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

March 10, 2008

TOUSA Homes, Inc.
Attn: Bill Cordes
2600 North Central Avenue, Suite 1600
Phoenix, AZ 85004

RE: Non-Exempt Well Permit No. T-217072
Well Registration No. 55-213913; File No. D (5-3) 26 CCA

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 The legal nature of the water withdrawn from the well may be the subject of court action in the future as part of a determination of surface water rights in your area.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

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

If you have any questions about your permit, please call Cynthia Pogue of the Pinal AMA office at 520-423-2946.

Sincerely,

Vanessa Reyes

Vanessa Reyes
Water Resources Specialist

Enclosures

cc: Alex M. Richards, R.G., URS
Cynthia Pogue, Pinal AMA
File

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

ARIZONA DEPARTMENT OF WATER RESOURCES

NON-EXEMPT WELL PERMIT

PURSUANT TO A.R.S. §§ 45-598 AND 45-599

PERMIT NO. T-217072

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

This is to certify that Application No. T-217072 meets the requirements of A.R.S. §§ 45-598 and 45-599 for the conversion/enlargement and operation of an existing well. The Director hereby grants authority to the Permittee to operate a non-exempt well, subject to the following limitations and conditions:

Permit Limitations

Permittee:	TOUSA Homes, Inc. 2600 North Central Avenue Phoenix, AZ 85004
Well Registration Number:	55- 213913 File No. D (5-3) 26 CCA
Active Management Area:	Pinal
Sub-basin:	Maricopa-Stanfield

PERMIT NO. T-217072

Well Location:	The NE ¼ of the SW ¼ of the SW ¼ of Section 26, Township 5 South, Range 3 East of the GSRB&M
Depth:	420 ft.
Casing Material:	HSLA Steel Casing
Casing Diameter:	18 5/8 inches
Maximum Pumping Capacity:	200 gallons per minute
Maximum Annual Volume:	322.6 acre-feet
Authorized Place of Use for Groundwater Withdrawn:	As Authorized by Right No. 58-109250.0121
Authorized Use of Groundwater:	As Authorized by Right No. 58-109250.0121

Permit Conditions

1. This permit is issued pursuant to A.R.S. § 45-599 and authorizes the permittee to operate an existing well for the purpose of withdrawing groundwater for the use or uses set forth in the permit. This permit does not authorize the permittee to withdraw surface water from the well. If the permittee withdraws surface water from the well in any year, the permittee shall do so only pursuant to a decreed or appropriative surface water right and shall separately report in the annual report filed pursuant to A.R.S. § 45-632 the amount of groundwater and surface water withdrawn from the well.

2. The 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 10th day of March, 2008.

Sandra Fabritz-Whitney

Sandra Fabritz-Whitney, Assistant Director

Vanessa R. Reyes

From: Cynthia A. Pogue
Sent: Friday, March 07, 2008 7:37 AM
To: Vanessa R. Reyes
Cc: Sharon Ward; Jeff M. Tannler
Subject: TOUSA Homes, Inc.

Vanessa:
FOR FILE:
Application T-217072 for the conversion of well 55-213913 D(05-03) 26 CCA to operate as a non-exempt, non-service area well was approved at IPR on 3/6/2008. This permit can now be processed.

Please note the associated irrigation right is 58-109250.0121. The well can be permitted for 322.6 acre-feet per year with a pumping capacity of 200 gpm. (This well has already been drilled.)

Please let me know if you have any questions. Please draft documents for my review. Thank you.
Cindy Pogue

IPR SUMMARY REVIEW SHEET
Prepared by Cynthia Pogue, Pinal AMA
February 27, 2008

APPLICANT:	**TOUSA Homes, Inc.**
APPLICATION NO.	**T-217072 – Well: # 55-213913 D(05-03) 26 CCA**
APPLICATION TYPE:	**Permit for Non-Exempt, Non-Service Area Well A.R.S. § 45-599 (Convert injection well to non-exempt, non-service area well)**

Summary of the facts: Alex Richard of URS Corp. filed on behalf of TOUSA Homes, Inc. for this permit on February 1, 2008. The claim of entitlement to withdraw groundwater is based upon Irrigation Grandfather Right **58-109250.0121.** The proposed volume will be 322.60 acre-feet annually with a pumping capacity of 200 gpm. (The annual allotment of their irrigation right is 1,777.23 af/yr.)

A five-year, ten-foot drawdown analysis was performed by Hydrology using parameters calculated from a pump test of the well and the Pinal Model. Both a standard Theis analysis and THWELLS calculation were used to determine the drawdown. Results indicate the ten-foot drawdown radius after five years is approximately 49 feet. No wells are within nor near the impact area. Hydrology has indicated no objections for approving this permit.

Water Quality's review indicated the proposed well is not near an area of known groundwater contamination that is being remediated pursuant to an USEPA, ADEQ or DOD program. According to the ADEQ Groundwater Database, sample results from wells located within one mile of the proposed well do not exceed any primary MCL, secondary MCL, or Arizona HBGLs. The well meets minimum well construction standards. Water Quality does not object to the issuance of this permit.

Issues: Initially, the wrong irrigation right number was indicated as their withdrawal authority. An email from Ryley Carlock & Applewhite correcting the application is on file. The correct irrigation right is 58-109250.0121 (as shown above).

AMA Recommendations: The Pinal AMA recommends issuance of the permit (T-217072) to TOUSA Homes, Inc. to convert well 55-213913 to operate as a non-exempt, non-service well pumping 322.60 acre-feet per year (200 gpm), pursuant to A.R.S. § 45-599.

AMA Approval _____ Date 2/27/08

IPR Committee Recommendations:
Approved _____ Denied _____
Other (explanation) _____

IPR Chairperson _____ Date 3/6/08

ARIZONA DEPARTMENT OF WATER RESOURCES
Hydrology Division

MEMORANDUM

TO: Vanessa Reyes, Phoenix AMA

THRU: Drew Swieczkowski, Manager, Water Resources Section

FROM: Alene McCracken, Hydrologist, Water Resources Section

DATE: February 20, 2008

RE: TOUSA Homes Inc, Application for a permit to operate a non-exempt non-service well in the Pinal AMA. No. T-217072; **WELL IMPACT ANALYSIS** for well no. 55-213913, D-05-03 26 CCA

Hydrology has completed its evaluation of the above referenced application for a permit to drill or operate a non-exempt non-service area well. This well was originally designed and drilled as a future ASR well but will be used temporarily as a production well during the construction phase of the development. According to the accompanying well impact conducted by the applicant's consultant the well will eventually be conveyed to the Santa Rosa Water Company and will be part of an effluent re-use system.

A ten-foot drawdown analysis was performed by Hydrology for the well in D-05-03 26 CCA. Hydrology calculated a transmissivity value from a pump test of the well and used the specific yield from the Pinal AMA model to conduct both a standard Theis analysis and THWELLS calculation for the drawdown radius. No image well was used in the THWELLS analysis. The results are presented below:

Well Location & registration number:	Analysis performed by	Transmissivity Value (gpd/ft)	Specific Yield	Pumping Volume AFA	Ten-Foot Drawdown Radius After Five Years
D-05-03 26 CCA 55-213913	Applicant	39,600	0.18	323 (200 gpm)	2.5
	ADWR	23,933	0.20	323 (200 gpm)	~49

According to the parameters of the application, the calculated drawdown at the well is 20.1 feet for the five-year time period. For the purpose of AMA review, please use Hydrology's calculated radius.

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

Attachments

Well Spacing Review Sheet

Well Reg. No.	***55-213913***	Well Location:	***D (5-3) 26 CCA***
Permit Number	***T-217072***		
Applicant:	***TOUSA Homes***		

Depth of well:	***410***	feet
Diameter:	***18.625***	in.

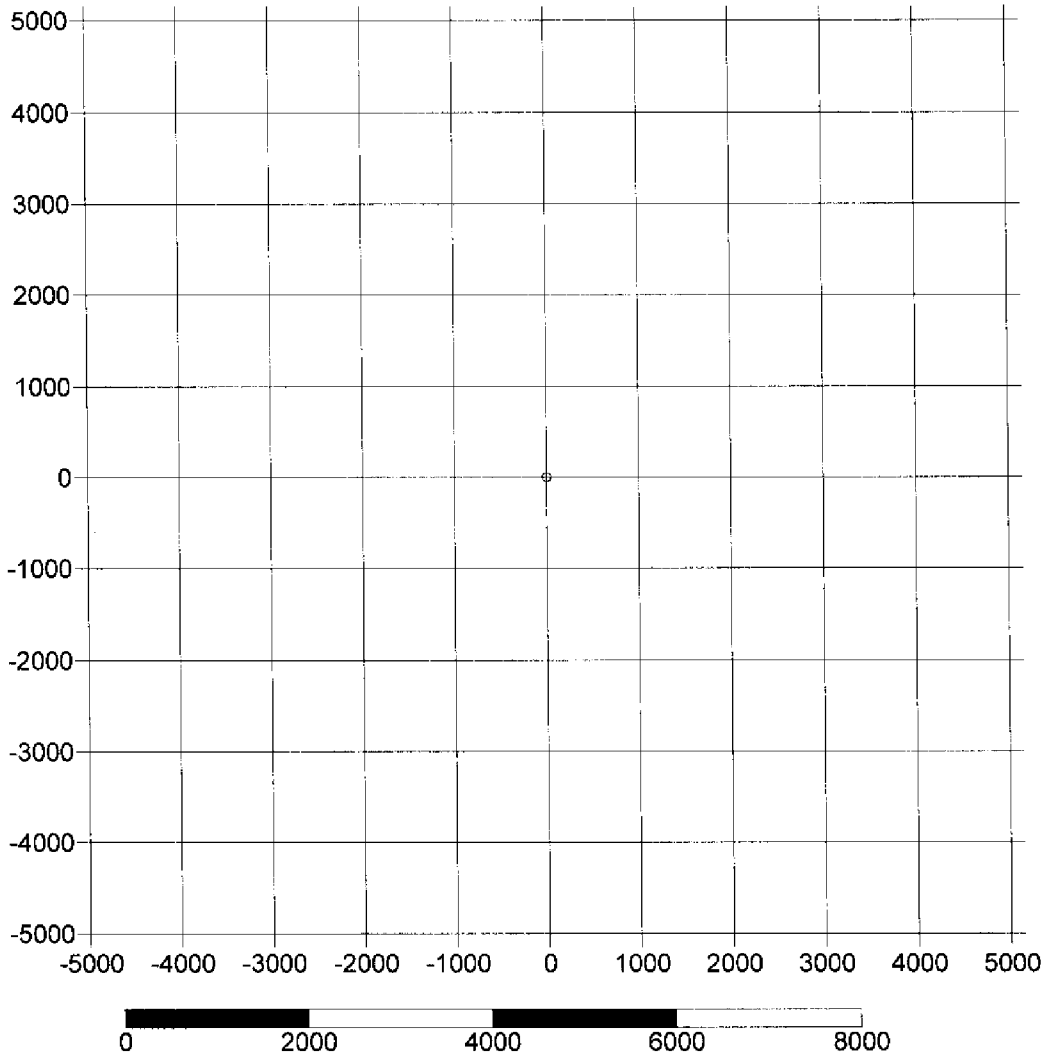
Proposed Well:	***no***	Replacement:	***NA***
Existing:	***yes***	Replacement no:	

Proposed volume:	***323***	acre-ft/yr		
Q =	***200***	gpm		
T =	***23,933***	gpd/ft	T Source:	***Pump Test of Well***
Sy =	***0.2***		Sy Source:	***Pinal Model***
10 foot drawdown radius =	~49	***feet (see attached map)***		
drawdown at well =	20.1	***feet***		
WQARF Concerns:		***none***		
Subsidence Concerns:		***none***		

Analyzed by: [illegible] Checked by: S. [illegible]

Date: 2/20/08 Date: 2-20-08

TOUSA Homes
55-213913/T-217072
D (5-3) 26 CCA
T=23,933 gpd/ft
Sy=0.20
Q=200 gpm



Printed 2/20/2008

N

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

55-213913

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

UNCONFINED AQUIFER - THEIS EQUATION WITH JACOB'S CORRECTION

WATER TABLE CORRECTION APPLIED

AQUIFER THICKNESS = 262 [ft]
TRANSMISSIVITY = 23933 [gpd/ft]

STORAGE COEFFICIENT = .2

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 = 262 [ft]

PUMPING/INJECTION WELL DATA

WELL NO. 1 (55-213913)

X-COORDINATE = 0 [ft]
Y-COORDINATE = 0 [ft]
PUMPING/INJECTION RATE = 288017 [gpd]
TIME SINCE START PUMPING/INJECTION = 1825 [day]

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

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

Y [ft] <- X [ft] ->

	-52	-50	-48	-46	-44	-42
-6.00	9.841	9.918	9.998	10.081	10.168	10.259
-4.00	9.848	9.926	10.006	10.090	10.178	10.270
-2.00	9.852	9.930	10.011	10.096	10.184	10.277
0.00	9.854	9.932	10.013	10.098	10.187	10.279
2.00	9.852	9.930	10.011	10.096	10.184	10.277
4.00	9.848	9.926	10.006	10.090	10.178	10.270
6.00	9.841	9.918	9.998	10.081	10.168	10.259

Y [ft] <- X [ft] ->

	-4	-2	0	2	4	6
-54.00	9.773	9.777	9.779	9.777	9.773	9.767
-52.00	9.848	9.852	9.854	9.852	9.848	9.841
-50.00	9.926	9.930	9.932	9.930	9.926	9.918
-48.00	10.006	10.011	10.013	10.011	10.006	9.998
-46.00	10.090	10.096	10.098	10.096	10.090	10.081
-44.00	10.178	10.184	10.187	10.184	10.178	10.168
-4.00	14.308	14.785	15.011	14.785	14.308	13.817
-2.00	14.785	15.716	16.424	15.716	14.785	14.082
0.00	15.011	16.424	20.146	16.424	15.011	14.189
2.00	14.785	15.716	16.424	15.716	14.785	14.082
4.00	14.308	14.785	15.011	14.785	14.308	13.817
44.00	10.178	10.184	10.187	10.184	10.178	10.168
46.00	10.090	10.096	10.098	10.096	10.090	10.081
48.00	10.006	10.011	10.013	10.011	10.006	9.998
50.00	9.926	9.930	9.932	9.930	9.926	9.918
52.00	9.848	9.852	9.854	9.852	9.848	9.841
54.00	9.773	9.777	9.779	9.777	9.773	9.767

Y [ft] <- X [ft] ->

	44	46	48	50	52	54
-4.00	10.178	10.090	10.006	9.926	9.848	9.773
-2.00	10.184	10.096	10.011	9.930	9.852	9.777
0.00	10.187	10.098	10.013	9.932	9.854	9.779
2.00	10.184	10.096	10.011	9.930	9.852	9.777
4.00	10.178	10.090	10.006	9.926	9.848	9.773

THEIS CALCULATION

Well Reg. No. 55-213913 Well Location D (5-3) 26 CCA

Applicant: TOUSA Homes

			322.6 acre-ft/yr
t =	1825 days	Q =	200 gpm
s =	25 ft	T =	23933 gpd/ft
u =	2.58E-12	Sy =	0.2

W(u) = 26.1034

25 foot drawdown radius = 0.02 ft = 0.00 mi

			322.6 acre-ft/yr
t =	1825 days	Q =	200 gpm
s =	10 ft	T =	23933 gpd/ft
u =	1.63E-05	Sy =	0.2

W(u) = 10.4413

10 foot drawdown radius = 43.63 ft = 0.01 mi

			322.6 acre-ft/yr
t =	1825 days	Q =	200 gpm
s =	1 ft	T =	23933 gpd/ft
u =	2.50E-01	Sy =	0.2

W(u) = 1.0441

1 foot drawdown radius = 5403.36 ft = 1.02 mi

r =	1 ft		
u =	8.56272E-09	drawdown at well	
W(u) =	17.999	s =	17.24 ft

Equations:

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

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

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

200 gpm
288017 gpd

ARIZONA DEPARTMENT OF WATER RESOURCES
HYDROLOGY DIVISION – WATER QUALITY UNIT

MEMORANDUM

TO: Vanessa Reyes, Phoenix AMA
Cindy Pogue, Pinal AMA

FROM: David Tompkins
Water Quality Unit

DATE: 02/12/2008

SUBJECT: **Application for Permit to Drill Service Area in an AMA**
Application T-217072 / Well 55-213913
Tousa Homes Inc.

Hydrology has reviewed the above referenced application for a permit to withdraw groundwater drill service area within an AMA for water quality concerns and well construction for 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. According to the ADEQ Groundwater Database, sample results from wells located within one mile of the proposed well do not exceed any primary maximum contaminant level (MCL), secondary MCL, or Arizona Health Based Guidance Levels (HBGL)

Well Construction Standards

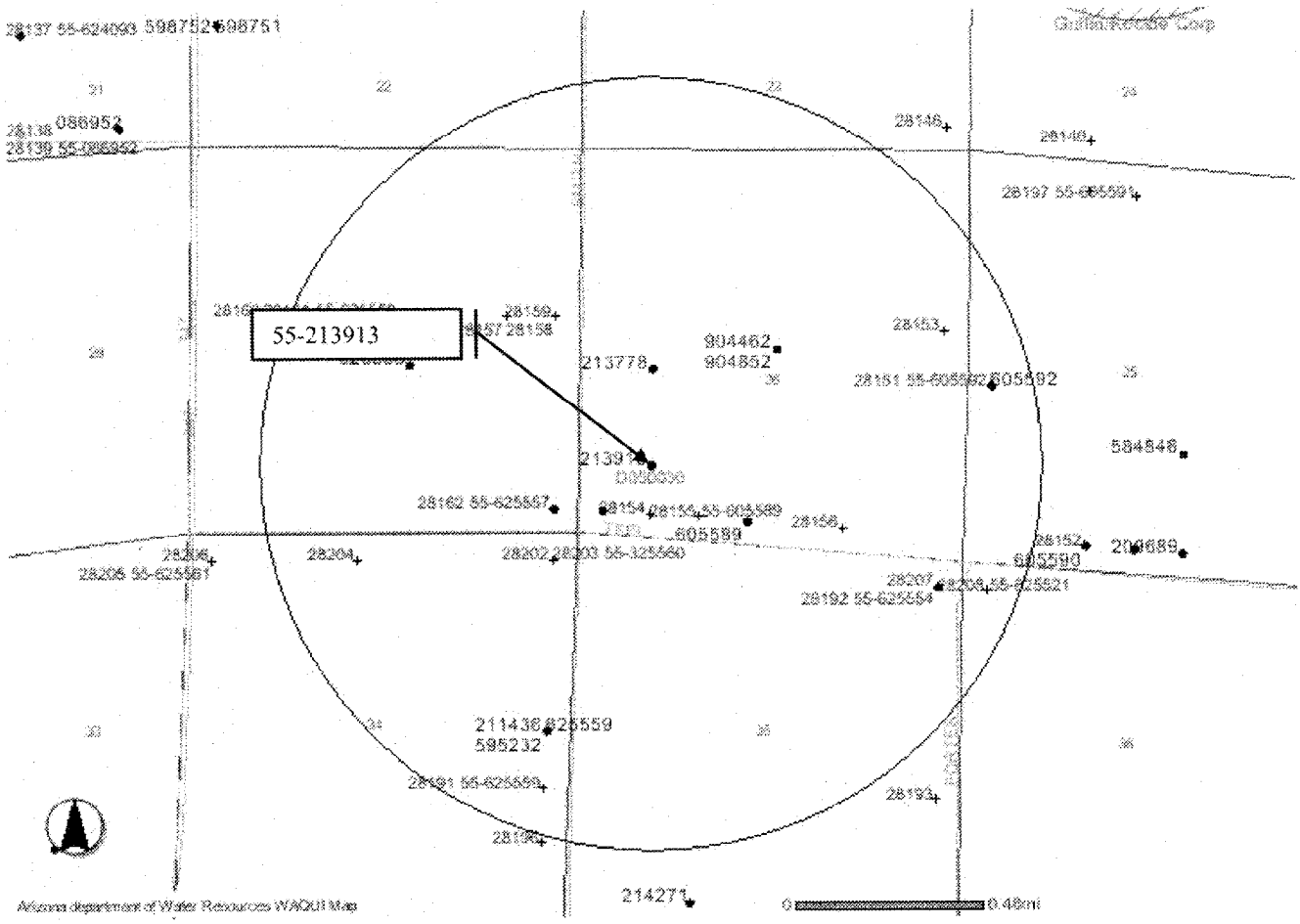
3. The well will be drilled to 420 feet below the land surface and screened from 160 to 240 and 270 to 390 feet. The well will be completed in the upper alluvial unit. The wells meet minimum well construction standards. No special well construction requirements are necessary.

The Hydrology Water Quality Unit has no objections to approving this permit. If additional information is needed, please contact me at extension 1-8562.

C: Alene McCracken, Hydrology
Enclosure Water Quality map

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

55-213913 / Tousa Homes Inc
Permit to Drill Service Area, D(5-3)26CCA



Legend
Highlighted Feature
theBufferPolygons
theBufferTarget
ADEQ Wells
Wells > HBGL
Wells > Secondary MCL
Wells > MCL
No Exceedence
REGISTERED WELLS
Streets
Sections
Townships
GWR LUST Buffer
RCRA Site Buffer
VRP Site Buffer
Registry
1 Mi. WQARF Buffer
WQARF Site

Working Together

Arizona Department of Environmental Quality

Arizona Department of Water Resources

Map generated on 2/12/2008

Water Quality Sample Test Results for ADEQ Wells

Information provided is preliminary and subject to revision.

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

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

URS

7720 North 16th Street, Suite 100
Phoenix, Arizona 85020
Telephone: (602) 371-1100
Fax: (602) 371-1615

LETTER OF TRANSMITTAL

RECEIVED
FEB - 1 2008

TO: Atten: Ms. Cindy Pogue
Arizona Department of Water Resources
Pinal Active Management Area
1729 N. Trekell Road, Suite 105
Casa Grande, AZ 85222

DATE: January 30, 2008

SUBJECT: Permit Application to Operate a Well within an Active Management Area
Well SRR-1, ADWR Reg No. 55-213913

REFERENCE: URS Project No. 23445074.00004

Attached is:

1) Application to Operate a Well within an Active Management Area
(Form DWR 55-0001), Production Well SRR-1 (55-213913)
Red River Development, Maricopa County, Arizona
2) New Well Construction Supplement (Form DWR 55-90) for Well SRR-1
3) Site Map and Well Location Map
4) Well Impact Analysis, Recharge Well SRR-1, Red River Development, Pinal County, Arizona, prepared by URS Corporation, dated November 19, 2007
5) Associated Application and Permit Fees:
Permit Fee to Operate Well - $180 check, #902476

For:

- ☒ Review and Approval
- ☐ Signature and Return
- ☒ Appropriate Action
- ☒ As Requested
- ☐ For Your Information

Remarks:

URS

7720 North 16th Street, Suite 100
Phoenix, Arizona 85020
Telephone: (602) 371-1100
Fax: (602) 371-1615

Cindy,

Please find the attached permit application to convert Well SRR-1 for groundwater supply.

The well was originally permitted for use using form DWR 55-44A (Notice of Intent to Drill, Deepen, or Modify a Monitor, Piezometer, Environmental Well) because its original intent was exclusively for recharge. Because there was not an Underground Storage Facility Permit at the time for this project, there was confusion at ADWR on how to permit the well. Because of this, ADWR requested permitting the well using form 55-44A. TOUSA Homes now wishes to use the well for irrigation and for other uses that are legally permissible.

If you have any questions, need additional information, or require additional report copies, please do not hesitate to contact me at 602-861-7405 or at 602-677-6881 (cell).

Thank you.

Sincerely,

URS

Alex M. Richards, R.G.
Project Manager

Well SRR-1
55-213913

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

RECEIVED
FEB - 1 2008
PINAL AMA

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

I. INSTRUCTIONS:

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

II. GENERAL DATA:

FOR DEPARTMENT USE ONLY
Application No. T-217072 Registration No. 55-213913
File No. D(5-3)26 CCA
Date Received 2/1/08
AMA Pinal
W/S 09 - Santa Cruz S/B 10 - Maricopa - Stanfield

1. Applicant TOUSA Homes, Inc.
   Mailing Address 2600 North Central Avenue, Suite 1600
   Phoenix (City) Arizona (State) 85004 (Zip Code)
   Contact Person Bill Cordes
   Telephone Number (480) 214-4420
2. Name of Land Owner TOUSA Homes, Inc.
   Mailing Address 2600 North Central Avenue, Suite 1600
   Phoenix (City) Arizona (State) 85004 (Zip) (480) 214-4420 (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: 58-109250.0125 – IGFR.
   ☐ 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**) Irrigation and such other uses that are legally permissible
7. Well location: NE ¼ (10 Acre) SW ¼ (40 Acre) SW ¼ (160 Acre) Section 26 Township 5S N/S Range 3E E/W
8. Position location of the well: Latitude 32 ° 57 ' 36 " N Longitude 112 ° 01 ' 35 " W
9. Design Pump Capacity 200 gpm Depth 420 feet
   Diameter 18 -5/8 inches Type of casing HSLA - steel
10. Proposed annual volume of water 322.60 acre feet
11. Well is located in the Maricopa - Stanfield subbasin of the Pinal 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.

Well SRR-1, 55-213913

13. Approximate date construction will begin: MONTH December YEAR 2006

Estimated time to complete new well Construction completed January 5, 2007. (If longer than 1 year, attach explanation.)

14. Legal description of the land where the groundwater will be used:
NE ¼ SW ¼ SW ¼ Section 26 Township 5S N/S Range 3E E/W. County Pinal
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 Arizona Beeman Drilling DWR License No: No. 360 ROC License Category A-04

Mailing Address: P.O. Box 3370 Apache Junction, AZ 85217 602-861-7405
Street City State Zip Telephone Number

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

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

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

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

IV. FOR REPLACEMENT WELL IN NEW LOCATION ONLY:

20. Registration number of original well 55- _____.

21. Location of the original well: _____¼ _____¼ _____¼ Section _____ Township _____N/S Range _____E/W
10 Acre 40 Acre 160 Acre

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

23. When determining impacts under the Department's well spacing rules, the director will take into account the collective efforts of reducing or terminating withdrawals from the well being replaced combined with the proposed withdrawals from the replacement well if the applicant submits a hydrological study demonstrating those collective effects to the satisfaction of the director.
Will a hydrological study be submitted? ☐ Yes ☐ No

24. Will the original well be abandoned if applicant receives a permit to drill a replacement well? ☐ Yes ☐ No.
(If yes, please submit a completed Notice of Intent to Abandon a Well along with this application.)
If no, explain the planned use of the original well_____

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

25. Registration number of the existing well 55- 213913 Present pump design capacity 0 gallons per minute.
Present permitted volume 0 acre-feet per year.

26. The new design pump capacity will be 200 gallons per minute. New permitted volume will be 322.60 acre-feet per year.

27. The existing well has previously been used in conjunction with or for the following: Well was permitted through an NOI to drill, deepen or modify a monitor, piezometer, or environmental well (DWR 55-44A) as a ASR Recharge well under APP No. P-105297

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), Glen Tulk/ TOUSA Homes **hereby affirm 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** 1/25/06

DWR 55-0001 Revised 9/2006

Well SRR-1
55-213913

ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION

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

NEW WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)

Well Registration Number 55- 213913
(FOR DEPARTMENT USE ONLY)

1. **Well Location:**

   NE ¼ of the SW ¼ of the SW ¼, Sec. 26, Township 5S Range 3E.
   10AC 40AC 160AC

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

   Latitude 32 ° 57 ' 36 " **Longitude** 112 ° 01 ' 35 "

3. **County** Pinal.

4. **Date construction to start:** Started December 2006, Completed January 5, 2007

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

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

7. **Well construction plan:**

   a. **Drilling method (mud rotary, hollow-stem auger, etc.)** Reverse flood rotary.

   b. **Borehole diameters** 36 **inches from** 0 **feet to** 39 **feet.**

   26 **inches from** 0 **feet to** 420 **feet.**

   c. **Casing materials** 18-5/8 inch diameter HSLA casing and louvered sections.

   d. **Method of well development (bail, air lift, surge, etc.)** Air-lift and pump & surge.

   e. **Will surface or conductor casing extend above grade?** Yes, surface casing - 2 feet.

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

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

   _____

Well SRR-1
55-213913

10. **Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? _____Yes __X__No**

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

    Potential contamination?_____Yes __X__No If yes, please provide explanation:_____

    _____

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

    If yes then indicate the following:

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

    (b) Will the original well to be replaced be _____Capped, _____ Abandoned _____Other.

    If Other, please explain: _____.

13. **Name of Consulting firm, if any :** URS Corporation

7720 North 16th Street	Phoenix	Arizona	85020
Address	**City**	**State**	**Zip**

    Contact Person: Alex M. Richards, RG **Telephone Number** 602-861-7405

14. **Drilling firm** Arizona Beeman Drilling

    DWR License Number: No. 360 **ROC License Category:** A-04

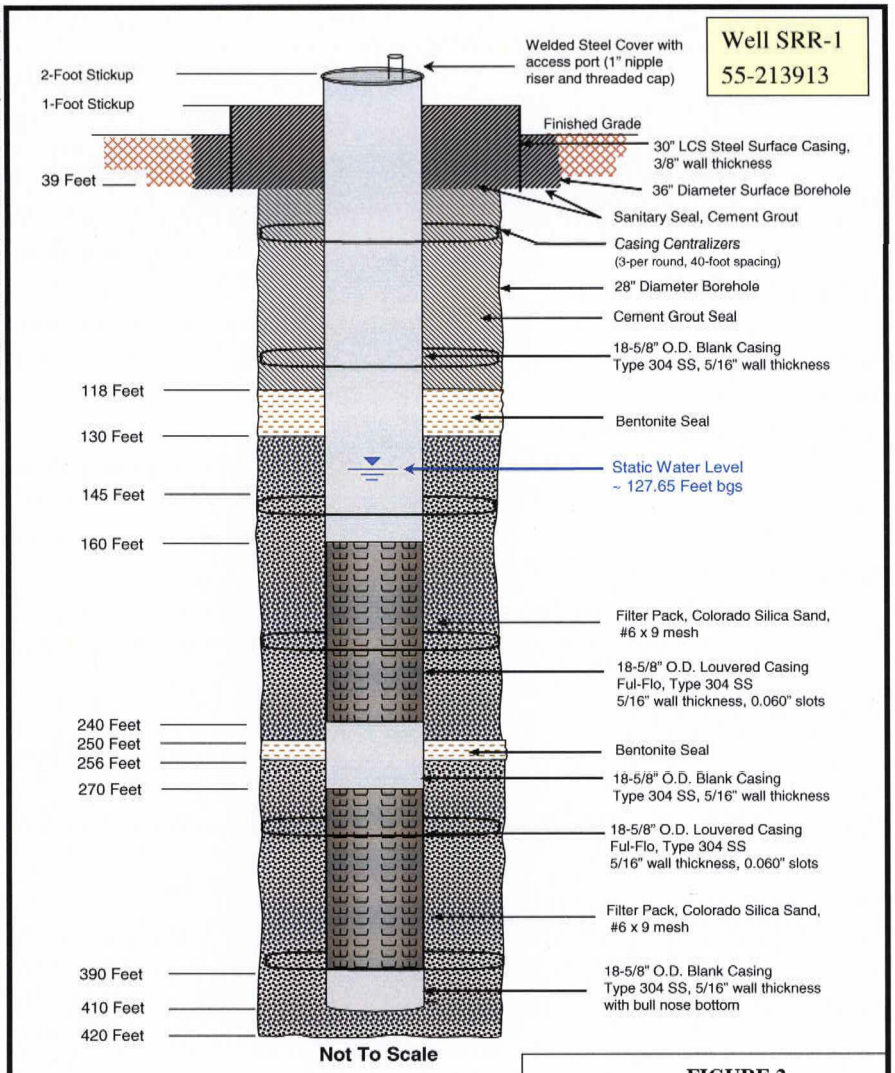
15. **Special construction standards, if any, required pursuant to A.A.C. R12-15-821:_____**

    _____

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

Signature of Applicant _____ **Date** 1/25/06

P:\TOUSA Firmes-Red River\URS Well Installations\Well SRR-1\Well Impact Analysis\Figures

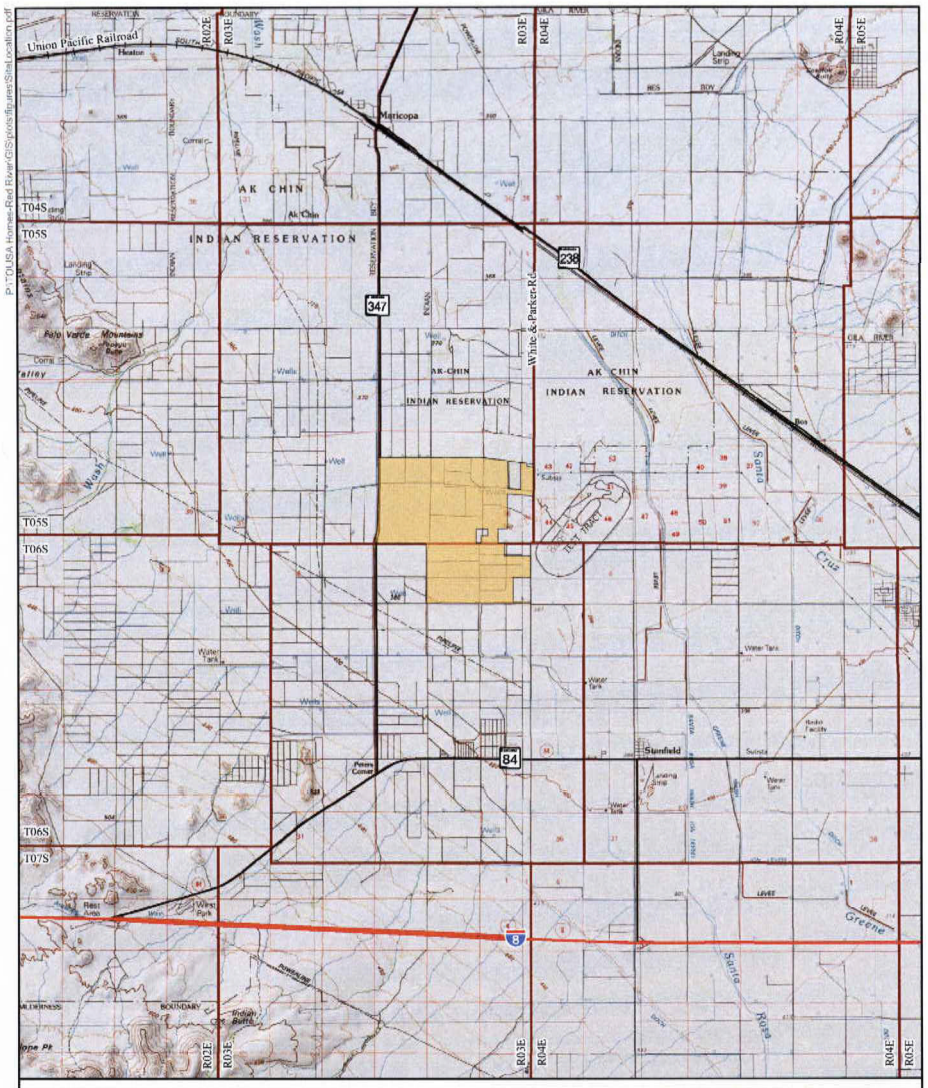


Notes: LCS = low carbon steel
SS = Stainless Steel
Unless stated, all diameters are outside diameter (OD), except the well screen (which is nominal).

URS

tousa

FIGURE 2
AS-BUILT SCHEMATIC
ASR Well SRR-1
Red River Development
Pinal County, Arizona



LEGEND

- Project Site
- Public Land Survey System
- Interstate Highway
- State Highway
- Railroad

N

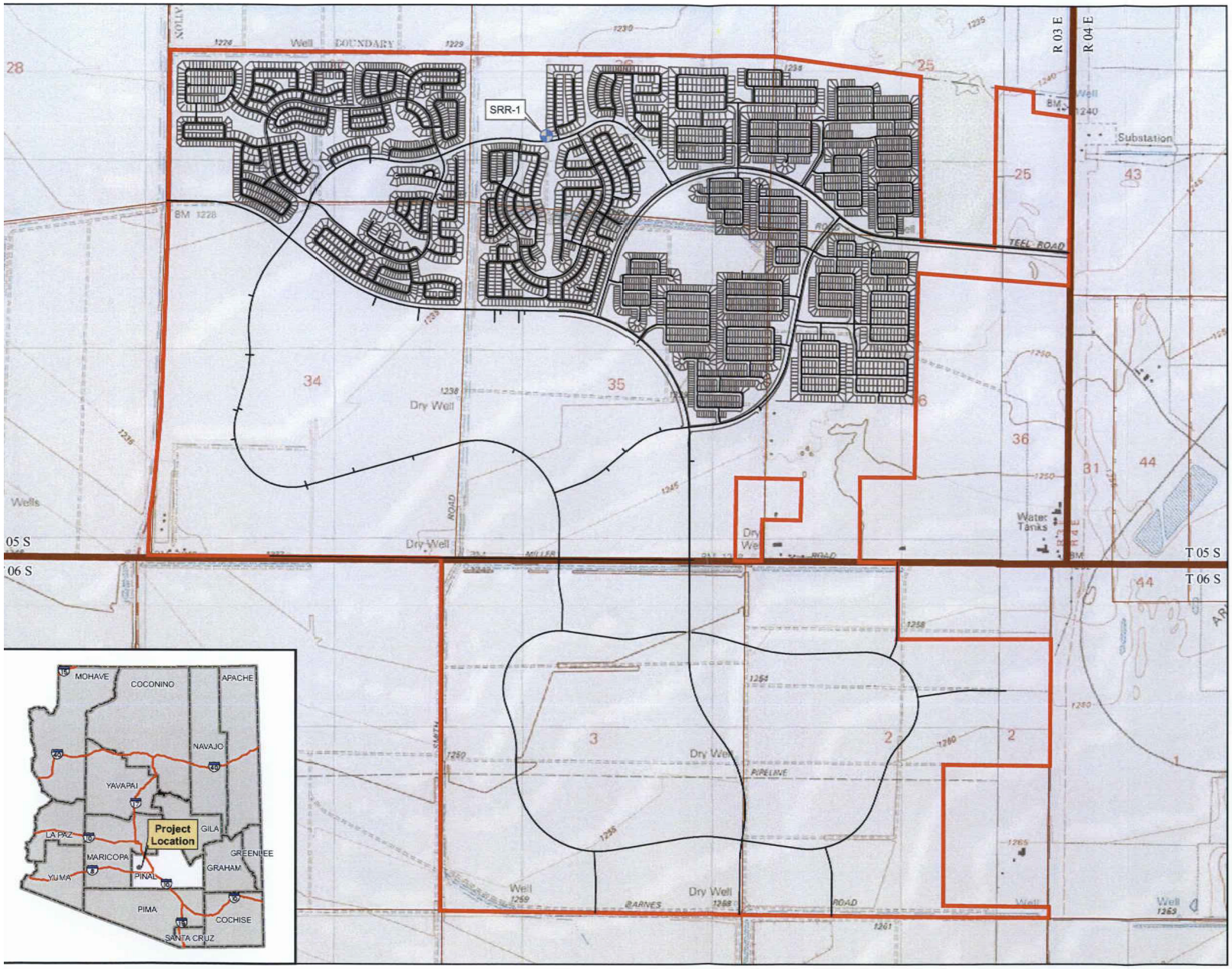
0 1 2
Miles

Sources:
Base data: ALRIS 2004;
Project data: HEC 2006
Map created with TOPO!(tm) (c)2002 National Geographic Holdings (www.topo.com)

URS

Site Location Map
Red River Development
Tousa Homes
Pinal County, AZ
November 2006
Figure 1

P:\TOUSA Homes-Red River\GIS\jobs\figures\Site Location.pdf



Project Location Map

TOUSA Homes

LEGEND

Project Features

SRR-1 Aquifer Storage and Recovery (ASR) Well

Geographic Location: 112° 01' 35", 32 57" 36"

Township 05 S, Range 03 E, Section 26, SW¼ (160 acre), SW¼ (40 acre), NE¼ (10 acre)

Cadastral Location: D (5-3) 26 cca

Parcel Number: Book 510, Map 54, Parcel 003-02

Project Features

Project Road

Project Parcel

General Features

Project Boundary

Township and Range Line

Section Line

Sources:
Base topographic data:
(c)2002 National Geographic Holdings (www.topo.com)
Base Map data: ALRIS 1997, 2005
Project Features: HEC Engineering 2006

State Plane Arizona Central, NAD83, International Feet

N

0 0.125 0.25 0.5

Miles

May 2007

URS

Figure 1

PHOENIX AMA
CHECK DEPOSIT REQUEST

Submitted By: **Vanessa Reyes** **Date:** **2/6/08**
Right Owner or Applicant: **TOUSA Homes, Inc.**
GFR or Permit No(s): **58-109250.0125; T-217072**

CHECK INFORMATION

Check Number: **902476**
Check Amount: **180.00**
Name on Check: **URS**
Address: **P.O. Box 201088**
City, ST Zip: **Austin, TX 78720-1088**
Telephone: **512-419-6600**

Code	Type of Fee:	Amount:	Check No.
55	Application for Well Permit **($150.00)**	$150.00	902476
55	Well Permit Fee **($30.00)**	$30.00	902476
58	Type I Conversion Request Flex Account Transfers **($100.00)**		
58	Notification of Change of Ownership of an Irrigation Grandfathered Right **($35.00)**		
60	Application to Substitute Irrigation Acres		
59	Applications for Permit to Withdraw **($50.00 or $150.00)**		
F 59	Withdrawal Permit Fee **($50.00)**		
59	Conveyance of Groundwater Withdrawal Application and/or Permit **($35.00)**		
Gen Fund	Legal Noticing Fees **(Various)**		
55	Notice of Intent for Non-Exempt Wells **($150.00)**		
55	Request to Change Well Info **($10.00)**		

REGISTERED GEOLOGIST
CERTIFICATE NO.
30914
ALEX M.
RICHARDS
Date Signed 11-20-07
ARIZONA U.S.A.

WELL IMPACT ANALYSIS
RECHARGE WELL SRR-1,
RED RIVER DEVELOPMENT,
PINAL COUNY, ARIZONA

Prepared for
TOUSA Homes, Inc.

tousa

URS Job No. 23445074
November 19, 2007

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REGISTERED GEOLOGIST
CERTIFICATE NO. 30914
ALEX M. RICHARDS
Date Signed 11-29-
ARIZONA U.S.A.

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1.0 INTRODUCTION

This report was prepared to present the results of the Well Impact Analysis for Recharge Well SRR-1, which was installed by TOUSA Homes for their planned Red River Development in Pinal County near Maricopa, Arizona. Well SRR-1 is within the Pinal Active Management Area (AMA) and was constructed in January 2007 under a Notice of Intent to Drill (NOI) a Specialty Well within an AMA. This Well Impact Analysis is to support TOUSA Homes' application to permit Well SRR-1 as a Non-Exempt Well for a proposed pumping rate of 200 gallons per minute (gpm) to pump for construction water over a planned 5-year period. Results of aquifer testing were used in the analysis, and indicate that the proposed withdrawal rate is acceptable under the requirements of ADWR's Well Spacing Rules.

1.1 BACKGROUND

TOUSA Homes is constructing production and recharge wells at their Red River Development in Pinal County, Arizona. This development consists of approximately 4,000 acres and is currently being used for agriculture (**Figure 1**). The development plans include various densities of single-family residential housing, active adult housing, multi-family housing, schools, parks, and commercial areas. The development is within the Pinal AMA.

The Red River Development is bounded on the north by the Ak-Chin Indian Reservation, on the west by State Route 347, on the east by White and Parker Road and on the south by Barnes Road. The project lies in portions of Sections 25, 26, 27, 34, 35 and 36, Township 5 South (T5S), Range 3 East (R3E); and Sections 2 and 3, T6S, R3E based on the Gila and Salt River Baseline and Meridian. The area is currently being used for agriculture and will be developed in a phased approach over several years.

Well SRR-1 is located in the NE ¼ (10-acre) of the SW ¼ (40-acre) of the SW ¼ (160-acre) of Section 26 in T5S, R3E as shown on **Figure 2**. Well SRR-1 was drilled and constructed between December 2006 and January 2007 under a NOI to drill and construct a well (Appendix A). The cadastral location is D(5-3)26cca and the ADWR well registration number is 55-213913.

Atwell-Hicks Engineering of Mesa, Arizona is conducting the engineering and planning of the potable water supply system and an effluent re-use system utilizing aquifer storage and recovery wells (ASR wells). TOUSA Homes and Atwell-Hicks are working with the Santa Rosa Water Company to develop design criteria for the potable and effluent water systems. These wells, including Well SRR-1, are intended to be conveyed to the Santa Rosa Water Company, the

planned service provider for the development. The effluent re-use system will include approximately 18 ASR wells to inject A+ treated effluent from the planned wastewater treatment plant (WWTP) into the shallow aquifer system. The recharge will be conducted under Aquifer Protection Permit No. P-105297 issued by the Arizona Department of Environmental Quality (ADEQ). In addition, up to 12 production wells are planned to provide the raw groundwater for treatment and distribution of potable water to the development. The actual number of ASR and potable supply wells will likely be determined by aquifer conditions and permitting constraints. Well SRR-1 is the first recharge well to be constructed at the development. Two production wells, SR-2 and SR-1, have been constructed for the project.

The purpose of this report is to assess the hydrologic impact from the proposed temporary operation of Well SRR-1 for construction water and to evaluate that operations are consistent with requirements of the ADWR Well Spacing Rules (ADWR, 2006c). The rules require a hydrological study as part of the permitting of new non-exempt wells to project the groundwater level drawdown (decline) that would result from pumping the proposed well continuously for a 5-year period. The ADWR Well Spacing Rules restrict new wells from being approved for operation, absent the consent of the owner of a well of record, if the 5-year predicted drawdown will cause 10 or more feet of water-level decline in a neighboring well of record.

This report presents the extent of the drawdown impact area attributable to pumping Well SRR-1 continuously for a 5-year period at a proposed discharge rate of 200 gpm. The characteristics of the local aquifer used in the analysis were based on the results of post-construction pump testing results and ADWR's Pinal AMA groundwater model. The calculations of the well impact areas were 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 Red River Development property is located within the Pinal AMA groundwater basin of south-central Arizona. The Pinal AMA includes the Eloy and Maricopa-Stanfield sub-basins, which encompass 1,260 and 715 square miles, respectively (Hammett, 1992). These sub-basins lie within the Sonoran Desert area of the Basin and Range physiographic province and are characterized by gently sloping, oval shaped, sediment filled valleys that are partially surrounded by low rugged mountains. The mountain ranges surrounding the Maricopa-Stanfield sub-basin include South Mountain, Sierra Estrella, Palo Verde, Haley Hills, Table Top, Sacaton, and Casa Grande, which form nearly impermeable barriers to groundwater flow. The Gila River drains the Maricopa-Stanfield sub-basin, which is generally dry through its reaches due to upstream control and diversions.

The general geologic and hydrologic characteristics of the two sub-basins are similar. The basins are two coalescing deep structural depressions that contain vertically and horizontally heterogeneous sediments and are saturated at depth. The basins are underlain by relatively impermeable rocks of the surrounding mountains, which consist primarily of granitic, metamorphic, and volcanic rocks of Precambrian to Tertiary age (Wickham and Corkhill, 1989).

The sub-basins were formed as a result of late Tertiary Period tectonic events associated with the Basin and Range disturbance. As the interior of the sub-basins subsided, thousands of feet of sediments accumulated. At times during the development, the exterior drainages were blocked and thick sequences of fine-grained clastic sediments and evaporite deposits accumulated in localized areas (Hammett, 1992). Active deposition continues to present time along alluvial fans extending from the mountain fronts and along the floodplains of the major drainages.

The Maricopa-Stanfield sub-basin is a deep alluvial basin comprised of thick basin-fill deposits of unconsolidated to semi-consolidated clastic sediments of Late Tertiary to Quaternary age. The sediments were formed in alluvial fan, playa, and fluvial depositional settings. The alluvial deposits generally increase in thickness and decrease in grain size toward the central areas of the basin. The basin-fill deposits range in thickness from zero feet near basin margins to over 10,000 feet in the central area of the sub-basins.

2.2 DEPTH TO HYDROGEOLOGIC BEDROCK

Depth to bedrock in the study area ranges from approximately 2,660 feet below ground surface (bgs) in T6S, R3E, Section 3 to 3,575 feet bgs in T5S, R3E, Section 26 (Corkhill and Hill, 1990). A study by Oppenheimer and Sumner (1980) that utilized gravity measurements to determine alluvial sedimentary thickness showed a depth to bedrock ranging from 3,200 feet in T5S, R3E, Section 34 to nearly 8,000 feet in T5S, R3E, Section 26. Generally the depth to bedrock increases from southwest to northeast beneath the study area (Southwest Ground-water Consultants, Inc., 2003). Review of well driller reports for the study area indicates that no wells have encountered bedrock during drilling operations. Well SR-2 was installed by TOUSA Homes in February 2006 and is the deepest well in the study area. It is located in T5S, R3E, Section 25 (**Figure 3**). Drilling of this well was logged by Environmental Resource Management (2006) and reached a total depth of 1,800 feet bgs without encountering bedrock.

2.3 GEOLOGIC UNITS

The Maricopa-Stanfield sub-basin alluvial deposits have been subdivided into upper basin and lower basin fill units. The upper basin fill is coarser-grained than the lower basin fill although some fine-grained deposits are present. It consists largely of moderately consolidated to unconsolidated gravel, sand, silt and clay, with finer materials towards the center of the sub-basin. The upper basin fill includes the upper portion of a middle fine-grained unit, which contain some evaporate deposits. The upper basin fill was deposited during the later stages of the Basin and Range disturbance, when the sub-basins were being in-filled and the drainages were through-flowing most of the time (Hammett, 1992). The relatively uniform thickness of the unit and association of coarse-grained sediments with the locations of the major drainages suggest that the unit was deposited by the ancestral Gila River after establishment of through-flowing drainages (Corkhill and others, 1993).

The lower basin fill is a complex unit, which includes a lower conglomerate unit as well as a lower part of the middle fine-grained unit. Two fine-grained units within the basin center have been recognized in the lower basin fill (Hammett, 1992). There is a basin-center very fine-grained facies of mostly silt and clay, and a basin-center moderately fine-grained facies with slightly coarser deposits. The very fine-grained facies contains thick evaporite deposits and gypsiferous mudstones. Both fine-grained facies are present in the Maricopa-Stanfield sub-basin with the very fine-grained facies underlying the moderately fine-grained facies. Grading into both basin-center fine-grained facies and underlying them are coarser-grained sediments, which increase in coarseness towards the basin margins. The middle fine-grained unit was deposited during the middle stages of development of the alluvial basins.

Deposition of the lower basin fill occurred during the early stages of the Basin and Range disturbance. The increasing thickness and decreasing particle size with increasing distance from the mountain fronts suggest that the alluvial basins were closed and subsiding during deposition of the unit (Corkhill and Hill, 1990). The basin-center fine-grained sediments were deposited during periods of blockage of exterior drainage when playas formed. In general, this unit is bounded by high-angle normal faults at depth near the sub-basin margins.

2.4 HYDROGEOLOGIC UNITS

Hydrogeologic investigations conducted by the Bureau of Reclamation (1977) and ADWR (Hammett, 1992) have concluded that the alluvial aquifer system is composed of three main hydrogeological units. From land surface, they are the Upper Alluvial Unit (UAU), the Middle Alluvial Unit (MAU) and the Lower Alluvial Unit (LAU). These units form the major water bearing formations in the basin. Lithologically, the three alluvial units may be described as follows:

- **Upper Alluvial Unit (UAU):** Composed primarily of gravel, sand, and silt. Mostly unconsolidated with locally strong cementation near mountain fronts and major stream courses.

- **Middle Alluvial Unit (MAU):** Composed primarily of silt, siltstone, silty sand and gravel. Mostly weakly consolidated, but moderately to well cemented siltstone occurs locally. Thick deposits in the center of the sub-basins, which typically pinches out toward basin boundaries. This unit contains the basin-center very fine-grained facies and the moderately fine-grained facies as described by Hammett (1992).

- **Lower Alluvial Unit (LAU):** This unit consists chiefly of clay, silts, mudstone, evaporites, sandstone, gravel, conglomerate, and andesitic basalt. The lower, older part of this unit is moderately to well cemented, while the upper part is well cemented and contains interbedded sand, gravel and conglomerate.

Coarse sediments such as sand and gravel lenses within the basin-center fine-grained facies of the MAU can be significant sources of groundwater near the sub-basin margins and may yield up to 2,000 gpm. Wells completed entirely in the fine-grained facies do not yield significant groundwater (Hammett, 1992).

Water level measurements and water quality data have defined a lower main water zone and an upper main water zone in both the Eloy and Maricopa-Stanfield sub-basins (Hammett, 1992).

ADWR has organized the three alluvial units into a two-aquifer system consisting of an Upper Aquifer (upper main water zone), corresponding to the UAU and the Lower Aquifer (lower main water zone) corresponding to the MAU and LAU. In the area of the Red River Development, the average thickness of the Upper Aquifer is approximately 390 feet and the average thickness of the Lower Aquifer is approximately 2,800 feet (Southwest Ground-water Consultants, Inc., 2003).

The lower main zone is largely contained in the lower basin fill except along the margins of the sub-basin where it may be partially in the upper basin fill. The lack of wells in the lower main zone is probably due to the thickness of the unproductive fine-grained facies and because groundwater is readily obtainable in wells completed in the shallower zones. Unconfined, confined, and semi-confined groundwater conditions are found in the lower main zone depending on location.

The upper main water zone is contained mostly in the upper basin fill. This zone generally overlies the extensive fine-grained facies in both sub-basins. It is the primary zone of groundwater for well production in the area. Depth to groundwater in the Maricopa-Stanfield sub-basin ranges from 50 feet bgs in the area of the Gila River to more than 400 feet bgs in T6S, R3E, Section 18 (Hammett, 1992). In the area of the Red River Development, the depth to water of the upper main water zone (in 1988-89) ranged from 197 to 229 feet bgs, while the depth to water of the lower main water zone ranged from 592 to 647 feet bgs (Hammett, 1992).

Planned aquifer recharge for the Red River Development will be to inject into the Upper Aquifer within the 160 to 390 feet depth interval. Potable supply wells for the development will extract groundwater from the Lower Aquifer in the 1,000 to 1,600 feet depth interval.

2.5 SITE HYDROGEOLOGIC CROSS-SECTIONS

Site-specific analysis of subsurface conditions beneath the Red River Development property was conducted to assess the local conditions of the shallow and deep aquifer systems (URS, 2006). Data obtained and reviewed for this study included agency and consultant reports, and driller's logs of boreholes drilled at the site for irrigation and potable supply wells (Appendix B). The primary data sources for this study included the acquisition and review of available driller logs and well completion reports, and limited consultant reports for wells completed at the Red River Development (URS, 2006). Four hydrogeologic cross-sections were prepared through the Red River Development project site using key driller's logs to represent general stratigraphic conditions across the site. The lithologic data for each borehole were grouped into units of

similar texture based on the Unified Soil Classification System. The cross-section locations are presented on **Figure 3**.

2.5.1 Cross-Section A-A'

Cross-Section A-A' is presented on **Figure 4**. It extends from Well 533198 in T6S, R3E, Section 4 to Well 533199 in T6S, R3E, Section 1. The surficial soil deposits in the cross-section consist of clay and silt (CL/ML), ranging from 7 to 50 feet bgs. Coarse-grained deposits consisting of poorly graded, fine to medium grained sand and gravel-sand mixtures (SP/GP) underlay the surficial deposits and are generally laterally extensive across the project site ranging in thickness from 15 to 114 feet. The deposit thins towards the west and becomes interstratified with clay.

Silty sand and sand-silt mixture dominated lithologies (SM) underlie the shallow coarse-grained deposit (SP/GP), where it is most prominent at the Well SR-2 location. There the silty sand (SM) is approximately 110 feet thick, but thins laterally and interbeds with clayey gravels and gravel-sand clay mixtures (GC). The base of the silty sand (SM) is approximately 303 feet bgs at Well SR-2. The soil lithologies described above correlate well with descriptions of the UAU. Groundwater within the UAU occurs at depths ranging from 150 to 175 feet bgs.

Below the deposit of clayey gravels/gravel-sand clay mixtures (GC) of the lower portion of the UAU is a thick sequence of clay, sandy clay and silty clay lithologies (CL), which have been grouped as a clay dominated deposit that is prevalent in the 125 to 500 feet bgs depth range, but extends to a much greater depth in the southeast portion of the site (T6S, R3E, Section 1). This deposit appears to be laterally continuous beneath the project site, but locally contains thin lenses of sand, gravel, clayey gravels, and gravel-sand-clay mixtures. The lenses are generally 10 to 90 feet thick and occur imbedded within the massive clay unit.

A lower deposit dominated by silty sand/sand-silt mixtures (SM) occurs beneath the massive clay unit described above at Well SR-2. It thickens west of Well 12 and grades laterally to clayey sand (SC). The upper perforation interval of Well SR-2 (1,000 to 1,100 feet bgs) has been set within this silty sand unit. Underling this deposit is massive silt dominated unit (ML), consisting of silt, clayey silt, sandy silt, and some siltstone. This deposit extends vertically down to the termination depth of the borehole drilled for Well SR-2 (1,800 feet bgs). Few wells in the project area extend to depths beyond 1,000 feet bgs, so lateral correlation of this unit is not possible. However, due to its thickness and the hydrogeologic mapping conducted by ADWR and the Bureau of Reclamation, it is anticipated that the silt and clay dominated deposit is widespread given the project location near the center of the alluvial basin. It appears to correlate

with the basin-center fine-grained units described by Hammett (1992). The lower perforation interval of Well SR-2 (1,220 to 1,560 feet bgs) has been set within this clay-dominated portion of the MAU.

2.5.2 Cross-Section B-B'

Cross-Section B-B' is presented on **Figure 5**. It extends south to north from Well 11 in T6S, R3E, Section 3 to Well 612725 in T5S, R3E, Section 26. The surficial clay and silt deposits in Cross-Section A-A' are present south of Well 533202 in T5S, R3E, Section 34. Beneath this deposit is a clayey gravel with gravel-sand-clay mixtures (GC) approximately 320 feet thick that extends from Well 12 in T5S, R3E, Section 34 south beyond Well 11 in T6S, R3E, Section 3. From Well 12 this deposit grades into clay and clayey sand to the north. At Well 533202 the deposit transitions into a thick sequence of gravel-sand mixtures (GP), clayey sand (SC), and clayey gravel (GC) deposits that extend from ground surface to a depth of 430 feet bgs at Well 612725 in T5S, R3E, Section 26. This area has been planned for ASR well recharge at the Red River Development.

Below a depth of 360 feet bgs, massive clay deposits (CL) extend from south of Well 12 northward and transition to clayey sands and sand-clay mixtures (SC) to the north with some possible silty sand in the vicinity of Well 612725, as inferred from Cross-Section A-A'. This deposit may range to greater than 1,000 feet in thickness.

2.5.3 Cross-Section C-C'

Cross-Section C-C' is presented on **Figure 6**. It also extends south to north from Well 536635 in T6S, R3E, Section 2 to Well 605592 in T5S, R3E, Section 25. The surficial clay and silt deposits in Cross-Section A-A' are present across the cross-section and appear to thicken somewhat to the north. The coarse-grained deposits (SP/GP) underlying the surficial deposits in Cross-Section A-A' appear thinner, less continuous laterally, and more interbedded. At Well 5B in T5S, R3E, Section 35 the gravel-sand mixture (GP) deposit is approximately 50 feet thick. This deposit transitions to clay dominated lithologies south of Well 5B, where isolated lenses of clayey gravel (GC) and sandy clay (SC) occur.

Between Well 13A and Well 5B in T5S, R3E, Section 35 a thin deposit of sand (SP) 25 to 50 feet thick occurs about 255 to 315 feet bgs. The deposit does not appear to be laterally continuous. Below a depth of 300 feet, the subsurface is primarily dominated by clay (CL) and minor silt (ML) deposits that are interbedded with silty sand/sand-silt mixtures (SM) in the

vicinity of Well 5B. The depth and extent of the silty sand is not known and is inferred from other cross-sections.

2.5.4 Cross-Section D-D'

Cross-Section D-D' is presented on **Figure 7**. It extends generally west to east through T5S, R3E, Section 26 where the majority of ASR wells are planned for recharge and aquifer storage. The surficial clay and silt deposits shown in Cross-Section A-A' are present across this cross-section and appear to thicken to the east. The coarse-grained deposits (SP/GP) underlying the surficial deposits in Cross-Section A-A' are present at Well 612725 and extend west to Well 1 in T5S, R3E, Section 27 and east to Well 3 in T5S, R3E, Section 26. The deposit consists of layered sandy clay/sand-clay mixtures (SC), gravels/gravel-sand mixtures (GP), and clayey gravels/gravel-sand-clay mixtures (GC) with a total combined thickness of approximately 418 feet. This deposit transitions to clay dominated lithologies to both the south and north.

Generally below a depth of 400 feet the subsurface is dominated primarily with massive clay (CL) and minor silt (ML) deposits that are interbedded with clayey sand/sand-clay mixtures (SC) and some silty sand (SM) in the vicinity of Well 612725. The depth and extent of these deposits are not known and are inferred from other cross-sections.

2.6 AQUIFER COEFFICIENTS

Aquifer coefficients of transmissivity and specific yield were estimated by ADWR for development of the Pinal AMA groundwater flow model (Corkhill and Hill, 1990), which includes the study area. The average hydraulic conductivity and storage coefficient for the Upper Aquifer within the study area is reportedly approximately 920 gallons per day per square foot (gpd/ft^2) and 0.18 (unitless), respectively. For the Lower Aquifer, the average hydraulic conductivity is reported at 33 gpd/ft^2 and the storage coefficient is reported at 0.08.

3.0 WELL SRR-1 CONSTRUCTION DETAILS

3.1 DRILLING AND CONSTRUCTION

Arizona Beeman Drilling Company utilized a Speedstar 70K rotary drilling rig using the reverse-circulation drilling method to drill the borehole for Well SRR-1. The pilot hole drilling commenced on December 23, 2006 and was completed to a depth of approximately 429 feet bgs on December 28, 2006 (URS, 2007). The well was constructed to a total depth of 420 feet bgs using 18-5/8 inch diameter high strength low alloy (HSLA) well casing. The well was constructed with two louvered screen sections: 160 to 240 feet bgs, and 270 to 390 feet bgs for total screen length of 200 feet. An as-built schematic of the Well SRR-1 construction is presented as **Figure 8**.

After constructing Well SRR-1, it was developed by swab and airlift on January 6 and 7, 2007, and then by pump and surge on February 5, 2007. Following the well development, test pump equipment was installed to perform a step-rate pumping test and constant-rate aquifer test. Details of these tests are provided below.

3.2 HYDROLOGIC TESTING

The hydrologic testing conducted at Well SRR-1 included a 12-hour step-rate pumping test and a 24-hour constant-rate aquifer test (URS, 2007). During the testing, the well discharge was monitored using an inline McCrometer flow meter, and a calibrated orifice and manometer installed in the discharge pipe. Water levels were measured with both an electric sounder and a downhole pressure transducer/data logger unit. Water level data for the testing is provided in **Appendix C**. The pressure transducer was set at a depth of 364 feet bgs for both the step and constant rate tests to capture late time water level data. The well discharge from both tests was directed to a nearby irrigation lateral and was used by a local farmer for crop irrigation. The total volume of water pumped during the hydrologic testing was recorded by the in-line totalizing flowmeter. The volume pumped for the step and constant rate tests is as follows:

Step-Rate Pumping Test:	80,520 gallons	0.28 acre-feet
Constant-Rate Aquifer Test:	324,000 gallons	0.99 acre-feet
Total Volume Pumped:	**404,520 gallons**	**1.27 acre-feet**

The step-rate pumping test was performed on March 13, 2006 and consisted of four 2-hour pumping steps, for a total of 8 hours of pumping at the following approximate rates: 73 gpm, 135

gpm, 205 gpm, and 259 gpm. The static water level was measured at 127.8 feet bgs prior to the start of pumping. The pumping water levels at the end of pumping steps 1 through 4 were 150 feet, 182 feet, 270 feet, and 367.91 feet bgs, respectively. The respective pumping water levels correspond to drawdown values of 22.2 feet, 54.2 feet, 142.2 feet and 240.11 feet.

The constant-rate aquifer test was performed over a period of 24 hours, from February 19 to February 20, 2007 at an average pumping rate of approximately 225 gpm (URS, 2007). The static water level was measured at 127.65 feet bgs prior to starting the pump. The pumping water level at the end of the constant-rate pumping test was 237.78 feet bgs, corresponding to a drawdown of 110.13 feet and a specific capacity of about 2.04 gpm/foot of drawdown. After the pump was turned off, water-level recovery was monitored for approximately 24 hours, until the water level had recovered to a depth of 138.82 feet bgs, or approximately 94% of the initial static water level. The Cooper-Jacob Plot of the constant-rate aquifer test data for this well is presented on **Figure 9**, and a Theis Recovery Plot of the water-level recovery data is provided on **Figure 10**. A Cooper-Jacob Plot is a semi-logarithmic plot of water-level drawdown versus time, and a Theis Recovery Plot is a semi-logarithmic plot showing residual water-level drawdown versus the ratio between total test time (t) and the time since the pump was turned off (t´). The tabular data for the constant rate and recovery tests are provided in **Appendix C**.

Analysis of the Cooper-Jacob Plot suggests an aquifer transmissivity of approximately 23,760 gallons per day per foot (gpd/ft) for the portion of the aquifer penetrated by the Well SRR-1 (**Figure 9**). The Theis Recovery Plot suggests an aquifer transmissivity of approximately 39,600 gpd/ft (**Figure 10**). Since the water-level recovery data are not affected by any perturbations from the pump equipment, the Theis Recovery Plot is generally considered more representative of the aquifer characteristics than the Cooper-Jacob Plot. Therefore, 39,600 gpd/ft is considered a reasonable estimate of the aquifer transmissivity for the screened portions of the aquifer penetrated by the SRR-1 recharge well.

3.3 WATER QUALITY TESTING

A groundwater sample was collected approximately 23 hours into the constant-rate aquifer test on February 20, 2007 and submitted to an Arizona-certified laboratory for analysis of general water quality parameters. The laboratory results for this sample are provided in **Appendix D.** Results of these analyses are discussed in Section 4.4.

4.0 WELL IMPACT ANALYSIS

4.1 WELL INVENTORY

A well inventory for the study area was conducted based on the ADWR Wells 55 database (ADWR, 2006b). The approximately 25-square mile study area includes the Red River Development property and a 1-mile radius surrounding area. Within the study area, the ADWR database indicated 89 registered wells. Information relating to the wells within the study area is summarized in **Table 1**. Well locations are illustrated on **Figure 3**. The well categories in **Table 1** include domestic wells, industrial wells, irrigation wells, municipal wells, and stock wells. Piezometers, geotechnical borings, monitoring wells, hydrologic test well, and abandoned or canceled wells are also shown on Table 1, but are not considered wells of record for purposes of well impact studies. Of the 89 registered wells in the study area, 62 wells are considered wells of record for the purpose of assessing well impacts from Well SRR-1.

4.2 GROUNDWATER ELEVATION

The depth to groundwater in the study area has been measured by ADWR and reported in the ADWR Groundwater Site Inventory Database (GWSI). The most recent and representative water level measurements were collected by ADWR in November 1993 and November 1998. GWSI groundwater level data for the study area is presented in **Table 2**.

Review of the data indicates that two aquifer systems are present in the study area. The Upper Aquifer is contained within the UAU and is unconfined. The average depth to groundwater in the Upper Aquifer in November 1993 ranged from approximately 180 to 260 feet bgs, with the corresponding groundwater surface elevation ranging from 1,020 to 1,070 feet above mean sea level (ft amsl) (Southwest Ground-Water, Inc., 2003). The Lower Aquifer system can range from unconfined to confined conditions depending on the presence of MAU overlying the LAU. If the MAU is absent, the Lower Aquifer is typically unconfined (Bureau of Reclamation, 1977). The average depth to water of the Lower Aquifer in the study area during November 1993 ranged from 520 to 630 feet bgs and groundwater elevations ranged from 660 to 700 feet amsl (Southwest Ground-Water, Inc., 2003). A groundwater elevation contour map of the Upper Aquifer was prepared using available water level measurements (**Figure 11**). The groundwater elevation contours indicate a flow direction to the southwest with groundwater elevations ranging from 780 to 1,085 feet amsl.

4.3 WATER LEVEL TRENDS

There are several wells in the vicinity of the subject site that have extensive periods of available water level records in the ADWR Groundwater Site Inventory (GWSI) database. Hydrographs were produced for four wells in the area. These hydrographs are presented on **Figure 12** and their locations are shown on **Figure 3**. Hydrographs were produced for the following wells:

- Well D(05-03)25add, ADWR Registration No. - none
- Well D(06-03)02ddd2, ADWR Registration No. 55-620591
- Well D(05-03)33dcb1, ADWR Registration No. 55-610736
- Well D(05-03)36aad, ADWR Registration No. 55-625556

The hydrographs indicate approximately 130 to 170 feet of groundwater level decline in the study area from 1951 through the mid-1960s. The area had relatively stable water levels through 1987, which was then followed by rising groundwater elevations to current time. The recent rising water level trend is likely due to the implementation of the Groundwater Management Act of 1980 and the increased use of surface water supplies such as Central Arizona Project (CAP) water. **Table 3** presents a summary of ADWR GWSI water levels within T5S, R3E, Sections 25-28, 33-36, and T6S, R3E, Sections 2-5.

4.4 GROUNDWATER QUALITY

General groundwater quality data were evaluated for the study area utilizing data from the ADWR GWSI database (ADWR, 2006a) and water quality results for Well SRR-1. The majority of wells located within the study area are irrigation wells with limited available water quality data. Data for these wells are typically for the shallow portions of the aquifer system where aquifer storage is planned at the Red River Development.

Following the installation of Well SRR-1 a water quality sample was collected near the conclusion of a 24-hour constant rate-pumping test and was submitted for analysis of general water chemistry parameters (URS, 2007). The laboratory data sheets for this sample are provided in **Appendix D**. The GWSI water quality results are presented on **Figure 13** and summarized in **Table 4**. The groundwater sampling results for Well SRR-1 are provided in **Table 5**. The following summarizes available GWSI water quality data for the study area and results from the Well SRR-1 sampling.

4.4.1 Fluoride

The water quality data for fluoride (F) is shown on **Figure 13** in milligrams per liter (mg/L), which is equivalent to parts per million. The concentrations in vicinity irrigation wells range from 0.5 to 1.2 mg/L, which is below the Primary Drinking Water Standard of 4 mg/L. The analytical laboratory reported a fluoride concentration of 0.72 mg/L for Well SRR-1 (**Table 5**). Fluoride concentrations were reported for production wells SR-1 and SR-2 at 1.2 and 1.5 mg/L, respectively (**Table 4**).

4.4.2 Total Dissolved Solids

The water quality data for Total Dissolved Solids (TDS) is also presented on **Figure 13** and is shown in mg/L. There is no Primary Drinking Water Standard established for TDS, but there is a Secondary Maximum Contaminant Level (SMCL) of 500 mg/L. The SMCL is an Environmental Protection Agency (EPA) guideline that assists public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. The majority of wells in the study area had reported TDS concentrations that exceeded the SMCL. TDS concentrations in the study area ranged from 300 to 2,760 mg/L. The analytical laboratory reported a TDS concentration of 850 mg/L for Well SRR-1. TDS concentrations were reported at 690 mg/L for Well SR-1 and 300 mg/L for Well SR-2. TDS concentrations are generally much lower in the Lower Aquifer (Well SR-2) than in the Upper Aquifer.

4.4.3 Nitrates

There were no data available in the GWSI database for nitrate as nitrogen (NO_3-N) concentrations in the study area. The analytical laboratory reported a nitrate (NO_3-N) concentration of 28 mg/L for Well SRR-1 (URS, 2007). Similarly, nitrate concentrations were reported at 17 mg/L for Well SR-1 and 1.9 mg/L for Well SR-2. The concentrations reported for wells SRR-1 and SR-1 are above the 10 mg/L Primary Drinking Water Standard for nitrates (NO_3-N). Due to historical and current agricultural land use in the study area, elevated nitrate levels are expected in the shallow aquifer system (Well SRR-1). Major sources of nitrate typically include fertilizers, livestock feeding operations, or inputs to sewer and septic systems.

4.4.4 Arsenic

There were no available data in the GWSI database for arsenic (As) in the study area. The arsenic concentration was reported at 0.0073 mg/L for Well SRR-1, which is below the current Primary Drinking Water Standard of 0.010 mg/L. Arsenic was reported at 0.022 mg/L for Well SR-2. Discharge from this well will be treated prior to distribution to the potable supply system.

Elevated arsenic concentrations are a common naturally occurring groundwater quality problem in many portions of the alluvial aquifer system in central and southern Arizona.

4.5 IMPACT ANALYSIS

An impact analysis was conducted to evaluate the drawdown impact on wells of record from operating Well SRR-1. ADWR Rule R12-15-1302 prohibits new non-exempt wells within an AMA, absent the consent from the owner of a well of record, from causing more than 10 feet of water level decline in wells of record after continuous pumping for a period of 5 years. To enforce this rule, ADWR requires a well spacing study as part of the permit process for large water supply wells. The results of the well spacing study may limit the water production capacity of the well(s) to be installed. The analytical groundwater model THWELLS (Van der Heijde, 1996) was used to project well impacts for Well SRR-1. The mathematical basis for the THWELLS method is the Theis (1935) non-equilibrium formula.

The projected impact to the aquifer from pumping Well SRR-1 was assessed for the proposed continuous pumping rate of 200 gpm, which is equivalent to 322.58 acre-feet per year (AF/yr). Aquifer parameters such as aquifer transmissivity and storage coefficient are required data for conducting the drawdown impact analysis. Local aquifer test data were available from the hydrologic testing performed at Well SRR-1. Since no observation wells were available for the hydrologic testing, the storage coefficient was obtained from estimates used in ADWR's Pinal AMA groundwater model (Corkhill and Hill, 1990).

4.5.1 Calculation Method

The aquifer impact was estimated using THWELLS V 4.01 multi-Theis analysis software (van der Heijde, 1996), which uses the Theis nonequilibrium equation (Theis, 1935). THWELLS is an analytical model that calculates drawdown over a grid of specified data points. Using the unconfined aquifer option, the calculated drawdown at each well was corrected using the method described by Cooper and Jacob (1946).

When a proposed well is within about three miles of a bedrock outcrop or other hydrological boundary, ADWR requires a modification to the hydrological analysis to accommodate the impact of that hydrologic boundary such that the mathematical simulation of the aquifer's behavior addresses the lack of groundwater contribution from bedrock or other aquitards in the vicinity of the proposed well. To accommodate this condition, one or more image wells are added to the calculation as needed. An image well is a hypothetical well that is located an equal distance from the hydrologic boundary as the proposed well, but in the opposite direction. The

image well is considered to be pumping simultaneously with the proposed well, which provides a reasonable representation of the additional drawdown that will be caused by the hydrologic boundary. Because no hydrologic boundaries are known to exist within 3 miles of the property boundary, no image wells were used in the impact analysis for Well SRR-1.

4.5.2 Aquifer Coefficients

The aquifer parameters required for the THWELL simulation include transmissivity and storage coefficient. 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), as defined by the relationship T = Kb. Transmissivity is expressed in terms of gallons per day per foot (gpd/ft) or square feet per day (ft^2/day). Hydraulic conductivity is expressed in units of gallons per day per square foot (gpd/ft^2) or feet per day (ft/day). Aquifer thickness is expressed in units of feet. The storage coefficient (S) generally indicates the ability of an aquifer to store water, and release the water from storage when gravitational forces drain the aquifer. The S value is expressed as a ratio, which is unitless.

The T value used in the THWELLS simulation was evaluated from a 24-hour constant rate aquifer-pumping test performed at Well SRR-1 in February 2007. The pumping test data for SRR-1 are graphically presented in **Figures 9** and **10**. Estimates for T using the Cooper-Jacob (1946) method are presented in **Figure 9**, which indicate an aquifer transmissivity of approximately 23,760 gpd/ft for that portion of the aquifer penetrated by Well SRR-1. The T value was also evaluated using the Theis (1935) Residual Drawdown method for the recovery test, which is presented in **Figure 10**. The Theis Recovery Plot indicates an aquifer transmissivity of approximately 39,600 gpd/ft (**Figure 10**). Since the water-level recovery data are not affected by any perturbations from the pump equipment, the Theis Recovery Plot is generally considered more representative of the aquifer characteristics than the Cooper-Jacob Plot. Therefore, a T value of 39,600 gpd/ft appears to be a reasonable estimate for Well SRR-1.

Since no observation wells were readily available for monitoring during the aquifer testing, storage coefficient data for the Well SRR-1 impact analysis was obtained from the ADWR groundwater flow model for the Pinal AMA. The model data indicated a storage coefficient for the Upper Aquifer (UAU) of 0.18.

Review of the lithologic and geophysical logs available for wells SRR-1 and SR-1 indicate that the contact between the Upper and Lower Aquifer at the location of Well SRR-1 is approximately 400 feet bgs. Both well screens for Well SRR-1 (160-240 and 270-390) are within the UAU (**Figure 8**).

4.5.3 Calculation Grid

The grid established for the impact analysis encompasses a 40-foot radius surrounding Well SRR-1. The grid dimensions are 80 feet by 80 feet with a nodal spacing of 2 feet in both the x and y directions. The grid values are in units of feet in Universal Transverse Mercator (Zone 12, NAD 1983) coordinate system. This provides 41 nodes in each direction for a total of 1,681 nodes.

4.5.4 Results

Specific assumptions used in calculating the 5-year 10-foot drawdown and the 5-year 25-foot drawdown for Well SRR-1 include the following:

Section:	**D(5-3) 26cca**
Aquifer Thickness (b)	200 feet
Transmissivity (T) = Kb	39,600 gpd/ft
Conductivity (K)	198.0 gal/day/ft^2 (or 26.7 ft/day)
Storage Coefficient (S)	0.18 (unitless)
Pumping Rate (Q)	200 gpm or 288,000 gpd
Simulation Time (t)	5 years or 1,825 days

THWELLS utilizes a drawdown calculation grid to analytically assess drawdown impacts to the aquifer from pumping. For this analysis, drawdown was projected after 5 years of simulated continuous pumping of Well SRR-1 at the proposed rate of 200 gpm. The THWELLS output is presented in **Appendix E** and the calculated impact radii are shown on **Figure 14**. At the proposed pumping rate of 200 gpm, the THWELLS analytical model indicated an impact radius of 2.5 feet for the 10 foot 5-year drawdown contour. Given that the model calculated a maximum drawdown of 12.5 feet, the impact radius for the 25 foot 5-year drawdown contour was less than 2.5 feet. Based on the location of registered wells in the study area (**Figure 3**) and the small impact radius for the proposed 200 gpm pumping rate, there are no wells of record within the area of the 10 foot 5-year drawdown impact contour.

5.0 SUMMARY AND CONCLUSIONS

In January 2007, the installation of Recharge Well SRR-1 was completed to a depth of 420 feet bgs within the Upper Aquifer. The well consists of two screened intervals, with a total screened length of 200 feet. After completion of the well construction, it was developed by swab and airlift, and then by pump and surge. Test pump equipment was then installed to perform a step-rate pumping test and constant-rate aquifer test. The aquifer test results yielded a transmissivity estimate of 39,600 gpd/ft for that portion of the aquifer penetrated by the screened intervals of Well SRR-1.

The analytical model THWELLS was utilized to evaluate the drawdown impact radii for the proposed continuous pumping of Well SRR-1 at 200 gpm (322.58 AF/yr). The aquifer transmissivity of 39,600 gpd/ft was used in the analysis based on the Well SRR-1 aquifer testing results. A storage coefficient of 0.18 was assumed for portions of the Upper Aquifer penetrated by the screened intervals of Well SRR-1 based on the ADWR groundwater flow model parameters for the Pinal AMA.

The drawdown simulation results indicate a well impact radius of 2.5 feet for the 10 foot 5-year drawdown contour and less than 2.5 feet for the 25 foot 5-year drawdown contour. The ADWR Wells 55 database does not list any wells of record not owned by the applicant located within the area of the 10 foot 5-year drawdown impact contour. Based on the analysis, the proposed temporary operation of Well SRR-1 for a 5-year period at a continuous pumping rate of 200 gpm meets requirements of ADWR Rule R12-15-1302.

6.0 REFERENCES

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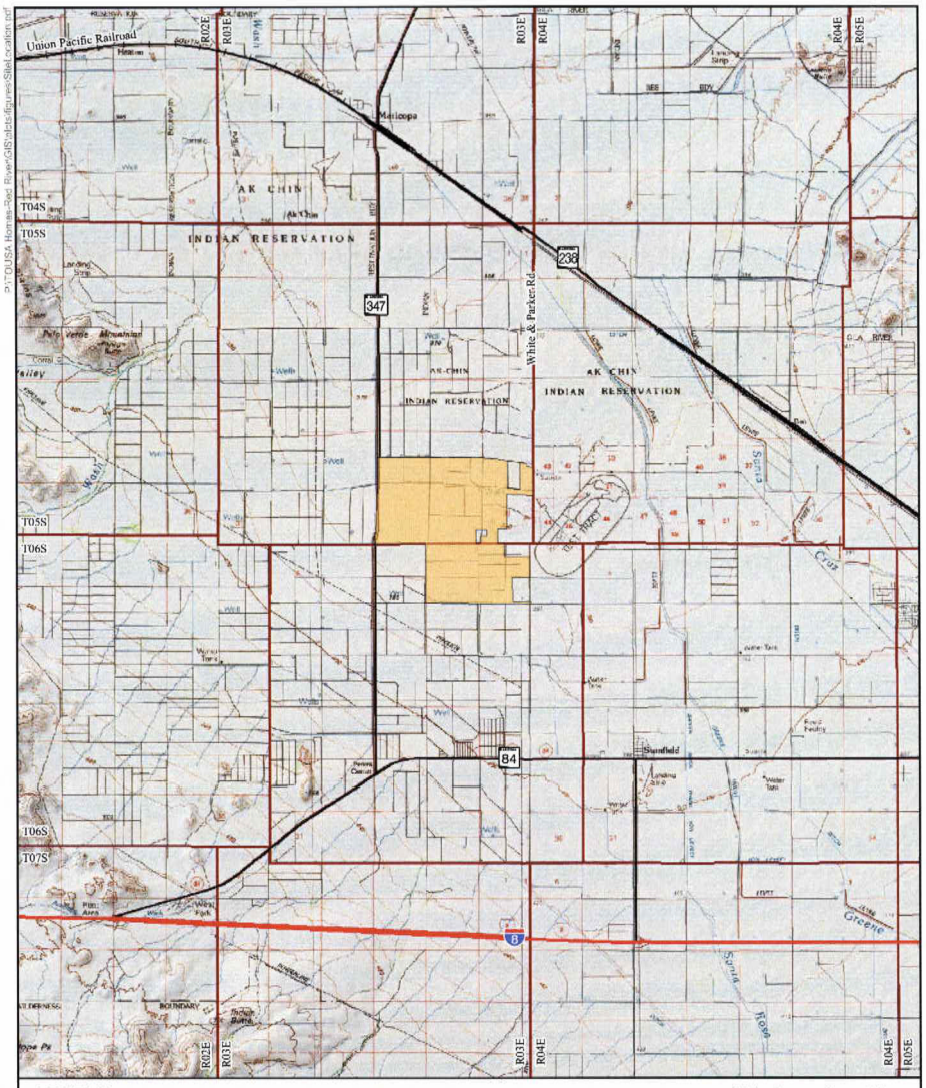
FIGURES



LEGEND

- Project Site
- Public Land Survey System
- Interstate Highway
- State Highway
- Railroad

N

0 1 2
Miles

Sources:
Base data: ALRIS 2004;
Project data: HEC 2006
Map created with TOPO!(tm) (c)2002 National Geographic Holdings (www.topo.com)

URS

Site Location Map
Red River Development
Tousa Homes
Pinal County, AZ

Figure 1

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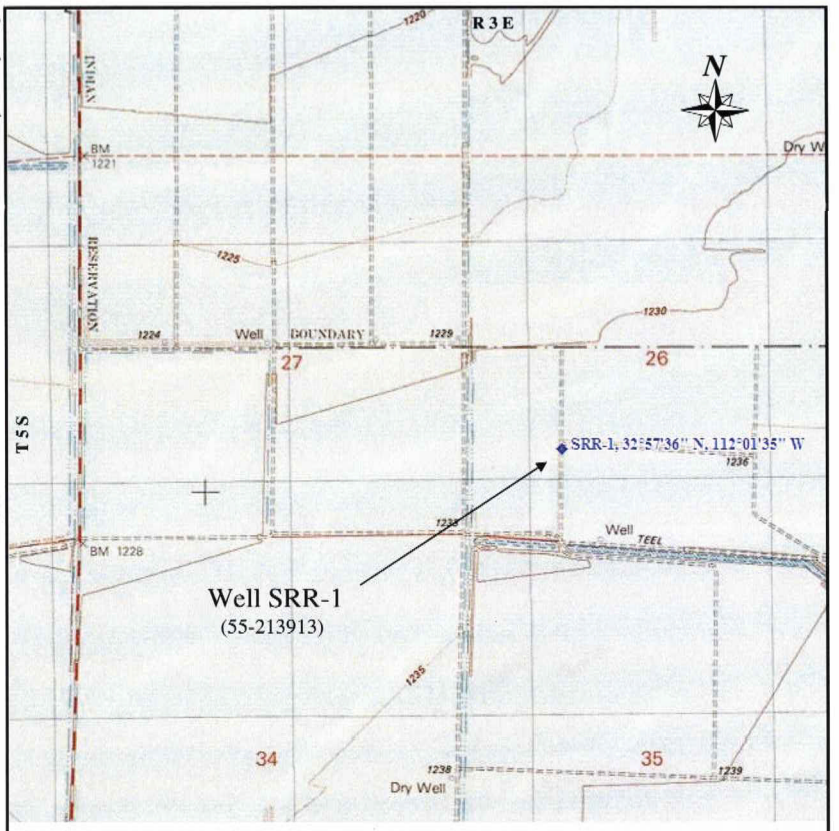


Scale

0 mi. 0.5 mi. 1 mi.

EXPLANANTION

◆ SRR-1Well Location and Latitude/Longitude Coordinates, as measured by hand held Global Positioning System (GPS) locator device.

URS

FIGURE 2
SRR-1 SITE LOCATION MAP
Well Registration No. 55-213913
Tousa Homes - Red River Development
Pinal County, Arizona

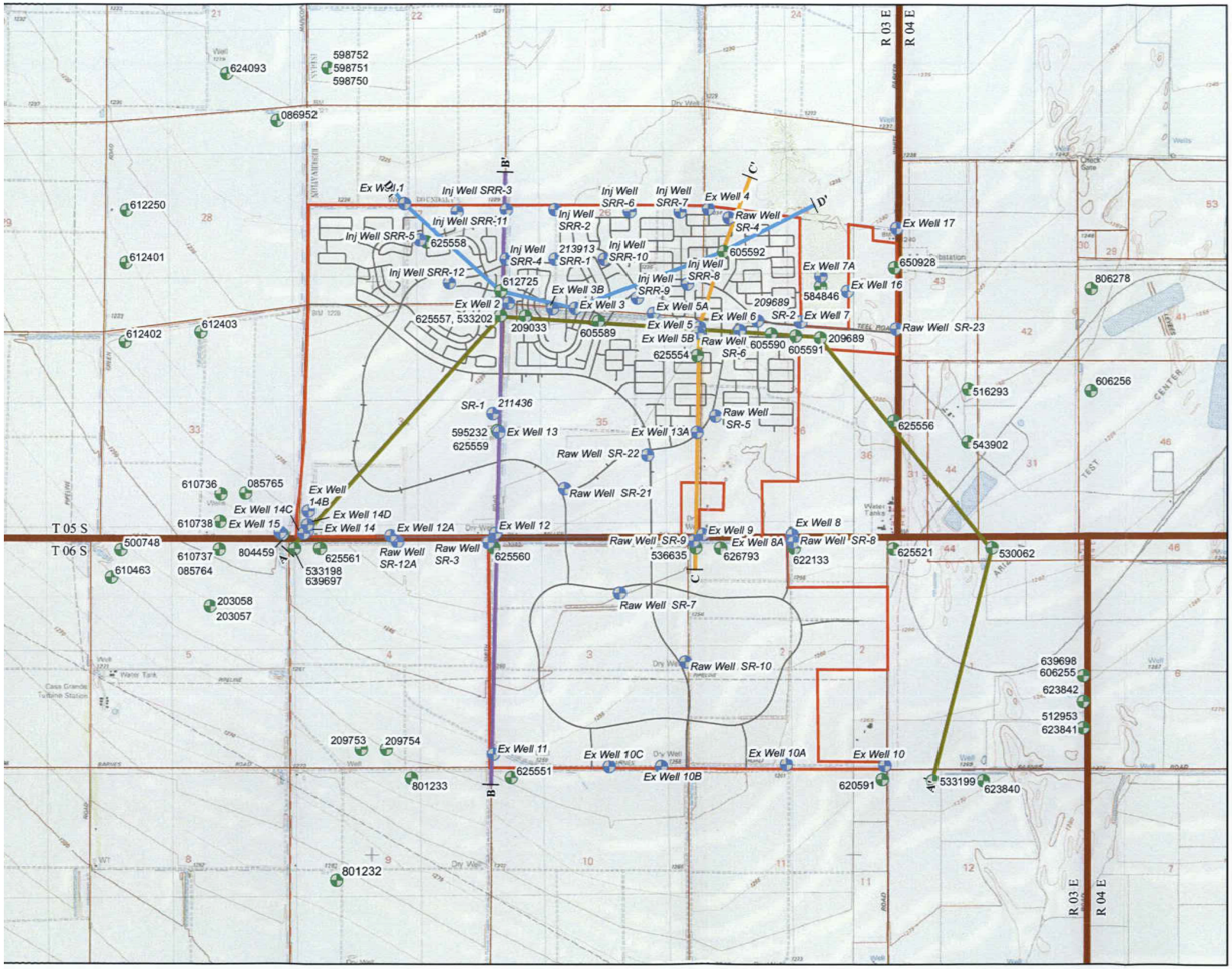


Figure 3
Well Inventory and Cross-Section Location Map

Red River Development
Tousa Homes Pinal County, Arizona

LEGEND

Wells

- 624093 — Arizona Department of Water Resources 55-Well
- Inj Well SRR-7 — HEC Engineering Existing (Ex), Proposed Injection (Inj), and Raw Wells

Cross Sections

- Cross Section A - A'
- Cross Section B - B'
- Cross Section C - C'
- Cross Section D - D'

Planned Development Features

- Proposed Road

General Features

- Project Boundary
- Township and Range Line
- Section Line

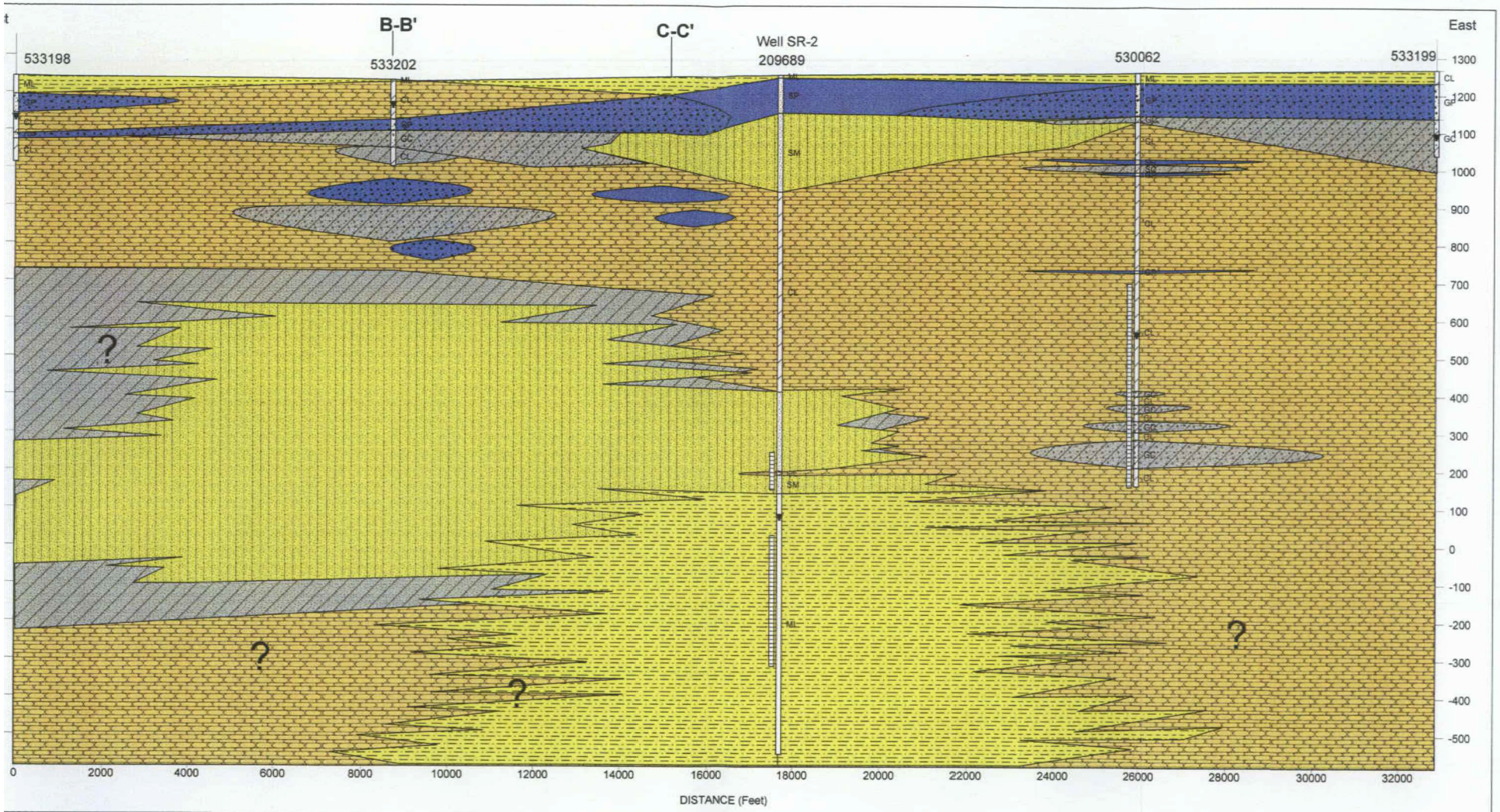
Sources:
Base topographic data: (c)2002 National Geographic Holdings (www.topo.com)
Base Map Data: ALRIS 1997, 2005
Project Features & Wells: HEC Engineering 2006
55-Wells: Arizona Department of Water Resources 2006

State Plane Arizona Central, NAD83, International Feet

N

0 0.125 0.25 0.5
Miles

URS



Red River Development
Pinal County, Arizona

URS Geosciences
Phoenix, Arizona

Figure 4

Tousa: Red River, Maricopa, AZ

Section West-East
Cross-Section A-A'

EXPLANATION

- ML, inorganic silts, clayey silt
- CL, clay, silty clay
- SC, clayey sands, sand-clay mixture
- SM, silty sands, sand-silt mixtures
- SP, poorly graded sands, gravelly sands
- GC, clayey gravels, gravel-sand-clay mixtures
- GP, poorly-graded gravel, gravel-sand mixtures
- Screened Interval
- Approximate Water Level
- ? Extrapolated Data

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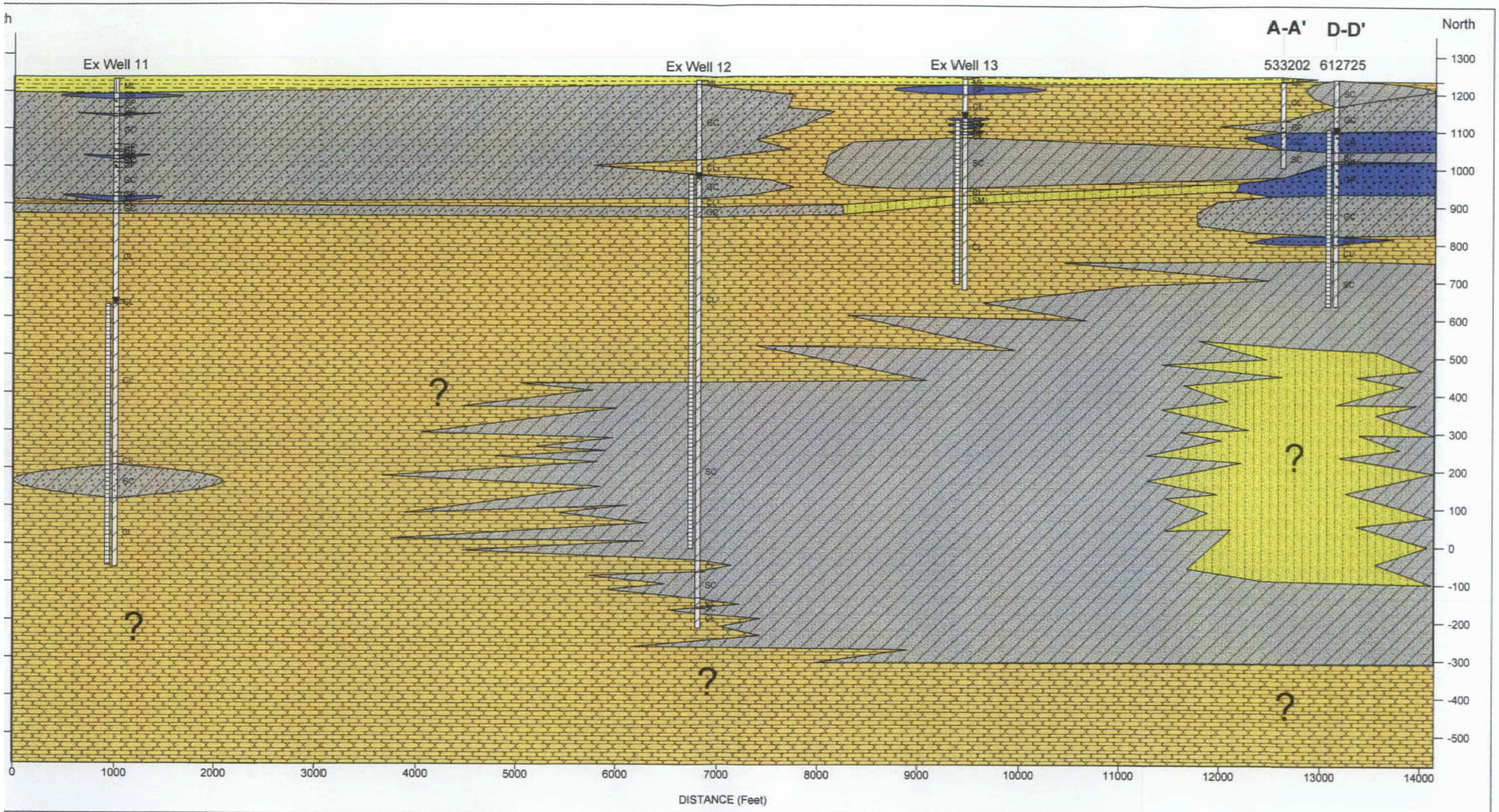

Red River Development
Pinal County, Arizona

URS Geosciences
Phoenix, Arizona

URS

Figure 5

Tousa: Red River, Maricopa, AZ

Section South-North
Cross-Section B-B'

EXPLANATION

- ML, inorganic silts, clayey silt
- CL, clay, silty clay
- SC, clayey sands, sand-clay mixture
- SM, silty sands, sand-silt mixtures
- SP, poorly graded sands, gravelly sands
- GC, clayey gravels, gravel-sand-clay mixtures
- GP, poorly-graded gravel, gravel-sand mixtures
- Screened Interval
- Approximate Water Level
- ? Extrapolated Data

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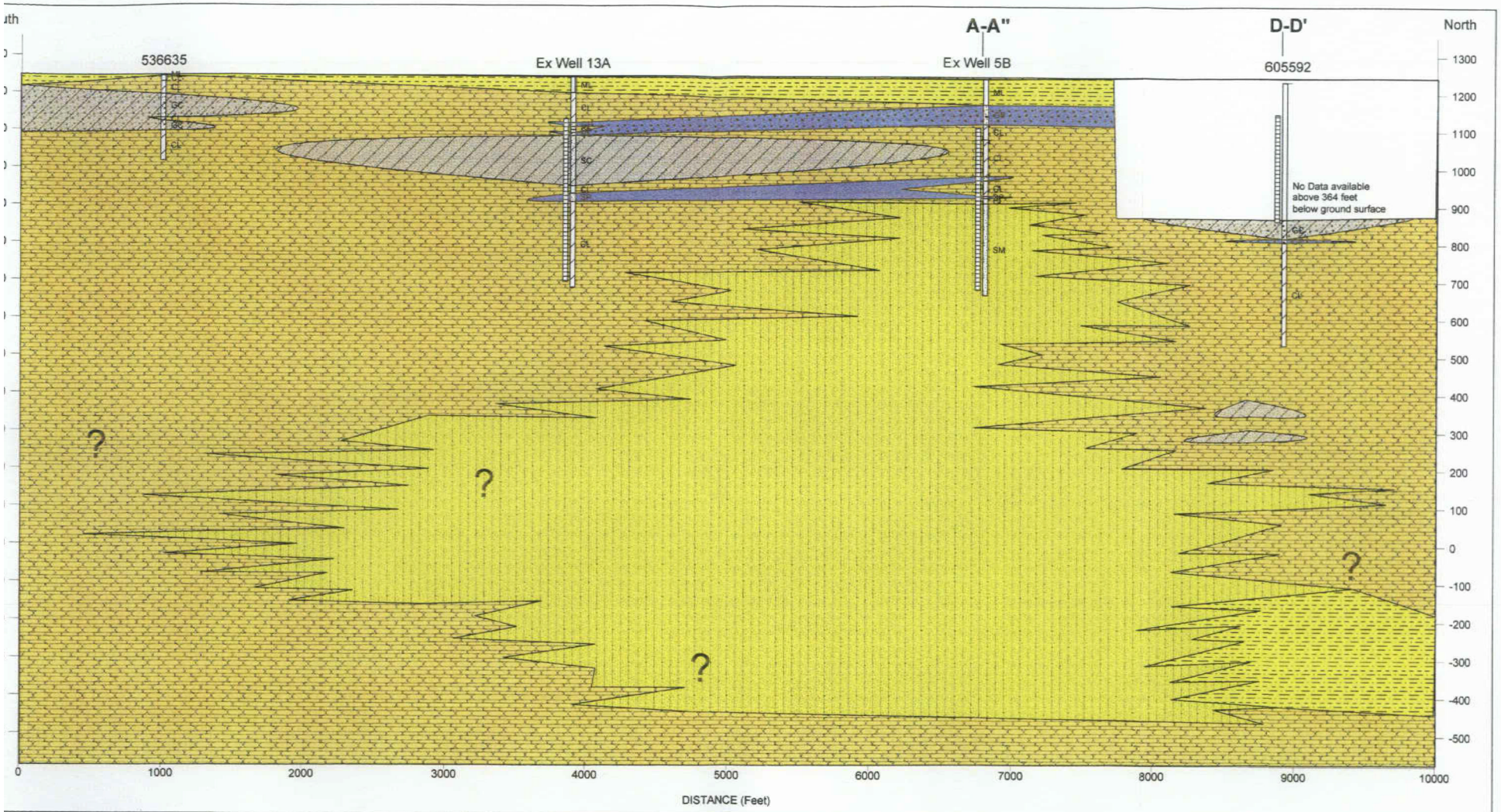

Red River Development
Pinal County, Arizona

URS Geosciences
Phoenix, Arizona

Figure 6

Tousa: Red River, Maricopa, AZ

Section South - North
Cross-Section C-C'

EXPLANATION

- ML, inorganic silts, clayey silt
- CL, clay, silty clay
- SC, clayey sands, sand-clay mixture
- SM, silty sands, sand-silt mixtures
- SP, poorly graded sands, gravelly sands
- GC, clayey gravels, gravel-sand-clay mixtures
- GP, poorly-graded gravel, gravel-sand mixtures
- Screened Interval
- Approximate Water Level
- ? Extrapolated Data

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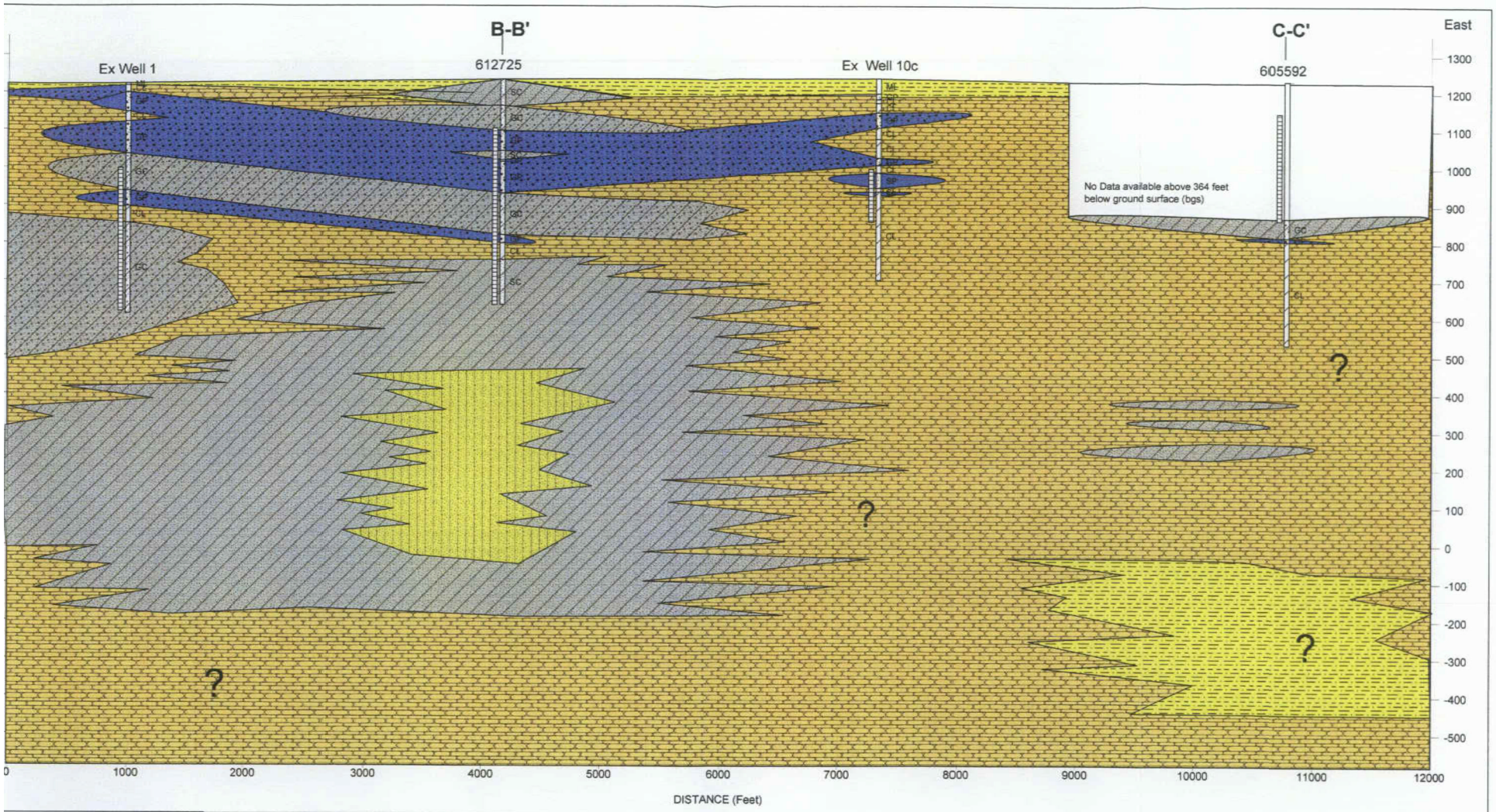

Red River Development
Pinal County, Arizona

URS Geoscinces
Phoenix, Arizona

URS

Figure 7

Tousa: Red River, Maricopa, AZ

Section West- East
Cross-Section D-D'

LEGEND

- ML, inorganic silts, clayey silt
- CL, clay, silty clay
- SC, clayey sands, sand-clay mixture
- SM, silty sands, sand-silt mixtures
- SP, poorly graded sands, gravelly sands
- GC, clayey gravels, gravel-sand-clay mixtures
- GP, poorly-graded gravel, gravel-sand mixtures
- Screened Interval
- ▼ Approximate Water Level
- ? Extrapolated Data

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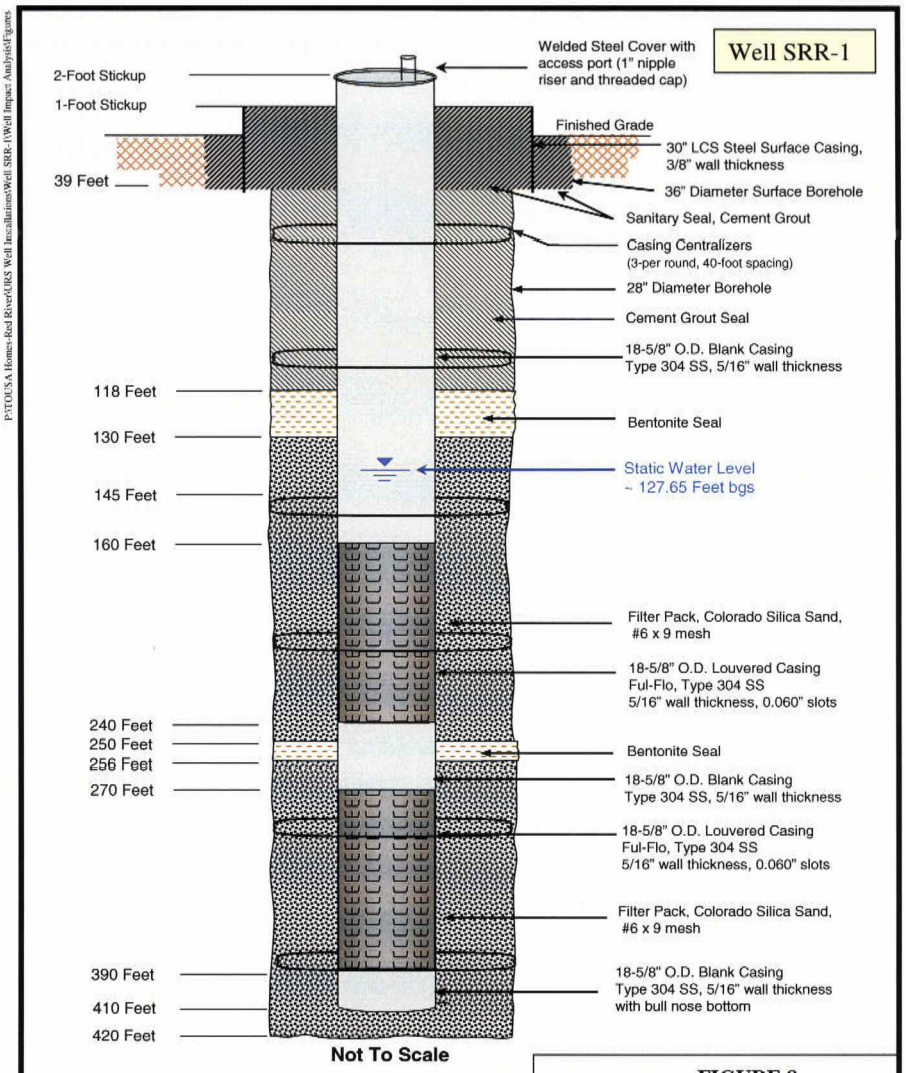

Notes: LCS = low carbon steel
SS = Stainless Steel
Unless stated, all diameters are outside diameter (OD), except the well screen (which is nominal).

URS

tousa

FIGURE 8
AS-BUILT SCHEMATIC
ASR Well SRR-1
Red River Development
Pinal County, Arizona

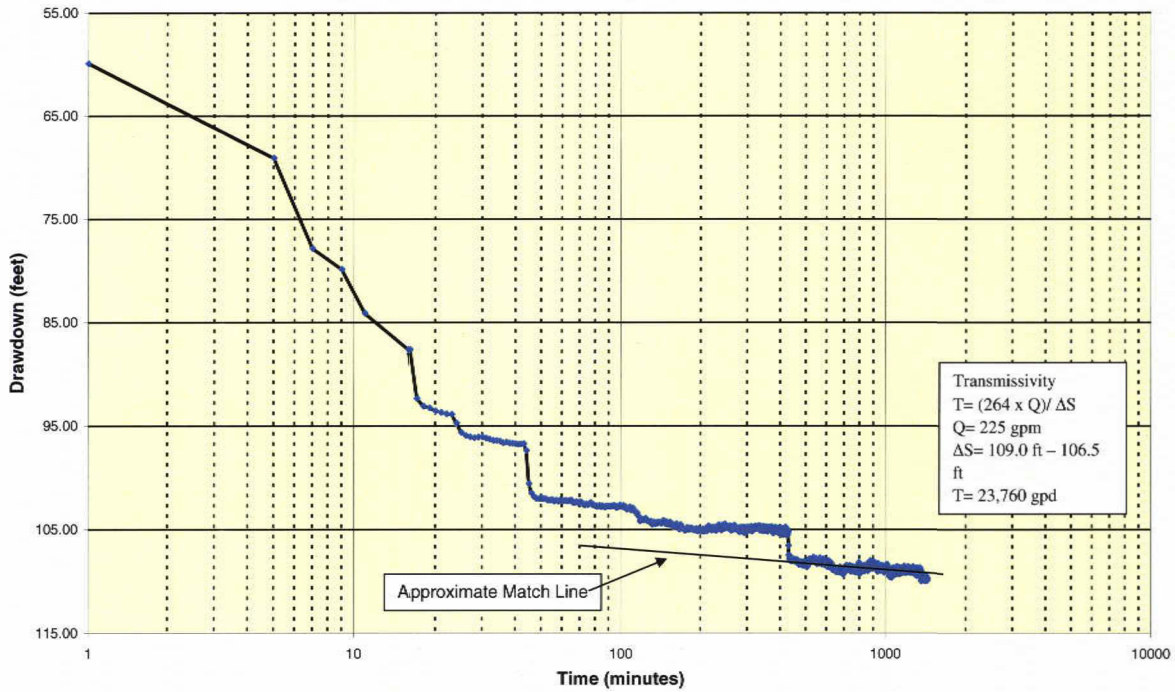

FIGURE 9
CONSTANT-RATE PUMPING TEST ANALYSIS
COOPER-JACOB PLOT
Well SRR-1
TOUSA Homes

URS

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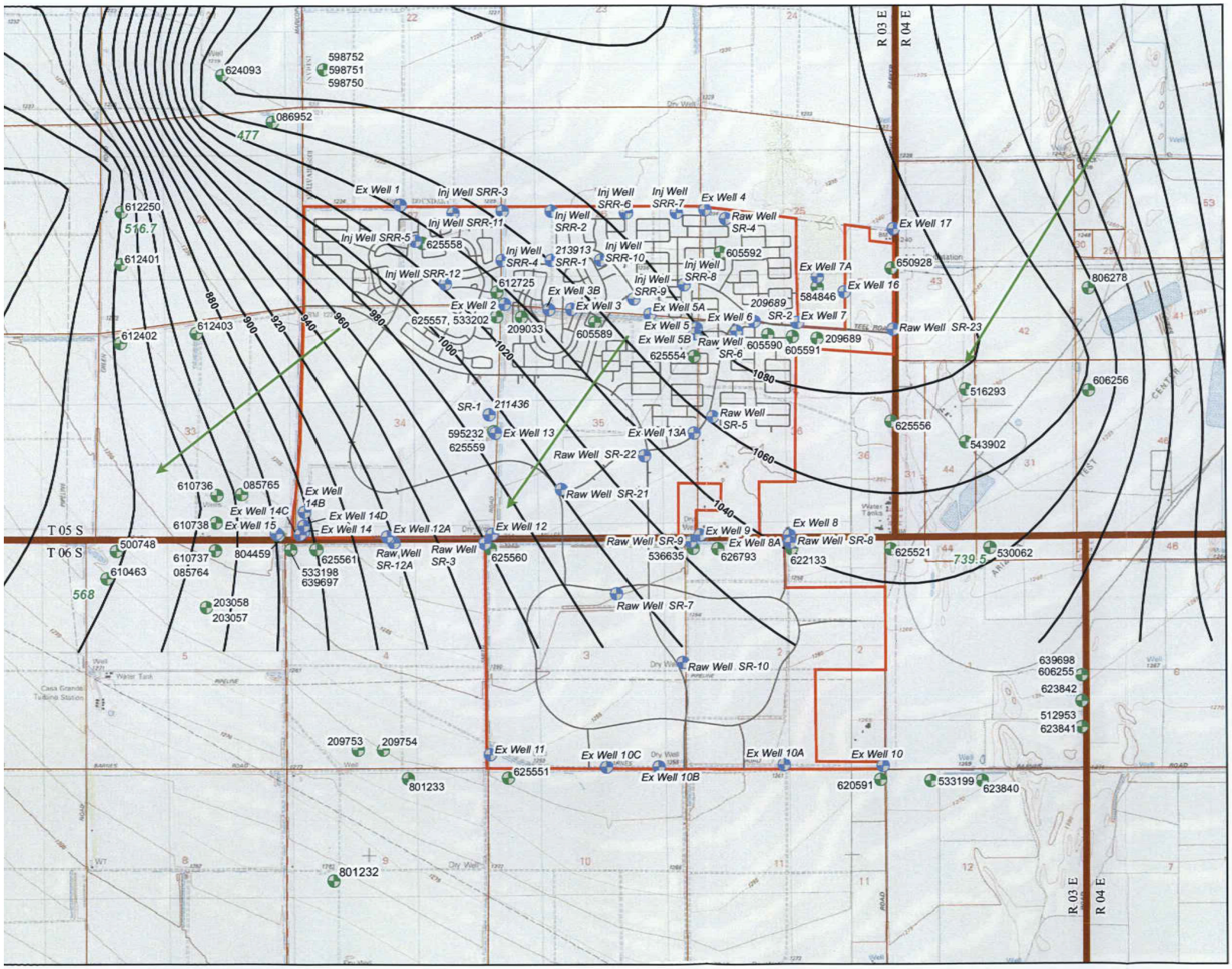


Figure 11 Groundwater Elevation Contour Map

Red River Development
Tousa Homes Pinal County, Arizona

LEGEND

Wells

- Arizona Department of Water Resources 55-Well
- HEC Engineering Existing (Ex), Proposed Injection (Inj), and Raw Wells
- Groundwater Elevation Contours (msl), Upper Aquifer Contour Interval = 20 feet
- Approximate Direction of Groundwater Flow
- Well used for Contouring, Elevation Relative to Mean Sea Level.

Planned Development Features

- Proposed Road

General Features

- Project Boundary
- Township and Range Line
- Section Line

Sources:
Base topographic data: (c)2002 National Geographic Holdings (www.topo.com)
Base Map Data: ALRIS 1997, 2005
Project Features & Wells: HEC Engineering 2006
55-Wells: Arizona Department of Water Resources 2006
Groundwater Elevation Contours: URS 2007

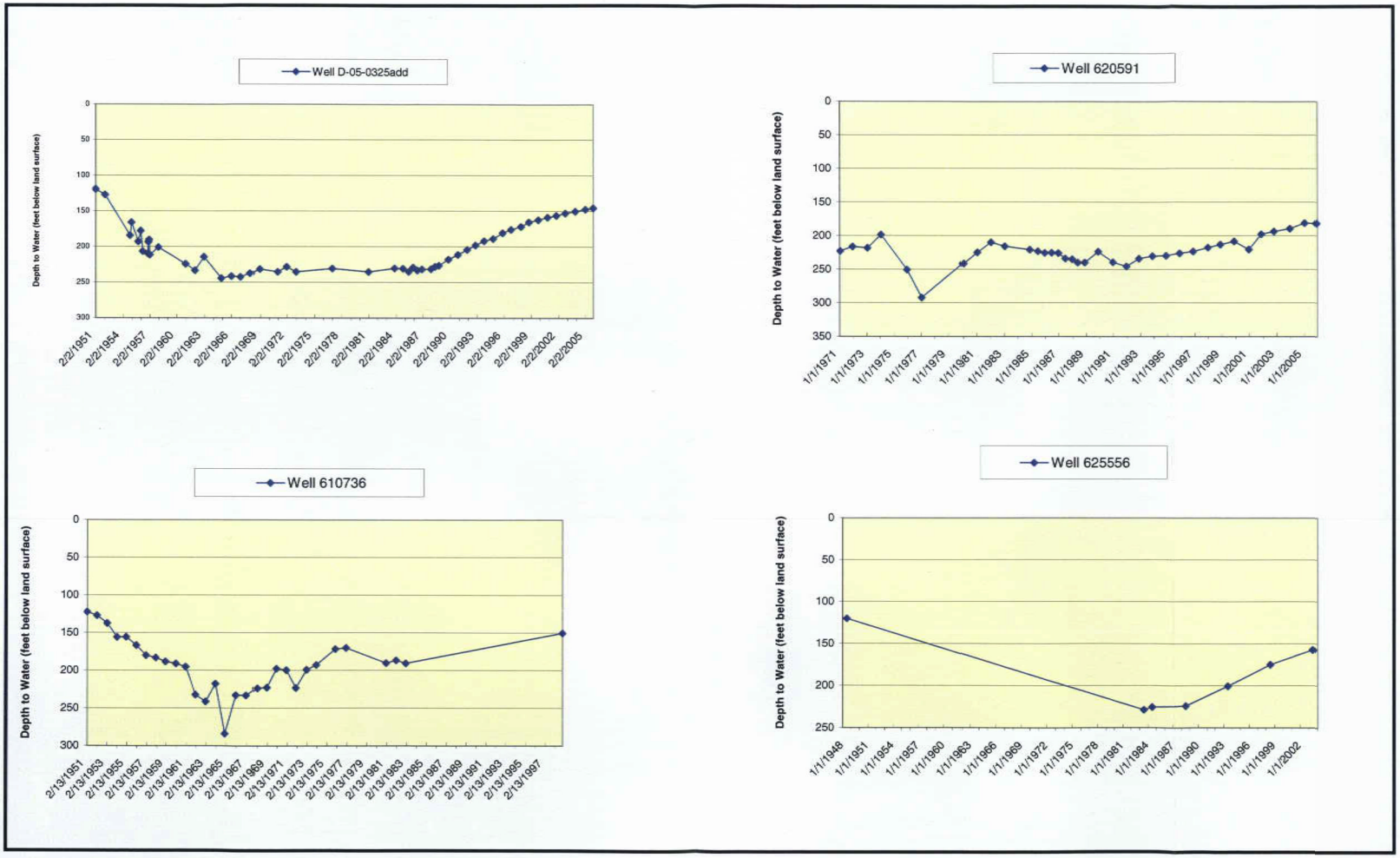
State Plane Arizona Central, NAD83, International Feet

N

0 0.125 0.25 0.5
Miles

URS

FIGURE 12
DEPTH TO WATER HYDROGRAPHS
WELL IMPACT ANALYSIS
RECHARGE WELL SRR-1
PINAL COUNTY, ARIZONA



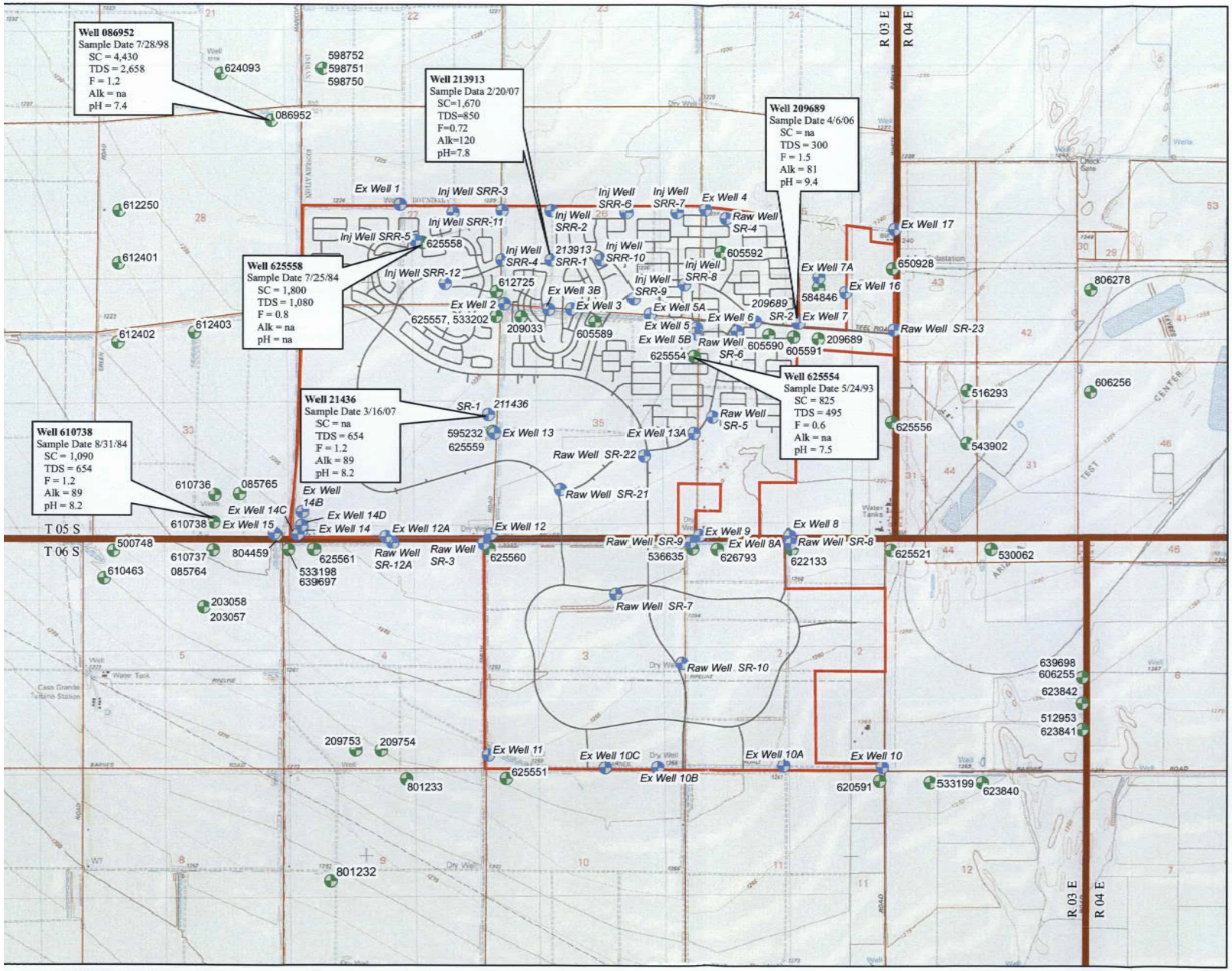


Figure 13
Groundwater Quality Map

Red River Development
Tousa Homes Pinal County, Arizona

LEGEND

Wells

- Arizona Department of Water Resources 55-Well
- HEC Engineering Existing (Ex), Proposed Injection (Inj), and Raw Wells

Water Quality Results

Well 625558
Sample Date 7/25/84
SC = 1,800
TDS = 1,080
F = 0.8
Alk = na
pH = na

Note:
Water quality data obtained from ADWR GWSI database dated June, 2006, unless otherwise indicated. Fluoride (F), total dissolved solids (TDS), and alkalinity (Alk) reported in milligrams per liter (mg/L). Specific Conductance Reported in micromhos per centimeter (uS/cm). pH is unitless. TDS calculated as 0.6 x electrical conductivity. Na = no data available.

Planned Development Features

- Proposed Road

General Features

- Project Boundary
- Township and Range Line
- Section Line

Sources:
Base topographic data: (c)2002 National Geographic Holdings (www.topo.com)
Base Map Data: ALRIS 1997, 2005
Project Features & Wells: HEC Engineering 2006
55-Wells: Arizona Department of Water Resources 2006

State Plane Arizona Central, NAD83, International Feet

N

0 0.125 0.25 0.5
Miles

URS

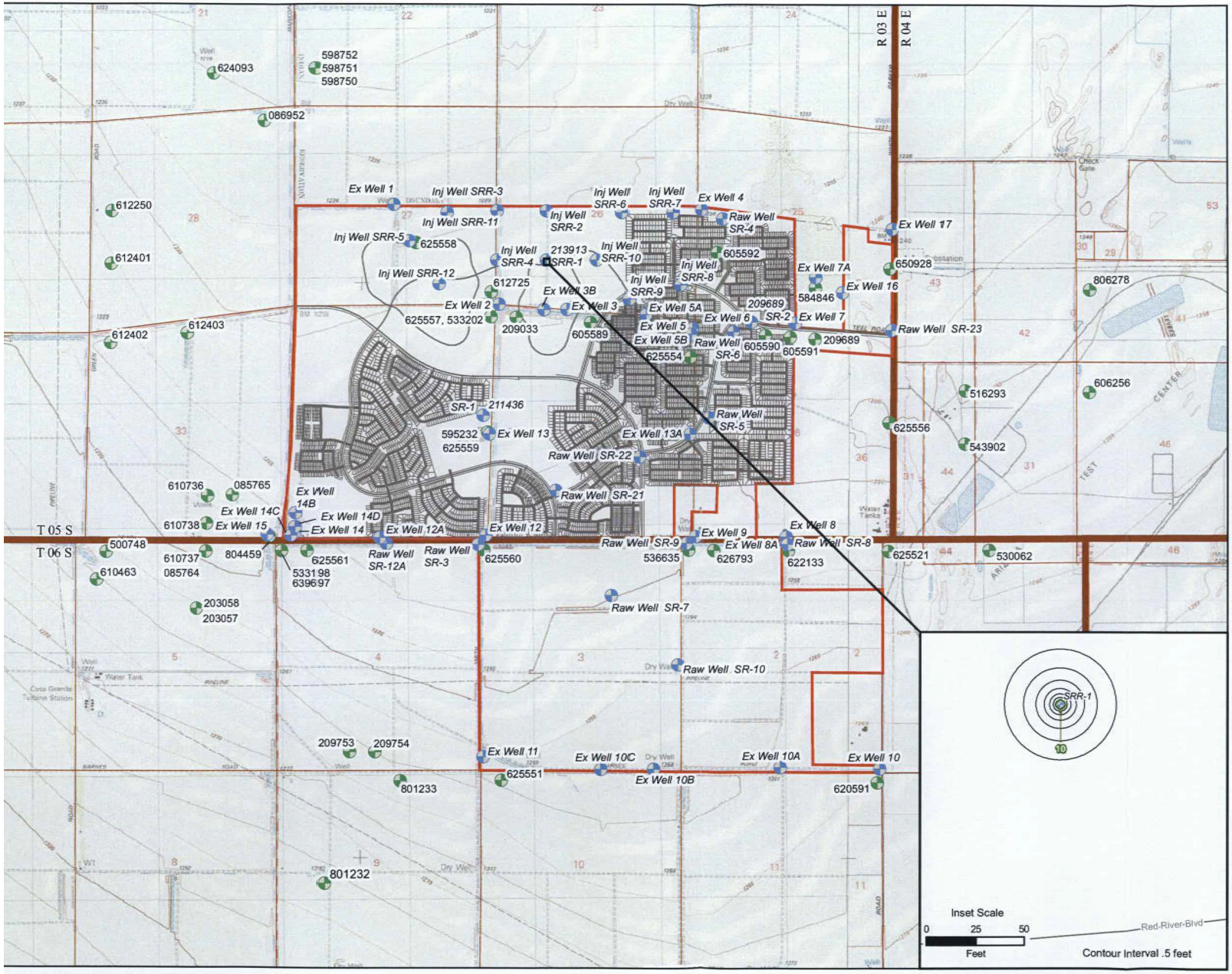


Figure 14
Drawdown Impact Map for 200 GPM Pumping Rate, Production Well SRR-1

Red River Development
Tousa Homes Pinal County, Arizona

LEGEND

Wells

- Arizona Department of Water Resources 55-Well
- HEC Engineering Existing (Ex), Proposed Injection (Inj), and Raw Wells
- Projected 10 foot 5-year Drawdown Contour

Planned Development Features

- Proposed Road

General Features

- Project Boundary
- Township and Range Line
- Section Line

Sources:
Base topographic data: (c)2002 National Geographic Holdings (www.topo.com)
Base Map Data: ALRIS 1997, 2005
Project Features & Wells: HEC Engineering 2006
55-Wells: Arizona Department of Water Resources 2006
Drawdown Contours: URS 2007

State Plane Arizona Central, NAD83, International Feet

N

0 0.125 0.25 0.5
Miles

URS

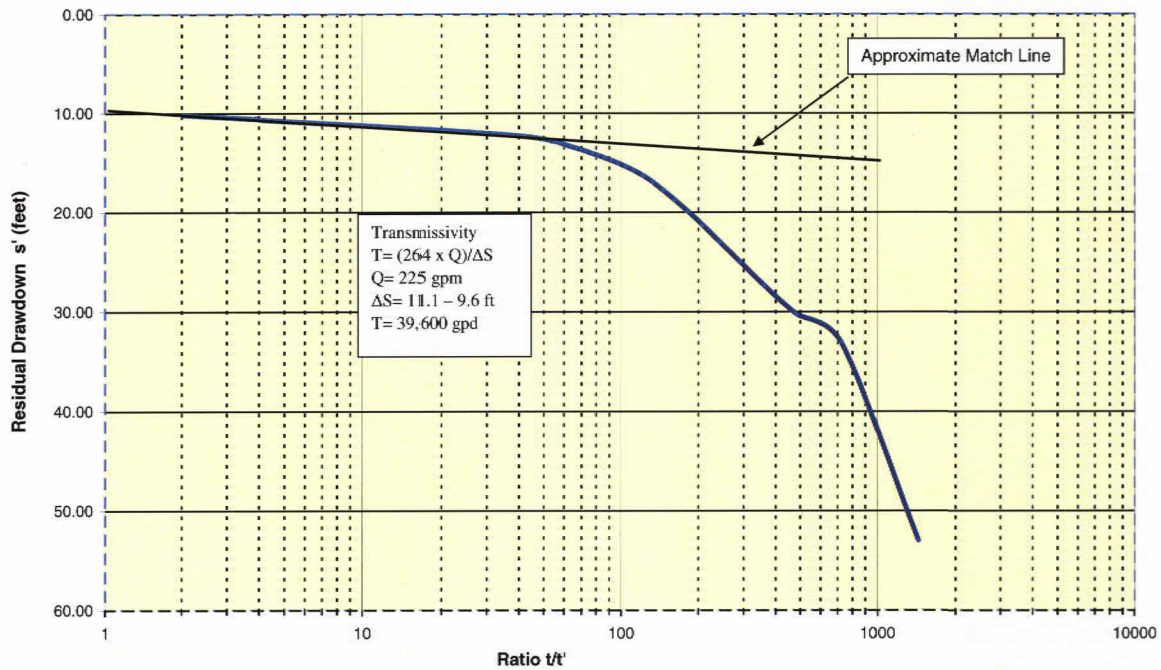


FIGURE 10
CONSTANT-RATE PUMPING TEST ANALYSIS
THEIS RECOVERY PLOT
Well SRR-1
TOUSA Homes

URS

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TABLES

TABLE 1
INVENTORY OF ADWR REGISTERED WELLS*
RED RIVER DEVELOPMENT,
PINAL COUNTY, ARIZONA

ADWR Well gistration No.	Township	Range	Section	Acre 160	Acre 40	Acre 10	UTM-X	UTM-Y	Well Type	Well Use	Water Use	Approved	Cancelled	Installed	Well Depth (feet bls)	Well Level (feet bls)	Casing Depth (feet bls)	Casing Diameter (inches)	Company	First Name	Last Name	City	State
624093	5 S	3 E	21	SE	NW	SW	401427.2	3648842.9	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1960	750	425	750	20			PRATT FAMILY TRUST,E C	MARICOPA	AZ
086952	5 S	3 E	21	SE	SE	SW	401830.9	3648459.5	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			6/10/1981	500	270	0	0			PRATT,E C	MARICOPA	AZ
638450	5 S	3 E	21	NW	NW	NW	400626.5	3649655.9	EXEMPT	WATER PRODUCTION	DOMESTIC				800	0	800	6			CLAYTON & SON,	STANFIELD	AZ
598751	5 S	3 E	22	SW	NW	SW	402237.8	3648881.8	MONITOR	MONITOR	MONITOIRING	5/29/2003			95	82	95	4		JIM	GARRETT	COOLIDGE	AZ
598750	5 S	3 E	22	SW	NW	SW	402237.8	3648881.8	MONITOR	MONITOR	MONITOIRING	5/29/2003			95	82	95	4		JIM	GARRETT	COOLIDGE	AZ
598752	5 S	3 E	22	SW	NW	SW	402237.8	3648881.8	MONITOR	MONITOR	MONITOIRING	5/29/2003			95	82	95	4		JIM	GARRETT	COOLIDGE	AZ
584846	5 S	3 E	25	SE	NW	SW	406209.4	3647085.6	EXEMPT	WATER PRODUCTION	DOMESTIC	12/27/2000		5/17/2001	500	420	400	6		JAMES P	DELAHUNT	MARICOPA	AZ
209689	5 S	3 E	25	SE	SW	SW	406203	3646672.8	WITHDRAWAL PERMIT	WATER PRODUCTION	TEST	11/1/2005		2/20/2006	1590	468	1580	19	McCLOUD INVESTORS, LLC			SCOTTSDALE	AZ
650928	5 S	3 E	25	SE	NE	NE	406806	3647231.7	EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1934	400	267	400	8			BANKS,F C	MARICOPA	AZ
605591	5 S	3 E	25	SW	SE	SE	406004.3	3646689.3	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1961	1000	248	1000	16	MCCLOUD INVESTORS BY MILL			SCOTTSDALE	AZ
605590	5 S	3 E	25	SW	SE	SW	405805.8	3646705.7	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1936	700	248	700	20	RANCHO SIERRA VISTA LLC			PHOENIX	AZ
605592	5 S	3 E	25	SW	NW	NW	405424.9	3647374.6	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1977	870	248	870	16	RANCHO SIERRA VISTA LLC			PHOENIX	AZ
904852	5 S	3 E	26				404539.8	3647531.7	GEOTECHNICAL		NONE	5/15/2006			0	0	0	0	TOUSA HOMES,INC.			PHOENIX	AZ
209033	5 S	3 E	26	SW	SW	SW	403819.9	3646864.8	CATHODIC	CATHODIC	NO WATER USE CODE LISTED	9/1/2005			0	0	0	0	SOUTHWEST GAS CORP			CASA GRANDE	AZ
605589	5 S	3 E	26	SW	SE	SE	404413.6	3646818.4	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1961	600	248	600	16	RANCHO SIERRA VISTA LLC			PHOENIX	AZ
904462	5 S	3 E	26				404539.8	3647531.7	GEOTECHNICAL		OTHER - MINERAL EXPLORE	3/16/2006			0	0	0	0	ENGLE HOMES			PHOENIX	AZ
625558	5 S	3 E	27	SE	NW	NW	403026.6	3647471.6	EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1963	611	0	0	0			LOEL/PARAGON ASSOC,	PHOENIX	AZ
612725	5 S	3 E	27	SE	SE	NE	403623.2	3647071.3	EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1940	400	320	400	12			DUNN FARMS,	MARICOPA	AZ
625557	5 S	3 E	27	SE	SE	SE	403620	3646872.4	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1955	600	0	0	0			RED RIVER/ELDORADO,	PHOENIX	AZ
533202	5 S	3 E	27	SE	SE	SE	403620	3646872.4	EXPLORATION	CATHODIC	NONE			11/19/1991	230	0	0	0			SW GAS CORP,	TUCSON	AZ
612401	5 S	3 E	28	SW	NW	NW	400587.1	3647319.4	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1955	1200	520	1200	20			MARICOPA RD ASSOC,	PHOENIX	AZ
612402	5 S	3 E	28	SW	SW	SW	400575.1	3646685	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1955	900	650	900	20			ELMORE, JACKSON,	MCLEAN	VA
612250	5 S	3 E	28	NW	SW	NW	400595.1	3647742.2	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1978	1200	520	1200	16			MARICOPA RD ASSOC.,	PHOENIX	AZ
612403	5 S	3 E	28	SW	SE	SE	401193.7	3646759.8	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1957	900	600	900	18			ELMORE, JACKSON,	MCLEAN	VA
639697	5 S	3 E	33	SE	SE	SE	401936.8	3645006	EXEMPT	WATER PRODUCTION	DOMESTIC				0	0	0	0			TROMBLEY,E	MARICOPA	AZ
500748	5 S	3 E	33	SW	SW	SW	400526.9	3645005.7	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		Y		1200	0	0	0			RED MOUNTAIN FARMS,	PHOENIX	AZ
610736	5 S	3 E	33	SE	NW	SW	401346.7	3645452.1	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1953	520	450	600	12			ANGLIN,D	CHANDLER	AZ
085765	5 S	3 E	33	SE	NW	SE	401549.5	3645458.7	NON-EXEMPT	WATER PRODUCTION	IRRIGATION		Y		0	0	0	0		HAROLD	KUIPER	CHANDLER	AZ
610738	5 S	3 E	33	SE	SW	NW	401338.6	3645228.9	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1968	700	450	0	12			ANGLIN,D R	CHANDLER	AZ
085764	5 S	3 E	33	SE	SW	SW	401330.4	3645005.9	EXEMPT	WATER PRODUCTION	INDUSTRIAL		Y		0	0	0	0			KUIPER,H	CHANDLER	AZ
610737	5 S	3 E	33	SE	SW	SW	401330.4	3645005.9	EXEMPT	WATER PRODUCTION	STOCK			1/1/1947	500	250	500	12			ANGLIN,D	CHANDLER	AZ
604459	5 S	3 E	33	SE	SE		401841.6	3645121.7	EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1952	300	120	300	6			POOR, NANCY & ARTHUR,	MARICOPA	AZ
533198	5 S	3 E	33	SE	SE	SE	401936.8	3645006	EXPLORATION	CATHODIC	NONE			11/14/1991	230	0	0	0			SW GAS CORP,	TUCSON	AZ
625560	5 S	3 E	34	SE	SE	SE	403545.4	3645000.3	NON-EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1955	1200	0	0	0			RED RIVER/ELDORADO,	PHOENIX	AZ
625561	5 S	3 E	34	SW	SW	SW	402140	3645005.9	NON-EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1955	1524	0	0	0			RED RIVER/ELDORADO,	PHOENIX	AZ
211436	5 S	3 E	34	NE	SE	SE	403584.6	3645945.7	NON-EXEMPT	WATER PRODUCTION	TEST	4/10/2006			0	0	0	0	ENGLE/RED RIVER, LLC.			PHOENIX	AZ
625559	5 S	3 E	34	NE	SE	SE	403584.6	3645945.7	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1956	596	0	0	0	ENGLE/RED RIVER, LLC.			PHOENIX	AZ
595232	5 S	3 E	34	NE	SE	SE	403584.6	3645945.7	WITHDRAWAL PERMIT	WATER PRODUCTION	TEST	1/29/2003	Y		0	0	0	0	SANTA ROSA WATER COMPANY			SUN LAKES	AZ
625554	5 S	3 E	35	NE	NE	NE	405200.5	3646538.3	NON-EXEMPT	WATER PRODUCTION	IRRIGATION				0	0	0	0			RED RIVER/ELDORADO,	PHOENIX	AZ
536835	5 S	3 E	35	SE	SE	SE	405176.4	3644985.9	EXPLORATION	CATHODIC	NONE			9/30/1992	230	73	0	0			SW GAS CORP,	TUCSON	AZ
625521	5 S	3 E	36	SE	SE	SE	406774.3	3644966.5	NON-EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1951	850	232	0	20			JOHNSON SR,L	STANFIELD	AZ
625556	5 S	3 E	36	NE	SE	NE	406788	3645999.5	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1948	450	0	0	0			GREER-FARNSWORTH PRT,	PHOENIX	AZ
626793	5 S	3 E	36	SW	SW	SW	405375.8	3644983.6	NON-EXEMPT	WATER PRODUCTION	DOMESTIC				0	0	0	0			ANDERSON-CLAYTON CO,	PHOENIX	AZ
622133	5 S	3 E	36	SW	SE	SE	405975.5	3644976.9	EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1950	900	200	900	20			SMITH, MARK,D	STANFIELD	AZ
606256	5 S	4 E	31	NE	NE	SE	408376.7	3646232.1	NON-EXEMPT	WATER PRODUCTION	IRRIGATION				1000	0	1000	20	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
543902	5 S	4 E	31	NW	SE	SW	407380.7	3645824.5	DOMESTIC STOCK EXEMPT	WATER PRODUCTION	OTHER - PRODUCTION			8/3/1994	1005	380	1005	0	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
211079	5 S	4 E	31	NW	SE	SW	407380.7	3645824.5	EXEMPT	WATER PRODUCTION	DOMESTIC	2/21/2006			1002	484	1002	6	NISSAN TECHNICAL CENTER N			STANFIELD	AZ
530062	5 S	4 E	31	SW	SE	SE	407566.6	3644967.9	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			2/12/1991	1100	480	1100	20	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
806277	5 S	4 E	31	SE	SE	SE	408358.2	3644965.1	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			12/31/1979	0	0	0	20	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
516293	5 S	4 E	31	NW	NE	SW	407386.7	3646252.3	EXEMPT	WATER PRODUCTION	DOMESTIC			1/19/1987	1063	512	1060	12	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
623840	6 S	3 E	1	SW	SE	SE	407479.3	3643085.4	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1945	540	200	540	16	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
623841	6 S	3 E	1	SE	NE	SE	408291.6	3643506	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1963	1200	400	1200	20	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
623842	6 S	3 E	1	SE	NE	NE	408293.1	3643717.2	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1980	1200	400	1200	20	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
533199	6 S	3 E	1	SW	SW	SE	407074.5	3643086.3	EXPLORATION	CATHODIC	NONE			11/13/1991	230	0	0	0			SW GAS CORP,	TUCSON	AZ
606255	6 S	3 E	1	NE	SE	SE	408294.5	3643928.4	NON-EXEMPT	WATER PRODUCTION	IRRIGATION				1200	660	1200	20	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
639698	6 S	3 E	1	NE	SE	SE	408294.5	3643928.4	EXEMPT	WATER PRODUCTION	DOMESTIC				600	500	600	12	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
512953	6 S	3 E	1	SE	NE	SE	408291.6	3643506	NON-SERVICE	WATER PRODUCTION	NONE		Y		0	0	0	0	NISSAN TECHNICAL CENTER N			FARMINGTON HILLS	MI
620591	6 S	3 E	2	SE	SE	SE	406669.2	3643100.2	NON-EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1954	1130	0	0	0			NOWLIN,D C	STANFIELD	AZ
625551	6 S	3 E	3	SW	SW	SW	403671.4	3643140.3	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			6/23/1960	1295	0	1295	20			RED RIVER/ELDORADO,	PHOENIX	AZ

TABLE 1
INVENTORY OF ADWR REGISTERED WELLS*
RED RIVER DEVELOPMENT,
PINAL COUNTY, ARIZONA

DWR Well Registration No.	Township	Range	Section	Acre 160	Acre 40	Acre 10	UTM-X	UTM-Y	Well Type	Well Use	Water Use	Approved	Cancelled	Installed	Well Depth (feet bls)	Well Level (feet bls)	Casing Depth (feet bls)	Casing Diameter (inches)	Company	First Name	Last Name	City	State
209754	6 S	3 E	4	SW	SE	NE	402661.1	3643377.3	EXEMPT	WATER PRODUCTION	DOMESTIC	10/21/2005		11/25/2005	900	620	900	5	REDFIELD FINANCIAL #7			SCOTTSDALE	AZ
209753	6 S	3 E	4	SW	SE	NW	402458.5	3643378.1	EXEMPT	WATER PRODUCTION	DOMESTIC	10/21/2005		11/21/2005	820	395	820	5	REDFIELD FINANCIAL #6			SCOTTSDALE	AZ
801233	6 S	3 E	4	SE	SW	SW	402863	3643144.3	NON-EXEMPT	WATER PRODUCTION	IRRIGATION				900	680	900	20			DOBSON REVOCABLE TRUS	MESA	AZ
610462	6 S	3 E	5	NW	SW	SW	400445.8	3644089.2	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1945	900	500	900	20			PASADENA COLLEGE,	SAN DIEGO	CA
539959	6 S	3 E	5	SW	SW	NW	400439.9	3643393.3	EXPLORATION	CATHODIC	NONE			9/16/1993	460	0	460	8			EL PASO NATURAL GAS,	EL PASO	TX
611565	6 S	3 E	5	SW	NW	NW	400443.8	3643857.2	NON-EXEMPT	WATER PRODUCTION	INDUSTRIIAL			1/2/1959	1020	675	845	9			EL PASO NATURAL GAS,	EL PASO	TX
203058	6 S	3 E	5	NE	NW	SW	401252.6	3644546.7	CATHODIC	CATHODIC	NONE	4/9/2004			250	0	100	8	EL PASO NATURAL GAS CO			TUCSON	AZ
203057	6 S	3 E	5	NE	NW	SW	401252.6	3644546.7	CATHODIC	CATHODIC	NONE	4/9/2004			250	0	100	8	EL PASO NATURAL GAS CO			TUCSON	AZ
611566	6 S	3 E	5	SW	NW	NW	400443.8	3643857.2	NON-EXEMPT	WATER PRODUCTION	INDUSTRIIAL			12/22/1978	1026	659	1026	13			EL PASO NATURAL GAS,	EL PASO	TX
610463	6 S	3 E	5	NW	NW	NW	400451.7	3644785.3	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1977	1175	450	1175	20			MILLER BARNES LTD PT,	PHOENIX	AZ
801232	6 S	3 E	9	NW	SW	SE	402248.9	3642325.3	NON-EXEMPT	WATER PRODUCTION	IRRIGATION				900	600	900	20			ALI ADVISER INC ETAL,	PHOENIX	AZ
801230	6 S	3 E	9	SW	SW	SW	402039.5	3641520.7	NON-EXEMPT	WATER PRODUCTION	IRRIGATION				900	400	900	20			ALI ADVISOR INC ETAL,	PHOENIX	AZ
801231	6 S	3 E	9	SE	SW	SW	402848	3641514.5	NON-EXEMPT	WATER PRODUCTION	IRRIGATION				900	600	900	20			ALI ADVISOR INC ETAL,	PHOENIX	AZ
625531	6 S	3 E	10	SW	SW	SW	403657	3641507.6	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1956	1122	0	1122	22	TIM-T LLC			MARICOPA	AZ
625555	6 S	3 E	10	SW	SW	SW	403657	3641507.6	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1953	700	0	0	0	TIM-T LLC			MARICOPA	AZ
605531	6 S	3 E	11	SE	SE	SE	406664.8	3641481.6	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1940	1500	700	1500	20			KORTSEN, JAMES JR.	STANFIELD	AZ
605533	6 S	3 E	11	SE	SE	SE	406664.8	3641481.6	EXEMPT	WATER PRODUCTION	DOMESTIC				450	0	450	20			J.D. PROPERTIES LTD,	PHOENIX	AZ
605532	6 S	3 E	11	SW	SE	SE	405860.7	3641486	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1951	1300	700	1300	20			KORTSEN, JAMES JR.	STANFIELD	AZ
504950	6 S	4 E	12	NE	SE	SE	417880.8	3642186.3	EXEMPT	OBSERVATION	MONITORIING	3/11/1983	Y	4/12/1983	775	0	25	6			CIMARRON RANCH,	PHOENIX	AZ
609693	6 S	4 E	12	NW	SW	SW	416477.2	3642201.2	NON-EXEMPT	WATER PRODUCTION	DOMESTIC			1/1/1951	883	580	883	20	MILLETT FARMS LLC			MESA	AZ
609663	6 S	4 E	12	NW	SW	SW	416477.2	3642201.2	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1976	950	580	950	20	MILLETT FARMS LLC			MESA	AZ
609662	6 S	4 E	12	NW	NW	NE	416682.1	3642802.3	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			6/12/1976	1033	580	1030	18	MILLETT FARMS LLC			MESA	AZ
518826	6 S	4 E	12	NE	SE	SE	417880.8	3642186.3	EXPLORATION	MINERAL EXPLORATION	NONE			8/31/1987	20	0	0	0			CASA GRANDE COPPER,	CARSON CITY	NV
503527	6 S	4 E	12	NE	SE	SE	417880.8	3642186.3	EXEMPT	OBSERVATION	MONITORIING	7/19/1982	Y	7/14/1982	755	0	20	3			CIMARRON RANCH,	PHOENIX	AZ
087224	6 S	4 E	12	NE	SE	SE	417880.8	3642186.3	MINERAL EXPLORATION	ABANDONED	MONITORIING	3/11/1983	Y	1/1/1981	775	120	25	6	SANTA CRUZ JOINT VENTURE			TUCSON	AZ
532040	6 S	4 E	12	NE	SW	SW	417278.5	3642192.7	EXPLORATION	MINERAL EXPLORATION	NONE		Y	6/30/1991	0	0	0	0			SANTA CRUZ JOINT VNT,	TUCSON	AZ
528346	6 S	4 E	12	NE	SW	SW	417278.5	3642192.7	EXPLORATION	ABANDONED	NONE		Y	6/30/1990	175	0	0	5			SANTA CRUZ JOINT VNT,	TUCSON	AZ
481821	6 S	4 E	12				417178.4	3642094.6	MINERAL EXPLORATION	ABANDONED	OTHER - MINERAL EXPLORE	9/9/2004	Y		0	0	0	0	SANTA CRUZ JOINT VENTURE			TUCSON	AZ
609665	6 S	4 E	12	NW	SW	SE	416677	3642199.1	NON-EXEMPT	WATER PRODUCTION	IRRIGATION			1/1/1947	850	580	850	20	MILLETT FARMS LLC			MESA	AZ
535704	6 S	4 E	12	NE	SW	SW	417278.5	3642192.7	EXPLORATION	MINERAL EXPLORATION	NONE			7/17/1992	0	0	0	0			SANTA CRUZ JOINT VNT,	TUCSON	AZ

Notes:

*Source: ADWR Wells 55 Database, January 2007

- denotes piezometers, geotechnical borings, monitor wells, hydrologic test well, and abandoned or canceled wells that are not considered "wells of record" for well impact analyses.

TABLE 2
GROUNDWATER ELEVATION SUMMARY DATA FOR THE UPPER AQUIFER
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Registartion Number	UTM EAST	UTM NORTH	MEASUREMENT DATE	WATER LEVEL ELEVATION (feet amsl)	DEPTH TO WATER (feet bgs)	WELL USE	WATER USE
612532	404504.388	3651590.598	01-Dec-03	1088.2	124.8	PRODUCTION	IRRIGATION
612531	405334.82	3651582.563	01-Dec-03	1086.2	127.8	PRODUCTION	IRRIGATION
623824	406916.954	3651475.054	05-Dec-03	1086.7	133.3	PRODUCTION	IRRIGATION
	406007.778	3651391.313	06-Nov-98	1079	142	PRODUCTION	IRRIGATION
615359	400595.53	3650027.824	04-Dec-03	1088.2	127.8	PRODUCTION	DOMESTIC
615361	400595.219	3649997.028	04-Dec-03	782.8	434.2	PRODUCTION	IRRIGATION
615360	401348.236	3650020.243	04-Dec-03	1066.6	145.4	PRODUCTION	IRRIGATION
615362	401972.086	3650106.399	09-Nov-98	1071.3	138.7	PRODUCTION	DOMESTIC
624093	401361.837	3648788.16	09-Nov-98	1067.2	152.8	PRODUCTION	IRRIGATION
086952	401358.131	3648418.613	09-Nov-98	1070	152	PRODUCTION	IRRIGATION
612250	400547.78	3647872.396	11-Dec-03	768.1	464.9	PRODUCTION	IRRIGATION
625623	398882.471	3647519.783	05-Dec-03	760.4	496.6	PRODUCTION	IRRIGATION
610738	401274.093	3645216.406	05-Nov-01	818.4	426.6	PRODUCTION	IRRIGATION
605590	405754.438	3646620.02	05-Dec-03	1092.9	147.1	PRODUCTION	IRRIGATION
623828	408396.17	3651461.154	18-Nov-98	1001	229.1	PRODUCTION	IRRIGATION
605058	409383.732	3651605.988	11-Nov-98	871.1	358.9	PRODUCTION	IRRIGATION
606256	408295.757	3646257.24	19-Nov-98	1073.3	176.7	PRODUCTION	IRRIGATION
622159	409977.841	3645625.762	20-Nov-03	930.5	331.5	PRODUCTION	IRRIGATION
623836	411618.701	3646165.252	18-Nov-03	791	473	PRODUCTION	IRRIGATION
623837	410936.927	3645432.255	18-Nov-03	783.8	482.2	PRODUCTION	IRRIGATION
612722	412948.357	3646769.352	09-Dec-03	794.6	471.4	PRODUCTION	IRRIGATION
606251	413079.677	3643996.433	19-Nov-03	1080.5	189.5	PRODUCTION	IRRIGATION

Notes:

*Source: ADWR Wells 55 Database, January 2007

bgs - below ground surface

amsl - above mean sea level

TABLE 3
GWSI WATER LEVELS
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Well Registry ID	Cadastral Location	UTM East	UTM North	Well Altitude (ft-amsl)	Measurement Date	Depth to Water (ft bls)	Water Level Elevation (ft amsl)	Well Depth
	D-05-02 36DCC	406153.721	3644922.314	1255	6/1/1960	220	1035	544
	D-05-03 21DCC1	401383.473	3648356.762	1222	2/1/1953	112	1110	343
	D-05-03 21DCC1	401383.473	3648356.762	1222	1/30/1963	174.1	1048	343
	D-05-03 21DCC1	401383.473	3648356.762	1222	11/9/1998	143.6	1078	343
	D-05-03 23DDD	405303.978	3648379.838	1230	4/1/1956	198	1032	1206
	D-05-03 23DDD	405303.978	3648379.838	1230	4/1/1956	198	1032	1206
	D-05-03 25ADD	406903.848	3647348.233	1240	2/2/1951	119	1121	550
	D-05-03 25ADD	406903.848	3647348.233	1240	2/2/1951	119.45	1120.55	550
	D-05-03 25ADD	406903.848	3647348.233	1240	2/7/1952	127.1	1112.9	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/17/1954	184.1	1055.9	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/17/1955	165.02	1074.98	550
	D-05-03 25ADD	406903.848	3647348.233	1240	10/11/1955	192.61	1047.39	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/19/1956	177.34	1062.66	550
	D-05-03 25ADD	406903.848	3647348.233	1240	4/10/1956	206.18	1033.82	550
	D-05-03 25ADD	406903.848	3647348.233	1240	10/31/1956	209.4	1030.6	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/29/1956	193.1	1046.9	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/29/1956	190.02	1049.98	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/17/1957	211.26	1028.74	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/15/1958	209.47	1030.53	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/11/1961	223.87	1016.13	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/24/1962	233.15	1006.85	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/22/1963	214.05	1025.95	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/11/1964	241.96	998.04	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/19/1966	241.2	998.8	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/19/1967	242.28	997.72	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/30/1968	237	1003	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/24/1969	231.3	1008.7	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/7/1971	234.8	1005.2	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/28/1971	228	1012	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/15/1973	235	1005	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/14/1977	230.3	1009.7	550
	D-05-03 25ADD	406903.848	3647348.233	1240	1/14/1981	234.9	1005.1	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/5/1983	230	1010	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/6/1984	230.2	1009.8	550
	D-05-03 25ADD	406903.848	3647348.233	1240	6/21/1985	234.6	1005.4	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/17/1985	228.6	1011.4	550
	D-05-03 25ADD	406903.848	3647348.233	1240	6/11/1986	232.9	1007.1	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/11/1986	231.3	1008.7	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/15/1987	230.9	1009.1	550
	D-05-03 25ADD	406903.848	3647348.233	1240	5/31/1988	227.6	1012.4	550
	D-05-03 25ADD	406903.848	3647348.233	1240	10/31/1988	226.1	1013.9	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/2/1989	217.5	1022.5	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/10/1990	210.9	1029.1	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/17/1991	203.8	1036.2	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/29/1992	197.6	1042.4	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/10/1993	191.6	1048.4	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/8/1994	188.3	1051.7	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/7/1995	180.2	1059.8	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/5/1996	175.7	1064.3	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/10/1997	171.4	1068.6	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/2/1998	165.2	1074.8	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/8/1999	162	1078	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/20/2000	158.3	1081.7	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/9/2001	156	1084	550
	D-05-03 25ADD	406903.848	3647348.233	1240	10/29/2002	152.5	1087.5	550
	D-05-03 25ADD	406903.848	3647348.233	1240	12/15/2003	150.1	1089.9	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/2/2004	147	1093	550
	D-05-03 25ADD	406903.848	3647348.233	1240	11/23/2005	145.4	1094.6	550
	D-05-03 28CDD	401211.64	3646756.959	1240	1/13/1977	170.4	1069.6	720
	D-05-03 28CDD	401211.64	3646756.959	1240	1/13/1977	170.4	1069.6	720
	D-05-03S28BBB1	400508.744	3646579.247	1240	6/1/1948	95	1145	600
	D-05-03S28BBB1	400508.744	3646579.247	1240	11/13/1984	197.2	1042.8	600
	D-05-03S28BBB1	400508.744	3646579.247	1240	11/2/1988	189.6	1050.4	600
	D-05-03S28BBB1	400508.744	3646579.247	1240	11/3/1993			600
	D-05-03 35DAA	405278.197	3645700.647	1243	11/15/1984	224.7	1018.3	560
	D-05-03 35DAA	405278.197	3645700.647	1243	12/5/1946	105	1138	560
	D-05-03 35DAA	405278.197	3645700.647	1243	11/5/1998	175.4	1067.6	560
	D-05-03 35DAA	405278.197	3645700.647	1243	10/31/1988	223.5	1019.5	560

TABLE 3
GWSI WATER LEVELS
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Well Registry ID	Cadastral Location	UTM East	UTM North	Well Altitude (ft-amsl)	Measurement Date	Depth to Water (ft bls)	Water Level Elevation (ft amsl)	Well Depth
	D-05-03S35AAA	405244.526	3644900.221	1248	1/18/1967	220.21	1027.79	1480
	D-05-03S35AAA	405244.526	3644900.221	1248	1/18/1967	220.21	1027.79	1480
	D-05-03S35AAA	405244.526	3644900.221	1248	1/18/1967	220.21	1027.79	1480
	D-05-03S35AAA	405244.526	3644900.221	1248	11/15/1984	230.7	1017.3	1480
	D-05-03S35AAA	405244.526	3644900.221	1248	11/15/1984	230.7	1017.3	1480
	D-05-03S35AAA	405244.526	3644900.221	1246	11/15/1984	230.7	1017.3	1480
	D-05-03S35AAA	405244.526	3644900.221	1248	11/2/1988	233.9	1014.1	1480
	D-05-03S35AAA	405244.526	3644900.221	1248	11/2/1988	233.9	1014.1	1480
	D-05-03S35AAA	405244.526	3644900.221	1248	11/2/1988	233.9	1014.1	1480
	D-05-03 36CDD	405946.561	3644985.886	1260	8/2/1951	151	1109	1212
	D-05-03 36CDD	405946.561	3644985.886	1260	8/2/1951	151	1109	1212
	D-06-03S01CDD	407537.815	3642968.963	1269	7/10/1945	120	1149	300
	D-06-03S01CDD	407537.815	3642968.963	1269	2/2/1951	150.4	1119	300
	D-06-03S01CDD	407537.815	3642968.963	1269	1/18/1955	167.05	1082	300
	D-06-03S01CDD	407537.815	3642968.963	1269	1/20/1983	210.6	1058	300
	D-06-03S01CDD	407537.815	3642968.963	1269	11/6/1984	216.1	1053	300
	D-06-03S01CDD	407537.815	3642968.963	1269	11/9/1988	223.5	1046	300
	D-06-03S01CDD	407537.815	3642968.963	1269	8/16/1989	247.3	1022	300
	D-06-03S01CDD	407537.815	3642968.963	1269	11/11/1993	218.3	1051	300
	D-06-03S01CDD	407537.815	3642968.963	1269	11/19/1998	197	1072	300
	D-06-03S01CDD	407537.815	3642968.963	1269	11/18/2003	192.2	1076.8	300
	D-06-03 02DAD	406686.226	3643562.148	1269	3/1/1949	139.02	1129.96	610
	D-06-03 03DAA	405129.976	3643792.594	1260	2/18/1951	130	1130	1203
	D-06-03 03DAA	405129.976	3643792.594	1260	2/18/1951	130	1130	1203
	D-06-03 03ADD	405058.59	3644470.839	1260	5/23/1953	167	1093	910
	D-06-03 04BCC	401989.555	3644038.921	1265	7/21/1944	117.05	1147.95	540
	D-06-03 05CB	400351.504	3643870.562	1290	12/1/1951	159	1131	541
	D-06-03 05CBA	400559.277	3643868.462	1269	12/1/1951	157	1112	556
	D-06-03 05CBC	400555.859	3643529.713	1275	12/5/1961	390	885	1025
	D-06-03 09BBB	401978.834	3642961.086	1271	4/6/1984	181.8	1089	547
	D-06-03 09BBB	401978.834	3642961.086	1271	11/16/1984	181.1	1090	547
	D-06-03 09BBB	401978.834	3642961.086	1271	11/3/1988			547
	D-06-03 09BAB	402368.748	3642988.014	1266	11/9/1988	618.2	647.8	770
	D-06-03 09BAB	402368.748	3642988.014	1266	11/9/1988	618.2	647.8	770
	D-06-03 09BAB	402368.748	3642988.014	1266	11/4/1993	588.3	677.7	770
	D-06-03 09BAB	402368.748	3642988.014	1266	11/4/1993	588.3	677.7	770
086952	D-05-03 21DCC2	401358.131	3648418.613	1222	1/18/1983	207.9	1014.1	500
086952	D-05-03 21DCC2	401358.131	3648418.613	1222	11/12/1984	211.8	1010.2	500
086952	D-05-03 21DCC2	401358.131	3648418.613	1222	11/2/1988	209.6	1012.4	500
086952	D-05-03 21DCC2	401358.131	3648418.613	1222	11/10/1993	179.2	1042.8	500
086952	D-05-03 21DCC2	401358.131	3648418.613	1222	7/28/1998	477.8	744.2	500
086952	D-05-03 21DCC2	401358.131	3648418.613	1222	11/9/1998	152	1070	500
530062	D-05-04 31CDD	407504.662	3644971.13	1256	11/11/1993	545.6	710.4	1100
530062	D-05-04 31CDD	407504.662	3644971.13	1256	11/19/1998	516.5	739.5	1100
605590	D-05-03 25CDC	405781.581	3646742.952	1240	3/1/1950	121	1119	700
605590	D-05-03S25BAB	405754.438	3646620.02	1240	3/8/1950	121	1119	700
605590	D-05-03S25BAB	405754.438	3646620.02	1240	1/30/1963	224.6	1015.4	700
605590	D-05-03S25BAB	405754.438	3646620.02	1240	11/15/1984	227.2	1012.8	700
605590	D-05-03S25BAB	405754.438	3646620.02	1240	11/1/1993	196.8	1043.2	700
605590	D-05-03S25BAB	405754.438	3646620.02	1240	11/6/1998	168.7	1071.3	700
605590	D-05-03S25BAB	405754.438	3646620.02	1240	12/5/2003	147.1	1092.9	700
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	1/12/1977	224.4	1025.6	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	1/12/1977	224.4	1025.6	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	1/20/1983	223.5	1026.5	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	1/20/1983	223.5	1026.5	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/6/1984	222	1028	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/6/1984	222	1028	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/9/1988	223.1	1026.9	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/9/1988	223.1	1026.9	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	8/16/1989	236.6	1013.4	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	8/16/1989	236.6	1013.4	550

TABLE 3
GWSI WATER LEVELS
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Well Registry ID	Cadastral Location	UTM East	UTM North	Well Altitude (ft-amsl)	Measurement Date	Depth to Water (ft bls)	Water Level Elevation (ft amsl)	Well Depth
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/11/1993	200.7	1049.3	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/11/1993	200.7	1049.3	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/19/1998	176.7	1073.3	550
606256	D-05-04 30DDD2UNSURV	408295.757	3646257.24	1250	11/19/1998	176.7	1073.3	550
610460	D-06-03 06DDD	400343.096	3643039.087	1285	1/28/1963	427.6	857.4	530
610462	D-06-03 05BCC	400403.136	3643839.241	1271	10/21/1950	180	1091	650
610463	D-06-03N05CCC	400412.165	3644732.307	1261	6/1/1993	656.7	604.3	1175
610463	D-06-03N05CCC	400412.165	3644732.307	1261	11/2/1998	568.4	692.6	1175
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/13/1951	122.3	1122.7	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/13/1951	122.3	1122.7	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/13/1951	122.3	1122.7	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/20/1951	122.3	1122.7	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/7/1952	126.94	1118.06	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/7/1952	126.94	1118.06	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/7/1952	126.94	1118.06	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/7/1952	126.94	1118.06	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/19/1953	137.23	1107.77	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/19/1953	137.23	1107.77	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/19/1953	137.23	1107.77	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/19/1953	137.23	1107.77	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/18/1954	155.7	1089.3	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/18/1954	155.7	1089.3	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/18/1954	155.7	1089.3	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/18/1954	155.7	1089.3	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1955	155.35	1089.65	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1955	155.35	1089.65	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1955	155.35	1089.65	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1955	155.35	1089.65	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/27/1956	166.5	1078.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/27/1956	166.5	1078.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/27/1956	166.5	1078.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/27/1956	166.5	1078.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1957	179.66	1065.34	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1957	179.66	1065.34	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1957	179.66	1065.34	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/17/1957	179.66	1065.34	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1958	183.04	1061.96	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1958	183.04	1061.96	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1958	183.04	1061.96	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1958	183.04	1061.96	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/13/1959	188.07	1056.93	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/13/1959	188.07	1056.93	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/13/1959	188.07	1056.93	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/13/1959	188.07	1056.93	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/26/1960	190.8	1054.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/26/1960	190.8	1054.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/26/1960	190.8	1054.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/26/1960	190.8	1054.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/11/1961	194.96	1050.04	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/11/1961	194.96	1050.04	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/11/1961	194.96	1050.04	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/11/1961	194.96	1050.04	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/10/1962	232.11	1012.89	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/10/1962	232.11	1012.89	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/10/1962	232.11	1012.89	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/10/1962	232.11	1012.89	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/16/1963	241.15	1003.85	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/16/1963	241.15	1003.85	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/16/1963	241.15	1003.85	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/16/1963	241.15	1003.85	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	[illegible]	217.5	[illegible]	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	[illegible]	217.5	[illegible]	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	[illegible]	217.5	[illegible]	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	[illegible]	217.5	[illegible]	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1964	[illegible]	861.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1964	[illegible]	861.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1964	[illegible]	861.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1964	[illegible]	861.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1966	[illegible]	1012.9	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1966	232.7	1012.3	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1966	232.7	1012.3	505

TABLE 3
GWSI WATER LEVELS
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Well Registry ID	Cadastral Location	UTM East	UTM North	Well Altitude (ft-amsl)	Measurement Date	Depth to Water (ft bls)	Water Level Elevation (ft amsl)	Well Depth
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1966	232.7	1012.3	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/24/1967	232.82	1012.18	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/24/1967	232.82	1012.18	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/24/1967	232.82	1012.18	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/24/1967	232.82	1012.18	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/24/1967	232.82	1012.18	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/2/1968	223.6	1021.4	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/2/1968	223.6	1021.4	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/2/1968	223.6	1021.4	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	2/2/1968	223.6	1021.4	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/15/1969	222.45	1022.55	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/15/1969	222.45	1022.55	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/16/1969	222.45	1022.55	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/15/1969	222.45	1022.55	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1970	197.4	1047.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1970	197.4	1047.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1970	197.4	1047.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1970	197.4	1047.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1971	199.5	1045.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1971	199.5	1045.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1971	199.5	1045.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/7/1971	199.5	1045.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1971	223	1022	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1971	223	1022	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1971	223	1022	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/17/1971	223	1022	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/15/1973	199	1046	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/15/1973	199	1046	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/15/1973	199	1046	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/15/1973	199	1046	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/8/1974	192.5	1052.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/8/1974	192.5	1052.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/8/1974	192.5	1052.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/8/1974	192.5	1052.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/9/1975	171.5	1073.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/9/1975	171.5	1073.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/9/1975	171.5	1073.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	12/9/1975	171.5	1073.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/3/1977	169.8	1075.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/3/1977	169.8	1075.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/3/1977	169.8	1075.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/3/1977	169.8	1075.2	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1981	190	1055	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1981	190	1055	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1981	190	1055	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/14/1981	190	1055	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1982	186.5	1058.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1982	186.5	1058.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1982	186.5	1058.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/21/1982	186.5	1058.5	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/4/1983	190.4	1054.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/4/1983	190.4	1054.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/4/1983	190.4	1054.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	1/4/1983	190.4	1054.6	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	11/2/1988	148.9	1096.1	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	11/2/1988	148.9	1096.1	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	11/2/1988	148.9	1096.1	505
610736	D-05-03 33DCB1	401351.997	3645215.625	1245	11/2/1988	148.9	1096.1	505
610737	D-05-03 33DCC	401271.314	3644939.248	1248	11/13/1984	195.5	1052.5	700
610737	D-05-03 33DCC	401271.314	3644939.248	1248	11/2/1988	207.1	1040.9	700
610737	D-05-03 33DCC	401271.314	3644939.248	1248	11/3/1993	181.2	1066.8	700
610737	D-05-03 33DCC	401271.314	3644939.248	1248	11/2/1998	152.6	1095.4	700
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	1/15/1969	472.65	772.35	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	6/11/1986	634.4	610.6	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	12/12/1986	623	622	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	6/3/1987	616.4	628.6	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	12/16/1987	610.4	634.6	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	6/6/1988	611	634	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	11/9/1988	612.6	632.4	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	11/27/1989	599.1	645.9	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	12/10/1990	587.8	657.2	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	12/17/1991	586.3	658.7	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	11/3/1993			1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	11/24/1993	558.7	686.3	1230

TABLE 3
GWSI WATER LEVELS
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Well Registry ID	Cadastral Location	UTM East	UTM North	Well Altitude (ft-amsl)	Measurement Date	Depth to Water (ft bls)	Water Level Elevation (ft amsl)	Well Depth
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	11/8/1994	552.3	692.7	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	12/10/1997	471.3	773.7	1230
610738	D-05-03 33DCB2	401274.093	3645216.406	1245	11/5/2001	426.6	818.4	1230
611565	D-06-03 05CBB1	400557.102	3643652.895	1272	11/21/1984	645.7	626.3	1025
611565	D-06-03 05CBB1	400557.102	3643652.895	1272	11/21/1984	645.7	626.3	1025
611565	D-06-03 05CBB1	400557.102	3643652.895	1272	11/4/1988	646.9	625.1	1025
611565	D-06-03 05CBB1	400557.102	3643652.895	1272	11/4/1988	646.9	625.1	1025
611565	D-06-03 05CBB1	400557.102	3643652.895	1272	11/5/1993	615.8	656.2	1025
611565	D-06-03 05CBB1	400557.102	3643652.895	1272	11/5/1993	615.8	656.2	1025
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/13/1964	594.8	638	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/13/1984	594.8	638	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/2/1988	591.5	642	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/2/1988	591.5	642	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	6/3/1993	608.8	624	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	6/3/1993	608.8	624	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/3/1993	548.9	684	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/3/1993	548.9	684	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/9/1998	516.7	716	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	11/9/1998	516.7	716	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	12/11/2003	464.9	768.1	1005
612250	D-05-03 28BCB	400547.78	3647872.396	1233	12/11/2003	464.9	768.1	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	3/1/1951	200	1035	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	3/1/1951	200	1035	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	3/1/1951	200	1035	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	1/30/1963	193	1042	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	1/30/1963	193	1042	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	1/30/1963	193	1042	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/13/1984	224.8	1010.2	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/13/1984	224.8	1010.2	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/13/1984	224.8	1010.2	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/2/1988	228.7	1006.3	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/2/1988	228.7	1006.3	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/2/1988	228.7	1006.3	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/3/1993	199.4	1035.6	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/3/1993	199.4	1035.6	1005
612402	D-05-03 28CBB	400517.771	3647472.316	1235	11/3/1993	199.4	1035.6	1005
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/11/1971	222.5	1044.5	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/22/1971	216	1051	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/15/1973	216	1049	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/8/1974	198.2	1068.8	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/16/1975	250.2	1016.8	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/3/1977	291.8	975.2	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/3/1980	241.3	1025.7	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/20/1981	224.7	1042.3	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/15/1982	209.5	1057.5	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/4/1983	215.5	1051.5	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/7/1984	220.4	1046.6	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	4/21/1985	222.6	1044.4	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/17/1985	225.1	1041.9	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	4/11/1986	224.9	1042.1	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/12/1986	225.3	1041.7	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	6/8/1987	233.5	1033.5	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/7/1987	234.6	1032.4	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	6/3/1988	239.5	1027.5	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/2/1988	239.4	1027.6	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/28/1989	223.3	1043.7	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/10/1990	230.1	1037.9	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/11/1991	245	1022	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/19/1992	233.4	1033.6	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/11/1993	229.9	1037.2	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/7/1994	229.2	1037.8	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/13/1995	225.6	1041.4	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/8/1996	222.9	1044.1	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/20/1997	217.2	1049.8	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/4/1999	212.6	1054.4	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/8/1999	207.9	1059.1	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/2/2000	220.2	1046.8	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/6/2001	197.3	1069.7	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	10/29/2002	193.3	1073.7	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	12/5/2003	189.1	1077.9	1130
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	1/13/2005	180.8	1086.2	1130

TABLE 3
GWSI WATER LEVELS
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Well Registry ID	Cadastral Location	UTM East	UTM North	Well Altitude (ft-amsl)	Measurement Date	Depth to Water (ft bls)	Water Level Elevation (ft amsl)	Well Depth
620591	D-06-03S02DDD2	406759.19	3643037.894	1267	11/8/2006	181.3	1085.7	1130
623842	D-06-03S01DAA	408402.099	3643730.834	1264	11/7/1984	602.4	662	1200
623842	D-06-03S01DAA	408402.099	3643730.834	1264	11/9/1988	574.2	690	1200
623842	D-06-03S01DAA	408402.099	3643730.834	1264	11/10/1993	555.4	709	1200
623842	D-06-03S01DAA	408402.099	3643730.834	1264	11/19/1998	525.9	738	1200
623842	D-06-03S01DAA	408402.099	3643730.834	1264	11/18/2003	504.8	759.2	1200
625554	D-05-03 35AAA	405312.457	3646562.665	1239	2/22/1951	118	1121	574
625556	D-05-03 36AAD	403667.105	3646209.056	1246	5/10/1945	120	1126	450
625556	D-05-03 36AAD	403667.105	3646209.056	1246	1/20/1983	228.5	1017.5	450
625556	D-05-03 36AAD	403667.105	3646209.056	1246	11/4/1984	225.3	1020.7	450
625556	D-05-03 36AAD	403667.105	3646209.056	1246	10/31/1988	224	1022	450
625556	D-05-03 36AAD	403667.105	3646209.056	1246	11/10/1993	200.4	1045.6	450
625556	D-05-03 36AAD	403667.105	3646209.056	1246	11/11/1998	174.7	1071.3	450
625556	D-05-03 36AAD	403667.105	3646209.056	1246	12/5/2003	157	1089	450
625557	D-05-03 27DDD	403704.479	3646763.053	1233	2/13/1951	108.6	1124.4	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	2/7/1952	121.42	1111.58	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	3/19/1953	126	1107	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	2/18/1954	142.63	1090.37	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	1/25/1955	147.84	1085.16	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	1/16/1956	159.96	1073.04	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	1/17/1957	170.77	1062.23	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	1/18/1967	207.47	1025.53	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	11/15/1984	218.9	1014.1	600
625557	D-05-03 27DDD	403704.479	3646763.053	1233	10/31/1988	219	1014	600
625558	D-05-03 27BDD	402907.5	3647571.641	1226	1/13/1977	195.8	1030	611
625558	D-05-03 27BDD	402907.5	3647571.641	1226	11/15/1984	213.2	1013	611
625558	D-05-03 27BDD	402907.5	3647571.641	1226	10/31/1988	214.4	1012	611
625558	D-05-03 27BDD	402907.5	3647571.641	1226	11/1/1993	183.7	1042	611
625559	D-05-03 34DAA	403668.27	3645716.266	1238	1/5/1977	178.1	1059.9	596
625559	D-05-03 34DAA	403668.27	3645716.266	1238	1/21/1983	199.7	1038.3	596
625559	D-05-03 34DAA	403668.27	3645716.266	1238	11/15/1984	207.8	1030.2	596
625559	D-05-03 34DAA	403668.27	3645716.266	1238	11/1/1988			596
625560	D-05-03S34AAA2	403582.833	3644947.146	1241	10/1/1956	190.7	1050	1450
625560	D-05-03S34AAA2	403582.833	3644947.146	1241	10/1/1956	190.7	1050	1450
625560	D-05-03S34AAA2	403582.833	3644947.146	1241	1/30/1963	278.9	962	1450
625560	D-05-03S34AAA2	403582.833	3644947.146	1241	1/30/1963	278.9	962	1450
625560	D-05-03S34AAA2	403582.833	3644947.146	1241	11/5/1996			1450
625560	D-05-03S34AAA2	403582.833	3644947.146	1241	11/5/1998			1450
625561	D-05-03S34BBB1	402076.346	3644931.211	1242	11/15/1984	332.2	910	1524
625561	D-05-03S34BBB1	402076.346	3644931.211	1242	10/31/1988	276	966	1524
625561	D-05-03S34BBB1	402076.346	3644931.211	1242	11/1/1993	216.8	1025	1524
625561	D-05-03S34BBB1	402076.346	3644931.211	1242	11/5/1998	153	1089	1524
625561	D-05-03S34BBB1	402076.346	3644931.211	1242	12/5/2003	137.2	1104.8	1524

Notes:

* - Source: ADWR GWSI Database, June 2006

- Shaded areas denote data used for hydrographs shown on Figure 9.

TABLE 4
GWSI GROUNDWATER QUALITY SUMMARY
RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

ADWR Reg No.	Location	UTM East	UTM North	Well Depth (ft bls)	Date Measured	Specific Conductance (uS/cm)	Total Dissolved Solids (mg/l) [t]	Fluoride (mg/l)	Alkalinity (mg/l)	Temperature (Celsius)	pH
086952	D-05-03 21DCC2	401830.9	3648459.5	500	7/28/1998	4430	2658	1.2	na	25	7.4
610736	D-05-03 33DCB1	401346.7	401346.7	520	8/31/1984	4600	2760	0.6	113	25.5	7.5
610738	D-05-03 33DCB2	401338.6	3645228.9	700	8/31/1984	1090	654	1.2	89	28	8.2
625558	D-05-03 27BDD	403026.6	3647471.6	na	7/25/1984	1800	1080	0.8	na	24.5	na
625554	D-05-03 35AAA	405200.5	3646538.3	na	5/24/1993	825	495	0.6	na	25	7.5
624093	D-05-03 21DBC	401427.2	3648842.9	750	11/2/1993	2580	1548	0.9	na	25	7.6
612402	D-05-03 28CBB	400575.1	3646685	900	8/12/1976	5460	3276	0.6	na	25	na
na	D-05-03 25ADD	na	na	na	1/3/1977	883	529.8	0.5	na	24	na
213913*	D-05-03 26acc	na	na	420	2/20/2007	1,670	850	0.72	120	na	7.8
211436**	D-05-03 34add	na	na	1,360	3/16/2007	1,273	690	1.2	110	na	7.8
209689***	D-05-03 25DDA	406034	3646811	1,580	4/6/2006	na	300	1.5	81	na	9.4

Notes:

- Source: GWSI Database, January, 2006, unless indicated otherwise.
na - not available
ft-bls - feet below land surface
mg/l - milligrams per liter
t - TDS calculated as 0.6 x electrical conductivity
* - Sample collected by URS on 2/20/2007
** - Sample collected by URS on 3/16/2007
*** - Sample collected by ERM on 4/6/2006

TABLE 5
WELL SRR-1 WATER QUALITY RESULTS
TOUSA HOMES - RED RIVER DEVELOPMENT
PINAL COUNTY, ARIZONA

Analytes	Results	Laboratory Reporting Limits	Units	Maximum Contaminant Level	Analytical Method
ICP Metals, Total Recoverable					
Calcium (dissolved)	120	2	mg/L	na	EPA 200.7
Magnesium (dissolved)	25	2	mg/L	na	EPA 200.7
Potassium (dissolved)	3.6	2	mg/L	na	EPA 200.7
Sodium (dissolved)	130	2	mg/L	na	EPA 200.7
ICP/MS Metals, Total Recoverable					
Chromium (dissolved)	0.0071	0.001	mg/L	0.1*	EPA 200.8
Arsenic (dissolved)	0.0073	0.001	mg/L	0.01*	EPA 200.8
Anions by Ion Chromatography					
Nitrate (as Nitrogen)	28	0.4	mg/L	10*	EPA 300.0
Nitrite (as Nitrogen)	<0.20	0.2	mg/L	1*	EPA 200.7
Chloride	170	10	mg/L	250**	EPA 300.0
Fluoride	0.72	0.4	mg/L	4.0*	EPA 300.0
Sulfate	150	10	mg/L	250*	EPA 300.0
Alkalinity					
Bicarbonate	120	2	mg/L $CaCO_3$	na	SM 2320B
Carbonate	<2.0	2	mg/L $CaCO_3$	na	SM 2320B
Alkalinity (as $CaCO_3$)	120	6	mg/L $CaCO_3$	na	SM 2320B
Residue, Filterable					
TDS (Total Dissolved Solids)	850	10	mg/L	500**	SM 2540C
pH					
pH	7.8	2		na	EPA 150.1

Notes:

- Sample collected at conclusion of 24-hour constant rate pumping test

* - Primary Drinking Water Standard (PDWS)

** - Secondary Drinking Water Standard (SDWS)

ARIZONA DEPARTMENT OF WATER RESOURCES
Information Management Unit
P.O. Box 458, Phoenix, Arizona 85001-0458
(602) 771-8527 * (800) 352-8488
www.water.az.gov

Well Driller Report and Well Log

ENTERED
APR 18 2007

RECEIVED
MAR 30 2007
INFO MGMT

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

** PLEASE PRINT CLEARLY **

FILE NUMBER: D(5-3) 26 CCA
WELL REGISTRATION NUMBER: 55-213913
PERMIT NUMBER (IF ISSUED):

SECTION 1. DRILLING AUTHORIZATION

Mail To:

Drilling Firm

NAME	DWR LICENSE NUMBER
ARIZONA BEEMAN DRILLING dba Morex Investments	360
ADDRESS: P.O. BOX 3370	TELEPHONE NUMBER: 480-983-2542
CITY/STATE/ZIP: APACHE JUNCTION, AZ 85219	FAX:

SECTION 2. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION OR INDIVIDUAL: TOUSA HOMES, INC.

MAILING ADDRESS: 2600 NORTH CENTRAL AVE SUITE 1600

CITY / STATE / ZIP: PHOENIX, AZ 85004

CONTACT PERSON NAME AND TITLE:

TELEPHONE NUMBER: 480-968-7700 FAX:

WELL NAME (e.g. MW-1, PZ-3, Lot 25 Well, Smith Well, etc.):

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
5 S	3 E	26	SW 1/4	SW 1/4	NE 1/4

LATITUDE Degrees °	Minutes '	Seconds "N	LONGITUDE Degrees °	Minutes '	Seconds "W

METHOD OF LATITUDE / LONGITUDE (CHECK ONE): ☐ USGS Quad Map ☐ Conventional Survey ☐ *GPS Hand Held ☐ *GPS Survey-Grade

LAND SURFACE ELEVATION AT WELL: Feet Above Sea Level

METHOD OF ELEVATION (CHECK ONE): ☐ USGS Quad Map ☐ Conventional Survey ☐ *GPS: Hand-Held ☐ *GPS: Survey-Grade

*IF GPS WAS USED GEOGRAPHIC COORDINATE DATUM (CHECK ONE): ☐ NAD-83 ☐ Other (please specify)

COUNTY: PINAL

ASSESSOR'S PARCEL ID NUMBER: BOOK 510 MAP 54 PARCEL 003

SECTION 3. WELL CONSTRUCTION DETAILS

Drill Method (CHECK ONE)

- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☐ Mud Rotary
- ☒ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other (please specify)

Method of Well Development (CHECK ONE)

- ☒ Airlift / Swab
- ☐ Bail
- ☐ Surge Back
- ☐ Surge Pump
- ☐ Other (please specify)

Method of Sealing at Reduction Points (CHECK ONE)

- ☒ None
- ☐ Packed
- ☐ Swedged
- ☐ Welded
- ☐ Other (please specify)

Condition of Well (CHECK ONE)

- ☒ Capped
- ☐ Pump Installed

Construction Dates

DATE WELL CONSTRUCTION STARTED: 12-19-06

DATE WELL CONSTRUCTION COMPLETED: 1-7-07

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

DRILLING FIRM	SIGNATURE OF QUALIFYING PARTY	DATE
AZ Beeman Drilling	[signature]	3/14/07

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55- 213913

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

DEPTH OF BORING	DEPTH OF COMPLETED WELL
430 Feet Below Land Surface	418 Feet Below Land Surface

Water Level Information

STATIC WATER LEVEL	DATE MEASURED	TIME MEASURED	IF FLOWING WELL METHOD OF FLOW REGULATION
Feet Below Land Surface			☐ Valve ☐ Other:

Borehole			Installed Casing													
DEPTH FROM SURFACE			DEPTH FROM SURFACE			MATERIAL TYPE (X)				PERFORATION TYPE (X)						
FROM (feet)	TO (feet)	BOREHOLE DIAMETER (inches)	FROM (feet)	TO (feet)	OUTER DIAMETER (inches)	STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	39	36	+1	39	30	X				X						
39	410	28	+2	160	18 5/8	X				X						
			160	240	18 5/8	X			304 SS			X				.060
			240	270	18 5/8	X			304 SS	X						
			270	390	18 5/8	X			304 SS			X				.060
			390	410	18 5/8	X			304 SS	X						
						w/ Bull nose										

Installed Annular Material

DEPTH FROM SURFACE		ANNULAR MATERIAL TYPE (X)								FILTER PACK		
						BENTONITE						
FROM (feet)	TO (feet)	NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	GROUT	CHIPS	PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	SAND	GRAVEL	SIZE
0	39			X								
0	118			X								
118	130						X					
130	250										X	6x9 CSS.
250	255						X					
255	418										X	6x9 CSS.

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55- 213913

SECTION 5. GEOLOGIC LOG OF WELL

DEPTH FROM SURFACE FROM (feet)	TO (feet)	DESCRIPTION Describe material, grain size, color, etc.	Check (X) every interval where water was encountered
0	40	Silty SAND	
40	60	Sandy gravels	
60	130	Clayey Sand	
130	140	SAND	
140	170	Clayey SAND	
170	180	SAND	
180	200	Clayey SAND	
200	220	GRAVEL	
220	430	Clay w/ SANDS	

ARIZONA DEPARTMENT OF WATER RESOURCES

WATER MANAGEMENT SUPPORT SECTION

3550 N. Central Avenue
Phoenix, Arizona 85012

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-213913

AUTHORIZED DRILLER: ARIZONA BEEMAN DRILLING dba Morex Investments LLC LICENSE NO: 360

NOTICE OF INTENTION TO DRILL AN INJECTION WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: TOUSA HOMES,INC. 2600 NORTH CENTRAL AVE SUITE 1600 PHOENIX, AZ 85004

THE WELL(S) IS/ARE TO BE LOCATED IN THE:
NE ¼ OF THE SW ¼ OF THE SW ¼ SECTION 26 TOWNSHIP 5 SOUTH RANGE 3 EAST

NO. OF WELLS IN THIS PROJECT: 1 ASSESSOR PARCEL NO: 510-54-003

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 3RD DAY OF OCTOBER, 2007

WATER MANAGEMENT SUPPORT

THE DRILLER MUST FILE A LOG OF THE WELL
WITHIN 30 DAYS OF COMPLETION OF DRILLING

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

ARIZONA DEPARTMENT OF WATER RESOURCES
3550 N. Central Avenue, Phoenix, Arizona 85012
Telephone (602) 771-8500
Fax (602) 771-8691

October 06, 2006

Janet Napolitano
Governor

Herbert R. Guenther
Director

TOUSA HOMES,INC.
2600 NORTH CENTRAL AVE SUITE 1600
PHOENIX, AZ 85004

Registration No. 55-213913
File No. D(5-3) 26 CCA

Dear Well Owner:

Enclosed for your records is an annotated copy of the Notice of Intention to Drill (NOI) and Abandon an Exploration/Specialty Well, which you recently filed with this Department pursuant to A.R.S. § 45-596. This is to inform you that the Department has approved the NOI and has mailed a drilling card authorizing the drilling of the well to your designated well drilling contractor. The driller may not begin drilling until he has received the drilling card, which he must keep in his possession at the well site during drilling.

Well drilling activities must be completed within one year after the date the NOI was filed with the Department. If drilling is not completed within one year, you must file a new NOI before proceeding with further drilling. If it is necessary to change the location of the proposed well, you may not proceed with drilling until you file an amended NOI with the Department. A properly amended drilling card will then be issued and must be in the possession of the well drilling contractor before drilling begins.

If this well is being drilled as a heat pump, cathodic protection, or grounding well, or for exploration purposes, our standard Well Driller Report and Well Log form (DWR form 55-55) will be furnished to the well drilling contractor. If this well is being drilled as a mineral exploration well, a Project Completion Report (DWR from 55-57) will be furnished to the well drilling contractor. These forms must be filed with the Department within 30 days after completion of the well. A Pump Installation Completion Report form (DWR form 55-56) is being furnished to the well owner if pump installation is authorized. This must be completed within 30 days of installing a pump as required by A.R.S. § 45-600. During the drilling of a new well, if it is determined that it must be abandoned, then a Well Abandonment Completion Report (DWR form 55-58) must be submitted per R12-15-816(F).

Please be advised that A.R.S. § 45-593(C) requires the person to whom a well is registered to notify the Department of a change of ownership of the well and/or information pertaining to the physical characteristics of the well, in order to keep the well registration file current and accurate. Any change in well information or a request to change well driller must be filed on a Request to Change Well Information form (DWR form 55-71A), which is enclosed for your future use.

Sincerely,

Danita Haywood
NOI Unit
Water Management Support Section

Enclosures

SRR-1

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

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

FEE

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
- $150 check or money order for the filing fee
- Well construction diagram, labeling all specifications listed in Section 6.
- Authority for fee: A.R.S. § 45-596

AMA / INA: FINAL | B: 10 | 5B
RECEIVED DATE: 10.4.06 | WS: 9
ISSUED DATE | WQAR | CERCLA

FILE NUMBER: D(5-3)26CCA
WELL REGISTRATION NUMBER: 55- 213913

** PLEASE PRINT CLEARLY **

SECTION 1: REGISTRY INFORMATION

Well Type (CHECK ONE)
- ☐ Monitor
- ☐ Piezometer
- ☐ Vadose Zone
- ☐ Air Sparging
- ☐ Soil Vapor Extraction
- ☒ Other (*please specify*): **ASR Well**

Proposed Action (CHECK ONE)
- ☒ Drill New Well
- ☐ Deepen
- ☐ Modify

If Deepening or Modifying: WELL REGISTRATION NUMBER: 55 -

Location of Well
WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
5 South	3 East	26	SW ¼	SW ¼	NE ¼

COUNTY ASSESSOR'S PARCEL ID NUMBER: BOOK 510 | MAP 54 | PARCEL 003-02
COUNTY WHERE WELL IS LOCATED: Pinal County

SECTION 2: OWNER INFORMATION

Well Owner
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: TOUSA Homes, Inc.
MAILING ADDRESS: 2600 North Central Avenue, Suite 1600
CITY / STATE / ZIP CODE: Phoenix, AZ 85004
CONTACT PERSON NAME AND TITLE: Glenn Tulk, President W.R.L.D.
TELEPHONE NUMBER: (480) 968-7700 | FAX: (480) 968-0258

Landowner (if different from Well Owner)
FULL NAME OF COMPANY, GOVERNMENT AGENCY, OR INDIVIDUAL: Same
MAILING ADDRESS:
CITY / STATE / ZIP CODE:
CONTACT PERSON NAME AND TITLE:
TELEPHONE NUMBER: | FAX:

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SECTION 3: DRILLING AUTHORIZATION

Drilling Firm
NAME: Arizona Beeman Drilling
DWR LICENSE NUMBER: ADWR Lic No. 360 | ROC LICENSE CATEGORY: ROC Lic Cat.:C-53, A, A-4
TELEPHONE NUMBER: 480-540-5261 | FAX: 480-983-4816
E-MAIL ADDRESS: azbeeman@yahoo.com

Consultant (if applicable)
CONSULTING FIRM: URS Corporation
CONTACT PERSON NAME: Alex M. Richards, R.G.
TELEPHONE NUMBER: 602-861-7405 | FAX: 602-371-1615
E-MAIL ADDRESS: alex_richards@urscorp.com

SECTION 4:

Questions	Yes	No	Explanation:
1. Are all annular spaces between the casing(s) and the borehole for the placement of grout at least 2 inches?	X		2-inch annular spaces are special standards required for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST)
2. Is the screened or perforated interval of casing greater than 100 feet in length?	X		100-foot maximum screen intervals are a special standard for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST)
3. Are you requesting a variance to use thermoplastic casing in lieu of steel casing in the surface seal?		X	The wells must be constructed in a vault as defined in A.A.C. R12-15-801(27)
4. Is there another well name or identification number associated with this well? (e.g., MW-1, PZ2, 06-04, etc.)	X		IF YES, PLEASE STATE
5. Have construction plans been coordinated with the Arizona Department of Environmental Quality?	X		IF YES, PLEASE STATE AGENCY CONTACT & PHONE NUMBER: **via APP No. P-105297**
6. For monitor wells, is dedicated pump equipment to be installed?		X	IF YES, PLEASE STATE DESIGN PUMP CAPACITY: Gallons per Minute
7. Is this well a new well located in an Active Management Area **AND** intended to pump water for the purpose of remediating groundwater?		X	IF YES, UNLESS THE WELL IS A REPLACEMENT WELL AND THE TOTAL NUMBER OF OPERABLE WELLS ON THE SITE IS NOT INCREASING, YOU MUST AUGMENT A SUPPLEMENTAL FORM. A.R.S. § 45-454(C) & (F). *(See instructions)*
8. Will the well registration number be stamped on the vault cover or on the upper part of the casing?	X		IF NO, WHERE WILL THE REGISTRATION NUMBER BE PLACED?

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SRR-1

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER
55 - 213913

SECTION 5. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ONE

- [ ] Air Rotary
- [ ] Bored or Augered
- [ ] Cable Tool
- [ ] Dual Rotary
- [ ] Mud Rotary
- [X] Reverse Circulation
- [ ] Driven
- [ ] Jetted
- [ ] Air Percussion / Odex Tubing
- [ ] Other (*please specify*):

DATE CONSTRUCTION TO BEGIN
December 15, 2006

Method of Well Development

CHECK ONE

- [X] Airlift
- [ ] Bail
- [ ] Surge Block
- [X] Surge Pump
- [ ] Other (*please specify*):

Method of Sealing at Reduction Points

CHECK ONE

- [X] None
- [ ] Welded
- [ ] Swedged
- [ ] Packed
- [ ] Other (*please specify*):

Grout Emplacement Method

CHECK ONE

- [ ] Gravity
- [ ] Pressure Grout
- [X] Tremie
- [ ] Other (*please specify*):

Surface or Conductor Casing

CHECK ONE

- [ ] Flush Mount in a vault
- [X] Extend 1' above grade

SECTION 6. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Borehole

DEPTH FROM SURFACE FROM (feet)	TO (feet)	BOREHOLE DIAMETER (inches)
0	39	36
39	420	28

Casing

DEPTH FROM SURFACE FROM (feet)	TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T): STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T): BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	39	30	X			Low Carbon	X						
-1	410	18-5/8	X			Stainless	X						
160-260	300-390	18-5/8	X			Stainless					X	Louvered	0.060

Annular Material

DEPTH FROM SURFACE FROM (feet)	TO (feet)	ANNULAR MATERIAL TYPE (T): NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT BENTONITE GROUT	BENTONITE: GROUT	CHIPS	PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL DESCRIBE	FILTER PACK: SAND	GRAVEL	SIZE
0	95		X						Cement Grout Seal			
95	100							X	Bentonite Seal			
100	420								Fine Sand 100-105 ft Colorado-Silica 6x9, 105-420 ft	X		#6-9

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS: **Well has dual perforation intervals**

EXPECTED DEPTH TO WATER: **160 feet** Feet Below Ground Surface

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

TYPE OR PRINT NAME AND TITLE: Glenn Tulk, TOUSA Homes, President W.R.L.D.
SIGNATURE OF WELL OWNER: Glenn Tulk DATE: 10/4/06

TYPE OR PRINT NAME AND TITLE: Glenn Tulk, TOUSA Homes, President W.R.L.D.
SIGNATURE OF LANDOWNER, IF APPLICABLE (SEE INSTRUCTIONS): Glenn Tulk DATE: 10/4/06

2.3.1.3

7720 North 16th Street, Suite 100
Phoenix, Arizona 85020
Telephone: (602) 371-1100
Fax: (602) 371-1615

URS

LETTER OF TRANSMITTAL

TO: Arizona Department of Water Resources
Water Management Support Section
P.O. Box 458
Phoenix, Arizona 85001-0458

DATE: October 4, 2006

SUBJECT: NOI to Drill and Construct ASR Well SRR-1
Tousa Homes' Red River Development
Pinal County, Arizona

REFERENCE:

Attached is:

1) Completed NOI Appication Form for Well SRR-1
2) Project Site and Well Location Map
3) Preliminary Well Construction Diagram
4) Filing Fee

For:

- ☒ Review and Approval
- ☐ Signature and Return
- ☒ Appropriate Action
- ☐ As Requested
- ☐ For Your Information

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Remarks:

Thank you for your assistance in permitting this well. Drilling is tentatively scheduled to begin on December 15, 2006. Any assistance to expedite the approval process will be greatly appreciated.

URS

7720 North 16th Street, Suite 100
Phoenix, Arizona 85020
Telephone: (602) 371-1100
Fax: (602) 371-1615

If you have any questions or need assistance, please contact Alex Richards at the URS Corporation at 602-861-7405. Thank you.

Sincerely,

URS

Alex M. Richards, R.G.

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CHECK DEPOSIT REQUEST

ARIZONA DEPARTMENT OF WATER RESOURCES

NOTICE OF INTENT

Well No(s). (IF KNOWN):
55- 213913

Date Submitted:	10/4/06	**Check No.:**	2906
Submitted by:	URS CORP	**Check Amount:**	150.00
Applicant:	TOUSA HOMES	**Name on Check:** (IF DIFFERENT THAN APPLICANT)	
Received By:	TONI B	**Prior Amount Paid:**	(FEES ALREADY RECEIVED FOR THIS NOI)

Code	Type of Application	Quantity	Fee (PER WELL UNLESS OTHERWISE NOTED)	Current Payment	Fees Owed
4439-06	**Exempt** Wells **Outside AMAs** to be used for **Domestic** Purposes Only.		$100.00	$	$
	Exempt Wells Inside AMAs and **ALL Exempt** Wells **Not** to be Used for **Domestic** Purposes.		$150.00	$	$
	Non-exempt Wells **Outside AMAs.**		$150.00	$	$
	Mineral Exploration or **Geotechnical.**		$150.00/per land section	$	$
	Cathodic Protection, Heat Pump, Grounding, Monitor, Piezometer, Air Sparging Soil Vapor Extraction, Non-recharge **Vadose Zone** or **Injection** Wells.	1	$150.00	$ 150.00	$
4439-11	**Late Registration** of an **Exempt** Well (not used for Irrigation inside an AMA).		$10.00	$	$
	Late Registration of an **Non-exempt** well **outside an AMA.**		$20.00	$	$
4439-08	Request to **Change** Well Information (Change of Well **Driller**).		$10.00	$	$
4439-12	Request to **Change** Well Information (Change of **Ownership**).		$10.00*	$	$
	*CHANGING TO MORE THAN 1 WELL WHERE NAMES TO BE CHANGED ARE ALL THE SAME, ONE $10.00 FEE WILL BE FOR THOSE WELLS, OTHERWISE, CHANGE OF OWNERSHIP IS $10.00/WELL.				
Well Driller Licensing NOTE: PLEASE NOTE DRILLER'S NAME & LICENSE # (IF KNOWN) IN COMMENTS.					
4420-01	**Regular** Well License.		$50.00	$	$
4420-02	Well Driller License **Renewal.**		$10.00	$	$
4420-03	Well Driller License **Reactivation** (MUST BE WITHIN 1 YEAR OF LICENSE EXPIRATION DATE).		$20.00	$	$

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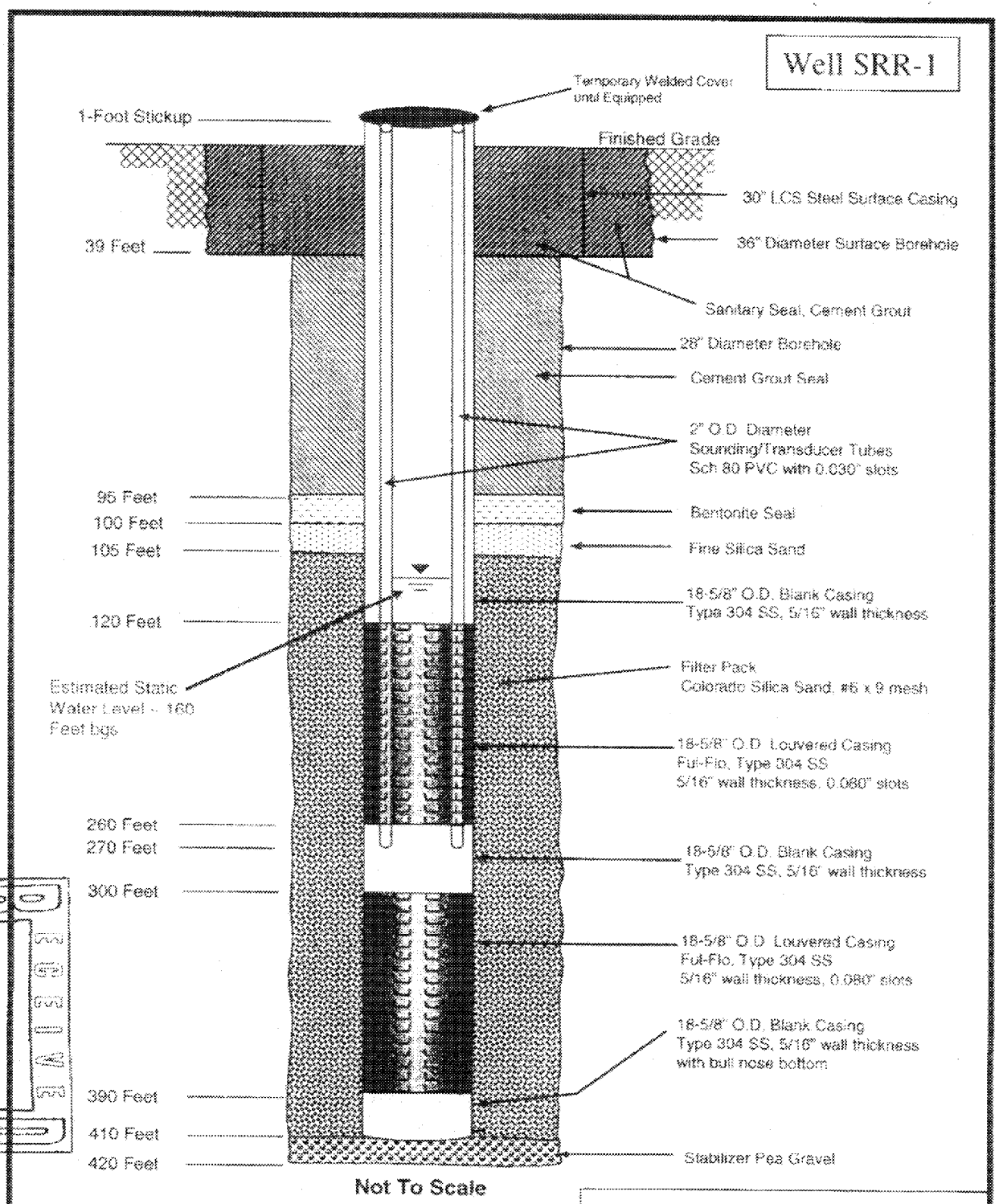
Comments:

Total Paid*: $ 150.00 **Debt Owed:** $

*IF FEES HAVE BEEN PAID PREVIUOSLY FOR THIS NOI, INCLUDE THAT AMOUNT.



Notes:
LCS = low carbon steel
Unless stated, all diameters are outside diameter (OD), except the well screen (which is nominal).

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FIGURE 2
Preliminary Well Design
ASR Well SRR-1
Red River Development
Pinal County, Arizona

100SA

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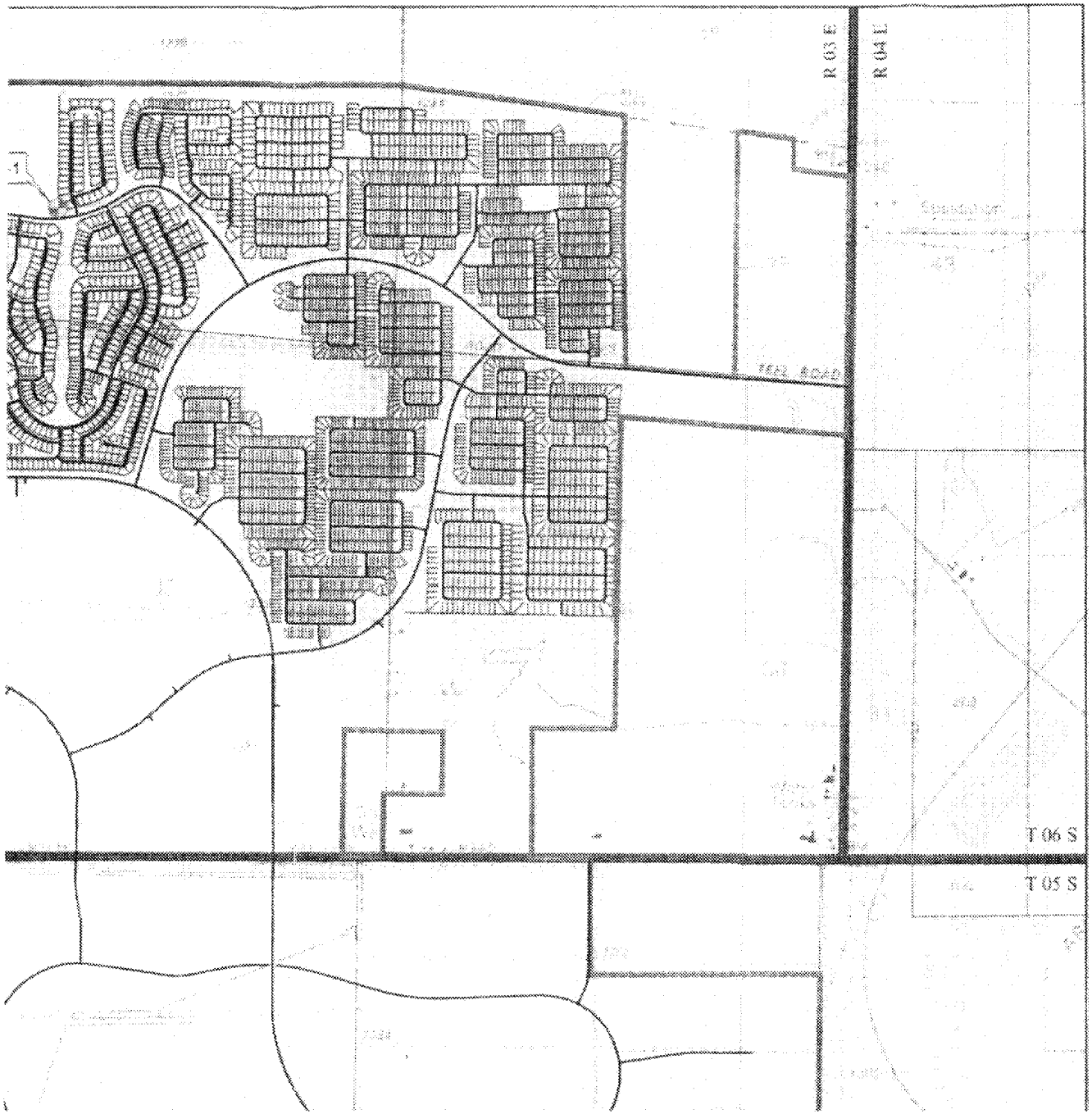

SRR-1 Well Location

TOUSA Homes

LEGEND

Project Features

SRR-1 Injection Well

Geographic Location: 112° 01' 35", 32 57' 36"
Cadastral Location: Township 05 S
Range 03 E,
Section 26,
SW¼, SW¼, NE¼
Parcel Number: Book 510, Map 54,
Parcel 003-02

Project Road

Parcel

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General Features

Project Boundary

Township and Range Line

Section Line

Sources:
Base topographic data
(c)2002 National Geographic Holdings (www.nationalgeographic.com)
Base Map data: ALRIS 1997, 2005
Project Features: HEC Engineering 2006

APPENDIX B

SELECTED DRILLER'S LOGS USED FOR CROSS-SECTIONS

LITHOLOGIC LOG FOR SRR-1

209689

SR-2

BOREHOLE LITHOLOGIC LOG

Project: SR-2 Water Production Well
Client: Engle Homes
Location: D (5-3) 25 DCC
Logged By: J. Rotert

Drilling Company: Arizona Beeman Drilling
Drilling Method: Reverse circ. mud rotary
Bit size: 16-inch dia. Tri-cone
Date Drilled: January 5 - January 13, 2006

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0 - 7	ML	Silt, clayey	brn	
7 - 11	SP	Sand, fine to coarse, minor gravel	brn	
11 - 35	SP	Sand, medium to coarse, with gravel (2" -)	multi	
35 - 40	SP	Sand, medium to coarse, with increasing gravel (4" -)	multi	
38 - 50	SP	Sand, fine to medium, minor gravel	brn	
50 - 60	SP	Sand, medium to coarse, with gravel	multi	
60 - 70	SP	Sand, fine to medium, minor gravel	brn	
70 - 80	SP	Sand, fine to medium, silty	brn	
80 - 100	SP	Sand, medium to coarse, with gravel	multi	
100 - 110	ML	Silt	brn	
110 - 130	SP	Sand, medium to coarse, silty, minor gravel	brn	
130 - 140	ML	Silt, sandy	brn	
140 - 160	SP	Sand, medium to coarse, with gravel	multi	
160 - 170	ML	Silt, clayey	brn	
170 - 190	SP	Sand, medium to coarse, interbedded with silty clay layers	multi	
190 - 210	ML	Silt, clayey	brn	
210 - 220	SW	Sand, coarse, gravelly	multi	
220 - 240	ML	Silt, clayey, with sand	brn	
240 - 260	SP	Sand, fine to medium, silty	brn	
260 - 270	ML	Silt, clayey	brn	
270 - 280	SP	Sand, fine to medium, silty	brn	
280 - 290	SW	Sand, coarse, gravelly	multi	
290 - 300	ML	Silt, clayey	brn	
300 - 310	SP	Sand, fine to medium, silty	brn	
310 - 320	ML	Silt, clayey	brn	
320 - 350	CL	Clay, sandy	brn	
350 - 380	CL	Clay, silty with minor sand	brn	
380 - 580	CL	Clay, silty	brn	
580 - 590	CL	Clay, sandy	brn	
590 - 610	CL	Clay	brn	
610 - 620	CL	Clay, sandy	brn	
620 - 630	CL	Clay	brn	
630 - 650	CL	Clay, sandy	brn	
650 - 840	CL	Clay	brn	
840 - 920	ML	Silt, sandy	brn	
920 - 1030	ML	Silt, clayey with siltstone	brn	
1030 - 1050	ML	Silt, sandy	brn	
1050 - 1060	CL	Clay, silty	brn	
1060 - 1070	SP	Sand, clayey	brn	
1070 - 1080	ML	Silt, sandy	brn	
1080 - 1090	SP	Sand, clayey	brn	
1090 - 1110	ML	Silt, sandy	brn	
1110 - 1250	ML	Silt, clayey with siltstone	brn	
1250 - 1390	ML	Silt, clayey	brn	
1390 - 1430	ML	Silt, clayey with siltstone	brn	
1430 - 1460	ML	Silt, clayey with sand	brn	
1460 - 1480	ML	Silt, clayey	brn	
1480 - 1530	ML	Silt, clayey with sand	brn	
1530 - 1620	ML	Silt, clayey	brn	
1620 - 1660	ML	Silt, clayey with siltstone	brn	
1660 - 1690	ML	Silt, clayey	brn	
1690 - 1730	ML	Silt	brn	
1730 - 1750	ML	Silt, sandy	brn	
1750 - 1800	ML	Silt, clayey with siltstone	brn	

URS

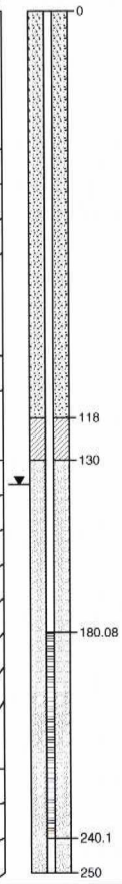
Tousa Homes Red River Homes
23444859

Lithologic Log SRR-1

Date Started	: December 20, 2006
Date Completed	: Febuary 20, 2007
Hole Diameter	: 28 inches
Drilling Method	: Reverse Rotary
Sampling Method	: Grab
Project Manager	: Alex Richards

Well: SRR-1
Elev.: 1248

Depth in Feet	USCS	DESCRIPTION
0–40	ML	Altered Inorganic Silts with Sands and Clays.
40–50	SP	Poorly-Graded Sands with Gravel. non-lithified, non-cohesive, , angular, non-reactive to acid. USGS Grain Size: 5% fines, 80% sand, 15% gravel. 10YR 5/4.
50–60	SP	Poorly-Graded Sands. non-lithified, non-cohesive, , angular, non-reactive to acid. USGS Grain Size: 100% sand. 5YR 4/4.
60–70	SC	Clayey Sands. non-lithified, non-cohesive, angular-subangular, non-reactive to acid. USGS Grain Size:15% fines, 80% sand, 5% gravel. 10YR 5/4
70–100	SC	Clayey Sands with Gravel. non-lithified, non-cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 20% fines, 65% sand, 15% gravel. 10YR 5/4.
100–110	CH	Inorganic Clays with Sands. non-lithified, cohesive, angular, non-reactive to acid. USGS Grain Size: 50% fines, 50% sand. 5YR 6/6.
110–130	SP	Inorganic Clays with Sands. non-lithified, cohesive, subangular, non-reactive to acid. USGS Grain Size: 95% fines, 5% gravel. 10YR 6/3.
130–140	SP	Poorly-Graded Sands. non-lithified, non-cohesive, angular, non-reactive to acid. USGS Grain Size: 5% fines, 85% sand, 10% gravel. 10YR6/3.
140–150	CH	Inorganic Clays with Sands. non-lithified, cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 35% fines, 35% sand, 30% gravel. 5YR 6/6.
150–160	SC	Inorganic Clays. non-lithified, non-cohesive, angular, non-reactive to acid. USGS Grain Size: 40% fines, 60% sand. 5YR 6/6.
160–170	CH	Sandy Inorganic Clays. non-lithified, cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 75% fines, 25% sand. 5YR 6/6.
170–180	SP	Poorly-Graded Sands. non-lithified, non-cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 95% sand, 5% gravel. 10YR 6/3
180–190	SC	Clayey Sands. non-lithified, cohesive, angular, non-reactive to acid. USGS Grain Size: 40% fines, 55% sand, 5% gravel. 5YR 6/6.
190–200	SC	Clayey Sands. non-lithified, cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 35% fines, 65% sand. 5YR 5/4
200–220	GC	Clayey Gravel. non-lithified, non-cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 15% fines, 25% sand, 60% gravel. 5YR 6/6.
220–230	CH	Inorganic Clays with Sands. non-lithified, non-cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 30% fines, 30% sand, 40% gravel. 5YR 6/6.
230–240	CH	Inorganic Clays with Sands. non-lithified, cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 60% fines, 40% sand. 10YR 4/6.
240–250	CH	Inorganic Clays with Sands. non-lithified, cohesive, angular, non-reactive to acid. USGS Grain Size: 55% fines, 40% sand, 5% gravel. 10YR 4/6.



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URS

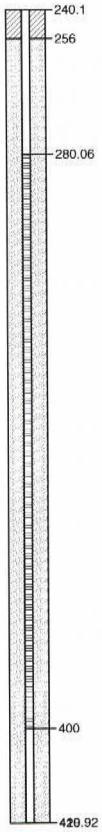
Tousa Homes Red River Homes
23444859

Lithologic Log SRR-1

Date Started	: December 20, 2006
Date Completed	: Febuary 20, 2007
Hole Diameter	: 28 inches
Drilling Method	: Reverse Rotary
Sampling Method	: Grab
Project Manager	: Alex Richards

Depth in Feet	USCS	GRAPHIC	DESCRIPTION
250	CH		Clayey Sands. non-lithified, cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 40% fines, 60% sand. 10YR 4/4.
260–290	CH		Clayey Sands. non-lithified, cohesive, angular, non-reactive to acid. USGS Grain Size: 65% fines, 35% sand. 10YR 5/6/
290–300	SC		Clayey Sands. non-lithified, cohesive, angular, non-reactive to acid. USGS Grain Size: 50% fines, 50% sand. 10YR 5/6.
310–340	CH		Sandy Inorganic Clays. non-lithified, cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 60% fines, 35% sand, 5% gravel. 10YR 5/6
340	SC		Clayey Sands with Gravel. non-lithified, cohesive, angular-subangular, non-reactive to acid. USGS Grain Size: 25% fines, 50% sand, 25% gravel. 10YR 5/6
350–390	SC		Sandy Inorganic Clays. non-lithified, cohesive, angular, non-reactive to acid. USGS Grain Size: 50% fines, 50% sand. 10YR 5/6.
390–430	CH		Inorganic Clays with Sands. non-lithified, cohesive, subangular, non-reactive to acid. USGS Grain Size: 80% fines, 20% sand. 10YR 4/6

Well: SRR-1
Elev.: 1248



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LOG OF WELL

533635

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encounterd, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	20	Embankment fill.
20	35	Sand and gravel.
35	37	granite
37	40	Sandstone bedrock (Red)

I hereby certify that this well was drilled by me (or under my supervision), and that each and all statements herein contained are true to the best of my knowledge and belief.

Driller Name: Don J Towne

6527 W No Vista
Street

Glendale Az 85301
City State Zip

Date 11/18/91

LOG OF WELL

533199

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encounterd, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	1	ROAD BED
1	35	SANDY CLAY
35	130	GRAVEL
130	230	CLAY W/ GRAVEL LAYERS

I hereby certify that this well was drilled by me (or under my supervision), and that each and all statements herein contained are true to the best of my knowledge and belief.

Driller Name: ASSOCIATED DRILLERS

Street BOX 4858

HUACHUCA CITY, AZ 85616

602-456-9781

City State Zip

Date 11-22-91

55-533198

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encounterd, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	1	ROAD BED
1	50	CLAY
50	100	GRAVEL
100	155	SANDY CLAY
155	170	BROKEN ROCK
170	230	SANDY CLAY

I hereby certify that this well was drilled by me (or under my supervision), and that each and all statements herein contained are true to the best of my knowledge and belief.

Driller Name: ASSOCIATED DRILLERS

BOX 4858

HUACHUCA CITY, AZ 85616

Street 602-456-9781

City State Zip

Date 11-22-91

SS- 533202

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encounterd, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	3	Top Soil
3	105	Clay
105	135	Gravel
135	180	Clay & Gravel
180	230	Sandy Clay

I hereby certify that this well was drilled by me (or under my supervision), and that each and all statements herein contained are true to the best of my knowledge and belief.

Driller Name: ASSOCIATED DRILLERS

Street: BOX 4858

City: HUACHUCA CITY, State: AZ Zip: 85616

602-456-9781

Date: 11-22-91

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 209689

SECTION 5. GEOLOGIC LOG OF WELL

DEPTH FROM SURFACE FROM (feet)	TO (feet)	Description Describe material, grain size, color, etc.	Check (T) every interval where water was encountered (if known)
0	70	SAND, FINE to MED GRAVEL	
70	110	FINE to MED GRAVEL	
110	190	Silty SANDY GRAVEL	
190	240	Silty CLAY	
240	280	Silty SAND FINE to MED.	
280	290	COARSE SAND & GRAVEL	
290	310	FINE to MED SAND	
310	1800	Silty SANDY CLAY.	

530062

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	27	Top soil
27	49	gravel
49	115	Clay
115	130	Sandy Clay + gravel
130	230	Clay
230	243	Sand
243	265	Sandy Clay
265	273	Sand + gravel
273	349	Sandy Clay
349	525	Clay
525	532	gravel
532	845	Clay
845	860	Clay sand + gravel
860	882	Clay
882	905	gravel + clay
905	925	Clay
925	955	Sandy clay + gravel
955	975	Sticky clay
975	1050	Sandy clay + gravel
1050	1100	Sticky clay

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller David E Groba
Name

77 Rancho Circle
Address

Casa Grande Ariz 85222
City State Zip

Date 4-16-91

533199

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encounterd, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	1	ROAD BED
1	35	SANDY CLAY
35	130	GRAVEL
130	230	CLAY W/ GRAVEL LAYERS

I hereby certify that this well was drilled by me (or under my supervision), and that each and all statements herein contained are true to the best of my knowledge and belief.

Driller Name: ASSOCIATED DRILLERS

Street: BOX 4358

City, State, Zip: HUACHUCA CITY, AZ 85616

602-456-9781

Date: 11-22-91

625558

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

IMPORTANT
PLEASE COMPLETE AND RETURN

REPORT OF WELL DRILLER

This report should be prepared by the driller in all detail and filed with the State Land Commissioner following completion of the well.

1. OWNER VIOLA COMPTON
Name
4060 North Central Avenue, Phoenix, Arizona
Address

2. Lessee or Operator
Name
Address

3. DRILLER O & R. Drilling Corp.
Name
Box 875 Eloy Ariz.
Address

4. Location of well: Twp. ____ Rge. ____ Section ____ ¼ ____ ¼ ____ ¼
10-acre subdivision

5. Intention to Drill File No. ____ Permit No. 9-894

DESCRIPTION OF WELL

6. Total depth of hole 611 ft.
7. Type of casing LINE PIPE
8. Diameter and length of casing 20 in. from 0 to 611 in. from ____ to ____, ____ in. from ____ to ____
9. Method of sealing at reduction points
10. Perforated from 226 to 606 from ____ in. ____ from ____ to ____, from ____ to ____
11. Size of cuts 3/8 X 3" Number of cuts per foot 8
12. If screen was installed: Length ____ ft. Diam. ____ in. Type
13. Method of construction DRILLED
drilled, bap. driven, jetted, jacked, etc.
14. Date started: 4 (Month) 6 (Day) 63 (Year)
15. Date completed 4 (Month) 18 (Day) 63 (Year)
16. Depth of water 210 ft.
If flowing well, so state.
17. Describe point from which depth measurements were made, and give sea-level elevation if available
18. If flowing well, state method of flow regulation

19. REMARKS:

DO NOT WRITE IN THIS SPACE
OFFICE RECORD
Received 4-22-63 by D
Filed 4-22-63 by D
Reg. No. D(5-3)27 dbb

(Well Log to Appear on Reverse Side)

WR FORM 8-247
REV. 4-57-32

625558

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	5	Fill
5	23	Clay
23	75	Sand & Gravel
75	102	Clay
102	187	Sand & Gravel
187	286	Clay & Gravel
286	327	Sand & Gravel
327	371	Clay
371	411	Clay & Gravel

RECEIVED
APR 22 1963
STATE LAND
DEPT.

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller Harold C. Rice
Name

Box 875 Eloy Ariz
Address

Date 4/22/63

530062

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

WELL DRILLER REPORT

6619 - AVM

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

1. Owner ~~David Earl Graham~~
Name
77 Rancho Circle Casa Grande Ariz 85222
Mailing Address

2. Driller David Graham Well Drilling # 254
Name
Same
Mailing Address

3. Location of well: TWP-55 RGE-4E Section 31 SE¼ SE¼ SW¼ Pinal County

4. Permit No. (if issued) 59- Registration 55-530062

DESCRIPTION OF WELL

5. Total depth of hole 1100 ft.

6. Type of casing Steel

7. Diameter and length of casing 20 in. from 0 to 851, 18 in from 848 to 1100.

8. Method of sealing at reduction points overlap

9. Perforated from 560 to 1100, from ____ to ____, from ____ to ____.

10. Size of cuts 3/8 by 3" Number of cuts per foot 8 cuts every 18"

11. If screen was installed: Length ____ ft. Diam ____ in. Type ____

12. Method of construction drilled
drilled, dug, driven, bored, jetted, etc.

13. Date started Dec 11 90
Month Day Year

14. Date completed Feb 12 1991
Month Day Year

15. Depth to water 480 ft. (If flowing well, so state.)

16. Describe point from which depth measurements were made, and give sea-level elevation if available ____

17. If flowing well, state method of flow regulation: ____

18. Remarks: ____

DO NOT WRITE IN THIS SPACE
OFFICE RECORD
Registration No. 55-530062
Received ENTERED MAY - 8 1991
Entered ____ By ____
File No. D(5-4)31 cdd

DWR-55-6-Rev. 8/85

530062

LOG OF WELL

Indicate depth at which water was first encountered; and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	27	Top soil
27	49	gravel
49	115	Clay
115	130	Sandy Clay + gravel
130	230	Clay
230	243	Sand
243	265	Sandy Clay
265	273	Sand + gravel
273	349	Sandy Clay
349	525	Clay
525	532	gravel
532	845	Clay
845	860	Clay sand + gravel
860	882	Clay
882	905	gravel + clay
905	925	Clay
925	955	Sandy clay + gravel
955	975	Sticky clay
975	1050	Sandy clay + gravel
1050	1100	Sticky clay

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller David E. Graber
Name

77 Rancho Circle
Address

Casa Grande Ariz 85222
City State Zip

Date 4-16-91

625561

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

RECORDED

REPORT OF WELL DRILLER

EXCERPT OF 1945 GROUNDWATER LAW

Report of Well Driller must be prepared by the driller in all detail and filed with the State Land Commissioner as required by Section 7, Chapter 12, Senate Bill No. 8, First Special Session, 1945. This report should be in the mail within 30 days following completion of the well. Section 8 of the law provides: "Any person (includes any individual, firm, public or private corporation, or governmental agency) who shall fail or refuse to make any of the reports, give the notices required, or fail to cooperate with the State Land Commissioner or his representative, under the provisions of this Act, shall be guilty of a misdemeanor and shall be fined a sum not exceeding One Hundred Dollars."

1. OWNER JACK LEROY KLECK (Name)
Rt. 5, Box 1485, Phoenix, Arizona (Address)

2. Lessee or Operator _____ (Name)
_____ (Address)

3. DRILLER Below & Below Drilling Co. (Name)
406 E. 2nd. St. Casa Grande, Arizona (Address)

4. Location of well: Twp. 5 S Rge. 3 E Section 34 SW ¼ SW ¼ SW ¼ (10-acre subdivision)

5. File No. (D-5-3)34 ccc Permit No. G-336
Appl. G-366

DESCRIPTION OF WELL

6. Total depth of hole 1524 ft.

7. Type of casing 20" OD 5/16" Wall Electric Weld.

8. Diameter and length of casing 20 in. from 0 to 1524 in. from ____ to ____, in. from ____ to ____

9. Method of sealing at reduction points No reductions

10. Perforated from 925 to 1520, from ____ to ____, from ____ to ____, from ____ to ____

11. Size of cuts 5/8" Number cuts per foot 6 every two feet.

12. If screen was installed: Length ____ ft. Diam. ____ in. Type ____

13. Method of construction Drilled (drilled, dug, driven, bored, jetted, etc.)

14. Date started 5 (Month) 18 (Day) 55 (Year)

15. Date completed 7 (Month) 14 (Day) 55 (Year)

16. Depth to water 160 ft. (If flowing well, so state.)

17. Describe point from which depth measurements were made, and give sea-level elevation if available
Ground Level

18. If flowing well, state method of flow regulation ____

19. REMARKS: ____

DO NOT WRITE IN THIS SPACE
OFFICE RECORD
Received 7-27-55 by VLC
Filed 7-27-55 by VLC
File No. (D-5-3)34ccc

(Well Log to Appear on Reverse Side)

WS FORM A-301
REV. 4-27-55

625561

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	25	Surface
25	40	Clay
40	50	Clay & Gravel
50	55	Sand & Gravel
55	75	Caliche
75	83	Sand & Gravel
83	110	Hard Clay
110	116	Sandy Clay
116	125	Clay
125	137	Clay & Gravel
137	155	Clay
155	165	Sand w/ Water
165	348	Clay & Sand
348	428	Clay & Sticky
428	450	Clay & Sand
450	517	Clay - Sticky
517	768	Clay
768	776	Clay - Sticky
776	960	Clay
960	1062	Clay - Sticky
1062	1093	Clay & Gravel
1093	1410	Clay - Sticky
1410	1520	Sand & Clay
1520	1524	Clay

9007

RECEIVED JUL 20 1955 STATE LAND DEPT.

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller Balew & Balew Drilling Co.
Name

406 E. 2nd. St. Casa Grande, Ariz.
Address

Date 7/16/55

625559
Ex well 13

G-[illegible]—[illegible]—[illegible]

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REGISTRATION OF WELL

EXCERPT OF 1945 GROUNDWATER LAW

Registration of Existing Wells is required of all persons owning or operating wells for irrigation or drainage purposes in accordance with Section 5, Chapter 12, Senate Bill No. 8, First Special Session, 1945. Section 8 of the law provides a penalty for failure to furnish the reports or refusal to cooperate with the State Land Commissioner.

1. OWNER Jack LeRoy Klack (Name)
Route 5 Box 1485 Phoenix, Arizona (Address)

2. LESSEE OR OPERATOR _____ (Name)
_____ (Address)

3. DRILLER Gilbert Pump Co. (Name)
4532 East Washington St. Phoenix, Arizona (Address)

4. LOCATION OF WELL: Twp 5-S Rge 3-E Section 34 NE ¼ NE ¼ SE ¼ (10-acre subdivision)

DESCRIPTION OF WELL

5. Total depth of hole 596 ft.
6. Type of casing Steve Pipe
7. Diameter and length of casing 20 in. from 0 to 596 in. from _____ to _____ in. from _____ to _____
8. Perforated from 130 to 578, from _____ to _____, from _____ to _____, from _____ to _____
9. Size of cuts ½x5 Number cuts per foot 12
10. If screen was installed: Length ____ ft. Diam. _____ in. Type _____
11. Method of construction Drilled (drilled, dug, driven, bored, jetted, etc.)
12. Date completed July 20, 1945 (Month, Year) Deepened _____ (Month, Year)
13. Depth of water when drilled 100 ft. (If flowing well, so state.)
14. Present depth to water 160 ft. Date of measurement Jan. 1955 (If flowing well, so state.)
15. Describe point from which depth measurements were made, and give sea-level elevation if available
Top of casing
16. If flowing well, state method of flow regulation _____

DISCHARGE DATA

17. Well discharge 2600 in 1945 (gal. per min. or cu. ft. per sec. or miner's inches.)
18. Method of discharge measurement Weir (weir, orifice, current meter, etc.)
19. Drawdown 40 ft.
20. Annual discharge in acre-feet or number of hours pumped: 1944 _____ a.f. or _____ hrs. 1945 _____ a.f. or _____ hrs.
21. Purpose of use Irrigating farm land
22. Place of use: Twp 5-S Rge 3-E Section 34 North ½ (Legal subdivision) Acres 320
(See 23) Twp 5-S Rge 3-E Section 27 South ½ (Legal subdivision) Acres 320
23. If well is part of irrigation system or Irrigation District, Association or Company, omit 22 and give name of project.
_____ (Name of Project)

EQUIPMENT DATA

24. Kind of pump Turbine (turbine, centrifugal, etc.)
25. Kind of power Electric (electric, natural gas, etc.)
26. Horsepower rating of motor 125
#26 Has been changed to 150 HP Electric

DO NOT WRITE IN THIS SPACE

OFFICE RECORD

Received 5-5-55 by [illegible]
Filed 5-5-55 by [illegible]
File No. (D-5-3) 24dac

(See Other Side)

Ex Well 13A

#9

FORM W-6 RM 12-47 JAKE-STILES

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REPORT OF WELL DRILLER

Report of Well Driller is required to be made and filed with the State Land Commissioner as required by Section 7, Chapter 12, Senate Bill No. 3, Seventeenth Legislature, First Special Session, 1948. A separate report shall be made for each well and filed within 30 days after completion of the well.

1. Owner: Ted G. Decker (Name)
Phoenix, Arizona (Address)

2. Lessee or Operator: _____ (Name)
_____ (Address)

3. Driller: Roscoe Moss Company (Driller H. G. Gope) (Name)
4360 Worth Street, Los Angeles (Address)

4. Location of well: Twp. 5-South Rge. 3-East Section 35 NE ¼ NE ¼ NE ¼ (Give subdivision) Pinal County

DESCRIPTION OF WELL

5. Total depth of hole 574 ft.
6. Type of casing Hard red steel
7. Diameter and length of casing 20 in. from 0 to 574 in. from ___ to ___ in. from ___ to ___
8. Method of casing at reduction point Not Reduced
9. Perforated from 130 to 560, from ___ to ___, from ___ to ___, from ___ to ___
10. Size of cuts 1/2 x 4½ Number cuts per foot 10 per 12 inches
11. If screen was installed: Length None ft. Diam. ___ in. Type ___
12. Method of construction Drilled Calif Type Cable Tool (drilled, dug, driven, bored, jetted, etc.)
13. Date completed February 22, 1951 (Month, Year)
14. Depth to water 118 ft. (If flowing well, so state.)
15. Describe point from which depth measurements were made, and give sea-level elevation if available. Ground Surface
16. If flowing well, state method of flow regulation ___

DISCHARGE DATA

17. Well discharge 2500 gal. per min. or cu. ft. per sec. or miner's inches 5/51
18. Method of discharge measurement ___ (weir, orifice, current meter, etc.)
19. Drawdown 220 ft.
20. Purpose of use Irrigation
21. Place of use (See 22) Twp. ___ Rge. ___ Section ___ Legal subdivision ___ Acres ___
22. Purpose of use ___
Twp. ___ Rge. ___ Section ___ Legal subdivision ___ Acres ___
22. If well is part of irrigation system of Irrigation District, Association or Company, omit 23 and give name of project.
Name of Project ___

(D-5-3)35 aaa

EQUIPMENT DATA

23. Kind of pump Turbine (turbine, centrifugal, etc.)
24. Kind of power Electric (electric, natural gas, etc.)
25. Horsepower rating of motor 200

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received 3/16/51 by kb
Filed 3/22/51 by kb
File No. (D-5-3)35 aaa'
Cross-referenced (Name) ___ by ___
Cross-referenced (Basin) ___ by ___
Cross-referenced ___ by ___

(See Other Side)

Ex Well 13A

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	6	Sandy
6	68	Caliche clay and sand
68	120	Sand and gravel
120	160	Soft clay
160	258	Clay with sandy streaks
258	270	Cemented sand
270	310	Caliche clay
310	316	Cemented sand
316	330	Sandy clay
330	335	Cement
335	354	Sand and clay
354	372	Hard caliche
372	574	Hard sandy clay and caliche

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

RECEIVED
MAR 16 1951
STATE LAND DEPT.
OF ARIZONA

Driller Roscoe Moss Company
Name

4360 Worth Street, Los Angeles.
Address

Date March 15, 1951

Ex well 5B

FORM W-8 10-45 JAHN-TYLER #8

RECEIVED

MAY 14 1946

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REPORT OF WELL DRILLER

State Land Department

Report of Well Driller is required to be made and filed with the State Land Commissioner as required by Section 7, Chapter 12, Senate Bill No. 3, Seventeenth Legislature, First Special Session, 1946. A separate report shall be made for each well and filed within 30 days after completion of the well.

1. Owner: T. G. Decker, and H. S. Miller, — Name
Box 1865, Phoenix, Arizona. — Address

2. Lessee or Operator: H. S. Miller — Name
Tempe — Address

3. Driller: Roscoe Moss Company (By H. C. Cope), — Name
4360 North Street, Los Angeles, California. — Address

4. Location of well: Twp. 5-South Rge. 3-East Section 35 North 1/2 ¼ SE SE ¼ SE ¼ — 10-acre subdivision

DESCRIPTION OF WELL

5. Total depth of hole 550 ft.

6. Type of casing: Hard red steel double stove pipe casing.

7. Diameter and length of casing: 20 in. from 0 to 550 in. from ___ to ___ in. from ___ to ___

8. Method of sealing at reduction point: Not reduced.

9. Perforated from 115 to 535, from ___ to ___, from ___ to ___, from ___ to ___

10. Size of cuts: 5/8" x 4½" Number cuts per foot: 10 every 12 inches.

11. If screen was installed: Length ___ ft. Diam. ___ in. Type: None

12. Method of construction: Drilled with California Type Cable Tool Equipment. — drilled, dug, driven, bored, jetted, etc.

13. Date completed: May 8, 1946. — Month Year

14. Depth to water: 92 ft. — If flowing well, so state.

15. Describe point from which depth measurements were made, and give sea-level elevation if available: Ground surface.

16. If flowing well, state method of flow regulation: Not flowing.

Not Tested.

DISCHARGE DATA

17. Well discharge: 2800 G.P.M. (Peerless Pump - 3/1950) — gal. per min. or cu. ft. per sec. or miner's inches.

18. Method of discharge measurement: weir, orifice, current meter, etc.

Pumping Level: 180 ft.

19. Drawdown: ___ ft.

20. Purpose of use: Irrigation

21. Place of use (See 22): Twp. ___ Rge. ___ Section ___ Legal subdivision ___ Acres ___
Twp. ___ Rge. ___ Section ___ Legal subdivision ___ Acres ___

22. If well is part of irrigation system of Irrigation District, Association or Company, omit 21 and give name of project.

Name of Project

(D-5-3)26

EQUIPMENT DATA

23. Kind of pump: Turbine — turbine, centrifugal, etc.

24. Kind of power: Electric — electric, natural gas, etc.

25. Horsepower rating of motor: 150

DO NOT WRITE IN THIS SPACE

OFFICE RECORD

Received 5-14-46 by LJ
Filed 5-16-46 by LJ
File No. (D-5-3)26 add
Cross-referenced (Name) ___ by ___
Cross-referenced (Basin) ___ by ___
Cross-referenced ___ by ___

(See Other Side)

Ex Well 5B

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rises in well.

From (feet)	To (feet)	Description of formation material
0	8	Top soil.
8	30	Sandy silt.
30	75	Dry sand and gravel.
75	85	Clay
85	108	Sandy clay.
108	120	Sand and gravel.
120	150	Caliche clay.
150	174	Sand and gravel.
174	236	Clay.
236	245	Sand and gravel.
245	252	Clay and gravel.
252	262	Sand and gravel.
262	295	Clay and gravel.
295	300	Sand and gravel.
300	352	Caliche clay.
352	360	Cemented sand.
360	380	Sticky clay.
380	395	Hard clay.
395	410	Cemented sand.
410	420	Hard clay.
420	435	Cemented formation.
435	550	Hard clay.

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller ROSCOE MOSS COMPANY,
Name

4360 Worth St., Los Angeles, Calif.
Address

Date May 13, 1946.

536635

324

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

OCT 2 2 1992

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.

1. Owner Name: JW GAS CORP
   Address: 3401 E. GAS RD TUCSON AZ 85714
   Street City State Zip
2. Driller Name: ASSOCIATED DRILLING
   Address: BOX 4858 HUACHUCA CITY AZ 85616
   Street City State Zip
3. Location: 5 N (S) 3 (E) W 35 SE 1/4 SE 1/4 SE 1/4
   Township Range Section 10-acre 40-acre 160-acre
4. Well Registration No. 55- 536635 (Required)
5. Permit No. _____ (If issued)

DESCRIPTION OF WELL

6. Total depth of hole 230 ft.
7. Type of casing —
8. Diameter and length of casing — in. from ____ to ____, ____ in from ____ to ____.
9. Method of sealing at reduction points —
10. Perforated from — to ____, from ____ to ____, from ____ to ____.
11. Size of cuts — Number of cuts per foot ____
12. If screen was installed: Length — ft. Diam ____ in. Type ____
13. Method of construction DRILLED
    (drilled, dug, driven, bored, jetted, etc)
14. Date started 9 29 92
    Month Day Year
15. Date completed 9 30 92
    Month Day Year
16. Depth to water 73' ft. (If flowing well, so state)
17. Describe point from which depth measurements were made, and give sea-level elevation if available
    G.L.
18. If flowing well, state method of flow regulation: —
19. Remarks: —

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. 55-536635
File No. D(5-3)35daa
Received ____ By ____
Entered ENTERED OCT 23 1992

DWR-55-55-7/91 (Rev.)

536635

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encounterd, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	3	SANDY TOP SOIL
3	18	STICKY CLAY
18	52	SANDY CLAY
52	115	GRAVEL & CLAY
115	123	CLAY W/ HARD LAYERS
123	150	GRAVEL & CLAY MIX
150	230	STICKY CLAY

I hereby certify that this well was drilled by me (or under my supervision), and that each and all statements herein contained are true to the best of my knowledge and belief.

Driller Name: TIM DRAVER

Street: BOX 4858

City: HUACHUCA CITY State: AZ Zip: 85616

Date: 10/3/92

Ex Well 11

STATE OF ARIZONA

ARIZONA WATER COMMISSION
WATER RIGHTS ADMINISTRATION

REPORT OF WELL DRILLER

This report should be prepared by the driller in all detail and filed with the Az. Water Commission following completion of the well.

1. OWNER Red River Land Company
Name
Address

2. Lessee or Operator
Name
Address

3. DRILLER B C & M Drilling, Inc.
Name
1128 S. Lewis Mesa, Arizona 85202
Address

4. Location of well: Twp. 6S Rge. 3E Section 3 SW ¼ SW ¼ SW ¼
10-acre subdivision

5. Intention to Drill File No. I (6-3) 3 ccc Permit No. G-1342
35-84198

DESCRIPTION OF WELL

6. Total depth of hole 1295 ft.

7. Type of casing Mild Steel

8. Diameter and length of casing 18" O.D. from 0 to 1290 in. from to , in. from to

9. Method of sealing at reduction points None

10. Perforated from 600' to 1290', from to , from to , from to

11. Size of cuts 1/8" X 3" Number of cuts per foot 20 Rows

12. If screen was installed: Length ft. Diam. in. Type

13. Method of construction Drilled by reverse circulation
drilled, dug, driven, bored, jetted, etc.

14. Date started 5 (Month) 27 (Day) 80 (Year)

15. Date completed 6 (Month) 2 (Day) 80 (Year)

16. Depth to water 600" Approximately
If flowing well, so state.

17. Describe point from which depth measurements were made, and give sea-level elevation if available
From ground level / Approximately 1000' above sea level

18. If flowing well, state method of flow regulation

19. REMARKS:

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received by

Filed 7-7-80 by Ruf

File No. D(6-3)3 ccc
35-84198

(Well Log to Appear on Reverse Side)

80-4-10

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller Anthony Bouchard (by dla)
Name

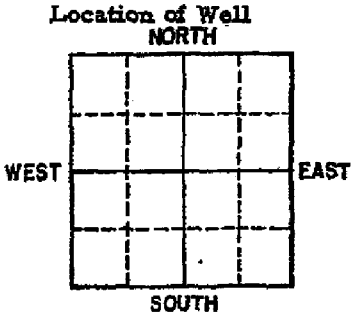
1128 S Lewis Mesa, Az
Address

Date 6-27-80

2-73

ARIZONA WATER COMMISSION
WATER RIGHTS ADMINISTRATION
222 NORTH CENTRAL, SUITE 650
PHOENIX, ARIZONA 85004

Location of Well



(Indicate Well Location by a circle "o" in the above Section Plat)

File No. D(6-3)3 ccc
35-84198

REPORT OF EQUIPMENT INSTALLED

OWNER Red River Land Company

LOCATION OF WELL:

SW ¼ SW ¼ SW ¼, Sec. 3 Twp. 6S Rge. 3E

Date Well Completed: 6-1-80 Depth 1295

1. Well Test:

Discharge: 300 - 400 (Gal. Per Min.) Date Well Tested: 6-10-80

Method of Discharge Measurement: Estimated (weir, orifice, current meter, etc.)

Static Water Level: unknown ft. Drawdown 780 ft.

Total Pumping Lift 780 ft.

2. Equipment Installed:

Kind of Pump: None - Used Test Pump (turbine, centrifugal, etc.)

Kind of Power: diesel (Elec., Nat. Gas, Etc.) H. P. Rating of Motor 700 HP

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

Signature

Date _____, 19____.

Address

35-80-10

Well 11

Page 1

b C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5-28-80

COMPANY Dem

NAME OF WELL RED RIVER

BIT SIZE 26-3-5

NUMBER OF WELL # 79 13

NUMBER OF BITS USED 1

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
40	45	Sand	1:40	1:50	10	100	55	10,000
45	50	Sand	1:50	2:00	10	100	55	10,000
50	55	Sand	2:00	2:10	10	100	55	10,000
55	60	Sand Gravel	2:10	2:30	20	100	55	10,000
60	65	Sand Gravel	2:30	2:50	20	100	55	10,000
65	70	Sand Gravel	2:50	3:15	25	100	55	10,000
70	75	Sand Gravel	3:15	3:35	20	100	55	10,000
75	77	Sand Gravel	3:35	4:05	30	100	55	10,000
		CON TO						
77	80	Rock	4:35	4:45	10	100	45	10,000
80	85	Rock Clay	4:45	5:40	105	100	55	10,000
85	90	Rock Clay	5:40	5:55	15	100	55	10,000
90	95	Rock Clay	5:55	6:03	8	100	55	10,000
95	100	Sand	6:03	6:00				
100	105	Clay Gravel	6:00	6:45	45	80	55	10,000
105	110	Clay Gravel	6:45	7:25	40	80	55	10,000
110	115	Sub Rock Bit	7:25	7:50	25	80	55	10,000
		CON TO						
115	120	Clay Gravel	8:20	8:35	5	80	55	10,000
120	125	Clay Gravel	8:35	8:50	15	80	55	10,000
125	130	Clay Gravel	8:50	9:05	15	80	55	10,000
130	135	Clay Gravel	12:30	12:40	10	100	55	10,000
135	140	Clay Gravel	12:40	12:53	13	100	55	10,000
140	145	Clay Gravel	12:53	1:01	7	100	55	10,000
		CON TO						
145	150	Clay Gravel	1:55	2:05	20	100	55	10,000
150	155	Clay Gravel	2:05	2:18	13	100	55	10,000
155	160	Clay Gravel	2:18	2:24	6	100	55	10,000
160	165	Clay Gravel	2:24	2:32	8	100	55	10,000
165	170	Clay Gravel	2:32	2:41	9	100	55	10,000
170	175	Clay Gravel	2:41	2:55	16	100	55	10,000

REMARKS:

Well 11

Page 2

b C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5 - 29 - 80

COMPANY BC+m

NAME OF WELL RED RIVER

BIT SIZE 26-35

NUMBER OF WELL R-79-13

NUMBER OF BITS USED

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
175	180	Rock Gravel	3:35	3:50	15	100	55	10,000
180	185	Rock Gravel	3:50	4:07	17	100	55	10,000
185	190	Gravel Clay	4:07	4:17	10	100	55	10,000
190	195	Clay Gravel	4:17	4:19	7	100	55	10,000
195	200	Rock Gravel	4:19	4:31	11	100	55	10,000
200	205	Rock Gravel	4:31	4:40	9	100	55	10,000
205	207	Rock Gravel	4:40	4:45	5	100	55	10,000
		CON 31						
207	210	Sand	5:10	5:14	4	100	55	10,000
210	215	Sand	5:14	5:21	7	100	55	10,000
215	220	Clay Gravel	5:21	5:30	9	100	55	10,000
220	225	Clay Gravel	5:30	5:35	5	100	55	10,000
225	230	Rock Gravel	5:35	5:46	11	100	55	10,000
230	235	Rock Gravel	5:46	5:59	13	100	55	10,000
[illegible]	239		5:59	6:17	13	100	55	10,000
		CON 30						
239	240	Clay Gravel	6:30	6:33	3	100	55	10,000
240	245	Clay Gravel	6:33	6:50	18	100	55	10,000
245	250	Clay Gravel	6:50	7:00	10	100	55	10,000
250	255	Clay Gravel	7:00	7:16	16	100	55	10,000
255	260	Clay Gravel	7:16	7:26	10	100	55	10,000
260	265	Clay Gravel	7:26	7:40	14	100	55	10,000
265	269		7:40	7:54	14	100	55	10,000
		CON 30						
269	270	Clay Gravel	8:19	8:22	3	100	55	10,000
270	275	Clay Gravel	8:22	8:30	8	100	55	10,000
275	280	Clay Gravel	8:30	8:45	15	100	55	10,000
280	285	Clay Gravel	8:45	9:05	20	100	55	10,000
285	290	Clay Gravel	9:05	9:20	15	100	55	10,000
290	295	Clay Gravel	9:20	9:35	15	100	55	10,000
295	299	Clay Gravel	9:35	10:10	15	100	55	10,000

REMARKS:

Well 11

Page 3

C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5-29-80

COMPANY B C & M

NAME OF WELL RED RIVER

BIT SIZE 9 6-3.5

NUMBER OF WELL 17-79-13

NUMBER OF BITS USED

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
		CON 30						
299	300	Clay Gravel	10:32	10:35	3	80	55	10,000
300	305	Clay Gravel	10:35	10:45	10	80	55	10000
305	310	Rock	10:45	11:02	17	80	55	10000
310	315	Rock	11:02	11:16	14	80	55	10,000
315	320	Sand Clay	11:16	11:29	13	80	55	10000
320	325	Sand Clay	11:29	11:41	12	80	55	10000
325	329		11:41	12:00	19	80	55	10,000
		CON 30.3						
329	330	Clay	12:35	12:40	5	80	55	10000
330	335	Clay	12:40	12:50	10	80	55	10000
335	340	Clay Gravel	12:50	1:00	10	80	55	10000
340	345	Clay Gravel	1:00	1:14	14	80	55	10000
345	350	Clay Gravel	1:14	1:20	6	80	55	10000
350	355	Clay Gravel	1:20	1:25	5	80	55	10000
355	359	" "	1:25	1:30	5	80	55	10000
		CON 30.4						
359	360	Clay Gravel	1:45	1:47	2	80	55	10000
360	365	Clay	1:47	2:00	13	80	55	10000
365	370	Clay	2:00	2:10	10	80	55	10000
370	375	Clay	2:10	2:15	5	80	55	10000
375	380	Clay	2:15	2:25	10	80	55	10000
380	385	Clay	2:25	2:40	15	80	55	10000
385	390	Clay	2:40	2:50	10	80	55	10000
		CON 30.5						
390	395	Clay	3:10	3:17	7	100	55	10000
395	400	Clay	3:17	3:30	13	100	55	10000
400	405	Clay	3:30	3:45	15	100	55	10000
405	410	Clay	3:45	3:54	11	100	55	10000
410	415	Clay	3:54	4:08	14	100	55	10000
415	420	Clay	4:08	4:15	17	100	55	10000
		CON 30.6						
420	425	Clay	4:25	4:40	15	100	25	10000

REMARKS:

Well 11

Page 4

B C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5/25/80

COMPANY C Red River

NAME OF WELL Red River

BIT SIZE 26-3-5

133'W

NUMBER OF WELL B 79-11

NUMBER OF BITS USED #2

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
425	430	Clay	4:40	5:00	16	100	55	15000
430	435	Clay	5:00	5:10	10	100	55	15000
435	440	Clay	5:10	5:25	15	100	55	15000
440	445	Clay	5:25	5:35	10	100	55	15000
445	450	Clay	5:35	5:50	15	100	55	15000
		Con 30.2						
450	455	Clay	6:05	6:10	5	100	55	15000
455	460	Clay	6:10	6:20	10	100	55	15000
460	465	Clay	6:20	6:24	4	100	55	15000
465	470	Clay	6:24	6:30	6	100	55	15000
470	475	Clay	6:30	6:37	7	100	55	15000
475	480	Clay	6:37	6:48	11	100	55	15000
		Con 30.8						
480	485	Clay	7:05	7:15	10	100	55	15000
485	490	Clay	7:15	7:27	12	100	55	15000
490	495	Clay	7:27	7:37	10	100	55	15000
495	500	Clay	7:37	7:55	18	100	55	15000
500	505	Clay	7:55	8:00	5	100	55	15000
505	510	Clay	8:00	8:05	5	100	55	15000
510	511	Clay	8:05	8:10	5	100	55	15000
		Con 30.8						
511	515	Clay	8:30	8:35	5	100	55	15000
515	520	Clay	8:35	8:43	6	100	55	15000
520	525	Clay	8:43	8:55	7	100	55	15000
525	530	Clay	8:55	9:00	5	100	55	15000
530	535	Clay	9:00	9:10	10	100	55	15000
535	540	Clay	9:10	9:18	8	100	55	15000
540	542	Clay	9:18	9:20	2	100	55	15000
		Con 30.10						
542	545	Clay	10:00	10:03	3	100	55	15000
545	550	Clay	10:03	10:15	12	100	55	15000
550	555	Clay	10:15	10:26	11	100	55	15000

30.2

REMARKS:

Well 11

Page 5

B C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5-29-80

COMPANY Red River

NAME OF WELL Red River

BIT SIZE 26-3-5

NUMBER OF WELL A-79-14

NUMBER OF BITS USED #2

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
555	560	Clay	10:26	10:37	10	100	55	15,000
560	565	Clay	10:37	10:45	8	100	55	15,000
565	570	Clay	10:45	10:58	13	100	55	15,000
570	573	Clay	10:58	11:05	7	100	55	15,000
		CON 30.2						
573	575	CLAY	11:20	11:28	8	100	55	15,000
575	580	Clay	11:28	11:48	12	100	55	15,000
580	585	CLAY	11:40	11:50	10	100	55	15,000
585	590	CLAY	11:50	12:00	10	100	55	15,000
590	595	CLAY & GRAVEL	12:00	12:08	8	100	55	15,000
595	600	90% CLAY 10% GRAVEL	12:08	12:17	9	100	55	15,000
600	603		12:17	12:25	8	100	55	15,000
		CON 30' 2"	12:25	12:40				
603	605	CLAY	12:40	12:46	6	100	55	15,000
605	610	CLAY	12:46	1:00	10	100	55	15,000
610	615	CLAY - 25% GRAVEL	1:00	1:10	10	100	55	15,000
615	620	CLAY - 100%	1:10	1:20	10	100	55	15,000
620	625	CLAY "	1:20	1:32	12	100	55	15,000
625	630	CLAY "	1:32	1:42	10	100	55	15,000
630	633	CLAY "	1:42	1:45	3	100	55	15,000
		CON 30' 2"	1:45	2:00				
633	635	CLAY - 100%	2:00	2:06	6	100	55	15,000
635	640	" "	2:06	2:18	12	100	55	15,000
640	645	" "	2:18	2:30	12	100	55	15,000
645	650	" "	2:30	2:40	10	100	55	15,000
650	655	" "	2:40	2:50	10	100	55	15,000
655	660	" "	2:50	2:58	8	100	55	15,000
660	663		2:58	3:10	12	100	55	15,000
		CON 30' 4"	3:10	3:50				
663	665	CLAY - 100%	3:50	3:55	5	100	55	15,000
665	670	" "	3:55	4:10	15	100	55	15,000
670	675	" "	4:10	4:20	10	100	55	15,000

REMARKS:

Well 11

Page 6

B C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5/30/20

COMPANY BC & M

NAME OF WELL Red River

BIT SIZE 26-3-5

NUMBER OF WELL A-79-14

NUMBER OF BITS USED 2

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
675	680	100% Clay	4:20	4:30	10	100	55	15,000
680	685	" "	4:30	4:40	10	100	55	15,000
685	690	" "	4:40	4:55	15	100	55	15,000
690	695	" "	4:55	5:05	10	100	55	15,000
		CON. 29'2"	5:05	5:20	15			
695	700	100% Clay	5:20	5:30	10	100	55	15,000
700	705	" "	5:30	5:40	10	100	55	15,000
705	710	" "	5:40	5:45	5	100	55	15,000
710	715	" "	5:45	5:55	10	100	55	15,000
715	720	" "	5:55	6:00	5	100	55	15,000
720	725	" "	6:00	6:10	10	100	55	15,000
		CON 30'5"	6:20	6:30				
725	730	100% Clay	6:30	6:35	5	100	55	15,000
730	735	" "	6:35	6:55	20	100	55	15,000
735	740	" "	6:55	7:30	35	100	55	15,000
740	745	" "	7:30	7:45	15	100	55	15,000
745	750	" "	7:45	8:00	15	100	55	15,000
750	755	" "	8:00	8:10	10	100	55	15,000
		CON. 30'7"	8:30	8:45				
755	760	100% Clay	8:45	9:00	15	100	55	15,000
760	765	" "	9:00	9:07	7	100	55	15,000
765	770	" "	9:07	9:15	8	100	55	15,000
770	775	" "	9:15	9:30	15	100	55	15,000
775	780	" "	9:30	9:55	25	100	55	15,000
780	785	" "	9:55	10:00	5	100	55	15,000
		CONT. 30'6	10:00	10:15	15			
785	790	100% Clay	10:15	10:25	10	100	55	15,000
790	795	" "	10:25	10:35	15	100	55	15,000
795	800	" "	10:35	10:40	5	100	55	15,000
800	805	" "	10:45	10:50	5	100	55	15,000
805	810	" "	10:50	10:55	5	100	55	15,000
810	815	" "	10:55	11:00	5	100	55	15,000

REMARKS:

Well 11

Page 7

B C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5/30/80

COMPANY BC&M

NUMBER OF WELL A-7914

NAME OF WELL Red River

NUMBER OF BITS USED 3

BIT SIZE 26-3-5

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
		CON. 28'6"	11:00	11:20				
815	820	100% CLAY	11:20	11:30				
820	825	" "	11:30	11:45				
825	830	" "	11:45	12:00				
830	835	" "	12:00	12:05				
835	840	Clay	12:05	12:20	15	100	55	15000
840	845		12:20	12:30				
		CON 30.4						
845	850	Clay	12:30	12:45	5	100	55	15000
850	855	Clay	12:45	1:10	25	100	55	15000
855	860	Clay	1:10	1:30	20	100	55	15000
860	865	Clay	1:30	1:45	15	100	55	15000
865	870	Clay	1:45	2:05	20	100	55	15000
870	875	Clay	2:05	2:15	10	100	55	15000
		CON 28.10						
875	880	Clay	2:40	3:00	20	100	55	15000
880	885	Clay	3:00	3:12	12	100	55	15000
885	890	Clay	3:12	3:40	28	100	55	15000
890	895	Clay	3:40	3:55	15	100	55	15000
895	900	Clay	3:55	4:15	20	100	55	15000
900	905	Clay	4:15	4:30	15	100	55	15000
		CON 30.9						
905	910	Clay	10:10	10:29	19	100	55	15000
910	915	Clay	10:29	10:45	16	100	55	15000
915	920	Clay	10:45	11:00	15	100	55	15000
920	925	Clay	11:00	11:30	30	100	55	15000
925	930	Clay	11:30	11:43	13	100	55	15000
930	935	Clay	11:45	11:53	8	100	55	15000
935	936		11:53	11:57	2	100	55	15000
		CON. 30.2	11:57	12:40				
936	940	100% Clay	12:40	12:50	10	100	55	15000
940	945	100% Clay	12:50	1:05	15	100	55	15000

REMARKS:

Well 11

Page 8

D C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 5/31/80

COMPANY BC & M

NAME OF WELL Red River

BIT SIZE 26-3-7

NUMBER OF WELL A-79-14

NUMBER OF BITS USED 3

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
945	950	100% CLAY	1:05	1:20	15	100	55	15,000
950	955	" "	1:20	1:30	10	"	"	"
955	960	" "	1:30	1:45	15	"	"	"
960	965	" "	1:45	2:10	25	"	"	"
965	966	" "	2:10	2:12	2	"	"	"
		CON. 29' 3"	2:12	2:30	18			
966	970	100% CLAY	2:30	2:45	15	100	55	15,000
970	975	" "	2:45	3:00	15	"	"	"
975	980	" "	3:00	3:17	17	"	"	"
980	985	" "	3:17	3:32	15	"	"	"
985	990	" "	3:32	3:50	18	"	"	"
990	995	" "	3:50	4:00				
		CON 29'	4:00	4:35	35	much WATER		
995	1000	95% Clay 5% Gravel	4:35	5:00	25	100	55	15,000
1000	1005	" "	5:00	5:10	10	"	"	"
1005	1010	90% Clay 10% Gravel	5:20	5:30	10	"	"	"
1010	1015	" "	5:30	5:45	15	"	"	"
1015	1020	" "	5:45	5:50	5	"	"	"
1020	1024	" "	5:50	5:55	5	"	"	"
		CON. 30' 8"	5:55	6:50	55	Repair Swivel		
1024	1025	75% Clay 25% Gravel	6:50	6:52	2	100	55	15,000
1025	1030	50% Clay 50% Gravel	6:52	7:12	20	100	55	15,000
1030	1035	50% CLAY 50% GRAVEL	7:12	7:30				
1035	1040	" "	7:30	7:45				
1040	1045	50% CLAY. GAVL	7:45	8:00				
1045	1050	90% GAVL - CLAY	8:00	8:15				
1050	1055	GAVL	8:15	8:30				
		(CONE) 28-4	8:30	9:25				
1055	1060	GAVL - CLAY	9:25	9:40				
1060	1065	GAVL - CLAY	9:40	10:05				
1065	1070	60% GAVL - CLAY	10:05	10:25				
1070	1075	60% GAVL - CLAY	10:25	10:55				

REMARKS:

Well 11

Page 9

B C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

1114
30
1144

DATE 5-31-80

COMPANY B C & M

NAME OF WELL Red River

BIT SIZE 26" 4-7

NUMBER OF WELL A-79-14

NUMBER OF BITS USED 3

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
1075	1080	40% GRAVEL CLAY	10:55	11:10				
080	1083		11:10	11:25				
		CONES) 29.00	11:28	11:45				
1083	1085	40% gravel clay	11:45	11:55				
1085	1090	40% gravel clay	11:55	12:05	10	100	55	15000
1090	1095	Gravel	12:05	12:30	25	100	55	15000
1095	1100	Gravel	12:30	12:50	10	"	"	"
1100	1105	Gravel	12:50	1:00	10	"	"	"
1105	1110	Gravel clay	1:00	1:30	20	"	"	"
1110	1114	Gravel clay	1:30	1:35	5	"	"	"
		CON 30.5						
1114	1115	Gravel 90% clay	10:05	10:16	11	100	55	15000
1115	1120	Clay 70% gravel	10:16	11:05	49	"	"	"
1120	1125	Clay only	11:05	11:15	10	"	"	"
1125	1130	Clay 40% gravel	11:15	11:25	10	"	"	"
1130	1135	Clay	11:25	11:40	15	"	"	"
35	1140	Clay	11:40	11:53	13	"	"	"
1140	1145	"	11:53	11:57	4	"	"	"
1145	1147	"	11:57	12:11	3	"	"	"
		CON. 29'4"	12:11	12:45				
1147	1150	Clay 100%	12:45	1:00	15	100	55	15,000
1150	1155	" "	1:00	1:18	18	"	"	"
1155	1160	" "	1:18	1:40	22	"	"	"
1160	1165	" "	1:40	2:00	20	"	"	"
1165	1170	" "	2:00	2:15	15	"	"	"
1170	1175	" "	2:15	2:25	10	"	"	"
		CON 30'1"	2:25	2:45	20			
1175	1180	Clay 100%	2:45	3:00	15	100	55	15,000
1180	1185	" "	3:00	3:15	15	"	"	"
1185	1190	" "	3:15	3:30	15	"	"	"
1190	1195	" "	3:30	3:45	15	"	"	"
1195	1200	" "	3:45	4:00	15	"	"	"

REMARKS:

Well 11

Page 10

B C & M DRILLING, INC.

1128 SOUTH LEWIS
MESA, ARIZONA 85202

DATE 6/1/20

COMPANY BC & M

NUMBER OF WELL 1-7-14

NAME OF WELL Red River

NUMBER OF BITS USED 3

BIT SIZE 5.5-4-7

TYPE AND FEET PER BIT

DEPTH FROM	DEPTH TO	FORMATION	TIME START	TIME END	TOTAL MIN.	AIR-PSI COMPRES.	ROTARY RPM	WEIGHT ON BIT
200	1205		4:00	4:15	15	100	55	15,000
		CON. 30' 8"	4:15	4:30				
205	1210	Clay 100%	4:30	4:50	20	100	55	15,000
210	1215	" "	4:50	5:05	15	"	"	"
215	1220	" "	5:05	5:15	10	"	"	"
220	1225	90% Clay 10% Gravel	5:15	5:30	15	"	"	"
225	1230	95% Clay 5% Gravel	5:30	5:40	10	"	"	"
230	1235	" "	5:40	5:55	15	"	"	"
		CON 29'	5:55	6:20				
235	1240	Clay 100%	6:25	6:40	15	100	55	15,000
240	1245	" "	6:40	7:00	20	"	"	"
245	1250	" "	7:00	7:05	5	"	"	"
250	1255	" "	7:05	7:15	10	"	"	"
255	1260	" 10% Gravel	7:15	7:45	30	"	"	"
260	1265	Clay 100%	7:45	8:35	50	"	"	"
1265	1270	" "	8:35	8:45				
		CON 30' 9"	8:45	9:00				
1270	1270	Clay	9:00	9:15		100	60	15,000
1270	1275	50% Clay 50% Gravel	9:15	9:20	5	"	"	"
1275	1280	90% Clay 10% Gravel	9:20	9:40	20	"	"	"
1280	1285	100% Clay	9:40	9:55	15	"	"	"
1285	1290	"	9:55	10:10	15	"	"	"
1290	1295		10:10					

REMARKS:

1295 / 1289 / 0 / 0 / 0 / 1

41 / 5 / 30 / 1228 / 7 / 4 / 6 / 13 / 1

605592

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
364	415	Clay Hard
415	420	Sand and Gravel
420	580	Sandy Clay
580	610	Sandy Clay with Gravel
610	630	Sandy Clay Hard
630	660	Clay
660	700	Sandy Clay Sand gravel

I hereby certify that I have read the foregoing statements, and that each and all of the items therein contained are true to the best of my knowledge and belief.

Paul Taylor
Owner, Operator or Driller

Tonopah Box 474
Address

Date 3-8-1956

RECEIVED
JUL 21 1960
STATE LAND DEPT.
OF ARIZONA

10C

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	40	Surface
40	55	Sand + Gravel
55	65	Clay
65	90	Clay + Gravel
90	130	Gravel
130	160	Clay
160	190	Sandy Clay
190	210	Clay + Gravel
210	230	Sand + Gravel, first show of w.
230	250	Clay, Water rose to 210'
250	290	Cemented Sand and Gravel
290	310	Clay + Gravel
310	340	Hard Sand
340	390	Cemented Sand + Gravel
390	535	Sticky Red Clay

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller: J. M. Smith
Name

Rt 1 Box 186 Casa Grande Ariz
Address

Date: [redacted] 10-1-61

RECEIVED OCT 24 1961 STATE LAND DEPT.

151169

well 13
62359

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

From (feet)	To (feet)	Description of formation material
0	6	Sandy
6	68	Caliche clay and sand
68	120	Sand and gravel
120	160	Soft clay
160	258	Clay with sandy streaks
258	270	Cemented sand
270	310	Caliche clay
310	316	Cemented sand
316	330	Sandy clay
330	335	Cement
335	354	Sand and clay
354	372	Hard caliche
372	574	Hard sandy clay and caliche

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

RECEIVED
MAR 16 1951
STATE LAND DEPT.
OF ARIZONA

Driller Roscoe Moss Company
Name

4360 Worth Street, Los Angeles
Address

Date March 15, 1951

Ex well 12
6255C0

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	10	Surface
10	15	Gravel
15	72	Clay & Gravel
72	78	Gravel
78	177	Clay & Gravel
177	189	Gravel
189	210	Sand
210	230	Clay
230	240	Clay & Gravel
240	250	Clay
250	260	Gravel
260	265	H ard & Sandy
265	307	Clay & Gravel
307	312	Sand
312	335	Clay
335	362	Cemented Sand & Gravel
362	428	Clay (Sticky)
428	435	Clay & Gravel
435	800	Clay
800	808	Sandy (Hard)
808	820	Sandy Clay
820	1121	Sticky Clay
1121	1138	Sandy Gravel
1138	1140	Sandy Clay
1140	1145	Sandy Gravel
1145	1225	Clay
1225	1233	Sand & Gravel (Hard)
1233	1272	Cemented Sand & Gravel
1272	1302	Clay & Gravel
1302	1371	Cemented Sand
1371	1395	Clay
1395	1399	Sand & Gravel
1399	1450	Sticky Clay

RECEIVED 14 ... 9 STATE LAND DEPT. 3174

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

Driller Belew & Belew Drilling Co.
Name

406 E. 2nd. St., Casa Grande, Arizona
Address

Date 10/9/55

APPENDIX C

AQUIFER TEST MONITORING DATA

WELL SRR-1

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Aquifer Test Recovery Data									Page 1	
Project: TOUSA Homes Red River		Project No.:	23444859						Corrected SWL (feet bls):	127.63
Well Location: D(5-3)26acc		Well No.:	55-213913						Measuring Point:	Top of sounder tube
Well Diameter: 18-5/8 inch		Measured By:	JLM						Transducer Setting (feet, bls):	364
Pump Setting: 370 ft bls		Pump On Date:	2/19/07	Time: 09:31					Available Drawdown (feet):	227.05
Screen Interval(s): 160-240 ft.		Pump off Date:	2/20/07	Time: 09:32				Totalizer Start (X1000gal) =	24000	26,903,600
& 270-390 ft.		Duration of Aquifer Test:		24 hr				Totalizer End (X1000gal) =	363036	18748
Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
9:32	1441	0	0.00	131.963	364	232.05	104.42	23.21	18.19	
9:33	1442	1	1442.00	183.375	364	180.63	53.00	74.84	58.48	
9:34	1443	2	721.50	203.249	364	160.75	33.12	94.51	74.05	
9:35	1444	3	481.33	206.123	364	157.88	30.25	97.38	76.30	
9:36	1445	4	361.25	208.98	364	155.02	27.39	100.24	78.54	
9:37	1446	5	289.20	211.391	364	152.61	24.98	102.65	80.43	
9:38	1447	6	241.17	213.387	364	150.61	22.98	104.65	81.99	
9:39	1448	7	206.86	215.069	364	148.93	21.30	106.33	83.31	
9:40	1449	8	181.13	216.455	364	147.55	19.92	107.72	84.40	
9:41	1450	9	161.11	217.621	364	146.38	18.75	108.88	85.31	
9:42	1451	10	145.10	218.592	364	145.41	17.78	109.85	86.07	
9:43	1452	11	132.00	219.419	364	144.58	16.95	110.68	86.72	
9:44	1453	12	121.08	220.062	364	143.94	16.31	111.32	87.22	
9:45	1454	13	111.85	220.571	364	143.43	15.80	111.83	87.62	
9:46	1455	14	103.93	220.979	364	143.02	15.39	112.24	87.94	
9:47	1456	15	97.07	221.315	364	142.69	15.06	112.58	88.20	
9:48	1457	16	91.06	221.605	364	142.40	14.77	112.87	88.43	
9:49	1458	17	85.76	221.856	364	142.14	14.51	113.12	88.63	
9:50	1459	18	81.06	222.09	364	141.91	14.28	113.35	88.81	
9:51	1460	19	76.84	222.294	364	141.71	14.08	113.55	88.97	
9:52	1461	20	73.05	222.49	364	141.51	13.88	113.75	89.12	
9:53	1462	21	69.62	222.67	364	141.33	13.70	113.93	89.27	
9:54	1463	22	66.50	222.818	364	141.18	13.55	114.08	89.38	
9:55	1464	23	63.65	222.974	364	141.03	13.40	114.23	89.50	
9:56	1465	24	61.04	223.131	364	140.87	13.24	114.39	89.63	
9:57	1466	25	58.64	223.272	364	140.73	13.10	114.53	89.74	
9:58	1467	26	56.42	223.441	364	140.56	12.93	114.70	89.87	
9:59	1468	27	54.37	223.516	364	140.48	12.85	114.78	89.93	
10:00	1469	28	52.46	223.615	364	140.39	12.76	114.88	90.01	
10:01	1470	29	50.69	223.702	364	140.30	12.67	114.96	90.07	
10:02	1471	30	49.03	223.764	364	140.24	12.61	115.02	90.12	
10:03	1472	31	47.48	223.82	364	140.18	12.55	115.08	90.17	
10:04	1473	32	46.03	223.866	364	140.13	12.50	115.13	90.20	
10:05	1474	33	44.67	223.914	364	140.09	12.46	115.17	90.24	
10:06	1475	34	43.38	223.953	364	140.05	12.42	115.21	90.27	
10:07	1476	35	42.17	223.992	364	140.01	12.38	115.25	90.30	
10:08	1477	36	41.03	224.031	364	139.97	12.34	115.29	90.33	
10:09	1478	37	39.95	224.055	364	139.95	12.32	115.32	90.35	
10:10	1479	38	38.92	224.094	364	139.91	12.28	115.35	90.38	
10:11	1480	39	37.95	224.118	364	139.88	12.25	115.38	90.40	
10:12	1481	40	37.03	224.141	364	139.86	12.23	115.40	90.42	
10:13	1482	41	36.15	224.157	364	139.84	12.21	115.42	90.43	
10:14	1483	42	35.31	224.18	364	139.82	12.19	115.44	90.45	
10:15	1484	43	34.51	224.204	364	139.80	12.17	115.46	90.47	
10:16	1485	44	33.75	224.219	364	139.78	12.15	115.48	90.48	
10:17	1486	45	33.02	224.251	364	139.75	12.12	115.51	90.50	
10:18	1487	46	32.33	224.258	364	139.74	12.11	115.52	90.51	
10:19	1488	47	31.66	224.266	364	139.73	12.10	115.53	90.52	
10:20	1489	48	31.02	224.29	364	139.71	12.08	115.55	90.54	
10:21	1490	49	30.41	224.305	364	139.70	12.07	115.57	90.55	
10:22	1491	50	29.82	224.313	364	139.69	12.06	115.57	90.55	
10:23	1492	51	29.25	224.329	364	139.67	12.04	115.59	90.57	
10:24	1493	52	28.71	224.345	364	139.66	12.03	115.61	90.58	
10:25	1494	53	28.19	224.36	364	139.64	12.01	115.62	90.59	
10:26	1495	54	27.69	224.376	364	139.62	11.99	115.64	90.60	
10:27	1496	55	27.20	224.393	364	139.61	11.98	115.65	90.62	
10:28	1497	56	26.73	224.408	364	139.59	11.96	115.67	90.63	
10:29	1498	57	26.28	224.423	364	139.58	11.95	115.68	90.64	
10:30	1499	58	25.84	224.431	364	139.57	11.94	115.69	90.65	
10:31	1500	59	25.42	224.447	364	139.55	11.92	115.71	90.66	
10:32	1501	60	25.02	224.454	364	139.55	11.92	115.71	90.66	
10:33	1502	61	24.62	224.47	364	139.53	11.90	115.73	90.68	
10:34	1503	62	24.24	224.485	364	139.52	11.89	115.75	90.69	
10:35	1504	63	23.87	224.494	364	139.51	11.88	115.75	90.69	
10:36	1505	64	23.52	224.509	364	139.49	11.86	115.77	90.71	
10:37	1506	65	23.17	224.518	364	139.48	11.85	115.78	90.71	
10:38	1507	66	22.83	224.532	364	139.47	11.84	115.79	90.72	
10:39	1508	67	22.51	224.541	364	139.46	11.83	115.80	90.73	
10:40	1509	68	22.19	224.557	364	139.44	11.81	115.82	90.74	
10:41	1510	69	21.88	224.565	364	139.44	11.81	115.83	90.75	
10:42	1511	70	21.59	224.58	364	139.42	11.79	115.84	90.76	
10:43	1512	71	21.30	224.588	364	139.41	11.78	115.85	90.77	
10:44	1513	72	21.01	224.596	364	139.40	11.77	115.86	90.77	
10:45	1514	73	20.74	224.612	364	139.39	11.76	115.87	90.79	
10:46	1515	74	20.47	224.62	364	139.38	11.75	115.88	90.79	
10:47	1516	75	20.21	224.627	364	139.37	11.74	115.89	90.80	
10:48	1517	76	19.96	224.635	364	139.37	11.74	115.90	90.81	
10:49	1518	77	19.71	224.643	364	139.36	11.73	115.90	90.81	
10:50	1519	78	19.47	224.651	364	139.35	11.72	115.91	90.82	
10:51	1520	79	19.24	224.659	364	139.34	11.71	115.92	90.82	
10:52	1521	80	19.01	224.666	364	139.33	11.70	115.93	90.83	
10:53	1522	81	18.79	224.682	364	139.32	11.69	115.94	90.84	
10:54	1523	82	18.57	224.682	364	139.32	11.69	115.94	90.84	
10:55	1524	83	18.36	224.698	364	139.30	11.67	115.96	90.85	
10:56	1525	84	18.15	224.706	364	139.29	11.66	115.97	90.86	
10:57	1526	85	17.95	224.714	364	139.29	11.66	115.97	90.87	
10:58	1527	86	17.76	224.721	364	139.28	11.65	115.98	90.87	
10:59	1528	87	17.56	224.729	364	139.27	11.64	115.99	90.88	
11:00	1529	88	17.38	224.738	364	139.26	11.63	116.00	90.89	
11:01	1530	89	17.19	224.745	364	139.26	11.63	116.01	90.89	
11:02	1531	90	17.01	224.754	364	139.25	11.62	116.01	90.90	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
11:03	1532	91	16.84	224.761	364	139.24	11.61	116.02	90.90	
11:04	1533	92	16.66	224.769	364	139.23	11.60	116.03	90.91	
11:05	1534	93	16.49	224.761	364	139.24	11.61	116.02	90.90	
11:06	1535	94	16.33	224.777	364	139.22	11.59	116.04	90.92	
11:07	1536	95	16.17	224.776	364	139.22	11.59	116.04	90.92	
11:08	1537	96	16.01	224.785	364	139.22	11.59	116.05	90.92	
11:09	1538	97	15.86	224.793	364	139.21	11.58	116.05	90.93	
11:10	1539	98	15.70	224.8	364	139.20	11.57	116.06	90.93	
11:11	1540	99	15.56	224.808	364	139.19	11.56	116.07	90.94	
11:12	1541	100	15.41	224.816	364	139.18	11.55	116.08	90.95	
11:13	1542	101	15.27	224.816	364	139.18	11.55	116.08	90.95	
11:14	1543	102	15.13	224.824	364	139.18	11.55	116.08	90.95	
11:15	1544	103	14.99	224.832	364	139.17	11.54	116.09	90.96	
11:16	1545	104	14.86	224.84	364	139.16	11.53	116.10	90.97	
11:17	1546	105	14.72	224.847	364	139.15	11.52	116.11	90.97	
11:18	1547	106	14.59	224.847	364	139.15	11.52	116.11	90.97	
11:19	1548	107	14.47	224.855	364	139.15	11.52	116.12	90.98	
11:20	1549	108	14.34	224.863	364	139.14	11.51	116.12	90.98	
11:21	1550	109	14.22	224.879	364	139.12	11.49	116.14	91.00	
11:22	1551	110	14.10	224.879	364	139.12	11.49	116.14	91.00	
11:23	1552	111	13.98	224.887	364	139.11	11.48	116.15	91.00	
11:24	1553	112	13.87	224.894	364	139.11	11.48	116.15	91.01	
11:25	1554	113	13.75	224.903	364	139.10	11.47	116.16	91.02	
11:26	1555	114	13.64	224.902	364	139.10	11.47	116.16	91.01	
11:27	1556	115	13.53	224.903	364	139.10	11.47	116.16	91.02	
11:28	1557	116	13.42	224.91	364	139.09	11.46	116.17	91.02	
11:29	1558	117	13.32	224.918	364	139.08	11.45	116.18	91.03	
11:30	1559	118	13.21	224.918	364	139.08	11.45	116.18	91.03	
11:31	1560	119	13.11	224.918	364	139.08	11.45	116.18	91.03	
11:32	1561	120	13.01	224.926	364	139.07	11.44	116.19	91.03	
11:33	1562	121	12.91	224.934	364	139.07	11.44	116.19	91.04	
11:34	1563	122	12.81	224.942	364	139.06	11.43	116.20	91.05	
11:35	1564	123	12.72	224.95	364	139.05	11.42	116.21	91.05	
11:36	1565	124	12.62	224.95	364	139.05	11.42	116.21	91.05	
11:37	1566	125	12.53	224.958	364	139.04	11.41	116.22	91.06	
11:38	1567	126	12.44	224.958	364	139.04	11.41	116.22	91.06	
11:39	1568	127	12.35	224.966	364	139.03	11.40	116.23	91.06	
11:40	1569	128	12.26	224.966	364	139.03	11.40	116.23	91.06	
11:41	1570	129	12.17	224.974	364	139.03	11.40	116.23	91.07	
11:42	1571	130	12.08	224.981	364	139.02	11.39	116.24	91.08	
11:43	1572	131	12.00	224.988	364	139.01	11.38	116.25	91.08	
11:44	1573	132	11.92	224.989	364	139.01	11.38	116.25	91.08	
11:45	1574	133	11.83	224.989	364	139.01	11.38	116.25	91.08	
11:46	1575	134	11.75	224.997	364	139.00	11.37	116.26	91.09	
11:47	1576	135	11.67	225.005	364	139.00	11.37	116.27	91.10	
11:48	1577	136	11.60	225.005	364	139.00	11.37	116.27	91.10	
11:49	1578	137	11.52	225.013	364	138.99	11.36	116.27	91.10	
11:50	1579	138	11.44	225.021	364	138.98	11.35	116.28	91.11	
11:51	1580	139	11.37	225.028	364	138.97	11.34	116.29	91.11	
11:52	1581	140	11.29	225.036	364	138.96	11.33	116.30	91.12	
11:53	1582	141	11.22	225.036	364	138.96	11.33	116.30	91.12	
11:54	1583	142	11.15	225.036	364	138.96	11.33	116.30	91.12	
11:55	1584	143	11.08	225.036	364	138.96	11.33	116.30	91.12	
11:56	1585	144	11.01	225.036	364	138.96	11.33	116.30	91.12	
11:57	1586	145	10.94	225.044	364	138.95	11.33	116.30	91.13	
11:58	1587	146	10.87	225.052	364	138.95	11.32	116.31	91.13	
11:59	1588	147	10.80	225.052	364	138.95	11.32	116.31	91.13	
12:00	1589	148	10.74	225.06	364	138.94	11.31	116.32	91.14	
12:01	1590	149	10.67	225.06	364	138.94	11.31	116.32	91.14	
12:02	1591	150	10.61	225.068	364	138.93	11.30	116.33	91.14	
12:03	1592	151	10.54	225.068	364	138.93	11.30	116.33	91.14	
12:04	1593	152	10.48	225.075	364	138.93	11.30	116.34	91.15	
12:05	1594	153	10.42	225.075	364	138.93	11.30	116.34	91.15	
12:06	1595	154	10.36	225.075	364	138.93	11.30	116.34	91.15	
12:07	1596	155	10.30	225.084	364	138.92	11.29	116.34	91.16	
12:08	1597	156	10.24	225.091	364	138.91	11.28	116.35	91.16	
12:09	1598	157	10.18	225.099	364	138.90	11.27	116.36	91.17	
12:10	1599	158	10.12	225.107	364	138.89	11.26	116.37	91.18	
12:11	1600	159	10.06	225.107	364	138.89	11.26	116.37	91.18	
12:12	1601	160	10.01	225.107	364	138.89	11.26	116.37	91.18	
12:13	1602	161	9.95	225.107	364	138.89	11.26	116.37	91.18	
12:14	1603	162	9.90	225.107	364	138.89	11.26	116.37	91.18	
12:15	1604	163	9.84	225.115	364	138.89	11.26	116.38	91.18	
12:16	1605	164	9.79	225.116	364	138.88	11.25	116.38	91.18	
12:17	1606	165	9.73	225.123	364	138.88	11.25	116.38	91.19	
12:18	1607	166	9.68	225.122	364	138.88	11.25	116.38	91.19	
12:19	1608	167	9.63	225.138	364	138.86	11.23	116.40	91.20	
12:20	1609	168	9.58	225.138	364	138.86	11.23	116.40	91.20	
12:21	1610	169	9.53	225.139	364	138.86	11.23	116.40	91.20	
12:22	1611	170	9.48	225.147	364	138.85	11.22	116.41	91.21	
12:23	1612	171	9.43	225.139	364	138.86	11.23	116.40	91.20	
12:24	1613	172	9.38	225.154	364	138.85	11.22	116.41	91.21	
12:25	1614	173	9.33	225.154	364	138.85	11.22	116.41	91.21	
12:26	1615	174	9.28	225.147	364	138.85	11.22	116.41	91.21	
12:27	1616	175	9.23	225.147	364	138.85	11.22	116.41	91.21	
12:28	1617	176	9.19	225.147	364	138.85	11.22	116.41	91.21	
12:29	1618	177	9.14	225.155	364	138.85	11.22	116.42	91.21	
12:30	1619	178	9.10	225.155	364	138.85	11.22	116.42	91.21	
12:31	1620	179	9.05	225.155	364	138.85	11.22	116.42	91.21	
12:32	1621	180	9.01	225.162	364	138.84	11.21	116.42	91.22	
12:33	1622	181	8.96	225.162	364	138.84	11.21	116.42	91.22	
12:34	1623	182	8.92	225.178	364	138.82	11.19	116.44	91.23	
12:35	1624	183	8.87	225.178	364	138.82	11.19	116.44	91.23	
12:36	1625	184	8.83	225.186	364	138.81	11.18	116.45	91.24	
12:37	1626	185	8.79	225.186	364	138.81	11.18	116.45	91.24	
12:38	1627	186	8.75	225.186	364	138.81	11.18	116.45	91.24	
12:39	1628	187	8.71	225.194	364	138.81	11.18	116.45	91.24	
12:40	1629	188	8.66	225.194	364	138.81	11.18	116.45	91.24	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offset (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
12:41	1630	189	8.62	225.194	364	138.81	11.18	116.45	91.24	
12:42	1631	190	8.58	225.194	364	138.81	11.18	116.45	91.24	
12:43	1632	191	8.54	225.194	364	138.81	11.18	116.45	91.24	
12:44	1633	192	8.51	225.202	364	138.80	11.17	116.46	91.25	
12:45	1634	193	8.47	225.209	364	138.79	11.16	116.47	91.26	
12:46	1635	194	8.43	225.209	364	138.79	11.16	116.47	91.26	
12:47	1636	195	8.39	225.209	364	138.79	11.16	116.47	91.26	
12:48	1637	196	8.35	225.217	364	138.78	11.15	116.48	91.26	
12:49	1638	197	8.31	225.217	364	138.78	11.15	116.48	91.26	
12:50	1639	198	8.28	225.217	364	138.78	11.15	116.48	91.26	
12:51	1640	199	8.24	225.225	364	138.78	11.15	116.49	91.27	
12:52	1641	200	8.21	225.225	364	138.78	11.15	116.49	91.27	
12:53	1642	201	8.17	225.225	364	138.78	11.15	116.49	91.27	
12:54	1643	202	8.13	225.233	364	138.77	11.14	116.49	91.27	
12:55	1644	203	8.10	225.233	364	138.77	11.14	116.49	91.27	
12:56	1645	204	8.06	225.241	364	138.76	11.13	116.50	91.28	
12:57	1646	205	8.03	225.241	364	138.76	11.13	116.50	91.28	
12:58	1647	206	8.00	225.241	364	138.76	11.13	116.50	91.28	
12:59	1648	207	7.96	225.249	364	138.75	11.12	116.51	91.29	
13:00	1649	208	7.93	225.249	364	138.75	11.12	116.51	91.29	
13:01	1650	209	7.89	225.256	364	138.74	11.11	116.52	91.29	
13:02	1651	210	7.86	225.256	364	138.74	11.11	116.52	91.29	
13:03	1652	211	7.83	225.256	364	138.74	11.11	116.52	91.29	
13:04	1653	212	7.80	225.264	364	138.74	11.11	116.52	91.30	
13:05	1654	213	7.77	225.264	364	138.74	11.11	116.52	91.30	
13:06	1655	214	7.73	225.272	364	138.73	11.10	116.53	91.30	
13:07	1656	215	7.70	225.272	364	138.73	11.10	116.53	91.30	
13:08	1657	216	7.67	225.272	364	138.73	11.10	116.53	91.30	
13:09	1658	217	7.64	225.273	364	138.73	11.10	116.53	91.31	
13:10	1659	218	7.61	225.272	364	138.73	11.10	116.53	91.30	
13:11	1660	219	7.58	225.273	364	138.73	11.10	116.53	91.31	
13:12	1661	220	7.55	225.28	364	138.72	11.09	116.54	91.31	
13:13	1662	221	7.52	225.281	364	138.72	11.09	116.54	91.31	
13:14	1663	222	7.49	225.28	364	138.72	11.09	116.54	91.31	
13:15	1664	223	7.46	225.288	364	138.71	11.08	116.55	91.32	
13:16	1665	224	7.43	225.288	364	138.71	11.08	116.55	91.32	
13:17	1666	225	7.40	225.288	364	138.71	11.08	116.55	91.32	
13:18	1667	226	7.38	225.296	364	138.70	11.07	116.56	91.32	
13:19	1668	227	7.35	225.297	364	138.70	11.07	116.56	91.32	
13:20	1669	228	7.32	225.303	364	138.70	11.07	116.56	91.33	
13:21	1670	229	7.29	225.303	364	138.70	11.07	116.56	91.33	
13:22	1671	230	7.27	225.303	364	138.70	11.07	116.56	91.33	
13:23	1672	231	7.24	225.311	364	138.69	11.06	116.57	91.34	
13:24	1673	232	7.21	225.311	364	138.69	11.06	116.57	91.34	
13:25	1674	233	7.18	225.312	364	138.69	11.06	116.57	91.34	
13:26	1675	234	7.16	225.312	364	138.69	11.06	116.57	91.34	
13:27	1676	235	7.13	225.312	364	138.69	11.06	116.57	91.34	
13:28	1677	236	7.11	225.32	364	138.68	11.05	116.58	91.34	
13:29	1678	237	7.08	225.32	364	138.68	11.05	116.58	91.34	
13:30	1679	238	7.05	225.32	364	138.68	11.05	116.58	91.34	
13:31	1680	239	7.03	225.328	364	138.67	11.04	116.59	91.35	
13:32	1681	240	7.00	225.328	364	138.67	11.04	116.59	91.35	
13:33	1682	241	6.98	225.336	364	138.66	11.03	116.60	91.35	
13:34	1683	242	6.95	225.336	364	138.67	11.04	116.60	91.35	
13:35	1684	243	6.93	225.336	364	138.66	11.03	116.60	91.35	
13:36	1685	244	6.91	225.343	364	138.66	11.03	116.60	91.36	
13:37	1686	245	6.88	225.336	364	138.66	11.03	116.60	91.35	
13:38	1687	246	6.86	225.343	364	138.66	11.03	116.60	91.36	
13:39	1688	247	6.83	225.343	364	138.66	11.03	116.60	91.36	
13:40	1689	248	6.81	225.343	364	138.66	11.03	116.60	91.36	
13:41	1690	249	6.79	225.351	364	138.65	11.02	116.61	91.37	
13:42	1691	250	6.76	225.351	364	138.65	11.02	116.61	91.37	
13:43	1692	251	6.74	225.351	364	138.65	11.02	116.61	91.37	
13:44	1693	252	6.72	225.359	364	138.64	11.01	116.62	91.37	
13:45	1694	253	6.70	225.359	364	138.64	11.01	116.62	91.37	
13:46	1695	254	6.67	225.351	364	138.65	11.02	116.61	91.37	
13:47	1696	255	6.65	225.359	364	138.64	11.01	116.62	91.37	
13:48	1697	256	6.63	225.359	364	138.64	11.01	116.62	91.37	
13:49	1698	257	6.61	225.367	364	138.63	11.00	116.63	91.38	
13:50	1699	258	6.59	225.367	364	138.63	11.00	116.63	91.38	
13:51	1700	259	6.56	225.375	364	138.63	11.00	116.64	91.39	
13:52	1701	260	6.54	225.375	364	138.63	11.00	116.64	91.39	
13:53	1702	261	6.52	225.375	364	138.63	11.00	116.64	91.39	
13:54	1703	262	6.50	225.367	364	138.63	11.00	116.63	91.38	
13:55	1704	263	6.48	225.375	364	138.63	11.00	116.64	91.39	
13:56	1705	264	6.46	225.375	364	138.63	11.00	116.64	91.39	
13:57	1706	265	6.44	225.375	364	138.63	11.00	116.64	91.39	
13:58	1707	266	6.42	225.383	364	138.62	10.99	116.64	91.39	
13:59	1708	267	6.40	225.383	364	138.62	10.99	116.64	91.39	
14:00	1709	268	6.38	225.39	364	138.61	10.98	116.65	91.40	
14:01	1710	269	6.36	225.39	364	138.61	10.98	116.65	91.40	
14:02	1711	270	6.34	225.39	364	138.61	10.98	116.65	91.40	
14:03	1712	271	6.32	225.398	364	138.60	10.97	116.66	91.40	
14:04	1713	272	6.30	225.398	364	138.60	10.97	116.66	91.40	
14:05	1714	273	6.28	225.398	364	138.60	10.97	116.66	91.40	
14:06	1715	274	6.26	225.398	364	138.60	10.97	116.66	91.40	
14:07	1716	275	6.24	225.398	364	138.60	10.97	116.66	91.40	
14:08	1717	276	6.22	225.398	364	138.60	10.97	116.66	91.40	
14:09	1718	277	6.20	225.406	364	138.59	10.96	116.67	91.41	
14:10	1719	278	6.18	225.406	364	138.59	10.96	116.67	91.41	
14:11	1720	279	6.16	225.406	364	138.59	10.96	116.67	91.41	
14:12	1721	280	6.15	225.414	364	138.59	10.96	116.67	91.42	
14:13	1722	281	6.13	225.406	364	138.59	10.96	116.67	91.41	
14:14	1723	282	6.11	225.414	364	138.59	10.96	116.67	91.42	
14:15	1724	283	6.09	225.406	364	138.59	10.96	116.67	91.41	
14:16	1725	284	6.07	225.414	364	138.59	10.96	116.67	91.42	
14:17	1726	285	6.06	225.414	364	138.59	10.96	116.67	91.42	
14:18	1727	286	6.04	225.422	364	138.58	10.95	116.68	91.42	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offset (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
14:19	1728	287	6.02	225.422	364	138.58	10.95	116.68	91.42	
14:20	1729	288	6.00	225.422	364	138.58	10.95	116.68	91.42	
14:21	1730	289	5.99	225.423	364	138.58	10.95	116.68	91.42	
14:22	1731	290	5.97	225.43	364	138.57	10.94	116.69	91.43	
14:23	1732	291	5.95	225.43	364	138.57	10.94	116.69	91.43	
14:24	1733	292	5.93	225.43	364	138.57	10.94	116.69	91.43	
14:25	1734	293	5.92	225.437	364	138.56	10.93	116.70	91.43	
14:26	1735	294	5.90	225.437	364	138.56	10.93	116.70	91.43	
14:27	1736	295	5.88	225.438	364	138.56	10.93	116.70	91.43	
14:28	1737	296	5.87	225.438	364	138.56	10.93	116.70	91.43	
14:29	1738	297	5.85	225.445	364	138.56	10.93	116.71	91.44	
14:30	1739	298	5.84	225.437	364	138.56	10.93	116.70	91.43	
14:31	1740	299	5.82	225.437	364	138.56	10.93	116.70	91.43	
14:32	1741	300	5.80	225.446	364	138.55	10.92	116.71	91.44	
14:33	1742	301	5.79	225.445	364	138.56	10.93	116.71	91.44	
14:34	1743	302	5.77	225.446	364	138.55	10.92	116.71	91.44	
14:35	1744	303	5.76	225.445	364	138.56	10.93	116.71	91.44	
14:36	1745	304	5.74	225.453	364	138.55	10.92	116.71	91.45	
14:37	1746	305	5.72	225.454	364	138.55	10.92	116.71	91.45	
14:38	1747	306	5.71	225.453	364	138.55	10.92	116.71	91.45	
14:39	1748	307	5.69	225.454	364	138.55	10.92	116.71	91.45	
14:40	1749	308	5.68	225.453	364	138.55	10.92	116.71	91.45	
14:41	1750	309	5.66	225.454	364	138.55	10.92	116.71	91.45	
14:42	1751	310	5.65	225.453	364	138.55	10.92	116.71	91.45	
14:43	1752	311	5.63	225.462	364	138.54	10.91	116.72	91.45	
14:44	1753	312	5.62	225.462	364	138.54	10.91	116.72	91.45	
14:45	1754	313	5.60	225.462	364	138.54	10.91	116.72	91.45	
14:46	1755	314	5.59	225.462	364	138.54	10.91	116.72	91.45	
14:47	1756	315	5.57	225.462	364	138.54	10.91	116.72	91.45	
14:48	1757	316	5.56	225.47	364	138.53	10.90	116.73	91.46	
14:49	1758	317	5.55	225.47	364	138.53	10.90	116.73	91.46	
14:50	1759	318	5.53	225.478	364	138.52	10.89	116.74	91.47	
14:51	1760	319	5.52	225.478	364	138.52	10.89	116.74	91.47	
14:52	1761	320	5.50	225.478	364	138.52	10.89	116.74	91.47	
14:53	1762	321	5.49	225.478	364	138.52	10.89	116.74	91.47	
14:54	1763	322	5.48	225.485	364	138.52	10.89	116.75	91.47	
14:55	1764	323	5.46	225.485	364	138.52	10.89	116.75	91.47	
14:56	1765	324	5.45	225.485	364	138.52	10.89	116.75	91.47	
14:57	1766	325	5.43	225.485	364	138.52	10.89	116.75	91.47	
14:58	1767	326	5.42	225.493	364	138.51	10.88	116.75	91.48	
14:59	1768	327	5.41	225.493	364	138.51	10.88	116.75	91.48	
15:00	1769	328	5.39	225.493	364	138.51	10.88	116.75	91.48	
15:01	1770	329	5.38	225.493	364	138.51	10.88	116.75	91.48	
15:02	1771	330	5.37	225.493	364	138.51	10.88	116.75	91.48	
15:03	1772	331	5.35	225.493	364	138.51	10.88	116.75	91.48	
15:04	1773	332	5.34	225.493	364	138.51	10.88	116.75	91.48	
15:05	1774	333	5.33	225.493	364	138.51	10.88	116.75	91.48	
15:06	1775	334	5.31	225.501	364	138.50	10.87	116.76	91.48	
15:07	1776	335	5.30	225.501	364	138.50	10.87	116.76	91.48	
15:08	1777	336	5.29	225.501	364	138.50	10.87	116.76	91.48	
15:09	1778	337	5.28	225.509	364	138.49	10.86	116.77	91.49	
15:10	1779	338	5.26	225.509	364	138.49	10.86	116.77	91.49	
15:11	1780	339	5.25	225.509	364	138.49	10.86	116.77	91.49	
15:12	1781	340	5.24	225.509	364	138.49	10.86	116.77	91.49	
15:13	1782	341	5.23	225.509	364	138.49	10.86	116.77	91.49	
15:14	1783	342	5.21	225.509	364	138.49	10.86	116.77	91.49	
15:15	1784	343	5.20	225.509	364	138.49	10.86	116.77	91.49	
15:16	1785	344	5.19	225.509	364	138.49	10.86	116.77	91.49	
15:17	1786	345	5.18	225.517	364	138.48	10.85	116.78	91.50	
15:18	1787	346	5.16	225.517	364	138.48	10.85	116.78	91.50	
15:19	1788	347	5.15	225.517	364	138.48	10.85	116.78	91.50	
15:20	1789	348	5.14	225.517	364	138.48	10.85	116.78	91.50	
15:21	1790	349	5.13	225.524	364	138.48	10.85	116.78	91.50	
15:22	1791	350	5.12	225.524	364	138.48	10.85	116.78	91.50	
15:23	1792	351	5.11	225.524	364	138.48	10.85	116.78	91.50	
15:24	1793	352	5.09	225.524	364	138.48	10.85	116.78	91.50	
15:25	1794	353	5.08	225.532	364	138.47	10.84	116.79	91.51	
15:26	1795	354	5.07	225.532	364	138.47	10.84	116.79	91.51	
15:27	1796	355	5.06	225.532	364	138.47	10.84	116.79	91.51	
15:28	1797	356	5.05	225.532	364	138.47	10.84	116.79	91.51	
15:29	1798	357	5.04	225.532	364	138.47	10.84	116.79	91.51	
15:30	1799	358	5.03	225.532	364	138.47	10.84	116.79	91.51	
15:31	1800	359	5.01	225.532	364	138.47	10.84	116.79	91.51	
15:32	1801	360	5.00	225.54	364	138.46	10.83	116.80	91.51	
15:33	1802	361	4.99	225.54	364	138.46	10.83	116.80	91.51	
15:34	1803	362	4.98	225.54	364	138.46	10.83	116.80	91.51	
15:35	1804	363	4.97	225.54	364	138.46	10.83	116.80	91.51	
15:36	1805	364	4.96	225.548	364	138.45	10.82	116.81	91.52	
15:37	1806	365	4.95	225.54	364	138.46	10.83	116.80	91.51	
15:38	1807	366	4.94	225.548	364	138.45	10.82	116.81	91.52	
15:39	1808	367	4.93	225.548	364	138.45	10.82	116.81	91.52	
15:40	1809	368	4.92	225.548	364	138.45	10.82	116.81	91.52	
15:41	1810	369	4.91	225.548	364	138.45	10.82	116.81	91.52	
15:42	1811	370	4.89	225.556	364	138.44	10.81	116.82	91.53	
15:43	1812	371	4.88	225.548	364	138.45	10.82	116.81	91.52	
15:44	1813	372	4.87	225.556	364	138.44	10.81	116.82	91.53	
15:45	1814	373	4.86	225.556	364	138.44	10.81	116.82	91.53	
15:46	1815	374	4.85	225.556	364	138.44	10.81	116.82	91.53	
15:47	1816	375	4.84	225.556	364	138.44	10.81	116.82	91.53	
15:48	1817	376	4.83	225.556	364	138.44	10.81	116.82	91.53	
15:49	1818	377	4.82	225.564	364	138.44	10.81	116.82	91.53	
15:50	1819	378	4.81	225.572	364	138.43	10.80	116.83	91.54	
15:51	1820	379	4.80	225.565	364	138.44	10.81	116.83	91.53	
15:52	1821	380	4.79	225.564	364	138.44	10.81	116.82	91.53	
15:53	1822	381	4.78	225.571	364	138.43	10.80	116.83	91.54	
15:54	1823	382	4.77	225.572	364	138.43	10.80	116.83	91.54	
15:55	1824	383	4.76	225.572	364	138.43	10.80	116.83	91.54	
15:56	1825	384	4.75	225.571	364	138.43	10.80	116.83	91.54	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
15:57	1826	385	4.74	225.58	364	138.42	10.79	116.84	91.55	
15:58	1827	386	4.73	225.579	364	138.42	10.79	116.84	91.55	
15:59	1828	387	4.72	225.579	364	138.42	10.79	116.84	91.55	
16:00	1829	388	4.71	225.579	364	138.42	10.79	116.84	91.55	
16:01	1830	389	4.70	225.579	364	138.42	10.79	116.84	91.55	
16:02	1831	390	4.69	225.579	364	138.42	10.79	116.84	91.55	
16:03	1832	391	4.69	225.58	364	138.42	10.79	116.84	91.55	
16:04	1833	392	4.68	225.579	364	138.42	10.79	116.84	91.55	
16:05	1834	393	4.67	225.579	364	138.42	10.79	116.84	91.55	
16:06	1835	394	4.66	225.587	364	138.41	10.78	116.85	91.55	
16:07	1836	395	4.65	225.588	364	138.41	10.78	116.85	91.55	
16:08	1837	396	4.64	225.588	364	138.41	10.78	116.85	91.55	
16:09	1838	397	4.63	225.595	364	138.41	10.78	116.86	91.56	
16:10	1839	398	4.62	225.588	364	138.41	10.78	116.85	91.55	
16:11	1840	399	4.61	225.596	364	138.40	10.77	116.86	91.56	
16:12	1841	400	4.60	225.596	364	138.40	10.77	116.86	91.56	
16:13	1842	401	4.59	225.596	364	138.40	10.77	116.86	91.56	
16:14	1843	402	4.58	225.596	364	138.40	10.77	116.86	91.56	
16:15	1844	403	4.58	225.596	364	138.40	10.77	116.86	91.56	
16:16	1845	404	4.57	225.604	364	138.40	10.77	116.86	91.56	
16:17	1846	405	4.56	225.596	364	138.40	10.77	116.86	91.56	
16:18	1847	406	4.55	225.604	364	138.40	10.77	116.86	91.56	
16:19	1848	407	4.54	225.604	364	138.40	10.77	116.86	91.56	
16:20	1849	408	4.53	225.603	364	138.40	10.77	116.86	91.56	
16:21	1850	409	4.52	225.604	364	138.40	10.77	116.86	91.56	
16:22	1851	410	4.51	225.604	364	138.40	10.77	116.86	91.56	
16:23	1852	411	4.51	225.604	364	138.40	10.77	116.86	91.56	
16:24	1853	412	4.50	225.612	364	138.39	10.76	116.87	91.57	
16:25	1854	413	4.49	225.612	364	138.39	10.76	116.87	91.57	
16:26	1855	414	4.48	225.612	364	138.39	10.76	116.87	91.57	
16:27	1856	415	4.47	225.612	364	138.39	10.76	116.87	91.57	
16:28	1857	416	4.46	225.612	364	138.39	10.76	116.87	91.57	
16:29	1858	417	4.46	225.619	364	138.38	10.75	116.88	91.58	
16:30	1859	418	4.45	225.619	364	138.38	10.75	116.88	91.58	
16:31	1860	419	4.44	225.619	364	138.38	10.75	116.88	91.58	
16:32	1861	420	4.43	225.619	364	138.38	10.75	116.88	91.58	
16:33	1862	421	4.42	225.619	364	138.38	10.75	116.88	91.58	
16:34	1863	422	4.41	225.627	364	138.37	10.74	116.89	91.58	
16:35	1864	423	4.41	225.627	364	138.37	10.74	116.89	91.58	
16:36	1865	424	4.40	225.627	364	138.37	10.74	116.89	91.58	
16:37	1866	425	4.39	225.627	364	138.37	10.74	116.89	91.58	
16:38	1867	426	4.38	225.627	364	138.37	10.74	116.89	91.58	
16:39	1868	427	4.37	225.627	364	138.37	10.74	116.89	91.58	
16:40	1869	428	4.37	225.627	364	138.37	10.74	116.89	91.58	
16:41	1870	429	4.36	225.635	364	138.37	10.74	116.90	91.59	
16:42	1871	430	4.35	225.643	364	138.36	10.73	116.90	91.60	
16:43	1872	431	4.34	225.643	364	138.36	10.73	116.90	91.60	
16:44	1873	432	4.34	225.643	364	138.36	10.73	116.90	91.60	
16:45	1874	433	4.33	225.643	364	138.36	10.73	116.90	91.60	
16:46	1875	434	4.32	225.643	364	138.36	10.73	116.90	91.60	
16:47	1876	435	4.31	225.643	364	138.36	10.73	116.90	91.60	
16:48	1877	436	4.31	225.643	364	138.36	10.73	116.90	91.60	
16:49	1878	437	4.30	225.643	364	138.36	10.73	116.90	91.60	
16:50	1879	438	4.29	225.635	364	138.37	10.74	116.90	91.59	
16:51	1880	439	4.28	225.635	364	138.37	10.74	116.90	91.59	
16:52	1881	440	4.28	225.643	364	138.36	10.73	116.90	91.60	
16:53	1882	441	4.27	225.643	364	138.36	10.73	116.90	91.60	
16:54	1883	442	4.26	225.643	364	138.36	10.73	116.90	91.60	
16:55	1884	443	4.25	225.643	364	138.36	10.73	116.90	91.60	
16:56	1885	444	4.25	225.643	364	138.36	10.73	116.90	91.60	
16:57	1886	445	4.24	225.643	364	138.36	10.73	116.90	91.60	
16:58	1887	446	4.23	225.651	364	138.35	10.72	116.91	91.60	
16:59	1888	447	4.22	225.651	364	138.35	10.72	116.91	91.60	
17:00	1889	448	4.22	225.651	364	138.35	10.72	116.91	91.60	
17:01	1890	449	4.21	225.659	364	138.34	10.71	116.92	91.61	
17:02	1891	450	4.20	225.659	364	138.34	10.71	116.92	91.61	
17:03	1892	451	4.20	225.659	364	138.34	10.71	116.92	91.61	
17:04	1893	452	4.19	225.659	364	138.34	10.71	116.92	91.61	
17:05	1894	453	4.18	225.666	364	138.33	10.70	116.93	91.61	
17:06	1895	454	4.17	225.659	364	138.34	10.71	116.92	91.61	
17:07	1896	455	4.17	225.666	364	138.33	10.70	116.93	91.61	
17:08	1897	456	4.16	225.666	364	138.33	10.70	116.93	91.61	
17:09	1898	457	4.15	225.666	364	138.33	10.70	116.93	91.61	
17:10	1899	458	4.15	225.666	364	138.33	10.70	116.93	91.61	
17:11	1900	459	4.14	225.674	364	138.33	10.70	116.93	91.62	
17:12	1901	460	4.13	225.666	364	138.33	10.70	116.93	91.61	
17:13	1902	461	4.13	225.666	364	138.33	10.70	116.93	91.61	
17:14	1903	462	4.12	225.674	364	138.33	10.70	116.93	91.62	
17:15	1904	463	4.11	225.674	364	138.33	10.70	116.93	91.62	
17:16	1905	464	4.11	225.674	364	138.33	10.70	116.93	91.62	
17:17	1906	465	4.10	225.674	364	138.33	10.70	116.93	91.62	
17:18	1907	466	4.09	225.674	364	138.33	10.70	116.93	91.62	
17:19	1908	467	4.09	225.683	364	138.32	10.69	116.94	91.63	
17:20	1909	468	4.08	225.682	364	138.32	10.69	116.94	91.63	
17:21	1910	469	4.07	225.674	364	138.33	10.70	116.93	91.62	
17:22	1911	470	4.07	225.682	364	138.32	10.69	116.94	91.63	
17:23	1912	471	4.06	225.682	364	138.32	10.69	116.94	91.63	
17:24	1913	472	4.05	225.682	364	138.32	10.69	116.94	91.63	
17:25	1914	473	4.05	225.682	364	138.32	10.69	116.94	91.63	
17:26	1915	474	4.04	225.69	364	138.31	10.68	116.95	91.63	
17:27	1916	475	4.03	225.69	364	138.31	10.68	116.95	91.63	
17:28	1917	476	4.03	225.698	364	138.30	10.67	116.96	91.64	
17:29	1918	477	4.02	225.698	364	138.30	10.67	116.96	91.64	
17:30	1919	478	4.01	225.706	364	138.29	10.66	116.97	91.64	
17:31	1920	479	4.01	225.706	364	138.29	10.66	116.97	91.64	
17:32	1921	480	4.00	225.706	364	138.29	10.66	116.97	91.64	
17:33	1922	481	4.00	225.714	364	138.29	10.66	116.97	91.65	
17:34	1923	482	3.99	225.713	364	138.29	10.66	116.97	91.65	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offset (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
17:35	1924	483	3.98	225.714	364	138.29	10.66	116.97	91.65	
17:36	1925	484	3.98	225.721	364	138.28	10.65	116.98	91.66	
17:37	1926	485	3.97	225.722	364	138.28	10.65	116.98	91.66	
17:38	1927	486	3.97	225.729	364	138.27	10.64	116.99	91.66	
17:39	1928	487	3.96	225.752	364	138.25	10.62	117.01	91.68	
17:40	1929	488	3.95	225.761	364	138.24	10.61	117.02	91.69	
17:41	1930	489	3.95	225.785	364	138.22	10.59	117.05	91.71	
17:42	1931	490	3.94	225.792	364	138.21	10.58	117.05	91.71	
17:43	1932	491	3.93	225.785	364	138.22	10.59	117.05	91.71	
17:44	1933	492	3.93	225.792	364	138.21	10.58	117.05	91.71	
17:45	1934	493	3.92	225.793	364	138.21	10.58	117.05	91.71	
17:46	1935	494	3.92	225.792	364	138.21	10.58	117.05	91.71	
17:47	1936	495	3.91	225.792	364	138.21	10.58	117.05	91.71	
17:48	1937	496	3.91	225.792	364	138.21	10.58	117.05	91.71	
17:49	1938	497	3.90	225.8	364	138.20	10.57	117.06	91.72	
17:50	1939	498	3.89	225.807	364	138.19	10.56	117.07	91.72	
17:51	1940	499	3.89	225.815	364	138.19	10.56	117.08	91.73	
17:52	1941	500	3.88	225.816	364	138.18	10.55	117.08	91.73	
17:53	1942	501	3.88	225.816	364	138.18	10.55	117.08	91.73	
17:54	1943	502	3.87	225.815	364	138.19	10.56	117.08	91.73	
17:55	1944	503	3.86	225.824	364	138.18	10.55	117.08	91.74	
17:56	1945	504	3.86	225.815	364	138.19	10.56	117.08	91.73	
17:57	1946	505	3.85	225.8	364	138.20	10.57	117.06	91.72	
17:58	1947	506	3.85	225.793	364	138.21	10.58	117.05	91.71	
17:59	1948	507	3.84	225.785	364	138.22	10.59	117.05	91.71	
18:00	1949	508	3.84	225.785	364	138.22	10.59	117.05	91.71	
18:01	1950	509	3.83	225.785	364	138.22	10.59	117.05	91.71	
18:02	1951	510	3.83	225.785	364	138.22	10.59	117.05	91.71	
18:03	1952	511	3.82	225.785	364	138.22	10.59	117.05	91.71	
18:04	1953	512	3.81	225.785	364	138.22	10.59	117.05	91.71	
18:05	1954	513	3.81	225.785	364	138.22	10.59	117.05	91.71	
18:06	1955	514	3.80	225.785	364	138.22	10.59	117.05	91.71	
18:07	1956	515	3.80	225.785	364	138.22	10.59	117.05	91.71	
18:08	1957	516	3.79	225.785	364	138.22	10.59	117.05	91.71	
18:09	1958	517	3.79	225.785	364	138.22	10.59	117.05	91.71	
18:10	1959	518	3.78	225.784	364	138.22	10.59	117.04	91.71	
18:11	1960	519	3.78	225.785	364	138.22	10.59	117.05	91.71	
18:12	1961	520	3.77	225.793	364	138.21	10.58	117.05	91.71	
18:13	1962	521	3.77	225.785	364	138.22	10.59	117.05	91.71	
18:14	1963	522	3.76	225.785	364	138.22	10.59	117.05	91.71	
18:15	1964	523	3.76	225.793	364	138.21	10.58	117.05	91.71	
18:16	1965	524	3.75	225.793	364	138.21	10.58	117.05	91.71	
18:17	1966	525	3.74	225.793	364	138.21	10.58	117.05	91.71	
18:18	1967	526	3.74	225.793	364	138.21	10.58	117.05	91.71	
18:19	1968	527	3.73	225.793	364	138.21	10.58	117.05	91.71	
18:20	1969	528	3.73	225.793	364	138.21	10.58	117.05	91.71	
18:21	1970	529	3.72	225.793	364	138.21	10.58	117.05	91.71	
18:22	1971	530	3.72	225.8	364	138.20	10.57	117.06	91.72	
18:23	1972	531	3.71	225.793	364	138.21	10.58	117.05	91.71	
18:24	1973	532	3.71	225.8	364	138.20	10.57	117.06	91.72	
18:25	1974	533	3.70	225.8	364	138.20	10.57	117.06	91.72	
18:26	1975	534	3.70	225.8	364	138.20	10.57	117.06	91.72	
18:27	1976	535	3.69	225.8	364	138.20	10.57	117.06	91.72	
18:28	1977	536	3.69	225.799	364	138.20	10.57	117.06	91.72	
18:29	1978	537	3.68	225.808	364	138.19	10.56	117.07	91.72	
18:30	1979	538	3.68	225.808	364	138.19	10.56	117.07	91.72	
18:31	1980	539	3.67	225.808	364	138.19	10.56	117.07	91.72	
18:32	1981	540	3.67	225.808	364	138.19	10.56	117.07	91.72	
18:33	1982	541	3.66	225.808	364	138.19	10.56	117.07	91.72	
18:34	1983	542	3.66	225.8	364	138.20	10.57	117.06	91.72	
18:35	1984	543	3.65	225.808	364	138.19	10.56	117.07	91.72	
18:36	1985	544	3.65	225.808	364	138.19	10.56	117.07	91.72	
18:37	1986	545	3.64	225.808	364	138.19	10.56	117.07	91.72	
18:38	1987	546	3.64	225.808	364	138.19	10.56	117.07	91.72	
18:39	1988	547	3.63	225.808	364	138.19	10.56	117.07	91.72	
18:40	1989	548	3.63	225.808	364	138.19	10.56	117.07	91.72	
18:41	1990	549	3.62	225.816	364	138.18	10.55	117.08	91.73	
18:42	1991	550	3.62	225.808	364	138.19	10.56	117.07	91.72	
18:43	1992	551	3.62	225.816	364	138.18	10.55	117.08	91.73	
18:44	1993	552	3.61	225.816	364	138.18	10.55	117.08	91.73	
18:45	1994	553	3.61	225.816	364	138.18	10.55	117.08	91.73	
18:46	1995	554	3.60	225.816	364	138.18	10.55	117.08	91.73	
18:47	1996	555	3.60	225.816	364	138.18	10.55	117.08	91.73	
18:48	1997	556	3.59	225.816	364	138.18	10.55	117.08	91.73	
18:49	1998	557	3.59	225.816	364	138.18	10.55	117.08	91.73	
18:50	1999	558	3.58	225.816	364	138.18	10.55	117.08	91.73	
18:51	2000	559	3.58	225.824	364	138.18	10.55	117.08	91.74	
18:52	2001	560	3.57	225.824	364	138.18	10.55	117.08	91.74	
18:53	2002	561	3.57	225.824	364	138.18	10.55	117.08	91.74	
18:54	2003	562	3.56	225.824	364	138.18	10.55	117.08	91.74	
18:55	2004	563	3.56	225.824	364	138.18	10.55	117.08	91.74	
18:56	2005	564	3.55	225.824	364	138.18	10.55	117.08	91.74	
18:57	2006	565	3.55	225.824	364	138.18	10.55	117.08	91.74	
18:58	2007	566	3.55	225.832	364	138.17	10.54	117.09	91.74	
18:59	2008	567	3.54	225.832	364	138.17	10.54	117.09	91.74	
19:00	2009	568	3.54	225.824	364	138.18	10.55	117.08	91.74	
19:01	2010	569	3.53	225.832	364	138.17	10.54	117.09	91.74	
19:02	2011	570	3.53	225.832	364	138.17	10.54	117.09	91.74	
19:03	2012	571	3.52	225.824	364	138.18	10.55	117.08	91.74	
19:04	2013	572	3.52	225.832	364	138.17	10.54	117.09	91.74	
19:05	2014	573	3.51	225.832	364	138.17	10.54	117.09	91.74	
19:06	2015	574	3.51	225.832	364	138.17	10.54	117.09	91.74	
19:07	2016	575	3.51	225.832	364	138.17	10.54	117.09	91.74	
19:08	2017	576	3.50	225.832	364	138.17	10.54	117.09	91.74	
19:09	2018	577	3.50	225.832	364	138.17	10.54	117.09	91.74	
19:10	2019	578	3.49	225.832	364	138.17	10.54	117.09	91.74	
19:11	2020	579	3.49	225.832	364	138.17	10.54	117.09	91.74	
19:12	2021	580	3.48	225.832	364	138.17	10.54	117.09	91.74	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offset (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
19:13	2022	581	3.48	225.84	364	138.16	10.53	117.10	91.75	
19:14	2023	582	3.48	225.832	364	138.17	10.54	117.09	91.74	
19:15	2024	583	3.47	225.84	364	138.16	10.53	117.10	91.75	
19:16	2025	584	3.47	225.84	364	138.16	10.53	117.10	91.75	
19:17	2026	585	3.46	225.832	364	138.17	10.54	117.09	91.74	
19:18	2027	586	3.46	225.84	364	138.16	10.53	117.10	91.75	
19:19	2028	587	3.45	225.84	364	138.16	10.53	117.10	91.75	
19:20	2029	588	3.45	225.84	364	138.16	10.53	117.10	91.75	
19:21	2030	589	3.45	225.84	364	138.16	10.53	117.10	91.75	
19:22	2031	590	3.44	225.84	364	138.16	10.53	117.10	91.75	
19:23	2032	591	3.44	225.84	364	138.16	10.53	117.10	91.75	
19:24	2033	592	3.43	225.847	364	138.15	10.52	117.11	91.76	
19:25	2034	593	3.43	225.847	364	138.15	10.52	117.11	91.76	
19:26	2035	594	3.43	225.84	364	138.16	10.53	117.10	91.75	
19:27	2036	595	3.42	225.847	364	138.15	10.52	117.11	91.76	
19:28	2037	596	3.42	225.847	364	138.15	10.52	117.11	91.76	
19:29	2038	597	3.41	225.847	364	138.15	10.52	117.11	91.76	
19:30	2039	598	3.41	225.847	364	138.15	10.52	117.11	91.76	
19:31	2040	599	3.41	225.847	364	138.15	10.52	117.11	91.76	
19:32	2041	600	3.40	225.848	364	138.15	10.52	117.11	91.76	
19:33	2042	601	3.40	225.848	364	138.15	10.52	117.11	91.76	
19:34	2043	602	3.39	225.855	364	138.15	10.52	117.12	91.76	
19:35	2044	603	3.39	225.855	364	138.15	10.52	117.12	91.76	
19:36	2045	604	3.39	225.847	364	138.15	10.52	117.11	91.76	
19:37	2046	605	3.38	225.855	364	138.15	10.52	117.12	91.76	
19:38	2047	606	3.38	225.856	364	138.14	10.51	117.12	91.76	
19:39	2048	607	3.37	225.856	364	138.14	10.51	117.12	91.76	
19:40	2049	608	3.37	225.855	364	138.15	10.52	117.12	91.76	
19:41	2050	609	3.37	225.856	364	138.14	10.51	117.12	91.76	
19:42	2051	610	3.36	225.856	364	138.14	10.51	117.12	91.76	
19:43	2052	611	3.36	225.856	364	138.14	10.51	117.12	91.76	
19:44	2053	612	3.35	225.855	364	138.15	10.52	117.12	91.76	
19:45	2054	613	3.35	225.863	364	138.14	10.51	117.12	91.77	
19:46	2055	614	3.35	225.864	364	138.14	10.51	117.12	91.77	
19:47	2056	615	3.34	225.864	364	138.14	10.51	117.12	91.77	
19:48	2057	616	3.34	225.864	364	138.14	10.51	117.12	91.77	
19:49	2058	617	3.34	225.864	364	138.14	10.51	117.12	91.77	
19:50	2059	618	3.33	225.863	364	138.14	10.51	117.12	91.77	
19:51	2060	619	3.33	225.864	364	138.14	10.51	117.12	91.77	
19:52	2061	620	3.32	225.863	364	138.14	10.51	117.12	91.77	
19:53	2062	621	3.32	225.863	364	138.14	10.51	117.12	91.77	
19:54	2063	622	3.32	225.863	364	138.14	10.51	117.12	91.77	
19:55	2064	623	3.31	225.871	364	138.13	10.50	117.13	91.77	
19:56	2065	624	3.31	225.872	364	138.13	10.50	117.13	91.77	
19:57	2066	625	3.31	225.871	364	138.13	10.50	117.13	91.77	
19:58	2067	626	3.30	225.871	364	138.13	10.50	117.13	91.77	
19:59	2068	627	3.30	225.872	364	138.13	10.50	117.13	91.77	
20:00	2069	628	3.29	225.871	364	138.13	10.50	117.13	91.77	
20:01	2070	629	3.29	225.872	364	138.13	10.50	117.13	91.77	
20:02	2071	630	3.29	225.88	364	138.12	10.49	117.14	91.78	
20:03	2072	631	3.28	225.88	364	138.12	10.49	117.14	91.78	
20:04	2073	632	3.28	225.879	364	138.12	10.49	117.14	91.78	
20:05	2074	633	3.28	225.879	364	138.12	10.49	117.14	91.78	
20:06	2075	634	3.27	225.872	364	138.13	10.50	117.13	91.77	
20:07	2076	635	3.27	225.88	364	138.12	10.49	117.14	91.78	
20:08	2077	636	3.27	225.871	364	138.13	10.50	117.13	91.77	
20:09	2078	637	3.26	225.879	364	138.12	10.49	117.14	91.78	
20:10	2079	638	3.26	225.88	364	138.12	10.49	117.14	91.78	
20:11	2080	639	3.26	225.887	364	138.11	10.48	117.15	91.79	
20:12	2081	640	3.25	225.88	364	138.12	10.49	117.14	91.78	
20:13	2082	641	3.25	225.879	364	138.12	10.49	117.14	91.78	
20:14	2083	642	3.24	225.88	364	138.12	10.49	117.14	91.78	
20:15	2084	643	3.24	225.88	364	138.12	10.49	117.14	91.78	
20:16	2085	644	3.24	225.886	364	138.11	10.48	117.15	91.79	
20:17	2086	645	3.23	225.886	364	138.11	10.48	117.15	91.79	
20:18	2087	646	3.23	225.886	364	138.11	10.48	117.15	91.79	
20:19	2088	647	3.23	225.887	364	138.11	10.48	117.15	91.79	
20:20	2089	648	3.22	225.887	364	138.11	10.48	117.15	91.79	
20:21	2090	649	3.22	225.887	364	138.11	10.48	117.15	91.79	
20:22	2091	650	3.22	225.887	364	138.11	10.48	117.15	91.79	
20:23	2092	651	3.21	225.887	364	138.11	10.48	117.15	91.79	
20:24	2093	652	3.21	225.886	364	138.11	10.48	117.15	91.79	
20:25	2094	653	3.21	225.887	364	138.11	10.48	117.15	91.79	
20:26	2095	654	3.20	225.887	364	138.11	10.48	117.15	91.79	
20:27	2096	655	3.20	225.895	364	138.11	10.48	117.16	91.79	
20:28	2097	656	3.20	225.887	364	138.11	10.48	117.15	91.79	
20:29	2098	657	3.19	225.895	364	138.11	10.48	117.16	91.79	
20:30	2099	658	3.19	225.887	364	138.11	10.48	117.15	91.79	
20:31	2100	659	3.19	225.895	364	138.11	10.48	117.16	91.79	
20:32	2101	660	3.18	225.895	364	138.11	10.48	117.16	91.79	
20:33	2102	661	3.18	225.895	364	138.11	10.48	117.16	91.79	
20:34	2103	662	3.18	225.895	364	138.11	10.48	117.16	91.79	
20:35	2104	663	3.17	225.895	364	138.11	10.48	117.16	91.79	
20:36	2105	664	3.17	225.895	364	138.11	10.48	117.16	91.79	
20:37	2106	665	3.17	225.895	364	138.11	10.48	117.16	91.79	
20:38	2107	666	3.16	225.895	364	138.11	10.48	117.16	91.79	
20:39	2108	667	3.16	225.895	364	138.11	10.48	117.16	91.79	
20:40	2109	668	3.16	225.895	364	138.11	10.48	117.16	91.79	
20:41	2110	669	3.15	225.895	364	138.11	10.48	117.16	91.79	
20:42	2111	670	3.15	225.903	364	138.10	10.47	117.16	91.80	
20:43	2112	671	3.15	225.895	364	138.11	10.48	117.16	91.79	
20:44	2113	672	3.14	225.903	364	138.10	10.47	117.16	91.80	
20:45	2114	673	3.14	225.895	364	138.11	10.48	117.16	91.79	
20:46	2115	674	3.14	225.903	364	138.10	10.47	117.16	91.80	
20:47	2116	675	3.13	225.903	364	138.10	10.47	117.16	91.80	
20:48	2117	676	3.13	225.903	364	138.10	10.47	117.16	91.80	
20:49	2118	677	3.13	225.903	364	138.10	10.47	117.16	91.80	
20:50	2119	678	3.13	225.903	364	138.10	10.47	117.16	91.80	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offset (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
20:51	2120	679	3.12	225.911	364	138.09	10.46	117.17	91.81	
20:52	2121	680	3.12	225.903	364	138.10	10.47	117.16	91.80	
20:53	2122	681	3.12	225.903	364	138.10	10.47	117.16	91.80	
20:54	2123	682	3.11	225.903	364	138.10	10.47	117.16	91.80	
20:55	2124	683	3.11	225.911	364	138.09	10.46	117.17	91.81	
20:56	2125	684	3.11	225.911	364	138.09	10.46	117.17	91.81	
20:57	2126	685	3.10	225.903	364	138.10	10.47	117.16	91.80	
20:58	2127	686	3.10	225.911	364	138.09	10.46	117.17	91.81	
20:59	2128	687	3.10	225.911	364	138.09	10.46	117.17	91.81	
21:00	2129	688	3.09	225.911	364	138.09	10.46	117.17	91.81	
21:01	2130	689	3.09	225.911	364	138.09	10.46	117.17	91.81	
21:02	2131	690	3.09	225.911	364	138.09	10.46	117.17	91.81	
21:03	2132	691	3.09	225.911	364	138.09	10.46	117.17	91.81	
21:04	2133	692	3.08	225.911	364	138.09	10.46	117.17	91.81	
21:05	2134	693	3.08	225.911	364	138.09	10.46	117.17	91.81	
21:06	2135	694	3.08	225.911	364	138.09	10.46	117.17	91.81	
21:07	2136	695	3.07	225.911	364	138.09	10.46	117.17	91.81	
21:08	2137	696	3.07	225.919	364	138.08	10.45	117.18	91.81	
21:09	2138	697	3.07	225.911	364	138.09	10.46	117.17	91.81	
21:10	2139	698	3.06	225.911	364	138.09	10.46	117.17	91.81	
21:11	2140	699	3.06	225.911	364	138.09	10.46	117.17	91.81	
21:12	2141	700	3.06	225.919	364	138.08	10.45	117.18	91.81	
21:13	2142	701	3.06	225.919	364	138.08	10.45	117.18	91.81	
21:14	2143	702	3.05	225.919	364	138.08	10.45	117.18	91.81	
21:15	2144	703	3.05	225.919	364	138.08	10.45	117.18	91.81	
21:16	2145	704	3.05	225.919	364	138.08	10.45	117.18	91.81	
21:17	2146	705	3.04	225.919	364	138.08	10.45	117.18	91.81	
21:18	2147	706	3.04	225.919	364	138.08	10.45	117.18	91.81	
21:19	2148	707	3.04	225.92	364	138.08	10.45	117.18	91.81	
21:20	2149	708	3.04	225.919	364	138.08	10.45	117.18	91.81	
21:21	2150	709	3.03	225.927	364	138.07	10.44	117.19	91.82	
21:22	2151	710	3.03	225.92	364	138.08	10.45	117.18	91.81	
21:23	2152	711	3.03	225.919	364	138.08	10.45	117.18	91.81	
21:24	2153	712	3.02	225.919	364	138.08	10.45	117.18	91.81	
21:25	2154	713	3.02	225.928	364	138.07	10.44	117.19	91.82	
21:26	2155	714	3.02	225.927	364	138.07	10.44	117.19	91.82	
21:27	2156	715	3.02	225.928	364	138.07	10.44	117.19	91.82	
21:28	2157	716	3.01	225.927	364	138.07	10.44	117.19	91.82	
21:29	2158	717	3.01	225.927	364	138.07	10.44	117.19	91.82	
21:30	2159	718	3.01	225.928	364	138.07	10.44	117.19	91.82	
21:31	2160	719	3.00	225.928	364	138.07	10.44	117.19	91.82	
21:32	2161	720	3.00	225.927	364	138.07	10.44	117.19	91.82	
21:33	2162	721	3.00	225.927	364	138.07	10.44	117.19	91.82	
21:34	2163	722	3.00	225.927	364	138.07	10.44	117.19	91.82	
21:35	2164	723	2.99	225.927	364	138.07	10.44	117.19	91.82	
21:36	2165	724	2.99	225.928	364	138.07	10.44	117.19	91.82	
21:37	2166	725	2.99	225.927	364	138.07	10.44	117.19	91.82	
21:38	2167	726	2.98	225.927	364	138.07	10.44	117.19	91.82	
21:39	2168	727	2.98	225.928	364	138.07	10.44	117.19	91.82	
21:40	2169	728	2.98	225.928	364	138.07	10.44	117.19	91.82	
21:41	2170	729	2.98	225.927	364	138.07	10.44	117.19	91.82	
21:42	2171	730	2.97	225.935	364	138.07	10.44	117.20	91.82	
21:43	2172	731	2.97	225.934	364	138.07	10.44	117.19	91.82	
21:44	2173	732	2.97	225.934	364	138.07	10.44	117.19	91.82	
21:45	2174	733	2.97	225.935	364	138.07	10.44	117.20	91.82	
21:46	2175	734	2.96	225.928	364	138.07	10.44	117.19	91.82	
21:47	2176	735	2.96	225.935	364	138.07	10.44	117.20	91.82	
21:48	2177	736	2.96	225.934	364	138.07	10.44	117.19	91.82	
21:49	2178	737	2.96	225.935	364	138.07	10.44	117.20	91.82	
21:50	2179	738	2.95	225.935	364	138.07	10.44	117.20	91.82	
21:51	2180	739	2.95	225.934	364	138.07	10.44	117.19	91.82	
21:52	2181	740	2.95	225.935	364	138.07	10.44	117.20	91.82	
21:53	2182	741	2.94	225.934	364	138.07	10.44	117.19	91.82	
21:54	2183	742	2.94	225.934	364	138.07	10.44	117.19	91.82	
21:55	2184	743	2.94	225.935	364	138.07	10.44	117.20	91.82	
21:56	2185	744	2.94	225.942	364	138.06	10.43	117.20	91.83	
21:57	2186	745	2.93	225.943	364	138.06	10.43	117.20	91.83	
21:58	2187	746	2.93	225.935	364	138.07	10.44	117.20	91.82	
21:59	2188	747	2.93	225.943	364	138.06	10.43	117.20	91.83	
22:00	2189	748	2.93	225.943	364	138.06	10.43	117.20	91.83	
22:01	2190	749	2.92	225.943	364	138.06	10.43	117.20	91.83	
22:02	2191	750	2.92	225.943	364	138.06	10.43	117.20	91.83	
22:03	2192	751	2.92	225.943	364	138.06	10.43	117.20	91.83	
22:04	2193	752	2.92	225.943	364	138.06	10.43	117.20	91.83	
22:05	2194	753	2.91	225.942	364	138.06	10.43	117.20	91.83	
22:06	2195	754	2.91	225.943	364	138.06	10.43	117.20	91.83	
22:07	2196	755	2.91	225.943	364	138.06	10.43	117.20	91.83	
22:08	2197	756	2.91	225.943	364	138.06	10.43	117.20	91.83	
22:09	2198	757	2.90	225.943	364	138.06	10.43	117.20	91.83	
22:10	2199	758	2.90	225.943	364	138.06	10.43	117.20	91.83	
22:11	2200	759	2.90	225.951	364	138.05	10.42	117.21	91.84	
22:12	2201	760	2.90	225.951	364	138.05	10.42	117.21	91.84	
22:13	2202	761	2.89	225.943	364	138.06	10.43	117.20	91.83	
22:14	2203	762	2.89	225.951	364	138.05	10.42	117.21	91.84	
22:15	2204	763	2.89	225.951	364	138.05	10.42	117.21	91.84	
22:16	2205	764	2.89	225.951	364	138.05	10.42	117.21	91.84	
22:17	2206	765	2.88	225.951	364	138.05	10.42	117.21	91.84	
22:18	2207	766	2.88	225.951	364	138.05	10.42	117.21	91.84	
22:19	2208	767	2.88	225.951	364	138.05	10.42	117.21	91.84	
22:20	2209	768	2.88	225.951	364	138.05	10.42	117.21	91.84	
22:21	2210	769	2.87	225.951	364	138.05	10.42	117.21	91.84	
22:22	2211	770	2.87	225.951	364	138.05	10.42	117.21	91.84	
22:23	2212	771	2.87	225.951	364	138.05	10.42	117.21	91.84	
22:24	2213	772	2.87	225.959	364	138.04	10.41	117.22	91.84	
22:25	2214	773	2.86	225.951	364	138.05	10.42	117.21	91.84	
22:26	2215	774	2.86	225.951	364	138.05	10.42	117.21	91.84	
22:27	2216	775	2.86	225.959	364	138.04	10.41	117.22	91.84	
22:28	2217	776	2.86	225.951	364	138.05	10.42	117.21	91.84	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
22:29	2218	777	2.85	225.959	364	138.04	10.41	117.22	91.84	
22:30	2219	778	2.85	225.959	364	138.04	10.41	117.22	91.84	
22:31	2220	779	2.85	225.959	364	138.04	10.41	117.22	91.84	
22:32	2221	780	2.85	225.959	364	138.04	10.41	117.22	91.84	
22:33	2222	781	2.85	225.959	364	138.04	10.41	117.22	91.84	
22:34	2223	782	2.84	225.959	364	138.04	10.41	117.22	91.84	
22:35	2224	783	2.84	225.959	364	138.04	10.41	117.22	91.84	
22:36	2225	784	2.84	225.959	364	138.04	10.41	117.22	91.84	
22:37	2226	785	2.84	225.959	364	138.04	10.41	117.22	91.84	
22:38	2227	786	2.83	225.959	364	138.04	10.41	117.22	91.84	
22:39	2228	787	2.83	225.959	364	138.04	10.41	117.22	91.84	
22:40	2229	788	2.83	225.959	364	138.04	10.41	117.22	91.84	
22:41	2230	789	2.83	225.959	364	138.04	10.41	117.22	91.84	
22:42	2231	790	2.82	225.959	364	138.04	10.41	117.22	91.84	
22:43	2232	791	2.82	225.959	364	138.04	10.41	117.22	91.84	
22:44	2233	792	2.82	225.959	364	138.04	10.41	117.22	91.84	
22:45	2234	793	2.82	225.959	364	138.04	10.41	117.22	91.84	
22:46	2235	794	2.81	225.967	364	138.03	10.40	117.23	91.85	
22:47	2236	795	2.81	225.967	364	138.03	10.40	117.23	91.85	
22:48	2237	796	2.81	225.959	364	138.04	10.41	117.22	91.84	
22:49	2238	797	2.81	225.967	364	138.03	10.40	117.23	91.85	
22:50	2239	798	2.81	225.959	364	138.04	10.41	117.22	91.84	
22:51	2240	799	2.80	225.959	364	138.04	10.41	117.22	91.84	
22:52	2241	800	2.80	225.959	364	138.04	10.41	117.22	91.84	
22:53	2242	801	2.80	225.967	364	138.03	10.40	117.23	91.85	
22:54	2243	802	2.80	225.967	364	138.03	10.40	117.23	91.85	
22:55	2244	803	2.79	225.967	364	138.03	10.40	117.23	91.85	
22:56	2245	804	2.79	225.967	364	138.03	10.40	117.23	91.85	
22:57	2246	805	2.79	225.967	364	138.03	10.40	117.23	91.85	
22:58	2247	806	2.79	225.967	364	138.03	10.40	117.23	91.85	
22:59	2248	807	2.79	225.967	364	138.03	10.40	117.23	91.85	
23:00	2249	808	2.78	225.967	364	138.03	10.40	117.23	91.85	
23:01	2250	809	2.78	225.967	364	138.03	10.40	117.23	91.85	
23:02	2251	810	2.78	225.967	364	138.03	10.40	117.23	91.85	
23:03	2252	811	2.78	225.975	364	138.03	10.40	117.24	91.86	
23:04	2253	812	2.77	225.967	364	138.03	10.40	117.23	91.85	
23:05	2254	813	2.77	225.975	364	138.03	10.40	117.24	91.86	
23:06	2255	814	2.77	225.967	364	138.03	10.40	117.23	91.85	
23:07	2256	815	2.77	225.975	364	138.03	10.40	117.24	91.86	
23:08	2257	816	2.77	225.967	364	138.03	10.40	117.23	91.85	
23:09	2258	817	2.76	225.975	364	138.03	10.40	117.24	91.86	
23:10	2259	818	2.76	225.975	364	138.03	10.40	117.24	91.86	
23:11	2260	819	2.76	225.975	364	138.03	10.40	117.24	91.86	
23:12	2261	820	2.76	225.967	364	138.03	10.40	117.23	91.85	
23:13	2262	821	2.76	225.975	364	138.03	10.40	117.24	91.86	
23:14	2263	822	2.75	225.975	364	138.03	10.40	117.24	91.86	
23:15	2264	823	2.75	225.975	364	138.03	10.40	117.24	91.86	
23:16	2265	824	2.75	225.975	364	138.03	10.40	117.24	91.86	
23:17	2266	825	2.75	225.975	364	138.03	10.40	117.24	91.86	
23:18	2267	826	2.74	225.975	364	138.03	10.40	117.24	91.86	
23:19	2268	827	2.74	225.975	364	138.03	10.40	117.24	91.86	
23:20	2269	828	2.74	225.975	364	138.03	10.40	117.24	91.86	
23:21	2270	829	2.74	225.975	364	138.03	10.40	117.24	91.86	
23:22	2271	830	2.74	225.975	364	138.03	10.40	117.24	91.86	
23:23	2272	831	2.73	225.982	364	138.02	10.39	117.24	91.86	
23:24	2273	832	2.73	225.982	364	138.02	10.39	117.24	91.86	
23:25	2274	833	2.73	225.975	364	138.03	10.40	117.24	91.86	
23:26	2275	834	2.73	225.982	364	138.02	10.39	117.24	91.86	
23:27	2276	835	2.73	225.982	364	138.02	10.39	117.24	91.86	
23:28	2277	836	2.72	225.982	364	138.02	10.39	117.24	91.86	
23:29	2278	837	2.72	225.982	364	138.02	10.39	117.24	91.86	
23:30	2279	838	2.72	225.982	364	138.02	10.39	117.24	91.86	
23:31	2280	839	2.72	225.982	364	138.02	10.39	117.24	91.86	
23:32	2281	840	2.72	225.982	364	138.02	10.39	117.24	91.86	
23:33	2282	841	2.71	225.982	364	138.02	10.39	117.24	91.86	
23:34	2283	842	2.71	225.982	364	138.02	10.39	117.24	91.86	
23:35	2284	843	2.71	225.982	364	138.02	10.39	117.24	91.86	
23:36	2285	844	2.71	225.982	364	138.02	10.39	117.24	91.86	
23:37	2286	845	2.71	225.982	364	138.02	10.39	117.24	91.86	
23:38	2287	846	2.70	225.982	364	138.02	10.39	117.24	91.86	
23:39	2288	847	2.70	225.982	364	138.02	10.39	117.24	91.86	
23:40	2289	848	2.70	225.982	364	138.02	10.39	117.24	91.86	
23:41	2290	849	2.70	225.982	364	138.02	10.39	117.24	91.86	
23:42	2291	850	2.70	225.982	364	138.02	10.39	117.24	91.86	
23:43	2292	851	2.69	225.982	364	138.02	10.39	117.24	91.86	
23:44	2293	852	2.69	225.982	364	138.02	10.39	117.24	91.86	
23:45	2294	853	2.69	225.982	364	138.02	10.39	117.24	91.86	
23:46	2295	854	2.69	225.982	364	138.02	10.39	117.24	91.86	
23:47	2296	855	2.69	225.982	364	138.02	10.39	117.24	91.86	
23:48	2297	856	2.68	225.99	364	138.01	10.38	117.25	91.87	
23:49	2298	857	2.68	225.99	364	138.01	10.38	117.25	91.87	
23:50	2299	858	2.68	225.99	364	138.01	10.38	117.25	91.87	
23:51	2300	859	2.68	225.99	364	138.01	10.38	117.25	91.87	
23:52	2301	860	2.68	225.99	364	138.01	10.38	117.25	91.87	
23:53	2302	861	2.67	225.99	364	138.01	10.38	117.25	91.87	
23:54	2303	862	2.67	225.99	364	138.01	10.38	117.25	91.87	
23:55	2304	863	2.67	225.99	364	138.01	10.38	117.25	91.87	
23:56	2305	864	2.67	225.99	364	138.01	10.38	117.25	91.87	
23:57	2306	865	2.67	225.99	364	138.01	10.38	117.25	91.87	
23:58	2307	866	2.66	225.99	364	138.01	10.38	117.25	91.87	
23:59	2308	867	2.66	225.99	364	138.01	10.38	117.25	91.87	
0:00	2309	868	2.66	225.99	364	138.01	10.38	117.25	91.87	
0:01	2310	869	2.66	225.99	364	138.01	10.38	117.25	91.87	
0:02	2311	870	2.66	225.99	364	138.01	10.38	117.25	91.87	
0:03	2312	871	2.65	225.998	364	138.00	10.37	117.26	91.87	
0:04	2313	872	2.65	225.998	364	138.00	10.37	117.26	91.87	
0:05	2314	873	2.65	225.99	364	138.01	10.38	117.25	91.87	
0:06	2315	874	2.65	225.998	364	138.00	10.37	117.26	91.87	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
0:07	2316	875	2.65	225.998	364	138.00	10.37	117.26	91.87	
0:08	2317	876	2.64	225.998	364	138.00	10.37	117.26	91.87	
0:09	2318	877	2.64	225.998	364	138.00	10.37	117.26	91.87	
0:10	2319	878	2.64	225.998	364	138.00	10.37	117.26	91.87	
0:11	2320	879	2.64	225.998	364	138.00	10.37	117.26	91.87	
0:12	2321	880	2.64	225.998	364	138.00	10.37	117.26	91.87	
0:13	2322	881	2.64	225.998	364	138.00	10.37	117.26	91.87	
0:14	2323	882	2.63	225.998	364	138.00	10.37	117.26	91.87	
0:15	2324	883	2.63	225.998	364	138.00	10.37	117.26	91.87	
0:16	2325	884	2.63	225.998	364	138.00	10.37	117.26	91.87	
0:17	2326	885	2.63	225.998	364	138.00	10.37	117.26	91.87	
0:18	2327	886	2.63	225.998	364	138.00	10.37	117.26	91.87	
0:19	2328	887	2.62	225.998	364	138.00	10.37	117.26	91.87	
0:20	2329	888	2.62	225.998	364	138.00	10.37	117.26	91.87	
0:21	2330	889	2.62	226.006	364	137.99	10.36	117.27	91.88	
0:22	2331	890	2.62	225.998	364	138.00	10.37	117.26	91.87	
0:23	2332	891	2.62	226.006	364	137.99	10.36	117.27	91.88	
0:24	2333	892	2.62	225.998	364	138.00	10.37	117.26	91.87	
0:25	2334	893	2.61	225.998	364	138.00	10.37	117.26	91.87	
0:26	2335	894	2.61	225.998	364	138.00	10.37	117.26	91.87	
0:27	2336	895	2.61	226.006	364	137.99	10.36	117.27	91.88	
0:28	2337	896	2.61	226.006	364	137.99	10.36	117.27	91.88	
0:29	2338	897	2.61	226.006	364	137.99	10.36	117.27	91.88	
0:30	2339	898	2.60	226.006	364	137.99	10.36	117.27	91.88	
0:31	2340	899	2.60	226.006	364	137.99	10.36	117.27	91.88	
0:32	2341	900	2.60	226.006	364	137.99	10.36	117.27	91.88	
0:33	2342	901	2.60	226.006	364	137.99	10.36	117.27	91.88	
0:34	2343	902	2.60	226.006	364	137.99	10.36	117.27	91.88	
0:35	2344	903	2.60	226.006	364	137.99	10.36	117.27	91.88	
0:36	2345	904	2.59	226.006	364	137.99	10.36	117.27	91.88	
0:37	2346	905	2.59	226.006	364	137.99	10.36	117.27	91.88	
0:38	2347	906	2.59	226.014	364	137.99	10.36	117.27	91.89	
0:39	2348	907	2.59	226.007	364	137.99	10.36	117.27	91.88	
0:40	2349	908	2.59	226.014	364	137.99	10.36	117.27	91.89	
0:41	2350	909	2.59	226.006	364	137.99	10.36	117.27	91.88	
0:42	2351	910	2.58	226.014	364	137.99	10.36	117.27	91.89	
0:43	2352	911	2.58	226.015	364	137.99	10.36	117.28	91.89	
0:44	2353	912	2.58	226.014	364	137.99	10.36	117.27	91.89	
0:45	2354	913	2.58	226.014	364	137.99	10.36	117.27	91.89	
0:46	2355	914	2.58	226.014	364	137.99	10.36	117.27	91.89	
0:47	2356	915	2.57	226.007	364	137.99	10.36	117.27	91.88	
0:48	2357	916	2.57	226.014	364	137.99	10.36	117.27	91.89	
0:49	2358	917	2.57	226.015	364	137.99	10.36	117.28	91.89	
0:50	2359	918	2.57	226.015	364	137.99	10.36	117.28	91.89	
0:51	2360	919	2.57	226.014	364	137.99	10.36	117.27	91.89	
0:52	2361	920	2.57	226.015	364	137.99	10.36	117.28	91.89	
0:53	2362	921	2.56	226.014	364	137.99	10.36	117.27	91.89	
0:54	2363	922	2.56	226.015	364	137.99	10.36	117.28	91.89	
0:55	2364	923	2.56	226.015	364	137.99	10.36	117.28	91.89	
0:56	2365	924	2.56	226.015	364	137.99	10.36	117.28	91.89	
0:57	2366	925	2.56	226.015	364	137.99	10.36	117.28	91.89	
0:58	2367	926	2.56	226.015	364	137.99	10.36	117.28	91.89	
0:59	2368	927	2.55	226.015	364	137.99	10.36	117.28	91.89	
1:00	2369	928	2.55	226.022	364	137.98	10.35	117.28	91.89	
1:01	2370	929	2.55	226.022	364	137.98	10.35	117.28	91.89	
1:02	2371	930	2.55	226.021	364	137.98	10.35	117.28	91.89	
1:03	2372	931	2.55	226.022	364	137.98	10.35	117.28	91.89	
1:04	2373	932	2.55	226.022	364	137.98	10.35	117.28	91.89	
1:05	2374	933	2.54	226.022	364	137.98	10.35	117.28	91.89	
1:06	2375	934	2.54	226.022	364	137.98	10.35	117.28	91.89	
1:07	2376	935	2.54	226.022	364	137.98	10.35	117.28	91.89	
1:08	2377	936	2.54	226.022	364	137.98	10.35	117.28	91.89	
1:09	2378	937	2.54	226.022	364	137.98	10.35	117.28	91.89	
1:10	2379	938	2.54	226.022	364	137.98	10.35	117.28	91.89	
1:11	2380	939	2.53	226.022	364	137.98	10.35	117.28	91.89	
1:12	2381	940	2.53	226.022	364	137.98	10.35	117.28	91.89	
1:13	2382	941	2.53	226.03	364	137.97	10.34	117.29	91.90	
1:14	2383	942	2.53	226.03	364	137.97	10.34	117.29	91.90	
1:15	2384	943	2.53	226.022	364	137.98	10.35	117.28	91.89	
1:16	2385	944	2.53	226.022	364	137.98	10.35	117.28	91.89	
1:17	2386	945	2.52	226.022	364	137.98	10.35	117.28	91.89	
1:18	2387	946	2.52	226.029	364	137.97	10.34	117.29	91.90	
1:19	2388	947	2.52	226.022	364	137.98	10.35	117.28	91.89	
1:20	2389	948	2.52	226.03	364	137.97	10.34	117.29	91.90	
1:21	2390	949	2.52	226.021	364	137.98	10.35	117.28	91.89	
1:22	2391	950	2.52	226.022	364	137.98	10.35	117.28	91.89	
1:23	2392	951	2.52	226.029	364	137.97	10.34	117.29	91.90	
1:24	2393	952	2.51	226.03	364	137.97	10.34	117.29	91.90	
1:25	2394	953	2.51	226.03	364	137.97	10.34	117.29	91.90	
1:26	2395	954	2.51	226.029	364	137.97	10.34	117.29	91.90	
1:27	2396	955	2.51	226.021	364	137.98	10.35	117.28	91.89	
1:28	2397	956	2.51	226.03	364	137.97	10.34	117.29	91.90	
1:29	2398	957	2.51	226.022	364	137.98	10.35	117.28	91.89	
1:30	2399	958	2.50	226.03	364	137.97	10.34	117.29	91.90	
1:31	2400	959	2.50	226.03	364	137.97	10.34	117.29	91.90	
1:32	2401	960	2.50	226.03	364	137.97	10.34	117.29	91.90	
1:33	2402	961	2.50	226.03	364	137.97	10.34	117.29	91.90	
1:34	2403	962	2.50	226.03	364	137.97	10.34	117.29	91.90	
1:35	2404	963	2.50	226.038	364	137.96	10.33	117.30	91.90	
1:36	2405	964	2.49	226.038	364	137.96	10.33	117.30	91.90	
1:37	2406	965	2.49	226.029	364	137.97	10.34	117.29	91.90	
1:38	2407	966	2.49	226.03	364	137.97	10.34	117.29	91.90	
1:39	2408	967	2.49	226.038	364	137.96	10.33	117.30	91.90	
1:40	2409	968	2.49	226.038	364	137.96	10.33	117.30	91.90	
1:41	2410	969	2.49	226.03	364	137.97	10.34	117.29	91.90	
1:42	2411	970	2.49	226.038	364	137.96	10.33	117.30	91.90	
1:43	2412	971	2.48	226.038	364	137.96	10.33	117.30	91.90	
1:44	2413	972	2.48	226.038	364	137.96	10.33	117.30	91.90	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
1:45	2414	973	2.48	226.038	364	137.96	10.33	117.30	91.90	
1:46	2415	974	2.48	226.038	364	137.96	10.33	117.30	91.90	
1:47	2416	975	2.48	226.038	364	137.96	10.33	117.30	91.90	
1:48	2417	976	2.48	226.03	364	137.97	10.34	117.29	91.90	
1:49	2418	977	2.47	226.038	364	137.96	10.33	117.30	91.90	
1:50	2419	978	2.47	226.038	364	137.96	10.33	117.30	91.90	
1:51	2420	979	2.47	226.03	364	137.97	10.34	117.29	91.90	
1:52	2421	980	2.47	226.038	364	137.96	10.33	117.30	91.90	
1:53	2422	981	2.47	226.038	364	137.96	10.33	117.30	91.90	
1:54	2423	982	2.47	226.038	364	137.96	10.33	117.30	91.90	
1:55	2424	983	2.47	226.046	364	137.95	10.32	117.31	91.91	
1:56	2425	984	2.46	226.038	364	137.96	10.33	117.30	91.90	
1:57	2426	985	2.46	226.038	364	137.96	10.33	117.30	91.90	
1:58	2427	986	2.46	226.038	364	137.96	10.33	117.30	91.90	
1:59	2428	987	2.46	226.038	364	137.96	10.33	117.30	91.90	
2:00	2429	988	2.46	226.046	364	137.95	10.32	117.31	91.91	
2:01	2430	989	2.46	226.046	364	137.95	10.32	117.31	91.91	
2:02	2431	990	2.46	226.046	364	137.95	10.32	117.31	91.91	
2:03	2432	991	2.45	226.046	364	137.95	10.32	117.31	91.91	
2:04	2433	992	2.45	226.046	364	137.95	10.32	117.31	91.91	
2:05	2434	993	2.45	226.046	364	137.95	10.32	117.31	91.91	
2:06	2435	994	2.45	226.046	364	137.95	10.32	117.31	91.91	
2:07	2436	995	2.45	226.046	364	137.95	10.32	117.31	91.91	
2:08	2437	996	2.45	226.046	364	137.95	10.32	117.31	91.91	
2:09	2438	997	2.45	226.046	364	137.95	10.32	117.31	91.91	
2:10	2439	998	2.44	226.045	364	137.96	10.33	117.31	91.91	
2:11	2440	999	2.44	226.046	364	137.95	10.32	117.31	91.91	
2:12	2441	1000	2.44	226.046	364	137.95	10.32	117.31	91.91	
2:13	2442	1001	2.44	226.046	364	137.95	10.32	117.31	91.91	
2:14	2443	1002	2.44	226.054	364	137.95	10.32	117.31	91.92	
2:15	2444	1003	2.44	226.046	364	137.95	10.32	117.31	91.91	
2:16	2445	1004	2.44	226.046	364	137.95	10.32	117.31	91.91	
2:17	2446	1005	2.43	226.054	364	137.95	10.32	117.31	91.92	
2:18	2447	1006	2.43	226.054	364	137.95	10.32	117.31	91.92	
2:19	2448	1007	2.43	226.054	364	137.95	10.32	117.31	91.92	
2:20	2449	1008	2.43	226.054	364	137.95	10.32	117.31	91.92	
2:21	2450	1009	2.43	226.046	364	137.95	10.32	117.31	91.91	
2:22	2451	1010	2.43	226.054	364	137.95	10.32	117.31	91.92	
2:23	2452	1011	2.43	226.054	364	137.95	10.32	117.31	91.92	
2:24	2453	1012	2.42	226.054	364	137.95	10.32	117.31	91.92	
2:25	2454	1013	2.42	226.054	364	137.95	10.32	117.31	91.92	
2:26	2455	1014	2.42	226.054	364	137.95	10.32	117.31	91.92	
2:27	2456	1015	2.42	226.054	364	137.95	10.32	117.31	91.92	
2:28	2457	1016	2.42	226.054	364	137.95	10.32	117.31	91.92	
2:29	2458	1017	2.42	226.054	364	137.95	10.32	117.31	91.92	
2:30	2459	1018	2.42	226.054	364	137.95	10.32	117.31	91.92	
2:31	2460	1019	2.41	226.062	364	137.94	10.31	117.32	91.92	
2:32	2461	1020	2.41	226.062	364	137.94	10.31	117.32	91.92	
2:33	2462	1021	2.41	226.062	364	137.94	10.31	117.32	91.92	
2:34	2463	1022	2.41	226.062	364	137.94	10.31	117.32	91.92	
2:35	2464	1023	2.41	226.062	364	137.94	10.31	117.32	91.92	
2:36	2465	1024	2.41	226.054	364	137.95	10.32	117.31	91.92	
2:37	2466	1025	2.41	226.062	364	137.94	10.31	117.32	91.92	
2:38	2467	1026	2.40	226.062	364	137.94	10.31	117.32	91.92	
2:39	2468	1027	2.40	226.062	364	137.94	10.31	117.32	91.92	
2:40	2469	1028	2.40	226.062	364	137.94	10.31	117.32	91.92	
2:41	2470	1029	2.40	226.062	364	137.94	10.31	117.32	91.92	
2:42	2471	1030	2.40	226.062	364	137.94	10.31	117.32	91.92	
2:43	2472	1031	2.40	226.062	364	137.94	10.31	117.32	91.92	
2:44	2473	1032	2.40	226.069	364	137.93	10.30	117.33	91.93	
2:45	2474	1033	2.39	226.062	364	137.94	10.31	117.32	91.92	
2:46	2475	1034	2.39	226.062	364	137.94	10.31	117.32	91.92	
2:47	2476	1035	2.39	226.069	364	137.93	10.30	117.33	91.93	
2:48	2477	1036	2.39	226.069	364	137.93	10.30	117.33	91.93	
2:49	2478	1037	2.39	226.062	364	137.94	10.31	117.32	91.92	
2:50	2479	1038	2.39	226.069	364	137.93	10.30	117.33	91.93	
2:51	2480	1039	2.39	226.069	364	137.93	10.30	117.33	91.93	
2:52	2481	1040	2.39	226.069	364	137.93	10.30	117.33	91.93	
2:53	2482	1041	2.38	226.062	364	137.94	10.31	117.32	91.92	
2:54	2483	1042	2.38	226.062	364	137.94	10.31	117.32	91.92	
2:55	2484	1043	2.38	226.069	364	137.93	10.30	117.33	91.93	
2:56	2485	1044	2.38	226.069	364	137.93	10.30	117.33	91.93	
2:57	2486	1045	2.38	226.069	364	137.93	10.30	117.33	91.93	
2:58	2487	1046	2.38	226.069	364	137.93	10.30	117.33	91.93	
2:59	2488	1047	2.38	226.069	364	137.93	10.30	117.33	91.93	
3:00	2489	1048	2.38	226.069	364	137.93	10.30	117.33	91.93	
3:01	2490	1049	2.37	226.07	364	137.93	10.30	117.33	91.93	
3:02	2491	1050	2.37	226.069	364	137.93	10.30	117.33	91.93	
3:03	2492	1051	2.37	226.069	364	137.93	10.30	117.33	91.93	
3:04	2493	1052	2.37	226.069	364	137.93	10.30	117.33	91.93	
3:05	2494	1053	2.37	226.07	364	137.93	10.30	117.33	91.93	
3:06	2495	1054	2.37	226.069	364	137.93	10.30	117.33	91.93	
3:07	2496	1055	2.37	226.07	364	137.93	10.30	117.33	91.93	
3:08	2497	1056	2.36	226.07	364	137.93	10.30	117.33	91.93	
3:09	2498	1057	2.36	226.07	364	137.93	10.30	117.33	91.93	
3:10	2499	1058	2.36	226.077	364	137.92	10.29	117.34	91.94	
3:11	2500	1059	2.36	226.069	364	137.93	10.30	117.33	91.93	
3:12	2501	1060	2.36	226.077	364	137.92	10.29	117.34	91.94	
3:13	2502	1061	2.36	226.069	364	137.93	10.30	117.33	91.93	
3:14	2503	1062	2.36	226.069	364	137.93	10.30	117.33	91.93	
3:15	2504	1063	2.36	226.078	364	137.92	10.29	117.34	91.94	
3:16	2505	1064	2.35	226.077	364	137.92	10.29	117.34	91.94	
3:17	2506	1065	2.35	226.077	364	137.92	10.29	117.34	91.94	
3:18	2507	1066	2.35	226.077	364	137.92	10.29	117.34	91.94	
3:19	2508	1067	2.35	226.077	364	137.92	10.29	117.34	91.94	
3:20	2509	1068	2.35	226.077	364	137.92	10.29	117.34	91.94	
3:21	2510	1069	2.35	226.077	364	137.92	10.29	117.34	91.94	
3:22	2511	1070	2.35	226.077	364	137.92	10.29	117.34	91.94	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
3:23	2512	1071	2.35	226.077	364	137.92	10.29	117.34	91.94	
3:24	2513	1072	2.34	226.077	364	137.92	10.29	117.34	91.94	
3:25	2514	1073	2.34	226.078	364	137.92	10.29	117.34	91.94	
3:26	2515	1074	2.34	226.078	364	137.92	10.29	117.34	91.94	
3:27	2516	1075	2.34	226.077	364	137.92	10.29	117.34	91.94	
3:28	2517	1076	2.34	226.077	364	137.92	10.29	117.34	91.94	
3:29	2518	1077	2.34	226.077	364	137.92	10.29	117.34	91.94	
3:30	2519	1078	2.34	226.077	364	137.92	10.29	117.34	91.94	
3:31	2520	1079	2.34	226.077	364	137.92	10.29	117.34	91.94	
3:32	2521	1080	2.33	226.077	364	137.92	10.29	117.34	91.94	
3:33	2522	1081	2.33	226.077	364	137.92	10.29	117.34	91.94	
3:34	2523	1082	2.33	226.085	364	137.92	10.29	117.35	91.94	
3:35	2524	1083	2.33	226.077	364	137.92	10.29	117.34	91.94	
3:36	2525	1084	2.33	226.086	364	137.91	10.28	117.35	91.94	
3:37	2526	1085	2.33	226.085	364	137.92	10.29	117.35	91.94	
3:38	2527	1086	2.33	226.085	364	137.92	10.29	117.35	91.94	
3:39	2528	1087	2.33	226.085	364	137.92	10.29	117.35	91.94	
3:40	2529	1088	2.32	226.085	364	137.92	10.29	117.35	91.94	
3:41	2530	1089	2.32	226.085	364	137.92	10.29	117.35	91.94	
3:42	2531	1090	2.32	226.086	364	137.91	10.28	117.35	91.94	
3:43	2532	1091	2.32	226.086	364	137.91	10.28	117.35	91.94	
3:44	2533	1092	2.32	226.085	364	137.92	10.29	117.35	91.94	
3:45	2534	1093	2.32	226.085	364	137.92	10.29	117.35	91.94	
3:46	2535	1094	2.32	226.086	364	137.91	10.28	117.35	91.94	
3:47	2536	1095	2.32	226.085	364	137.92	10.29	117.35	91.94	
3:48	2537	1096	2.31	226.086	364	137.91	10.28	117.35	91.94	
3:49	2538	1097	2.31	226.085	364	137.92	10.29	117.35	91.94	
3:50	2539	1098	2.31	226.086	364	137.91	10.28	117.35	91.94	
3:51	2540	1099	2.31	226.093	364	137.91	10.28	117.35	91.95	
3:52	2541	1100	2.31	226.093	364	137.91	10.28	117.35	91.95	
3:53	2542	1101	2.31	226.086	364	137.91	10.28	117.35	91.94	
3:54	2543	1102	2.31	226.094	364	137.91	10.28	117.35	91.95	
3:55	2544	1103	2.31	226.086	364	137.91	10.28	117.35	91.94	
3:56	2545	1104	2.31	226.085	364	137.92	10.29	117.35	91.94	
3:57	2546	1105	2.30	226.086	364	137.91	10.28	117.35	91.94	
3:58	2547	1106	2.30	226.094	364	137.91	10.28	117.35	91.95	
3:59	2548	1107	2.30	226.094	364	137.91	10.28	117.35	91.95	
4:00	2549	1108	2.30	226.093	364	137.91	10.28	117.35	91.95	
4:01	2550	1109	2.30	226.094	364	137.91	10.28	117.35	91.95	
4:02	2551	1110	2.30	226.094	364	137.91	10.28	117.35	91.95	
4:03	2552	1111	2.30	226.093	364	137.91	10.28	117.35	91.95	
4:04	2553	1112	2.30	226.102	364	137.90	10.27	117.36	91.95	
4:05	2554	1113	2.29	226.094	364	137.91	10.28	117.35	91.95	
4:06	2555	1114	2.29	226.093	364	137.91	10.28	117.35	91.95	
4:07	2556	1115	2.29	226.093	364	137.91	10.28	117.35	91.95	
4:08	2557	1116	2.29	226.094	364	137.91	10.28	117.35	91.95	
4:09	2558	1117	2.29	226.093	364	137.91	10.28	117.35	91.95	
4:10	2559	1118	2.29	226.101	364	137.90	10.27	117.36	91.95	
4:11	2560	1119	2.29	226.094	364	137.91	10.28	117.35	91.95	
4:12	2561	1120	2.29	226.102	364	137.90	10.27	117.36	91.95	
4:13	2562	1121	2.29	226.102	364	137.90	10.27	117.36	91.95	
4:14	2563	1122	2.28	226.094	364	137.91	10.28	117.35	91.95	
4:15	2564	1123	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:16	2565	1124	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:17	2566	1125	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:18	2567	1126	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:19	2568	1127	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:20	2569	1128	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:21	2570	1129	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:22	2571	1130	2.28	226.102	364	137.90	10.27	117.36	91.95	
4:23	2572	1131	2.27	226.11	364	137.89	10.26	117.37	91.96	
4:24	2573	1132	2.27	226.102	364	137.90	10.27	117.36	91.95	
4:25	2574	1133	2.27	226.102	364	137.90	10.27	117.36	91.95	
4:26	2575	1134	2.27	226.11	364	137.89	10.26	117.37	91.96	
4:27	2576	1135	2.27	226.102	364	137.90	10.27	117.36	91.95	
4:28	2577	1136	2.27	226.102	364	137.90	10.27	117.36	91.95	
4:29	2578	1137	2.27	226.11	364	137.89	10.26	117.37	91.96	
4:30	2579	1138	2.27	226.11	364	137.89	10.26	117.37	91.96	
4:31	2580	1139	2.27	226.102	364	137.90	10.27	117.36	91.95	
4:32	2581	1140	2.26	226.102	364	137.90	10.27	117.36	91.95	
4:33	2582	1141	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:34	2583	1142	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:35	2584	1143	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:36	2585	1144	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:37	2586	1145	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:38	2587	1146	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:39	2588	1147	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:40	2589	1148	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:41	2590	1149	2.26	226.11	364	137.89	10.26	117.37	91.96	
4:42	2591	1150	2.25	226.117	364	137.88	10.25	117.38	91.97	
4:43	2592	1151	2.25	226.11	364	137.89	10.26	117.37	91.96	
4:44	2593	1152	2.25	226.11	364	137.89	10.26	117.37	91.96	
4:45	2594	1153	2.25	226.117	364	137.88	10.25	117.38	91.97	
4:46	2595	1154	2.25	226.11	364	137.89	10.26	117.37	91.96	
4:47	2596	1155	2.25	226.11	364	137.89	10.26	117.37	91.96	
4:48	2597	1156	2.25	226.117	364	137.88	10.25	117.38	91.97	
4:49	2598	1157	2.25	226.117	364	137.88	10.25	117.38	91.97	
4:50	2599	1158	2.24	226.11	364	137.89	10.26	117.37	91.96	
4:51	2600	1159	2.24	226.11	364	137.89	10.26	117.37	91.96	
4:52	2601	1160	2.24	226.11	364	137.89	10.26	117.37	91.96	
4:53	2602	1161	2.24	226.117	364	137.88	10.25	117.38	91.97	
4:54	2603	1162	2.24	226.117	364	137.88	10.25	117.38	91.97	
4:55	2604	1163	2.24	226.117	364	137.88	10.25	117.38	91.97	
4:56	2605	1164	2.24	226.11	364	137.89	10.26	117.37	91.96	
4:57	2606	1165	2.24	226.117	364	137.88	10.25	117.38	91.97	
4:58	2607	1166	2.24	226.11	364	137.89	10.26	117.37	91.96	
4:59	2608	1167	2.23	226.117	364	137.88	10.25	117.38	91.97	
5:00	2609	1168	2.23	226.117	364	137.88	10.25	117.38	91.97	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
5:01	2610	1169	2.23	226.117	364	137.88	10.25	117.38	91.97	
5:02	2611	1170	2.23	226.117	364	137.88	10.25	117.38	91.97	
5:03	2612	1171	2.23	226.117	364	137.88	10.25	117.38	91.97	
5:04	2613	1172	2.23	226.116	364	137.88	10.25	117.38	91.97	
5:05	2614	1173	2.23	226.117	364	137.88	10.25	117.38	91.97	
5:06	2615	1174	2.23	226.116	364	137.88	10.25	117.38	91.97	
5:07	2616	1175	2.23	226.117	364	137.88	10.25	117.38	91.97	
5:08	2617	1176	2.23	226.117	364	137.88	10.25	117.38	91.97	
5:09	2618	1177	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:10	2619	1178	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:11	2620	1179	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:12	2621	1180	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:13	2622	1181	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:14	2623	1182	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:15	2624	1183	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:16	2625	1184	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:17	2626	1185	2.22	226.125	364	137.88	10.25	117.39	91.97	
5:18	2627	1186	2.22	226.117	364	137.88	10.25	117.38	91.97	
5:19	2628	1187	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:20	2629	1188	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:21	2630	1189	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:22	2631	1190	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:23	2632	1191	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:24	2633	1192	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:25	2634	1193	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:26	2635	1194	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:27	2636	1195	2.21	226.125	364	137.88	10.25	117.39	91.97	
5:28	2637	1196	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:29	2638	1197	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:30	2639	1198	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:31	2640	1199	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:32	2641	1200	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:33	2642	1201	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:34	2643	1202	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:35	2644	1203	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:36	2645	1204	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:37	2646	1205	2.20	226.125	364	137.88	10.25	117.39	91.97	
5:38	2647	1206	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:39	2648	1207	2.19	226.125	364	137.88	10.25	117.39	91.97	
5:40	2649	1208	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:41	2650	1209	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:42	2651	1210	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:43	2652	1211	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:44	2653	1212	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:45	2654	1213	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:46	2655	1214	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:47	2656	1215	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:48	2657	1216	2.19	226.133	364	137.87	10.24	117.39	91.98	
5:49	2658	1217	2.18	226.133	364	137.87	10.24	117.39	91.98	
5:50	2659	1218	2.18	226.133	364	137.87	10.24	117.39	91.98	
5:51	2660	1219	2.18	226.133	364	137.87	10.24	117.39	91.98	
5:52	2661	1220	2.18	226.133	364	137.87	10.24	117.39	91.98	
5:53	2662	1221	2.18	226.133	364	137.87	10.24	117.39	91.98	
5:54	2663	1222	2.18	226.133	364	137.87	10.24	117.39	91.98	
5:55	2664	1223	2.18	226.133	364	137.87	10.24	117.39	91.98	
5:56	2665	1224	2.18	226.141	364	137.86	10.23	117.40	91.99	
5:57	2666	1225	2.18	226.141	364	137.86	10.23	117.40	91.99	
5:58	2667	1226	2.18	226.141	364	137.86	10.23	117.40	91.99	
5:59	2668	1227	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:00	2669	1228	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:01	2670	1229	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:02	2671	1230	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:03	2672	1231	2.17	226.133	364	137.87	10.24	117.39	91.98	
6:04	2673	1232	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:05	2674	1233	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:06	2675	1234	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:07	2676	1235	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:08	2677	1236	2.17	226.141	364	137.86	10.23	117.40	91.99	
6:09	2678	1237	2.16	226.133	364	137.87	10.24	117.39	91.98	
6:10	2679	1238	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:11	2680	1239	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:12	2681	1240	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:13	2682	1241	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:14	2683	1242	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:15	2684	1243	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:16	2685	1244	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:17	2686	1245	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:18	2687	1246	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:19	2688	1247	2.16	226.141	364	137.86	10.23	117.40	91.99	
6:20	2689	1248	2.15	226.133	364	137.87	10.24	117.39	91.98	
6:21	2690	1249	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:22	2691	1250	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:23	2692	1251	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:24	2693	1252	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:25	2694	1253	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:26	2695	1254	2.15	226.149	364	137.85	10.22	117.41	91.99	
6:27	2696	1255	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:28	2697	1256	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:29	2698	1257	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:30	2699	1258	2.15	226.141	364	137.86	10.23	117.40	91.99	
6:31	2700	1259	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:32	2701	1260	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:33	2702	1261	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:34	2703	1262	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:35	2704	1263	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:36	2705	1264	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:37	2706	1265	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:38	2707	1266	2.14	226.149	364	137.85	10.22	117.41	91.99	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
6:39	2708	1267	2.14	226.149	364	137.85	10.22	117.41	91.99	
6:40	2709	1268	2.14	226.141	364	137.86	10.23	117.40	91.99	
6:41	2710	1269	2.14	226.149	364	137.85	10.22	117.41	91.99	
6:42	2711	1270	2.13	226.141	364	137.86	10.23	117.40	91.99	
6:43	2712	1271	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:44	2713	1272	2.13	226.141	364	137.86	10.23	117.40	91.99	
6:45	2714	1273	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:46	2715	1274	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:47	2716	1275	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:48	2717	1276	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:49	2718	1277	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:50	2719	1278	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:51	2720	1279	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:52	2721	1280	2.13	226.149	364	137.85	10.22	117.41	91.99	
6:53	2722	1281	2.12	226.149	364	137.85	10.22	117.41	91.99	
6:54	2723	1282	2.12	226.149	364	137.85	10.22	117.41	91.99	
6:55	2724	1283	2.12	226.149	364	137.85	10.22	117.41	91.99	
6:56	2725	1284	2.12	226.149	364	137.85	10.22	117.41	91.99	
6:57	2726	1285	2.12	226.149	364	137.85	10.22	117.41	91.99	
6:58	2727	1286	2.12	226.149	364	137.85	10.22	117.41	91.99	
6:59	2728	1287	2.12	226.149	364	137.85	10.22	117.41	91.99	
7:00	2729	1288	2.12	226.149	364	137.85	10.22	117.41	91.99	
7:01	2730	1289	2.12	226.149	364	137.85	10.22	117.41	91.99	
7:02	2731	1290	2.12	226.149	364	137.85	10.22	117.41	91.99	
7:03	2732	1291	2.12	226.149	364	137.85	10.22	117.41	91.99	
7:04	2733	1292	2.12	226.149	364	137.85	10.22	117.41	91.99	
7:05	2734	1293	2.11	226.149	364	137.85	10.22	117.41	91.99	
7:06	2735	1294	2.11	226.149	364	137.85	10.22	117.41	91.99	
7:07	2736	1295	2.11	226.157	364	137.84	10.21	117.42	92.00	
7:08	2737	1296	2.11	226.149	364	137.85	10.22	117.41	91.99	
7:09	2738	1297	2.11	226.149	364	137.85	10.22	117.41	91.99	
7:10	2739	1298	2.11	226.157	364	137.84	10.21	117.42	92.00	
7:11	2740	1299	2.11	226.149	364	137.85	10.22	117.41	91.99	
7:12	2741	1300	2.11	226.157	364	137.84	10.21	117.42	92.00	
7:13	2742	1301	2.11	226.157	364	137.84	10.21	117.42	92.00	
7:14	2743	1302	2.11	226.157	364	137.84	10.21	117.42	92.00	
7:15	2744	1303	2.11	226.157	364	137.84	10.21	117.42	92.00	
7:16	2745	1304	2.11	226.157	364	137.84	10.21	117.42	92.00	
7:17	2746	1305	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:18	2747	1306	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:19	2748	1307	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:20	2749	1308	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:21	2750	1309	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:22	2751	1310	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:23	2752	1311	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:24	2753	1312	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:25	2754	1313	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:26	2755	1314	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:27	2756	1315	2.10	226.157	364	137.84	10.21	117.42	92.00	
7:28	2757	1316	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:29	2758	1317	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:30	2759	1318	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:31	2760	1319	2.09	226.165	364	137.84	10.21	117.43	92.00	
7:32	2761	1320	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:33	2762	1321	2.09	226.165	364	137.84	10.21	117.43	92.00	
7:34	2763	1322	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:35	2764	1323	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:36	2765	1324	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:37	2766	1325	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:38	2767	1326	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:39	2768	1327	2.09	226.157	364	137.84	10.21	117.42	92.00	
7:40	2769	1328	2.09	226.165	364	137.84	10.21	117.43	92.00	
7:41	2770	1329	2.08	226.157	364	137.84	10.21	117.42	92.00	
7:42	2771	1330	2.08	226.157	364	137.84	10.21	117.42	92.00	
7:43	2772	1331	2.08	226.157	364	137.84	10.21	117.42	92.00	
7:44	2773	1332	2.08	226.165	364	137.84	10.21	117.43	92.00	
7:45	2774	1333	2.08	226.157	364	137.84	10.21	117.42	92.00	
7:46	2775	1334	2.08	226.165	364	137.84	10.21	117.43	92.00	
7:47	2776	1335	2.08	226.157	364	137.84	10.21	117.42	92.00	
7:48	2777	1336	2.08	226.157	364	137.84	10.21	117.42	92.00	
7:49	2778	1337	2.08	226.165	364	137.84	10.21	117.43	92.00	
7:50	2779	1338	2.08	226.165	364	137.84	10.21	117.43	92.00	
7:51	2780	1339	2.08	226.165	364	137.84	10.21	117.43	92.00	
7:52	2781	1340	2.08	226.165	364	137.84	10.21	117.43	92.00	
7:53	2782	1341	2.07	226.165	364	137.84	10.21	117.43	92.00	
7:54	2783	1342	2.07	226.157	364	137.84	10.21	117.42	92.00	
7:55	2784	1343	2.07	226.165	364	137.84	10.21	117.43	92.00	
7:56	2785	1344	2.07	226.165	364	137.84	10.21	117.43	92.00	
7:57	2786	1345	2.07	226.165	364	137.84	10.21	117.43	92.00	
7:58	2787	1346	2.07	226.165	364	137.84	10.21	117.43	92.00	
7:59	2788	1347	2.07	226.165	364	137.84	10.21	117.43	92.00	
8:00	2789	1348	2.07	226.165	364	137.84	10.21	117.43	92.00	
8:01	2790	1349	2.07	226.165	364	137.84	10.21	117.43	92.00	
8:02	2791	1350	2.07	226.157	364	137.84	10.21	117.42	92.00	
8:03	2792	1351	2.07	226.165	364	137.84	10.21	117.43	92.00	
8:04	2793	1352	2.07	226.165	364	137.84	10.21	117.43	92.00	
8:05	2794	1353	2.07	226.165	364	137.84	10.21	117.43	92.00	
8:06	2795	1354	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:07	2796	1355	2.06	226.157	364	137.84	10.21	117.42	92.00	
8:08	2797	1356	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:09	2798	1357	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:10	2799	1358	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:11	2800	1359	2.06	226.157	364	137.84	10.21	117.42	92.00	
8:12	2801	1360	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:13	2802	1361	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:14	2803	1362	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:15	2804	1363	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:16	2805	1364	2.06	226.165	364	137.84	10.21	117.43	92.00	

APPENDIX C

RECOVERY-TEST DATA
SRR-RECHARGE WELL
RED RIVER DEVELOPMENT

Time of Measurment	Time Since Pumping Started (t) (min.)	Recovery Time (t') (min.)	t/t'	Sounder Reading (feet, bls)	Transducer Setting Offest (feet,bls)	Water Level (feet, bls)	Residual Drawdown (feet)	Calculated Recovery s-s' (ft')	Percent Recovery	Remarks
8:17	2806	1365	2.06	226.165	364	137.84	10.21	117.43	92.00	
8:18	2807	1366	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:19	2808	1367	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:20	2809	1368	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:21	2810	1369	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:22	2811	1370	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:23	2812	1371	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:24	2813	1372	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:25	2814	1373	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:26	2815	1374	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:27	2816	1375	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:28	2817	1376	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:29	2818	1377	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:30	2819	1378	2.05	226.165	364	137.84	10.21	117.43	92.00	
8:31	2820	1379	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:32	2821	1380	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:33	2822	1381	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:34	2823	1382	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:35	2824	1383	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:36	2825	1384	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:37	2826	1385	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:38	2827	1386	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:39	2828	1387	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:40	2829	1388	2.04	226.173	364	137.83	10.20	117.43	92.01	
8:41	2830	1389	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:42	2831	1390	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:43	2832	1391	2.04	226.173	364	137.83	10.20	117.43	92.01	
8:44	2833	1392	2.04	226.165	364	137.84	10.21	117.43	92.00	
8:45	2834	1393	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:46	2835	1394	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:47	2836	1395	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:48	2837	1396	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:49	2838	1397	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:50	2839	1398	2.03	226.165	364	137.84	10.21	117.43	92.00	
8:51	2840	1399	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:52	2841	1400	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:53	2842	1401	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:54	2843	1402	2.03	226.165	364	137.84	10.21	117.43	92.00	
8:55	2844	1403	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:56	2845	1404	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:57	2846	1405	2.03	226.173	364	137.83	10.20	117.43	92.01	
8:58	2847	1406	2.02	226.173	364	137.83	10.20	117.43	92.01	
8:59	2848	1407	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:00	2849	1408	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:01	2850	1409	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:02	2851	1410	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:03	2852	1411	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:04	2853	1412	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:05	2854	1413	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:06	2855	1414	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:07	2856	1415	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:08	2857	1416	2.02	226.181	364	137.82	10.19	117.44	92.02	
9:09	2858	1417	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:10	2859	1418	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:11	2860	1419	2.02	226.173	364	137.83	10.20	117.43	92.01	
9:12	2861	1420	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:13	2862	1421	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:14	2863	1422	2.01	226.173	364	137.83	10.20	117.43	92.01	
9:15	2864	1423	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:16	2865	1424	2.01	226.173	364	137.83	10.20	117.43	92.01	
9:17	2866	1425	2.01	226.173	364	137.83	10.20	117.43	92.01	
9:18	2867	1426	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:19	2868	1427	2.01	226.173	364	137.83	10.20	117.43	92.01	
9:20	2869	1428	2.01	226.173	364	137.83	10.20	117.43	92.01	
9:21	2870	1429	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:22	2871	1430	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:23	2872	1431	2.01	226.173	364	137.83	10.20	117.43	92.01	
9:24	2873	1432	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:25	2874	1433	2.01	226.181	364	137.82	10.19	117.44	92.02	
9:26	2875	1434	2.00	226.181	364	137.82	10.19	117.44	92.02	
9:27	2876	1435	2.00	226.181	364	137.82	10.19	117.44	92.02	
9:28	2877	1436	2.00	226.173	364	137.83	10.20	117.43	92.01	
9:29	2878	1437	2.00	226.181	364	137.82	10.19	117.44	92.02	
9:30	2879	1438	2.00	226.181	364	137.82	10.19	117.44	92.02	

APPENDIX D

GROUNDWATER SAMPLE LABORATORY RESULTS

WELL SRR-1

Aerotech Environmental Laboratories

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[X] Main Lab - 4645 E. Cotton Center Blvd., Building 3, Suite 189, Phoenix, AZ 85040 602.437.3340 - FAX 623.445.6192
[ ] North Phoenix - 1501 W. Knudsen, Phoenix, AZ 85027 623.780.4800 - FAX 623.445.6216
[ ] Tucson - 4455 S. Park Ave, Suite 110, Tucson, AZ 85714 520.807.3801 - FAX 520.807.3803
www.aeroenvirolabs.com or call toll-free 866.772.5227

Lab Number: 0702 0580

Customer Number:	**Page** 1 **of** 1
Customer: URS	**Sampler:** J. Miller
Address: 7720 N. 16th suite 100	**Project Name:** Tousa Red River
City, State, Zip: Phx AZ 85020	**Project Number:** 23444859
Contact: Alex Richards	**P.O. Number:**
Phone: (602) 371-1100 **Fax:**	**Fax Results:** (Y) N
E-Mail Address: Alex_Richards@URSCORP.com	**E-Mail Results:** (Y) N

Sample Type Codes
DW - Drinking Water A - Air
WW - Waste Water S - Soil
HW - Hazardous Waste
Other _____

Sample Receipt
Temperature 16.2 °C
Custody Seals: Yes ____ No X
Custody Seals Intact: Yes ____ No NA
Total # of Containers: 3

Turn Around Request
____ 24 Hours ____ 48 Hours
____ 72 Hours
____ 5 Working Days
X Standard 10 Working Days
Subject to scheduling & availability (surcharges apply).

Analyses Requested

Sample Information

					Ca, Mg, Chromium	Potassium, Sodium	Arsenic, Alkalinity	Nitrate, Chloride	Fluoride, Sulfate	Bicarbonate	Carbonate, Alkalinity	TDS, pH									# of Containers
1	RR-SR-1_Con	2/20/07	920	DW	1	1	1	1	1	1	1	1									3

Instructions / Special Requirements:

Date:	Time:	Samples Relinquished By:	Received By:
2/20/07	1045	[signature]	[signature]

Analysis performed is subject to the Terms & Conditions available at www.aeroenvirolabs.com or call 866.772.5227 to request a copy.

Aerotech Environmental Laboratories

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Tuesday, March 06, 2007

Alex Richards
URS Corporation
7720 N. 16th Street, Suite 100
Phoenix, AZ 85020

TEL: 602-371-1100
FAX (602) 371-1615

RE: Tousa Red River/23444859

Order No.: 07020580

Dear Alex Richards:

Aerotech Environmental Laboratories received 1 sample(s) on 2/20/2007 for the analyses presented in the following report.

This report includes the following information:
- Case Narrative.
- Analytical Report: includes test results, report limit (Limit), any applicable data qualifier (Qual), units, dilution factor (DF), and date analyzed.
- QC Summary Report.

This communication is intended only for the individual or entity to whom it is directed. It may contain information that is privileged, confidential, or otherwise exempt from disclosure under applicable law. Dissemination, distribution, or copying of this communication by anyone other than the intended recipient, or a duly designated employee or agent of such recipient, is prohibited. If you have received this communication in error, please notify us immediately and destroy this message and all attachments thereto. If you have any questions regarding these test results, please do not hesitate to call.

Sincerely,

Marcela Hodge
for Michelle A. Johnston
Customer Service Manager (CSM)

Aerotech Environmental Laboratories

a division of Aerotech Laboratories, Inc.

Aerotech Environmental Laboratories **Date:** *06-Mar-07*

CLIENT: URS Corporation
Project: Tousa Red River/23444859
Lab Order: 07020580

CASE NARRATIVE

Samples were analyzed using methods outlined in references such as:

- Standard Methods for the Examination of Water and Wastewater, 19th Edition, 1995.
- Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Revised March 1983.
- Methods for the Determination of Organic Compounds in Drinking Water: Supplement III, EPA/600/R-95/131, August 1995.
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition.
- 40 CFR, Part 136, Revised 1998. Appendix A to Part 136 - Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater.
- NIOSH Manual of Analytical Methods, Fourth Edition, 1994.
- Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition, 1999.

Aerotech Environmental Laboratories (AEL) holds Arizona certification no. AZ0610.

Aerotech Environmental Laboratories (Laboratory ID 154268) is accredited by the American Industrial Hygiene Association (AIHA) in the industrial hygiene program for the analytical techniques noted on the scope of accreditation.

Analytical Comments:
All method blanks and laboratory control spikes met EPA method and/or laboratory quality control objectives for the analyses included in this report.

Data Qualifiers:
Listed below are the data qualifiers used in your analytical report to explain any analytical or quality control issues. You will find them noted in your report under the column header "QUAL". Any quality control deficiencies that cannot be adequately described by these qualifiers will be addressed in the analytical comments section of this case narrative.

D2 Sample required dilution due to high concentration of target analyte.
M7 Matrix spike recovery was low. Data reported per ADEQ policy 0154.000.
N1 See case narrative.

N1 - Method E300
The sample selected as the duplicate and matrix spike contained high concentrations of chloride and/or sulfate. The analyte concentration in the sample is disproportionate to the spike level and it was not practical to analyze the sample at a dilution, as the spike would be diluted out. The LCS/LCSD were recovered acceptably demonstrating that the analytical process was in control.

Main Laboratory: 4645 E. Cotton Center Boulevard, Building 3, Suite 189 Phoenix, AZ 85040 Phone: 602.437.3340 Toll Free: 866.772.5227 Fax. 623.445.6192 www.aeroenvirolabs.com
Tucson Facility: 4455 S. Park Ave. Ste. 110 Tucson, AZ 85714 Phone: 520.807.3801 Fax: 520.807.3803

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Date: *02-Mar-07*

CLIENT: URS Corporation
Project: Tousa Red River/23444859
Lab Order: 07020580

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
07020580-01A	RR-SR-1_CON		2/20/2007 9:20:00 AM	2/20/2007
07020580-01B	RR-SR-1_CON		2/20/2007 9:20:00 AM	2/20/2007

Main Laboratory: 4645 E. Cotton Center Boulevard, Building 3, Suite 189 Phoenix, AZ 85040 Phone: 602.437.3340 Toll Free: 866.772.5227 Fax. 623.445.6192 www.aeroenvirolabs.com
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Aerotech Environmental L **Analytical Report** **Date:** *02-Mar-07*

CLIENT:	URS Corporation	**Client Sample ID:**	RR-SR-1_CON
Lab Order:	07020580	**Tag Number:**	
Project:	Tousa Red River/23444859	**Collection Date:**	2/20/2007 9:20:00 AM
Lab ID:	07020580-01A	**Matrix:**	DRINKING WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **AT**
Chloride	170	10	D2	mg/L	5	2/28/2007 9:42:00 PM
Fluoride	0.72	0.40		mg/L	1	2/20/2007 1:19:00 PM
Nitrogen, Nitrate (As N)	28	0.40	D2	mg/L	2	2/20/2007 5:19:00 PM
Nitrogen, Nitrite (As N)	< 0.20	0.20		mg/L	1	2/20/2007 1:19:00 PM
Sulfate	150	10	D2	mg/L	5	2/28/2007 9:42:00 PM
ALKALINITY		**M2320 B**				Analyst: **JLS**
Alkalinity, Bicarbonate (As CaCO3)	120	2.0		mg/L CaCO3	1	2/21/2007
Alkalinity, Carbonate (As CaCO3)	< 2.0	2.0		mg/L CaCO3	1	2/21/2007
Alkalinity, Hydroxide (As CaCO3)	< 2.0	2.0		mg/L CaCO3	1	2/21/2007
Alkalinity, Total (As CaCO3)	120	6.0		mg/L CaCO3	1	2/21/2007
PH (1)		**M4500-H+**				Analyst: **JLS**
pH	7.8	2.00		S.U.	1	2/21/2007
Temperature - °C	19.6	0		°C	1	2/21/2007
RESIDUE, FILTERABLE		**M2540 C**				Analyst: **JLS**
Total Dissolved Solids	850	10		mg/L	1	2/26/2007

Footnotes: All analysis performed at AEL Phoenix laboratory unless indicated by footnotes.

(1) The holding time for pH analysis is immediate. For the most accurate result, the pH should be taken in the field within 15 minutes of sampling.

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Aerotech Environmental L **Analytical Report** **Date:** *02-Mar-07*

CLIENT:	URS Corporation	**Client Sample ID:**	RR-SR-1_CON
Lab Order:	07020580	**Tag Number:**	
Project:	Tousa Red River/23444859	**Collection Date:**	2/20/2007 9:20:00 AM
Lab ID:	07020580-01B	**Matrix:**	DRINKING WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP METALS, TOTAL RECOVERABLE		**E200.7**				Analyst: **HK**
Calcium	120	2.0		mg/L	1	2/21/2007
Magnesium	25	2.0		mg/L	1	2/21/2007
Potassium	3.6	2.0		mg/L	1	2/21/2007
Sodium	130	2.0		mg/L	1	2/21/2007
ICP/MS METALS, TOTAL RECOVERABLE		**E200.8**				Analyst: **PC**
Arsenic	0.0073	0.0010		mg/L	1	2/23/2007 11:06:24 AM
Chromium	0.0071	0.0010		mg/L	1	2/23/2007 11:06:24 AM

Footnotes: All analysis performed at AEL Phoenix laboratory unless indicated by footnotes.

(1) The holding time for pH analysis is immediate. For the most accurate result, the pH should be taken in the field within 15 minutes of sampling.

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Aerotech Environmental Laboratories

02-Mar-07

Lab Order: 07020580
Client: URS Corporation
Project: Tousa Red River/23444859

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
07020580-01A	RR-SR-1_CON	2/20/2007 9:20:00 AM	Drinking Water	ALKALINITY			2/21/2007
				ANIONS by ION CHROMATOGRAPHY			2/28/2007 9:42:00 PM
				ANIONS by ION CHROMATOGRAPHY			2/20/2007 5:19:00 PM
				ANIONS by ION CHROMATOGRAPHY			2/20/2007 1:19:00 PM
				pH			2/21/2007
				TOTAL DISSOLVED SOLIDS			2/26/2007
07020580-01B				ICP METALS, TOTAL RECOVERABLE		2/20/2007 2:24:21 PM	2/21/2007
				ICP/MS METALS, TOTAL RECOVERABLE		2/20/2007 2:24:25 PM	2/23/2007 11:06:24 AM

■ Main Laboratory: 4645 E. Cotton Center Boulevard, Building 3, Suite 189 Phoenix, AZ 85040 Phone: 602.437.3340 Toll Free: 866.772.5227 Fax. 623.445.6192 www.aeroenvirolabs.com
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Aerotech Environmental Laboratories

Date: *02-Mar-07*

CLIENT: URS Corporation
Work Order: 07020580
Project: Tousa Red River/23444859

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7

Sample ID: **MB-28531** SampType: **MBLK** TestCode: **200.7** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84325**
Client ID: Batch ID: **28531** TestNo: **E200.7** Analysis Date: **2/21/2007** SeqNo: **999383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	<2.0	2.0									
Magnesium	<2.0	2.0									
Potassium	<2.0	2.0									
Sodium	<2.0	2.0									

Sample ID: **LCS-28531** SampType: **LCS** TestCode: **200.7** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84325**
Client ID: Batch ID: **28531** TestNo: **E200.7** Analysis Date: **2/21/2007** SeqNo: **999381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9.800	2.0	10.5	0	93.3	85	115				
Magnesium	9.880	2.0	10.5	0	94.1	85	115				
Potassium	9.870	2.0	10	0	98.7	85	115				
Sodium	9.480	2.0	10	0	94.8	85	115				

Sample ID: **LCSD-28531** SampType: **LCSD** TestCode: **200.7** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84325**
Client ID: Batch ID: **28531** TestNo: **E200.7** Analysis Date: **2/21/2007** SeqNo: **999382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9.530	2.0	10.5	0	90.8	85	115	9.800	2.79	20	
Magnesium	9.700	2.0	10.5	0	92.4	85	115	9.880	1.84	20	
Potassium	9.620	2.0	10	0	96.2	85	115	9.870	2.57	20	
Sodium	9.701	2.0	10	0	97.0	85	115	9.480	2.30	20	

Sample ID: **07020447-01A MS** SampType: **MS** TestCode: **200.7** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84325**
Client ID: Batch ID: **28531** TestNo: **E200.7** Analysis Date: **2/21/2007** SeqNo: **999371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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CLIENT: URS Corporation
Work Order: 07020580
Project: Tousa Red River/23444859

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7

Sample ID: **07020447-01A MS** SampType: **MS** TestCode: **200.7** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84325**
Client ID: Batch ID: **28531** TestNo: **E200.7** Analysis Date: **2/21/2007** SeqNo: **999371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	17.70	2.0	10.5	7.790	94.4	75	125				
Magnesium	11.30	2.0	10.5	0	108	75	125				
Potassium	11.60	2.0	10	0	116	75	125				
Sodium	14.92	2.0	10	4.593	103	75	125				

Sample ID: **07020447-01A MSD** SampType: **MSD** TestCode: **200.7** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84325**
Client ID: Batch ID: **28531** TestNo: **E200.7** Analysis Date: **2/21/2007** SeqNo: **999372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	17.70	2.0	10.5	7.790	94.4	75	125	17.70	0	10	
Magnesium	11.30	2.0	10.5	0	108	75	125	11.30	0	10	
Potassium	11.60	2.0	10	0	116	75	125	11.60	0	10	
Sodium	14.91	2.0	10	4.593	103	75	125	14.92	0.0670	10	

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

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CLIENT: URS Corporation
Work Order: 07020580
Project: Tousa Red River/23444859

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8

Sample ID: **MB-28532** SampType: **MBLK** TestCode: **200.8** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84454**
Client ID: Batch ID: **28532** TestNo: **E200.8** Analysis Date: **2/23/2007** SeqNo: **1001013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	<0.0010	0.0010									
Chromium	<0.0010	0.0010									

Sample ID: **LCS-28532** SampType: **LCS** TestCode: **200.8** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84454**
Client ID: Batch ID: **28532** TestNo: **E200.8** Analysis Date: **2/23/2007** SeqNo: **1001014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.1009	0.0010	0.1	0	101	85	115				
Chromium	0.1030	0.0010	0.1	0	103	85	115				

Sample ID: **LCSD-28532** SampType: **LCSD** TestCode: **200.8** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84454**
Client ID: Batch ID: **28532** TestNo: **E200.8** Analysis Date: **2/23/2007** SeqNo: **1001015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.09941	0.0010	0.1	0	99.4	85	115	0.1009	1.47	20	
Chromium	0.1027	0.0010	0.1	0	103	85	115	0.1030	0.330	20	

Sample ID: **07020544-01B MS** SampType: **MS** TestCode: **200.8** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84454**
Client ID: Batch ID: **28532** TestNo: **E200.8** Analysis Date: **2/23/2007** SeqNo: **1001017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.1122	0.0010	0.1	0.01161	101	70	130				
Chromium	0.1183	0.0010	0.1	0.01660	102	70	130				

Sample ID: **07020544-01B MSD** SampType: **MSD** TestCode: **200.8** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84454**
Client ID: Batch ID: **28532** TestNo: **E200.8** Analysis Date: **2/23/2007** SeqNo: **1001018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

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ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8

Sample ID: **07020544-01B MSD** SampType: **MSD** TestCode: **200.8** Units: **mg/L** Prep Date: **2/20/2007** RunNo: **84454**
Client ID: Batch ID: **28532** TestNo: **E200.8** Analysis Date: **2/23/2007** SeqNo: **1001018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.1131	0.0010	0.1	0.01161	102	70	130	0.1122	0.827	15	
Chromium	0.1201	0.0010	0.1	0.01660	104	70	130	0.1183	1.53	15	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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Work Order: 07020580
Project: Tousa Red River/23444859

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W

Sample ID: **MB-R84336** SampType: **MBLK** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84336**
Client ID: Batch ID: **R84336** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	<2.0	2.0									
Fluoride	<0.40	0.40									
Nitrogen, Nitrate (As N)	<0.20	0.20									
Nitrogen, Nitrite (As N)	<0.20	0.20									
Sulfate	<2.0	2.0									

Sample ID: **MB-R84362** SampType: **MBLK** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84362**
Client ID: Batch ID: **R84362** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	<0.20	0.20									
Nitrogen, Nitrite (As N)	<0.20	0.20									

Sample ID: **MB-R84616** SampType: **MBLK** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84616**
Client ID: Batch ID: **R84616** TestNo: **E300** Analysis Date: **2/28/2007** SeqNo: **1002762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	<2.0	2.0									
Fluoride	<0.40	0.40									
Sulfate	<2.0	2.0									

Sample ID: **LCS-R84336** SampType: **LCS** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84336**
Client ID: Batch ID: **R84336** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	18.06	2.0	20	0	90.3	90	110				
Fluoride	3.957	0.40	4	0	98.9	90	110				
Nitrogen, Nitrate (As N)	3.668	0.20	4	0	91.7	90	110				N1

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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Work Order: 07020580
Project: Tousa Red River/23444859

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W

Sample ID: **LCS-R84336** SampType: **LCS** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84336**
Client ID: Batch ID: **R84336** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	3.806	0.20	4	0	95.2	90	110				
Sulfate	18.50	2.0	20	0	92.5	90	110				

Sample ID: **LCS-R84362** SampType: **LCS** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84362**
Client ID: Batch ID: **R84362** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	3.668	0.20	4	0	91.7	90	110				
Nitrogen, Nitrite (As N)	3.806	0.20	4	0	95.2	90	110				

Sample ID: **LCS-R84616** SampType: **LCS** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84616**
Client ID: Batch ID: **R84616** TestNo: **E300** Analysis Date: **2/28/2007** SeqNo: **1002763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	18.18	2.0	20	0	90.9	90	110				
Fluoride	4.064	0.40	4	0	102	90	110				
Sulfate	18.68	2.0	20	0	93.4	90	110				

Sample ID: **LCSD-R84336** SampType: **LCSD** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84336**
Client ID: Batch ID: **R84336** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	18.02	2.0	20	0	90.1	90	110	18.06	0.188	20	
Fluoride	4.014	0.40	4	0	100	90	110	3.957	1.43	20	
Nitrogen, Nitrate (As N)	3.664	0.20	4	0	91.6	90	110	3.668	0.109	20	N1
Nitrogen, Nitrite (As N)	3.761	0.20	4	0	94.0	90	110	3.806	1.19	20	
Sulfate	18.44	2.0	20	0	92.2	90	110	18.50	0.336	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W

Sample ID: **LCSD-R84362** SampType: **LCSD** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84362**
Client ID: Batch ID: **R84362** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	3.664	0.20	4	0	91.6	90	110	3.668	0.109	20	
Nitrogen, Nitrite (As N)	3.761	0.20	4	0	94.0	90	110	3.806	1.19	20	

Sample ID: **LCSD-R84616** SampType: **LCSD** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84616**
Client ID: Batch ID: **R84616** TestNo: **E300** Analysis Date: **3/1/2007** SeqNo: **1002775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	18.10	2.0	20	0	90.5	90	110	18.18	0.441	20	
Fluoride	3.984	0.40	4	0	99.6	90	110	4.064	1.99	20	
Sulfate	18.56	2.0	20	0	92.8	90	110	18.68	0.655	20	

Sample ID: **07020568-01AMS** SampType: **MS** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84336**
Client ID: Batch ID: **R84336** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	95.51	2.0	20	97.97	-12.3	80	120				M7
Fluoride	3.976	0.40	4	0	99.4	80	120				
Nitrogen, Nitrite (As N)	4.387	0.20	4	0.8180	89.2	80	120				
Sulfate	40.24	2.0	20	22.46	88.9	80	120				

Sample ID: **07020584-02AMS** SampType: **MS** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84362**
Client ID: Batch ID: **R84362** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.945	0.20	4	2.588	83.9	80	120				
Nitrogen, Nitrite (As N)	3.956	0.20	4	0	98.9	80	120				

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W

Sample ID: **07020610-01AMS** SampType: **MS** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84616**
Client ID: Batch ID: **R84616** TestNo: **E300** Analysis Date: **2/28/2007** SeqNo: **1002769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	45.07	2.0	20	26.59	92.4	80	120				
Fluoride	4.721	0.40	4	0.8910	95.8	80	120				
Sulfate	42.76	2.0	20	24.62	90.7	80	120				

Sample ID: **07020568-01AMSD** SampType: **MSD** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84336**
Client ID: Batch ID: **R84336** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999568**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	95.06	2.0	20	97.97	-14.6	80	120	95.51	0.474	20	M7
Fluoride	4.049	0.40	4	0	101	80	120	3.976	1.82	20	
Nitrogen, Nitrite (As N)	4.467	0.20	4	0.8180	91.2	80	120	4.387	1.81	20	
Sulfate	40.48	2.0	20	22.46	90.1	80	120	40.24	0.595	20	

Sample ID: **07020584-02AMSD** SampType: **MSD** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84362**
Client ID: Batch ID: **R84362** TestNo: **E300** Analysis Date: **2/20/2007** SeqNo: **999871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	6.015	0.20	4	2.588	85.7	80	120	5.945	1.17	20	
Nitrogen, Nitrite (As N)	4.016	0.20	4	0	100	80	120	3.956	1.51	20	

Sample ID: **07020610-01AMSD** SampType: **MSD** TestCode: **300_W** Units: **mg/L** Prep Date: RunNo: **84616**
Client ID: Batch ID: **R84616** TestNo: **E300** Analysis Date: **2/28/2007** SeqNo: **1002770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	45.56	2.0	20	26.59	94.8	80	120	45.07	1.08	20	
Fluoride	4.855	0.40	4	0.8910	99.1	80	120	4.721	2.80	20	
Sulfate	43.40	2.0	20	24.62	93.9	80	120	42.76	1.49	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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Project: Tousa Red River/23444859

ANALYTICAL QC SUMMARY REPORT

TestCode: ALKALINITY

Sample ID: **MB-R84351** SampType: **MBLK** TestCode: **ALKALINITY** Units: **mg/L CaCO3** Prep Date: RunNo: **84351**
Client ID: Batch ID: **R84351** TestNo: **M2320 B** Analysis Date: **2/21/2007** SeqNo: **999683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	<2.0	2.0									
Alkalinity, Carbonate (As CaCO3)	<2.0	2.0									
Alkalinity, Hydroxide (As CaCO3)	<2.0	2.0									
Alkalinity, Total (As CaCO3)	<6.0	6.0									

Sample ID: **LCS-R84351** SampType: **LCS** TestCode: **ALKALINITY** Units: **mg/L CaCO3** Prep Date: RunNo: **84351**
Client ID: Batch ID: **R84351** TestNo: **M2320 B** Analysis Date: **2/21/2007** SeqNo: **999684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	244.3	6.0	250	0	97.7	90	110				

Sample ID: **LCSD-R8435** SampType: **LCSD** TestCode: **ALKALINITY** Units: **mg/L CaCO3** Prep Date: RunNo: **84351**
Client ID: Batch ID: **R84351** TestNo: **M2320 B** Analysis Date: **2/21/2007** SeqNo: **999701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	242.6	6.0	250	0	97.0	90	110	244.3	0.694	20	

Sample ID: **07020580-01ADUP** SampType: **DUP** TestCode: **ALKALINITY** Units: **mg/L CaCO3** Prep Date: RunNo: **84351**
Client ID: **RR-SR-1_CON** Batch ID: **R84351** TestNo: **M2320 B** Analysis Date: **2/21/2007** SeqNo: **999686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	123.1	2.0						122.0	0.873	0	
Alkalinity, Carbonate (As CaCO3)	<2.0	2.0						0	0	0	
Alkalinity, Hydroxide (As CaCO3)	<2.0	2.0						0	0	0	
Alkalinity, Total (As CaCO3)	123.1	6.0						122.0	0.873	20	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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ANALYTICAL QC SUMMARY REPORT

TestCode: ALKALINITY

Sample ID: **07020595-01ADUP** SampType: **DUP** TestCode: **ALKALINITY** Units: **mg/L CaCO3** Prep Date: RunNo: **84351**
Client ID: Batch ID: **R84351** TestNo: **M2320 B** Analysis Date: **2/21/2007** SeqNo: **999697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	357.2	2.0						357.7	0.154	0	
Alkalinity, Carbonate (As CaCO3)	<2.0	2.0						0	0	0	
Alkalinity, Hydroxide (As CaCO3)	<2.0	2.0						0	0	0	
Alkalinity, Total (As CaCO3)	357.2	6.0						357.7	0.154	20	

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

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ANALYTICAL QC SUMMARY REPORT

TestCode: PH_W

Sample ID: **LCS-R84349** SampType: **LCS** TestCode: **PH_W** Units: **S.U.** Prep Date: RunNo: **84349**
Client ID: Batch ID: **R84349** TestNo: **M4500-H+** Analysis Date: **2/21/2007** SeqNo: **999669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.970	2.00	7	0	99.6	99.28	100.72				
Temperature - °C	20.67	0									

Sample ID: **LCSD-R84349** SampType: **LCSD** TestCode: **PH_W** Units: **S.U.** Prep Date: RunNo: **84349**
Client ID: Batch ID: **R84349** TestNo: **M4500-H+** Analysis Date: **2/21/2007** SeqNo: **999670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.980	2.00	7	0	99.7	99.28	100.72	6.970	0.143	10	
Temperature - °C	20.37	0						20.67	1.46	0	

Sample ID: **07020580-01ADUP** SampType: **DUP** TestCode: **PH_W** Units: **S.U.** Prep Date: RunNo: **84349**
Client ID: **RR-SR-1_CON** Batch ID: **R84349** TestNo: **M4500-H+** Analysis Date: **2/21/2007** SeqNo: **999658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.810	2.00						7.830	0.256	10	
Temperature - °C	19.93	0						19.60	1.67	0	

Sample ID: **07020595-01ADUP** SampType: **DUP** TestCode: **PH_W** Units: **S.U.** Prep Date: RunNo: **84349**
Client ID: Batch ID: **R84349** TestNo: **M4500-H+** Analysis Date: **2/21/2007** SeqNo: **999668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.510	2.00						7.500	0.133	10	
Temperature - °C	20.59	0						20.63	0.194	0	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

■ Main Laboratory: 4645 E. Cotton Center Boulevard, Building 3, Suite 189 Phoenix, AZ 85040 Phone: 602.437.3340 Toll Free: 866.772.5227 Fax. 623.445.6192 www.aeroenvirolabs.com
■ Tucson Facility: 4455 S. Park Ave. Ste. 110 Tucson, AZ 85714 Phone: 520.807.3801 Fax: 520.807.3803

Aerotech Environmental Laboratories

a division of Aerotech Laboratories, Inc.

CLIENT: URS Corporation
Work Order: 07020580
Project: Tousa Red River/23444859

ANALYTICAL QC SUMMARY REPORT

TestCode: S_TDS

Sample ID: **MB-R84542** SampType: **MBLK** TestCode: **S_TDS** Units: **mg/L** Prep Date: RunNo: **84542**
Client ID: Batch ID: **R84542** TestNo: **M2540 C** Analysis Date: **2/26/2007** SeqNo: **1001879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	<10	10									

Sample ID: **LCS-R84542** SampType: **LCS** TestCode: **S_TDS** Units: **mg/L** Prep Date: RunNo: **84542**
Client ID: Batch ID: **R84542** TestNo: **M2540 C** Analysis Date: **2/26/2007** SeqNo: **1001880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	994.0	10	1000	0	99.4	90	110				

Sample ID: **LCSD-R84542** SampType: **LCSD** TestCode: **S_TDS** Units: **mg/L** Prep Date: RunNo: **84542**
Client ID: Batch ID: **R84542** TestNo: **M2540 C** Analysis Date: **2/26/2007** SeqNo: **1001885**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	1014	10	1000	0	101	90	110	994.0	1.99	10	

Sample ID: **07020580-01ADUP** SampType: **DUP** TestCode: **S_TDS** Units: **mg/L** Prep Date: RunNo: **84542**
Client ID: **RR-SR-1_CON** Batch ID: **R84542** TestNo: **M2540 C** Analysis Date: **2/26/2007** SeqNo: **1001882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	851.0	10						854.0	0.352	10	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

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■ Tucson Facility: 4455 S. Park Ave. Ste. 110 Tucson, AZ 85714 Phone: 520.807.3801 Fax: 520.807.3803

Aerotech Environmental Laboratories Sample Receipt Checklist

Project Checked By: _____

Laboratory Number: 07020580	Checklist completed by: [illegible] 2/20/07
Client Name: LRS	Signature/Date
Matrix: DW / Carrier Name: CDEN	Date/Time Rec'd: 2/20/07 1045 By: PF

Temperature of Samples? 16.2 °C *Circle one:* Blue Ice Wet Ice Not Present

	Yes	No*	Not Present
Client or PM made aware temp. out of range? Yes / No			
Shipping container/cooler in good condition?			X
Custody seals intact on shipping container/cooler?			X
Custody seals intact on sample containers?			X
Chain of Custody present and relinquished/received properly?	X		
Chain of Custody agrees with sample labels?	X		
Samples in proper containers/bottles?	X		
Sample containers intact?	X		
All samples received within holding time?	X		
Is there sufficient sample volume to perform the tests?	X		
40mL vials for volatiles & SOCs received with zero headspace?			X

Soil Containers:
Brass Sleeve____
Glass Jar____
Methanol____
Plastic Bag____
Encore Samplers____
Sterile Plastic____

**See Comments about Chlorine and pH

Total number of bottles received: 3 | IH sample media:

If applicable, how many sample bottles were shipped from AEL-Tucson? N/A X

Number of containers received by preservative and by sample number. (If more than 15 samples are rec'd, please continue on separate sheet(s)).

Preservative	Simple***	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A-General		2														
B-HNO3		1														
C-H2SO4																
D-HCl																
E-Na2S2O3																
F-NaOH																
G-Sulfide																
H-Na Sulfite																
I-MCAA																
J-Methanol																
K-HAA																
L-Other																

Water-pH acceptable upon receipt? Yes X No N/A

Preservative & pH		pH of samples upon receipt	If pH requires adjustment, list sample number, and reagent I.D. number
Metals	<2	<2	
Nutrients	<2		
Total Phenols	<2		
1664	<2		
Cyanide	>12		
Sulfide	>9		

**Any No response must be detailed in the comments section below. Contact the PM immediately to determine how to proceed. Refer to SOP 11-001. Continue on back if additional space is needed.*

***The holding time for pH and Total Residual Chlorine analysis is immediate. For the most accurate result, the pH and Total Residual Chlorine should be taken in the field within 15 minutes of sampling.*

****The Simple box is only to be used when there is one bottle per reservative in equal sample sets.*

Comments:

Corrective Action:

APPENDIX E

THWELLS OUTPUT FILE

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

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

-------------------------------------------------------------------------------
TOUSA RED RIVER, WELL SRR-1 IMPACT ANLYSIS AT 200 GPM
-------------------------------------------------------------------------------

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



         UNCONFINED AQUIFER - THEIS EQUATION WITH JACOB'S CORRECTION

                                WATER TABLE CORRECTION APPLIED

                            AQUIFER THICKNESS  =  200 [ft]
                               TRANSMISSIVITY  =  39600 [gpd/ft]

                           STORAGE COEFFICIENT  =  .18

                         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  =  200 [ft]

-------------------------------------------------------------------------------

********************************************************** THWELLS - PAGE 2

                         PUMPING/INJECTION WELL DATA

     WELL NO. 1

                              X-COORDINATE  =  40 [ft]
                              Y-COORDINATE  =  40 [ft]
                     PUMPING/INJECTION RATE  =  288000 [gpd]
       TIME SINCE START PUMPING/INJECTION  =  1825 [day]

-------------------------------------------------------------------------------
```

********** RESULTS ********** THWELLS - PAGE 3

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

Y [ft]	<- X [ft] -> 0	2	4	6	8	10
0.00	6.194	6.224	6.254	6.283	6.312	6.341
2.00	6.224	6.255	6.287	6.318	6.349	6.380
4.00	6.254	6.287	6.320	6.353	6.386	6.419
6.00	6.283	6.318	6.353	6.388	6.423	6.458
8.00	6.312	6.349	6.386	6.423	6.461	6.498
10.00	6.341	6.380	6.419	6.458	6.498	6.538
12.00	6.370	6.410	6.451	6.493	6.535	6.578
14.00	6.397	6.440	6.483	6.527	6.572	6.617
16.00	6.424	6.469	6.514	6.561	6.608	6.657
18.00	6.450	6.497	6.545	6.594	6.644	6.695
20.00	6.475	6.523	6.573	6.625	6.678	6.733
22.00	6.498	6.549	6.601	6.655	6.711	6.769
24.00	6.519	6.572	6.627	6.683	6.742	6.803
26.00	6.539	6.594	6.650	6.709	6.771	6.835
28.00	6.557	6.613	6.671	6.733	6.797	6.864
30.00	6.572	6.630	6.690	6.753	6.820	6.890
32.00	6.585	6.644	6.706	6.771	6.839	6.912
34.00	6.595	6.655	6.718	6.785	6.855	6.929
36.00	6.602	6.663	6.727	6.795	6.866	6.942
38.00	6.607	6.668	6.733	6.801	6.873	6.950
40.00	6.608	6.670	6.734	6.803	6.876	6.953
42.00	6.607	6.668	6.733	6.801	6.873	6.950
44.00	6.602	6.663	6.727	6.795	6.866	6.942
46.00	6.595	6.655	6.718	6.785	6.855	6.929
48.00	6.585	6.644	6.706	6.771	6.839	6.912
50.00	6.572	6.630	6.690	6.753	6.820	6.890
52.00	6.557	6.613	6.671	6.733	6.797	6.864
54.00	6.539	6.594	6.650	6.709	6.771	6.835
56.00	6.519	6.572	6.627	6.683	6.742	6.803
58.00	6.498	6.549	6.601	6.655	6.711	6.769
60.00	6.475	6.523	6.573	6.625	6.678	6.733
62.00	6.450	6.497	6.545	6.594	6.644	6.695
64.00	6.424	6.469	6.514	6.561	6.608	6.657
66.00	6.397	6.440	6.483	6.527	6.572	6.617
68.00	6.370	6.410	6.451	6.493	6.535	6.578
70.00	6.341	6.380	6.419	6.458	6.498	6.538
72.00	6.312	6.349	6.386	6.423	6.461	6.498
74.00	6.283	6.318	6.353	6.388	6.423	6.458
76.00	6.254	6.287	6.320	6.353	6.386	6.419

********** THWELLS - version 4.01 ********** PAGE 4

Y [ft]	<- X [ft] -> 0	2	4	6	8	10
78.00	6.224	6.255	6.287	6.318	6.349	6.380
80.00	6.194	6.224	6.254	6.283	6.312	6.341

Y [ft]	<- X [ft] -> 12	14	16	18	20	22
0.00	6.370	6.397	6.424	6.450	6.475	6.498

2.00	6.410	6.440	6.469	6.497	6.523	6.549
4.00	6.451	6.483	6.514	6.545	6.573	6.601
6.00	6.493	6.527	6.561	6.594	6.625	6.655
8.00	6.535	6.572	6.608	6.644	6.678	6.711
10.00	6.578	6.617	6.657	6.695	6.733	6.769
12.00	6.620	6.663	6.706	6.748	6.789	6.828
14.00	6.663	6.709	6.755	6.801	6.846	6.890
16.00	6.706	6.755	6.805	6.855	6.904	6.953
18.00	6.748	6.801	6.855	6.909	6.964	7.018
20.00	6.789	6.846	6.904	6.964	7.024	7.083
22.00	6.828	6.890	6.953	7.018	7.083	7.150
24.00	6.866	6.932	7.000	7.070	7.143	7.217
26.00	6.902	6.972	7.045	7.121	7.200	7.282
28.00	6.935	7.009	7.087	7.169	7.255	7.345
30.00	6.964	7.042	7.125	7.212	7.306	7.405
32.00	6.989	7.070	7.157	7.251	7.351	7.458
34.00	7.009	7.094	7.184	7.282	7.388	7.503
36.00	7.024	7.111	7.204	7.306	7.416	7.538
38.00	7.033	7.121	7.217	7.320	7.434	7.559
40.00	7.036	7.125	7.221	7.325	7.440	7.567
42.00	7.033	7.121	7.217	7.320	7.434	7.559
44.00	7.024	7.111	7.204	7.306	7.416	7.538
46.00	7.009	7.094	7.184	7.282	7.388	7.503
48.00	6.989	7.070	7.157	7.251	7.351	7.458
50.00	6.964	7.042	7.125	7.212	7.306	7.405
52.00	6.935	7.009	7.087	7.169	7.255	7.345
54.00	6.902	6.972	7.045	7.121	7.200	7.282
56.00	6.866	6.932	7.000	7.070	7.143	7.217
58.00	6.828	6.890	6.953	7.018	7.083	7.150
60.00	6.789	6.846	6.904	6.964	7.024	7.083
62.00	6.748	6.801	6.855	6.909	6.964	7.018
64.00	6.706	6.755	6.805	6.855	6.904	6.953
66.00	6.663	6.709	6.755	6.801	6.846	6.890
68.00	6.620	6.663	6.706	6.748	6.789	6.828
70.00	6.578	6.617	6.657	6.695	6.733	6.769
72.00	6.535	6.572	6.608	6.644	6.678	6.711
74.00	6.493	6.527	6.561	6.594	6.625	6.655

********** THWELLS - version 4.01 ********** PAGE 5

Y [ft] <- X [ft] ->

	12	14	16	18	20	22
76.00	6.451	6.483	6.514	6.545	6.573	6.601
78.00	6.410	6.440	6.469	6.497	6.523	6.549
80.00	6.370	6.397	6.424	6.450	6.475	6.498

Y [ft] <- X [ft] ->

	24	26	28	30	32	34
0.00	6.519	6.539	6.557	6.572	6.585	6.595
2.00	6.572	6.594	6.613	6.630	6.644	6.655
4.00	6.627	6.650	6.671	6.690	6.706	6.718
6.00	6.683	6.709	6.733	6.753	6.771	6.785
8.00	6.742	6.771	6.797	6.820	6.839	6.855
10.00	6.803	6.835	6.864	6.890	6.912	6.929
12.00	6.866	6.902	6.935	6.964	6.989	7.009
14.00	6.932	6.972	7.009	7.042	7.070	7.094
16.00	7.000	7.045	7.087	7.125	7.157	7.184
18.00	7.070	7.121	7.169	7.212	7.251	7.282
20.00	7.143	7.200	7.255	7.306	7.351	7.388

22.00	7.217	7.282	7.345	7.405	7.458	7.503
24.00	7.291	7.366	7.440	7.510	7.574	7.629
26.00	7.366	7.452	7.538	7.621	7.699	7.768
28.00	7.440	7.538	7.637	7.737	7.833	7.920
30.00	7.510	7.621	7.737	7.857	7.976	8.089
32.00	7.574	7.699	7.833	7.976	8.126	8.275
34.00	7.629	7.768	7.920	8.089	8.275	8.473
36.00	7.672	7.822	7.991	8.185	8.410	8.670
38.00	7.699	7.857	8.038	8.251	8.508	8.829
40.00	7.708	7.869	8.055	8.275	8.545	8.893
42.00	7.699	7.857	8.038	8.251	8.508	8.829
44.00	7.672	7.822	7.991	8.185	8.410	8.670
46.00	7.629	7.768	7.920	8.089	8.275	8.473
48.00	7.574	7.699	7.833	7.976	8.126	8.275
50.00	7.510	7.621	7.737	7.857	7.976	8.089
52.00	7.440	7.538	7.637	7.737	7.833	7.920
54.00	7.366	7.452	7.538	7.621	7.699	7.768
56.00	7.291	7.366	7.440	7.510	7.574	7.629
58.00	7.217	7.282	7.345	7.405	7.458	7.503
60.00	7.143	7.200	7.255	7.306	7.351	7.388
62.00	7.070	7.121	7.169	7.212	7.251	7.282
64.00	7.000	7.045	7.087	7.125	7.157	7.184
66.00	6.932	6.972	7.009	7.042	7.070	7.094
68.00	6.866	6.902	6.935	6.964	6.989	7.009
70.00	6.803	6.835	6.864	6.890	6.912	6.929
72.00	6.742	6.771	6.797	6.820	6.839	6.855

Y [ft] <- X [ft] ->

	24	26	28	30	32	34
74.00	6.683	6.709	6.733	6.753	6.771	6.785
76.00	6.627	6.650	6.671	6.690	6.706	6.718
78.00	6.572	6.594	6.613	6.630	6.644	6.655
80.00	6.519	6.539	6.557	6.572	6.585	6.595

Y [ft] <- X [ft] ->

	36	38	40	42	44	46
0.00	6.602	6.607	6.608	6.607	6.602	6.595
2.00	6.663	6.668	6.670	6.668	6.663	6.655
4.00	6.727	6.733	6.734	6.733	6.727	6.718
6.00	6.795	6.801	6.803	6.801	6.795	6.785
8.00	6.866	6.873	6.876	6.873	6.866	6.855
10.00	6.942	6.950	6.953	6.950	6.942	6.929
12.00	7.024	7.033	7.036	7.033	7.024	7.009
14.00	7.111	7.121	7.125	7.121	7.111	7.094
16.00	7.204	7.217	7.221	7.217	7.204	7.184
18.00	7.306	7.320	7.325	7.320	7.306	7.282
20.00	7.416	7.434	7.440	7.434	7.416	7.388
22.00	7.538	7.559	7.567	7.559	7.538	7.503
24.00	7.672	7.699	7.708	7.699	7.672	7.629
26.00	7.822	7.857	7.869	7.857	7.822	7.768
28.00	7.991	8.038	8.055	8.038	7.991	7.920
30.00	8.185	8.251	8.275	8.251	8.185	8.089
32.00	8.410	8.508	8.545	8.508	8.410	8.275
34.00	8.670	8.829	8.893	8.829	8.670	8.473
36.00	8.964	9.249	9.385	9.249	8.964	8.670
38.00	9.249	9.806	10.228	9.806	9.249	8.829
40.00	9.385	10.228	12.447	10.228	9.385	8.893

42.00	9.249	9.806	10.228	9.806	9.249	8.829
44.00	8.964	9.249	9.385	9.249	8.964	8.670
46.00	8.670	8.829	8.893	8.829	8.670	8.473
48.00	8.410	8.508	8.545	8.508	8.410	8.275
50.00	8.185	8.251	8.275	8.251	8.185	8.089
52.00	7.991	8.038	8.055	8.038	7.991	7.920
54.00	7.822	7.857	7.869	7.857	7.822	7.768
56.00	7.672	7.699	7.708	7.699	7.672	7.629
58.00	7.538	7.559	7.567	7.559	7.538	7.503
60.00	7.416	7.434	7.440	7.434	7.416	7.388
62.00	7.306	7.320	7.325	7.320	7.306	7.282
64.00	7.204	7.217	7.221	7.217	7.204	7.184
66.00	7.111	7.121	7.125	7.121	7.111	7.094
68.00	7.024	7.033	7.036	7.033	7.024	7.009
70.00	6.942	6.950	6.953	6.950	6.942	6.929

Y [ft] <- X [ft] ->

	36	38	40	42	44	46
72.00	6.866	6.873	6.876	6.873	6.866	6.855
74.00	6.795	6.801	6.803	6.801	6.795	6.785
76.00	6.727	6.733	6.734	6.733	6.727	6.718
78.00	6.663	6.668	6.670	6.668	6.663	6.655
80.00	6.602	6.607	6.608	6.607	6.602	6.595

Y [ft] <- X [ft] ->

	48	50	52	54	56	58
0.00	6.585	6.572	6.557	6.539	6.519	6.498
2.00	6.644	6.630	6.613	6.594	6.572	6.549
4.00	6.706	6.690	6.671	6.650	6.627	6.601
6.00	6.771	6.753	6.733	6.709	6.683	6.655
8.00	6.839	6.820	6.797	6.771	6.742	6.711
10.00	6.912	6.890	6.864	6.835	6.803	6.769
12.00	6.989	6.964	6.935	6.902	6.866	6.828
14.00	7.070	7.042	7.009	6.972	6.932	6.890
16.00	7.157	7.125	7.087	7.045	7.000	6.953
18.00	7.251	7.212	7.169	7.121	7.070	7.018
20.00	7.351	7.306	7.255	7.200	7.143	7.083
22.00	7.458	7.405	7.345	7.282	7.217	7.150
24.00	7.574	7.510	7.440	7.366	7.291	7.217
26.00	7.699	7.621	7.538	7.452	7.366	7.282
28.00	7.833	7.737	7.637	7.538	7.440	7.345
30.00	7.976	7.857	7.737	7.621	7.510	7.405
32.00	8.126	7.976	7.833	7.699	7.574	7.458
34.00	8.275	8.089	7.920	7.768	7.629	7.503
36.00	8.410	8.185	7.991	7.822	7.672	7.538
38.00	8.508	8.251	8.038	7.857	7.699	7.559
40.00	8.545	8.275	8.055	7.869	7.708	7.567
42.00	8.508	8.251	8.038	7.857	7.699	7.559
44.00	8.410	8.185	7.991	7.822	7.672	7.538
46.00	8.275	8.089	7.920	7.768	7.629	7.503
48.00	8.126	7.976	7.833	7.699	7.574	7.458
50.00	7.976	7.857	7.737	7.621	7.510	7.405
52.00	7.833	7.737	7.637	7.538	7.440	7.345
54.00	7.699	7.621	7.538	7.452	7.366	7.282
56.00	7.574	7.510	7.440	7.366	7.291	7.217
58.00	7.458	7.405	7.345	7.282	7.217	7.150
60.00	7.351	7.306	7.255	7.200	7.143	7.083

62.00	7.251	7.212	7.169	7.121	7.070	7.018
64.00	7.157	7.125	7.087	7.045	7.000	6.953
66.00	7.070	7.042	7.009	6.972	6.932	6.890
68.00	6.989	6.964	6.935	6.902	6.866	6.828

Y [ft] <- X [ft] ->

	48	50	52	54	56	58
70.00	6.912	6.890	6.864	6.835	6.803	6.769
72.00	6.839	6.820	6.797	6.771	6.742	6.711
74.00	6.771	6.753	6.733	6.709	6.683	6.655
76.00	6.706	6.690	6.671	6.650	6.627	6.601
78.00	6.644	6.630	6.613	6.594	6.572	6.549
80.00	6.585	6.572	6.557	6.539	6.519	6.498

Y [ft] <- X [ft] ->

	60	62	64	66	68	70
0.00	6.475	6.450	6.424	6.397	6.370	6.341
2.00	6.523	6.497	6.469	6.440	6.410	6.380
4.00	6.573	6.545	6.514	6.483	6.451	6.419
6.00	6.625	6.594	6.561	6.527	6.493	6.458
8.00	6.678	6.644	6.608	6.572	6.535	6.498
10.00	6.733	6.695	6.657	6.617	6.578	6.538
12.00	6.789	6.748	6.706	6.663	6.620	6.578
14.00	6.846	6.801	6.755	6.709	6.663	6.617
16.00	6.904	6.855	6.805	6.755	6.706	6.657
18.00	6.964	6.909	6.855	6.801	6.748	6.695
20.00	7.024	6.964	6.904	6.846	6.789	6.733
22.00	7.083	7.018	6.953	6.890	6.828	6.769
24.00	7.143	7.070	7.000	6.932	6.866	6.803
26.00	7.200	7.121	7.045	6.972	6.902	6.835
28.00	7.255	7.169	7.087	7.009	6.935	6.864
30.00	7.306	7.212	7.125	7.042	6.964	6.890
32.00	7.351	7.251	7.157	7.070	6.989	6.912
34.00	7.388	7.282	7.184	7.094	7.009	6.929
36.00	7.416	7.306	7.204	7.111	7.024	6.942
38.00	7.434	7.320	7.217	7.121	7.033	6.950
40.00	7.440	7.325	7.221	7.125	7.036	6.953
42.00	7.434	7.320	7.217	7.121	7.033	6.950
44.00	7.416	7.306	7.204	7.111	7.024	6.942
46.00	7.388	7.282	7.184	7.094	7.009	6.929
48.00	7.351	7.251	7.157	7.070	6.989	6.912
50.00	7.306	7.212	7.125	7.042	6.964	6.890
52.00	7.255	7.169	7.087	7.009	6.935	6.864
54.00	7.200	7.121	7.045	6.972	6.902	6.835
56.00	7.143	7.070	7.000	6.932	6.866	6.803
58.00	7.083	7.018	6.953	6.890	6.828	6.769
60.00	7.024	6.964	6.904	6.846	6.789	6.733
62.00	6.964	6.909	6.855	6.801	6.748	6.695
64.00	6.904	6.855	6.805	6.755	6.706	6.657
66.00	6.846	6.801	6.755	6.709	6.663	6.617

Y [ft] <- X [ft] ->

	60	62	64	66	68	70

68.00	6.789	6.748	6.706	6.663	6.620	6.578
70.00	6.733	6.695	6.657	6.617	6.578	6.538
72.00	6.678	6.644	6.608	6.572	6.535	6.498
74.00	6.625	6.594	6.561	6.527	6.493	6.458
76.00	6.573	6.545	6.514	6.483	6.451	6.419
78.00	6.523	6.497	6.469	6.440	6.410	6.380
80.00	6.475	6.450	6.424	6.397	6.370	6.341

Y [ft] <- X [ft] ->

	72	74	76	78	80
0.00	6.312	6.283	6.254	6.224	6.194
2.00	6.349	6.318	6.287	6.255	6.224
4.00	6.386	6.353	6.320	6.287	6.254
6.00	6.423	6.388	6.353	6.318	6.283
8.00	6.461	6.423	6.386	6.349	6.312
10.00	6.498	6.458	6.419	6.380	6.341
12.00	6.535	6.493	6.451	6.410	6.370
14.00	6.572	6.527	6.483	6.440	6.397
16.00	6.608	6.561	6.514	6.469	6.424
18.00	6.644	6.594	6.545	6.497	6.450
20.00	6.678	6.625	6.573	6.523	6.475
22.00	6.711	6.655	6.601	6.549	6.498
24.00	6.742	6.683	6.627	6.572	6.519
26.00	6.771	6.709	6.650	6.594	6.539
28.00	6.797	6.733	6.671	6.613	6.557
30.00	6.820	6.753	6.690	6.630	6.572
32.00	6.839	6.771	6.706	6.644	6.585
34.00	6.855	6.785	6.718	6.655	6.595
36.00	6.866	6.795	6.727	6.663	6.602
38.00	6.873	6.801	6.733	6.668	6.607
40.00	6.876	6.803	6.734	6.670	6.608
42.00	6.873	6.801	6.733	6.668	6.607
44.00	6.866	6.795	6.727	6.663	6.602
46.00	6.855	6.785	6.718	6.655	6.595
48.00	6.839	6.771	6.706	6.644	6.585
50.00	6.820	6.753	6.690	6.630	6.572
52.00	6.797	6.733	6.671	6.613	6.557
54.00	6.771	6.709	6.650	6.594	6.539
56.00	6.742	6.683	6.627	6.572	6.519
58.00	6.711	6.655	6.601	6.549	6.498
60.00	6.678	6.625	6.573	6.523	6.475
62.00	6.644	6.594	6.545	6.497	6.450
64.00	6.608	6.561	6.514	6.469	6.424

Y [ft] <- X [ft] ->

	72	74	76	78	80
66.00	6.572	6.527	6.483	6.440	6.397
68.00	6.535	6.493	6.451	6.410	6.370
70.00	6.498	6.458	6.419	6.380	6.341
72.00	6.461	6.423	6.386	6.349	6.312
74.00	6.423	6.388	6.353	6.318	6.283
76.00	6.386	6.353	6.320	6.287	6.254
78.00	6.349	6.318	6.287	6.255	6.224
80.00	6.312	6.283	6.254	6.224	6.194

ARIZONA DEPARTMENT OF WATER RESOURCES
Information Management Unit
P.O. Box 458, Phoenix, Arizona 85001-0458
(602) 771-8527 * (800) 352-8488
www.water.az.gov

Well Driller Report and Well Log

ENTERED
APR 18 2007

RECEIVED
MAR 30 2007
INFO MGMT

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

** PLEASE PRINT CLEARLY **

FILE NUMBER: D(5-3) 26 CCA
WELL REGISTRATION NUMBER: 55- 213913
PERMIT NUMBER (IF ISSUED):

SECTION 1. DRILLING AUTHORIZATION

Mail To:

Drilling Firm

NAME	DWR LICENSE NUMBER
ARIZONA BEEMAN DRILLING dba Morex Investments	1360
ADDRESS: P.O. BOX 3370	TELEPHONE NUMBER: 480-983-2542
CITY/STATE/ZIP: APACHE JUNCTION, AZ 85219	FAX

SECTION 2. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION OR INDIVIDUAL: TOUSA HOMES,INC.

MAILING ADDRESS: 2600 NORTH CENTRAL AVE SUITE 1600

CITY / STATE / ZIP: PHOENIX, AZ 85004

CONTACT PERSON NAME AND TITLE:

TELEPHONE NUMBER: 480-968-7700 FAX:

WELL NAME (e.g., MW-1, PZ-3, Lot 25 Well, Smith Well, etc.):

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
5 S	3 E	26	SW 1/4	SW 1/4	NE 1/4

LATITUDE Degrees	Minutes	Seconds "N	LONGITUDE Degrees	Minutes	Seconds "W
°	'		°	'	

METHOD OF LATITUDE / LONGITUDE (CHECK ONE): ☐ USGS Quad Map ☐ Conventional Survey ☐ *GPS: Hand-Held ☐ *GPS: Survey-Grade

LAND SURFACE ELEVATION AT WELL: Feet Above Sea Level

METHOD OF ELEVATION (CHECK ONE): ☐ USGS Quad Map ☐ Conventional Survey ☐ *GPS: Hand-Held ☐ *GPS: Survey-Grade

*IF GPS WAS USED, GEOGRAPHIC COORDINATE DATUM (CHECK ONE): ☐ NAD-83 ☐ Other (please specify):

COUNTY: PINAL

ASSESSOR'S PARCEL ID NUMBER BOOK	MAP	PARCEL
510	54	003

SECTION 3. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ONE
- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☐ Mud Rotary
- ☒ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other (please specify)

Method of Well Development

CHECK ONE
- ☒ Airlift / SWAB
- ☐ Bail
- ☐ Surge Back
- ☐ Surge Pump
- ☐ Other (please specify)

Method of Sealing at Reduction Points

CHECK ONE
- ☒ None
- ☐ Packed
- ☐ Swedged
- ☐ Welded
- ☐ Other (please specify)

Condition of Well

CHECK ONE
- ☒ Capped
- ☐ Pump Installed

Construction Dates

DATE WELL CONSTRUCTION STARTED: 12-19-06

DATE WELL CONSTRUCTION COMPLETED: 1-7-07

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

DRILLING FIRM	SIGNATURE OF QUALIFYING PARTY	DATE
AZ Beeman Drilling	[signature]	3/14/07

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55- 213913

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

DEPTH OF BORING	DEPTH OF COMPLETED WELL
430 Feet Below Land Surface	418 Feet Below Land Surface

Water Level Information

STATIC WATER LEVEL	DATE MEASURED	TIME MEASURED	IF FLOWING WELL, METHOD OF FLOW REGULATION
Feet Below Land Surface			☐ Valve ☐ Other:

Borehole			Installed Casing													
DEPTH FROM SURFACE		BOREHOLE DIAMETER (inches)	DEPTH FROM SURFACE		OUTER DIAMETER (inches)	MATERIAL TYPE (X)				PERFORATION TYPE (X)						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	36	+1	39	30	X				X						
39	410	28	+2	160	18 5/8	X				X						
			160	240	18 5/8	X			304 SS			X				.060
			240	270	18 5/8	X			304 SS	X						
			270	390	18 5/8	X			304 SS			X				.060
			390	410	18 5/8	X			304 SS	X						
						w/ Bull Nose										

Installed Annular Material

DEPTH FROM SURFACE		ANNULAR MATERIAL TYPE (X)								FILTER PACK		
						BENTONITE						
FROM (feet)	TO (feet)	NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	GROUT	CHIPS	PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	SAND	GRAVEL	SIZE
0	39			X								
0	118			X								
118	130						X					
130	250										X	6x9 CSS.
250	255						X					
255	418										X	6x9 CSS.

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55- 213913

SECTION 5. GEOLOGIC LOG OF WELL

DEPTH FROM SURFACE FROM (feet)	TO (feet)	DESCRIPTION Describe material, grain size, color, etc.	Check (X) every interval where water was encountered
0	40	Silty SAND	
40	60	SANDY GRAVELS	
60	130	CLAYEY SAND	
130	140	SAND	
140	170	CLAYEY SAND	
170	180	SAND	
180	200	CLAYEY SAND	
200	220	GRAVEL	
220	430	CLAY w/ SANDS	

ARIZONA DEPARTMENT OF WATER RESOURCES

WATER MANAGEMENT SUPPORT SECTION

3550 N. Central Avenue
Phoenix, Arizona 85012

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-213913

AUTHORIZED DRILLER: ARIZONA BEEMAN DRILLING dba Morex Investments LLC LICENSE NO: 360

NOTICE OF INTENTION TO DRILL AN INJECTION WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: TOUSA HOMES,INC. 2600 NORTH CENTRAL AVE SUITE 1600 PHOENIX, AZ 85004

THE WELL(S) IS/ARE TO BE LOCATED IN THE:
NE ¼ OF THE SW ¼ OF THE SW ¼ SECTION 26 TOWNSHIP 5 SOUTH RANGE 3 EAST

NO. OF WELLS IN THIS PROJECT: 1 ASSESSOR PARCEL NO: 510-54-003

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 3RD DAY OF OCTOBER, 2007

WATER MANAGEMENT SUPPORT

THE DRILLER MUST FILE A LOG OF THE WELL
WITHIN 30 DAYS OF COMPLETION OF DRILLING

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

ARIZONA DEPARTMENT OF WATER RESOURCES
3550 N. Central Avenue, Phoenix, Arizona 85012
Telephone (602) 771-8500
Fax (602) 771-8691

October 06, 2006

Janet Napolitano
Governor

Herbert R. Guenther
Director

TOUSA HOMES,INC.
2600 NORTH CENTRAL AVE SUITE 1600
PHOENIX, AZ 85004

Registration No. 55-213913
File No. D(5-3) 26 CCA

Dear Well Owner:

Enclosed for your records is an annotated copy of the Notice of Intention to Drill (NOI) and Abandon an Exploration/Specialty Well, which you recently filed with this Department pursuant to A.R.S. § 45-596. This is to inform you that the Department has approved the NOI and has mailed a drilling card authorizing the drilling of the well to your designated well drilling contractor. The driller may not begin drilling until he has received the drilling card, which he must keep in his possession at the well site during drilling.

Well drilling activities must be completed within one year after the date the NOI was filed with the Department. If drilling is not completed within one year, you must file a new NOI before proceeding with further drilling. If it is necessary to change the location of the proposed well, you may not proceed with drilling until you file an amended NOI with the Department. A properly amended drilling card will then be issued and must be in the possession of the well drilling contractor before drilling begins.

If this well is being drilled as a heat pump, cathodic protection, or grounding well, or for exploration purposes, our standard Well Driller Report and Well Log form (DWR form 55-55) will be furnished to the well drilling contractor. If this well is being drilled as a mineral exploration well, a Project Completion Report (DWR from 55-57) will be furnished to the well drilling contractor. These forms must be filed with the Department within 30 days after completion of the well. A Pump Installation Completion Report form (DWR form 55-56) is being furnished to the well owner if pump installation is authorized. This must be completed within 30 days of installing a pump as required by A.R.S. § 45-600. During the drilling of a new well, if it is determined that it must be abandoned, then a Well Abandonment Completion Report (DWR form 55-58) must be submitted per R12-15-816(F).

Please be advised that A.R.S. § 45-593(C) requires the person to whom a well is registered to notify the Department of a change of ownership of the well and/or information pertaining to the physical characteristics of the well, in order to keep the well registration file current and accurate. Any change in well information or a request to change well driller must be filed on a Request to Change Well Information form (DWR form 55-71A), which is enclosed for your future use.

Sincerely,

Danita Haywood
NOI Unit
Water Management Support Section

Enclosures

SRR-1

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

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

FEE

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
  - $150 check or money order for the filing fee.
  - Well construction diagram, labeling all specifications listed in Section 6.
- Authority for fee: A.R.S. § 45-596.

** PLEASE PRINT CLEARLY **

AMA/INA	B	GB
FINAL	10	
RECEIVED DATE	WS	
10.4.06	9	
ISSUED DATE	WQAR CERCLA	

FILE NUMBER D(5-3)26CCA
WELL REGISTRATION NUMBER 55 213913

SECTION 1. REGISTRY INFORMATION

Well Type — CHECK ONE
- ☐ Monitor
- ☐ Piezometer
- ☐ Vadose Zone
- ☐ Air Sparging
- ☐ Soil Vapor Extraction
- ☒ Other (*please specify*): **ASR Well**

Proposed Action — CHECK ONE
- ☒ Drill New Well
- ☐ Deepen
- ☐ Modify

If Deepening or Modifying:
WELL REGISTRATION NUMBER: 55 -

Location of Well
WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
5 South	3 East	26	SW ¼	SW ¼	NE ¼

COUNTY ASSESSOR'S PARCEL ID NUMBER: BOOK 510 | MAP 54 | PARCEL 003-02
COUNTY WHERE WELL IS LOCATED: Pinal County

SECTION 2. OWNER INFORMATION

Well Owner	**Landowner** (if different from Well Owner)
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: TOUSA Homes, Inc.	FULL NAME OF COMPANY, GOVERNMENT AGENCY, OR INDIVIDUAL: Same
MAILING ADDRESS: 2600 North Central Avenue, Suite 1600	MAILING ADDRESS:
CITY / STATE / ZIP CODE: Phoenix, AZ 85004	CITY / STATE / ZIP CODE:
CONTACT PERSON NAME AND TITLE: Glenn Tulk, President W.R.L.D.	CONTACT PERSON NAME AND TITLE:
TELEPHONE NUMBER: (480) 968-7700 / FAX: (480) 968-0258	TELEPHONE NUMBER: / FAX:

RECEIVED OCT 4 2006 GROUNDWATER MGT

SECTION 3. DRILLING AUTHORIZATION

Drilling Firm	**Consultant** (if applicable)
NAME: Arizona Beeman Drilling	CONSULTING FIRM: URS Corporation
DWR LICENSE NUMBER: ADWR Lic No. 360 / ROC LICENSE CATEGORY: ROC Lic Cat.:C-53, A, A-4	CONTACT PERSON NAME: Alex M. Richards, R.G.
TELEPHONE NUMBER: 480-540-5261 / FAX: 480-983-4816	TELEPHONE NUMBER: 602-861-7405 / FAX: 602-371-1615
E-MAIL ADDRESS: azbeeman@yahoo.com	E-MAIL ADDRESS: alex_richards@urscorp.com

SECTION 4.

Questions	Yes	No	Explanation:
1. Are all annular spaces between the casing(s) and the borehole for the placement of grout at least 2 inches?	X		2-inch annular spaces are special standards required for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
2. Is the screened or perforated interval of casing greater than 100 feet in length?	X		100-foot maximum screen intervals are a special standard for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
3. Are you requesting a variance to use thermoplastic casing in lieu of steel casing in the surface seal?		X	The wells must be constructed in a vault as defined in A.A.C. R12-15-801(27).
4. Is there another well name or identification number associated with this well? (e.g., MW-1, PZ2, 06-04, etc.)	X		IF YES, PLEASE STATE
5. Have construction plans been coordinated with the Arizona Department of Environmental Quality?	X		IF YES, PLEASE STATE AGENCY CONTACT & PHONE NUMBER **via APP No. P-105297**
6. For monitor wells, is dedicated pump equipment to be installed?		X	IF YES, PLEASE STATE DESIGN PUMP CAPACITY Gallons per Minute
7. Is this well a new well located in an Active Management Area **AND** intended to pump water for the purpose of remediating groundwater?		X	IF YES, UNLESS THE WELL IS A REPLACEMENT WELL AND THE TOTAL NUMBER OF OPERABLE WELLS ON THE SITE IS NOT INCREASING, YOU MUST ALSO FILE A SUPPLEMENTAL FORM. A.R.S. § 45-454(C) & (F). *(See instructions)*
8. Will the well registration number be stamped on the vault cover or on the upper part of the casing?	X		IF NO, WHERE WILL THE REGISTRATION NUMBER BE PLACED?

RECEIVED OCT - 4 2006 GROUNDWATER MGT

SRR-1

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER
55-213913

SECTION 5. WELL CONSTRUCTION DETAILS

Drill Method

CHECK ONE

- [ ] Air Rotary
- [ ] Bored or Augered
- [ ] Cable Tool
- [ ] Dual Rotary
- [ ] Mud Rotary
- [X] Reverse Circulation
- [ ] Driven
- [ ] Jetted
- [ ] Air Percussion / Odex Tubing
- [ ] Other (*please specify*):

DATE CONSTRUCTION TO BEGIN
December 15, 2006

Method of Well Development

CHECK ONE

- [X] Airlift
- [ ] Bail
- [ ] Surge Block
- [X] Surge Pump
- [ ] Other (*please specify*):

Method of Sealing at Reduction Points

CHECK ONE

- [X] None
- [ ] Welded
- [ ] Swedged
- [ ] Packed
- [ ] Other (*please specify*):

Grout Emplacement Method

CHECK ONE

- [ ] Gravity
- [ ] Pressure Grout
- [X] Tremie
- [ ] Other (*please specify*):

Surface or Conductor Casing

CHECK ONE

- [ ] Flush Mount in a vault
- [X] Extend 1' above grade

SECTION 6. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Borehole

DEPTH FROM SURFACE FROM (feet)	TO (feet)	BOREHOLE DIAMETER (inches)
0	39	36
39	420	28

Casing

DEPTH FROM SURFACE FROM (feet)	TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0	39	30	X			Low Carbon	X						
-1	410	18-5/8	X			Stainless	X						
160-260	300-390	18-5/8	X			Stainless					X	Louvered	0.060

Annular Material

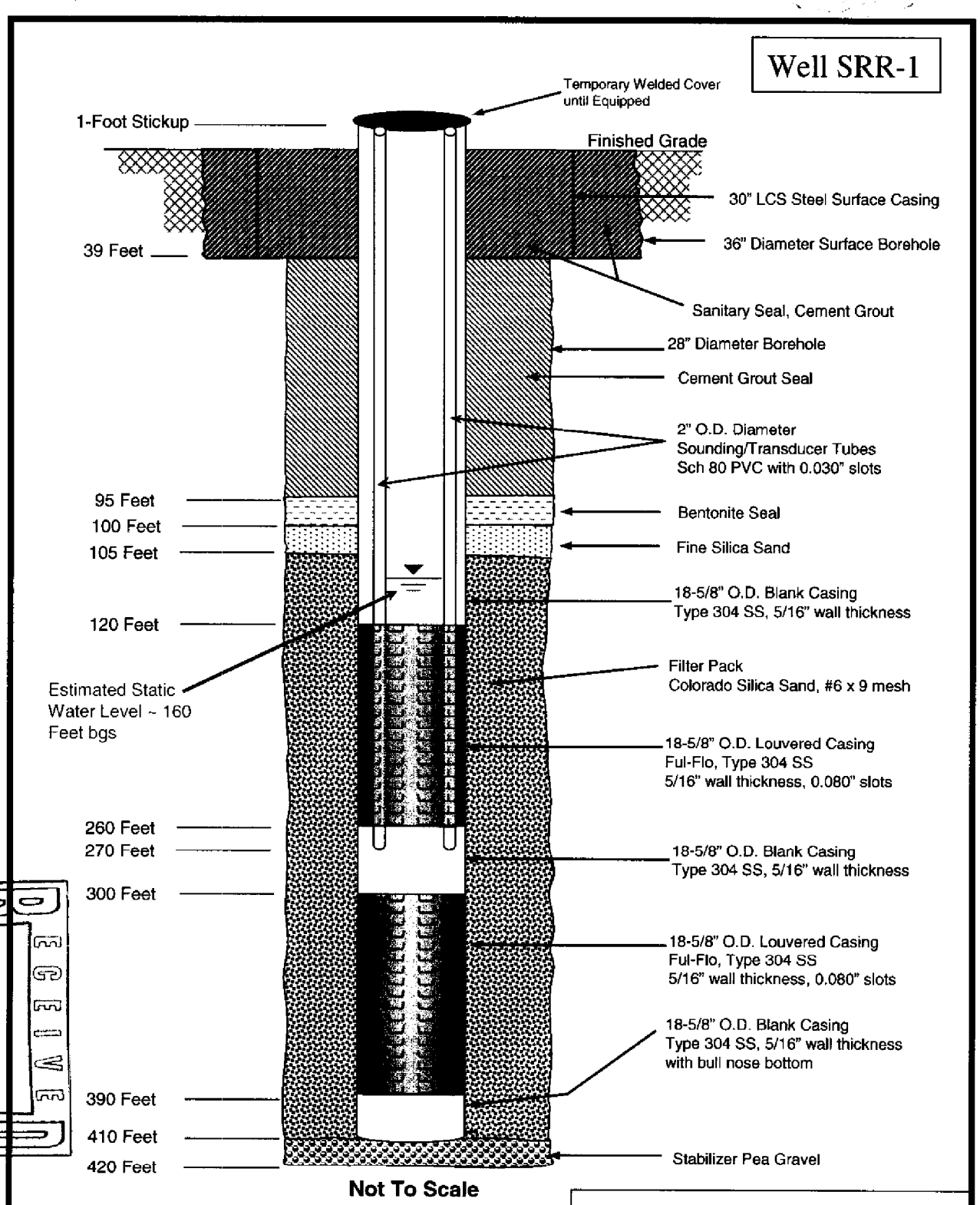
DEPTH FROM SURFACE FROM (feet)	TO (feet)	ANNULAR MATERIAL TYPE (T) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	CHIPS	PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	GRAVEL	SIZE
0	95		X						Cement Grout Seal			
95	100							X	Bentonite Seal			
100	420								Fine Sand 100-105 ft Colorado-Silica 6x9, 105-420 ft	X		#6-9

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS: **Well has dual perforation intervals**

EXPECTED DEPTH TO WATER: **160 feet** Feet Below Ground Surface

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

TYPE OR PRINT NAME AND TITLE	SIGNATURE OF WELL OWNER	DATE
Glenn Tulk, TOUSA Homes, President W.R.L.D.	Glenn Tulk	10/4/06
TYPE OR PRINT NAME AND TITLE	**SIGNATURE OF LANDOWNER, IF APPLICABLE (SEE INSTRUCTIONS)**	**DATE**
Glenn Tulk, TOUSA Homes, President W.R.L.D.	Glenn Tulk	10/4/06



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Notes:
LCS = low carbon steel
Unless stated, all diameters are outside diameter (OD), except the well screen (which is nominal).

URS

tousa

FIGURE 2
Preliminary Well Design
ASR Well SRR-1
Red River Development
Pinal County, Arizona

P:/Tousa Homes/Red River/Well Installations/permitting/Well SRR-1

213913

7720 North 16th Street, Suite 100
Phoenix, Arizona 85020
Telephone: (602) 371-1100
Fax: (602) 371-1615

URS

LETTER OF TRANSMITTAL

TO: Arizona Department of Water Resources
Water Management Support Section
P.O. Box 458
Phoenix, Arizona 85001-0458

DATE: October 4, 2006

SUBJECT: NOI to Drill and Construct ASR Well SRR-1
Tousa Homes' Red River Development
Pinal County, Arizona

REFERENCE:

Attached is:

1) Completed NOI Appication Form for Well SRR-1
2) Project Site and Well Location Map
3) Preliminary Well Construction Diagram
4) Filing Fee

For:

- ☒ Review and Approval
- ☐ Signature and Return
- ☒ Appropriate Action
- ☐ As Requested
- ☐ For Your Information

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Remarks:

Thank you for your assistance in permitting this well. Drilling is tentatively scheduled to begin on December 15, 2006. Any assistance to expedite the approval process will be greatly appreciated.

URS

7720 North 16th Street, Suite 100
Phoenix, Arizona 85020
Telephone: (602) 371-1100
Fax: (602) 371-1615

If you have any questions or need assistance, please contact Alex Richards at the URS Corporation at 602-861-7405. Thank you.

Sincerely,

URS

Alex M. Richards, R.G.

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CHECK DEPOSIT REQUEST

ARIZONA DEPARTMENT OF WATER RESOURCES

NOTICE OF INTENT

Well No(s). (IF KNOWN): **55-** 213913

Date Submitted:	10/4/06	**Check No.:**	2906
Submitted by:	URS CORP	**Check Amount:**	150.00
Applicant:	TOUSA HOMES	**Name on Check:** (IF DIFFERENT THAN APPLICANT)	
Received By:	TONI B	**Prior Amount Paid:**	(FEES ALREADY RECEIVED FOR THIS NOI)

Code	Type of Application	Quantity	Fee (PER WELL UNLESS OTHERWISE NOTED)	Current Payment	Fees Owed
4439-06	**Exempt** Wells **Outside AMAs** to be used for **Domestic** Purposes Only.		$100.00	$	$
	Exempt Wells Inside AMAs and **ALL Exempt** Wells **Not** to be Used for **Domestic** Purposes.		$150.00	$	$
	Non-exempt Wells **Outside AMAs.**		$150.00	$	$
	Mineral Exploration or **Geotechnical.**		$150.00/per land section	$	$
	Cathodic Protection, Heat Pump, Grounding, Monitor, Piezometer, Air Sparging Soil Vapor Extraction, Non-recharge **Vadose Zone** or **Injection** Wells.	1	$150.00	$ 150.00	$
4439-11	**Late Registration** of an **Exempt** Well (not used for Irrigation inside an AMA).		$10.00	$	$
	Late Registration of an **Non-exempt** well **outside an AMA.**		$20.00	$	$
4439-08	Request to **Change** Well Information (Change of Well **Driller**).		$10.00	$	$
4439-12	Request to **Change** Well Information (Change of **Ownership**).		$10.00*	$	$

*CHANGING TO MORE THAN 1 WELL WHERE NAMES TO BE CHANGED ARE ALL THE SAME, ONE $10.00 FEE TOTAL FOR THOSE WELLS, OTHERWISE, CHANGE OF OWNERSHIP IS $10.00/WELL.

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Well Driller Licensing

NOTE: PLEASE NOTE DRILLER'S NAME & LICENSE # (IF KNOWN) IN COMMENTS.

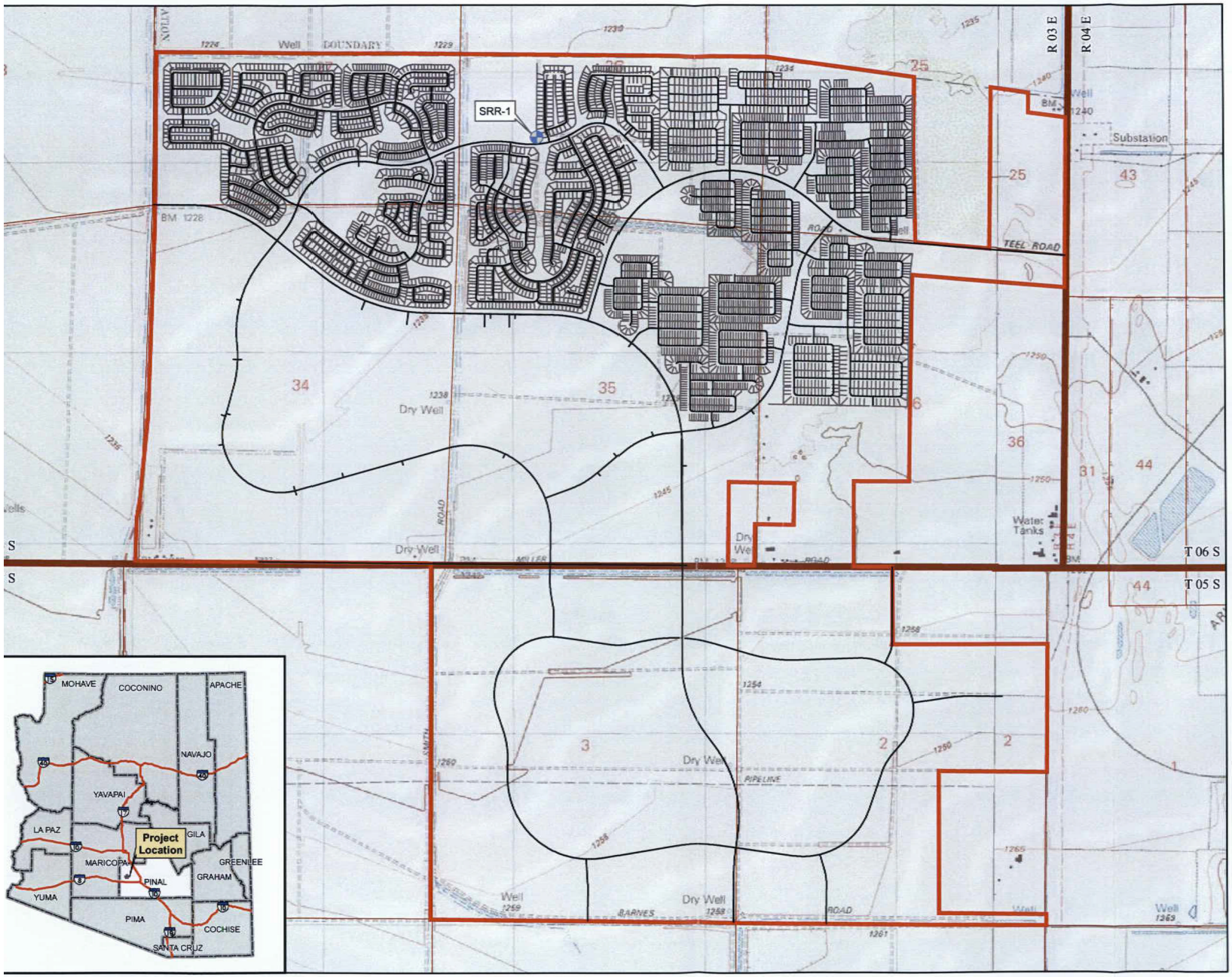
4420-01	**Regular** Well License.		$50.00	$	$
4420-02	Well Driller License **Renewal.**		$10.00	$	$
4420-03	Well Driller License **Reactivation** (MUST BE WITHIN 1 YEAR OF LICENSE EXPIRATION DATE).		$20.00	$	$

Comments:

Total Paid*:	$ 150.00	**Debt Owed:**	$

*IF FEES HAVE BEEN PAID PREVIUOSLY FOR THIS NOI, INCLUDE THAT AMOUNT.

213913



SRR-1 Well Location

TOUSA Homes

LEGEND

Project Features

SRR-1 Injection Well

Geographic Location: 112° 01' 35", 32 57" 36"
Cadastral Location: Township 05 S
Range 03 E,
Section 26,
SW¼, SW¼, NE¼
Parcel Number: Book 510, Map 54,
Parcel 003-02

Project Road

Parcel

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General Features

Project Boundary

Township and Range Line

Section Line

Sources:
Base topographic data:
(c)2002 National Geographic Holdings (www.topo.com)
Base Map data: ALRIS 1997, 2005
Project Features: HEC Engineering 2006

State Plane Arizona Central, NAD83, International Feet

N

0 0.125 0.25 0.5
Miles

October 2006

URS

Figure 1