of entitlement to withdraw groundwater is based upon:  
 Certificate of Grandfathered Right No. 58-100217.0001  
 Groundwater Withdrawal Permit No. \_\_\_\_\_  
 Application for General Industrial Use No. \_\_\_\_\_
- The principal use(s) of groundwater will be (be specific) Land compaction during construction then dust control during operation of the landfill operation.  
Section 17, T. 4 S., R. 1 E.
- Well location: NW 1/4 SW 1/4 NW 1/4, Section 21, Township 4 N/S, Range 1 E/W
- County: Maricopa Design pump capacity: Initially 400 gpm later 100gpm  
 Depth 1500 feet Diameter 16 inches Type of casing: Steel
- Proposed annual volume of water 90 acre feet.
- Well is located in the Rainbow Valley subbasin of the Phoenix Active Management Area.



9. Estimated time to complete well 90 days. (If longer than 1 year, attach explanation)
10. Legal description of the land where the groundwater will be used: Section 17, T4S, R1E  
 \_\_\_\_\_  
 (quarter/quarter/quarter/section, township and range)
11. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility or storage area of hazardous materials?  
Yes X No (If yes, a request for a variance must accompany this application pursuant to R12-15-820.)

FOR NEW WELL ONLY

12. Driller name and address Layne Western Co, Inc. 12030 E. Riggs Road,  
Chandler, AZ 85249 License No. 7

FOR REPLACEMENT WELL ONLY

13. Registration number of existing well \_\_\_\_\_. Location of the original well: \_\_\_\_\_, Section \_\_\_\_\_, Township \_\_\_\_\_ N/S, Range \_\_\_\_\_ E/W  
 Depth \_\_\_\_\_ feet Diameter \_\_\_\_\_ inches
14. Distance between original well and proposed replacement well \_\_\_\_\_ feet
15. Will the original well be abandoned if applicant receives a permit to drill a replacement well? \_\_\_\_\_ If answer is yes, Form DWR 55-46-12/83 must be submitted to this Department within 30 days after abandonment. If answer is no, explain the planned use of the original well \_\_\_\_\_

FOR CONVERSION (ENLARGEMENT) OF EXISTING WELL ONLY

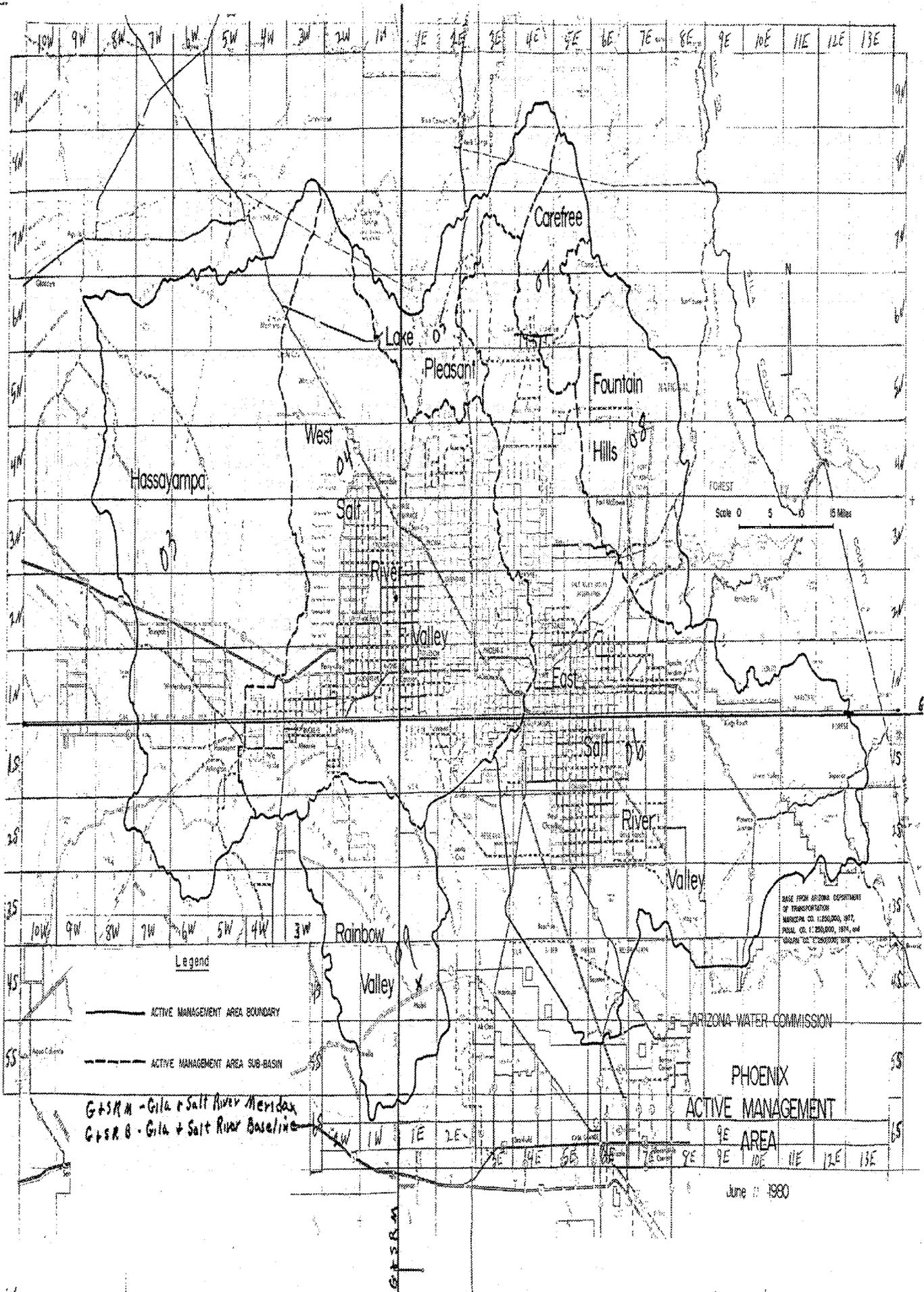
16. Registration number of the existing well \_\_\_\_\_. The present pump design capacity of the existing well is \_\_\_\_\_ gallons per minute.
17. The new design pump capacity will be \_\_\_\_\_ gallons per minute.
18. The well will pump \_\_\_\_\_ acre feet per annum.
19. The existing well has previously 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). The permittee will be bound by the provisions of such law and the provisions of the permit issued.

July 14, 1989  
 \_\_\_\_\_  
 Date

Paul A. Manera, Agent  
 \_\_\_\_\_  
 Signature of Applicant

Hydrologic information on this area is available from the Provident Energy Assured Water Supply Application, Section 28, T. 4 S., R. 1 E.



Scale 0 5 10 15 Miles

BASE FROM ARIZONA DEPARTMENT OF TRANSPORTATION MARICOPA CO. 1:250,000, 1972, MARICOPA CO. 1:250,000, 1974, and MARICOPA CO. 1:250,000, 1976

**Legend**

- ACTIVE MANAGEMENT AREA BOUNDARY
- - - ACTIVE MANAGEMENT AREA SUB-BASIN

G+S+M - Gila + Salt River Meridian  
 G+S+R+B - Gila + Salt River Baseline

ARIZONA WATER COMMISSION  
**PHOENIX  
 ACTIVE MANAGEMENT  
 AREA**

June 11, 1980

PERMIT NO. 55-525271

DEPARTMENT OF WATER RESOURCES  
99 East Virginia  
Phoenix, Arizona 85004

NEW/REPLACEMENT WELL  
IN AMA

THIS DRILLING CARD SHALL BE POSTED ON THE WELL RIG DURING ALL DRILLING OPERATIONS

AUTHORIZED DRILLER All American Water Supply LICENSE NO. 483

Application for a Permit to Construct a New Well/or a Replacement Well in a New Location in the Phoenix ACTIVE MANAGEMENT AREA has been filed with the Department by:

Waste Management of North America, Inc., 2902 N. 44th St., Phoenix, AZ 85040  
Name Address City State Zip

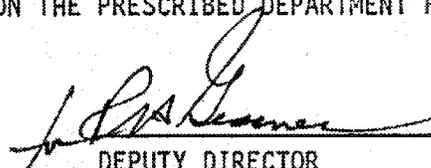
This well to be located: Twp. 4 South Rge. 1 East Section 21, NW $\frac{1}{2}$ SW  $\frac{1}{2}$  NW $\frac{1}{2}$ .  
County of Maricopa, Arizona.

This authorization to drill the above well expires on 8/8/90 midnight.

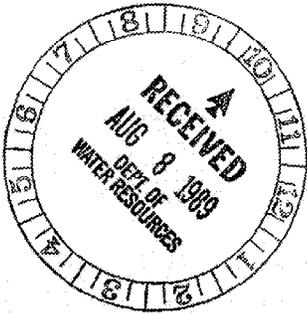
Authorization to drill this well is granted under the provisions of A.R.S. 45-598. Authorization is specifically granted to drill a new/replacement well in the location indicated above and is limited to persons entitled to withdraw groundwater pursuant to Article 5 or 6 of the Groundwater Code.

PURSUANT TO A.R.S. 45-600, THE DRILLER SHALL FILE, ON THE PRESCRIBED DEPARTMENT FORM, A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING.

DWR-55-58-12/83

  
DEPUTY DIRECTOR

ARIZONA DEPARTMENT OF WATER RESOURCES  
Operations Division  
15 South 15th Avenue  
Phoenix, Arizona 85007



CHANGE OF WELL INFORMATION

Well Reg. No. 55-525271

File (location) No. D(4-1)21 bcb

I/We request the following well information be changed:

The Driller be changed to  
ALL American Water Supply  
DWR Lic No 483

Date: Aug 8, 1989 Paul A Manera  
Signature of current Well Owner

(DO NOT CUT THIS FORM IN HALF)

*for Waste Management*

STATEMENT OF CHANGE OF WELL OWNERSHIP

I, \_\_\_\_\_, state that I am (no longer) the (new)  
(please print)  
owner of the well described below:

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_; \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4

Well Registration No. \_\_\_\_\_ File (location) No. \_\_\_\_\_

Previous Owner \_\_\_\_\_

PRINT New Owner's Name \_\_\_\_\_

Address \_\_\_\_\_

Signature of New Owner \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Address \_\_\_\_\_

DATED: \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

NOTE: A.R.S. §45-593.C. requires that the Department be notified of change of well ownership and that the well owner is required to keep the Department's Well Registration records current and accurate. Well data and ownership changes must be submitted within thirty (30) days after changes take place.

SAVE THIS FORM TO REPORT FUTURE CHANGES IN OWNERSHIP, CHANGES IN ADDRESS, OR CHANGE IN WELL DATA SUCH AS PUMP CAPACITY, CORRECTION OF LEGAL DESCRIPTION, CHANGE OF WELL DRILLER, PRIOR TO DRILLING THE WELL, IN ADDITION TO AMENDING INFORMATION PREVIOUSLY FILED.

\*\*\*\*\*

WK1130  
NEXT SCREEN:

ARIZONA DEPARTMENT OF WATER RESOURCES TODAY'S DATE 07/31/89  
GRANDFATHERED RIGHTS

(CONTINUED) RIGHT # 58 100217 0001  
WELLS SERVING THIS RIGHT:

CALENDAR YEAR: 1989

WELL #	LOCATION	PWR COMPANY NAME	ACCOUNT #	METER #		
(USES)	(AVG DIS)	(DIV/HR)	(AMOUNT)	(DEVICE)	(ENERGY)	(TYPE)
627930	NF SE NF 21 04.05	01.01 ARIZONA PUBLIC SVC	07239860011	463431		
N	0 GPM	0	.00 AFA	TOTALIZER	0	ELE

TOTAL AMOUNT WITHDRAWN .00 AFA

WR1105

ARIZONA DEPARTMENT OF WATER RESOURCES TODAY'S DATE 07/31/89  
GRANDFATHERED RIGHTS

NEXT SCREEN: we

(CONTINUED) RIGHT # 5B 100217 0001

PLACE OF USE

QUARTERS	SECT	TWNSHP	RANGE
N2	21	4.0 S	1.0 E

WR1300 ARIZONA DEPARTMENT OF WATER RESOURCES - TODAY'S DATE 07/31/89  
NEXT SCREEN: 58 100217 0001 GRANDFATHERED RIGHTS

RIGHT # 58 - 100217 0001 CERTIFICATE TYPE: IRRIGATION  
ACTIVE - PART, CONVEY STATUS DATE: 03/14/80

NAME(S) OF RIGHT HOLDER(S) MAILING ADDRESS  
WASTE MANAGEMENT OF AZ., INC. 3000 S. 19TH AVE.  
AND PHOENIX AZ 85005  
AND TELE: 602 257 1313  
AND

AMA: PHOENIX SUB BASIN: RAINBOW VALLEY

MAWA USE(S): MAWA AMOUNT: 4.16

ALLOTMENT: 1271.92 AFA IRRIGATION ACRES: 305.96 RETIRED ACRES: .00  
BOOK: 300 MAP: 26 PARCEL: 5 LAND OWNERSHIP TYPE: CORPORATION

*30 acres*  
*↓ 2.91*

SECTION CHIEF: Bruce Davis

AMA: Phoenix

APPLICANT: Waste Management of Arizona

APPLICATION NO. 55-525271

FOR Conversion

DATE OF FILING: 12-8-93

SUMMARY OF FACTS:

The applicant has filed an application to convert an existing post code non-exempt well for industrial process, process cooling, process cleaning and landscape. They intend to withdraw 304.35 acre feet per year and pump 750 gpm. Well spacing review concluded no well impact and no known water quality concerns. Phoenix AMA recommends approval of permit.

ISSUES:

none

RECOMMENDATIONS:

Recommend approval for 304.35 acre feet per annum

SUBMITTED BY Bruce Davis

DATE 12/20/93

IPR COMMITTEE COMMENTS:

IPR SPECIAL CONDITIONS:

RECOMMEND:

APPROVAL X

DENIAL \_\_\_\_\_

IPR CHAIRMAN: [Signature]

DATE 12/20/93

ARIZONA DEPARTMENT OF WATER RESOURCES

PERMIT

PERMIT NO. 55-525271

STATE OF ARIZONA        )  
                                  )ss.  
County of Maricopa        )

Approval is herein granted, pursuant to A.R.S. § 45-598 and 45-599, for the Permittee to construct and/or operate a conversion (enlargement) of an existing well, a new well or a replacement well in a new location. This approval is expressly limited to the specific location, pumping requirements and use of groundwater as set forth below. If the Permittee wishes the Department to review the imposition of any of these conditions, he may ask for such a review within fifteen (15) days of receipt of this permit.

Permittee: Waste Management of Arizona 40404 S. 99th Ave. Mobile, AZ 85239

Registration No. 55-525271

File No. D(4-1)21 bcb

Well location:

NW¼, SW¼, NW¼ of Section 21, Township 4 South, Range 1 East

Depth: 1,165 feet

Diameter: 16 inches

Type of casing: Steel

Pumping conditions:

Maximum pumping capacity: 750 gallons per minute

Other: Limited to an annual volume of 304.35 acre feet

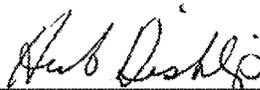
Groundwater from the permitted well may only be used on the following lands:

As authorized by Grandfathered Right 58-100217.00010

Authorized use of groundwater:

As authorized by Grandfathered Right 58-100217.00010

Witness my hand and seal of office this 20th day of December, 1993.

  
\_\_\_\_\_  
Herb Dishlip, Deputy Director

**ARIZONA DEPARTMENT OF WATER RESOURCES**

15 South 15th Avenue, Phoenix, Arizona 85007

Telephone (602) 542-1581

Fax (602) 542-3383



FIFE SYMINGTON  
Governor

RITA P. PEARSON  
Director

December 29, 1993

Stephen B. Smith  
Waste Management of Arizona  
40404 S. 99th Ave.  
Mobile, Arizona 85239

RE: Permit No. 55-525271

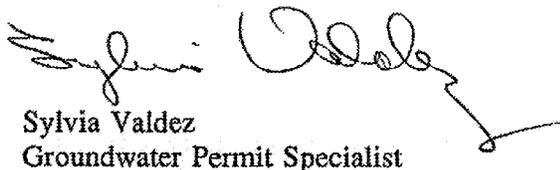
Dear Permittee:

Enclosed for your records is your permit as referenced above.

For your future use, a Change of Well Information form is also enclosed. Under Arizona Revised Statutes § 45-592, the person to whom a well is registered must notify this Department of a change in the ownership of the well and must furnish this Department with any information pertaining to the physical characteristics of the well necessary to keep the well registration records current and accurate. The permit itself may only be conveyed in accordance with A.R.S. § 45-520.

If you have any questions, please call me at 542-1581.

Sincerely,

  
Sylvia Valdez  
Groundwater Permit Specialist

SV  
Enclosures

**ARIZONA DEPARTMENT OF WATER RESOURCES**

15 South 15th Avenue, Phoenix, Arizona 85007  
Telephone (602) 542-1553  
Fax (602) 256-0506



FIFE SYMINGTON  
Governor

ELIZABETH ANN RIEKE  
Director

March 31, 1992

Doug Sawyer  
Waste Management of Arizona, Inc.  
432 N. 44th Street, Suite 424  
Phoenix, Arizona 85008

RE: Permit No. 55-525271

Dear Mr. Sawyer:

Enclosed for your records is your permit as referenced above.

For your future use, a Change of Well Information form is also enclosed. Under Arizona Revised Statutes §45-592, the person to whom a well is registered must notify this Department of a change in the ownership of the well and must furnish this Department with any information pertaining to the physical characteristics of the well necessary to keep the well registration records current and accurate. The permit itself may only be conveyed in accordance with A.R.S. §45-520.

Very truly yours,

Dennis Kimberlin  
Chief, Operations Division

DK:sv

Enclosures

cc: Phoenix Active Management Area

DATA ENTRY WORKSHEET

To: Ursula

From: Sylvia

Date 12/29/93

Add  Change  Cancel

File No: \_\_\_\_\_ Registration No. 55- 525271

Name: \_\_\_\_\_ C/O \_\_\_\_\_

Address \_\_\_\_\_

AMA \_\_\_\_\_ Subbasin \_\_\_\_\_ Watershed \_\_\_\_\_

Well Type \_\_\_\_\_ County \_\_\_\_\_

Owner \_\_\_\_\_ Water Use \_\_\_\_\_

Well Use \_\_\_\_\_ Date Issued \_\_\_\_\_

Driller No. \_\_\_\_\_ Planned Pump Capacity \_\_\_\_\_ gpm

Log \_\_\_\_\_ CRT \_\_\_\_\_ PQ Number \_\_\_\_\_

IPQ Status 58-100217.00010

Place of use \_\_\_\_\_  $\frac{1}{4}$  \_\_\_\_\_  $\frac{1}{4}$  \_\_\_\_\_  $\frac{1}{4}$  Section \_\_\_\_\_, Township \_\_\_\_\_ Range \_\_\_\_\_

Comments \_\_\_\_\_

ENTERED DEC 29 1993

# RECEIPT

WILLIS D. SAWYER, JR.  
4839 W. Manzanita Dr.  
Glendale, Arizona 85302

STATE OF ARIZONA  
DEPARTMENT OF WATER RESOURCES  
OPERATIONS DIVISION  
15 SOUTH 15TH AVENUE  
PHOENIX, ARIZONA 85007  
(602) 542-1581

ENTRY CODE 55

FILE NO.

THRU

ITEM DESCRIPTION	RATE	AMOUNT
APPLICATION & PERMIT FEE FOR A PERMIT TO ENLARGE AN EXISTING WELL		50.00
55-525271 D(4-1)21 bcb		

CHECK NO. 1435

FEE ACCOUNT NO. \_\_\_\_\_

TOTAL \$ 50.00

CHIT NO. \_\_\_\_\_

RECEIVED BY 2-26-92 sv

DATE 2-26-92

Manera, Inc.  
 5251 North 16th Street, Suite 302  
 Phoenix, AZ 85016

STATE OF ARIZONA  
 DEPARTMENT OF WATER RESOURCES  
 WATER RIGHTS ADMINISTRATION  
 99 EAST VIRGINIA  
 PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55	525271
	THRU

FUND SOURCE	ACCOUNT NO.			INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
	AGENCY	CHAPTER	DIV.				
					Permit Fee: (1) Permit to Drill or Operate a Non-Exempt, Non-Service Area Well Within an AMA	30.00	30.00
					Permit No. 55-525271		
					File No. D(4-1)21 bcb		

Ck #733 dated 7-14-89

(8-8-89, kw)

TOTAL \$ 30.00

Manera, Inc.  
 5231 N. 16th Street, Suite 302  
 Phoenix, AZ 85016

STATE OF ARIZONA  
 DEPARTMENT OF WATER RESOURCES  
 WATER RIGHTS ADMINISTRATION  
 99 EAST VIRGINIA  
 PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55	525271
	THRU

FUND SOURCE	ACCOUNT NO.			INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
	AGENCY	CHAPTER	DIV.				
					Filing Fee: (1) Application for Permit to Drill or Operate a Non-Exempt, Non-Service Area Well Within an AMA	20.00	20.00
					Application No. 55-525271		
					File No. D(4-1)21 bcb		

Ck #733 dated 7-14-89

(7-14-89, kw)

TOTAL \$ 20.00

SECTION CHIEF: Dennis Kimberlin

AMA: Phoenix

APPLICANT: Waste Management of Arizona

Application No. 55-52527

for Conversion

Date of Filing: 2-11-92

SUMMARY OF FACTS:

Waste Management of Arizona has applied for a conversion to increase the volume from 87.3 to (additional volume 145.5 acre feet) a total of 232.8 acre feet per annum. The specific use is for industrial use associated with a municipal solid waste landfilling including dust control, construction, landscape watering, and domestic/potable uses. Well spacing indicates that the 10 foot drawdown area only extends 1,048 feet and well concentration shows that no wells are within the area of drawdown. The applicant has retired acreage to cover his request to increase the volume. New Certificate will be Type I Grandfatherd Right No. 58-100217.0008.

ISSUES:

RECOMMENDATIONS:

Recommend approval for an additional 145.5 acre feet

SUBMITTED BY

*Dennis Kimberlin*

DATE

*3/30/92*

IPR COMMITTEE COMMENTS:

IPR SPECIAL CONDITIONS:

RECOMMEND:

Approval

Denial

IPR CHAIRMAN:

*Mark Frank*

DATE:

*3/30/92*

This analysis is for the total amount to be withdrawn from this point - 232.8 ac-ft/yr.

(type I) Grandfathered right #: 58-100217.  
allotment: 232.8 ac-ft.  
Application Number: 55-525  
Location: D(4-1)21 bc

WELL SPACING REVIEW SHEET  
(Distance Drawdown Analysis)

Applicant: Waste Management of Arizona, Inc. Regional Decline Rate  
Well Location: TWN 4S, R6E 1E, Rate (ft/yr): ~1 ft/yr  
SEC 21, NW, SW, NW Period: 1955 - 1986  
Depth of Well (ft): 1165 ft. Source of Data: 1991 GWSI  
Diameter (in): 16 inches Analyzed by: J. Inoué  
Pumping Rate (gpm): 144 gpm @ 232.8 ac-ft/yr Date: 3/9/92  
Proposed  Existing

Estimated Transmissivity (gpd/ft): 6,000 Data Source: from previous well spacing reviews:  
Estimated Specific Yield (%): 8% Data Source: 55-525271  
55-503753

DRAWDOWN CAUSED BY PUMPED WELL AFTER 5 YEARS

Radius of 10 foot drawdown contour: 1048 feet  
Radius of 25 foot drawdown contour: 68 feet  
Drawdown at the well site: 48 feet  
Remarks (land subsidence, etc.): no apparent land subsidence concerns

Analyzed by: J. Inoué Checked by: Steve Lynn Date: 3/9/92

WATER QUALITY

Analyzed By: MRB Date: 3/9/92  
Comments: No known water quality impacts/problems.

Attachments: Maps , Graphs , Other

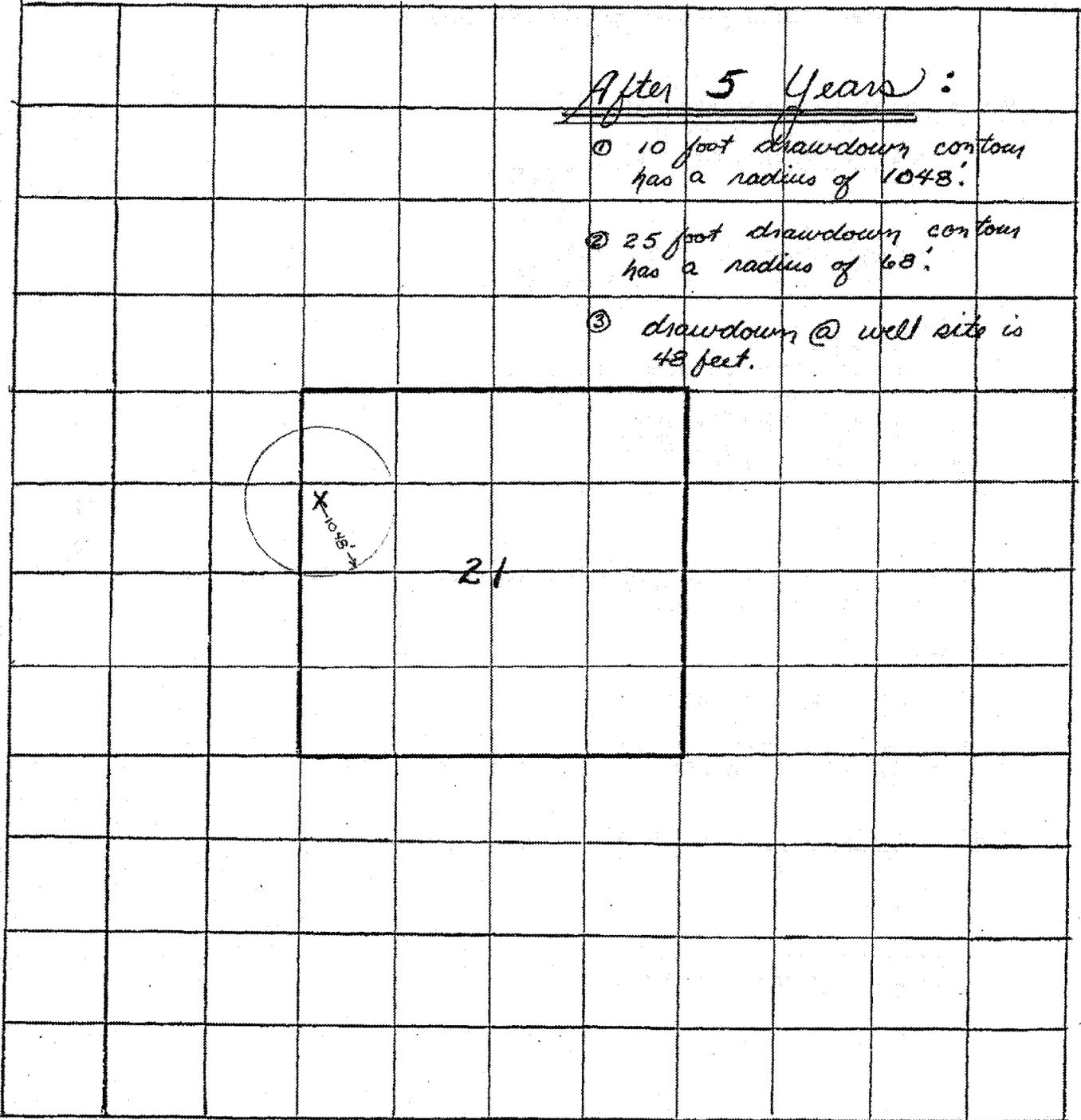
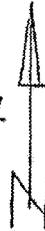
FILE # 55-525271

Waste Management of Arizona, Inc.

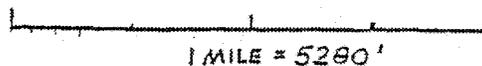
SEC. 21

TWP 45

RGE 1E



SCALE 1:24,000



1 MILE = 5280'

DISTANCE-DRAWDOWN (WELL SPACING) ANALYSIS

Application No. 55-525271 Well Location D ( 4 - 1 ) 21

Applicant Waste Management of Arizona, Inc.

Theis Non-Equilibrium Equation

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

$$u = \frac{1.87 r^2 S_y}{Tt} \text{ or } r = \sqrt{\frac{Tut}{1.87 S_y}}$$

where:

- s = drawdown, ft
- r = radius from pumping well, ft
- t = time, days
- Q = well discharge, gpm
- T = transmissivity, gpd/ft
- S<sub>y</sub> = specific yield, %
- u, W(u) = argument, well function

A. Find the ten foot drawdown contour after 5 years of pumping proposed well:

Assume:

- t = 1825 days (5 years)
- s = 10 feet
- Q = 144 gpm
- T = 6,000 gpd/ft
- S<sub>y</sub> = 0.08

$$W(u) = \frac{10 (6000)}{114.6 (144)} = 3.6358$$

$$u = 1.5 \times 10^{-2}$$

$$r = \sqrt{\frac{(6000)(1.5 \times 10^{-2})(1825)}{1.87 (0.08)}} = 1048 \text{ feet}$$

- B. Find the 25 foot drawdown contour after 5 years of pumping proposed well:

Assume:

$$\begin{aligned}t &= 1825 \text{ days (5 years)} \\s &= 25 \text{ feet} \\Q &= 144 \text{ gpm} \\T &= 6,000 \text{ gpd/ft} \\S_y &= 0.08\end{aligned}$$

$$W(u) = \frac{25 (6000)}{114.6 (144)} = 9.0896$$

$$u = 6.35 \times 10^{-5}$$

$$r = \sqrt{\frac{(6000)(6.35 \times 10^{-5})(1825)}{1.87(0.08)}} = 68 \text{ feet}$$

- C. Find drawdown at well site:

Assume:

same as above, however,  
 $r = 1$  foot  
 $s$  is unknown

$$u = \frac{1.87 (1^2) (0.08)}{1825 (6,000)} = 1.3 \times 10^{-8}$$

$$W(u) = 17.5811$$

$$s = \frac{114.6 (144) (17.5811)}{6000} = 48 \text{ feet}$$

This analysis is for the increased amount of 145.5 ac-ft/yr only.

(type I) Grandfathered right #: 58-100217.0008  
Callotment: 232.8 ac-ft/yr  
Application Number: 55-5252  
Location: D(4-1)21 bcb

WELL SPACING REVIEW SHEET  
(Distance Drawdown Analysis)

Applicant: *Waste Management of Arizona, Inc.* Regional Decline Rate  
Well Location: TWN 4S, RGE 1E, Rate (ft/yr): *~1 ft/yr.*  
SEC 21, NW SW, NW Period: 1955 - 1986  
Depth of Well (ft): *1165 ft* Source of Data: *1991 GWSI piston*  
Diameter (in): *16 inches* Analyzed by: *J. Inoisi*  
Pumping Rate (gpm): *90 gpm @ 145.5 ac-ft/yr* Date: *3/9/92*  
Proposed  Existing

Estimated Transmissivity (gpd/ft): *6,000* Data Source: *from previous well spacing reviews*  
Estimated Specific Yield (%): *8%* Data Source: *58-525271  
55-503753*

DRAWDOWN CAUSED BY PUMPED WELL AFTER 5 YEARS

Radius of 10 foot drawdown contour: *353 feet*  
Radius of 25 foot drawdown contour: *4 feet*  
Drawdown at the well site: *30 feet*

Remarks (land subsidence, etc.): \_\_\_\_\_  
\_\_\_\_\_

Analyzed by: *J. Inoisi* Checked by: *Alan T...* Date: *3/9/92*

WATER QUALITY

Analyzed By: \_\_\_\_\_ Date: \_\_\_\_\_

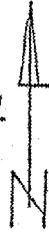
Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Attachments: Maps \_\_\_\_\_, Graphs \_\_\_\_\_, Other \_\_\_\_\_

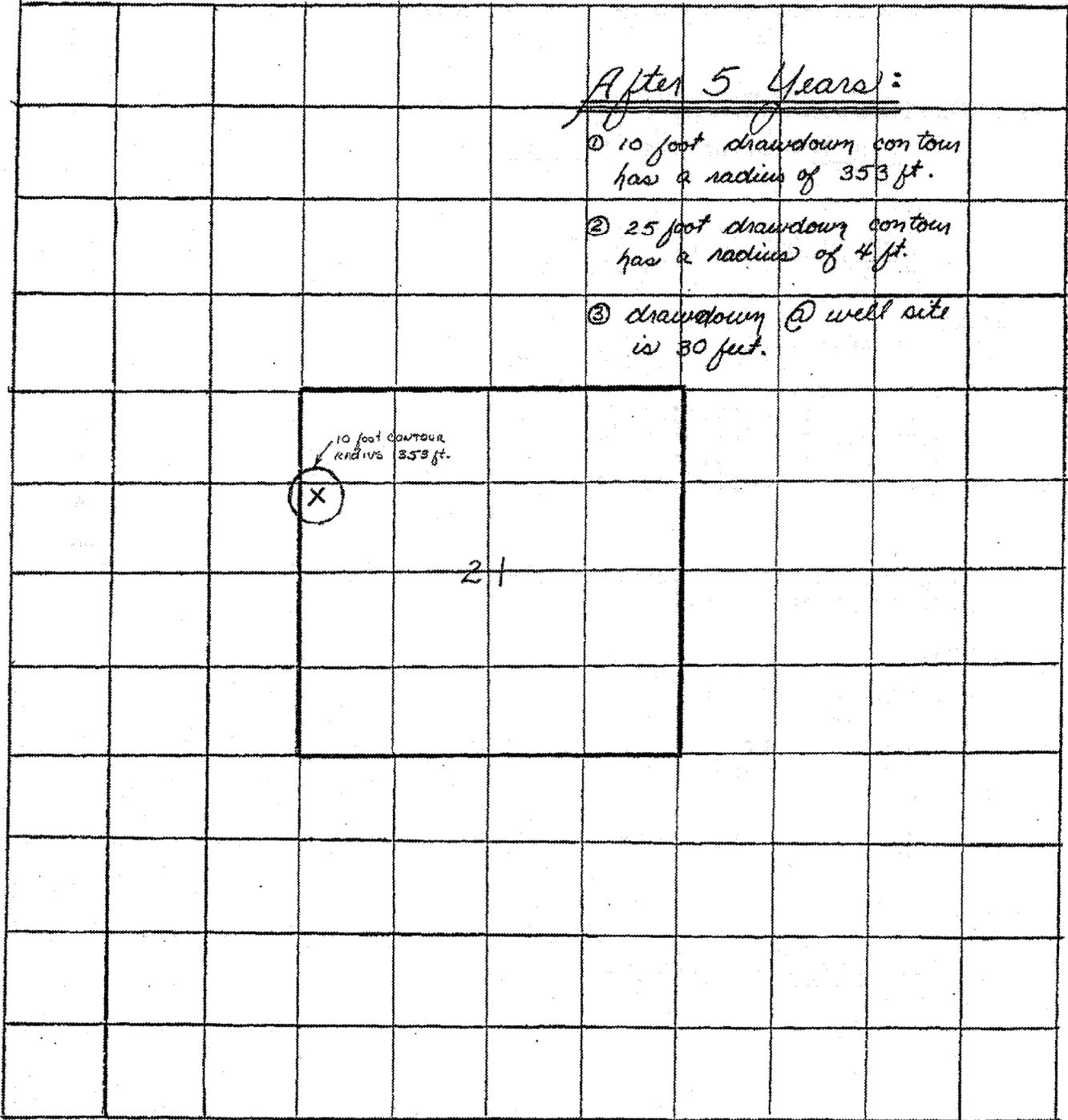
FILE # 55-525271

Waste Management of Arizona, Inc.

SEC. 21



TWP 4S  
RGE 1E

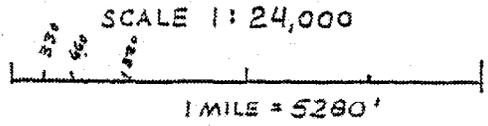


After 5 Years:

- ① 10 foot drawdown contour has a radius of 353 ft.
- ② 25 foot drawdown contour has a radius of 4 ft.
- ③ drawdown @ well site is 30 feet.

10 foot contour radius 353 ft.

21



DISTANCE-DRAWDOWN (WELL SPACING) ANALYSIS

Application No. 55-525271 Well Location D (4 - 1) 21

Applicant Waste Management of Arizona, Inc.

Theis Non-Equilibrium Equation

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

$$u = \frac{1.87 r^2 S_y}{Tt} \text{ or } r = \sqrt{\frac{Tut}{1.87 S_y}}$$

where:

- s = drawdown, ft
- r = radius from pumping well, ft
- t = time, days
- Q = well discharge, gpm
- T = transmissivity, gpd/ft
- S<sub>y</sub> = specific yield, %
- u, W(u) = argument, well function

A. Find the ten foot drawdown contour after 5 years of pumping proposed well:

Assume:

- t = 1825 days (5 years)
- s = 10 feet
- Q = 90 gpm
- T = 6000 gpd/ft
- S<sub>y</sub> = 0.08

$$W(u) = \frac{10 (6000)}{114.6(90)} = 5.8173$$

$$u = 1.7 \times 10^{-3}$$

$$r = \sqrt{\frac{(6000)(1.7 \times 10^{-3})(1825)}{1.87(0.08)}} = 353 \text{ feet}$$

- B. Find the 25 foot drawdown contour after 5 years of pumping proposed well:

Assume:

$$\begin{aligned}t &= 1825 \text{ days (5 years)} \\s &= 25 \text{ feet} \\Q &= 90 \text{ gpm} \\T &= 6000 \text{ gpd/ft} \\S_y &= 0.08\end{aligned}$$

$$W(u) = \frac{25 (6000)}{114.6 (90)} = 14.5433$$

$$u = 2.7 \times 10^{-7}$$

$$r = \sqrt{\frac{(6000)(2.7 \times 10^{-7})(1825)}{1.87(0.08)}} = 4 \text{ feet}$$

- C. Find drawdown at well site:

Assume:

same as above, however,

$$\begin{aligned}r &= 1 \text{ foot} \\s &\text{ is unknown}\end{aligned}$$

$$u = \frac{1.87 (1^2) 0.08}{1825 (6000)} = 1.3 \times 10^{-8}$$

$$W(u) = 17.5811$$

$$s = \frac{114.6(90)(17.5811)}{6000} = 30 \text{ feet}$$

WR1300 ARIZONA DEPARTMENT OF WATER RESOURCES TODAYS DATE 03/23/92  
NEXT SCREEN: GRANDFATHERED RIGHTS

58 100217 0005  
RIGHT # 58 - 100217 0005 CERTIFICATE TYPE: IRRIGATION  
ACTIVE - FULL CONVEY STATUS DATE: 03/21/90  
NAME(S) OF RIGHT HOLDER(S) MAILING ADDRESS  
WASTE MANAGEMENT OF AZ., INC. 432 N 44TH ST., STE 424  
AND PHOENIX AZ 85008  
AND TELE: 602 267 1616  
AND

AMA: PHOENIX SUB BASIN: RAINBOW VALLEY

MAWA USE(S): MAWA AMOUNT: 4.16

ALLOTMENT: 1106.73 AFA IRRIGATION ACRES: 265.96 RETIRED ACRES: .00

BOOK: 300 MAP: 26 PARCEL: PT5A LAND OWNERSHIP TYPE: CORPORATION

232.8 99

WR1130  
NEXT SCREEN:

ARIZONA DEPARTMENT OF WATER RESOURCES TODAY'S DATE 03/23/92  
GRANDFATHERED RIGHTS

(CONTINUED) RIGHT # 58 100217 0005  
WELLS SERVING THIS RIGHT

CALENDAR YEAR: 1992

WELL #	LOCATION	PWR COMPANY NAME	ACCOUNT #	METER #
(WELLS)	(AVG DIS) (DIV/HR)	(AMOUNT) (DEVICE)	(ENERGY)	(TYPE)
77930	NE SE NE 21 04.05 01.0E	ARIZONA PUBLIC SVC	072398600011	463931
N	0 GPM	.00 AFA TOTALIZER		0 ELE

TOTAL AMOUNT WITHDRAWN .00 AFA

WR1300 ARIZONA DEPARTMENT OF WATER RESOURCES TODAYS DATE 03/23/92  
NEXT SCREEN: GRANDFATHERED RIGHTS

58 100217 0006  
RIGHT # 58 - 100217 0006 CERTIFICATE TYPE: TYPE I  
ACTIVE - FULL CONVEY STATUS DATE: 03/22/90  
NAME(S) OF RIGHT HOLDER(S) MAILING ADDRESS  
WASTE MANAGEMENT OF AZ., INC. 432 N. 44TH ST, STE 424  
AND PHOENIX AZ 85008  
AND TELE: 602 437 1177  
AND

AMA: PHOENIX SUB BASIN: RAINBOW VALLEY

NON-IRRIG USE(S): INDUSTRIAL

ALLOTMENT: 116.40 AFA IRRIGATION ACRES: .00 RETIRED ACRES: 40.00

BOOK: 300 MAP: 26 PARCEL: PT5A LAND OWNERSHIP TYPE: CORPORATION

232.8 e f

WR1130  
NEXT SCREEN:

ARIZONA DEPARTMENT OF WATER RESOURCES TODAY'S DATE 03/23/92  
GRANDFATHERED RIGHTS

(CONTINUED) RIGHT # 58 100217 0006  
WELLS SERVING THIS RIGHT

CALENDAR YEAR: 1992

WELL #	LOCATION	PWR COMPANY NAME	ACCOUNT #	METER #
(WELLS)	(AVG DIS) (DIV/HR)	(AMOUNT)	(DEVICE)	(ENERGY) (TYPE)
25271	NW SW NW 21 04.06 01.0E	ARIZONA PUBLIC SVC	09804680017	882934
N	0 GPM	.00 AFA	TOTALIZER	0 ELE

TOTAL AMOUNT WITHDRAWN

AFA

DATA ENTRY WORKSHEET

To: Ursula From: Kathy Date 8/10/89  
 Add  Change  Cancel

File No: D(4-1)21 bcb Registration No. 55-525271

Name: Waste Management C/O

Address 2902 North 44th St., Phx, AZ 85040

AMA Phx Subbasin 09 Watershed L8

Well Type Non Exempt County Maricopa

Owner Private Water Use F

Well Use Production Date Issued 8/9/89

Driller No. 483 Planned Pump Capacity 400 GPM

Log CRT PQ Number T525271

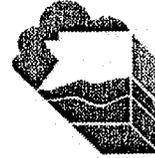
IPO Status 58-100217.0003

Place of use 1/1/1 Sec. 1, Township 1 Range 1

1/1/1 Sec. 1, Township 1 Range 1

Comments \_\_\_\_\_

Return to  Files  Kathy **ENTERED AUG 15 1989**



August 9, 1989

ARIZONA  
DEPARTMENT  
OF WATER  
RESOURCES

Rose Mofford, Governor  
N. W. Plummer  
Director

Waste Management of North America, Inc.  
2902 North 44th Street  
Phoenix, Arizona 85040

15 South 15th Avenue  
Phoenix, Arizona 85007

RE: Permit No. 55-525271  
File No. D(4-1)21 bcb

Dear Well Owner:

Enclosed for your records is your permit. Your driller has been mailed a Well Drilling Report form. The Drilling Card has been mailed to the Phoenix Active Management Area office. The Drilling Card will be released to the authorized driller after site verification. You may not proceed to drill the well until the site verification has been completed as described later in this letter.

If you decide to change the location of the proposed well, you should obtain the written permission of the Department of Water Resources before proceeding with the drilling. A properly signed and amended permit must be in your possession or the drillers before drilling may begin at a location different from the one originally authorized.

The authority to drill this well is granted on the condition that all applicable provisions of the Groundwater Code be met. Additionally, it is granted with the following special condition:

Before drilling of the well begins, a representative of the Department of Water Resources must be shown, on-site, the location of the well. To help ensure the accuracy of the location, the well owner or a designated representative of the driller must first come into one of our offices and spot the actual well location on an aerial photograph. Only then may field verification be undertaken, after which drilling may begin. To make the spotting, you are required to visit one of our offices at least 96 hours in advance of the time you intend to begin drilling. If you wish to prearrange for these actions, you may contact the Phoenix Active Management Area office at (602) 542-1512.

A.R.S. §45-600 requires the registered well owner to submit a Completion Report within 30 days after the installation of pumping equipment. It also requires the driller to furnish this Department a complete and accurate log of the well

Waste Management of North America, Inc.

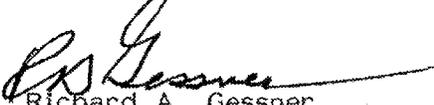
Page two

August 9, 1989

within 30 days after completion of drilling. You should ensure that both of these reports are filed by the applicable deadline.

For your future use, a Change of Well Information form is also enclosed. Under A.R.S. §45-593, the person to whom a well is registered must notify this Department of change in ownership of the well and must furnish the Department any information pertaining to the physical characteristics of the well necessary to keep the well permit file current and accurate. The permit itself may be conveyed only in accordance with A.R.S. §45-520.

Very truly yours,



Richard A. Gessner  
Chief, Operations Division

RAG:kw

Enclosures

cc: Phoenix Active Management Area  
All American Water Supply

ARIZONA DEPARTMENT OF WATER RESOURCES

P E R M I T

PERMIT NO. 55-525271

STATE OF ARIZONA     )  
                                  ) ss.  
County of Maricopa    )

Approval is herein granted, pursuant to A.R.S. §45-598 and 45-599, for the Permittee to construct and/or operate a conversion (enlargement) of an existing well, a new well or a replacement well in a new location. This approval is expressly limited to the specific location, pumping requirements and use of groundwater as set forth below. If the Permittee wishes the Department to review the imposition of any of these conditions, he may ask for such a review within fifteen (15) days of receipt of this permit. Such a request must be made prior to the commencement of drilling. The well authorized by this permit shall be drilled and constructed in accordance with applicable statutes and Department regulations.

Permittee: Waste Management of North America, Inc., 2902 South 44th Street,  
Phoenix, Arizona 85040

Registration No. 55-525271                      File No. D(4-1)21 bcb

Well location: NW $\frac{1}{4}$  of SW $\frac{1}{4}$  of NW $\frac{1}{4}$ , Section 21, Township 4 South, Range 1 East

Pumping conditions

Limited to an annual volume of 87.3 acre feet

Maximum pumping capacity: 400 gallons per minute

Depth: 1500 feet            Diameter: 16 inches            Casing: steel

Groundwater from the permitted well may only be used on the following lands:

As authorized by Certificate of Grandfathered Groundwater Right  
No. 58-100217.0003

Authorized use of groundwater:

As authorized by Certificate of Grandfathered Groundwater Right  
No. 58-100217.0003

If the permitted well is not completed on or before August 8, 1990, the permittee will be required to file a new application, and secure a new permit before proceeding with construction.

Witness my hand and seal of office this 9th day of August, 1989.

  
C. Laurence Linser  
Deputy Director

SECTION CHIEF: Ricky Curcio

AMA: Phoenix

APPLICANT: Waste Management of North America Application No. 55-525271

for Non-Exempt Well Permit

Date of Filing: 7-14-89

SUMMARY OF FACTS: Waste Management of North America has applied for a permit for a new non-exempt well. The applicant currently has an irrigation grandfathered right and has stated that he intends to retire a percentage of his acreage so that he may use water for a non-irrigation use. Operations does not know if the applicant has done so at this point. The 58 currently provides for the irrigation of 305.96 acres of land with an annual volume of 1,271.92 acre feet. The new well will pump 90 acre feet per annum and will be equipped with a 400 gpm pump initially and later reduced to a 100 gpm pump. Well spacing indicates that the 10 foot drawdown area only extends 60 feet and well concentration shows that no wells are within the area of drawdown. Water pumped from the new well will be used for "land compaction during construction then dust control during operation of landfill."

ISSUES: Has the applicant properly retired enough acreage to cover his requested pumpage from the new well?

RECOMMENDATIONS: Provided all is in order for the new grandfathered right certificate, issue a permit for <sup>87.3</sup> 90 acre feet/400 gpm pump.

SUBMITTED BY PA [Signature]

DATE 8/7/89

IPR COMMITTEE COMMENTS:

IPR SPECIAL CONDITIONS:

RECOMMEND:

Approval

Denial

IPR CHAIRMAN: Mark Frank

DATE: 8/7/89

Application Number: 55-525271  
Location: D(4-1)21 beb

WELL SPACING REVIEW SHEET  
(Distance Drawdown Analysis)

Applicant: Waste Management of North America Regional Decline Rate

Well Location: TWP 45, RGE 1E,

SEC 21, NW 1/4, SW 1/4, NW 1/4

Depth of Well (ft): 1500

Diameter (in): 16

Pumping Rate (gpm): ~56 (90 AF/yr)

Proposed  Existing

Estimated Transmissivity (gpd/ft): 6,000

Estimated Specific Yield (%): .08

Rate (ft/yr): ~1.0 ft/yr

Period: 1975-82

Source of Data: HMS # 4 - GW Cond. in Waterman Washbas

Analyzed By: R.A. Attelek

Date: June, 1982

Data Source: from Manua, 1982 9.

Data Source: previous well spacing review for Provident Energy Co.

DRAWDOWN CAUSED BY PUMPED WELL

AFTER FIVE YEARS

Drawdown in Feet	Distance in Feet
<u>10</u>	<u>~60</u>
<u>25</u>	<u>~.05</u>
<u>19.</u>	<u>~1.0</u> } <u>well site</u>

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Analyzed by: K. Modentis Checked by: Steve J. [unclear] Date: 7/27/82

Attachments: Maps , Graphs , Other calculations

DISTANCE-DRAWDOWN (WELL SPACING) ANALYSIS

Application No. 55-525271 Well Location D (4-1) 21 bcb

Applicant Waste Management of North America, Inc.

Theis Non-Equilibrium Equation

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

$$u = \frac{1.87 r^2 S_y}{Tt} \text{ or } r = \sqrt{\frac{Tut}{1.87 S_y}}$$

where:

- s = drawdown, ft
- r = radius from pumping well, ft
- t = time, days
- Q = well discharge, gpm
- T = transmissivity, gpd/ft
- S<sub>y</sub> = specific yield, %
- u, W(u) = argument, well function

- A. Find the ten foot drawdown contour after 5 years of pumping proposed well:

Assume:

- t = 1825 days (5 years)
- s = 10 feet
- Q = ~56 gpm
- T = ~6000 gpd/ft
- S<sub>y</sub> = .08% est.

$$W(u) = \frac{10 (6000)}{114.6 (56)} = 9.3493$$

$$u = 4.9 \times 10^{-5}$$

$$r = \sqrt{\frac{(6000) 4.9 \times 10^{-5} (1825)}{(1.47)(.08)}} = 59.9$$

60'

- B. Find the 25 foot drawdown contour after 5 years of pumping proposed well:

Assume:

$$\begin{aligned} t &= 1825 \text{ days (5 years)} \\ s &= 25 \text{ feet} \\ Q &= 56 \text{ gpm} \\ T &= 6000 \text{ gpd/ft} \\ S_y &= .08 \end{aligned}$$

$$W(u) = \frac{25 (6000)}{114.6 (56)} = 23.3732$$

$$u = 4.0 \times 10^{-11}$$

$$r = \sqrt{\frac{(6000)(4.0 \times 10^{-11})(1825)}{(1.87)(.08)}} = 0.05 \text{ ft}$$

- C. Find drawdown at well site:

Assume:

same as above, however,

$$r = 1 \text{ foot}$$

s is unknown

$$u = \frac{1.87 (12) (25)}{1825 (6000)} = 1.3 \times 10^{-8}$$

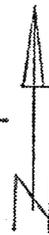
$$W(u) = 17.5811$$

$$s = \frac{114.6 (56)}{(6000)} \times 17.5811 = 18.1 \text{ ft} \quad \checkmark$$

FILE # 55-525271

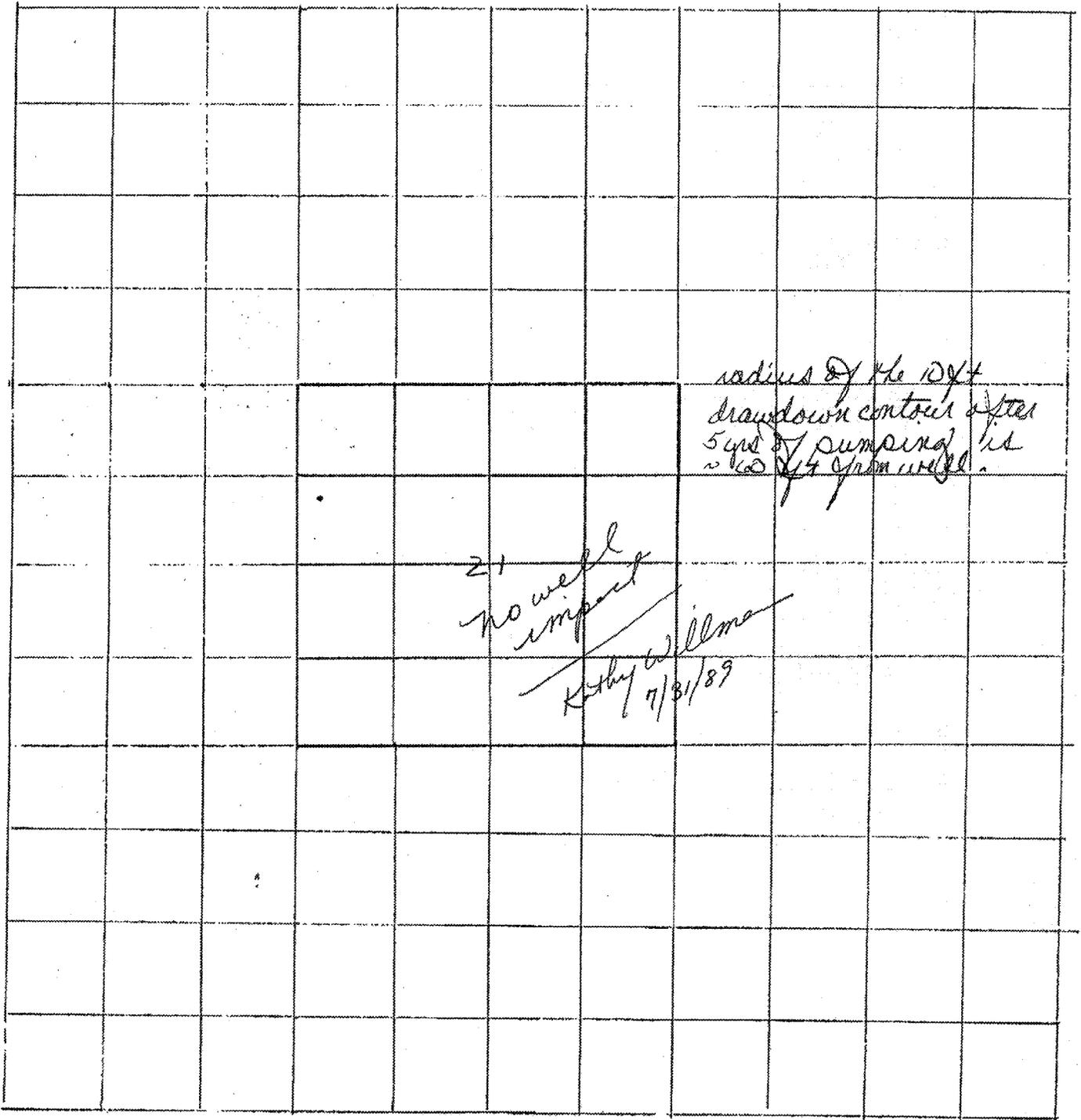
Waste Management of North America, Inc.

SEC. 21

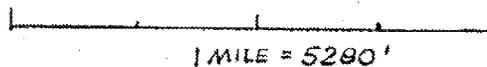


TWP 4S

RGE 1E



SCALE 1: 24,000



1 MILE = 5280'

**APPENDIX C**  
**IMAGE WELL IMPACT ANALYSIS**



Well Spacing-Well Impact Investigation  
Amaranth Well PW-1  
Goodyear, Arizona

September, 2007

199001

**Image Well Analysis - Amaranth Well PW1**  
**470 gpm. Distance to Hydrologic Boundary = 12,672 ft**

Q1=	470	Proposed discharge from onsite well (gpm)
Q1=	90,475	Discharge converted to cubic feet per day
Q2=	470	Discharge of Image Well (gpm)
Q2=	90,475	Discharge converted to cubic feet per day
T=	2485	Estimated transmissivity (feet squared per day)
S=	0.08	Storage (unitless) (Corell and Corkhill, 1994)

s = drawdown (feet) based on equation 44 in Lohman (1979)

t = 1826 time duration of pumping (days)

D = distance between two wells 25344 (feet)

r = distance from well #1 (feet)

D - r = distance from well #2 (feet)



Portion of r	Drawdown from Well #1				Drawdown from Well #2				Total Drawdown (feet)
	r	r <sup>2</sup>	u	s	D - r	(D - r) <sup>2</sup>	u	s	
0.001	25.344	642.31834	0.00000	35.34	25318.7	641034341.6	2.82543	-0.04	35.30
0.002	50.688	2569.2733	0.00001	31.32	25293.3	639751631.9	2.81977	-0.04	31.28
0.003	76.032	5780.865	0.00003	28.97	25268	638470206.8	2.81413	-0.04	28.93
0.004	101.38	10277.093	0.00005	27.31	25242.6	637190066.4	2.80848	-0.04	27.27
0.005	126.72	16057.958	0.00007	26.01	25217.3	635911210.6	2.80285	-0.04	25.98
0.006	152.06	23123.46	0.00010	24.96	25191.9	634633639.4	2.79722	-0.03	24.92
0.007	177.41	31473.598	0.00014	24.06	25166.6	633357352.9	2.79159	-0.03	24.03
0.008	202.75	41108.374	0.00018	23.29	25141.2	632082351	2.78597	-0.03	23.26
0.009	228.1	52027.785	0.00023	22.61	25115.9	630808633.7	2.78036	-0.03	22.58
0.010	253.44	64231.834	0.00028	22.00	25090.6	629536201.1	2.77475	-0.03	21.97
0.011	278.78	77720.519	0.00034	21.45	25065.2	628265053.1	2.76915	-0.03	21.42
0.012	304.13	92493.84	0.00041	20.94	25039.9	626995189.8	2.76355	-0.03	20.92
0.013	329.47	108551.8	0.00048	20.48	25014.5	625726611.1	2.75796	-0.02	20.45
0.014	354.82	125894.39	0.00055	20.05	24989.2	624459317	2.75237	-0.02	20.03
0.015	380.16	144521.63	0.00064	19.65	24963.8	623193307.5	2.74679	-0.02	19.63
0.016	405.5	164433.49	0.00072	19.28	24938.5	621928582.7	2.74122	-0.02	19.26
0.017	430.85	185630	0.00082	18.93	24913.2	620665142.6	2.73565	-0.02	18.91
0.018	456.19	208111.14	0.00092	18.59	24887.8	619402987	2.73008	-0.02	18.58
0.019	481.54	231876.92	0.00102	18.28	24862.5	618142116.2	2.72453	-0.02	18.26
0.020	506.88	256927.33	0.00113	17.98	24837.1	616882529.9	2.71898	-0.01	17.97
0.021	532.22	283262.39	0.00125	17.70	24811.8	615624228.3	2.71343	-0.01	17.69
0.022	557.57	310882.07	0.00137	17.43	24786.4	614367211.3	2.70789	-0.01	17.42
0.023	582.91	339786.4	0.00150	17.18	24761.1	613111478.9	2.70235	-0.01	17.16
0.024	608.26	369975.36	0.00163	16.93	24735.7	611857031.2	2.69683	-0.01	16.92
0.025	633.6	401448.96	0.00177	16.69	24710.4	610603868.2	2.69130	-0.01	16.68
0.026	658.94	434207.2	0.00191	16.47	24685.1	609351989.7	2.68578	-0.01	16.46
0.027	684.29	468250.07	0.00206	16.25	24659.7	608101395.9	2.68027	-0.01	16.24
0.028	709.63	503577.58	0.00222	16.04	24634.4	606852086.8	2.67477	0.00	16.03
0.029	734.98	540189.72	0.00238	15.83	24609	605604062.2	2.66926	0.00	15.83
0.030	760.32	578086.5	0.00255	15.64	24583.7	604357322.3	2.66377	0.00	15.64

Position	Drawdown from Well #1				Drawdown from Well #2				Total
	Pressure (psi)	Flow (gpm)	Drawdown (psi)	Drawdown (ft)	Pressure (psi)	Flow (gpm)	Drawdown (psi)	Drawdown (ft)	(ft)
0.031	785.66	617267.92	0.00272	15.45	24558.3	603111867.1	2.65828	0.00	15.45
0.032	811.01	657733.98	0.00290	15.27	24533	601867696.5	2.65280	0.00	15.27
0.033	836.35	699484.67	0.00308	15.09	24507.6	600624810.5	2.64732	0.00	15.09
0.034	861.7	742520	0.00327	14.92	24482.3	599383209.1	2.64185	0.00	14.92
0.035	887.04	786839.96	0.00347	14.75	24457	598142892.4	2.63638	0.00	14.75
0.036	912.38	832444.56	0.00367	14.59	24431.6	596903860.4	2.63092	0.01	14.59
0.037	937.73	879333.8	0.00388	14.43	24406.3	595666112.9	2.62546	0.01	14.43
0.038	963.07	927507.68	0.00409	14.27	24380.9	594429650.1	2.62001	0.01	14.28
0.039	988.42	976966.19	0.00431	14.12	24355.6	593194472	2.61457	0.01	14.13
0.040	1013.8	1027709.3	0.00453	13.98	24330.2	591960578.5	2.60913	0.01	13.99
0.041	1039.1	1079737.1	0.00476	13.84	24304.9	590727969.6	2.60370	0.01	13.85
0.042	1064.4	1133049.5	0.00499	13.70	24279.6	589496645.3	2.59827	0.01	13.71
0.043	1089.8	1187646.6	0.00523	13.56	24254.2	588266605.7	2.59285	0.01	13.57
0.044	1115.1	1243528.3	0.00548	13.43	24228.9	587037850.7	2.58743	0.01	13.44
0.045	1140.5	1300694.6	0.00573	13.30	24203.5	585810380.4	2.58202	0.02	13.31
0.046	1165.8	1359145.6	0.00599	13.17	24178.2	584584194.7	2.57662	0.02	13.19
0.047	1191.2	1418881.2	0.00625	13.05	24152.8	583359293.6	2.57122	0.02	13.07
0.048	1216.5	1479901.4	0.00652	12.93	24127.5	582135677.2	2.56583	0.02	12.95
0.049	1241.9	1542206.3	0.00680	12.81	24102.1	580913345.4	2.56044	0.02	12.83
0.050	1267.2	1605795.8	0.00708	12.69	24076.8	579692298.2	2.55506	0.02	12.71
0.051	1292.5	1670670	0.00736	12.58	24051.5	578472535.7	2.54968	0.02	12.60
0.052	1317.9	1736828.8	0.00766	12.47	24026.1	577254057.8	2.54431	0.02	12.49
0.053	1343.2	1804272.2	0.00795	12.36	24000.8	576036864.6	2.53894	0.03	12.38
0.054	1368.6	1873000.3	0.00826	12.25	23975.4	574820956	2.53358	0.03	12.28
0.055	1393.9	1943013	0.00856	12.14	23950.1	573606332	2.52823	0.03	12.17
0.056	1419.3	2014310.3	0.00888	12.04	23924.7	572392992.7	2.52288	0.03	12.07
0.057	1444.6	2086892.3	0.00920	11.94	23899.4	571180938	2.51754	0.03	11.97
0.058	1470	2160758.9	0.00952	11.84	23874	569970167.9	2.51220	0.03	11.87
0.059	1495.3	2235910.1	0.00986	11.74	23848.7	568760682.5	2.50687	0.03	11.77
0.060	1520.6	2312346	0.01019	11.64	23823.4	567552481.7	2.50155	0.03	11.68
0.061	1546	2390066.5	0.01053	11.55	23798	566345565.5	2.49623	0.03	11.58
0.062	1571.3	2469071.7	0.01088	11.46	23772.7	565139934	2.49091	0.03	11.49
0.063	1596.7	2549361.5	0.01124	11.36	23747.3	563935587.1	2.48561	0.04	11.40
0.064	1622	2630935.9	0.01160	11.27	23722	562732524.9	2.48030	0.04	11.31
0.065	1647.4	2713795	0.01196	11.19	23696.6	561530747.3	2.47501	0.04	11.22
0.066	1672.7	2797938.7	0.01233	11.10	23671.3	560330254.3	2.46972	0.04	11.14
0.067	1698	2883367	0.01271	11.01	23646	559131046	2.46443	0.04	11.05
0.068	1723.4	2970080	0.01309	10.93	23620.6	557933122.3	2.45915	0.04	10.97
0.069	1748.7	3058077.6	0.01348	10.84	23595.3	556736483.2	2.45388	0.04	10.89
0.070	1774.1	3147359.8	0.01387	10.76	23569.9	555541128.8	2.44861	0.04	10.81
0.071	1799.4	3237926.7	0.01427	10.68	23544.6	554347059	2.44334	0.04	10.73
0.072	1824.8	3329778.3	0.01468	10.60	23519.2	553154273.9	2.43809	0.05	10.65
0.073	1850.1	3422914.4	0.01509	10.52	23493.9	551962773.4	2.43283	0.05	10.57
0.074	1875.5	3517335.2	0.01550	10.44	23468.5	550772557.5	2.42759	0.05	10.49
0.075	1900.8	3613040.6	0.01592	10.37	23443.2	549583626.2	2.42235	0.05	10.42
0.076	1926.1	3710030.7	0.01635	10.29	23417.9	548395979.6	2.41711	0.05	10.34
0.077	1951.5	3808305.4	0.01679	10.22	23392.5	547209617.7	2.41188	0.05	10.27
0.078	1976.8	3907864.8	0.01722	10.14	23367.2	546024540.3	2.40666	0.05	10.20
0.079	2002.2	4008708.7	0.01767	10.07	23341.8	544840747.6	2.40144	0.05	10.12
0.080	2027.5	4110837.4	0.01812	10.00	23316.5	543658239.6	2.39623	0.05	10.05
0.081	2052.9	4214260.6	0.01857	9.93	23291.1	542477016.2	2.39103	0.05	9.98

	Drawdown from Well #1				Drawdown from Well #2				Total
0.082	2078.2	4318948.5	0.01904	9.86	23265.8	541297077.4	2.38582	0.06	9.92
0.083	2103.6	4424931	0.01950	9.79	23240.4	540118423.2	2.38063	0.06	9.85
0.084	2128.9	4532198.2	0.01998	9.72	23215.1	538941053.7	2.37544	0.06	9.78
0.085	2154.2	4640750	0.02045	9.66	23189.8	537764968.9	2.37026	0.06	9.71
0.086	2179.6	4750586.4	0.02094	9.59	23164.4	536590168.6	2.36508	0.06	9.65
0.087	2204.9	4861707.5	0.02143	9.52	23139.1	535416653	2.35991	0.06	9.58
0.088	2230.3	4974113.2	0.02192	9.46	23113.7	534244422.1	2.35474	0.06	9.52
0.089	2255.6	5087803.5	0.02243	9.39	23088.4	533073475.7	2.34958	0.06	9.46
0.090	2281	5202778.5	0.02293	9.33	23063	531903814	2.34442	0.06	9.40
0.091	2306.3	5319038.1	0.02344	9.27	23037.7	530735437	2.33927	0.06	9.33
0.092	2331.6	5436582.4	0.02396	9.21	23012.4	529568344.6	2.33413	0.07	9.27
0.093	2357	5555411.3	0.02449	9.15	22987	528402536.8	2.32899	0.07	9.21
0.094	2382.3	5675524.8	0.02502	9.09	22961.7	527238013.6	2.32386	0.07	9.15
0.095	2407.7	5796923	0.02555	9.03	22936.3	526074775.1	2.31873	0.07	9.09
0.096	2433	5919605.8	0.02609	8.97	22911	524912821.3	2.31361	0.07	9.04
0.097	2458.4	6043573.2	0.02664	8.91	22885.6	523752152	2.30849	0.07	8.98
0.098	2483.7	6168825.3	0.02719	8.85	22860.3	522592767.4	2.30338	0.07	8.92
0.099	2509.1	6295362	0.02775	8.79	22834.9	521434667.5	2.29828	0.07	8.87
0.100	2534.4	6423183.4	0.02831	8.74	22809.6	520277852.2	2.29318	0.07	8.81
0.101	2559.7	6552289.3	0.02888	8.68	22784.3	519122321.5	2.28809	0.07	8.75
0.102	2585.1	6682680	0.02945	8.62	22758.9	517968075.4	2.28300	0.08	8.70
0.103	2610.4	6814355.2	0.03003	8.57	22733.6	516815114	2.27792	0.08	8.65
0.104	2635.8	6947315.1	0.03062	8.52	22708.2	515663437.2	2.27284	0.08	8.59
0.105	2661.1	7081559.7	0.03121	8.46	22682.9	514513045.1	2.26777	0.08	8.54
0.106	2686.5	7217088.8	0.03181	8.41	22657.5	513363937.6	2.26271	0.08	8.49
0.107	2711.8	7353902.6	0.03241	8.36	22632.2	512216114.7	2.25765	0.08	8.44
0.108	2737.2	7492001.1	0.03302	8.30	22606.8	511069576.5	2.25259	0.08	8.39
0.109	2762.5	7631384.2	0.03364	8.25	22581.5	509924322.9	2.24755	0.08	8.33
0.110	2787.8	7772051.9	0.03426	8.20	22556.2	508780353.9	2.24250	0.08	8.28
0.111	2813.2	7914004.2	0.03488	8.15	22530.8	507637669.6	2.23747	0.08	8.23
0.112	2838.5	8057241.2	0.03551	8.10	22505.5	506496269.9	2.23244	0.08	8.19
0.113	2863.9	8201762.8	0.03615	8.05	22480.1	505356154.9	2.22741	0.09	8.14
0.114	2889.2	8347569.1	0.03679	8.00	22454.8	504217324.5	2.22239	0.09	8.09
0.115	2914.6	8494660	0.03744	7.95	22429.4	503079778.7	2.21738	0.09	8.04
0.116	2939.9	8643035.5	0.03810	7.90	22404.1	501943517.6	2.21237	0.09	7.99
0.117	2965.2	8792695.7	0.03875	7.86	22378.8	500808541.1	2.20737	0.09	7.95
0.118	2990.6	8943640.5	0.03942	7.81	22353.4	499674849.2	2.20237	0.09	7.90
0.119	3015.9	9095870	0.04009	7.76	22328.1	498542442	2.19738	0.09	7.85
0.120	3041.3	9249384	0.04077	7.72	22302.7	497411319.4	2.19239	0.09	7.81
0.121	3066.6	9404182.8	0.04145	7.67	22277.4	496281481.4	2.18741	0.09	7.76
0.122	3092	9560266.1	0.04214	7.62	22252	495152928.1	2.18244	0.09	7.72
0.123	3117.3	9717634.1	0.04283	7.58	22226.7	494025659.4	2.17747	0.10	7.67
0.124	3142.7	9876286.7	0.04353	7.53	22201.3	492899675.4	2.17251	0.10	7.63
0.125	3168	10036224	0.04424	7.49	22176	491774976	2.16755	0.10	7.59
0.126	3193.3	10197446	0.04495	7.44	22150.7	490651561.2	2.16260	0.10	7.54
0.127	3218.7	10359952	0.04566	7.40	22125.3	489529431.1	2.15765	0.10	7.50
0.128	3244	10523744	0.04638	7.36	22100	488408585.6	2.15271	0.10	7.46
0.129	3269.4	10688819	0.04711	7.31	22074.6	487289024.7	2.14778	0.10	7.42
0.130	3294.7	10855180	0.04785	7.27	22049.3	486170748.5	2.14285	0.10	7.37
0.131	3320.1	11022825	0.04858	7.23	22023.9	485053756.9	2.13793	0.10	7.33
0.132	3345.4	11191755	0.04933	7.19	21998.6	483938050	2.13301	0.10	7.29

Drawdown from Well #1					Drawdown from Well #2				Total
Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown
0.133	3370.8	11361969	0.05008	7.15	21973.2	482823627.7	2.12810	0.11	7.25
0.134	3396.1	11533468	0.05083	7.10	21947.9	481710490	2.12319	0.11	7.21
0.135	3421.4	11706252	0.05160	7.06	21922.6	480598637	2.11829	0.11	7.17
0.136	3446.8	11880320	0.05236	7.02	21897.2	479488068.6	2.11339	0.11	7.13
0.137	3472.1	12055673	0.05314	6.98	21871.9	478378784.8	2.10851	0.11	7.09
0.138	3497.5	12232310	0.05392	6.94	21846.5	477270785.7	2.10362	0.11	7.05
0.139	3522.8	12410233	0.05470	6.90	21821.2	476164071.2	2.09874	0.11	7.01
0.140	3548.2	12589439	0.05549	6.86	21795.8	475058641.3	2.09387	0.11	6.98
0.141	3573.5	12769931	0.05628	6.82	21770.5	473954496.1	2.08900	0.11	6.94
0.142	3598.8	12951707	0.05709	6.79	21745.2	472851635.5	2.08414	0.11	6.90
0.143	3624.2	13134768	0.05789	6.75	21719.8	471750059.6	2.07929	0.12	6.86
0.144	3649.5	13319113	0.05871	6.71	21694.5	470649768.2	2.07444	0.12	6.83
0.145	3674.9	13504743	0.05952	6.67	21669.1	469550761.6	2.06960	0.12	6.79
0.146	3700.2	13691658	0.06035	6.63	21643.8	468453039.5	2.06476	0.12	6.75
0.147	3725.6	13879857	0.06118	6.60	21618.4	467356602.1	2.05992	0.12	6.72
0.148	3750.9	14069341	0.06201	6.56	21593.1	466261449.4	2.05510	0.12	6.68
0.149	3776.3	14260109	0.06285	6.52	21567.7	465167581.2	2.05028	0.12	6.65
0.150	3801.6	14452163	0.06370	6.49	21542.4	464074997.8	2.04546	0.12	6.61
0.151	3826.9	14645500	0.06455	6.45	21517.1	462983698.9	2.04065	0.12	6.58
0.152	3852.3	14840123	0.06541	6.42	21491.7	461893684.7	2.03585	0.13	6.54
0.153	3877.6	15036030	0.06627	6.38	21466.4	460804955.1	2.03105	0.13	6.51
0.154	3903	15233222	0.06714	6.34	21441	459717510.2	2.02625	0.13	6.47
0.155	3928.3	15431698	0.06802	6.31	21415.7	458631349.9	2.02147	0.13	6.44
0.156	3953.7	15631459	0.06890	6.27	21390.3	457546474.2	2.01668	0.13	6.40
0.157	3979	15832505	0.06978	6.24	21365	456462883.2	2.01191	0.13	6.37
0.158	4004.4	16034835	0.07068	6.21	21339.6	455380576.8	2.00714	0.13	6.34
0.159	4029.7	16238450	0.07157	6.17	21314.3	454299555	2.00237	0.13	6.30
0.160	4055	16443349	0.07248	6.14	21289	453219817.9	1.99761	0.13	6.27
0.161	4080.4	16649534	0.07338	6.10	21263.6	452141365.4	1.99286	0.13	6.24
0.162	4105.7	16857002	0.07430	6.07	21238.3	451064197.5	1.98811	0.14	6.21
0.163	4131.1	17065756	0.07522	6.04	21212.9	449988314.3	1.98337	0.14	6.17
0.164	4156.4	17275794	0.07614	6.00	21187.6	448913715.8	1.97864	0.14	6.14
0.165	4181.8	17487117	0.07708	5.97	21162.2	447840401.8	1.97390	0.14	6.11
0.166	4207.1	17699724	0.07801	5.94	21136.9	446768372.5	1.96918	0.14	6.08
0.167	4232.4	17913616	0.07896	5.91	21111.6	445697627.8	1.96446	0.14	6.05
0.168	4257.8	18128793	0.07990	5.88	21086.2	444628167.8	1.95975	0.14	6.02
0.169	4283.1	18345254	0.08086	5.84	21060.9	443559992.4	1.95504	0.14	5.99
0.170	4308.5	18563000	0.08182	5.81	21035.5	442493101.7	1.95034	0.14	5.96
0.171	4333.8	18782030	0.08278	5.78	21010.2	441427495.6	1.94564	0.15	5.93
0.172	4359.2	19002346	0.08375	5.75	20984.8	440363174.1	1.94095	0.15	5.90
0.173	4384.5	19223945	0.08473	5.72	20959.5	439300137.2	1.93626	0.15	5.87
0.174	4409.9	19446830	0.08571	5.69	20934.1	438238385	1.93158	0.15	5.84
0.175	4435.2	19670999	0.08670	5.66	20908.8	437177917.4	1.92691	0.15	5.81
0.176	4460.5	19896453	0.08770	5.63	20883.5	436118734.5	1.92224	0.15	5.78
0.177	4485.9	20123191	0.08870	5.60	20858.1	435060836.2	1.91758	0.15	5.75
0.178	4511.2	20351214	0.08970	5.57	20832.8	434004222.5	1.91292	0.15	5.72
0.179	4536.6	20580522	0.09071	5.54	20807.4	432948893.5	1.90827	0.15	5.69
0.180	4561.9	20811114	0.09173	5.51	20782.1	431894849.1	1.90362	0.16	5.66
0.181	4587.3	21042991	0.09275	5.48	20756.7	430842089.4	1.89898	0.16	5.64
0.182	4612.6	21276153	0.09378	5.45	20731.4	429790614.3	1.89435	0.16	5.61
0.183	4638	21510599	0.09481	5.42	20706	428740423.8	1.88972	0.16	5.58

Drawdown from Well #1					Drawdown from Well #2				Total
0.184	4663.3	21746330	0.09585	5.39	20680.7	427691517.9	1.88510	0.16	5.55
0.185	4688.6	21983345	0.09689	5.36	20655.4	426643896.7	1.88048	0.16	5.53
0.186	4714	22221645	0.09794	5.34	20630	425597560.2	1.87587	0.16	5.50
0.187	4739.3	22461230	0.09900	5.31	20604.7	424552508.2	1.87126	0.16	5.47
0.188	4764.7	22702099	0.10006	5.28	20579.3	423508740.9	1.86666	0.17	5.45
0.189	4790	22944253	0.10113	5.25	20554	422466258.3	1.86207	0.17	5.42
0.190	4815.4	23187692	0.10220	5.22	20528.6	421425060.2	1.85748	0.17	5.39
0.191	4840.7	23432415	0.10328	5.20	20503.3	420385146.9	1.85289	0.17	5.37
0.192	4866	23678423	0.10437	5.17	20478	419346518.1	1.84831	0.17	5.34
0.193	4891.4	23925716	0.10546	5.14	20452.6	418309174	1.84374	0.17	5.31
0.194	4916.7	24174293	0.10655	5.12	20427.3	417273114.5	1.83918	0.17	5.29
0.195	4942.1	24424155	0.10765	5.09	20401.9	416238339.7	1.83461	0.17	5.26
0.196	4967.4	24675301	0.10876	5.06	20376.6	415204849.5	1.83006	0.17	5.24
0.197	4992.8	24927732	0.10987	5.04	20351.2	414172643.9	1.82551	0.18	5.21
0.198	5018.1	25181448	0.11099	5.01	20325.9	413141723	1.82097	0.18	5.19
0.199	5043.5	25436448	0.11211	4.98	20300.5	412112086.7	1.81643	0.18	5.16
0.200	5068.8	25692733	0.11324	4.96	20275.2	411083735	1.81190	0.18	5.14
0.201	5094.1	25950303	0.11438	4.93	20249.9	410056668	1.80737	0.18	5.11
0.202	5119.5	26209157	0.11552	4.91	20224.5	409030885.6	1.80285	0.18	5.09
0.203	5144.8	26469296	0.11667	4.88	20199.2	408006387.9	1.79833	0.18	5.06
0.204	5170.2	26730720	0.11782	4.86	20173.8	406983174.8	1.79382	0.19	5.04
0.205	5195.5	26993428	0.11898	4.83	20148.5	405961246.3	1.78932	0.19	5.02
0.206	5220.9	27257421	0.12014	4.81	20123.1	404940602.5	1.78482	0.19	4.99
0.207	5246.2	27522698	0.12131	4.78	20097.8	403921243.3	1.78033	0.19	4.97
0.208	5271.6	27789260	0.12248	4.76	20072.4	402903168.7	1.77584	0.19	4.95
0.209	5296.9	28057107	0.12366	4.73	20047.1	401886378.8	1.77136	0.19	4.92
0.210	5322.2	28326239	0.12485	4.71	20021.8	400870873.5	1.76688	0.19	4.90
0.211	5347.6	28596655	0.12604	4.68	19996.4	399856652.8	1.76241	0.19	4.88
0.212	5372.9	28868355	0.12724	4.66	19971.1	398843716.8	1.75795	0.20	4.85
0.213	5398.3	29141341	0.12844	4.63	19945.7	397832065.4	1.75349	0.20	4.83
0.214	5423.6	29415611	0.12965	4.61	19920.4	396821698.7	1.74903	0.20	4.81
0.215	5449	29691165	0.13087	4.59	19895	395812616.6	1.74459	0.20	4.79
0.216	5474.3	29968004	0.13209	4.56	19869.7	394804819.1	1.74014	0.20	4.76
0.217	5499.6	30246128	0.13331	4.54	19844.4	393798306.3	1.73571	0.20	4.74
0.218	5525	30525537	0.13454	4.52	19819	392793078.1	1.73128	0.20	4.72
0.219	5550.3	30806230	0.13578	4.49	19793.7	391789134.5	1.72685	0.20	4.70
0.220	5575.7	31088207	0.13702	4.47	19768.3	390786475.6	1.72243	0.21	4.68
0.221	5601	31371470	0.13827	4.45	19743	389785101.3	1.71802	0.21	4.65
0.222	5626.4	31656017	0.13953	4.42	19717.6	388785011.7	1.71361	0.21	4.63
0.223	5651.7	31941849	0.14079	4.40	19692.3	387786206.7	1.70921	0.21	4.61
0.224	5677.1	32228965	0.14205	4.38	19666.9	386788686.3	1.70481	0.21	4.59
0.225	5702.4	32517366	0.14332	4.36	19641.6	385792450.6	1.70042	0.21	4.57
0.226	5727.7	32807051	0.14460	4.33	19616.3	384797499.5	1.69604	0.21	4.55
0.227	5753.1	33098022	0.14588	4.31	19590.9	383803833	1.69166	0.22	4.53
0.228	5778.4	33390276	0.14717	4.29	19565.6	382811451.2	1.68728	0.22	4.51
0.229	5803.8	33683816	0.14847	4.27	19540.2	381820354	1.68291	0.22	4.49
0.230	5829.1	33978640	0.14976	4.25	19514.9	380830541.4	1.67855	0.22	4.47
0.231	5854.5	34274749	0.15107	4.23	19489.5	379842013.5	1.67419	0.22	4.45
0.232	5879.8	34572142	0.15238	4.20	19464.2	378854770.2	1.66984	0.22	4.43
0.233	5905.2	34870820	0.15370	4.18	19438.8	377868811.6	1.66550	0.22	4.41
0.234	5930.5	35170783	0.15502	4.16	19413.5	376884137.6	1.66116	0.23	4.39

Drawdown from Well #1					Drawdown from Well #2				
Rate	Flow	Pressure	Drawdown	Drawdown	Rate	Flow	Pressure	Drawdown	Drawdown
0.235	5955.8	35472030	0.15635	4.14	19388.2	375900748.2	1.65682	0.23	4.37
0.236	5981.2	35774562	0.15768	4.12	19362.8	374918643.4	1.65249	0.23	4.35
0.237	6006.5	36078379	0.15902	4.10	19337.5	373937823.4	1.64817	0.23	4.33
0.238	6031.9	36383480	0.16036	4.08	19312.1	372958287.9	1.64385	0.23	4.31
0.239	6057.2	36689866	0.16171	4.06	19286.8	371980037.1	1.63954	0.23	4.29
0.240	6082.6	36997536	0.16307	4.04	19261.4	371003070.9	1.63524	0.24	4.27
0.241	6107.9	37306491	0.16443	4.02	19236.1	370027389.3	1.63094	0.24	4.25
0.242	6133.2	37616731	0.16580	4.00	19210.8	369052992.4	1.62664	0.24	4.23
0.243	6158.6	37928255	0.16717	3.97	19185.4	368079880.1	1.62235	0.24	4.21
0.244	6183.9	38241064	0.16855	3.95	19160.1	367108052.5	1.61807	0.24	4.20
0.245	6209.3	38555158	0.16994	3.93	19134.7	366137509.5	1.61379	0.24	4.18
0.246	6234.6	38870536	0.17133	3.91	19109.4	365168251.1	1.60952	0.24	4.16
0.247	6260	39187199	0.17272	3.90	19084	364200277.4	1.60525	0.25	4.14
0.248	6285.3	39505147	0.17412	3.88	19058.7	363233588.3	1.60099	0.25	4.12
0.249	6310.7	39824379	0.17553	3.86	19033.3	362268183.8	1.59674	0.25	4.11
0.250	6336	40144896	0.17694	3.84	19008	361304064	1.59249	0.25	4.09
0.251	6361.3	40466697	0.17836	3.82	18982.7	360341228.8	1.58824	0.25	4.07
0.252	6386.7	40789784	0.17979	3.80	18957.3	359379678.3	1.58400	0.25	4.05
0.253	6412	41114154	0.18122	3.78	18932	358419412.4	1.57977	0.26	4.03
0.254	6437.4	41439810	0.18265	3.76	18906.6	357460431.1	1.57554	0.26	4.02
0.255	6462.7	41766750	0.18409	3.74	18881.3	356502734.4	1.57132	0.26	4.00
0.256	6488.1	42094974	0.18554	3.72	18855.9	355546322.4	1.56711	0.26	3.98
0.257	6513.4	42424484	0.18699	3.70	18830.6	354591195.1	1.56290	0.26	3.97
0.258	6538.8	42755278	0.18845	3.68	18805.2	353637352.3	1.55869	0.26	3.95
0.259	6564.1	43087356	0.18991	3.67	18779.9	352684794.2	1.55450	0.27	3.93
0.260	6589.4	43420720	0.19138	3.65	18754.6	351733520.8	1.55030	0.27	3.91
0.261	6614.8	43755367	0.19286	3.63	18729.2	350783532	1.54612	0.27	3.90
0.262	6640.1	44091300	0.19434	3.61	18703.9	349834827.8	1.54193	0.27	3.88
0.263	6665.5	44428517	0.19582	3.59	18678.5	348887408.2	1.53776	0.27	3.87
0.264	6690.8	44767019	0.19732	3.57	18653.2	347941273.3	1.53359	0.27	3.85
0.265	6716.2	45106805	0.19881	3.56	18627.8	346996423.1	1.52942	0.28	3.83
0.266	6741.5	45447876	0.20032	3.54	18602.5	346052857.4	1.52526	0.28	3.82
0.267	6766.8	45790232	0.20183	3.52	18577.2	345110576.4	1.52111	0.28	3.80
0.268	6792.2	46133872	0.20334	3.50	18551.8	344169580.1	1.51696	0.28	3.78
0.269	6817.5	46478797	0.20486	3.49	18526.5	343229868.3	1.51282	0.28	3.77
0.270	6842.9	46825007	0.20639	3.47	18501.1	342291441.3	1.50869	0.28	3.75
0.271	6868.2	47172501	0.20792	3.45	18475.8	341354298.8	1.50456	0.29	3.74
0.272	6893.6	47521280	0.20946	3.43	18450.4	340418441	1.50043	0.29	3.72
0.273	6918.9	47871343	0.21100	3.42	18425.1	339483867.8	1.49631	0.29	3.71
0.274	6944.3	48222691	0.21255	3.40	18399.7	338550579.3	1.49220	0.29	3.69
0.275	6969.6	48575324	0.21410	3.38	18374.4	337618575.4	1.48809	0.29	3.68
0.276	6994.9	48929242	0.21566	3.36	18349.1	336687856.1	1.48399	0.30	3.66
0.277	7020.3	49284444	0.21723	3.35	18323.7	335758421.5	1.47989	0.30	3.65
0.278	7045.6	49640930	0.21880	3.33	18298.4	334830271.5	1.47580	0.30	3.63
0.279	7071	49998702	0.22037	3.31	18273	333903406.1	1.47171	0.30	3.62
0.280	7096.3	50357758	0.22196	3.30	18247.7	332977825.4	1.46764	0.30	3.60
0.281	7121.7	50718098	0.22355	3.28	18222.3	332053529.3	1.46356	0.30	3.59
0.282	7147	51079723	0.22514	3.26	18197	331130517.8	1.45949	0.31	3.57
0.283	7172.4	51442633	0.22674	3.25	18171.6	330208791	1.45543	0.31	3.56
0.284	7197.7	51806828	0.22834	3.23	18146.3	329288348.9	1.45137	0.31	3.54
0.285	7223	52172307	0.22996	3.22	18121	328369191.3	1.44732	0.31	3.53

Drawdown from Well #1					Drawdown from Well #2				Total
Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown	Drawdown
0.286	7248.4	52539071	0.23157	3.20	18095.6	327451318.4	1.44328	0.31	3.51
0.287	7273.7	52907119	0.23319	3.18	18070.3	326534730.2	1.43924	0.32	3.50
0.288	7299.1	53276452	0.23482	3.17	18044.9	325619426.5	1.43520	0.32	3.49
0.289	7324.4	53647070	0.23646	3.15	18019.6	324705407.5	1.43117	0.32	3.47
0.290	7349.8	54018972	0.23809	3.14	17994.2	323792673.2	1.42715	0.32	3.46
0.291	7375.1	54392159	0.23974	3.12	17968.9	322881223.5	1.42313	0.32	3.44
0.292	7400.4	54766631	0.24139	3.11	17943.6	321971058.4	1.41912	0.33	3.43
0.293	7425.8	55142387	0.24305	3.09	17918.2	321062177.9	1.41512	0.33	3.42
0.294	7451.1	55519428	0.24471	3.07	17892.9	320154582.1	1.41112	0.33	3.40
0.295	7476.5	55897753	0.24638	3.06	17867.5	319248271	1.40712	0.33	3.39
0.296	7501.8	56277363	0.24805	3.04	17842.2	318343244.4	1.40313	0.33	3.38
0.297	7527.2	56658258	0.24973	3.03	17816.8	317439502.5	1.39915	0.34	3.36
0.298	7552.5	57040438	0.25141	3.01	17791.5	316537045.3	1.39517	0.34	3.35
0.299	7577.9	57423902	0.25310	3.00	17766.1	315635872.6	1.39120	0.34	3.34
0.300	7603.2	57808650	0.25480	2.98	17740.8	314735984.6	1.38723	0.34	3.33
0.301	7628.5	58194684	0.25650	2.97	17715.5	313837381.3	1.38327	0.34	3.31
0.302	7653.9	58582002	0.25821	2.95	17690.1	312940062.6	1.37932	0.35	3.30
0.303	7679.2	58970604	0.25992	2.94	17664.8	312044028.5	1.37537	0.35	3.29
0.304	7704.6	59360491	0.26164	2.92	17639.4	311149279.1	1.37142	0.35	3.27
0.305	7729.9	59751663	0.26336	2.91	17614.1	310255814.2	1.36749	0.35	3.26
0.306	7755.3	60144120	0.26509	2.89	17588.7	309363634.1	1.36355	0.36	3.25
0.307	7780.6	60537861	0.26683	2.88	17563.4	308472738.5	1.35963	0.36	3.24
0.308	7806	60932887	0.26857	2.87	17538	307583127.7	1.35571	0.36	3.23
0.309	7831.3	61329197	0.27031	2.85	17512.7	306694801.4	1.35179	0.36	3.21
0.310	7856.6	61726792	0.27207	2.84	17487.4	305807759.8	1.34788	0.36	3.20
0.311	7882	62125672	0.27383	2.82	17462	304922002.8	1.34398	0.37	3.19
0.312	7907.3	62525836	0.27559	2.81	17436.7	304037530.4	1.34008	0.37	3.18
0.313	7932.7	62927285	0.27736	2.79	17411.3	303154342.7	1.33619	0.37	3.16
0.314	7958	63330019	0.27913	2.78	17386	302272439.6	1.33230	0.37	3.15
0.315	7983.4	63734037	0.28091	2.77	17360.6	301391821.2	1.32842	0.38	3.14
0.316	8008.7	64139340	0.28270	2.75	17335.3	300512487.4	1.32454	0.38	3.13
0.317	8034	64545927	0.28449	2.74	17310	299634438.2	1.32067	0.38	3.12
0.318	8059.4	64953799	0.28629	2.73	17284.6	298757673.7	1.31681	0.38	3.11
0.319	8084.7	65362956	0.28809	2.71	17259.3	297882193.8	1.31295	0.38	3.10
0.320	8110.1	65773398	0.28990	2.70	17233.9	297007998.6	1.30909	0.39	3.08
0.321	8135.4	66185124	0.29172	2.68	17208.6	296135087.9	1.30525	0.39	3.07
0.322	8160.8	66598134	0.29354	2.67	17183.2	295263462	1.30141	0.39	3.06
0.323	8186.1	67012430	0.29536	2.66	17157.9	294393120.6	1.29757	0.39	3.05
0.324	8211.5	67428010	0.29720	2.64	17132.5	293524063.9	1.29374	0.40	3.04
0.325	8236.8	67844874	0.29903	2.63	17107.2	292656291.8	1.28991	0.40	3.03
0.326	8262.1	68263023	0.30088	2.62	17081.9	291789804.4	1.28609	0.40	3.02
0.327	8287.5	68682457	0.30273	2.60	17056.5	290924601.6	1.28228	0.40	3.01
0.328	8312.8	69103176	0.30458	2.59	17031.2	290060683.4	1.27847	0.41	3.00
0.329	8338.2	69525179	0.30644	2.58	17005.8	289198049.9	1.27467	0.41	2.99
0.330	8363.5	69948467	0.30831	2.57	16980.5	288336701	1.27087	0.41	2.98
0.331	8388.9	70373039	0.31018	2.55	16955.1	287476636.8	1.26708	0.41	2.97
0.332	8414.2	70798896	0.31205	2.54	16929.8	286617857.2	1.26330	0.42	2.96
0.333	8439.6	71226038	0.31394	2.53	16904.4	285760362.2	1.25952	0.42	2.94
0.334	8464.9	71654464	0.31582	2.51	16879.1	284904151.8	1.25575	0.42	2.93
0.335	8490.2	72084175	0.31772	2.50	16853.8	284049226.1	1.25198	0.42	2.92
0.336	8515.6	72515171	0.31962	2.49	16828.4	283195585.1	1.24821	0.43	2.91

Drawdown from Well #1					Drawdown from Well #2				Total
Drawdown	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Total
0.337	8540.9	72947451	0.32152	2.48	16803.1	282343228.6	1.24446	0.43	2.90
0.338	8566.3	73381016	0.32343	2.46	16777.7	281492156.8	1.24071	0.43	2.89
0.339	8591.6	73815865	0.32535	2.45	16752.4	280642369.7	1.23696	0.43	2.88
0.340	8617	74252000	0.32727	2.44	16727	279793867.2	1.23322	0.44	2.87
0.341	8642.3	74689418	0.32920	2.43	16701.7	278946649.3	1.22949	0.44	2.87
0.342	8667.6	75128122	0.33114	2.42	16676.4	278100716	1.22576	0.44	2.86
0.343	8693	75568110	0.33307	2.40	16651	277256067.4	1.22204	0.44	2.85
0.344	8718.3	76009383	0.33502	2.39	16625.7	276412703.4	1.21832	0.45	2.84
0.345	8743.7	76451940	0.33697	2.38	16600.3	275570624.1	1.21461	0.45	2.83
0.346	8769	76895782	0.33893	2.37	16575	274729829.4	1.21090	0.45	2.82
0.347	8794.4	77340909	0.34089	2.36	16549.6	273890319.3	1.20720	0.45	2.81
0.348	8819.7	77787320	0.34286	2.34	16524.3	273052093.9	1.20351	0.46	2.80
0.349	8845.1	78235016	0.34483	2.33	16498.9	272215153.1	1.19982	0.46	2.79
0.350	8870.4	78683996	0.34681	2.32	16473.6	271379497	1.19613	0.46	2.78
0.351	8895.7	79134261	0.34879	2.31	16448.3	270545125.4	1.19246	0.46	2.77
0.352	8921.1	79585811	0.35078	2.30	16422.9	269712038.6	1.18878	0.47	2.76
0.353	8946.4	80038646	0.35278	2.28	16397.6	268880236.3	1.18512	0.47	2.75
0.354	8971.8	80492765	0.35478	2.27	16372.2	268049718.7	1.18146	0.47	2.75
0.355	8997.1	80948168	0.35679	2.26	16346.9	267220485.7	1.17780	0.48	2.74
0.356	9022.5	81404857	0.35880	2.25	16321.5	266392537.4	1.17415	0.48	2.73
0.357	9047.8	81862830	0.36082	2.24	16296.2	265565873.7	1.17051	0.48	2.72
0.358	9073.2	82322087	0.36284	2.23	16270.8	264740494.6	1.16687	0.48	2.71
0.359	9098.5	82782629	0.36487	2.22	16245.5	263916400.2	1.16324	0.49	2.70
0.360	9123.8	83244456	0.36691	2.21	16220.2	263093590.4	1.15961	0.49	2.69
0.361	9149.2	83707568	0.36895	2.19	16194.8	262272065.3	1.15599	0.49	2.69
0.362	9174.5	84171964	0.37100	2.18	16169.5	261451824.8	1.15238	0.49	2.68
0.363	9199.9	84637645	0.37305	2.17	16144.1	260632868.9	1.14877	0.50	2.67
0.364	9225.2	85104610	0.37511	2.16	16118.8	259815197.6	1.14516	0.50	2.66
0.365	9250.6	85572860	0.37717	2.15	16093.4	258998811	1.14156	0.50	2.65
0.366	9275.9	86042395	0.37924	2.14	16068.1	258183709.1	1.13797	0.51	2.65
0.367	9301.2	86513214	0.38132	2.13	16042.8	257369891.7	1.13439	0.51	2.64
0.368	9326.6	86985318	0.38340	2.12	16017.4	256557359	1.13080	0.51	2.63
0.369	9351.9	87458707	0.38548	2.11	15992.1	255746111	1.12723	0.52	2.62
0.370	9377.3	87933380	0.38758	2.10	15966.7	254936147.6	1.12366	0.52	2.62
0.371	9402.6	88409338	0.38967	2.09	15941.4	254127468.8	1.12009	0.52	2.61
0.372	9428	88886581	0.39178	2.08	15916	253320074.6	1.11654	0.52	2.60
0.373	9453.3	89365108	0.39389	2.06	15890.7	252513965.1	1.11298	0.53	2.59
0.374	9478.7	89844920	0.39600	2.05	15865.3	251709140.2	1.10943	0.53	2.59
0.375	9504	90326016	0.39812	2.04	15840	250905600	1.10589	0.53	2.58
0.376	9529.3	90808397	0.40025	2.03	15814.7	250103344.4	1.10236	0.54	2.57
0.377	9554.7	91292063	0.40238	2.02	15789.3	249302373.4	1.09883	0.54	2.56
0.378	9580	91777013	0.40452	2.01	15764	248502687.1	1.09530	0.54	2.56
0.379	9605.4	92263248	0.40666	2.00	15738.6	247704285.4	1.09178	0.55	2.55
0.380	9630.7	92750768	0.40881	1.99	15713.3	246907168.4	1.08827	0.55	2.54
0.381	9656.1	93239572	0.41096	1.98	15687.9	246111335.9	1.08476	0.55	2.54
0.382	9681.4	93729661	0.41312	1.97	15662.6	245316788.2	1.08126	0.56	2.53
0.383	9706.8	94221034	0.41529	1.96	15637.2	244523525	1.07776	0.56	2.52
0.384	9732.1	94713693	0.41746	1.95	15611.9	243731546.5	1.07427	0.56	2.51
0.385	9757.4	95207635	0.41964	1.94	15586.6	242940852.6	1.07079	0.57	2.51
0.386	9782.8	95702863	0.42182	1.93	15561.2	242151443.4	1.06731	0.57	2.50
0.387	9808.1	96199375	0.42401	1.92	15535.9	241363318.8	1.06383	0.57	2.49

Development Well					Development Well				
0.388	9833.5	96697172	0.42620	1.91	15510.5	240576478.8	1.06037	0.57	2.49
0.389	9858.8	97196253	0.42840	1.90	15485.2	239790923.5	1.05690	0.58	2.48
0.390	9884.2	97696619	0.43061	1.89	15459.8	239006652.8	1.05345	0.58	2.48
0.391	9909.5	98198270	0.43282	1.88	15434.5	238223666.8	1.05000	0.58	2.47
0.392	9934.8	98701205	0.43504	1.87	15409.2	237441965.4	1.04655	0.59	2.46
0.393	9960.2	99205425	0.43726	1.87	15383.8	236661548.6	1.04311	0.59	2.46
0.394	9985.5	99710929	0.43949	1.86	15358.5	235882416.4	1.03968	0.59	2.45
0.395	10011	100217718	0.44172	1.85	15333.1	235104568.9	1.03625	0.60	2.44
0.396	10036	100725792	0.44396	1.84	15307.8	234328006.1	1.03283	0.60	2.44
0.397	10062	101235151	0.44620	1.83	15282.4	233552727.8	1.02941	0.61	2.43
0.398	10087	101745794	0.44846	1.82	15257.1	232778734.2	1.02600	0.61	2.43
0.399	10112	102257721	0.45071	1.81	15231.7	232006025.3	1.02259	0.61	2.42
0.400	10138	102770934	0.45297	1.80	15206.4	231234601	1.01919	0.62	2.42
0.401	10163	103285431	0.45524	1.79	15181.1	230464461.3	1.01580	0.62	2.41
0.402	10188	103801212	0.45751	1.78	15155.7	229695606.2	1.01241	0.62	2.40
0.403	10214	104318279	0.45979	1.77	15130.4	228928035.8	1.00902	0.63	2.40
0.404	10239	104836630	0.46208	1.76	15105	228161750	1.00565	0.63	2.39
0.405	10264	105356265	0.46437	1.75	15079.7	227396748.9	1.00228	0.63	2.39
0.406	10290	105877185	0.46666	1.75	15054.3	226633032.4	0.99891	0.64	2.38
0.407	10315	106399390	0.46897	1.74	15029	225870600.5	0.99555	0.64	2.38
0.408	10340	106922879	0.47127	1.73	15003.6	225109453.3	0.99219	0.64	2.37
0.409	10366	107447654	0.47359	1.72	14978.3	224349590.7	0.98884	0.65	2.37
0.410	10391	107973712	0.47591	1.71	14953	223591012.8	0.98550	0.65	2.36
0.411	10416	108501056	0.47823	1.70	14927.6	222833719.4	0.98216	0.65	2.36
0.412	10442	109029684	0.48056	1.69	14902.3	222077710.8	0.97883	0.66	2.35
0.413	10467	109559596	0.48290	1.68	14876.9	221322986.7	0.97550	0.66	2.35
0.414	10492	110090794	0.48524	1.67	14851.6	220569547.3	0.97218	0.67	2.34
0.415	10518	110623275	0.48758	1.67	14826.2	219817392.5	0.96887	0.67	2.34
0.416	10543	111157042	0.48994	1.66	14800.9	219066522.4	0.96556	0.67	2.33
0.417	10568	111692093	0.49229	1.65	14775.6	218316936.9	0.96226	0.68	2.33
0.418	10594	112228429	0.49466	1.64	14750.2	217568636	0.95896	0.68	2.32
0.419	10619	112766049	0.49703	1.63	14724.9	216821619.8	0.95566	0.68	2.32
0.420	10644	113304954	0.49940	1.62	14699.5	216075888.2	0.95238	0.69	2.31
0.421	10670	113845144	0.50178	1.62	14674.2	215331441.3	0.94910	0.69	2.31
0.422	10695	114386619	0.50417	1.61	14648.8	214588279	0.94582	0.70	2.30
0.423	10721	114929378	0.50656	1.60	14623.5	213846401.3	0.94255	0.70	2.30
0.424	10746	115473421	0.50896	1.59	14598.1	213105808.2	0.93929	0.70	2.30
0.425	10771	116018749	0.51137	1.58	14572.8	212366499.8	0.93603	0.71	2.29
0.426	10797	116565362	0.51377	1.57	14547.5	211628476.1	0.93278	0.71	2.29
0.427	10822	117113260	0.51619	1.57	14522.1	210891736.9	0.92953	0.72	2.28
0.428	10847	117662442	0.51861	1.56	14496.8	210156282.4	0.92629	0.72	2.28
0.429	10873	118212909	0.52104	1.55	14471.4	209422112.6	0.92305	0.72	2.27
0.430	10898	118764660	0.52347	1.54	14446.1	208689227.4	0.91982	0.73	2.27
0.431	10923	119317696	0.52591	1.53	14420.7	207957626.8	0.91660	0.73	2.27
0.432	10949	119872017	0.52835	1.53	14395.4	207227310.8	0.91338	0.74	2.26
0.433	10974	120427622	0.53080	1.52	14370	206498279.5	0.91016	0.74	2.26
0.434	10999	120984512	0.53325	1.51	14344.7	205770532.8	0.90696	0.74	2.26
0.435	11025	121542687	0.53571	1.50	14319.4	205044070.8	0.90375	0.75	2.25
0.436	11050	122102146	0.53818	1.49	14294	204318893.4	0.90056	0.75	2.25
0.437	11075	122662890	0.54065	1.49	14268.7	203595000.6	0.89737	0.76	2.24
0.438	11101	123224919	0.54313	1.48	14243.3	202872392.5	0.89418	0.76	2.24

D:\Production\Montage Holdings\Amaranth\Amaranth PW1 Impact Analysis\This Image Well Analysis\Impact analysis					D:\Production\Montage Holdings\Amaranth\Amaranth PW1 Impact Analysis\This Image Well Analysis\Impact analysis					Total
0.439	11126	123788232	0.54561	1.47	14218	202151069	0.89100	0.77	2.24	
0.440	11151	124352830	0.54810	1.46	14192.6	201431030.2	0.88783	0.77	2.23	
0.441	11177	124918712	0.55059	1.46	14167.3	200712276	0.88466	0.77	2.23	
0.442	11202	125485879	0.55309	1.45	14142	199994806.4	0.88150	0.78	2.23	
0.443	11227	126054331	0.55560	1.44	14116.6	199278621.4	0.87834	0.78	2.22	
0.444	11253	126624067	0.55811	1.43	14091.3	198563721.1	0.87519	0.79	2.22	
0.445	11278	127195088	0.56063	1.43	14065.9	197850105.4	0.87205	0.79	2.22	
0.446	11303	127767394	0.56315	1.42	14040.6	197137774.4	0.86891	0.80	2.22	
0.447	11329	128340984	0.56568	1.41	14015.2	196426728	0.86577	0.80	2.21	
0.448	11354	128915859	0.56821	1.40	13989.9	195716966.3	0.86264	0.80	2.21	
0.449	11379	129492019	0.57075	1.40	13964.5	195008489.1	0.85952	0.81	2.21	
0.450	11405	130069463	0.57330	1.39	13939.2	194301296.6	0.85640	0.81	2.20	
0.451	11430	130648192	0.57585	1.38	13913.9	193595388.8	0.85329	0.82	2.20	
0.452	11455	131228205	0.57840	1.38	13888.5	192890765.6	0.85019	0.82	2.20	
0.453	11481	131809503	0.58096	1.37	13863.2	192187427	0.84709	0.83	2.20	
0.454	11506	132392086	0.58353	1.36	13837.8	191485373.1	0.84399	0.83	2.19	
0.455	11532	132975954	0.58611	1.35	13812.5	190784603.8	0.84090	0.84	2.19	
0.456	11557	133561106	0.58868	1.35	13787.1	190085119.1	0.83782	0.84	2.19	
0.457	11582	134147542	0.59127	1.34	13761.8	189386919.1	0.83474	0.85	2.19	
0.458	11608	134735263	0.59386	1.33	13736.4	188690003.7	0.83167	0.85	2.18	
0.459	11633	135324269	0.59646	1.33	13711.1	187994372.9	0.82861	0.85	2.18	
0.460	11658	135914560	0.59906	1.32	13685.8	187300026.8	0.82554	0.86	2.18	
0.461	11684	136506135	0.60167	1.31	13660.4	186606965.3	0.82249	0.86	2.18	
0.462	11709	137098995	0.60428	1.31	13635.1	185915188.4	0.81944	0.87	2.17	
0.463	11734	137693139	0.60690	1.30	13609.7	185224696.2	0.81640	0.87	2.17	
0.464	11760	138288568	0.60952	1.29	13584.4	184535488.7	0.81336	0.88	2.17	
0.465	11785	138885282	0.61215	1.28	13559	183847565.7	0.81033	0.88	2.17	
0.466	11810	139483281	0.61479	1.28	13533.7	183160927.4	0.80730	0.89	2.17	
0.467	11836	140082564	0.61743	1.27	13508.4	182475573.8	0.80428	0.89	2.16	
0.468	11861	140683131	0.62008	1.26	13483	181791504.7	0.80127	0.90	2.16	
0.469	11886	141284984	0.62273	1.26	13457.7	181108720.3	0.79826	0.90	2.16	
0.470	11912	141888120	0.62539	1.25	13432.3	180427220.6	0.79525	0.91	2.16	
0.471	11937	142492542	0.62805	1.24	13407	179747005.5	0.79225	0.91	2.16	
0.472	11962	143098248	0.63072	1.24	13381.6	179068075	0.78926	0.92	2.16	
0.473	11988	143705239	0.63340	1.23	13356.3	178390429.1	0.78627	0.92	2.15	
0.474	12013	144313514	0.63608	1.23	13330.9	177714067.9	0.78329	0.93	2.15	
0.475	12038	144923075	0.63876	1.22	13305.6	177038991.4	0.78032	0.93	2.15	
0.476	12064	145533919	0.64146	1.21	13280.3	176365199.4	0.77735	0.94	2.15	
0.477	12089	146146049	0.64415	1.21	13254.9	175692692.1	0.77438	0.94	2.15	
0.478	12114	146759463	0.64686	1.20	13229.6	175021469.5	0.77143	0.95	2.15	
0.479	12140	147374161	0.64957	1.19	13204.2	174351531.4	0.76847	0.95	2.15	
0.480	12165	147990145	0.65228	1.19	13178.9	173682878.1	0.76553	0.96	2.15	
0.481	12190	148607413	0.65500	1.18	13153.5	173015509.3	0.76258	0.96	2.14	
0.482	12216	149225965	0.65773	1.17	13128.2	172349425.2	0.75965	0.97	2.14	
0.483	12241	149845802	0.66046	1.17	13102.8	171684625.7	0.75672	0.97	2.14	
0.484	12266	150466924	0.66320	1.16	13077.5	171021110.9	0.75379	0.98	2.14	
0.485	12292	151089331	0.66594	1.16	13052.2	170358880.7	0.75087	0.98	2.14	
0.486	12317	151713022	0.66869	1.15	13026.8	169697935.1	0.74796	0.99	2.14	
0.487	12343	152337997	0.67145	1.14	13001.5	169038274.2	0.74505	1.00	2.14	
0.488	12368	152964258	0.67421	1.14	12976.1	168379897.9	0.74215	1.00	2.14	
0.489	12393	153591803	0.67697	1.13	12950.8	167722806.2	0.73926	1.01	2.14	

Production Montage Holdings					Amaranth Amaranth PWI				
0.490	12419	154220632	0.67974	1.13	12925.4	167066999.2	0.73637	1.01	2.14
0.491	12444	154850747	0.68252	1.12	12900.1	166412476.8	0.73348	1.02	2.14
0.492	12469	155482146	0.68530	1.11	12874.8	165759239.1	0.73060	1.02	2.14
0.493	12495	156114829	0.68809	1.11	12849.4	165107286	0.72773	1.03	2.14
0.494	12520	156748797	0.69089	1.10	12824.1	164456617.5	0.72486	1.03	2.14
0.495	12545	157384050	0.69369	1.10	12798.7	163807233.6	0.72200	1.04	2.13
0.496	12571	158020588	0.69649	1.09	12773.4	163159134.4	0.71914	1.04	2.13
0.497	12596	158658410	0.69930	1.08	12748	162512319.9	0.71629	1.05	2.13
0.498	12621	159297517	0.70212	1.08	12722.7	161866789.9	0.71345	1.06	2.13
0.499	12647	159937908	0.70494	1.07	12697.3	161222544.7	0.71061	1.06	2.13
0.500	12672	160579584	0.70777	1.07	12672	160579584	0.70777	1.07	2.13
0.501	12697	161222545	0.71061	1.06	12646.7	159937908	0.70494	1.07	2.13
0.502	12723	161866790	0.71345	1.06	12621.3	159297516.6	0.70212	1.08	2.13
0.503	12748	162512320	0.71629	1.05	12596	158658409.9	0.69930	1.08	2.13
0.504	12773	163159134	0.71914	1.04	12570.6	158020587.7	0.69649	1.09	2.13
0.505	12799	163807234	0.72200	1.04	12545.3	157384050.3	0.69369	1.10	2.13
0.506	12824	164456617	0.72486	1.03	12519.9	156748797.4	0.69089	1.10	2.14
0.507	12849	165107286	0.72773	1.03	12494.6	156114829.2	0.68809	1.11	2.14
0.508	12875	165759239	0.73060	1.02	12469.2	155482145.7	0.68530	1.11	2.14
0.509	12900	166412477	0.73348	1.02	12443.9	154850746.8	0.68252	1.12	2.14
0.510	12925	167066999	0.73637	1.01	12418.6	154220632.5	0.67974	1.13	2.14
0.511	12951	167722806	0.73926	1.01	12393.2	153591802.8	0.67697	1.13	2.14
0.512	12976	168379898	0.74215	1.00	12367.9	152964257.8	0.67421	1.14	2.14
0.513	13001	169038274	0.74505	1.00	12342.5	152337997.4	0.67145	1.14	2.14
0.514	13027	169697935	0.74796	0.99	12317.2	151713021.7	0.66869	1.15	2.14
0.515	13052	170358881	0.75087	0.98	12291.8	151089330.6	0.66594	1.16	2.14
0.516	13078	171021111	0.75379	0.98	12266.5	150466924.1	0.66320	1.16	2.14
0.517	13103	171684626	0.75672	0.97	12241.2	149845802.3	0.66046	1.17	2.14
0.518	13128	172349425	0.75965	0.97	12215.8	149225965.1	0.65773	1.17	2.14
0.519	13154	173015509	0.76258	0.96	12190.5	148607412.5	0.65500	1.18	2.14
0.520	13179	173682878	0.76553	0.96	12165.1	147990144.6	0.65228	1.19	2.15
0.521	13204	174351531	0.76847	0.95	12139.8	147374161.3	0.64957	1.19	2.15
0.522	13230	175021469	0.77143	0.95	12114.4	146759462.7	0.64686	1.20	2.15
0.523	13255	175692692	0.77438	0.94	12089.1	146146048.7	0.64415	1.21	2.15
0.524	13280	176365199	0.77735	0.94	12063.7	145533919.3	0.64146	1.21	2.15
0.525	13306	177038991	0.78032	0.93	12038.4	144923074.6	0.63876	1.22	2.15
0.526	13331	177714068	0.78329	0.93	12013.1	144313514.5	0.63608	1.23	2.15
0.527	13356	178390429	0.78627	0.92	11987.7	143705239	0.63340	1.23	2.15
0.528	13382	179068075	0.78926	0.92	11962.4	143098248.2	0.63072	1.24	2.16
0.529	13407	179747005	0.79225	0.91	11937	142492542	0.62805	1.24	2.16
0.530	13432	180427221	0.79525	0.91	11911.7	141888120.4	0.62539	1.25	2.16
0.531	13458	181108720	0.79826	0.90	11886.3	141284983.5	0.62273	1.26	2.16
0.532	13483	181791505	0.80127	0.90	11861	140683131.2	0.62008	1.26	2.16
0.533	13508	182475574	0.80428	0.89	11835.6	140082563.6	0.61743	1.27	2.16
0.534	13534	183160927	0.80730	0.89	11810.3	139483280.6	0.61479	1.28	2.17
0.535	13559	183847566	0.81033	0.88	11785	138885282.2	0.61215	1.28	2.17
0.536	13584	184535489	0.81336	0.88	11759.6	138288568.5	0.60952	1.29	2.17
0.537	13610	185224696	0.81640	0.87	11734.3	137693139.4	0.60690	1.30	2.17
0.538	13635	185915188	0.81944	0.87	11708.9	137098994.9	0.60428	1.31	2.17
0.539	13660	186606965	0.82249	0.86	11683.6	136506135.1	0.60167	1.31	2.18
0.540	13686	187300027	0.82554	0.86	11658.2	135914559.9	0.59906	1.32	2.18

**PRODUCTION MONTAGE HOLDINGS**

0.541	13711	187994373	0.82861	0.85	11632.9	135324269.3	0.59646	1.33	2.18
0.542	13736	188690004	0.83167	0.85	11607.6	134735263.4	0.59386	1.33	2.18
0.543	13762	189386919	0.83474	0.85	11582.2	134147542.2	0.59127	1.34	2.19
0.544	13787	190085119	0.83782	0.84	11556.9	133561105.5	0.58868	1.35	2.19
0.545	13812	190784604	0.84090	0.84	11531.5	132975953.5	0.58611	1.35	2.19
0.546	13838	191485373	0.84399	0.83	11506.2	132392086.1	0.58353	1.36	2.19
0.547	13863	192187427	0.84709	0.83	11480.8	131809503.4	0.58096	1.37	2.20
0.548	13889	192890766	0.85019	0.82	11455.5	131228205.3	0.57840	1.38	2.20
0.549	13914	193595389	0.85329	0.82	11430.1	130648191.9	0.57585	1.38	2.20
0.550	13939	194301297	0.85640	0.81	11404.8	130069463	0.57330	1.39	2.20
0.551	13965	195008489	0.85952	0.81	11379.5	129492018.9	0.57075	1.40	2.21
0.552	13990	195716966	0.86264	0.80	11354.1	128915859.3	0.56821	1.40	2.21
0.553	14015	196426728	0.86577	0.80	11328.8	128340984.4	0.56568	1.41	2.21
0.554	14041	197137774	0.86891	0.80	11303.4	127767394.1	0.56315	1.42	2.22
0.555	14066	197850105	0.87205	0.79	11278.1	127195088.5	0.56063	1.43	2.22
0.556	14091	198563721	0.87519	0.79	11252.7	126624067.5	0.55811	1.43	2.22
0.557	14117	199278621	0.87834	0.78	11227.4	126054331.1	0.55560	1.44	2.22
0.558	14142	199994806	0.88150	0.78	11202	125485879.4	0.55309	1.45	2.23
0.559	14167	200712276	0.88466	0.77	11176.7	124918712.3	0.55059	1.46	2.23
0.560	14193	201431030	0.88783	0.77	11151.4	124352829.8	0.54810	1.46	2.23
0.561	14218	202151069	0.89100	0.77	11126	123788232	0.54561	1.47	2.24
0.562	14243	202872393	0.89418	0.76	11100.7	123224918.9	0.54313	1.48	2.24
0.563	14269	203595001	0.89737	0.76	11075.3	122662890.3	0.54065	1.49	2.24
0.564	14294	204318893	0.90056	0.75	11050	122102146.4	0.53818	1.49	2.25
0.565	14319	205044071	0.90375	0.75	11024.6	121542687.1	0.53571	1.50	2.25
0.566	14345	205770533	0.90696	0.74	10999.3	120984512.5	0.53325	1.51	2.26
0.567	14370	206498280	0.91016	0.74	10974	120427622.5	0.53080	1.52	2.26
0.568	14395	207227311	0.91338	0.74	10948.6	119872017.1	0.52835	1.53	2.26
0.569	14421	207957627	0.91660	0.73	10923.3	119317696.4	0.52591	1.53	2.27
0.570	14446	208689227	0.91982	0.73	10897.9	118764660.3	0.52347	1.54	2.27
0.571	14471	209422113	0.92305	0.72	10872.6	118212908.9	0.52104	1.55	2.27
0.572	14497	210156282	0.92629	0.72	10847.2	117662442.1	0.51861	1.56	2.28
0.573	14522	210891737	0.92953	0.72	10821.9	117113259.9	0.51619	1.57	2.28
0.574	14547	211628476	0.93278	0.71	10796.5	116565362.3	0.51377	1.57	2.29
0.575	14573	212366500	0.93603	0.71	10771.2	116018749.4	0.51137	1.58	2.29
0.576	14598	213105808	0.93929	0.70	10745.9	115473421.2	0.50896	1.59	2.30
0.577	14623	213846401	0.94255	0.70	10720.5	114929377.5	0.50656	1.60	2.30
0.578	14649	214588279	0.94582	0.70	10695.2	114386618.5	0.50417	1.61	2.30
0.579	14674	215331441	0.94910	0.69	10669.8	113845144.2	0.50178	1.62	2.31
0.580	14700	216075888	0.95238	0.69	10644.5	113304954.5	0.49940	1.62	2.31
0.581	14725	216821620	0.95566	0.68	10619.1	112766049.4	0.49703	1.63	2.32
0.582	14750	217568636	0.95896	0.68	10593.8	112228428.9	0.49466	1.64	2.32
0.583	14776	218316937	0.96226	0.68	10568.4	111692093.1	0.49229	1.65	2.33
0.584	14801	219066522	0.96556	0.67	10543.1	111157042	0.48994	1.66	2.33
0.585	14826	219817393	0.96887	0.67	10517.8	110623275.4	0.48758	1.67	2.34
0.586	14852	220569547	0.97218	0.67	10492.4	110090793.5	0.48524	1.67	2.34
0.587	14877	221322987	0.97550	0.66	10467.1	109559596.3	0.48290	1.68	2.35
0.588	14902	222077711	0.97883	0.66	10441.7	109029683.6	0.48056	1.69	2.35
0.589	14928	222833719	0.98216	0.65	10416.4	108501055.6	0.47823	1.70	2.36
0.590	14953	223591013	0.98550	0.65	10391	107973712.3	0.47591	1.71	2.36
0.591	14978	224349591	0.98884	0.65	10365.7	107447653.6	0.47359	1.72	2.37

0.592	15004	225109453	0.99219	0.64	10340.4	106922879.5	0.47127	1.73	2.37
0.593	15029	225870601	0.99555	0.64	10315	106399390	0.46897	1.74	2.38
0.594	15054	226633032	0.99891	0.64	10289.7	105877185.2	0.46666	1.75	2.38
0.595	15080	227396749	1.00228	0.63	10264.3	105356265.1	0.46437	1.75	2.39
0.596	15105	228161750	1.00565	0.63	10239	104836629.5	0.46208	1.76	2.39
0.597	15130	228928036	1.00902	0.63	10213.6	104318278.6	0.45979	1.77	2.40
0.598	15156	229695606	1.01241	0.62	10188.3	103801212.4	0.45751	1.78	2.40
0.599	15181	230464461	1.01580	0.62	10162.9	103285430.7	0.45524	1.79	2.41
0.600	15206	231234601	1.01919	0.62	10137.6	102770933.8	0.45297	1.80	2.42
0.601	15232	232006025	1.02259	0.61	10112.3	102257721.4	0.45071	1.81	2.42
0.602	15257	232778734	1.02600	0.61	10086.9	101745793.7	0.44846	1.82	2.43
0.603	15282	233552728	1.02941	0.61	10061.6	101235150.6	0.44620	1.83	2.43
0.604	15308	234328006	1.03283	0.60	10036.2	100725792.2	0.44396	1.84	2.44
0.605	15333	235104569	1.03625	0.60	10010.9	100217718.4	0.44172	1.85	2.44
0.606	15358	235882416	1.03968	0.59	9985.54	99710929.21	0.43949	1.86	2.45
0.607	15384	236661549	1.04311	0.59	9960.19	99205424.68	0.43726	1.87	2.46
0.608	15409	237441965	1.04655	0.59	9934.85	98701204.78	0.43504	1.87	2.46
0.609	15434	238223667	1.05000	0.58	9909.5	98198269.53	0.43282	1.88	2.47
0.610	15460	239006653	1.05345	0.58	9884.16	97696618.91	0.43061	1.89	2.48
0.611	15485	239790924	1.05690	0.58	9858.82	97196252.92	0.42840	1.90	2.48
0.612	15511	240576479	1.06037	0.57	9833.47	96697171.57	0.42620	1.91	2.49
0.613	15536	241363319	1.06383	0.57	9808.13	96199374.86	0.42401	1.92	2.49
0.614	15561	242151443	1.06731	0.57	9782.78	95702862.79	0.42182	1.93	2.50
0.615	15587	242940853	1.07079	0.57	9757.44	95207635.35	0.41964	1.94	2.51
0.616	15612	243731547	1.07427	0.56	9732.1	94713692.55	0.41746	1.95	2.51
0.617	15637	244523525	1.07776	0.56	9706.75	94221034.39	0.41529	1.96	2.52
0.618	15663	245316788	1.08126	0.56	9681.41	93729660.86	0.41312	1.97	2.53
0.619	15688	246111336	1.08476	0.55	9656.06	93239571.97	0.41096	1.98	2.54
0.620	15713	246907168	1.08827	0.55	9630.72	92750767.72	0.40881	1.99	2.54
0.621	15739	247704285	1.09178	0.55	9605.38	92263248.1	0.40666	2.00	2.55
0.622	15764	248502687	1.09530	0.54	9580.03	91777013.12	0.40452	2.01	2.56
0.623	15789	249302373	1.09883	0.54	9554.69	91292062.78	0.40238	2.02	2.56
0.624	15815	250103344	1.10236	0.54	9529.34	90808397.07	0.40025	2.03	2.57
0.625	15840	250905600	1.10589	0.53	9504	90326016	0.39812	2.04	2.58
0.626	15865	251709140	1.10943	0.53	9478.66	89844919.57	0.39600	2.05	2.59
0.627	15891	252513965	1.11298	0.53	9453.31	89365107.77	0.39389	2.06	2.59
0.628	15916	253320075	1.11654	0.52	9427.97	88886580.61	0.39178	2.08	2.60
0.629	15941	254127469	1.12009	0.52	9402.62	88409338.09	0.38967	2.09	2.61
0.630	15967	254936148	1.12366	0.52	9377.28	87933380.2	0.38758	2.10	2.62
0.631	15992	255746111	1.12723	0.52	9351.94	87458706.95	0.38548	2.11	2.62
0.632	16017	256557359	1.13080	0.51	9326.59	86985318.33	0.38340	2.12	2.63
0.633	16043	257369892	1.13439	0.51	9301.25	86513214.36	0.38132	2.13	2.64
0.634	16068	258183709	1.13797	0.51	9275.9	86042395.02	0.37924	2.14	2.65
0.635	16093	258998811	1.14156	0.50	9250.56	85572860.31	0.37717	2.15	2.65
0.636	16119	259815198	1.14516	0.50	9225.22	85104610.25	0.37511	2.16	2.66
0.637	16144	260632869	1.14877	0.50	9199.87	84637644.82	0.37305	2.17	2.67
0.638	16169	261451825	1.15238	0.49	9174.53	84171964.02	0.37100	2.18	2.68
0.639	16195	262272065	1.15599	0.49	9149.18	83707567.87	0.36895	2.19	2.69
0.640	16220	263093590	1.15961	0.49	9123.84	83244456.35	0.36691	2.21	2.69
0.641	16246	263916400	1.16324	0.49	9098.5	82782629.46	0.36487	2.22	2.70
0.642	16271	264740495	1.16687	0.48	9073.15	82322087.22	0.36284	2.23	2.71

0.643	16296	265565874	1.17051	0.48	9047.81	81862829.6	0.36082	2.24	2.72
0.644	16322	266392537	1.17415	0.48	9022.46	81404856.63	0.35880	2.25	2.73
0.645	16347	267220486	1.17780	0.48	8997.12	80948168.29	0.35679	2.26	2.74
0.646	16372	268049719	1.18146	0.47	8971.78	80492764.59	0.35478	2.27	2.75
0.647	16398	268880236	1.18512	0.47	8946.43	80038645.53	0.35278	2.28	2.75
0.648	16423	269712039	1.18878	0.47	8921.09	79585811.1	0.35078	2.30	2.76
0.649	16448	270545125	1.19246	0.46	8895.74	79134261.31	0.34879	2.31	2.77
0.650	16474	271379497	1.19613	0.46	8870.4	78683996.16	0.34681	2.32	2.78
0.651	16499	272215153	1.19982	0.46	8845.06	78235015.64	0.34483	2.33	2.79
0.652	16524	273052094	1.20351	0.46	8819.71	77787319.76	0.34286	2.34	2.80
0.653	16550	273890319	1.20720	0.45	8794.37	77340908.52	0.34089	2.36	2.81
0.654	16575	274729829	1.21090	0.45	8769.02	76895781.91	0.33893	2.37	2.82
0.655	16600	275570624	1.21461	0.45	8743.68	76451939.94	0.33697	2.38	2.83
0.656	16626	276412703	1.21832	0.45	8718.34	76009382.61	0.33502	2.39	2.84
0.657	16651	277256067	1.22204	0.44	8692.99	75568109.91	0.33307	2.40	2.85
0.658	16676	278100716	1.22576	0.44	8667.65	75128121.85	0.33114	2.42	2.86
0.659	16702	278946649	1.22949	0.44	8642.3	74689418.43	0.32920	2.43	2.87
0.660	16727	279793867	1.23322	0.44	8616.96	74251999.64	0.32727	2.44	2.87
0.661	16752	280642370	1.23696	0.43	8591.62	73815865.49	0.32535	2.45	2.88
0.662	16778	281492157	1.24071	0.43	8566.27	73381015.98	0.32343	2.46	2.89
0.663	16803	282343229	1.24446	0.43	8540.93	72947451.1	0.32152	2.48	2.90
0.664	16828	283195585	1.24821	0.43	8515.58	72515170.86	0.31962	2.49	2.91
0.665	16854	284049226	1.25198	0.42	8490.24	72084175.26	0.31772	2.50	2.92
0.666	16879	284904152	1.25575	0.42	8464.9	71654464.29	0.31582	2.51	2.93
0.667	16904	285760362	1.25952	0.42	8439.55	71226037.96	0.31394	2.53	2.94
0.668	16930	286617857	1.26330	0.42	8414.21	70798896.27	0.31205	2.54	2.96
0.669	16955	287476637	1.26708	0.41	8388.86	70373039.21	0.31018	2.55	2.97
0.670	16980	288336701	1.27087	0.41	8363.52	69948466.79	0.30831	2.57	2.98
0.671	17006	289198050	1.27467	0.41	8338.18	69525179.01	0.30644	2.58	2.99
0.672	17031	290060683	1.27847	0.41	8312.83	69103175.86	0.30458	2.59	3.00
0.673	17057	290924602	1.28228	0.40	8287.49	68682457.35	0.30273	2.60	3.01
0.674	17082	291789804	1.28609	0.40	8262.14	68263023.48	0.30088	2.62	3.02
0.675	17107	292656292	1.28991	0.40	8236.8	67844874.24	0.29903	2.63	3.03
0.676	17133	293524064	1.29374	0.40	8211.46	67428009.64	0.29720	2.64	3.04
0.677	17158	294393121	1.29757	0.39	8186.11	67012429.68	0.29536	2.66	3.05
0.678	17183	295263462	1.30141	0.39	8160.77	66598134.35	0.29354	2.67	3.06
0.679	17209	296135088	1.30525	0.39	8135.42	66185123.66	0.29172	2.68	3.07
0.680	17234	297007999	1.30909	0.39	8110.08	65773397.61	0.28990	2.70	3.08
0.681	17259	297882194	1.31295	0.38	8084.74	65362956.19	0.28809	2.71	3.10
0.682	17285	298757674	1.31681	0.38	8059.39	64953799.41	0.28629	2.73	3.11
0.683	17310	299634438	1.32067	0.38	8034.05	64545927.27	0.28449	2.74	3.12
0.684	17335	300512487	1.32454	0.38	8008.7	64139339.76	0.28270	2.75	3.13
0.685	17361	301391821	1.32842	0.38	7983.36	63734036.89	0.28091	2.77	3.14
0.686	17386	302272440	1.33230	0.37	7958.02	63330018.66	0.27913	2.78	3.15
0.687	17411	303154343	1.33619	0.37	7932.67	62927285.06	0.27736	2.79	3.16
0.688	17437	304037530	1.34008	0.37	7907.33	62525836.1	0.27559	2.81	3.18
0.689	17462	304922003	1.34398	0.37	7881.98	62125671.78	0.27383	2.82	3.19
0.690	17487	305807760	1.34788	0.36	7856.64	61726792.09	0.27207	2.84	3.20
0.691	17513	306694801	1.35179	0.36	7831.3	61329197.04	0.27031	2.85	3.21
0.692	17538	307583128	1.35571	0.36	7805.95	60932886.63	0.26857	2.87	3.23
0.693	17563	308472739	1.35963	0.36	7780.61	60537860.85	0.26683	2.88	3.24

ProductionMontage Holdings\Amaranth\Amaranth PW1 Impact Analysis\This Image Well Analysis\Impact analysis					This Image Well Analysis\Impact analysis				
0.694	17589	309363634	1.36355	0.36	7755.26	60144119.71	0.26509	2.89	3.25
0.695	17614	310255814	1.36749	0.35	7729.92	59751663.21	0.26336	2.91	3.26
0.696	17639	311149279	1.37142	0.35	7704.58	59360491.34	0.26164	2.92	3.27
0.697	17665	312044028	1.37537	0.35	7679.23	58970604.11	0.25992	2.94	3.29
0.698	17690	312940063	1.37932	0.35	7653.89	58582001.52	0.25821	2.95	3.30
0.699	17715	313837381	1.38327	0.34	7628.54	58194683.56	0.25650	2.97	3.31
0.700	17741	314735985	1.38723	0.34	7603.2	57808650.24	0.25480	2.98	3.33
0.701	17766	315635873	1.39120	0.34	7577.86	57423901.56	0.25310	3.00	3.34
0.702	17791	316537045	1.39517	0.34	7552.51	57040437.51	0.25141	3.01	3.35
0.703	17817	317439503	1.39915	0.34	7527.17	56658258.1	0.24973	3.03	3.36
0.704	17842	318343244	1.40313	0.33	7501.82	56277363.33	0.24805	3.04	3.38
0.705	17868	319248271	1.40712	0.33	7476.48	55897753.19	0.24638	3.06	3.39
0.706	17893	320154582	1.41112	0.33	7451.14	55519427.69	0.24471	3.07	3.40
0.707	17918	321062178	1.41512	0.33	7425.79	55142386.83	0.24305	3.09	3.42
0.708	17944	321971058	1.41912	0.33	7400.45	54766630.6	0.24139	3.11	3.43
0.709	17969	322881223	1.42313	0.32	7375.1	54392159.01	0.23974	3.12	3.44
0.710	17994	323792673	1.42715	0.32	7349.76	54018972.06	0.23809	3.14	3.46
0.711	18020	324705408	1.43117	0.32	7324.42	53647069.74	0.23646	3.15	3.47
0.712	18045	325619427	1.43520	0.32	7299.07	53276452.06	0.23482	3.17	3.49
0.713	18070	326534730	1.43924	0.32	7273.73	52907119.02	0.23319	3.18	3.50
0.714	18096	327451318	1.44328	0.31	7248.38	52539070.61	0.23157	3.20	3.51
0.715	18121	328369191	1.44732	0.31	7223.04	52172306.84	0.22996	3.22	3.53
0.716	18146	329288349	1.45137	0.31	7197.7	51806827.71	0.22834	3.23	3.54
0.717	18172	330208791	1.45543	0.31	7172.35	51442633.21	0.22674	3.25	3.56
0.718	18197	331130518	1.45949	0.31	7147.01	51079723.35	0.22514	3.26	3.57
0.719	18222	332053529	1.46356	0.30	7121.66	50718098.13	0.22355	3.28	3.59
0.720	18248	332977825	1.46764	0.30	7096.32	50357757.54	0.22196	3.30	3.60
0.721	18273	333903406	1.47171	0.30	7070.98	49998701.59	0.22037	3.31	3.62
0.722	18298	334830271	1.47580	0.30	7045.63	49640930.28	0.21880	3.33	3.63
0.723	18324	335758421	1.47989	0.30	7020.29	49284443.6	0.21723	3.35	3.65
0.724	18349	336687856	1.48399	0.30	6994.94	48929241.56	0.21566	3.36	3.66
0.725	18374	337618575	1.48809	0.29	6969.6	48575324.16	0.21410	3.38	3.68
0.726	18400	338550579	1.49220	0.29	6944.26	48222691.39	0.21255	3.40	3.69
0.727	18425	339483868	1.49631	0.29	6918.91	47871343.26	0.21100	3.42	3.71
0.728	18450	340418441	1.50043	0.29	6893.57	47521279.77	0.20946	3.43	3.72
0.729	18476	341354299	1.50456	0.29	6868.22	47172500.91	0.20792	3.45	3.74
0.730	18501	342291441	1.50869	0.28	6842.88	46825006.69	0.20639	3.47	3.75
0.731	18526	343229868	1.51282	0.28	6817.54	46478797.11	0.20486	3.49	3.77
0.732	18552	344169580	1.51696	0.28	6792.19	46133872.16	0.20334	3.50	3.78
0.733	18577	345110576	1.52111	0.28	6766.85	45790231.86	0.20183	3.52	3.80
0.734	18602	346052857	1.52526	0.28	6741.5	45447876.18	0.20032	3.54	3.82
0.735	18628	346996423	1.52942	0.28	6716.16	45106805.15	0.19881	3.56	3.83
0.736	18653	347941273	1.53359	0.27	6690.82	44767018.75	0.19732	3.57	3.85
0.737	18679	348887408	1.53776	0.27	6665.47	44428516.98	0.19582	3.59	3.87
0.738	18704	349834828	1.54193	0.27	6640.13	44091299.86	0.19434	3.61	3.88
0.739	18729	350783532	1.54612	0.27	6614.78	43755367.37	0.19286	3.63	3.90
0.740	18755	351733521	1.55030	0.27	6589.44	43420719.51	0.19138	3.65	3.91
0.741	18780	352684794	1.55450	0.27	6564.1	43087356.3	0.18991	3.67	3.93
0.742	18805	353637352	1.55869	0.26	6538.75	42755277.72	0.18845	3.68	3.95
0.743	18831	354591195	1.56290	0.26	6513.41	42424483.77	0.18699	3.70	3.97
0.744	18856	355546322	1.56711	0.26	6488.06	42094974.47	0.18554	3.72	3.98



0.796	20174	406983175	1.79382	0.19	5170.18	26730719.87	0.11782	4.86	5.04
0.797	20199	408006388	1.79833	0.18	5144.83	26469296.31	0.11667	4.88	5.06
0.798	20225	409030886	1.80285	0.18	5119.49	26209157.38	0.11552	4.91	5.09
0.799	20250	410056668	1.80737	0.18	5094.14	25950303.09	0.11438	4.93	5.11
0.800	20275	411083735	1.81190	0.18	5068.8	25692733.44	0.11324	4.96	5.14
0.801	20301	412112087	1.81643	0.18	5043.46	25436448.42	0.11211	4.98	5.16
0.802	20326	413141723	1.82097	0.18	5018.11	25181448.04	0.11099	5.01	5.19
0.803	20351	414172644	1.82551	0.18	4992.77	24927732.3	0.10987	5.04	5.21
0.804	20377	415204849	1.83006	0.17	4967.42	24675301.2	0.10876	5.06	5.24
0.805	20402	416238340	1.83461	0.17	4942.08	24424154.73	0.10765	5.09	5.26
0.806	20427	417273115	1.83918	0.17	4916.74	24174292.89	0.10655	5.12	5.29
0.807	20453	418309174	1.84374	0.17	4891.39	23925715.7	0.10546	5.14	5.31
0.808	20478	419346518	1.84831	0.17	4866.05	23678423.14	0.10437	5.17	5.34
0.809	20503	420385147	1.85289	0.17	4840.7	23432415.22	0.10328	5.20	5.37
0.810	20529	421425060	1.85748	0.17	4815.36	23187691.93	0.10220	5.22	5.39
0.811	20554	422466258	1.86207	0.17	4790.02	22944253.28	0.10113	5.25	5.42
0.812	20579	423508741	1.86666	0.17	4764.67	22702099.27	0.10006	5.28	5.45
0.813	20605	424552508	1.87126	0.16	4739.33	22461229.89	0.09900	5.31	5.47
0.814	20630	425597560	1.87587	0.16	4713.98	22221645.15	0.09794	5.34	5.50
0.815	20655	426643897	1.88048	0.16	4688.64	21983345.05	0.09689	5.36	5.53
0.816	20681	427691518	1.88510	0.16	4663.3	21746329.58	0.09585	5.39	5.55
0.817	20706	428740424	1.88972	0.16	4637.95	21510598.75	0.09481	5.42	5.58
0.818	20731	429790614	1.89435	0.16	4612.61	21276152.56	0.09378	5.45	5.61
0.819	20757	430842089	1.89898	0.16	4587.26	21042991.01	0.09275	5.48	5.64
0.820	20782	431894849	1.90362	0.16	4561.92	20811114.09	0.09173	5.51	5.66
0.821	20807	432948894	1.90827	0.15	4536.58	20580521.8	0.09071	5.54	5.69
0.822	20833	434004223	1.91292	0.15	4511.23	20351214.16	0.08970	5.57	5.72
0.823	20858	435060836	1.91758	0.15	4485.89	20123191.15	0.08870	5.60	5.75
0.824	20883	436118735	1.92224	0.15	4460.54	19896452.78	0.08770	5.63	5.78
0.825	20909	437177917	1.92691	0.15	4435.2	19670999.04	0.08670	5.66	5.81
0.826	20934	438238385	1.93158	0.15	4409.86	19446829.94	0.08571	5.69	5.84
0.827	20959	439300137	1.93626	0.15	4384.51	19223945.48	0.08473	5.72	5.87
0.828	20985	440363174	1.94095	0.15	4359.17	19002345.65	0.08375	5.75	5.90
0.829	21010	441427496	1.94564	0.15	4333.82	18782030.46	0.08278	5.78	5.93
0.830	21036	442493102	1.95034	0.14	4308.48	18562999.91	0.08182	5.81	5.96
0.831	21061	443559992	1.95504	0.14	4283.14	18345253.99	0.08086	5.84	5.99
0.832	21086	444628168	1.95975	0.14	4257.79	18128792.72	0.07990	5.88	6.02
0.833	21112	445697628	1.96446	0.14	4232.45	17913616.07	0.07896	5.91	6.05
0.834	21137	446768373	1.96918	0.14	4207.1	17699724.07	0.07801	5.94	6.08
0.835	21162	447840402	1.97390	0.14	4181.76	17487116.7	0.07708	5.97	6.11
0.836	21188	448913716	1.97864	0.14	4156.42	17275793.97	0.07614	6.00	6.14
0.837	21213	449988314	1.98337	0.14	4131.07	17065755.87	0.07522	6.04	6.17
0.838	21238	451064198	1.98811	0.14	4105.73	16857002.41	0.07430	6.07	6.21
0.839	21264	452141365	1.99286	0.13	4080.38	16649533.59	0.07338	6.10	6.24
0.840	21289	453219818	1.99761	0.13	4055.04	16443349.4	0.07248	6.14	6.27
0.841	21314	454299555	2.00237	0.13	4029.7	16238449.85	0.07157	6.17	6.30
0.842	21340	455380577	2.00714	0.13	4004.35	16034834.94	0.07068	6.21	6.34
0.843	21365	456462883	2.01191	0.13	3979.01	15832504.66	0.06978	6.24	6.37
0.844	21390	457546474	2.01668	0.13	3953.66	15631459.02	0.06890	6.27	6.40
0.845	21416	458631350	2.02147	0.13	3928.32	15431698.02	0.06802	6.31	6.44
0.846	21441	459717510	2.02625	0.13	3902.98	15233221.66	0.06714	6.34	6.47

0.847	21466	460804955	2.03105	0.13	3877.63	15036029.93	0.06627	6.38	6.51
0.848	21492	461893685	2.03585	0.13	3852.29	14840122.83	0.06541	6.42	6.54
0.849	21517	462983699	2.04065	0.12	3826.94	14645500.38	0.06455	6.45	6.58
0.850	21542	464074998	2.04546	0.12	3801.6	14452162.56	0.06370	6.49	6.61
0.851	21568	465167581	2.05028	0.12	3776.26	14260109.38	0.06285	6.52	6.65
0.852	21593	466261449	2.05510	0.12	3750.91	14069340.83	0.06201	6.56	6.68
0.853	21618	467356602	2.05992	0.12	3725.57	13879856.92	0.06118	6.60	6.72
0.854	21644	468453040	2.06476	0.12	3700.22	13691657.65	0.06035	6.63	6.75
0.855	21669	469550762	2.06960	0.12	3674.88	13504743.01	0.05952	6.67	6.79
0.856	21694	470649768	2.07444	0.12	3649.54	13319113.02	0.05871	6.71	6.83
0.857	21720	471750060	2.07929	0.12	3624.19	13134767.65	0.05789	6.75	6.86
0.858	21745	472851636	2.08414	0.11	3598.85	12951706.93	0.05709	6.79	6.90
0.859	21770	473954496	2.08900	0.11	3573.5	12769930.84	0.05628	6.82	6.94
0.860	21796	475058641	2.09387	0.11	3548.16	12589439.39	0.05549	6.86	6.98
0.861	21821	476164071	2.09874	0.11	3522.82	12410232.57	0.05470	6.90	7.01
0.862	21847	477270786	2.10362	0.11	3497.47	12232310.39	0.05392	6.94	7.05
0.863	21872	478378785	2.10851	0.11	3472.13	12055672.85	0.05314	6.98	7.09
0.864	21897	479488069	2.11339	0.11	3446.78	11880319.94	0.05236	7.02	7.13
0.865	21923	480598637	2.11829	0.11	3421.44	11706251.67	0.05160	7.06	7.17
0.866	21948	481710490	2.12319	0.11	3396.1	11533468.04	0.05083	7.10	7.21
0.867	21973	482823628	2.12810	0.11	3370.75	11361969.05	0.05008	7.15	7.25
0.868	21999	483938050	2.13301	0.10	3345.41	11191754.69	0.04933	7.19	7.29
0.869	22024	485053757	2.13793	0.10	3320.06	11022824.96	0.04858	7.23	7.33
0.870	22049	486170749	2.14285	0.10	3294.72	10855179.88	0.04785	7.27	7.37
0.871	22075	487289025	2.14778	0.10	3269.38	10688819.43	0.04711	7.31	7.42
0.872	22100	488408586	2.15271	0.10	3244.03	10523743.62	0.04638	7.36	7.46
0.873	22125	489529431	2.15765	0.10	3218.69	10359952.44	0.04566	7.40	7.50
0.874	22151	490651561	2.16260	0.10	3193.34	10197445.9	0.04495	7.44	7.54
0.875	22176	491774976	2.16755	0.10	3168	10036224	0.04424	7.49	7.59
0.876	22201	492899675	2.17251	0.10	3142.66	9876286.734	0.04353	7.53	7.63
0.877	22227	494025659	2.17747	0.10	3117.31	9717634.105	0.04283	7.58	7.67
0.878	22252	495152928	2.18244	0.09	3091.97	9560266.113	0.04214	7.62	7.72
0.879	22277	496281481	2.18741	0.09	3066.62	9404182.757	0.04145	7.67	7.76
0.880	22303	497411319	2.19239	0.09	3041.28	9249384.038	0.04077	7.72	7.81
0.881	22328	498542442	2.19738	0.09	3015.94	9095869.956	0.04009	7.76	7.85
0.882	22353	499674849	2.20237	0.09	2990.59	8943640.51	0.03942	7.81	7.90
0.883	22379	500808541	2.20737	0.09	2965.25	8792695.702	0.03875	7.86	7.95
0.884	22404	501943518	2.21237	0.09	2939.9	8643035.529	0.03810	7.90	7.99
0.885	22429	503079779	2.21738	0.09	2914.56	8494659.994	0.03744	7.95	8.04
0.886	22455	504217324	2.22239	0.09	2889.22	8347569.095	0.03679	8.00	8.09
0.887	22480	505356155	2.22741	0.09	2863.87	8201762.832	0.03615	8.05	8.14
0.888	22505	506496270	2.23244	0.08	2838.53	8057241.207	0.03551	8.10	8.19
0.889	22531	507637670	2.23747	0.08	2813.18	7914004.218	0.03488	8.15	8.23
0.890	22556	508780354	2.24250	0.08	2787.84	7772051.866	0.03426	8.20	8.28
0.891	22582	509924323	2.24755	0.08	2762.5	7631384.15	0.03364	8.25	8.33
0.892	22607	511069576	2.25259	0.08	2737.15	7492001.071	0.03302	8.30	8.39
0.893	22632	512216115	2.25765	0.08	2711.81	7353902.629	0.03241	8.36	8.44
0.894	22658	513363938	2.26271	0.08	2686.46	7217088.823	0.03181	8.41	8.49
0.895	22683	514513045	2.26777	0.08	2661.12	7081559.654	0.03121	8.46	8.54
0.896	22708	515663437	2.27284	0.08	2635.78	6947315.122	0.03062	8.52	8.59
0.897	22734	516815114	2.27792	0.08	2610.43	6814355.227	0.03003	8.57	8.65

0.898	22759	517968075	2.28300	0.08	2585.09	6682679.968	0.02945	8.62	8.70
0.899	22784	519122321	2.28809	0.07	2559.74	6552289.346	0.02888	8.68	8.75
0.900	22810	520277852	2.29318	0.07	2534.4	6423183.36	0.02831	8.74	8.81
0.901	22835	521434667	2.29828	0.07	2509.06	6295362.011	0.02775	8.79	8.87
0.902	22860	522592767	2.30338	0.07	2483.71	6168825.299	0.02719	8.85	8.92
0.903	22886	523752152	2.30849	0.07	2458.37	6043573.223	0.02664	8.91	8.98
0.904	22911	524912821	2.31361	0.07	2433.02	5919605.785	0.02609	8.97	9.04
0.905	22936	526074775	2.31873	0.07	2407.68	5796922.982	0.02555	9.03	9.09
0.906	22962	527238014	2.32386	0.07	2382.34	5675524.817	0.02502	9.09	9.15
0.907	22987	528402537	2.32899	0.07	2356.99	5555411.288	0.02449	9.15	9.21
0.908	23012	529568345	2.33413	0.07	2331.65	5436582.396	0.02396	9.21	9.27
0.909	23038	530735437	2.33927	0.06	2306.3	5319038.14	0.02344	9.27	9.33
0.910	23063	531903814	2.34442	0.06	2280.96	5202778.522	0.02293	9.33	9.40
0.911	23088	533073476	2.34958	0.06	2255.62	5087803.539	0.02243	9.39	9.46
0.912	23114	534244422	2.35474	0.06	2230.27	4974113.194	0.02192	9.46	9.52
0.913	23139	535416653	2.35991	0.06	2204.93	4861707.485	0.02143	9.52	9.58
0.914	23164	536590169	2.36508	0.06	2179.58	4750586.413	0.02094	9.59	9.65
0.915	23190	537764969	2.37026	0.06	2154.24	4640749.978	0.02045	9.66	9.71
0.916	23215	538941054	2.37544	0.06	2128.9	4532198.179	0.01998	9.72	9.78
0.917	23240	540118423	2.38063	0.06	2103.55	4424931.017	0.01950	9.79	9.85
0.918	23266	541297077	2.38582	0.06	2078.21	4318948.491	0.01904	9.86	9.92
0.919	23291	542477016	2.39103	0.05	2052.86	4214250.602	0.01857	9.93	9.98
0.920	23316	543658240	2.39623	0.05	2027.52	4110837.35	0.01812	10.00	10.05
0.921	23342	544840748	2.40144	0.05	2002.18	4008708.735	0.01767	10.07	10.12
0.922	23367	546024540	2.40666	0.05	1976.83	3907864.756	0.01722	10.14	10.20
0.923	23393	547209618	2.41188	0.05	1951.49	3808305.414	0.01679	10.22	10.27
0.924	23418	548395980	2.41711	0.05	1926.14	3710030.709	0.01635	10.29	10.34
0.925	23443	549583626	2.42235	0.05	1900.8	3613040.64	0.01592	10.37	10.42
0.926	23469	550772557	2.42759	0.05	1875.46	3517335.208	0.01550	10.44	10.49
0.927	23494	551962773	2.43283	0.05	1850.11	3422914.413	0.01509	10.52	10.57
0.928	23519	553154274	2.43809	0.05	1824.77	3329778.254	0.01468	10.60	10.65
0.929	23545	554347059	2.44334	0.04	1799.42	3237926.732	0.01427	10.68	10.73
0.930	23570	555541129	2.44861	0.04	1774.08	3147359.846	0.01387	10.76	10.81
0.931	23595	556736483	2.45388	0.04	1748.74	3058077.598	0.01348	10.84	10.89
0.932	23621	557933122	2.45915	0.04	1723.39	2970079.986	0.01309	10.93	10.97
0.933	23646	559131046	2.46443	0.04	1698.05	2883367.01	0.01271	11.01	11.05
0.934	23671	560330254	2.46972	0.04	1672.7	2797938.672	0.01233	11.10	11.14
0.935	23697	561530747	2.47501	0.04	1647.36	2713794.97	0.01196	11.19	11.22
0.936	23722	562732525	2.48030	0.04	1622.02	2630935.904	0.01160	11.27	11.31
0.937	23747	563935587	2.48561	0.04	1596.67	2549361.476	0.01124	11.36	11.40
0.938	23773	565139934	2.49091	0.03	1571.33	2469071.684	0.01088	11.46	11.49
0.939	23798	566345566	2.49623	0.03	1545.98	2390066.528	0.01053	11.55	11.58
0.940	23823	567552482	2.50155	0.03	1520.64	2312346.01	0.01019	11.64	11.68
0.941	23849	568760682	2.50687	0.03	1495.3	2235910.128	0.00986	11.74	11.77
0.942	23874	569970168	2.51220	0.03	1469.95	2160758.882	0.00952	11.84	11.87
0.943	23899	571180938	2.51754	0.03	1444.61	2086892.274	0.00920	11.94	11.97
0.944	23925	572392993	2.52288	0.03	1419.26	2014310.302	0.00888	12.04	12.07
0.945	23950	573606332	2.52823	0.03	1393.92	1943012.966	0.00856	12.14	12.17
0.946	23975	574820956	2.53358	0.03	1368.58	1873000.268	0.00826	12.25	12.28
0.947	24001	576036865	2.53894	0.03	1343.23	1804272.206	0.00795	12.36	12.38
0.948	24026	577254058	2.54431	0.02	1317.89	1736828.781	0.00766	12.47	12.49

Drawdown from Well					Drawdown from Well				Total
0.949	24051	578472536	2.54968	0.02	1292.54	1670669.992	0.00736	12.58	12.60
0.950	24077	579692298	2.55506	0.02	1267.2	1605795.84	0.00708	12.69	12.71
0.951	24102	580913345	2.56044	0.02	1241.86	1542206.325	0.00680	12.81	12.83
0.952	24127	582135677	2.56583	0.02	1216.51	1479901.446	0.00652	12.93	12.95
0.953	24153	583359294	2.57122	0.02	1191.17	1418881.204	0.00625	13.05	13.07
0.954	24178	584584195	2.57662	0.02	1165.82	1359145.599	0.00599	13.17	13.19
0.955	24204	585810380	2.58202	0.02	1140.48	1300694.63	0.00573	13.30	13.31
0.956	24229	587037851	2.58743	0.01	1115.14	1243528.298	0.00548	13.43	13.44
0.957	24254	588266606	2.59285	0.01	1089.79	1187646.603	0.00523	13.56	13.57
0.958	24280	589496645	2.59827	0.01	1064.45	1133049.545	0.00499	13.70	13.71
0.959	24305	590727970	2.60370	0.01	1039.1	1079737.123	0.00476	13.84	13.85
0.960	24330	591960578	2.60913	0.01	1013.76	1027709.338	0.00453	13.98	13.99
0.961	24356	593194472	2.61457	0.01	988.416	976966.1891	0.00431	14.12	14.13
0.962	24381	594429650	2.62001	0.01	963.072	927507.6772	0.00409	14.27	14.28
0.963	24406	595666113	2.62546	0.01	937.728	879333.802	0.00388	14.43	14.43
0.964	24432	596903860	2.63092	0.01	912.384	832444.5635	0.00367	14.59	14.59
0.965	24457	598142892	2.63638	0.00	887.04	786839.9616	0.00347	14.75	14.75
0.966	24482	599383209	2.64185	0.00	861.696	742519.9964	0.00327	14.92	14.92
0.967	24508	600624810	2.64732	0.00	836.352	699484.6679	0.00308	15.09	15.09
0.968	24533	601867696	2.65280	0.00	811.008	657733.9761	0.00290	15.27	15.27
0.969	24558	603111867	2.65828	0.00	785.664	617267.9209	0.00272	15.45	15.45
0.970	24584	604357322	2.66377	0.00	760.32	578086.5024	0.00255	15.64	15.64
0.971	24609	605604062	2.66926	0.00	734.976	540189.7206	0.00238	15.83	15.83
0.972	24634	606852087	2.67477	0.00	709.632	503577.5754	0.00222	16.04	16.03
0.973	24660	608101396	2.68027	-0.01	684.288	468250.0669	0.00206	16.25	16.24
0.974	24685	609351990	2.68578	-0.01	658.944	434207.1951	0.00191	16.47	16.46
0.975	24710	610603868	2.69130	-0.01	633.6	401448.96	0.00177	16.69	16.68
0.976	24736	611857031	2.69683	-0.01	608.256	369975.3615	0.00163	16.93	16.92
0.977	24761	613111479	2.70235	-0.01	582.912	339786.3997	0.00150	17.18	17.16
0.978	24786	614367211	2.70789	-0.01	557.568	310882.0746	0.00137	17.43	17.42
0.979	24812	615624228	2.71343	-0.01	532.224	283262.3862	0.00125	17.70	17.69
0.980	24837	616882530	2.71898	-0.01	506.88	256927.3344	0.00113	17.98	17.97
0.981	24862	618142116	2.72453	-0.02	481.536	231876.9193	0.00102	18.28	18.26
0.982	24888	619402987	2.73008	-0.02	456.192	208111.1409	0.00092	18.59	18.58
0.983	24913	620665143	2.73565	-0.02	430.848	185629.9991	0.00082	18.93	18.91
0.984	24938	621928583	2.74122	-0.02	405.504	164433.494	0.00072	19.28	19.26
0.985	24964	623193308	2.74679	-0.02	380.16	144521.6256	0.00064	19.65	19.63
0.986	24989	624459317	2.75237	-0.02	354.816	125894.3939	0.00055	20.05	20.03
0.987	25015	625726611	2.75796	-0.02	329.472	108551.7988	0.00048	20.48	20.45
0.988	25040	626995190	2.76355	-0.03	304.128	92493.84038	0.00041	20.94	20.92
0.989	25065	628265053	2.76915	-0.03	278.784	77720.51866	0.00034	21.45	21.42
0.990	25091	629536201	2.77475	-0.03	253.44	64231.8336	0.00028	22.00	21.97
0.991	25116	630808634	2.78036	-0.03	228.096	52027.78522	0.00023	22.61	22.58
0.992	25141	632082351	2.78597	-0.03	202.752	41108.3735	0.00018	23.29	23.26
0.993	25167	633357353	2.79159	-0.03	177.408	31473.59846	0.00014	24.06	24.03
0.994	25192	634633639	2.79722	-0.03	152.064	23123.4601	0.00010	24.96	24.92
0.995	25217	635911211	2.80285	-0.04	126.72	16057.9584	0.00007	26.01	25.98
0.996	25243	637190066	2.80848	-0.04	101.376	10277.09338	0.00005	27.31	27.27
0.997	25268	638470207	2.81413	-0.04	76.032	5780.865024	0.00003	28.97	28.93
0.998	25293	639751632	2.81977	-0.04	50.688	2569.273344	0.00001	31.32	31.28
0.999	25319	641034342	2.82543	-0.04	25.344	642.318336	0.00000	35.34	35.30

Drawdown from Well #1				Drawdown from Well #2				Total	
Position	r	r <sup>2</sup>	u	s	D	Q/12	u	s	(ft)

From The Theis Equation:

$$u = \frac{r^2 \cdot S}{4 \cdot T \cdot t}$$

$$s = \frac{Q}{4 \cdot \pi \cdot T} \cdot \left[ -0.577216 - \ln(u) + u - \left( \frac{u^2}{2 \cdot 2!} + \frac{u^3}{3 \cdot 3!} - \frac{u^4}{4 \cdot 4!} + \frac{u^5}{5 \cdot 5!} - \frac{u^6}{6 \cdot 6!} \right) \right]$$

**PHOENIX AMA  
CHECK DEPOSIT REQUEST**

<b>Submitted By:</b>	Sharon Ward	<b>Date:</b>	11/5/07
<b>Right Owner or Applicant:</b>	Tim Keenan		
<b>GFR or Permit No(s):</b>	T-216835 (55-206033)		

<b>CHECK INFORMATION</b>	
<b>Check Number:</b>	013206
<b>Check Amount:</b>	\$180.00
<b>Name on Check:</b>	Clear Creek Associates
<b>Address:</b>	6155 E. Indian School Rd, Ste 200
<b>City, ST, Zip:</b>	Scottsdale AZ 85251
<b>Telephone:</b>	480-659-7131

Code	Type of Fee:	Amount:	Check No.
55	Application for Well Permit <b>(\$150.00)</b>	\$150.00	013206
55	Well Permit Fee <b>(\$30.00)</b>	\$ 30.00	013206
58	Type I Conversion Request Flex Account Transfers <b>(\$100.00)</b>		
58	Notification of Change of Ownership of an Irrigation Grandfathered Right <b>(\$35.00)</b>		
60	Application to Substitute Irrigation Acres		
59	Applications for Permit to Withdraw <b>(\$50.00 or \$150.00)</b>		
59	Withdrawal Permit Fee <b>(\$50.00)</b>		
59	Conveyance of Groundwater Withdrawal Application and/or Permit <b>(\$35.00)</b>		
Gen Fund	Legal Noticing Fees <b>(Various)</b>		
55	Notice of Intent for Non-Exempt Wells <b>(\$150.00)</b>		

**From:** Sharon Ward  
**To:** internet:wfeller@clearcreekassociates.com  
**Date:** 10/24/07 4:12PM  
**Subject:** Sonoran Valley Property LLC Hydrotest App # 59-216243.0000 (55-206033)

Wayne,

I have attached a copy of the permit for the above-referenced Hydrotest application. Let me know if you have any questions.

Thanks,  
Sharon

Sharon Ward  
Water Resources Specialist  
Phoenix Active Management Area  
Department of Water Resources  
3550 N. Central Avenue, Phoenix AZ 85012  
Phone: 602-771-8614  
Fax: 602-771-8688  
Email: ssward@azwater.gov

**Mail Envelope Properties** (471FD142.7CF : 6 : 13608)

**Subject:** Sonoran Valley Property LLC Hydrotest App # 59-216243.0000  
(55-206033)  
**Creation Date:** 10/24/07 4:12PM  
**From:** Sharon Ward  
**Created By:** [ssward@azwater.gov](mailto:ssward@azwater.gov)

<b>Recipients</b>	<b>Action</b>	<b>Date &amp; Time</b>
clearcreekassociates.com	Transferred	10/24/07 04:12PM
wfeller (internet:wfeller@clearcreekassoc		

<b>Post Office</b>	<b>Delivered</b>	<b>Route</b>
		clearcreekassociates.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1205	10/24/07 04:12PM
Mail		

**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:** Delivered & Opened

**ARIZONA DEPARTMENT OF WATER RESOURCES**

3550 North Central Avenue, Phoenix, Arizona 85012

Telephone 602 771-8585

Fax 602 771-8688



Janet Napolitano  
Governor

Herbert R. Guenther  
Director

October 15, 2007

Sonoran Valley Property LLC  
Attn: Garrett Wieger  
6720 N. Scottsdale Rd, Ste 335  
Scottsdale AZ 85253

RE: Permit to Withdraw Groundwater for Hydrologic Testing No. 59-216243.0000  
Well Registration No. 55-206033; File No. D(4-1)15CCC

Dear Permittee:

Your permit as referenced above is enclosed for your records. Please be aware that the approval of this hydrologic testing permit does not constitute a commitment by the Department for the granting of a right to withdraw groundwater or converting the test well into a water production well.

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 shall be reported on an annual report. The first annual reporting period shall be from the date of issuance of this permit until the end of the year 2007, or the expiration date of the permit, whichever comes first. Additionally, within sixty (60) days upon completion of the hydrologic testing, the permittee shall provide the results of the test data to the Arizona Department of Water Resources, to Sharon Ward, Water Management Division office for evaluation.

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.

The Department has issued 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.

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 feel free to call me at 602-771-8614.

Sincerely,

*Sharon Ward*

Sharon Ward

Water Resources Specialist

Enclosure

cc: Wayne Feller, Clear Creek Associates  
File



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



PERMIT NO. 59-216243.0000

Authorized purpose of hydrologic testing: Evaluate characterization of aquifer parameters and groundwater quality

Maximum Amount of Groundwater to be Withdrawn: 10 Acre-Feet Per Annum

Authorized Disposition of Groundwater: No Beneficial Use

Authorized Points of Withdrawal:

Authorized Well Registration Numbers:	File Numbers:	Depth of Well	Casing Diameter	Casing Material
55-206033	D(4-1)15CCC	1420 Feet	16 Inches	Steel

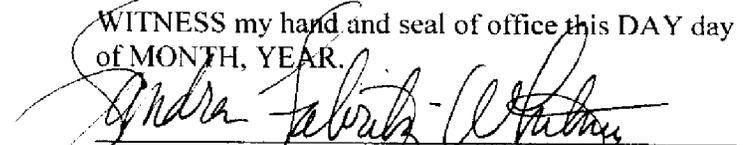
Effective Date of Permit: October 15, 2007

Expiration Date of Permit: October 14, 2008

**Permit Conditions**

1. Within sixty (60) days upon completion of the hydrologic testing, the permittee shall provide the results of the test data to the Arizona Department of Water Resources for evaluation. Results shall be mailed to Sharon Ward, Water Management Support, Arizona Department of Water Resources, 3550 North Central, Phoenix, Arizona 85012.
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 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, 2007, or the expiration date of this permit, whichever comes first.
5. 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 DAY day of MONTH, YEAR.

  
Sandra Fabritz-Whitney, Assistant Director

ARIZONA DEPARTMENT OF WATER RESOURCES  
HYDROLOGY DIVISION – WATER QUALITY UNIT

MEMORANDUM

---

**TO:** Darlene Sumpter-King  
Sharon Ward, Phoenix AMA  
**FROM:** Dani Williams  
Water Quality Unit  
**DATE:** August 14, 2007  
**SUBJECT:** Application for Permit to Withdraw Groundwater for Hydrologic Testing  
within an AMA  
Application 59-216243 Well 55-206033  
SONORAN VALLEY PROPERTY, LLD

Hydrology has reviewed the above referenced application for a permit to withdraw groundwater FOR hydrologic testing purposes within an AMA for water quality concerns and well construction for conformance to Arizona well construction standards.

**Water Quality**

1. The proposed/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**

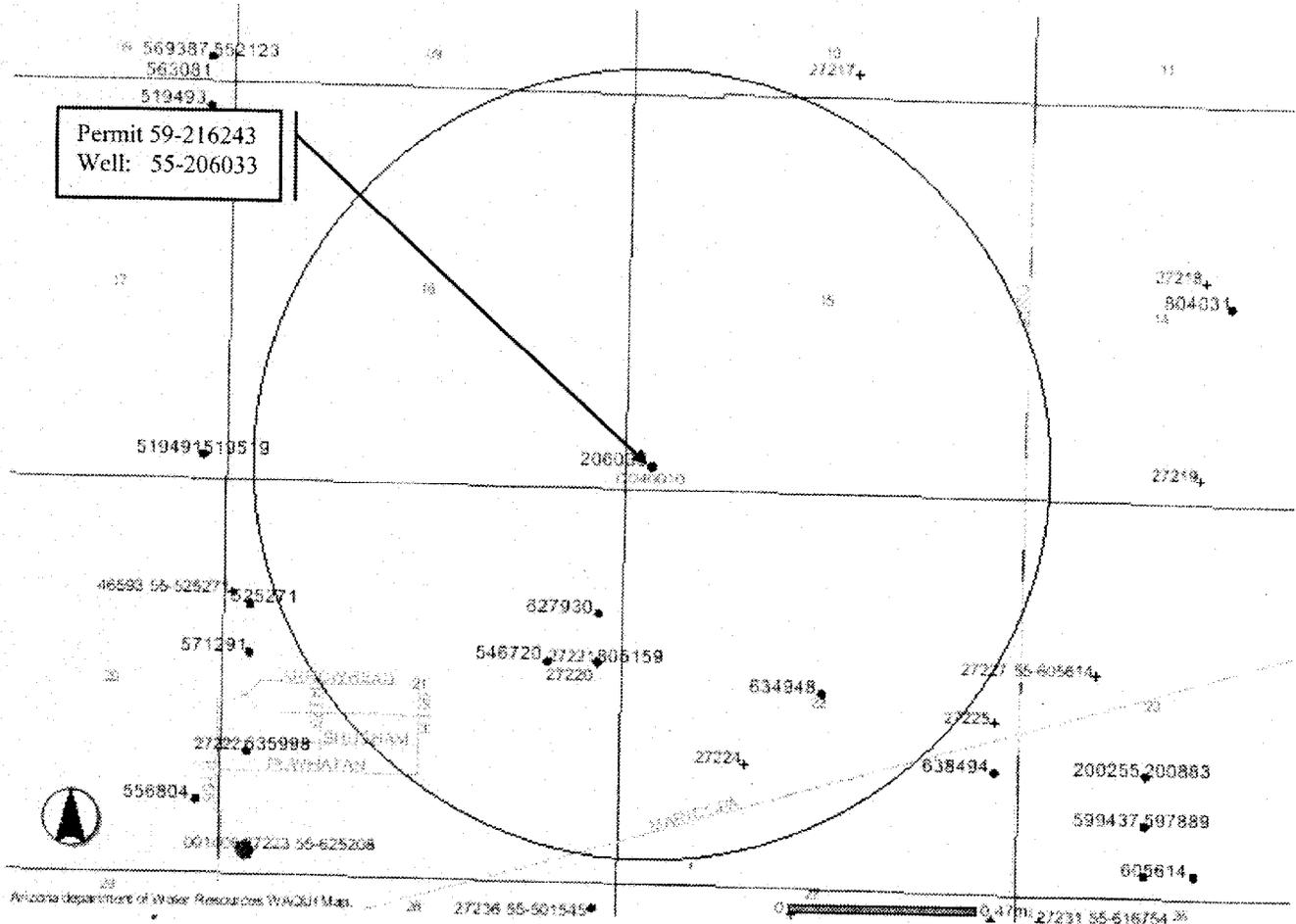
3. The subject well was drilled to 1410 feet below the land surface and screened from 520 to 700 feet and from 720 feet to 1180 feet. The well meets minimum well construction standards. No special well construction requirements are necessary.

The Hydrology Water Quality Unit has no objections to approving this permit. If additional information is needed, please contact me at extension 1-855.

C: Alene McCracken, Hydrology)  
Enclosure Water Quality map *du*  
Water Quality Table



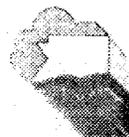
**59-216243/55-206033 SONORAN VALLEY PROPERTY LLC  
 APPLICATION FOR PERMIT TO WITHDRAW GROUNDWATER FOR  
 HYDROLOGIC TESTING WITHIN PHOENIX AMA,  
 D (4-1) 15 CCC**



Working Together



**Arizona  
 Department  
 of Environmental  
 Quality**



**Arizona  
 Department  
 of Water  
 Resources**

Map generated on 8/14/2007

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.

- Legend**
- Highlighted Feature
  - theBufferPolygon
  - theBufferTarget
  - ADEQ Wells
  - Wells + HRCs
  - Wells + Secondary MCL
  - Wells + MCL
  - + No Exceedence
  - REGISTERED WELLS
  - Streets
  - Counties
  - Townships
  - SWRLUST Buffer
  - RCRA Site Buffer
  - VFP Site Buffer
  - Registry

COPY

Run Date: 10/04/2007

AZ DEPARTMENT OF WATER RESOURCES

WELL REGISTRY REPORT - WELLS55

Location D 4.0 1.0 15 C C C Well Reg.No 55 - 206033 AMA PHOENIX AMA

Registered Name SONORAN VALLEY MANAGEMENT File Type NEW WELLS (INTENTS OR APPLICATIONS)
6720 N SCOTTSDALE ROAD SUITE 335 Application/Issue Date 01/11/2005
SCOTTSDALE AZ 85253

Owner OWNER Well Type WITHDRAWAL PERMIT
Driller No. 161 SubBasin RAINBOW VALLEY
Driller Name WATER DEVELOPMENT CORP. dba WDC Exploration Watershed LOWER GILA RIVER
Driller Phone- 480-813-4486 Registered Water Uses TEST
County MARICOPA Registered Well Uses WATER PRODUCTION
Parcel No. 300-228-013 Discharge Method NO DISCHARGE METHOD LISTED
Intended Capacity GPM 1,500.00 Power NO POWER CODE LISTED

Well Depth 1,410.00 Case Diam 16.00 Tested Cap 0.00
Pump Cap. 0.00 Case Depth 1,400.00 CRT
Draw Down 0.00 Water Level 405.00 Log X
Acres Irrig 0.00 Finish STEEL - PERFORATED OR SLOTTED CASING

Contamination Site: NO - NOT IN ANY WQARF SITE

Comments According to Don Hanson of Clear Creek Associates, this well was completed by WDC Exploration #161 sometime in mid-2005. All attempts by Clear Creek to get WDC to file the well driller's report have failed. A citation will prepared against the drilling firm for their apparent failure to comply with A.R.S. 45-600.A. File update conducted 9/7/07. On 10/2/07, Eric Brue of WDC Exploration fax'd a copy of the drillers report for the well known as Mobile Land Well No. 1. File updated - problem solved. mib

Places Of Use
D 4 0 1 0 15

Current Action
10/3/2007 750 WELL LOG RECEIVED
Action Comment: MO

Action History
8/14/2007 867 APP/NOI REVIEW BY HYDRO/WQARF COMPLETE
Action Comment: dw
12/4/2006 860 CHANGE OF WELL OWNERSHIP
Action Comment: TB
7/11/2005 877 DRILLING AUTHORITY EXPIRED
Action Comment: mib
4/29/2005 755 WELL CONSTRUCTION COMPLETED
Action Comment: MO
1/13/2005 700 SITE VERIFIED AS ACCURATE
Action Comment:
1/13/2005 550 DRILLING AUTHORITY ISSUED
Action Comment: sw
1/13/2005 555 DRILLER & OWNER PACKETS MAILED
Action Comment: sw
1/12/2005 600 PERMIT ISSUED
Action Comment:

Run Date: 10/04/2007

**AZ DEPARTMENT OF WATER RESOURCES**  
**WELL REGISTRY REPORT - WELLS55**

---

1/12/2005	552	DRILL CARD HELD BY AMA PENDING SITE VERIFICATION
		Action Comment:
1/11/2005	410	AMA APPLICATION/NOI REVIEW COMPLETE
		Action Comment:
1/10/2005	867	APP/NOI REVIEW BY HYDRO/WQARF COMPLETE
		Action Comment:
12/10/2004	400	HYDROLOGY APPLICATION REVIEW COMPLETE
		Action Comment:
12/8/2004	315	APP RCVD FOR A WITHDRAWAL PERMIT FOR A NEW WELL
		Action Comment:
12/8/2004	355	APP SENT TO AMA FOR REVIEW
		Action Comment:
12/8/2004	365	APP SENT TO HYDROLOGY FOR REVIEW
		Action Comment:
12/8/2004	866	APP/NOI SENT TO HYDRO/WQARF FOR REVIEW
		Action Comment:



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

## Well Driller Report and Well Log

- Review instructions prior to completing form
- This report should be prepared by the driller in detail and filed with the Department within 30 days following completion of the well.

WELL REGISTRATION NUMBER
55 - 206033
PERMIT NUMBER (IF ISSUED)

\*\* PLEASE PRINT CLEARLY \*\*

SECTION 1: REGISTRY INFORMATION	
<b>Well Owner</b>	<b>Location of Well</b>
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Clear Creek Associates	WELL LOCATION ADDRESS (IF ANY)
MAILING ADDRESS 6155 E. Indian School Rd. Suite 200	TOWNSHIP (N/S) RANGE (E/W) SECTION 4S 1E 15
CITY / STATE / ZIP CODE Scottsdale, AZ 85251	160 ACRE 40 ACRE 10 ACRE SW ¼ SW ¼ SW ¼
CONTACT PERSON NAME AND TITLE Dave Carr	LATITUDE 33° 4' 23.6" N
TELEPHONE NUMBER 480-659-7131	LONGITUDE 112° 15' 15" W
FAX 480 659-7143	LAND SURFACE ELEVATION AT WELL 1282 Feet Above Sea Level
	METHOD OF LATITUDE / LONGITUDE (CHECK ONE) <input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input checked="" type="checkbox"/> GPS: <input type="checkbox"/> Hand-Held <input type="checkbox"/> Survey-Grade
	COUNTY ASSESSOR'S PARCEL ID NUMBER BOOK MAP PARCEL
	COUNTY WHERE WELL IS LOCATED Maricopa

SECTION 2: DRILLING AUTHORIZATION	
<b>Drilling Firm</b>	
NAME WDC Exploration & Wells	
DWR LICENSE NUMBER 161	
TELEPHONE NUMBER 602 254-6586	FAX 602 254-6648

RECEIVED  
OCT 3 2007  
WATER MGMT

SECTION 3: WELL CONSTRUCTION DETAILS		
DATE WELL CONSTRUCTION STARTED 3/21/05	DATE WELL CONSTRUCTION COMPLETED 4/29/05	IF FLOWING WELL, METHOD OF FLOW REGULATION <input type="checkbox"/> Valve <input type="checkbox"/> Other:
<b>Drill Method</b>	<b>Method of Well Development</b>	<b>Method of Sealing or Regulation Points</b>
CHECK ONE <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 ONE <input checked="" type="checkbox"/> Airlift <input type="checkbox"/> Bail <input type="checkbox"/> Surge Block <input type="checkbox"/> Surge Pump <input type="checkbox"/> Other (please specify):	CHECK ONE <input type="checkbox"/> None <input type="checkbox"/> Packed <input type="checkbox"/> Swedged <input type="checkbox"/> Welded <input type="checkbox"/> Other (please specify):
	<b>Water Level Information</b>	
	STATIC WATER LEVEL 405 Feet Below Land Surface	
	DATE MEASURED 5/13/05	

Well Driller Report and Well Log

WELL REGISTRATION NUMBER  
55 - 206033

SECTION 4: WELL CONSTRUCTION DESIGN (AS BUILT) (attach additional pages if needed)

Casinghole			Installed Casing												
DEPTH FROM SURFACE		BOREHOLE DIAMETER (inches)	DEPTH FROM SURFACE		OUTER DIAMETER (inches)	MATERIAL TYPE (M)				PERFORMANCE TYPE (P)				SLOT SIZE IF ANY (inches)	
FROM (feet)	TO (feet)		FROM (feet)	TO (feet)		STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	BLANK OR NONE	WIRES WRAP	SHUTTER SCREEN	MILLS, KNIFE		SLOTTED
0	39	48	+1	39	36	X				X					
39	1420	26	+2	519	16	X				X					
			519	700	16	X					X				.050
			700	720	16	X				X					
			720	1400	16	X				X	X				.050

DEPTH FROM SURFACE		Installed Annular Material						PARTIAL PACK						
FROM (feet)	TO (feet)	NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE		ANNULAR MATERIAL TYPE (A)						
					GROUT	CHIPS	PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE				SAND	GRAVEL	SIZE
0	39			X				Sand Cement Grout					X	
39	157							3/8" Pea gravel						
157	162					X		Bentonite Chips						
162	255							3/8" Pea gravel					X	
255	260					X		Bentonite Chips						
260	354							3/8" Pea gravel					X	
354	432			X				Pozzolan Cement Grout						
432	452					X		Bentonite seal						
452	1420							Silica Sand				X		8-12

DEPTH OF BORING: 1420 Feet Below Land Surface      DEPTH OF COMPLETED WELL: 1410 Feet Below Land Surface

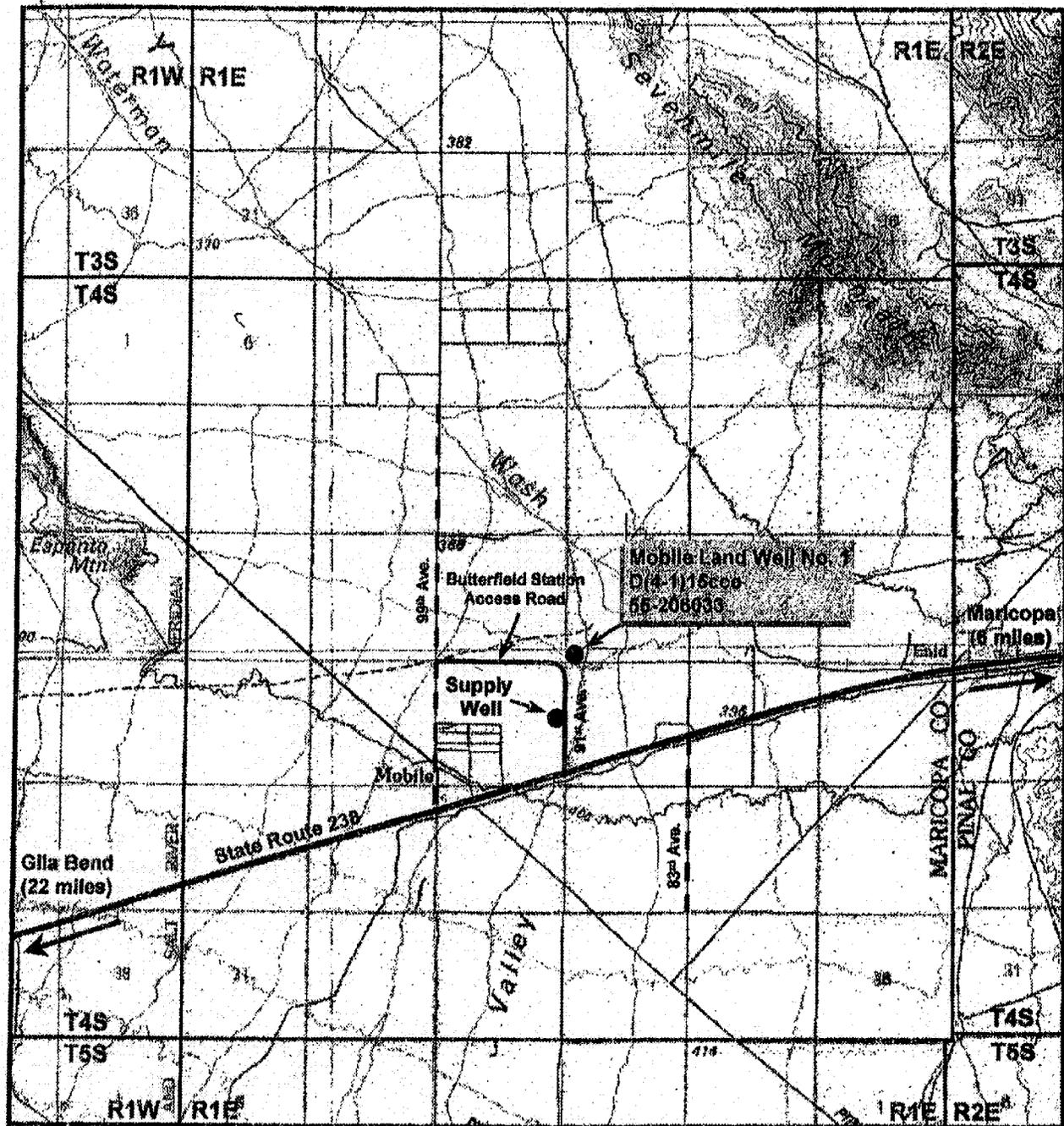
RECEIVED

OCT 3 2007

WATER MGMT







**RECEIVED**  
 OCT 3 2007  
 WATER MGMT

- Mobile Land Well No. 1
- Existing Production Well Used to Supply Makeup Water During Drilling
- Paved Road
- - - Graded Road

**CLEAR CREEK ASSOCIATES**

0 1 2  
Miles

**Figure 1**  
**Well Location Map**  
**Mobile Land Well No. 1**

May 18, 2006

Figure 1 Well Location Map.ppt



[Home](#) [Services](#) [Staff](#) [News & Information](#) [Employment](#) [Contact](#)

## Staff experience and expertise



**Donald P. Hanson R.G.**  
Senior Hydrogeologist  
[dhanson@clearcreekassociates.com](mailto:dhanson@clearcreekassociates.com)

*Expertise:* Applies 20 years of experience managing environmental and water resources-related projects, specializing in site characterizations, feasibility studies and remediation of complex groundwater contamination sites, particularly landfills impacted with chlorinated organic compounds and sites with extensive phase separated hydrocarbon. Provides water resources solutions including design and rehabilitation of supply wells, aquifer storage and recovery expertise, permitting, and water quality evaluations.

*Academic Background & Registration:* B.S., Geology/Hydrogeology, Northern Arizona University, 1984; Registered Geologist, Arizona (1992) No. 26036; Professional Geologist, Wyoming (1998) No. PG-2983.

[Back to staff page](#)

**From:** "Wayne Feller" <wfeller@clearcreekassociates.com>  
**To:** "Sharon Ward" <ssward@azwater.gov>  
**Date:** 8/14/07 3:35PM  
**Subject:** RE: Sonoran Valley Property LLC, Hydrotest App # 59-216243(55-206033), D(4-1)15CCC

The well was installed. I'll follow up with the driller.

-----Original Message-----

From: Sharon Ward [mailto:ssward@azwater.gov]  
Sent: Tuesday, August 14, 2007 2:49 PM  
To: Wayne Feller  
Cc: Dianna Williams  
Subject: Sonoran Valley Property LLC, Hydrotest App # 59-216243(55-206033), D(4-1)15CCC

Wayne,

The Department has not received a driller's report/log for the existing well, registration # 55-206033, for which Sonoran Valley Property has submitted the above-referenced Hydrotest application. If this well has been drilled, please provide the Department with a copy of the driller's report/log. If the well has not been drilled, please provide the Department with a well diagram.

Please let me know if you have any questions.

Thanks,  
Sharon

Sharon Ward  
Water Resources Specialist  
Phoenix Active Management Area  
Department of Water Resources  
3550 N. Central Avenue, Phoenix AZ 85012  
Phone: 602-771-8614  
Fax: 602-771-8688  
Email: ssward@azwater.gov

**CC:** "Dianna Williams" <dowilliams@azwater.gov>

**Mail Envelope Properties** (46C22E45.226 : 19 : 25126)

**Subject:** RE: Sonoran Valley Property LLC, Hydrotest App # 59-216243(55-206033), D(4-1)15CCC  
**Creation Date:** 8/14/07 3:31PM  
**From:** "Wayne Feller" <[wfeller@clearcreekassociates.com](mailto:wfeller@clearcreekassociates.com)>  
**Created By:** [wfeller@clearcreekassociates.com](mailto:wfeller@clearcreekassociates.com)

**Recipients**

azwater.gov  
PHOENIX.ADWR  
WRSXW (Sharon Ward)  
WRDXW CC (Dianna Williams)

**Post Office**

PHOENIX.ADWR

**Route**

azwater.gov

**Files**

MESSAGE  
Mime.822

**Size**  
966  
2874

**Date & Time**

08/14/07 03:31PM

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**Reply Requested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**From:** Sharon Ward  
**To:** internet:wfeller@clearcreekassociates.com  
**Date:** 8/14/07 2:49PM  
**Subject:** Sonoran Valley Property LLC, Hydrotest App # 59-216243 (55-206033), D(4-1)15CCC

Wayne,

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Thanks,  
Sharon

Sharon Ward  
Water Resources Specialist  
Phoenix Active Management Area  
Department of Water Resources  
3550 N. Central Avenue, Phoenix AZ 85012  
Phone: 602-771-8614  
Fax: 602-771-8688  
Email: ssward@azwater.gov

**CC:** Dianna Williams

**Mail Envelope Properties** (46C22369.B23 : 6 : 1466)

**Subject:** Sonoran Valley Property LLC, Hydrotest App # 59-216243 (55-206033),  
D(4-1)15CCC  
**Creation Date:** 8/14/07 2:49PM  
**From:** Sharon Ward  
**Created By:** [wrsxw@azwater.gov](mailto:wrsxw@azwater.gov)

<b>Recipients</b>	<b>Action</b>	<b>Date &amp; Time</b>
azwater.gov PHOENIX.ADWR WRDXW CC (Dianna Williams)	Delivered	08/14/07 02:49PM
clearcreekassociates.com wfeller (internet:wfeller@clearcreekassoc	Transferred	08/14/07 02:49PM

<b>Post Office</b>	<b>Delivered</b>	<b>Route</b>
PHOENIX.ADWR	08/14/07 02:49PM	azwater.gov
		clearcreekassociates.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1573	08/14/07 02:49PM

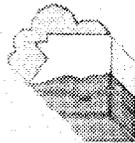
**Options**

**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:** Delivered & Opened

### Grandfather Rights-T4S, R1E, SE1/4 of Sec. 15



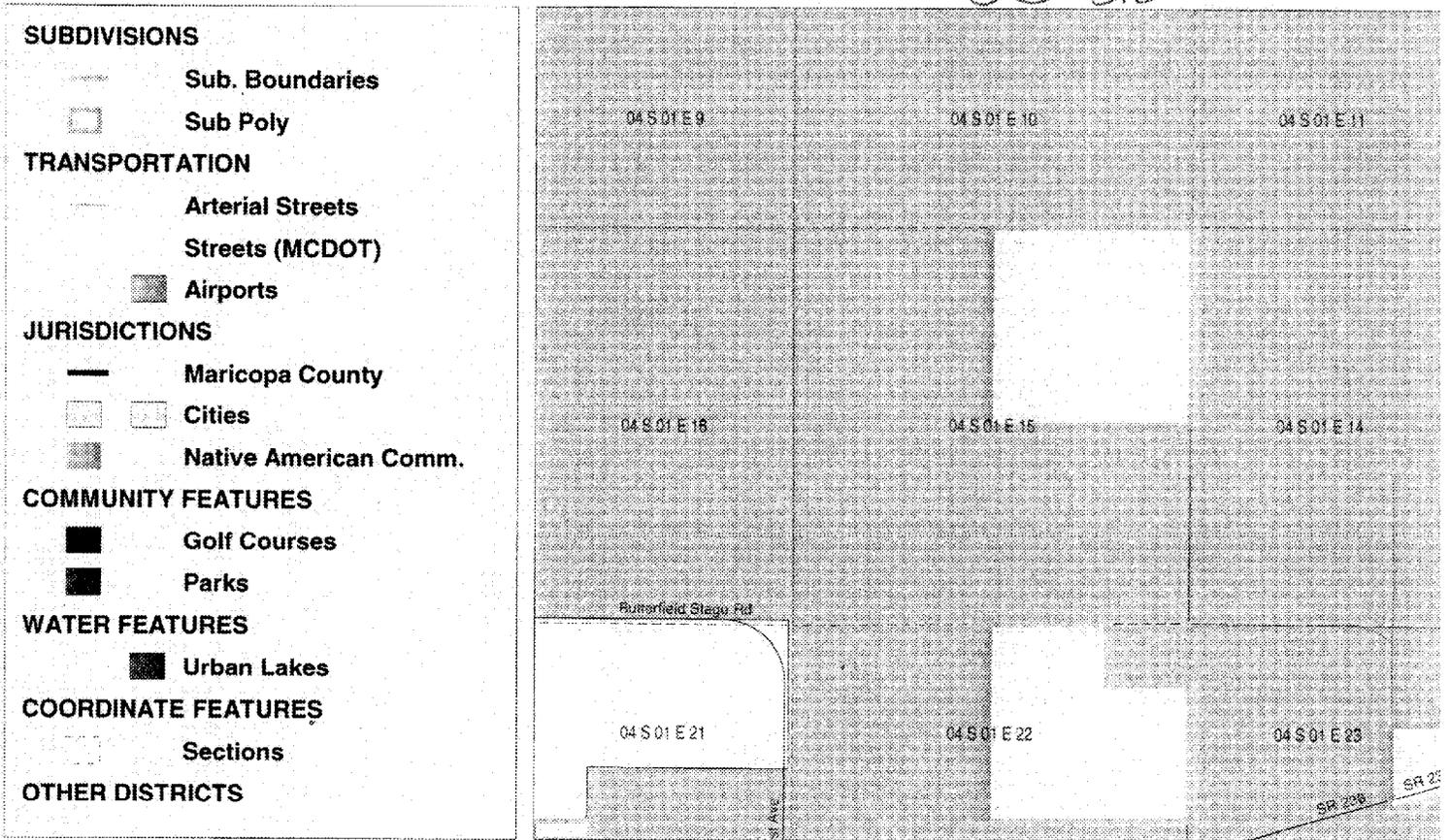
Arizona  
Department  
of Water  
Resources

Map generated on 8/20/2007

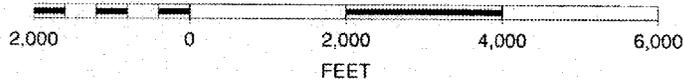
- Legend**
- Selected Feature**
- Road
  - Section
  - Township
- GFR**
- IRRIGATION RIGHT
  - IRRIGATION NON-APPURTENANT
  - TYPE 1 RIGHT
  - TYPE 1 NON-APPURTENANT
  - PARTIAL DEVELOPED/IRRIGATION RIGHT
  - PARTIAL DEVELOPED/IRRIGATION RIGHT NON-APPURTENANT
  - EXEMPT SMALL RIGHT
  - EXEMPT SMALL GROUPING
  - INACTIVE DEVELOPED

# T4S, R1E, SECTION 15

55-206033



SCALE 1 : 27,980



# T4S, R1E, SECTION 15

55-206033

**SUBDIVISIONS**

- Sub. Boundaries
- Sub Poly

**TRANSPORTATION**

- Arterial Streets
- Streets (MCDOT)
- Airports

**JURISDICTIONS**

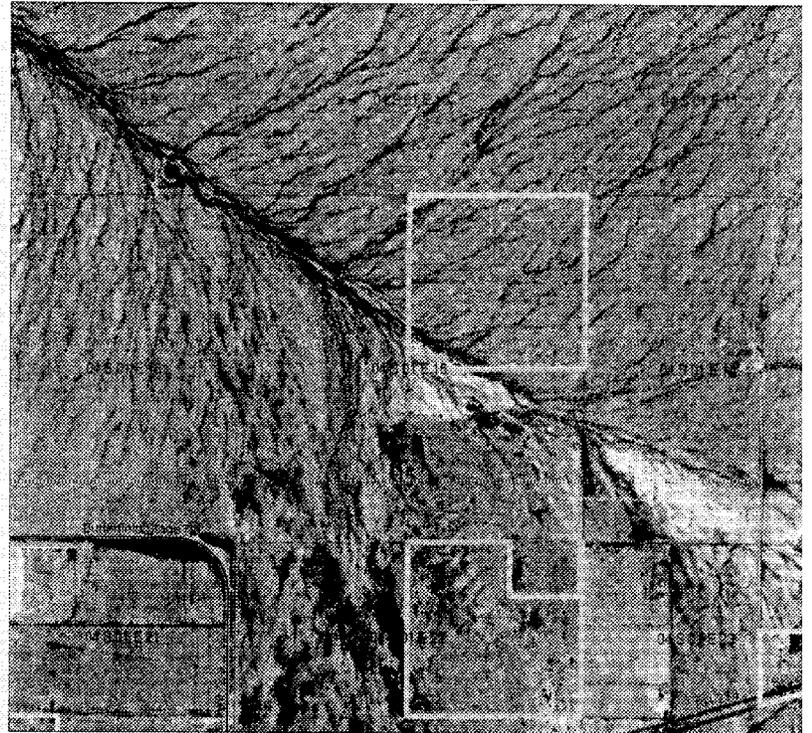
- Maricopa County
- Cities
- Native American Comm.

**COMMUNITY FEATURES**

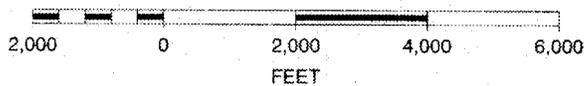
- Golf Courses
- Parks

**WATER FEATURES**

- Urban Lakes



SCALE 1 : 32,937



# T4S, R1E, SECTION 15, SW 1/4

55-206033

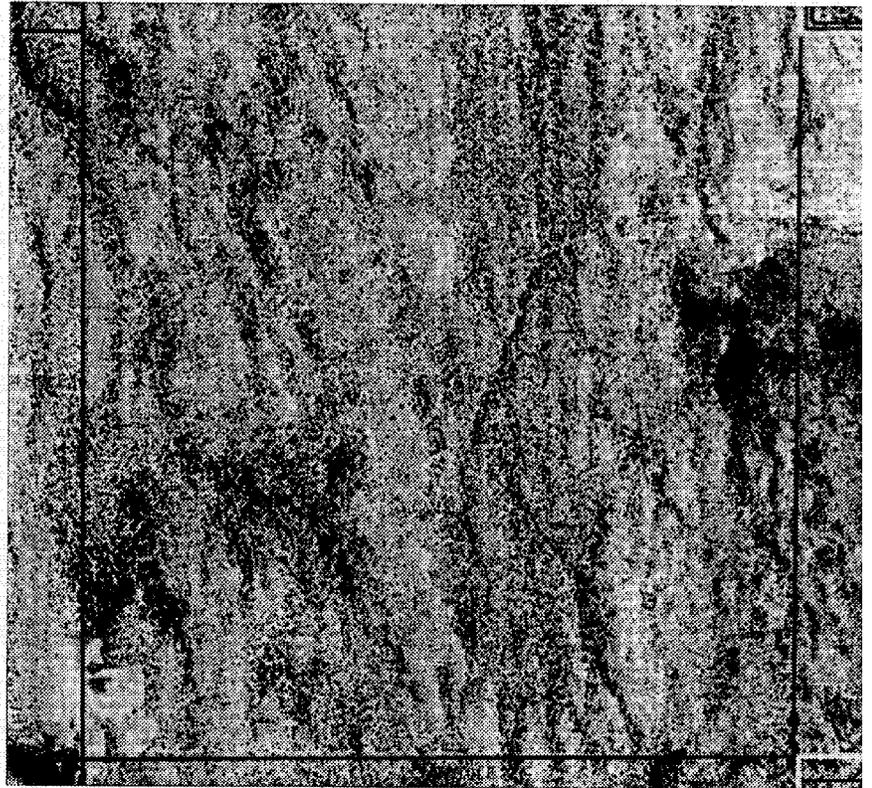
**PARCELS**  
□ Parcels

**SUBDIVISIONS**  
--- Sub. Boundaries  
□ Sub Poly

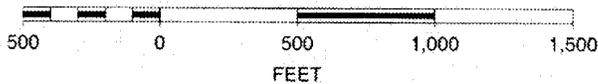
**TRANSPORTATION**  
— Streets (MCDOT)  
— Streets (ASSR)

**COORDINATE FEATURES**  
□ Sections

**AERIAL PHOTOS 2007**  
■ 2007 Aerial Photos (3 Foot Resample)



SCALE 1 : 7,915



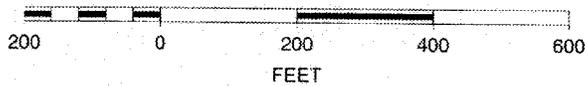
# T4S, R1E, SECTION 15, SW 1/4, SW 1/4

55-206033

- PARCELS**
  - Abc Parcel Numbers
  - Abc Lot Numbers
  - Parcels
- SUBDIVISIONS**
  - Sub. Boundaries
  - Sub Poly
- TRANSPORTATION**
  - Abc Street Names
  - Streets (MCDOT)
  - Streets (ASSR)
- COORDINATE FEATURES**
  - Sections
- AERIAL PHOTOS 2007**
  - 2007 Aerial Photos



SCALE 1 : 3,203



# T4S, R1E, SECTION 15, SW 1/4, SW 1/4, SW 1/5

55-206033

**PARCELS**

- Abc Parcel Numbers
- Abc Lot Numbers
- Parcels

**SUBDIVISIONS**

- Sub. Boundaries
- Sub Poly

**TRANSPORTATION**

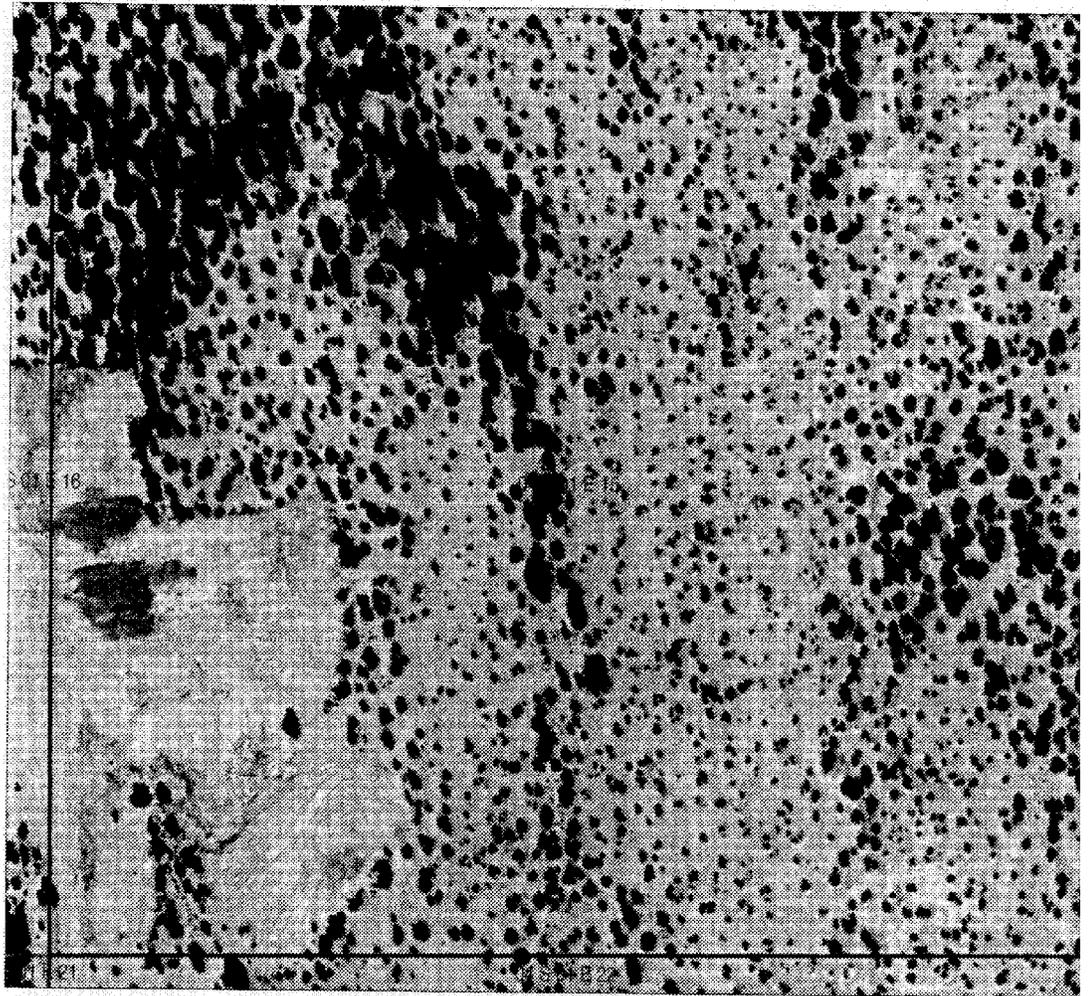
- Abc Street Names
- Streets (MCDOT)
- Streets (ASSR)

**COORDINATE FEATURES**

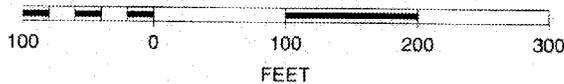
- Sections

**AERIAL PHOTOS 2007**

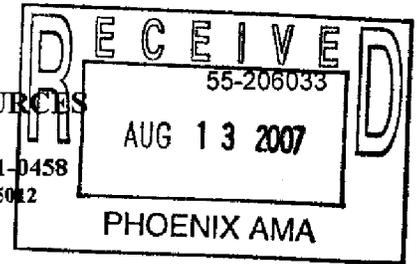
- 2007 Aerial Photos



SCALE 1 : 1,659



ARIZONA DEPARTMENT OF WATER RESOURCES  
 WATER MANAGEMENT DIVISION  
 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 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.	59-216243
Filed	8/13/07
AMA	Phx
S/B	9 W/S 08

II. GENERAL DATA

Please check one:

- New Application  
 Renewal or  Modification of Permit No. 59-206032.0000

1. NAME OF APPLICANT Sonoran Valley Property, LLC, Attn: Tim Keenan

Mailing Address 6720 North Scottsdale Road, Suite 335  
Scottsdale Arizona 85253 480-346-9614  
 City State Zip Code Telephone Number

2. NAME OF LAND OWNER where groundwater will be withdrawn Sonoran Valley Property, LLC

Mailing address 6720 North Scottsdale Road, Suite 335  
Scottsdale Arizona 85253 480-346-9614  
 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 Rainbow Valley sub-basin of the Phoenix Active Management Area.

5. The specific purpose for the hydrologic testing is:  
Characterization of aquifer parameters and water 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.

The water will not be put to beneficial use, and there is no groundwater right.

7. If applicant cannot reasonably put the withdrawn groundwater to a beneficial use or provide it to a rightholder, explain why.

The well will be located on undeveloped land, too far from any point of beneficial use to allow economical transport for such use.

8. Legal description of land where groundwater will be used: NA

9. Name and mailing address of the owner of the land where groundwater will be used: \_\_\_\_\_

Mailing Address	City	State	Zip Code	Telephone No.
-----------------	------	-------	----------	---------------

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

11. Anticipated duration of the hydrologic testing 30 Days \_\_\_\_\_ Months.

12. Requested duration of the hydrologic testing permit \_\_\_\_\_ Days 12 Months.

13. State the testing circumstances that require withdrawals in excess of 10 acre feet or a testing period for more than 90 days:

NA

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. N/A

15. Groundwater to be withdrawn by means of:

A. WELLS ALREADY IN EXISTENCE:

Registration No.	Location	Depth	Diameter of Casing	Case Type
55- <u>206033</u>	<u>D(4-1)15ccc</u>	<u>1410 ft</u>	<u>16 in</u>	<u>LCS.</u>
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: The well will be used for potable supply after conversion to either a non-exempt/non-service area well or a service area well.

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) Garrett Wiegner 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  Date 8/9/07

Run Date: 10/04/2007

# AZ DEPARTMENT OF WATER RESOURCES

## WELL REGISTRY REPORT - WELLS55

Location D 4.0 1.0 15 C C C Well Reg.No 55 - 206033 AMA PHOENIX AMA

Registered Name SONORAN VALLEY MANAGEMENT  
6720 N SCOTTSDALE ROAD SUITE 335  
SCOTTSDALE AZ 85253  
File Type NEW WELLS (INTENTS OR APPLICATIONS)  
Application/Issue Date 01/11/2005

Owner OWNER Well Type WITHDRAWAL PERMIT  
Driller No. 161 SubBasin RAINBOW VALLEY  
Driller Name WATER DEVELOPMENT CORP. dba WDC Exploration Watershed LOWER GILA RIVER  
Driller Phone 480-813-4486 Registered Water Uses TEST  
County MARICOPA Registered Well Uses WATER PRODUCTION  
Parcel No. 300-228-013 Discharge Method NO DISCHARGE METHOD LISTED  
Intended Capacity GPM 1,500.00 Power NO POWER CODE LISTED

Well Depth 1,410.00 Case Diam 16.00 Tested Cap 0.00  
Pump Cap. 0.00 Case Depth 1,400.00 CRT  
Draw Down 0.00 Water Level 405.00 Log X  
Acres Irrig 0.00 Finish STEEL - PERFORATED OR SLOTTED CASING

Contamination Site: NO - NOT IN ANY WQARF SITE

Comments According to Don Hanson of Clear Creek Associates, this well was completed by WDC Exploration #161 sometime in mid-2005. All attempts by Clear Creek to get WDC to file the well driller's report have failed. A citation will be prepared against the drilling firm for their apparent failure to comply with A.R.S. 45-600.A. File update conducted 9/7/07. On 10/2/07, Eric Brue of WDC Exploration fax'd a copy of the driller's report for the well known as Mobile Land Well No. 1. File updated - problem solved. mib

### Places Of Use

D 4.0 1.0 15

### Current Action

10/3/2007 750 WELL LOG RECEIVED  
Action Comment: MO

### Action History

8/14/2007 867 APP/NOI REVIEW BY HYDRO/WQARF COMPLETE  
Action Comment: dw  
12/4/2006 860 CHANGE OF WELL OWNERSHIP  
Action Comment: TB  
7/11/2005 877 DRILLING AUTHORITY EXPIRED  
Action Comment: mib  
4/29/2005 755 WELL CONSTRUCTION COMPLETED  
Action Comment: MO  
1/13/2005 700 SITE VERIFIED AS ACCURATE  
Action Comment:  
1/13/2005 550 DRILLING AUTHORITY ISSUED  
Action Comment: sw  
1/13/2005 555 DRILLER & OWNER PACKETS MAILED  
Action Comment: sw  
1/12/2005 600 PERMIT ISSUED  
Action Comment:

Run Date: 10/04/2007

**AZ DEPARTMENT OF WATER RESOURCES**  
**WELL REGISTRY REPORT - WELLS55**

---

1/12/2005	552	DRILL CARD HELD BY AMA PENDING SITE VERIFICATION
		Action Comment:
1/11/2005	410	AMA APPLICATION/NOI REVIEW COMPLETE
		Action Comment:
1/10/2005	867	APP/NOI REVIEW BY HYDRO/WQARF COMPLETE
		Action Comment:
12/10/2004	400	HYDROLOGY APPLICATION REVIEW COMPLETE
		Action Comment:
12/8/2004	315	APP RCVD FOR A WITHDRAWAL PERMIT FOR A NEW WELL
		Action Comment:
12/8/2004	355	APP SENT TO AMA FOR REVIEW
		Action Comment:
12/8/2004	365	APP SENT TO HYDROLOGY FOR REVIEW
		Action Comment:
12/8/2004	866	APP/NOI SENT TO HYDRO/WQARF FOR REVIEW
		Action Comment:



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

## Well Driller Report and Well Log

- Review instructions prior to completing form
- This report should be prepared by the driller in detail and filed with the Department within 30 days following completion of the well.

<b>PERMIT NUMBER</b> P(41)15099
<b>WELL REGISTRATION NUMBER</b> 55 - 206033
<b>PERMIT NUMBER (IF ISSUED)</b>

**\*\* PLEASE PRINT CLEARLY \*\***

SECTION 1: REGISTRY INFORMATION	
Well Owner	Location of Well
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL <b>Clear Creek Associates</b>	WELL LOCATION ADDRESS (IF ANY)
MAILING ADDRESS <b>6155 E. Indian School Rd. Suite 200</b>	TOWNSHIP (N/S) RANGE (E/W) SECTION <b>4S 1E 15</b>
CITY / STATE / ZIP CODE <b>Scottsdale, AZ 85251</b>	180 ACRE 40 ACRE 10 ACRE <b>SW 1/4 SW 1/4 SW 1/4</b>
CONTACT PERSON NAME AND TITLE <b>Dave Carr</b>	LATITUDE LONGITUDE <b>33° 4' 23.6" N 112° 15' 15" W</b>
TELEPHONE NUMBER <b>480-659-7131</b>	LAND SURFACE ELEVATION AT WELL <b>1282</b> Feet Above Sea Level
FAX <b>480 659-7143</b>	METHOD OF LATITUDE / LONGITUDE (CHECK ONE) <input type="checkbox"/> Hand-Held <input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input checked="" type="checkbox"/> GPS: <input type="checkbox"/> Survey-Grade
	COUNTY ASSESSOR'S PARCEL ID NUMBER BOOK MAP PARCEL
	COUNTY WHERE WELL IS LOCATED <b>Maricopa</b>

SECTION 2: DRILLING AUTHORIZATION	
Drilling Firm	
NAME <b>WDC Exploration &amp; Wells</b>	
DWR LICENSE NUMBER <b>161</b>	
TELEPHONE NUMBER <b>602 254-6586</b>	FAX <b>602 254-6648</b>

**RECEIVED**  
OCT 3 2007  
**WATER MGMT**

SECTION 3: WELL CONSTRUCTION DETAILS		
DATE WELL CONSTRUCTION STARTED	DATE WELL CONSTRUCTION COMPLETED	IF FLOWING WELL, METHOD OF FLOW REGULATION
<b>3/21/05</b>	<b>4/29/05</b>	<input type="checkbox"/> Valve <input type="checkbox"/> Other:
<b>Drill Method</b> CHECK ONE <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):	<b>Method of Well Development</b> CHECK ONE <input checked="" type="checkbox"/> Airlift <input type="checkbox"/> Bail <input type="checkbox"/> Surge Block <input type="checkbox"/> Surge Pump <input type="checkbox"/> Other (please specify):	<b>Method of Sealing of Regulation Points</b> CHECK ONE <input type="checkbox"/> None <input type="checkbox"/> Packed <input type="checkbox"/> Swedged <input type="checkbox"/> Welded <input type="checkbox"/> Other (please specify):
	<b>Water Level Information</b> STATIC WATER LEVEL <b>405</b> Feet Below Land Surface DATE MEASURED <b>5/13/05</b>	

**SECTION 4. WELL CONSTRUCTION DESIGN (AS BUILT) (and additional pipe installed)**

Borehole			Installed Casing													
DEPTH FROM SURFACE		BOREHOLE DIAMETER (Inches)	DEPTH FROM SURFACE		OUTER DIAMETER (Inches)	MATERIAL TYPE (AND)				FILTER DESIGN TYPE (S)					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	39	48	+1	39	36	X				X						
39	1420	26	+2	519	16	X				X						
			519	700	16	X					X					.050
			700	720	16	X				X						
			720	1400	16	X				X	X					.050

Installed Annular Material												
DEPTH FROM SURFACE		ANNULAR MATERIAL TYPE (S)						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					
0	39			X					Sand Cement Grout		X	
39	157								3/8" Pea gravel			
157	162					X			Bentonite Chips			
162	255								3/8" Pea gravel		X	
255	260					X			Bentonite Chips			
260	354								3/8" Pea gravel		X	
354	432			X					Pozzolan Cement Grout			
432	452					X			Bentonite seal			
452	1420								Silica Sand	X		8-12

DEPTH OF BORING: 1420 Feet Below Land Surface  
 DEPTH OF COMPLETED WELL: 1410 Feet Below Land Surface

**RECEIVED**  
 OCT 3 2007  
**WATER MGMT**





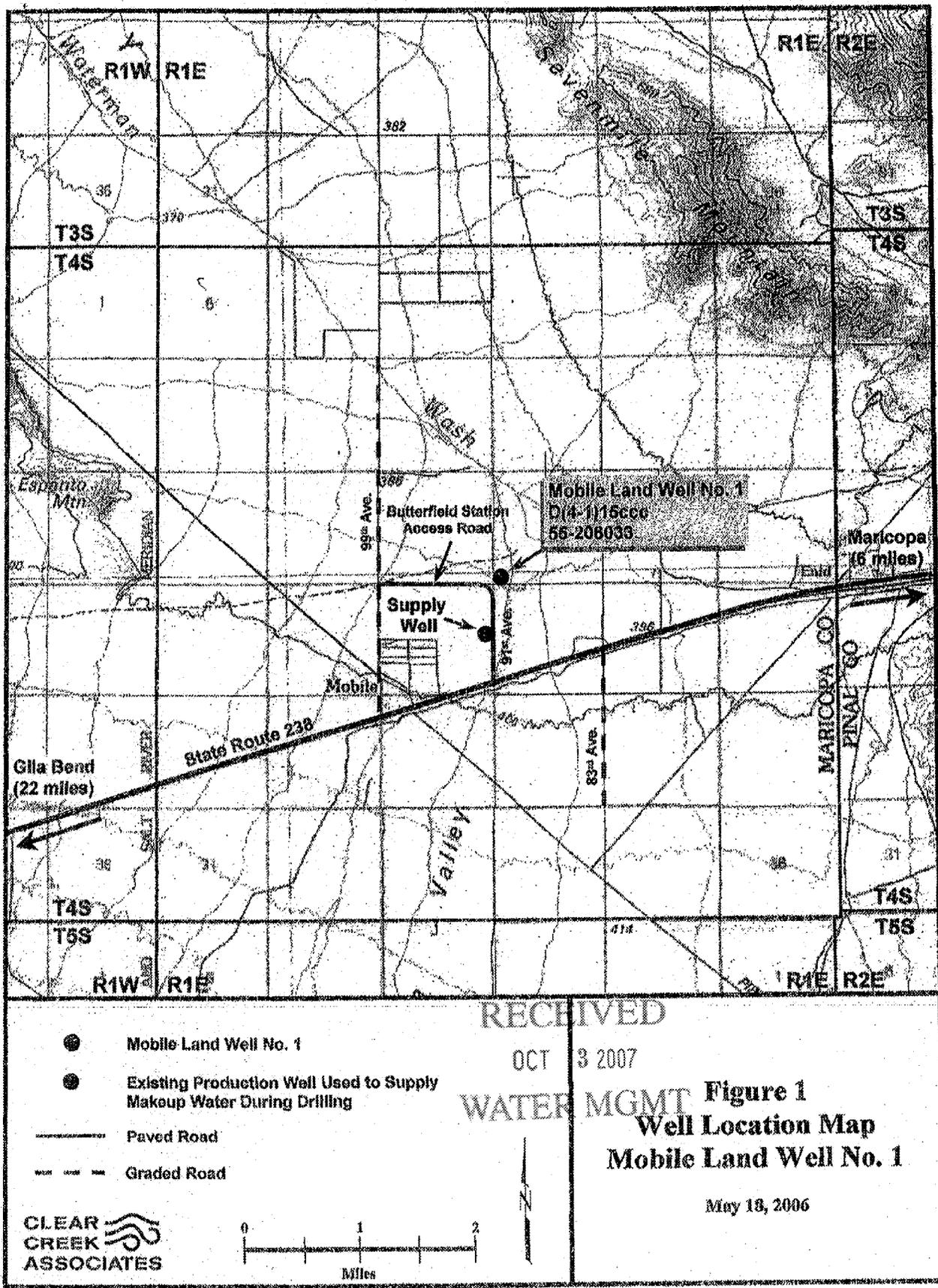


Figure 1 Well Location Map.ppt



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## staff experience and expertise



**Donald P. Hanson R.G.**

Senior Hydrogeologist  
dhanson@clearcreekassociates.com

*Expertise:* Applies 20 years of experience managing environmental and water resources-related projects, specializing in site characterizations, feasibility studies and remediation of complex groundwater contamination sites, particularly landfills impacted with chlorinated organic compounds and sites with extensive phase separated hydrocarbon. Provides water resources solutions including design and rehabilitation of supply wells, aquifer storage and recovery expertise, permitting, and water quality evaluations.

*Academic Background & Registration:* B.S., Geology/Hydrogeology, Northern Arizona University, 1984; Registered Geologist, Arizona (1992) No. 26036; Professional Geologist, Wyoming (1998) No. PG-2983.

[Back to staff page](#)

Run Date: 09/07/2007

# AZ DEPARTMENT OF WATER RESOURCES

## WELL REGISTRY REPORT - WELLS55

Location D 4.0 1.0 15 C C C Well Reg.No 55 - 206033 Cancelled AMA PHOENIX AMA

**Registered Name** SONORAN VALLEY MANAGEMENT  
6720 N SCOTTSDALE ROAD SUITE 335  
SCOTTSDALE AZ 85253  
**File Type** NEW WELLS (INTENTS OR APPLICATIONS)  
**Application/Issue Date** 01/11/2005

**Owner** OWNER  
**Driller No.** 161  
**Driller Name** WATER DEVELOPMENT CORP. dba WDC Exploration  
**Driller Phone** 480-813-4486  
**County** MARICOPA  
**Parcel No.** 300-228-013  
**Intended Capacity GPM** 1,500.00  
**Well Type** WITHDRAWAL PERMIT  
**SubBasin** RAINBOW VALLEY  
**Watershed** LOWER GILA RIVER  
**Registered Water Uses** TEST  
**Registered Well Uses** WATER PRODUCTION  
**Discharge Method** NO DISCHARGE METHOD LISTED  
**Power** NO POWER CODE LISTED

**Well Depth** 0.00      **Case Diam** 0.00      **Tested Cap** 0.00  
**Pump Cap.** 0.00      **Case Depth** 0.00      **CRT**  
**Draw Down** 0.00      **Water Level** 0.00      **Log**  
                                 **Acres Irrig** 0.00      **Finish** NO CASING CODE LISTED

**Contamination Site:** NO - NOT IN ANY WQARF SITE

**Comments** According to Don Hanson of Clear Creek Associates, this well was completed by WDC Exploration #161 sometime in mid-2005. All attempts by Clear Creek to get WDC to file the well driller's report have failed. A citation will prepared against the drilling firm for their apparent failure to comply with A.R.S. 45-600.A. File update conducted 9/7/07. mib

**Places Of Use**

D 4 0 1 0 15

**Current Action**

7/11/2005 877 DRILLING AUTHORITY EXPIRED  
Action Comment: mib

**Action History**

8/14/2007 867 APP/NOI REVIEW BY HYDRO/WQARF COMPLETE  
Action Comment: dw  
12/4/2006 860 CHANGE OF WELL OWNERSHIP  
Action Comment: TB  
1/13/2005 700 SITE VERIFIED AS ACCURATE  
Action Comment:  
1/13/2005 550 DRILLING AUTHORITY ISSUED  
Action Comment: sw  
1/13/2005 555 DRILLER & OWNER PACKETS MAILED  
Action Comment: sw  
1/12/2005 600 PERMIT ISSUED  
Action Comment:  
1/12/2005 552 DRILL CARD HELD BY AMA PENDING SITE VERIFICATION  
Action Comment:  
1/11/2005 410 AMA APPLICATION/NOI REVIEW COMPLETE  
Action Comment:  
1/10/2005 867 APP/NOI REVIEW BY HYDRO/WQARF COMPLETE  
Action Comment:

Run Date: 09/07/2007

**AZ DEPARTMENT OF WATER RESOURCES**  
**WELL REGISTRY REPORT - WELLS55**

---

12/10/2004	400	HYDROLOGY APPLICATION REVIEW COMPLETE
		Action Comment:
12/8/2004	315	APP RCVD FOR A WITHDRAWAL PERMIT FOR A NEW WELL
		Action Comment:
12/8/2004	355	APP SENT TO AMA FOR REVIEW
		Action Comment:
12/8/2004	365	APP SENT TO HYDROLOGY FOR REVIEW
		Action Comment:
12/8/2004	866	APP/NOI SENT TO HYDRO/WQARF FOR REVIEW
		Action Comment:



Arizona Department of Water Resources  
 Water Management Support Section  
 P.O. Box 458 • Phoenix, Arizona 85001-0458  
 (602) 771-8500 • (800) 352-8488  
 www.azwater.gov

**Request to Change Well Information**

**RECEIVED**

NOV 17 2006

FILE NUMBER  
 WELL REGISTRATION NUMBER  
**55-206033**

- Review instructions prior to completing form in black or blue ink.
  - You must include with your Notice:
    - check or money order for any required fee(s)
  - Authority for fee: A.A.C. R12-15-151(B)(4)(a), A.R.S. § 45-113(B)
- \*\*PLEASE PRINT CLEARLY\*\***

SECTION 1: REGISTRY INFORMATION		INFORMATION MANAGEMENT					
<b>Well Owner</b>		<b>Location of Well</b>					
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL <b>Clear Creek Associates, PLC</b>		WELL LOCATION ADDRESS (IF ANY) <b>DCY-1) 15CCLL</b>					
MAILING ADDRESS <b>6155 E. Indian School Road, Suite 200</b>		TOWNSHIP (N/S) <b>4S</b>	RANGE (E/W) <b>1E</b>	SECTION <b>15</b>	160 ACRE <b>SW ¼</b>	40 ACRE <b>SW ¼</b>	10 ACRE <b>SW ¼</b>
CITY / STATE / ZIP CODE <b>Phoenix, AZ 85251</b>		LATITUDE <b>33 ° 04 ' 18.2 " N</b>		LONGITUDE <b>112 ° 15 ' 28.1 " W</b>			
CONTACT PERSON NAME AND TITLE <b>David A. Carr, Senior Hydrogeologist</b>		METHOD OF LATITUDE/LONGITUDE (CHECK ONE) <input checked="" type="checkbox"/> *GPS: Hand-Held					
TELEPHONE NUMBER <b>(480) 659-7131</b>		FAX <b>(480) 659-7143</b>		<input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input type="checkbox"/> *GPS: Survey-Grade *IF GPS WAS USED, GEOGRAPHIC COORDINATE DATUM (CHECK ONE)			
		<input checked="" type="checkbox"/> NAD-83 <input type="checkbox"/> Other (please specify):		COUNTY ASSESSOR'S PARCEL ID NUMBER			COUNTY WHERE WELL IS LOCATED
		BOOK <b>300</b>	MAP <b>28</b>	PARCEL <b>013</b>	<b>Maricopa</b>		

**Type of Request (CHECK ONE)**

Change of Well Drilling Contractor (Fill out Section 2)   
  Change of Well Ownership (Fill out Section 3)   
  Change of Well Information (location, use, etc.) (Fill out Section 4)

**SECTION 2: REQUEST TO CHANGE WELL DRILLING CONTRACTOR (\$10 Fee Required)** **\$10 FEE**

♦ If drilling or abandoning a well, the Department must receive this request and issue authorization to the new drilling firm prior to the commencement of well drilling or abandonment.

Current Well Drilling Contractor		New Well Drilling Contractor	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL	
DWR LICENSE NUMBER		DWR LICENSE NUMBER	ROC LICENSE CATEGORY
TELEPHONE NUMBER	FAX	TELEPHONE NUMBER	FAX

**SECTION 3: STATEMENT OF CHANGE OF WELL OWNERSHIP (\$10 Fee Required)** **\$10 FEE**

♦ If this change pertains to more than one well and the names are the same, only one \$10 fee is required.

Previous Well Owner		New Well Owner	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL <b>Clear Creek Associates, PLC</b>		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL <b>Sonoran Valley Management</b>	
MAILING ADDRESS <b>6155 E. Indian School Road, Suite 200</b>		MAILING ADDRESS <b>6720 N. Scottsdale Road, Suite 335</b>	
CITY / STATE / ZIP CODE <b>Phoenix, AZ 85251</b>		CITY / STATE / ZIP CODE <b>Scottsdale, AZ 85253</b>	
CONTACT PERSON NAME AND TITLE <b>David A. Carr, Senior Hydrogeologist</b>		CONTACT PERSON NAME AND TITLE <b>Tim Keenan, Director</b>	
TELEPHONE NUMBER <b>(480) 659-7131</b>	FAX <b>(480) 659-7143</b>	TELEPHONE NUMBER <b>(480) 346-9614</b>	FAX <b>(480) 346-9696</b>

**SECTION 4: CHANGE OF WELL INFORMATION (No Fee Required)** **NO FEE**

**NOTE:** Applies only to wells that have already been drilled. For proposed wells, an amended Notice of Intent to Drill a Well must be filed.

EXPLAIN

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief.

TYPE OR PRINT NAME AND TITLE <b>David A. Carr, Senior Hydrogeologist</b>	SIGNATURE OF WELL OWNER 	DATE <b>11-16-06</b>
---	-----------------------------	-------------------------

## Arizona Department of Water Resources

3500 N Central Ave  
Phoenix AZ 85012

Customer: CLEAR CREEK ASSOCIATES

Date: 11/17/2006  
Cashier: WRPAB  
Type: Mail

DCS/INV#	DESCRIPTION	ATTR	SIZE	QTY	PRICE	EXT PRICE
F 78	4439-12	CHANGE OF WELL OWNERSHIP		1	10.00	10.00
			1 Unit(s)		Subtotal:	10.00
					<b>RECEIPT TOTAL:</b>	<b>10.00</b>
					Tendered:	10.00
					Change:	0.00

Check #: 10.00 # 011825

55-206033

***We Appreciate Your Business!***

Well Registration No. 55-206033 Application/Right No. \_\_\_\_\_ Permit/License No. \_\_\_\_\_  
Regulated Person ClearCreek Associates Address: 6155 E. Indian School, Ste 200  
Scottsdale, AZ 85251 Phone: 480-659-7131

**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:

SW SW SW Sec. 15 T4S R1E

on the following date(s): 1-13-05  
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: Sharon Ward Phone: 602-417-2465

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: AR.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): Pat Hill Phone: 602-417-2410  
Name (Arizona): Patrick Shanahan Phone: 1-800-872-2879

(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): ROCHELLE DEAN

Signature: \_\_\_\_\_ Title: \_\_\_\_\_

**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: Sharon Ward (SIGNATURE) Date: 1/13/05

Photo identification presented.  
 Copy provided prior to inspection to: \_\_\_\_\_ Time: \_\_\_\_\_

**ARIZONA DEPARTMENT OF WATER RESOURCES**  
**NOTIFICATION OF INSPECTION AND DUE PROCESS RIGHTS**  
**(continued)**

6. **Presence During the Inspection.** The ADWR inspector must offer the opportunity to the regulated person or the regulated person's authorized representative to accompany the ADWR inspector during each inspection, except during confidential interviews.
7. **Interviews.** The ADWR inspector must advise each person interviewed during each inspection that statements made by that person may be included in the inspection report. The ADWR inspector must also advise each person interviewed whether the conversation is being recorded.
8. **Original Documents.** The ADWR inspector must provide copies of any original documents which ADWR is authorized to take during this inspection.
9. **Samples.** The ADWR inspector must provide a split of any samples taken during this inspection, unless the split of these samples would prohibit an analysis from being conducted or render an analysis inconclusive. The ADWR inspector must provide a copy of any analysis performed on samples taken during this inspection.
10. **Due Process.** If ADWR takes further action relating to the issuance of a license or compliance with licensing requirements based on this inspection, then you will have certain rights under A.R.S. §§ 41-1092 *et seq.* and A.R.S. §§ 12-901 *et seq.* to appeal any final decision by ADWR. Additional rights concerning inspections of dams are provided by A.R.S. §§ 45-1210 and 1211. Questions regarding these rights may be directed to the Ombudsmen listed in paragraph 5 on the reverse.

**ARIZONA DEPARTMENT OF WATER RESOURCES  
PHOENIX ACTIVE MANAGEMENT AREA OFFICE**  
500 North Third Street, Phoenix, Arizona 85004  
Telephone 602-417-2465  
Fax 602-417-2467



January 18, 2005

**JANET NAPOLITANO**  
Governor

**HERB GUENTHER**  
Director

David A. Carr  
Clear Creek Associates  
6155 E. Indian School Rd, Ste 200  
Scottsdale AZ 85251

Dear Mr. Carr:

This letter is to inform you that the Arizona Department of Water Resources (Department) has conducted a well site inspection for Well No. 55-206033.

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 inspection report and a Notification of your Inspection and Due Process Rights which was completed during the site inspection. No further action is required.

If you have any questions or need further assistance please feel free to contact me at (602) 417-2465.

Sincerely,

A handwritten signature in cursive script that reads "Sharon Ward".

Sharon Ward  
Water Resource Specialist  
Phoenix Active Management Area

Enclosures

**ARIZONA DEPARTMENT OF WATER RESOURCES**

**PHOENIX AMA**

500 North Third Street  
Phoenix, Arizona 85007  
Telephone (602) 417-2465  
Fax (602) 417-2467



**JANET NAPOLITANO**  
Governor

**HERB GUENTHER**  
Director

January 18, 2005

**FIELD VERIFICATION REPORT  
NEW OR REPLACEMENT WELL**

File Number: D (4-1) 15 C C C  
Quadrant Tns & Rng Section 160ac 40ac 10ac

Registration Number: Well # 55-206033

Type of Permit & Number: Hydrologic Testing Well Permit # 59-206032.0000

Location of Permit: SW<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> Section 15, T4S, R1E  
10 Acre 40 Acre 160 Acre

Verified Location: SW<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> Section 15, T4S, R1E  
10 Acre 40 Acre 160 Acre

Latitude: N 33° 04' 23.8"

Longitude: W 112° 15' 15.5"

Latitude/Longitude Determined By: GPS:  Topo Map  Other

Drill Card in possession of: Driller: \_\_\_\_\_ Owner: \_\_\_\_\_ Consultant: \_\_\_\_\_ Other:

Card given to: Original card will be sent to driller

Date and time of inspection: January 13, 2005 @ 10:00 A.M.

Correct driller on card? YES

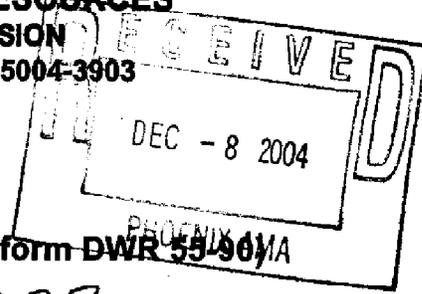
Comments:

Replacement - Distance from the original well: ft

Well/s in Radius: Yes: No:

Report filed by: Sharon Ward, Phoenix AMA

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) MA

Well Registration Number 55- 206033  
(FOR DEPARTMENT USE ONLY)

1. Well Location:

SW 1/4 of the SW 1/4 of the SW 1/4, Sec. 15, Township 4 S Range 1 E.  
10AC 40AC 160AC

2. Position Location of the Well:

Latitude 33 ° 04 ' 23.5 " Longitude 112 ° 15 ' 12.5 "

3. County Maricopa

4. Date construction to start: January 2005

5. Time period well will remain in use: 30+ years

6. Is pump equipment to be installed? Yes If so, design pump capacity: 1500 GPM.

7. Well construction plan:

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

b. Borehole diameters 36 inches from 0 feet to 39 feet.  
24 inches from 39 feet to 1200 feet.

c. Casing materials 16-inch blank steel casing, and 16-inch louvered steel casing

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

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. See attached Figure 1.

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):

N/A

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: N/A

(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

<u>6155 East Indian School Road, Suite 200</u>	<u>Scottsdale</u>	<u>Arizona</u>	<u>85251</u>
Address	City	State	Zip

Contact Person: Dave Carr Telephone Number (480) 659-7131

14. Drilling firm: To be determined.

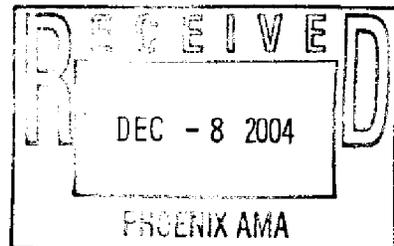
DWR License Number: \_\_\_\_\_ ROC License Category: \_\_\_\_\_

15. Special construction standards, if any, required pursuant to A.A.C. R12-15-821: No

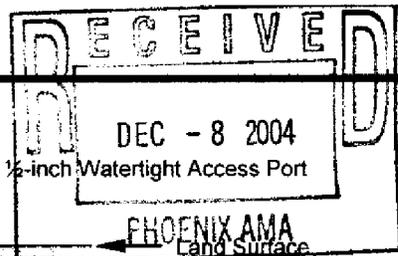
I (we), David A. Carr hereby swear that all information provided in this application is true and correct to the best of my/our knowledge and belief.  
(print name)

  
Signature of Applicant

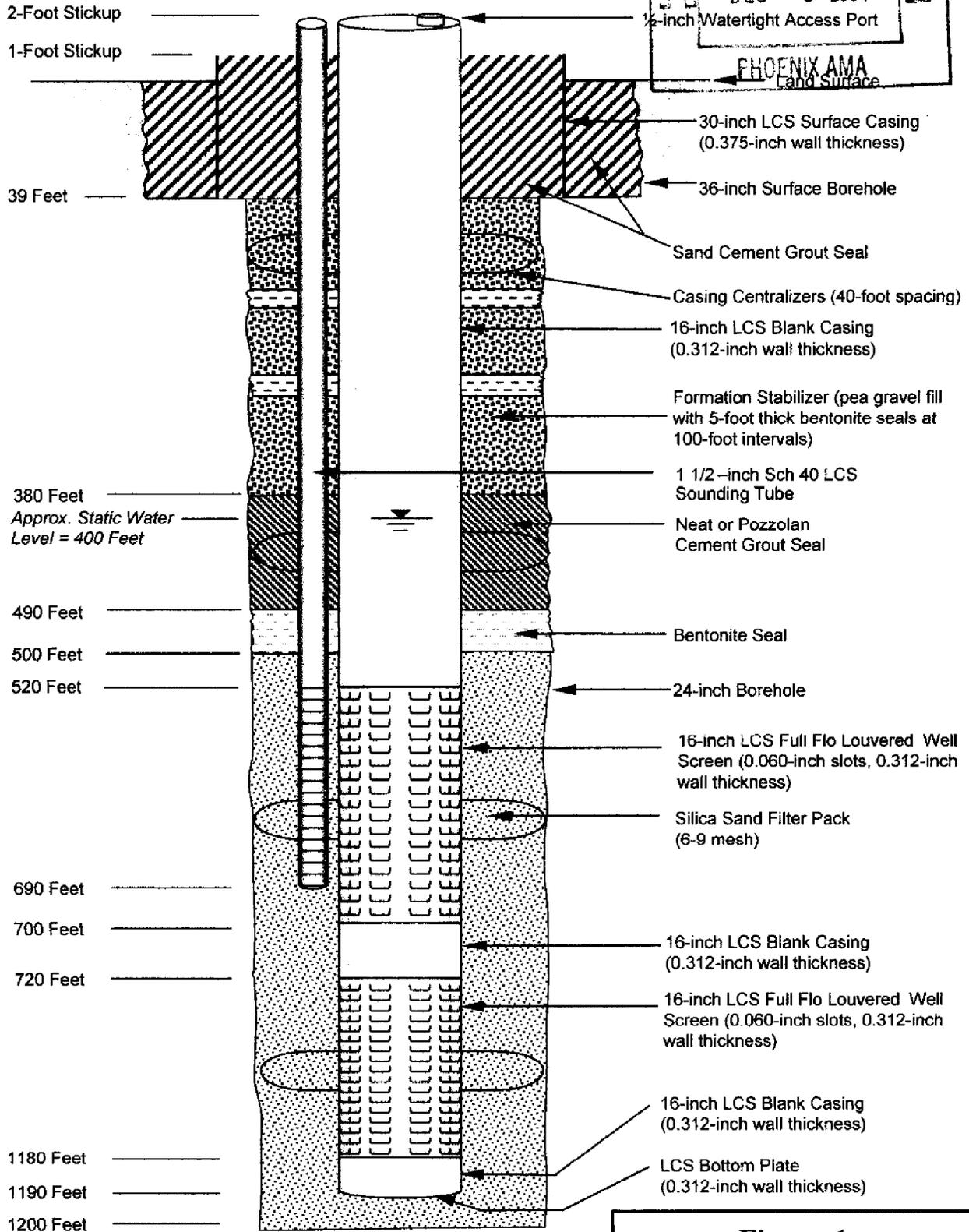
12-8-04  
Date



WELL REG. NO. 55-206033



Well Location: D(4-1)15ccc



380 Feet  
Approx. Static Water Level = 400 Feet

490 Feet

500 Feet

520 Feet

690 Feet

700 Feet

720 Feet

1180 Feet

1190 Feet

1200 Feet

Not To Scale

- Notes:
1. LCS = low carbon steel
  2. All diameters are O.D. except the well screen and sounder access tube.
  3. The 1 1/2-inch pilot borehole (not shown) will be drilled to 1500 feet.

Figure 1  
Mobile Land Well No. 1  
Preliminary Design

December 2004





*Practical Solutions  
in Groundwater Science*

January 5, 2005

Scott Miller  
Phoenix Active Management Area  
Arizona Department of Water Resources  
P.O. Box 458  
Phoenix, Arizona 85001-0458

6155 E. Indian School Rd., Suite 200  
Scottsdale, Arizona 85251  
480-659-7131 office  
480-659-7143 fax  
www.clearcreekassociates.com

**Required Drilling Contractor Information for  
Hydrologic Testing Permit No. 55-206033  
Mobile, Arizona**

*Via Facsimile (602/417-2467)  
and US Mail*

Dear Scott:

This letter provides the required drilling contractor information for a new well to be constructed for hydrologic testing near Mobile, Arizona. A hydrologic testing permit application was filed on December 8, 2004, with a new well construction supplement attached. The permit application has been assigned No. 55-206033. A drilling contractor has been selected, and the required information is as follows:

WDC Exploration & Wells  
1421 South 39<sup>th</sup> Avenue  
Phoenix, Arizona 85009  
(602) 254-6586 (telephone)  
(602) 254-6648 (fax)

ADWR License No. 161  
ROC License Category A-4

Please contact me at (480) 659-7131 if have questions or require additional information to complete this application.

Sincerely,

**CLEAR CREEK ASSOCIATES**

A handwritten signature in black ink, appearing to read "David A. Carr".

David A. Carr, R.G.  
Senior Hydrogeologist

cc: Rochelle Destrampe



**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

January 12, 2005

David A. Carr  
Clear Creek Associates  
6155 E. Indian School Rd., Ste 200  
Scottsdale, Arizona 85251

RE: Permit to Withdraw Groundwater for Hydrologic Testing No. 59-206032.0000  
Well Registration No. 55-206033; File No. D (4-1) 15 CCC

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 Phoenix 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, Phoenix Active Management Area, Arizona Department of Water Resources, 500 North Third Street, Phoenix, Arizona 85004, within 60 days upon completion of the hydrologic testing.

Clear Creek Associates  
January 12, 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 Sharon Ward of the Phoenix AMA office at 602-417-2465.

Sincerely,

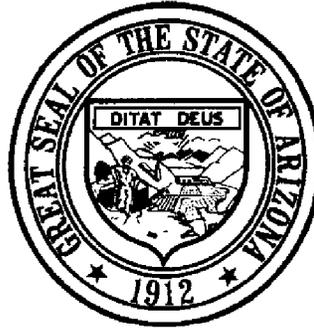


Darlene Sumpter-King  
Water Resource Specialist

Enclosure

cc: WDC Exploration & Wells  
Sharon Ward, Phoenix Active Management Area  
ADWR Hydrology Division

COPY



**ARIZONA DEPARTMENT OF WATER RESOURCES**  
**PERMIT TO WITHDRAW GROUNDWATER FOR**  
**HYDROLOGIC TESTING**

PERMIT NO. 59-206032.0000

STATE OF ARIZONA                    )  
  ) ss.  
County of Maricopa                 )

This is to certify that Application No. 59-206032.0000 meets the requirements of Title 45, Chapter 2, Article 7 for a Permit to Withdraw Groundwater for Hydrologic Testing. The Director hereby grants authority to the Permittee to construct and operate a well for hydrologic testing, subject to the following limitations and conditions:

**Permit Limitations**

Permittee:	Clear Creek Associates 6155 East Indian School Road Suite 200 Scottsdale, Arizona 85251
Active Management Area:	Phoenix
Sub-basin:	Rainbow Valley
Authorized purpose of hydrologic testing:	To determine aquifer characteristics and groundwater quality.

PERMIT NO. 59-206032.0000

Maximum Authorized Withdrawals: 23 acre-feet.

Disposition of Groundwater: No beneficial use.

Authorized Well Registration Number	File Number	Depth of Well	Casing Diameter	Casing Material
55-206033	D (4-1) 15 CCC	1200 feet	16 inches	Steel

Effective Date of Permit: January 12, 2005

Expiration Date of Permit: July 11, 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, Phoenix Active Management Area, 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 12th day of January, 2005.



\_\_\_\_\_  
Jim Holway, Assistant Director

ARIZONA DEPARTMENT OF WATER RESOURCES  
HYDROLOGY DIVISION - WQARF UNIT

MEMORANDUM

**COPY**

DATE: January 10, 2005

TO: Darlene Sumpter-King, Groundwater Management Support  
Scott Miller, Phoenix AMA

THROUGH: Teri Davis, WQARF Unit

FROM: Andrew Scott, WQARF Unit 

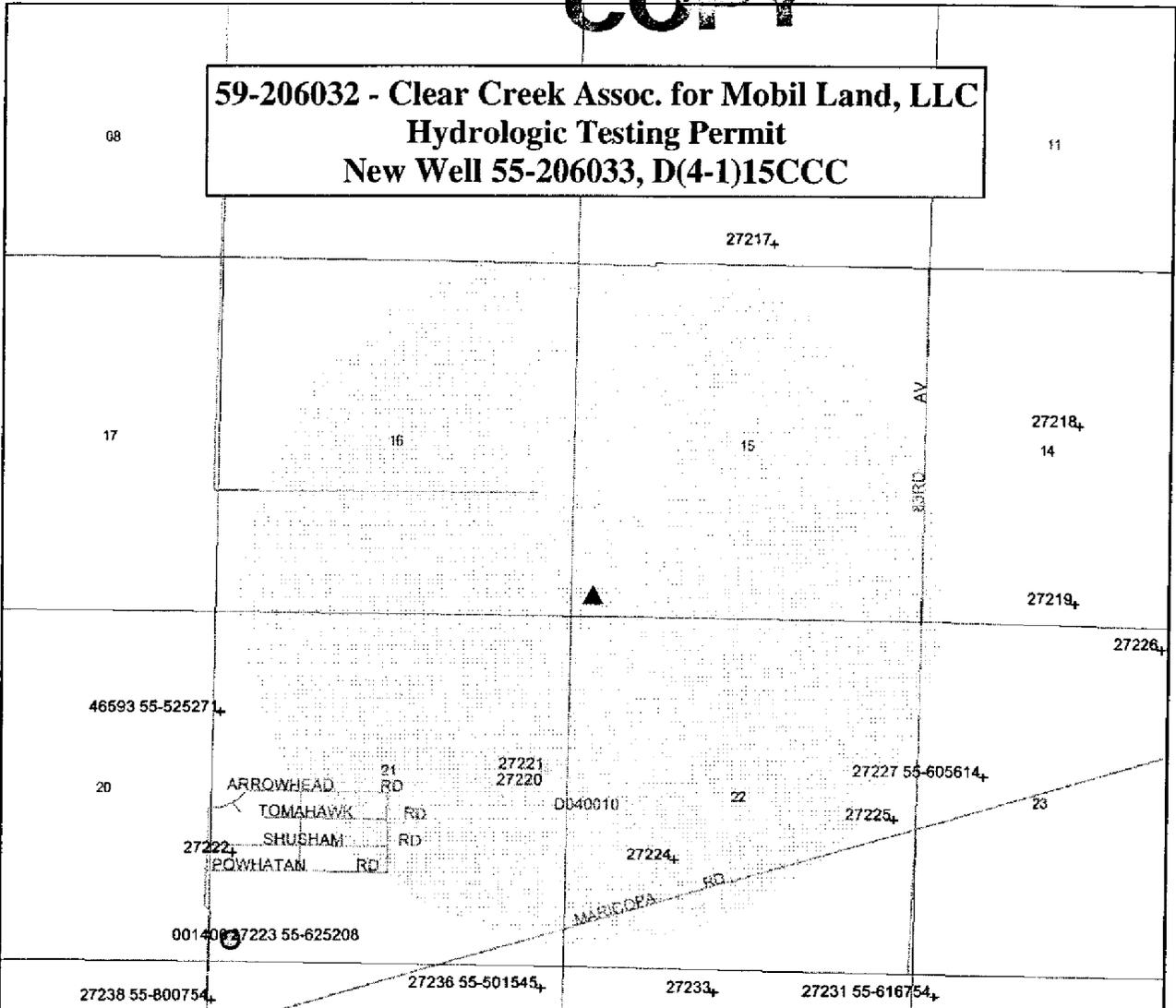
SUBJECT: **59-206032 – Clear Creek Assoc. for Mobil Land, LLC**

APPLICATION: **Hydrologic Testing Permit, New Well 55-206033**

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, sample results from wells located within a mile of the withdrawal activities indicate parameter concentrations do not exceed Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (MCL2) standards. The well showing the Nitrate exceedence was last sampled in 1945 and the levels were below the MCL at that time. No samples recorded in the database are more recent than 1981, so current groundwater conditions are unknown. See attached map and supporting information.
2. Hydrology/WQARF has no objections to issuance of the permit and drill card.
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) 417-2448, ext. 7261. Thank you.

COPY

59-206032 - Clear Creek Assoc. for Mobil Land, LLC  
Hydrologic Testing Permit  
New Well 55-206033, D(4-1)15CCC



**Withdrawal Site Features**

- ▲ Well Location
- ▨ 1 Mile Site Buffer

**ADEQ Wells**

- HBGL Exceedence
- ⊙ Secondary MCL Exceedence
- ★ MCL Exceedence
- + No Exceedence

**Well Numbers**

23051 ADEQ  
55-623229 ADWR

**Geographic Features**

- Streets
- ▭ Sections
- ▭ Townships
- D100100 Township/Range Label
- 07 Section Label

0 3,000  
Feet

1/10/2005

Information provided is preliminary and subject to revision. It may not represent the full extent of known water quality concerns.

59-206032 - Clear Creek Assoc. for Mobil Land, LLC  
Hydrologic Testing Permit  
New Well 55-206033, D(4-1)15CCC

No ADEQ Exceedences Within 1 Mile of Withdrawal Activities

12/20/2004

**COPY**

**From:** Carol Norton  
**To:** Sumpter-King, Darlene; Ward, Sharon  
**Date:** 12/10/04 11:38AM  
**Subject:** 59-206032 Clear Creek Associates

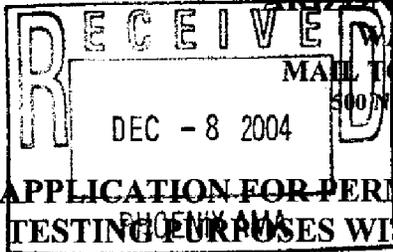


The Hydrology Division is in receipt of the above referenced Application to Withdraw Groundwater for Hydrologic Testing. The applicant intends to withdraw 23 acre feet of groundwater from one new well to be drilled, no. 55-206033 D(04-01)15 ccc. The purpose of the test is to determine aquifer characteristics. Groundwater withdrawn will not be put to beneficial use.

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). 12/10/4

**CC:** Modesto, Karen; wrjasm; Zachreson, Tana



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

**COPY**

**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.	<u>59-206032</u>
Filed	<u>12-8-2004</u>
AMA	<u>PHOENIX</u>
S/B	<u>09</u> W/S <u>08</u>

**II. GENERAL DATA**

Please check one:

- New Application  
 Renewal or  Modification of Permit No. 59-\_\_\_\_\_

1. NAME OF APPLICANT Clear Creek Associates

Mailing Address 6155 East Indian School Road, Suite 200

<u>Scottsdale</u>	<u>Arizona</u>	<u>85251</u>	<u>480-659-7131</u>
City	State	Zip Code	Telephone Number

2. NAME OF LAND OWNER where groundwater will be withdrawn Mobile Land, LLC

Mailing address 1400 East Southern Avenue, Suite 720

<u>Tempe</u>	<u>Arizona</u>	<u>85282</u>	<u>480-831-9200</u>
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 Rainbow Valley sub-basin of the Phoenix Active Management Area.

5. The specific purpose for the hydrologic testing is: Characterization of aquifer parameters for Physical Availability Demonstration.

6. Please be specific how the groundwater withdrawn will be put to beneficial use and the groundwater right number for that use if applicable. The water will not be put to beneficial use, and there is no groundwater right.

7. If applicant cannot reasonably put the withdrawn groundwater to a beneficial use or provide it to a rightholder, explain why. The well will be located on undeveloped land, too far from any point of beneficial use to allow the water to be transported for use.

**COPY**

8. Legal description of land where groundwater will be used: N/A

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.
-----------------	------	-------	----------	---------------

10. Total amount of groundwater for which application is being made: 23 acre feet.

11. Anticipated duration of the hydrologic testing 7 Days          Months.

12. Requested duration of the hydrologic testing permit          Days 6 Months.

13. State the testing circumstances that require withdrawals in excess of 10 acre feet or a testing period for more than 90 days: A 10-hour step-rate test will be performed, followed by a constant-rate test up to 72 hours in duration. The average flow rate will not exceed 1,500 gpm.

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. N/A

15. Groundwater to be withdrawn by means of:

A. WELLS ALREADY IN EXISTENCE: None

Registration No.	Location	Depth	Diameter of Casing	Case Type
55- <u>        </u>	<u>        </u>	<u>        </u>	<u>        </u>	<u>        </u>
55- <u>        </u>	<u>        </u>	<u>        </u>	<u>        </u>	<u>        </u>

B. WELLS TO BE NEWLY CONSTRUCTED: See attached New Well Construction Supplement.

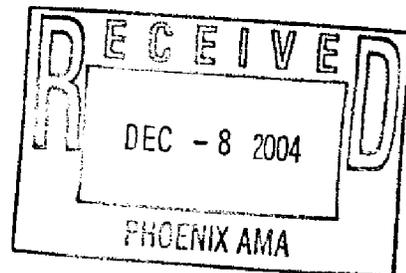
Complete and attach New Well Construction Supplement, DWR form 55-90, for each new well to be drilled.

16. State your plans for the well(s) after testing is completed: If the aquifer test results are favorable, the well will be used for potable supply through conversion to either a non-exempt, non-service area well, or a service area well.

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) David A. Carr 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 *David A. Carr* Date 12-8-04



**Drilling Authorities**

Registry ID	License #	Issue Date	Expiration Date
55-206033	161 ...	01/11/2005	07/10/2005
Comments			

**Driller Licenses**

Company		Qualifying Party	
WATER DEVELOPMENT CORP dba WDC Explorati		SEE COMMENTS	<input checked="" type="checkbox"/> Active License
Address1		Address2	
1421 S. 39th AVENUE			
City	State	Zip Code	Phone
PHOENIX	AZ	85009	602-254-6586
			ROC Licenses
			C-53 & A-4
Comments			
BRYAN LEE NYDOSKE 1999-2005 ACTIVE			
DAMON JOHN TRUAX 1997-2005 ACTIVE			
DANIEL ANTONIO 1999-2005 ACTIVE			



 **COPY**

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

Date: December 8, 2004

Applicant: Clear Creek Associates

Address on check: 2150 E. Highland Ave., Suite 201, Phoenix AZ 85016

Payment submitted by: same as applicant

Application No. 59-206032.0000

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	8244
59	Withdrawal Permit Fee (\$50.00)	\$50.00	8243

**CLEAR CREEK ASSOCIATES PLC**  
GENERAL ACCOUNT  
2150 EAST HIGHLAND AVE., SUITE 201  
PHOENIX, AZ 85016

**BANK OF AMERICA**  
02316 AZ  
91-170-1221

008244

CHECK NO.

**CLEAR CREEK ASSOCIATES PLC**  
GENERAL ACCOUNT  
2150 EAST HIGHLAND AVE., SUITE 201  
PHOENIX, AZ 85016

**BANK OF AMERICA**  
02316 AZ  
91-170-1221

008243

CHECK NO.

Exact Fifty and no / 100 Dollars

DATE  
12/8/2004

AMOUNT  
\$50.00

**PAY  
TO THE  
ORDER  
OF**

Arizona Department of Water Resources  
500 N. 3rd Street  
Phoenix AZ 85004

MP