

ORIGINAL



0000024302

1 Richard L. Sallquist
Sallquist, Drummond & O'Connor, P.C.
2 4500 South Lakeshore Drive
Suite 339
3 Tempe, Arizona 85282
Phone: (480) 839-5202
4 Fax: (480) 345-0412

5 **BEFORE THE ARIZONA CORPORATION COMMISSION**

6
7 _____)
8 IN THE MATTER OF THE APPLICATION)
9 OF JOHNSON UTILITIES COMPANY FOR)
10 AN EXTENSION OF ITS EXISTING)
CERTIFICATE OF CONVENIENCE AND)
11 NECESSITY FOR WATER AND)
WASTEWATER SERVICE.)

DOCKET NO. WS-02987A-04-0288

**NOTICE OF FILING
APPLICANT'S RESPONSIVE
TESTIMONY**

12 Johnson Utilities Company, by and through its undersigned counsel, hereby provides this
13 Notice of Filing on behalf of the Company of the Responsive Testimony of Brian Tompsett in
14 this proceeding.

15 RESPECTFULLY submitted this 25TH day of July 2005.

16 SALLQUIST, DRUMMOND & O'CONNOR, P.C.

17
18 By:
19 Richard L. Sallquist
4500 South Lakeshore Drive, Suite 339
20 Tempe, Arizona 85282
Phone: (480) 839-5202
21 Fax: (480) 345-0412

AZ CORP COMMISSION
DOCUMENT CONTROL

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2005 JUL 25 P 3: 51

RECEIVED

1 Original and fifteen copies of the
2 foregoing filed this 25th day
of July 2005:

3 Docket Control
4 Arizona Corporation Commission
5 1200 West Washington
6 Phoenix, Arizona 85007

7 A copy of the foregoing
8 mailed/hand delivered this
25th day of June 2005, to:

9 Hearing Division
10 Arizona Corporation Commission
11 1200 West Washington
12 Phoenix, Arizona 85007

13 Utilities Division
14 Arizona Corporation Commission
15 1200 West Washington
16 Phoenix, Arizona 85007

17 Legal Division
18 Arizona Corporation Commission
19 1200 West Washington
20 Phoenix, Arizona 85007

21 Sheryl S. Sweeney
22 Ryley, Carlock & Applewhite, PA
23 One N. Central Ave., Ste 1200
Phoenix, Arizona 85004-4417

1
2
3 **JOHNSON UTILITIES COMPANY**
4 **CERTIFICATE OF CONVENIENCE AND NECESSITY APPLICATION**
5 **DOCKET NO. W-02987A-04-0288**

6
7
8 **RESPONSIVE TESTIMONY OF**
9 **BRIAN TOMPSETT**

10 **FILED JULY 25, 2005**
11
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~

1 A. Yes it is. This is our Response to the Staff Response to the June 21, 2005 Procedural
2 Order.

3 Q. Will you please explain that Exhibit?

4 A. Yes. The filing included several items. The first enclosure was my June 17, 2005
5 correspondence to the Arizona Department of Environmental Quality with the statistics regarding
6 the Morning Sun Farms well No. 1, including its pumping capacity as provided by our
7 hydrologist, Clear Creek Associates. This demonstrates the Company's ability to produce in
8 excess of 5,000 GPM. We also provided additional information to the Staff regarding the
9 average water consumption of our existing customers. The final attachment to that filing was the
10 June 3, 2005 Approval of Construction for the Morning Sun Farms Well No. 1.

11 Q. Was there other production capacity information subsequently provided to Staff?

12 A. Yes, we also provided similar information regarding two wells known as the Crestfield I
13 and Crestfield II wells. Each of the Crestfield wells is designed and anticipated to produce
14 approximately 1,000 gpm. Attached to this filing are two additional well applications as Exhibits
15 2 and 3. The wells are referred to as the Hardison Well No. 1 and the Ellsworth Well No. 1. Each
16 well has been designed to produce approximately 1,000 gpm. Both of these wells were submitted
17 to ADEQ on July 19, 2005, with a request for an Approval to Construct.

18 Q. Are those wells presently approved by ADEQ, or are they tied into the water distribution
19 system?

20 A. No, we anticipate obtaining the ADEQ approvals as quickly as possible and then
21 integrating those into the system as the demand increases.

22 Q. Does the data for the Morning Sun Farms Well support the Company's capacity to serve
23 not only its existing customers, but also the requested expansion area?

1 A. Yes it does. The addition of the two Crestfield Wells, the Hardison Well and the
2 Ellsworth well, all within the Phoenix AMA, will have a combined additional capacity of
3 approximately 4,000 GPM when integrated into the water system. The approved wells will then
4 provide sufficient water to serve and additional approximately 13,800 customers at the average
5 daily demand during the peak month residential customer usage. The anticipated production
6 capacity is far in excess of the demands in this area.

7 Q. I refer you to what is marked as Exhibit 4 to your Responsive Testimony, and ask if you
8 please explain that Exhibit?

9 A. These are the Arsenic Reports on the Company's wells, and include a summary sheet as
10 the first page.

11 Q. Are those wells within the new arsenic standard?

12 A. Yes, the wells that are connected to the system are substantially below the 10 ppb
13 standard.

14 Q.. Based on this evidence then, is it the Company's position that the Commission should
15 grant the Certificate of Convenience and Necessity as requested?

16 A. Yes it is.

17 Q. Does that include your Responsive Testimony?

18 A. Yes it does.

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JOHNSON UTILITIES COMPANY L.L.C

5230 East Shea Boulevard * Scottsdale, Arizona 85254
PH: (480) 998-3300; FAX: (480) 483-7908

June 17, 2005

Kwame Agyare
Senior Environmental Engineer
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007

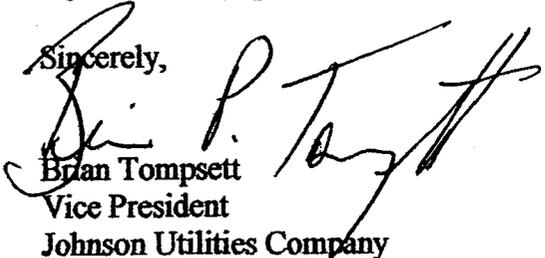
RE: Johnson Utilities Company – System #11-128

Dear Mr. Agyare:

Attached is the revised Johnson Utilities Company commitment list for System #11-128, effective 6/17/05. The Morning Sun Farms Well (ADWR # 55-201429) was tested at 1,100 gpm as documented by the attached pumping test report prepared by Clear Creek Associates, June 15, 2005. This increased capacity increases the total estimated well production from 4,732 gpm to 5,082 gpm.

If you have any questions or comments, please contact me at 480 998-3300.

Sincerely,


Brian Tompsett
Vice President

Johnson Utilities Company

EXHIBIT 1

Johnson Utilities Company - System #11-128

**PRODUCTION OPTIONS WITHIN JOHNSON UTILITIES SERVICE AREA
Note: LOW NITRATES HAVE BEEN ASSUMED FOR ALL PRODUCTION WELLS
EXCEPT FOR WELL #4.**

Well Identification Name System # 11-128	Well Identification Number	LOCATED WITHIN THE AREA OF:	ADEQ FILE NUMBER	ESTIMATED TOTAL FLOW PER WELL Including R.O. loss (gal/mtn)	Option #1	Option #2
					Well #4 "Untreated" ESTIMATED PRODUCTION CAPABILITY PER WELL IN: (gal/day)	Well #4+#5 "blended & treated" Plus Others ESTIMATED PRODUCTION CAPABILITY PER WELL IN: (gal/day)
Production:						
J.R. Well No. 4 (untreated)	55-558445	Johnson	980006	500	720,000	0
J.R. Well No. 4 (Treated with R.O. Unit)	55-558445	Johnson	980006	0	0	0
J.R. Well #4 plus #5 (blended)	55-559843	Johnson	980006	1000	0	0
J.R. Well #4 plus #5 (blended & treated)	Misc.	Johnson	980006	917	0	1,320,480
Edwards Road Well No. 2 (untreated) (1)	55-586189	Johnson	2001037	35	50,400	50,400
Oasis Well No. 1 (untreated) (2)	55-582085	Oasis	20010811	110	158,400	158,400
Oasis Well No. 3 (untreated) (2)	55-582087	Oasis	20010611	110	158,400	158,400
Oasis Well No. 2 (untreated) (2)	55-582088	Oasis	20010811	110	158,400	158,400
Skyline (untreated) (3)	55-621462	Skyline	20020539	1000	1,440,000	1,440,000
Circle Cross Well #1 (untreated)	55-599026	Circle Cross	20020489	1000	1,440,000	1,440,000
Morning Sun Farms (4)	55-201429	Morning Sun	20050298	1100	1,584,000	1,584,000
San Tan Heights #2 (5)	55-598836	San Tan Hts.	20050161	700	1,008,000	1,008,000
TOTAL ESTIMATED WELL PRODUCTION (GPD)					6,717,600	7,318,080
TOTAL ESTIMATED WELL PRODUCTION (GPM)					4,665	5,082

Storage:	Storage Capacity (Gallons)	Units served @ 260 Gal/unit/day
Johnson Ranch Water Plant No. 1	500,000	
Johnson Ranch Water Plant No. 1	100,000	
Oasis Water Plant No. 1	500,000	
Edwards Road Water Plant No. 2	50,000	
Circle Cross Water Plant No. 1	500,000	
San Tan Water Plant No. 1	1,000,000	
Production from J.R. Well #4 plus #5 (blended)	1,320,480	
TOTAL ESTIMATED STORAGE CAPACITY (Gallons)		3,970,480
LESS FIRE STORAGE CAPACITY AS REQUIRED BY FIRE DISTRICT (Gallons)		-120,000
WELL PRODUCTION WITHOUT CIRCLE CROSS OPERATING (Gallons/day)		6,310,080
ESTIMATED 1 DAY SYSTEM PRODUCTION and STORAGE CAPACITY (Gallons)		10,160,560

Units served @ 260 Gal/unit/day **39,079**

- (*) Pending indicates that the improvement plans have been submitted to ADEQ.
- (1) Indicates actual maximum flow data
- (2) Indicates actual maximum flow & permitted data
- (3) Indicates actual & permitted data
- (4) ADEQ approval of construction issued June 3, 2005.
- (5) ADEQ approval of construction issued April 18, 2005.



Practical Solutions
in Groundwater Science

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

June 15, 2005
Mr. Gary Larsen – Operations Manager
Johnson Utilities
968 East Hunt Highway, P.O. Box 87
Queen Creek, Arizona 85242

Re: Pumping Test Results: Morning Sun Farms Well (ADWR Registration No. 55-201429)

Dear Mr. Larsen:

This letter report summarizes the results of a 4-hour constant rate test conducted on June 9, 2005 on Johnson Utilities Morning Sun Farms well. The Morning Sun Farms well is registered under ADWR Registration No. 55-201429, and is a replacement well for ADWR Well Number 55-507141, which was abandoned. The letter report has been prepared as one of the requirements outlined in the Arizona Department of Environmental Quality (ADEQ) Engineering Bulletin no. 10 Guidelines for the Construction of Water Systems (ADEQ May, 1978). Engineering Bulletin no. 10 states, "*Individual wells shall be test pumped at a constant pumping rate that is not less than that planned for the final pump installation. The well shall be pumped at this rate for not less than four hours, and at least until a sustained yield is obtained with a static drawdown. Measurements of the water level recovery can then be made (page 2-9).*"

The subject well is located in Township 3 South, Range 7 East, in the northwest $\frac{1}{4}$ of the northwest $\frac{1}{4}$ of the northeast $\frac{1}{4}$ of Section 12 (D-03-07 12ABB) in Pinal County. Well construction was completed on May 12, 2004 by Preston Well Drilling of Mesa, Arizona. The well was constructed with 12 $\frac{1}{4}$ -inch (O.D.) steel casing from 0 to 700 feet. The subject well is screened from 560 to 660 feet below land surface (bls). A 4-hour constant rate aquifer test was conducted on the Morning Sun Farms well on June 9, 2005 to facilitate a determination of the local aquifer characteristics. Hydrogeologic conditions such as localized aquifer boundaries that may affect the well's capacity after extended pumping intervals can also be detected from this data. After pumping the well for 4-hours at a constant rate of approximately 1,100 gallons per minute (gpm) the water levels were monitored for 30-minutes until the water level in the well reached 95 percent recovery, relative to the static water level prior to the start of the constant rate test. The well had been previously equipped with an electric submersible pump by Preston Well Drilling. The flow rate was monitored by an in-line flow meter (analog) and discharge water was directed to a nearby retention basin.

The static water level in the Morning Sun Farms well was measured at 325.44 feet bls from the top of casing just prior to starting the pump on June 9, 2005. Water level data were collected manually by use of

an electric well sounder. Upon starting the pump, water levels were initially measured at one minute intervals. The time duration between water level measurements was gradually extended to once every 15 minutes by the end of the constant rate test. The discharge rate was held constant at approximately 1,100 gallons per minute (gpm) for the duration of the test, the pump was turned off and recovery was monitored for 30 minutes. The time duration between water level measurements during recovery was initially measured at one minute intervals and then extended to 5 minute intervals. The water level datasheet for the aquifer test is presented in Table 1.

The Cooper-Jacob Plot of drawdown data collected from the Morning Sun Farms well during the constant rate aquifer test is presented in Figure 1. The maximum recorded drawdown at the end of the constant rate test was 32.18 feet, equivalent to a pumping water level of 347.62 feet bls. The pumping rate at the end of the constant rate test was approximately 1,100 gpm; this equates to a specific capacity of approximately 49.6 gpm/ft. The Cooper-Jacob plot (Figure 1) illustrates water level drawdown relative to pumping time. The Theis Recovery Plot of residual drawdown data for the Morning Sun Farms well illustrating the water level recovery is presented in Figure 2.

Based on the constant rate test data for the Morning Sun Farms well, the Cooper-Jacob Plot (Figure 1) indicates that the transmissivity is about 372,300 gallons per day per foot (gpd/ft), and the corresponding Theis Recovery Plot (Figure 2) indicates a transmissivity of approximately 937,000 gpd/ft. Based on assumed equivalent water production across the entire screened interval of 100 feet (560 ft. – 660 ft.), the effective hydraulic conductivity (K) of the aquifer surrounding the Morning Sun Farms well is approximately 3,723 gallons per day per square foot (gpd/ft²) or 497 feet per day (ft/d) based on the Cooper-Jacob Plot. The Theis Recovery Plot indicates an effective K of approximately 9,370 gpd/ft² or approximately 1,250 ft/d.

Sincerely,

CLEAR CREEK ASSOCIATES, PLC



Steven W. Corell, R.G.

cc: Brian Tompsett, Johnson Utilities
Greg Brown, Specific Engineering

Attachments



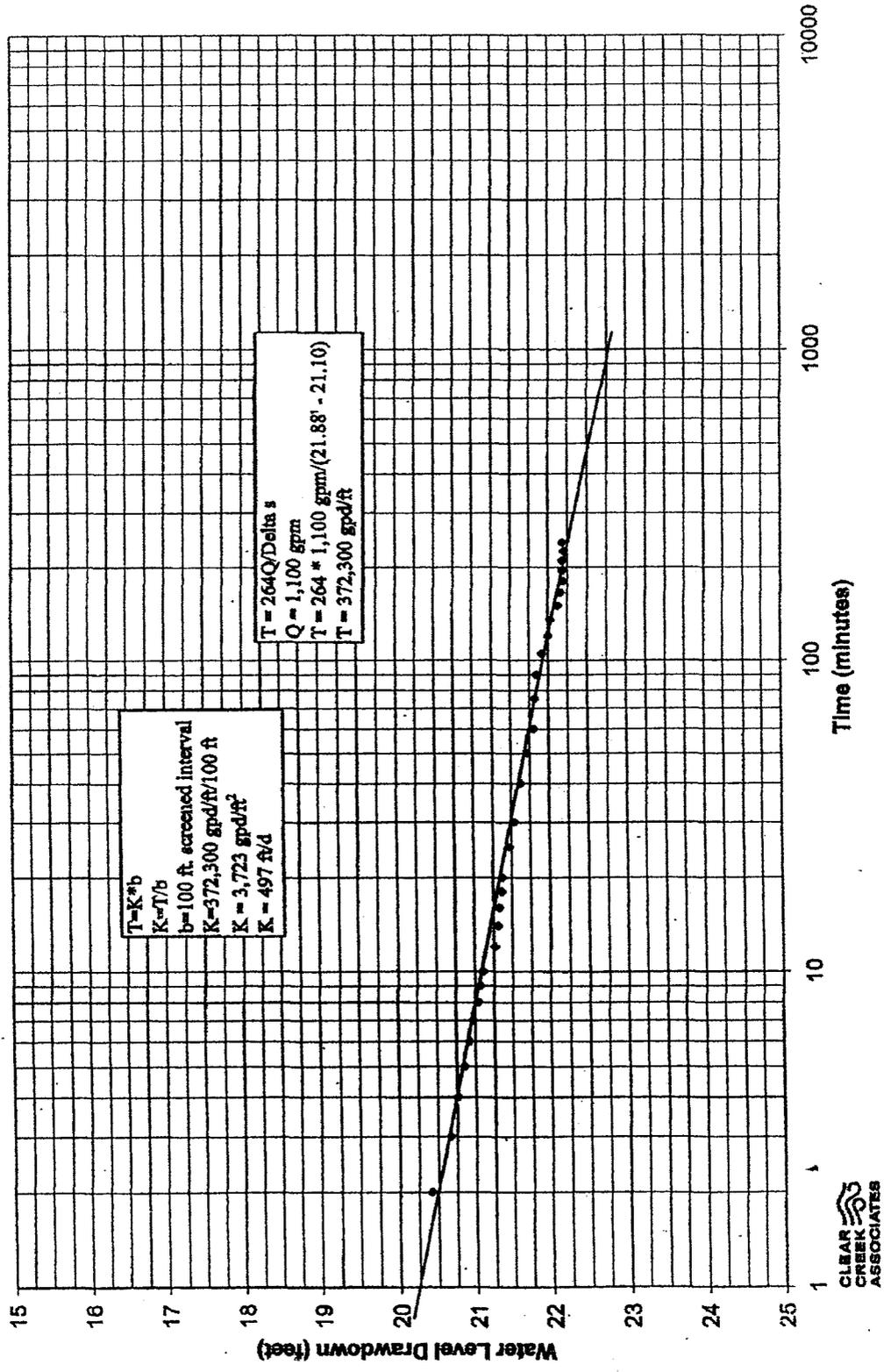
Table 1
Aquifer Test Data

Johnson Utilities Morning Sun Farms Well
 Location: D(03-07)12abb
 ADWR Registration No.: 55-201429
 Date of Test: June 9, 2005
 Screen: 560 to 660 ft
 Pump Setting: Unknown
 Casing Diameter: 12 3/4-inch

Constants		Correction	2.40	MP= SWL=	Top of Casing			
	Time Since Pump Started	Recovery Time	ft	Sounder Reading	Water Level	Drawdown	Discharge	Spec Cap
Measurement	(t min)	(t min)		(feet)	(feet)	(feet)	(gpm)	(gpm/ft)
	6:30	0		327.84	325.44	0.00	-	-
	6:31	1		-	-	-	-	-
	6:32	2		348.25	345.85	20.41	1100	53.90
	6:33	3		348.50	346.10	20.66	1100	53.24
	6:34	4		348.60	346.20	20.76	1100	52.99
	6:35	5		348.69	346.29	20.85	1100	52.76
	6:36	6		348.76	346.36	20.92	1100	52.58
	6:37	7		348.81	346.41	20.97	1100	52.46
	6:38	8		348.88	346.48	21.04	1100	52.28
	6:39	9		348.90	346.50	21.06	1100	52.23
	6:40	10		348.94	346.54	21.10	1100	52.13
	6:42	12		349.10	346.70	21.26	1100	51.74
	6:44	14		349.15	346.75	21.31	1100	51.62
	6:46	16		349.17	346.77	21.33	1100	51.57
	6:48	18		349.20	346.80	21.36	1100	51.50
	6:50	20		349.21	346.81	21.37	1100	51.47
	6:55	25		349.31	346.91	21.47	1100	51.23
	7:00	30		349.38	346.98	21.54	1100	51.07
	7:10	40		349.46	347.06	21.62	1100	50.88
	7:20	50		349.55	347.15	21.71	1100	50.67
	7:30	60		349.64	347.24	21.80	1100	50.46
	7:45	75		349.66	347.26	21.82	1100	50.41
	8:00	90		349.68	347.28	21.84	1100	50.37
	8:15	105		349.76	347.36	21.92	1100	50.18
	8:30	120		349.84	347.44	22.00	1100	50.00
	8:45	135		349.87	347.47	22.03	1100	49.93
	9:00	150		349.97	347.57	22.13	1100	49.71
	9:15	165		350.00	347.60	22.16	1100	49.64
	9:30	180		350.03	347.63	22.19	1100	49.57
	9:45	195		350.02	347.62	22.18	1100	49.59
	10:00	210		350.02	347.62	22.18	1100	49.59
	10:15	225		350.04	347.64	22.20	1100	49.56
	10:30	240		350.02	347.62	22.18	1100	49.59
	10:31	241	1	241.00	328.60	328.20	0.78	
	10:32	242	2	121.00	328.48	328.06	0.62	
	10:33	243	3	81.00	328.38	325.98	0.64	
	10:34	244	4	61.00	328.34	325.94	0.50	
	10:35	245	5	49.00	328.31	325.91	0.47	
	10:36	246	6	41.00	328.29	325.89	0.45	
	10:37	247	7	35.29	328.27	325.87	0.43	
	10:38	248	8	31.00	328.24	325.84	0.40	
	10:39	249	9	27.67	328.23	325.83	0.39	
	10:40	250	10	25.00	328.22	325.82	0.38	
	10:42	252	12	21.00	328.20	325.80	0.36	
	10:44	254	14	18.14	328.18	325.78	0.34	
	10:46	256	16	16.00	328.16	325.76	0.32	
	10:48	258	18	14.33	328.14	325.74	0.30	
	10:50	260	20	13.00	328.13	325.73	0.29	
	10:55	265	25	10.60	328.11	325.71	0.27	
	11:00	270	30	9.00	328.09	325.69	0.25	

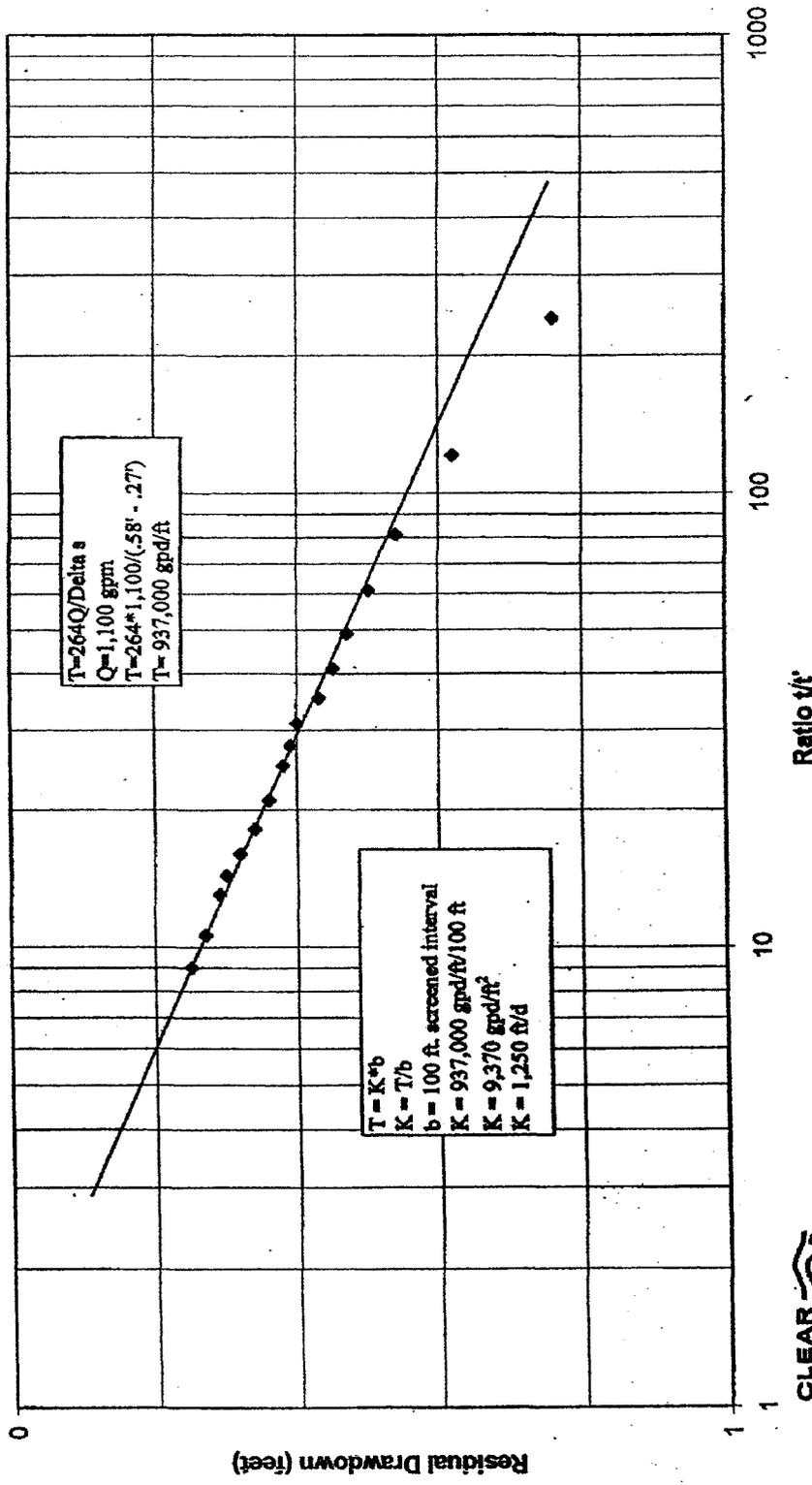


FIGURE 1
Cooper-Jacob Plot Constant Rate Test
Morning Sun Farms Well (55-201429)
Location: D(03-07)12ABB Date: June 9, 2005



CLEAR CREEK ASSOCIATES

FIGURE 2
Theis Recovery Plot
Johnson Utilities Morning Sun Farms Well
Location: D(03-07)12ABB (55-201429)
Date: June 9, 2005



JOHNSON UTILITIES COMPANY

5230 E. Shea Blvd., Suite 200
Scottsdale, AZ 85254
(480) 998-3300, Fax (480) 483-7908

To: Kwame Agyare
ADEQ

Date: June 17, 2005

Job No.:

Drawing/Spec Reference:

Re: Johnson Utilities Company commitment list for System #11-128, 6/17/05

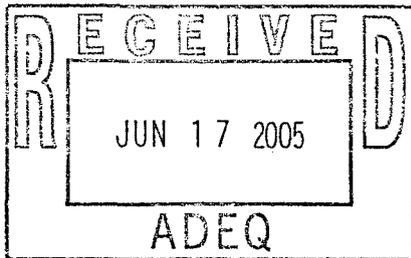
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| <input type="checkbox"/> Memo | <input type="checkbox"/> Clarification Drawing | <input type="checkbox"/> For Your Signature | <input type="checkbox"/> Please Comment |
| Prints | <input type="checkbox"/> Modification Drawing | Information | <input type="checkbox"/> Make Recommendation |
| <input type="checkbox"/> Sketch | <input type="checkbox"/> Specifications | <input type="checkbox"/> Resubmit | <input type="checkbox"/> Issue Construction Order |
| <input type="checkbox"/> Reports | <input type="checkbox"/> Sepias | As Requested | <input type="checkbox"/> For Your Use |
| <input type="checkbox"/> Mylars | <input type="checkbox"/> _____ | <input type="checkbox"/> Issue Change Order | <input type="checkbox"/> _____ |

Remarks:



Copies To:

Signed:

Brian Tompsett

Operation Manager

Received By: *A. Carr*

Date:



Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • azdeq.gov

APR 22 2005



Stephen A. Owens
Director

APPROVAL OF CONSTRUCTION

Page 1 of 2

Project Description: Construction of new San Tan Well site with DWR #55-598836 along Hunt Highway.

Location: Pinal

Project Owner: Johnson Utilities
Address: 5230 East Shea Blvd., Ste., 200
Scottsdale, AZ 85254

The Arizona Department of Environmental Quality (ADEQ) hereby issues an Approval of Construction for the above-described facility based on the following provisions of Arizona Administrative Code (A.A.C.) R18-5-507 et seq.

On March 24, 2005, ADEQ issued a Certificate of Approval to Construct for the referenced project.

On April 13, 2005, Gregory H. Brown, P.E., certified the following:

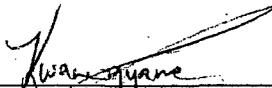
- a final construction inspection was conducted on April 8, 2005;
- the referenced project was constructed according to the as-built plans and specifications and ADEQ's Certificate of Approval to Construct;
- water system pressure and leakage tests for the line was conducted on April 5, 2005 and the results were within the allowable leakage rates; and
- the well and piping were disinfected on April 7, 2005 according to an ADEQ-approved method.

Microbiological samples were collected on April 11, 2005 and analyzed on April 12, 2005 by Statewide Disinfection Service, ADHS License No. AZ0637. The sample results were negative for total coliform.

This Approval of Construction is subject to the provisions listed on page two of this approval. Be advised that A.A.C. R18-4-124 requires the owner of a public water system to maintain and operate all water production, treatment and distribution facilities in accordance with ADEQ Safe Drinking Water Rules.

RK1

PWS No.: 11-128
LTF No.: 36105



 Kwame A. Agyare, P.E., Acting Manager Date Approved 4/18/05
 Technical Engineering Unit
 Drinking Water Section

c: TEU File No.: 20050161
 DWCEU Facility File
 CRO Approval of Construction File
 Pinal County Health Department
 Pinal County Planning & Zoning Department
 AZ Corporation Commission
 Engineer

Northern Regional Office
 1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004
 (928) 779-0313

Southern Regional Office
 400 West Congress Street • Suite 433 • Tucson, AZ 85701
 (520) 628-6733

**APPROVAL OF CONSTRUCTION
WATER FACILITIES
ADEQ FILE NO. 20050161
PAGE 2 OF 2: PROVISIONS CONTINUED**

1. An initial nitrate sample taken from the well showed an MCL exceedance of 10.3mg/l. A confirmation sample taken on April 4, 2005 showed a nitrate level of 7.51mg/l. In accordance with R18-4-208(J), the average of these two samples was used to determine compliance with the MCL of 10mg/l. This result however requires that the water system shall increase monitoring frequency at the sampling point from annually to quarterly, as per R18-4-208(F).



Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • azdeq.gov



Stephen A. Owens
Director

JUN 20 2005

APPROVAL OF CONSTRUCTION

Project Description: Replacing existing well with new well with ADWR #55-201429 (also known as Morning Sun Farms Well No. 1) and connecting it to existing main as per approved plans and specifications.

Location: Town of Maricopa, Pinal County

Project Owner: Johnson Utilities Company
Address: 5230 E. Shea Blvd., Suite 220, Scottsdale, Arizona 85254

The Arizona Department of Environmental Quality (ADEQ) hereby issues an Approval of Construction for the above-described facility based on the following provisions of Arizona Administrative Code (A.A.C.) R18-5-507 et seq.

On April 29, 2005, ADEQ issued a Certificate of Approval to Construct for the referenced project.

On May 18, 2005, Gregory H. Brown, P.E., certified the following:

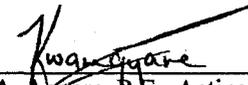
- a final construction inspection was conducted on May 18, 2005;
- the referenced project was constructed according to the approved plans and specifications and ADEQ's Certificate of Approval to Construct;

Microbiological sample was collected on March 2, 2005, and analyzed on the same day by Legend Technical Services, Inc., ADHS License No. AZ0004. The sample results were negative for total coliforms and E. coli bacteria.

This Approval of Construction authorizes the owner to begin operating the above-described facilities as represented in the approved plan on file with the ADEQ. Be advised that A.A.C. R18-5-124 requires the owner of a public water system to maintain and operate all water production, treatment and distribution facilities in accordance with ADEQ Safe Drinking Water Rules.

jd1

PWS No.:11-128
LTF No.: 36549



 Kwame A. Agyare, P.E., Acting Manager Date Approved
 Technical Engineering Unit
 Drinking Water Section

6/03/05

c: TEU File No.: 20050258
Pinal County Health Department
Pinal County Planning & Zoning Department
AZ Corporation Commission
Engineer

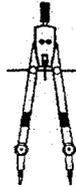
Northern Regional Office
1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004
(928) 779-0313

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

ADEQ 2005 WATER USE

JOHNSON UTILITIES SYSTEM ID NO 11-128

MONTH	NUMBER OF CUSTOMERS	GALLONS SOLD	GALLONS PUMPED	AVG. GALLONS PER HOUSEHOLD
Dec-04	8508	38,154,460	44,987,900	144.66
JAN	8867	39,483,999	39,974,500	143.64
FEB	9569	36,621,000	43,569,000	136.68
MAR	10285	41,208,000	53,364,400	129.25
APR	10553	63,920,000	77,400,400	201.90
MAY	10833	71,016,000	80,812,800	211.47
JUN				
JUL				
AUG				
SEP				
OCT				
NOV				
DEC				



SPECIFIC ENGINEERING, LLC.

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 696-6335
FAX: (480) 696-6437



Transmittal

To: ADEQ-Water Division
1110 W. Washington
Phoenix, Arizona 85007
ATTN: Helen Fernandez

Date: July 19, 2005

Job No.: 3009B033

Drawing/Spec Reference: _____

Re: Johnson Utility Company-Hardison well

We Transmit: Herewith Under Separate Cover Via Delivery

Material Format

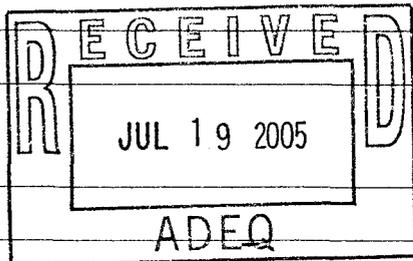
Requested Action

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> Letter | <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> For Your Approval | <input type="checkbox"/> Your Review |
| <input type="checkbox"/> Memo | <input type="checkbox"/> Clarification Drawing | <input type="checkbox"/> For Your Signature | <input type="checkbox"/> Please Comment |
| <input checked="" type="checkbox"/> Prints | <input type="checkbox"/> Modification Drawing | Information | <input type="checkbox"/> Make Recommendation |
| <input type="checkbox"/> Sketch | <input type="checkbox"/> Specifications | <input type="checkbox"/> Resubmit | <input type="checkbox"/> Issue Construction Order |
| <input checked="" type="checkbox"/> Reports | Sepias | As Requested | For Your Use |
| <input type="checkbox"/> Mylars | <input checked="" type="checkbox"/> Application | <input type="checkbox"/> Issue Change Order | <input type="checkbox"/> _____ |

Attached to this transmittal:

Application to Construct water facilities
4 sets of prints for review of the Hardison Well
2 copies of the Design report.

Copies To: _____



Signed: Grant K. Hinderer

Grant Hinderer

Received By: _____

A. Carr

Date: _____

APPLICATION for APPROVAL TO CONSTRUCT DRINKING WATER FACILITIES

(PLEASE SUBMIT TO THE ADEQ ENGINEERING REVIEW DESK AT 1110 W. WASHINGTON ST., PHOENIX, AZ 85007)

A. PROJECT NAME: Johnson Utilities Well, Hardison Well #1

B. PROJECT TYPE (Please check all applicable components for the OVERALL PROJECT):

New Drinking Water Well or Source
 Water Line and Appurtenances

Water Treatment Plant
 Other: _____

C. SYSTEM NAME/PUBLIC WATER SYSTEM NUMBER/OPERATIONAL STATUS:

SYSTEM NAME: Johnson Utilities SYSTEM NUMBER 11128

New System Extension to Existing System

D. PROJECT LOCATION (Please provide approximate center. Information is required to accept application):

LATITUDE 33°09'41.8" N LONGITUDE 111°31'38.1" W

TOWNSHIP 35 RANGE 8E SECTION 21 QUARTER SECTION (CIRCLE) NE SE SW NW

COUNTY Pinal

E. PROJECT DESCRIPTION: New Well South of Bella Vista Rd, East U. P. R.R.

F. PROJECT ENGINEER (PLEASE PRINT):

G. PROJECT OWNER (PLEASE PRINT):

NAME	<u>Greg Brown</u>	<u>Johnson Utilities</u>
ADDRESS	<u>Specific Engineering LLC</u> <u>5230 E. Shea, #220</u> <u>Scottsdale, AZ 85254</u>	<u>5230 E. Shea, #200</u> <u>Scottsdale, AZ 85254</u>
PHONE NO./FAX NO.	<u>480-596-6335 / 480-596-6437</u>	<u>(480) 998-3300 / (480) 983-7908</u>
SIGNATURE/DATE	<u>[Signature]</u>	<u>[Signature]</u>

H. PLAN DOCUMENTS SUBMITTED (PLEASE SEE ADEQ FORM #222, SUBMITTAL GUIDE FOR VARIOUS PROJECT TYPES)
 NOTE: INCOMPLETE SUBMITTALS WILL NOT BE LOGGED IN.

J. OWNER/AGENT AGREEMENT AND SCHEDULE: AGREEMENT-The undersigned as Project Owner or as acting Agent for the Project Owner hereby a) grants ADEQ permission to enter the site for inspections; b) authorizes the Project Engineer to prepare and submit plan documents to the ADEQ ENGINEERING REVIEW DESK; and c) agrees to construct the sanitary facilities according to the ADEQ Certificate of Approval and the approved plan documents.

CONSTRUCTION SCHEDULE-Estimated start date: A.S.A.P. Estimated completion date: DEC '05
Greg P. Tompsett Vice President [Signature] 7.12.2005
 TYPE OR PRINT NAME AFFILIATION SIGNATURE DATE

ADEQ COMPLIANCE EVALUATION:	ADEQ FILE NO: _____
IN-COMPLIANCE: _____	LTF NUMBER: _____
NON-COMPLIANCE: _____	
COMMENTS: _____	SITE INSPECTION REQUIRED? <input type="checkbox"/> NO <input type="checkbox"/> YES

JOHNSON UTILITY COMPANY, LLC

HARDISON WELL SITE

CONCEPTUAL DESIGN REPORT

July 2005

JOHNSON UTILITIES COMPANY

HARDISON WELL SITE CONCEPTUAL DESIGN REPORT

July 2005

PREPARED FOR:

Johnson Utilities, LLC
5230 E. Shea Blvd, Suite 200
Scottsdale, Arizona 85254
Phone: (480) 998-3300
Fax: (480) 483-7908

PREPARED BY:

Specific Engineering, LLC
5230 E. Shea Blvd, Suite 220
Scottsdale, Arizona 85254
Phone: (480) 596-6335
Fax: (480) 596-6437



CONCEPTUAL DESIGN REPORT - TABLE OF CONTENTS

LIST OF SECTIONS

- 1.0 INTRODUCTION
- 2.0 LOCATION
- 3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL
- 4.0 NEW REPLACEMENT SOURCE GROUNDWATER WELL
- 5.0 NEW 12-INCH TRANSMISSION MAIN
- 6.0 CALCULATIONS

LIST OF FIGURES

- FIGURE 1 VICINITY MAP (PINAL COUNTY)
- FIGURE 2 LOCATION MAP (Hardison well Site)
- FIGURE 3 FIMA FLOOD MAP



1.0 INTRODUCTION

This report is intended to document the conceptual design for the proposed water well in the Bella Vista development area for the Johnson Utilities Company (the Utility).

Johnson Utilities Company will be the operations manager of the water facility, which is to be operated by a State of Arizona licensed utility operator. The water well is to be connected to the Utility's water distribution system via a 8-inch water line in Bella Vista Road, adding to the system's storage capacity and ability to service the growing community/service area.

Since the service area for the Utility is continually expanding, this design report only addresses the conceptual design of the water facility's proposed improvements and their capabilities. The specific Utility's water system parameters (i.e., area, population, customers, demand, supply, etc.) of the service area will be addressed through other reports and/or studies such as the Master Water Plan for the Johnson Utilities Service area.

2.0 LOCATION

The proposed Hardison Well site is located approximately 13 miles Southeast of the Town of Queen Creek in Pinal County, Arizona. See Figure 1.

The facility is to be constructed in the Northeast Quarter of the Northeast Quarter of the Northeast Quarter of Section 21, Township 3 South, Range 8 East, Gila and Salt River Meridian, Pinal County, Arizona. The facility's site is a triangular shaped parcel consisting of 0.38 acres that lies south of and adjacent to Bella Vista Road and east of the Union Pacific Railroad. See Figure 2.

3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL

There is an existing water well (registration number 55-627103) that is located in the NE1/4, NE1/4, NE1/4, Section 21, T3S, R8E, this is located south of Bella Vista Road and west of the Union Pacific Railroad. This well is to be replaced by a similar replacement well that is to be located at the replacement well site shown below in Section 4.

The original well was completed in the 1957 and has been historically used for agricultural purposes. The well has a vertical turbine pump, with a motor mounted on top of the well casing, and is capable of pumping 1800gpm. The well is 720' deep, has a 20" casing, and has a 12-inch steel discharged pipe that fed irrigation canals. A replacement well is to be built due to the development of a subdivision over the existing well. This well is to be abandoned. Paper work for the abandonment has been filed with ADWR.

4.0 NEW REPLACEMENT SOURCE GROUNDWATER WELL

The new well classifies as a "replacement well" since the distance between the new well and the original well is to be less than 660 feet. The new well is located in zone C which is an area of minimal flooding as shown on the attached FEMA map, Panel Number 040077 0500 C. The site is outside of the 100-year and 500-year floods.

The replacement source groundwater well (see Construction Drawings) is to consist of:

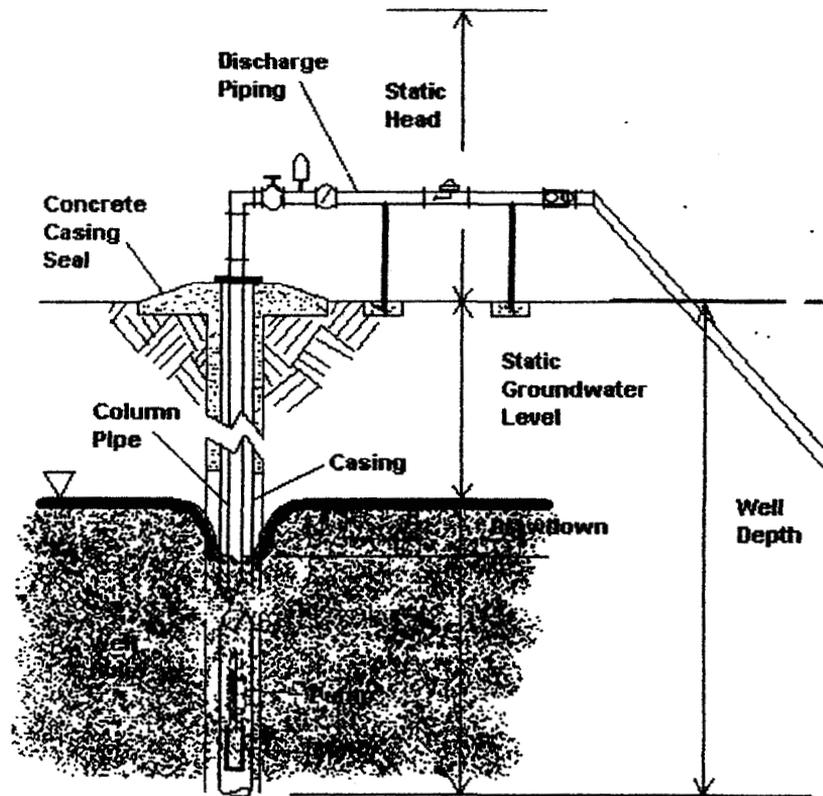
- a 12-inch diameter (900 foot deep) solid wall steel well casing pipe (the bottom 20 to 40 feet of the casing pipe is to be slotted),
- a concrete grout casing seal,
- a concrete well cap,
- a 250 Hp electric motor driven submersible turbine vertical pump (capable of delivering 1,000 gpm against a 688 ft TDH),
- an 8-inch steel column pipe,
- a 12-inch casing head cover, with vent pipe and electrical sleeve,
- an 8-inch steel well head with a plugged side outlet,
- an electrical pump control panel,
- an 8-inch isolation butterfly valve,
- an air release valve,
- an 8-inch mechanical propeller flow meter,
- an 8-inch check valve,
- a water sampling hose bib,
- associated 8-inch discharge piping,
- associated electrical conduits, wiring and components, from the well pump through the booster pumps' control panel,
- telemetry components for centralized control, if and when desired by the Utility.

5.0 NEW 8-INCH WATER MAIN

The new Hardison Well will supply water directly to the Johnson Utilities Company water transmission distribution system. A water supply transmission main will be installed from Hardison Well to the 8-inch water line in Bella Vista Road.

6.0 CALCULATIONS

6.1 Source Well Calculations



1000 gpm Source Well

WELL PUMP DESIGN PARAMETERS (*initial conditions)

depth to groundwater = 500 feet (assumed average for Johnson Utility Service area)

well drawdown = 50 feet (assumed)

line pressure = 184 feet (80 psi)

well/pump/casing depth = 900 feet (assumed)

well casing = 12 inches

column pipe = 8 inches

discharge piping = 8 inches

- pump and motor are to be enlarged in the future as the aquifer water level drops.

6.0 CALCULATIONS cont'd

6.1 Source Well Calculations cont'd

WELL PUMP DESIGN PARAMETERS cont'd

column & discharge piping headloss (H_L)

(8" pipe, flow $Q = 1,000$ gpm, velocity $V = 6.38$ fps)

<u>Item</u>	<u>Qty</u>	<u>K</u>	<u>H_L</u>
Aquifer contraction	1	0.5	0.32'
8"x4" Tee	1	0.3	0.19'
8" butterfly valve	1	0.2	0.13'
8" check valve	1	2.5	1.58'
8"-90° bend	4	0.7	1.77'
8"-45° bend	2	0.2	0.25'
8" flow meter	1		0.25'
3/4" taps	2	0.3	0.38'
8" expansion joint	1	0.4	0.25'
			4.88
8" pipe	180 LF		2.44
Total H_L			7.32

Total dynamic head (TDH)

total static head = $500 - 4 = 496$ feet

friction head = 7.32 feet

Line pressure = 184 feet

Velocity head = 0.62 ft

TDH = 688 feet

NET POSITIVE SUCTION HEAD (NPSH) AVAILABLE:

For safety: $NPSH_a > NPSH_r + 2$ feet

* $NPSH_a = Y - H_L - (P_v / \gamma) = 307$ ft

where: suction head $Y = 866 - (500 + 50) = 316$ ft

pipe headloss from aquifer contraction = $H_L = 0.32$ ft

water vapor pressure $P_v = 49.21$ psf @ 20 °C or 68 °F

specific weight of water $\gamma = 62.32$ pcf @ 20 °C or 68 °F

* Atmospheric pressure and soil pressure ignored. Velocity head assumed to be in the pump's $NPSH_r$

Cavitation will occur when the pressure at any location in a closed system reaches an absolute pressure equal to the saturated vapor pressure of the fluid at the fluid's pumping temperature.

6.0 CALCULATIONS cont'd

6.1 Source Well Calculations cont'd

WELL PUMP (see attached pump curve)

capacity = 1000 gpm

type = Goulds Pumps Model VIS, 3550 rpm, closed 7.96" impeller

size = 11 AHC

stages = 3 stages

horsepower = 223 Hp

first stage NPSH required = 35.8ft < 307 ft available

pump efficiency = 78 % with 3 stages

Water Vapor Pressure

TEMPERATURE		WATER VAPOR PRESSURE		
°F	°C	Pounds per Square Inch	Pounds per Square Foot	Feet of Head
40	4.4	0.1217	17.52	0.281
50	10	0.1781	25.65	0.412
60	15.6	0.2563	36.91	0.592
70	21.1	0.3631	52.29	0.815
80	26.7	0.5069	72.99	1.17
86	30	0.6155	88.63	1.42
90	32.2	0.6982	100.5	1.61
100	37.8	0.9492	136.7	2.19
110	43.3	1.275	183.6	2.94
120	48.9	1.692	243.6	3.91
130	54.4	2.223	320.1	5.14
140	60	2.889	416.0	6.68
150	65.6	3.718	535.4	8.56
160	71.1	4.741	682.7	10.95
170	76.7	5.992	862.8	13.84

Model: VIT/MIC/VIS

Size: 11AHC

Group:

60Hz RPM: 3550

Stages: 3

Job/Inqu. No.

Purchaser:

User:

Item/Equip.No:

Service:

Issued by: greg brown

Quotation No.

Order No.

Date: 7/18/05

Certified By:

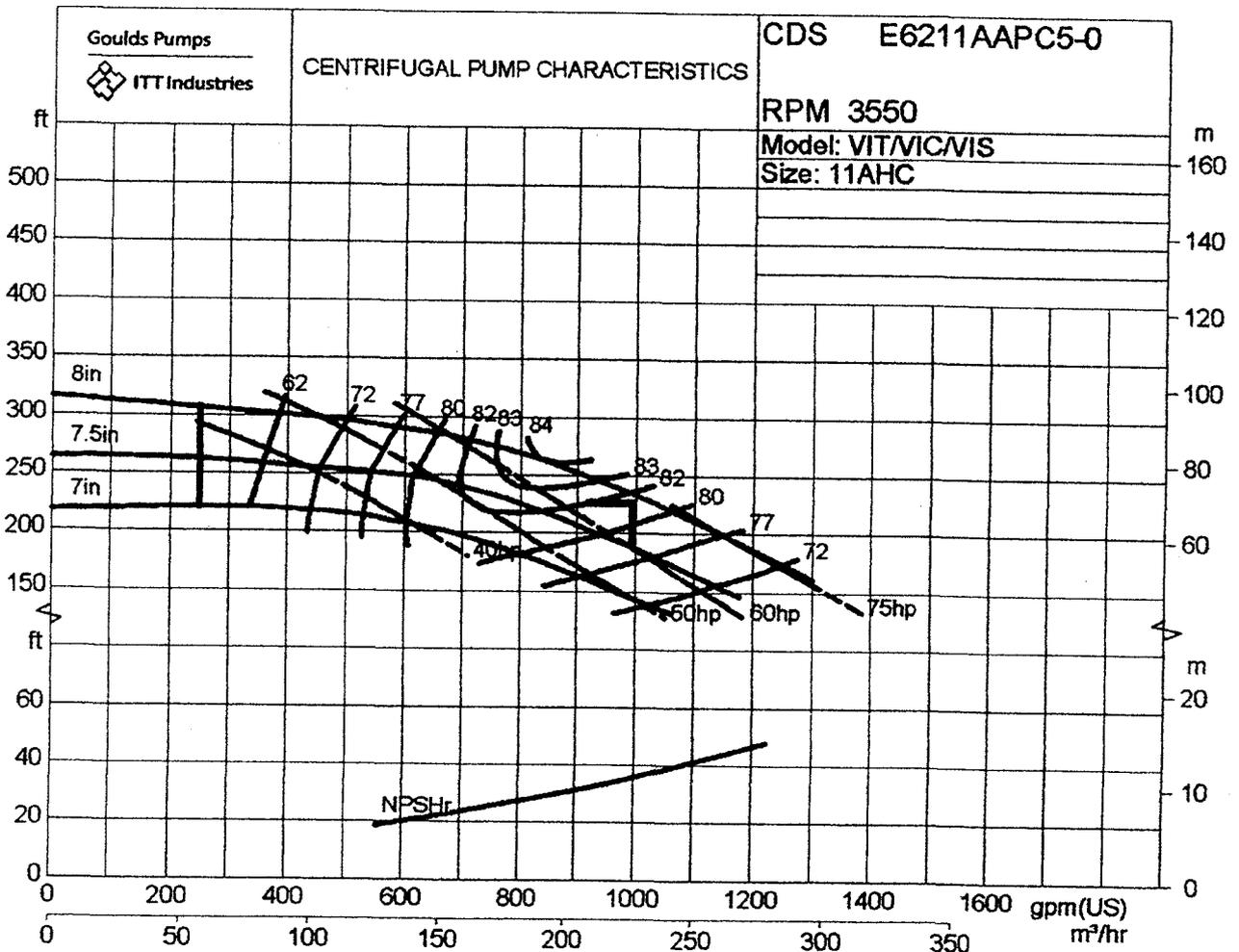
Operating Conditions

Liquid: Water
Temp.: 70 °F
Sp. Heat:
S.G./Visc.: 1/1 cp
Flow: 1000 gpm(US)
TDH: 688 ft
NPSHa: 350 ft
Req. solid size:
% Solids:
Vapor Press:

Pump Performance

Actual Pump Eff.: 77.9 %
Actual Pump Power: 222.9 hp
Mech. Seal Loss: 0 hp
Dyn. Seal Loss: 0 hp
Other Power Loss: 0 hp
Rated Total Power: 222.9 hp
Imp. Dia. First 3 Stg: 7.96 in
NPSHr: 35.8 ft
Shut off Head: 934.4 ft
Max. Solids Size: 0.5 in
Suction Specific Speed: 8400 (gpm(US) , ft)
Min. Cont. Stable Flow: 249 gpm(US)
Min. Cont. Thermal Flow:
Non-Overloading Power: 239.4 hp
Imp. Dia. Add'l Stg
Mag. Drive Circuit Flow:
Max Drive Power:
Max Drive Temp:
Max Motor Size:

Notes: 1. The Mechanical seal increased drag effect on power and efficiency is not included, unless the correction is shown in the appropriate field above. 2. Magnetic drive eddy current and viscous effect on power and efficiency is not included. 3. Elevated temperature effects on performance are not included.



6.0 CALCULATIONS (cont'd)

6.1 Source Well Calculations cont'd

Density & Specific Weight of Water at Various Temperatures

		Density (ρ) grams per cubic centimeter	Specific Weight (γ) kN/m ³
°C	°F		
0 (solid)	32	0.9150	57.12
0 (liquid)	32	0.9997	62.41
4	39.2	1.0000	62.43
5	41	1.0000	62.43
10	50	0.9997	62.41
15	59	0.9992	62.38
16	60.8	0.9991	62.37
17	62.6	0.9989	62.36
18	64.4	0.9988	62.35
19	66.2	0.9985	62.33
20	68.0	0.9982	62.31
21	69.8	0.9981	62.31
22	71.6	0.9978	62.29
23	73.4	0.9976	62.28
24	75.2	0.9974	62.27
25	77	0.9972	62.25
30	86	0.9957	62.16
35	95	0.9941	62.06
40	104	0.9923	61.94
45	113	0.9903	61.82
50	122	0.9881	61.68
60	140	0.9832	61.38
70	158	0.9777	61.04
80	176	0.9719	60.67
90	194	0.9651	60.25
100 (liquid)	212	0.9581	59.81
100 (gas)	212	0.0006	0.04

6.0 CALCULATIONS (cont'd)

6.2 Serviceable Development Calculations

SOURCE WATER WELL & WATER STORAGE TANK CAPACITY

Average Daily Residential Demand

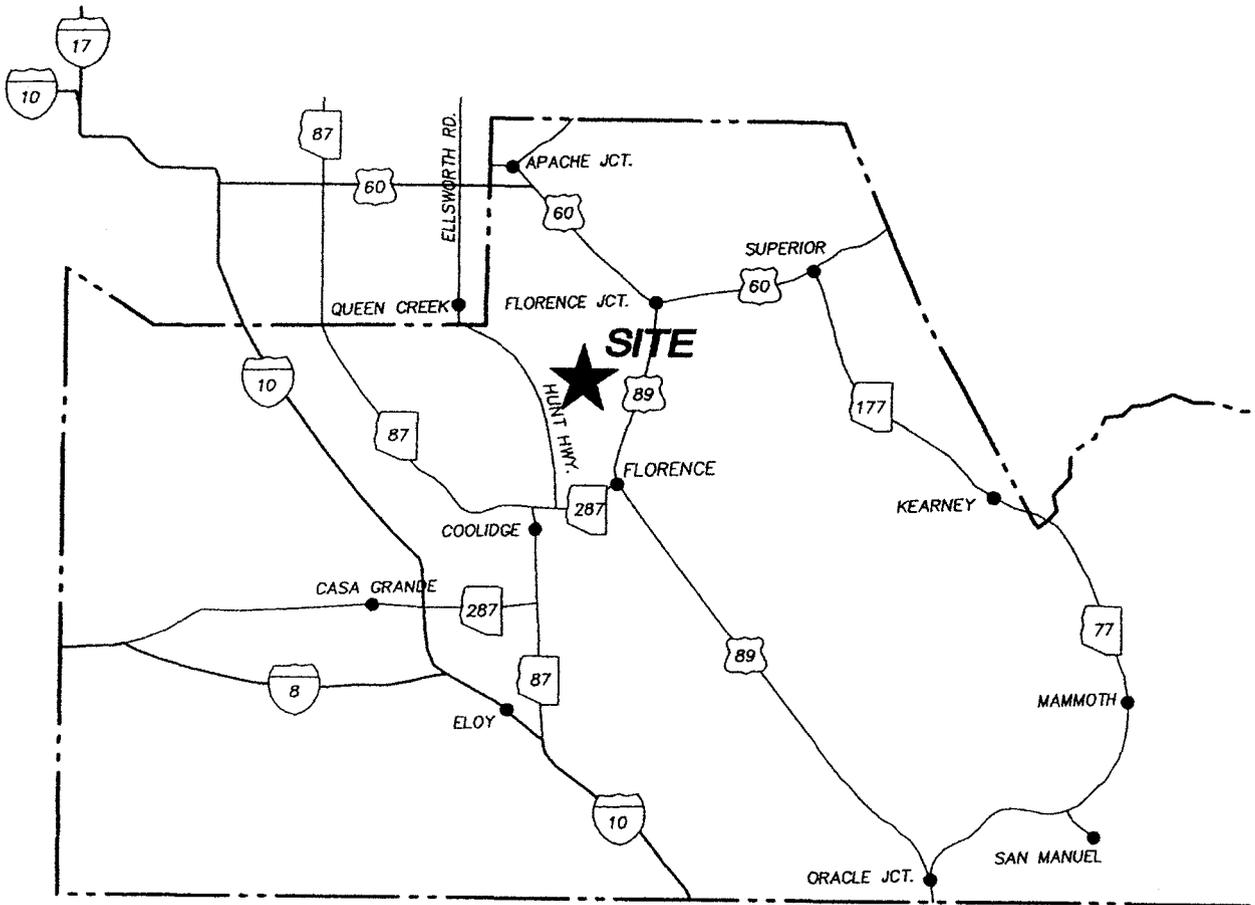
Source Well Flow Q_{sw} = 1000 gpm or 1,440,000 gpd

Serviceable population = 1,440,000 gpd / 100 gpdpc = 14,400 people

Serviceable residences = 14,400 / 2.6 = **5,538 residences**

The storage tanks at Main Johnson Ranch water plant, Circle Cross water plant, San Tan water storage tank, and the Oasis water plant at Johnson Ranch supply the fire flow for this area.

FIGURE 1



VICINITY MAP

N.T.S.

S:\Specific Engineering\3009\B0333\acad\Cut-shs\EXHIBITS\VICINITY.DWG Plotted: Jul 08, 2005

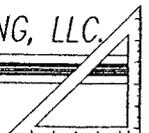
HARDISON WELL #1
VICINITY MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



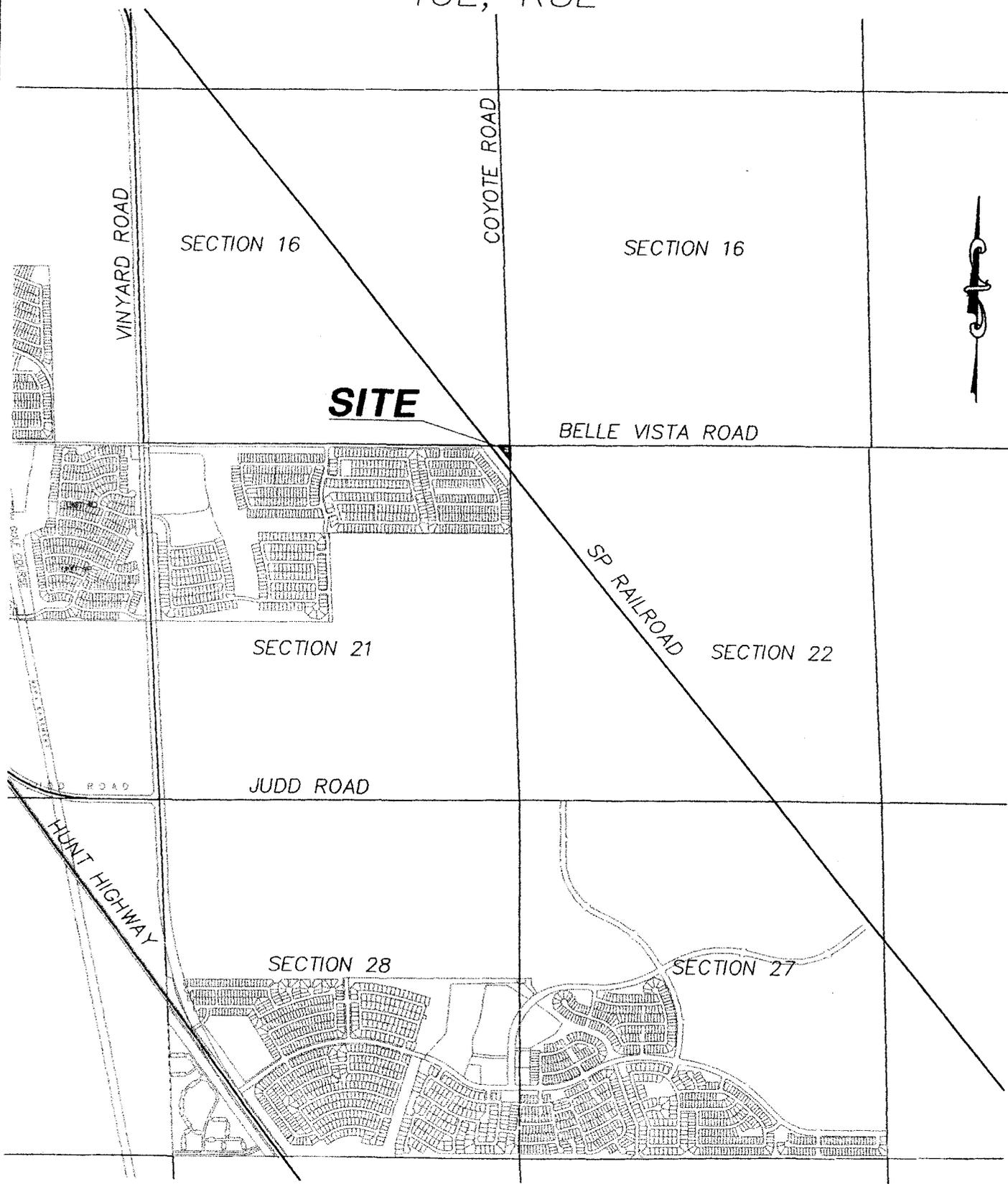
SPECIFIC ENGINEERING, LLC

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 598-6335
FAX: (480) 598-6437



T3E, R8E

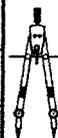
FIGURE 2



S:\Specific Engineering\3009\B033\acad\Cad-Draws\EXHIBITS\LOCATION.DWG Plotter: Jul 08, 2005

HARDISON WELL #1
LOCATION MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



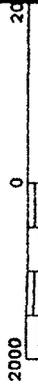
SPECIFIC ENGINEERING, LLC

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
FAX: (480) 596-6437

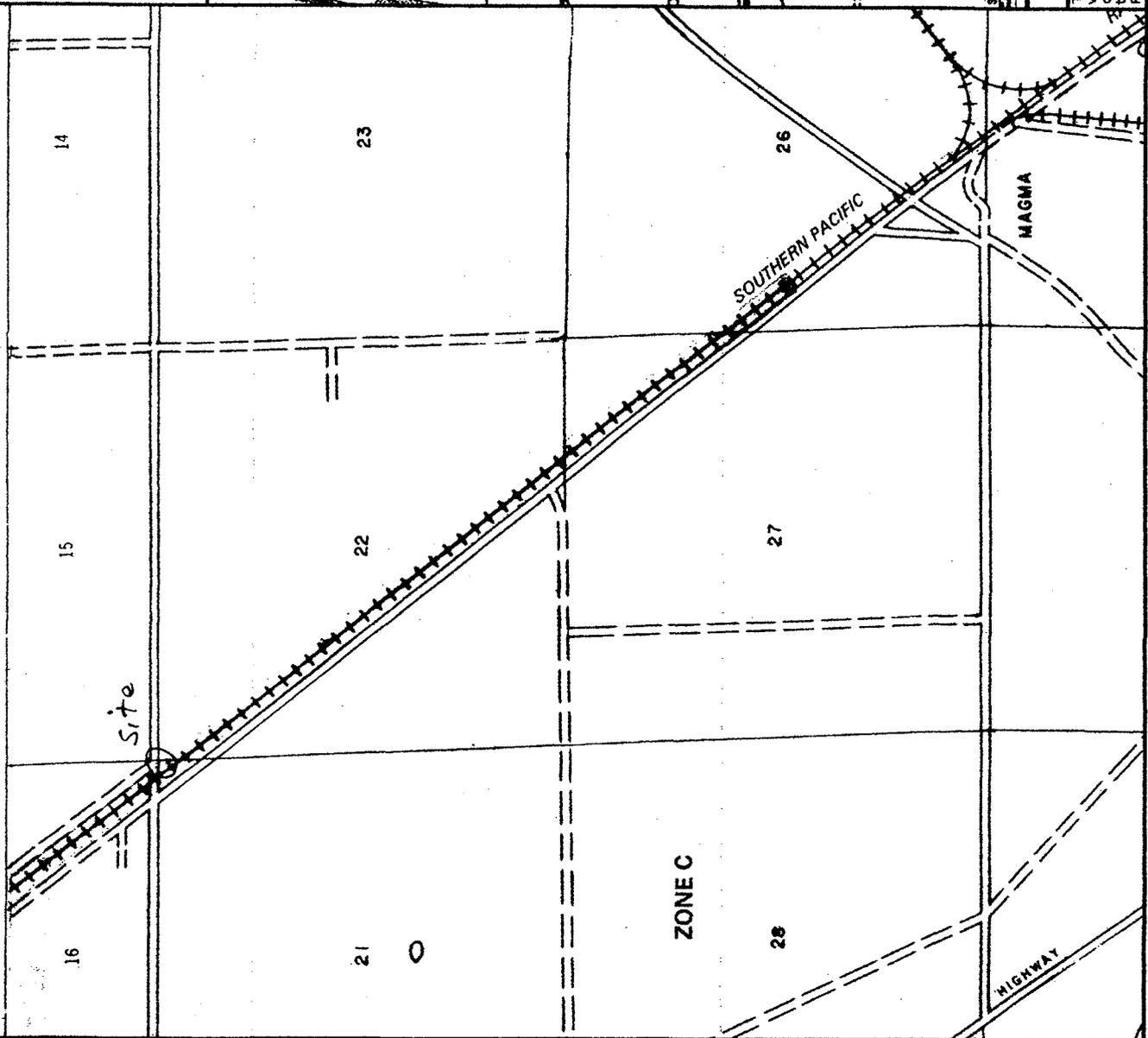




APPROXIMATE SCALE



LIMIT OF STUDY



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

PINAL COUNTY,
ARIZONA
(UNINCORPORATED AREAS)

PANEL 500 OF 1525
(SEE MAP INDEX FOR PANELS NOT PRINTED)

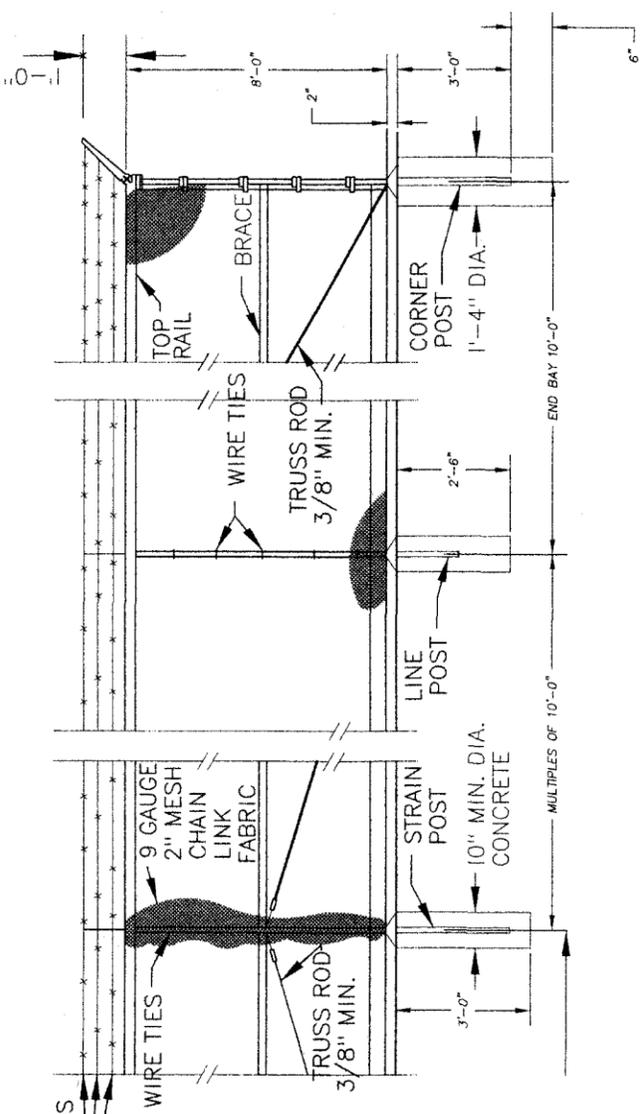
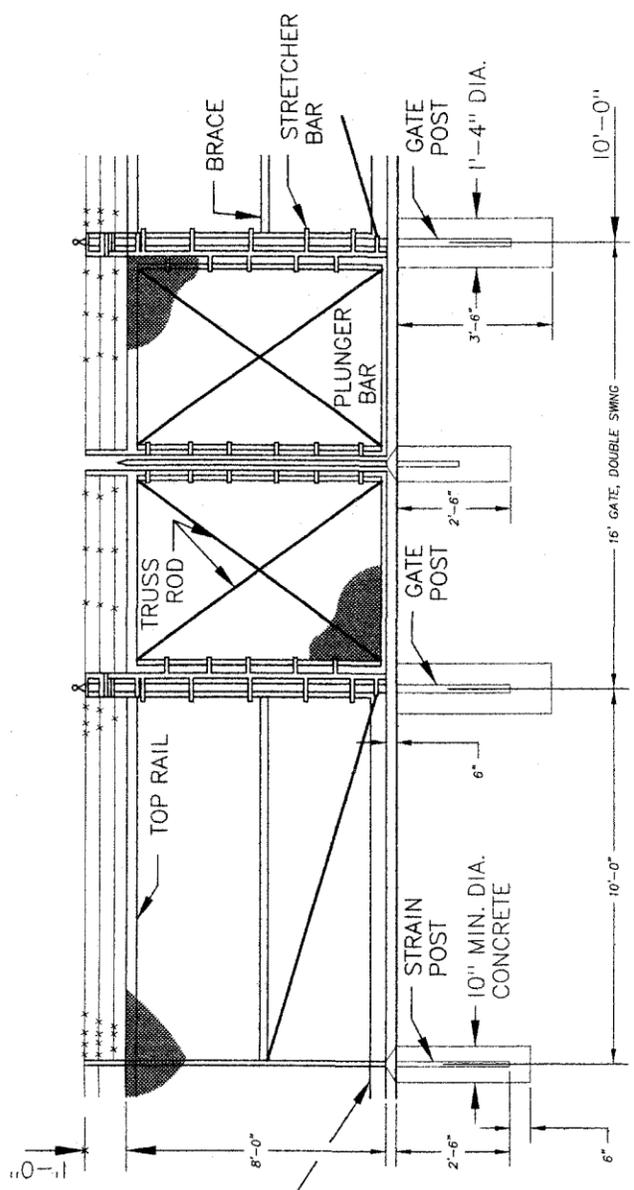
COMMUNITY-PANEL NUMBER
040077 0500 C

EFFECTIVE DATE:
AUGUST 15, 1983



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



NO. 7 COILED SPRING REINFORCED WIRE TIE WITH 12 GAUGE WIRE OR HOG RING FASTENERS. 1'-6" C TO C.

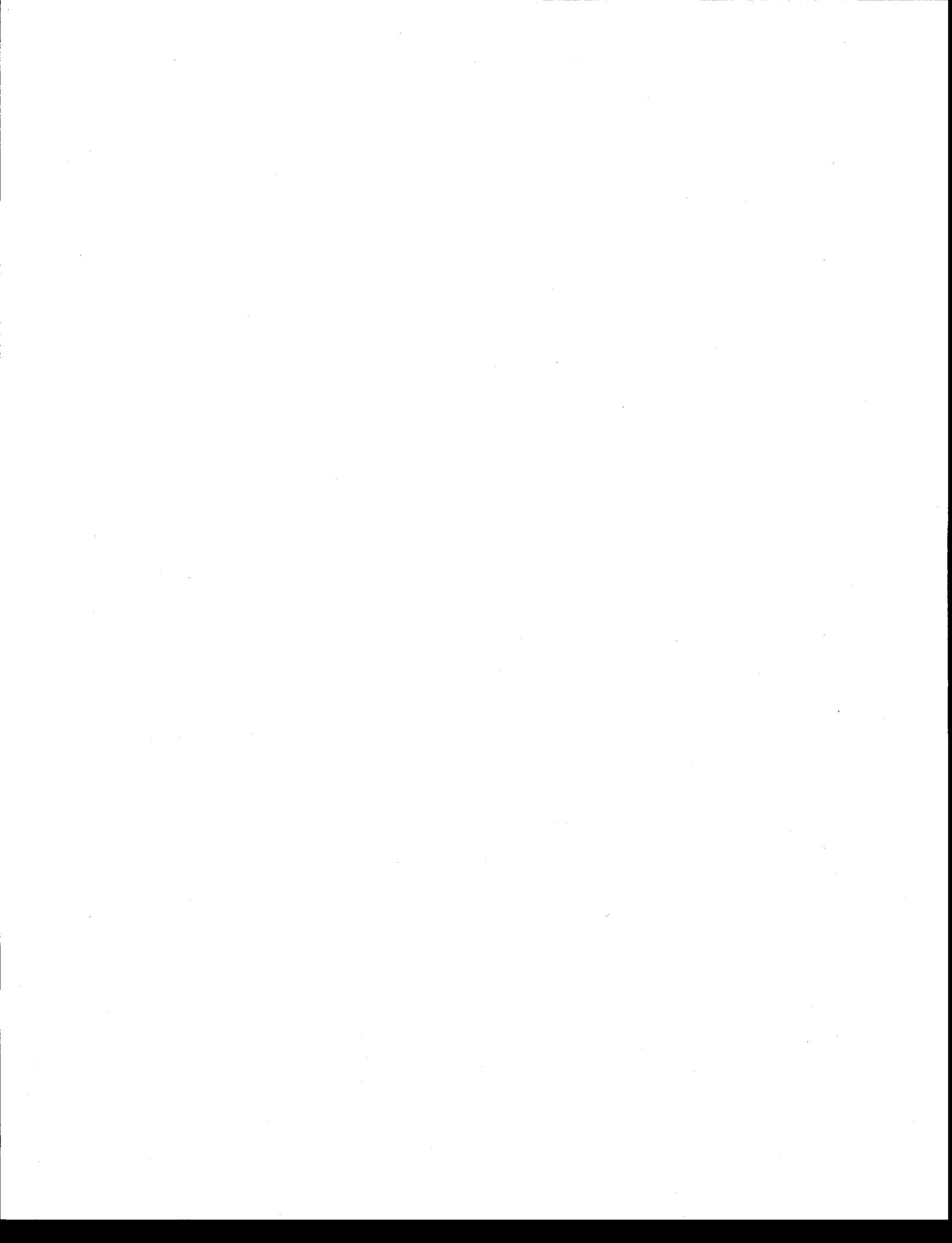
NOTES

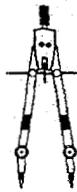
1. ALL CONCRETE SHALL BE CLASS 'C' PER SECT. 725.
2. FITTINGS NOT SPECIFICALLY DETAILED SHALL BE APPROVED HEAVY DUTY DESIGN.
3. STRAIN POSTS SHALL BE SPACED AT 500' MAXIMUM INTERVALS.
4. BOTH CORNER AND STRAIN POST SHALL HAVE STRAIN PANELS.
5. ALL POSTS SHALL BE CAPPED.

3 STRANDS-4 POINT BARBED WIRE UNLESS SPECIFIED.

MEMBER	SIZE	WT. PER LF.
1. CORNER POST	2 1/2" I.D. STD. PIPE SCHEDULE 40	5.79
2. LINE POST	1 1/2" I.D. STD. PIPE SCHEDULE 40	2.72
3. STRAIN POST	2 1/2" I.D. STD. PIPE SCHEDULE 40	5.79
4. BRACE	1 1/4" I.D. STD. PIPE SCHEDULE 40	2.27
5. STRETCH BAR	1/4" X 3/4" FLAT	
6. GATE POST	3 1/2" I.D. STD. PIPE SCHEDULE 40	9.11
7. TOP RAIL	1 1/4" I.D. STD. PIPE SCHEDULE 40	2.27

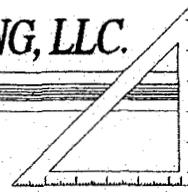
8' CHAIN LINK FENCE & GATE





SPECIFIC ENGINEERING, LLC.

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 696-6336
FAX: (480) 696-6437



Transmittal

To: ADEQ-Water Division
1110 W. Washington
Phoenix, Arizona 85007
ATTN: Helen Fernandez

Date: July 19, 2005
Job No.: 3009B030

Drawing/Spec Reference: _____

Re : Johnson Utility Company-Ellsworth Well No. 1

We Transmit: Herewith Under Separate Cover Via Delivery

Material Format

Requested Action

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> Letter | <input type="checkbox"/> Shop Drawings | <input type="checkbox"/> For Your Approval | <input type="checkbox"/> Your Review |
| <input type="checkbox"/> Memo | <input type="checkbox"/> Clarification Drawing | <input type="checkbox"/> For Your Signature | <input type="checkbox"/> Please Comment |
| <input checked="" type="checkbox"/> Prints | <input type="checkbox"/> Modification Drawing | Information | <input type="checkbox"/> Make Recommendation |
| <input type="checkbox"/> Sketch | <input type="checkbox"/> Specifications | <input type="checkbox"/> Resubmit | <input type="checkbox"/> Issue Construction Order |
| <input checked="" type="checkbox"/> Reports | Sepias | As Requested | For Your Use |
| <input type="checkbox"/> Mylars | <input checked="" type="checkbox"/> Application | <input type="checkbox"/> Issue Change Order | <input type="checkbox"/> _____ |

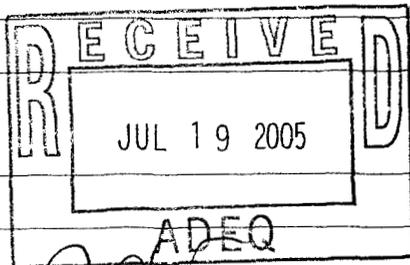
Attached to this transmittal:

Application to Construct water facilities

4 sets of prints for review of the Ellsworth Well No. 1

2 copies of the Design report.

Copies To: _____



Signed: Grant K. Hinderer

Grant Hinderer

Received By: _____

Date: _____

EXHIBIT 3

APPLICATION for APPROVAL TO CONSTRUCT DRINKING WATER FACILITIES

(PLEASE SUBMIT TO THE ADEQ ENGINEERING REVIEW DESK AT 1110 W. WASHINGTON ST., PHOENIX, AZ 85007)

A. PROJECT NAME: Ells worth Well #1 - 55-627099

B. PROJECT TYPE (Please check all applicable components for the OVERALL PROJECT):

New Drinking Water Well or Source Water Treatment Plant
 Water Line and Appurtenances Other: _____

C. SYSTEM NAME/PUBLIC WATER SYSTEM NUMBER/OPERATIONAL STATUS:

SYSTEM NAME: Johnson Utility Co. SYSTEM NUMBER 11128
 New System Extension to Existing System

D. PROJECT LOCATION (Please provide approximate center. Information is required to accept application):

LATITUDE 33°09'44.8"N LONGITUDE 111°32'55.1"W
 TOWNSHIP 3S RANGE 8E SECTION 17 QUARTER SECTION (CIRCLE) SE SW NW
 COUNTY PINAL

E. PROJECT DESCRIPTION: Well site w/ Access to Bella Vista Road.

F. PROJECT ENGINEER (PLEASE PRINT):

G. PROJECT OWNER (PLEASE PRINT):

NAME	<u>GREGORY BROWN</u> <u>SPECIFIC ENGINEERING, LLC</u>	<u>BRIAN P. TOMPSETT</u> <u>Johnson Utility Co.</u>
ADDRESS	<u>5230 E. Shea, Ste 220</u> <u>Scottsdale, Ariz 85254</u>	<u>5230 E. Shea, Ste 200</u> <u>Scottsdale, Ariz 85254</u>
PHONE NO./FAX NO.	<u>[Signature]</u>	<u>[Signature]</u>
SIGNATURE/DATE	<u>480-596-6335 / 480-596-6437</u>	<u>480-998-3300 / 480-483-7908</u>

H. PLAN DOCUMENTS SUBMITTED (PLEASE SEE ADEQ FORM #222, SUBMITTAL GUIDE FOR VARIOUS PROJECT TYPES)
 NOTE: INCOMPLETE SUBMITTALS WILL NOT BE LOGGED IN.

J. OWNER/AGENT AGREEMENT AND SCHEDULE: AGREEMENT-The undersigned as Project Owner or as acting Agent for the Project Owner hereby a) grants ADEQ permission to enter the site for inspections; b) authorizes the Project Engineer to prepare and submit plan documents to the ADEQ ENGINEERING REVIEW DESK; and c) agrees to construct the sanitary facilities according to the ADEQ Certificate of Approval and the approved plan documents.

CONSTRUCTION SCHEDULE-Estimated start date: ASAP Estimated completion date: DEC '05
Brian P. Tompsett Johnson Utilities [Signature] 9.12.2005
 TYPE OR PRINT NAME AFFILIATION SIGNATURE DATE

ADEQ COMPLIANCE EVALUATION:	ADEQ FILE NO: _____
IN-COMPLIANCE: _____	LTF NUMBER: _____
NON-COMPLIANCE: _____	
COMMENTS: _____	SITE INSPECTION REQUIRED? <input type="checkbox"/> NO <input type="checkbox"/> YES

JOHNSON UTILITY COMPANY, LLC

**ELLSWORTH WELL NO. 1
CONCEPTUAL DESIGN REPORT**

July 2005

JOHNSON UTILITIES COMPANY

ELLSWORTH WELL NO. 1

CONCEPTUAL DESIGN REPORT

July 2005

PREPARED FOR:

Johnson Utilities, LLC
5230 E. Shea Blvd, Suite 200
Scottsdale, Arizona 85254
Phone: (480) 998-3300
Fax: (480) 483-7908

PREPARED BY:

Specific Engineering, LLC
5230 E. Shea Blvd, Suite 220
Scottsdale, Arizona 85254
Phone: (480) 596-6335
Fax: (480) 596-6437



CONCEPTUAL DESIGN REPORT - TABLE OF CONTENTS

LIST OF SECTIONS

- 1.0 INTRODUCTION
- 2.0 LOCATION
- 3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL
- 4.0 NEW 8-INCH MAIN
- 5.0 CALCULATIONS

LIST OF FIGURES

- FIGURE 1 VICINITY MAP (PINAL COUNTY)
- FIGURE 2 LOCATION MAP (Ellsworth Well No. 1)
- FIGURE 3 FIMA FLOOD MAP



1.0 INTRODUCTION

This report is intended to document the conceptual design for the proposed water well in the Ranch Bella Vista North development area for the Johnson Utilities Company (the Utility).

Johnson Utilities Company will be the operations manager of the water facility, which is to be operated by a State of Arizona licensed utility operator. The water well is to be connected to the Utility's water distribution system via a 12-inch water line in Bella Vista Road., adding to the system's storage capacity and ability to service the growing community/service area.

Since the service area for the Utility is continually expanding, this design report only addresses the conceptual design of the water facility's proposed improvements and their capabilities. The specific Utility's water system parameters (i.e., area, population, customers, demand, supply, etc.) of the service area will be addressed through other reports and/or studies such as the Master Water Plan for Johnson Utilities Service area.

2.0 LOCATION

The proposed Ellsworth Well No. 1 is located approximately 14 miles Southeast of the Town of Queen Creek in Pinal County, Arizona. See Figure 1.

The facility is to be constructed in the Southeast Quarter of Section 17, Township 3 South, Range 8 East, Gila and Salt River Meridian, Pinal County, Arizona. The facility's site is a proposed 50 ft x 50 ft (0.057 acre) parcel of land north of Bella Vista Road and lies adjacent to Bella Vista Road approximately 800 feet west of Gantzel Road
See Figure 2.

3.0 ORIGINAL AGRICULTURAL GROUNDWATER WELL

The existing water well, ADWR registration number 55-627099, is located in the SW1/4, SE1/4, SE1/4, Section 17, T3S, R8E. **This well is to be refurbished as a domestic water well by a licensed well driller.**

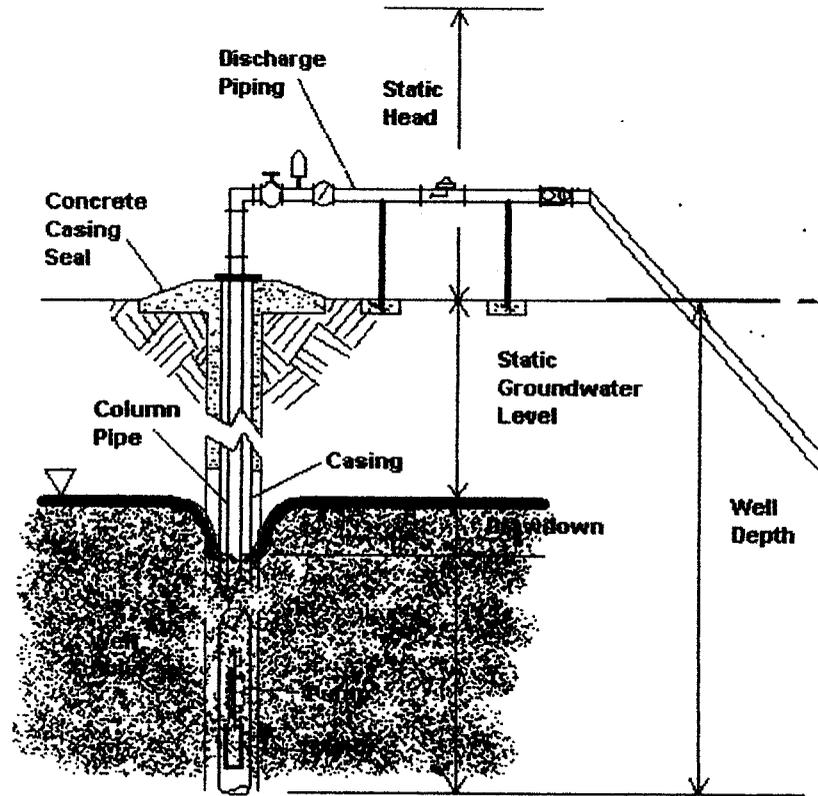
The original well was completed in the 1958 and has been historically used for agricultural purposes. The well has a vertical turbine pump, with a motor mounted on top of the well casing, and is capable of pumping 1800gpm. The well is 866' deep and has a 20" casing. The well is located in zone C which is an area of minimal flooding as shown on the attached FEMA map, Panel Number 040077 0500 C. The site is outside of the 100-year and 500-year floods.

4.0 NEW 8-INCH MAIN

The new Ellsworth Well No. 1 will supply water directly to the Johnson Utilities Company water transmission distribution system. A water supply transmission main will be installed from Ellsworth Well No. 1 to the existing 12-inch water line in Bella Vista Road.

5.0 CALCULATIONS

5.1 Source Well Calculations



1000 gpm Source Well

WELL PUMP DESIGN PARAMETERS (*initial conditions)

depth to groundwater = 500 feet (assumed average for Johnson Utility Service area)

well drawdown = 50 feet (assumed)

static head = -4 feet

line pressure = 184 ft (80 psi)

well/pump/casing depth = 866 feet (assumed)

well casing = 20 inches

column pipe = 8 inches

discharge piping = 8 inches

- pump and motor are to be enlarged in the future as the aquifer water level drops.

5.0 CALCULATIONS cont'd

5.1 Source Well Calculations cont'd

WELL PUMP DESIGN PARAMETERS cont'd

column & discharge piping headloss (H_L)

(8" pipe, flow $Q = 1,000$ gpm, velocity $V = 6.38$ fps)

<u>Item</u>	<u>Qty</u>	<u>K</u>	<u>H_L</u>
Aquifer contraction	1	0.5	0.32'
8"x4" Tee	1	0.3	0.19'
8" butterfly valve	1	0.2	0.13'
8" check valve	1	2.5	1.58'
8"-90° bend	4	0.7	1.77'
8"-45° bend	2	0.2	0.25'
8" flow meter	1		0.25'
3/4" taps	2	0.3	0.38'
8" expansion joint	1	0.4	0.25'
			4.88
8" pipe	180 LF		2.44
Total H_L			7.32

Total dynamic head (TDH)

total static head = $500 - 4 = 496$ feet

friction head = 7.32 feet

Line pressure = 184 feet

Velocity head = 0.62 ft

TDH = 688 feet

NET POSITIVE SUCTION HEAD (NPSH) AVAILABLE:

For safety: $NPSH_a > NPSH_r + 2$ feet

* $NPSH_a = Y - H_L - (P_v / \gamma) = 307$ ft

where: suction head $Y = 866 - (500 + 50) = 316$ ft

pipe headloss from aquifer contraction = $H_L = 0.32$ ft

water vapor pressure $P_v = 49.21$ psf @ 20°C or 68°F

specific weight of water $\gamma = 62.32$ pcf @ 20°C or 68°F

* Atmospheric pressure and soil pressure ignored. Velocity head assumed to be in the pump's $NPSH_r$

Cavitation will occur when the pressure at any location in a closed system reaches an absolute pressure equal to the saturated vapor pressure of the fluid at the fluid's pumping temperature.

5.0 CALCULATIONS cont'd

5.1 Source Well Calculations cont'd

WELL PUMP (see attached pump curve)

capacity = 1000 gpm

type = Goulds Pumps Model VIS, 3550 rpm, closed 7.96" impeller

size = 11 AHC

stages = 3 stages

horsepower = 223 Hp

first stage NPSH required = 35.8ft < 307 ft available

pump efficiency = 78 % with 3 stages

Water Vapor Pressure

Temperature		Vapor Pressure		
°F	°C	Pounds per Square Inch	Pounds per Square Foot	Feet of Head
40	4.4	0.1217	17.52	0.281
50	10	0.1781	25.65	0.412
60	15.6	0.2563	36.91	0.592
68	20	0.3392	49.2	0.79
70	21.1	0.3631	52.29	0.815
80	26.7	0.5069	72.99	1.17
86	30	0.6155	88.63	1.42
90	32.2	0.6982	100.5	1.61
100	37.8	0.9492	136.7	2.19
110	43.3	1.275	183.6	2.94
120	48.9	1.692	243.6	3.91
130	54.4	2.223	320.1	5.14
140	60	2.889	416.0	6.68
150	65.6	3.718	535.4	8.56
160	71.1	4.741	682.7	10.95
170	76.7	5.992	862.8	13.84

5.0 CALCULATIONS (cont'd)

5.1 Source Well Calculations cont'd

Density & Specific Weight of Water at Various Temperatures

		Density (ρ) grams per cubic centimeter	
$^{\circ}\text{C}$	$^{\circ}\text{F}$		
0 (solid)	32	0.9150	57.12
0 (liquid)	32	0.9997	62.41
4	39.2	1.0000	62.43
5	41	1.0000	62.43
10	50	0.9997	62.41
15	59	0.9992	62.38
16	60.8	0.9991	62.37
17	62.6	0.9989	62.36
18	64.4	0.9988	62.35
19	66.2	0.9985	62.33
21	69.8	0.9981	62.31
22	71.6	0.9978	62.29
23	73.4	0.9976	62.28
24	75.2	0.9974	62.27
25	77	0.9972	62.25
30	86	0.9957	62.16
35	95	0.9941	62.06
40	104	0.9923	61.94
45	113	0.9903	61.82
50	122	0.9881	61.68
60	140	0.9832	61.38
70	158	0.9777	61.04
80	176	0.9719	60.67
90	194	0.9651	60.25
100 (liquid)	212	0.9581	59.81
100 (gas)	212	0.0006	0.04

5.0 CALCULATIONS (cont'd)

5.2 Serviceable Development Calculations

SOURCE WATER WELL & WATER STORAGE TANK CAPACITY

Average Daily Residential Demand

Source Well Flow $Q_{sw} = 1000 \text{ gpm}$ or $1,440,000 \text{ gpd}$

Serviceable population = $1,440,000 \text{ gpd} / 100 \text{ gpdpc} = 14,400 \text{ people}$

Serviceable residences = $14,400 / 2.6 = 5,538 \text{ residences}$

The storage tanks at Circle Cross water plant, San Tan water storage tank, and the main water plant at Johnson Ranch supply the fire flow for this area.

Model:VIT/VIC/VIS

Size:11AHC

Group:

60Hz

RPM:3550

Stages:3

Job/Inqu. No.

Purchaser:

User:

Item/Equip.No:

Service:

Issued by: greg brown

Quotation No.

Order No.

Date: 7/18/05

Certified By:

Operating Conditions

Liquid: Water
Temp.: 70 °F
Sp. Heat:
S.G./Visc.: 1/1 cp
Flow: 1000 gpm(US)
TDH: 688 ft
NPSHa: 350 ft
Req. solid size:
% Solids:
Vapor Press:

Pump Performance

Actual Pump Eff.: 77.9 %
Actual Pump Power: 222.9 hp
Mech. Seal Loss: 0 hp
Dyn. Seal Loss: 0 hp
Other Power Loss: 0 hp
Rated Total Power: 222.9 hp
Imp. Dia. First 3 Stg: 7.96 in
NPSHr: 35.8 ft
Shut off Head: 934.4 ft
Max. Solids Size: 0.5 in
Suction Specific Speed: 8400 (gpm(US) , ft)
Min. Cont. Stable Flow: 249 gpm(US)
Min. Cont. Thermal Flow:
Non-Overloading Power: 239.4 hp
Imp. Dia. Add'l Stg:
Mag. Drive Circuit Flow:
Max Drive Power:
Max Drive Temp:
Max Motor Size:

Notes: 1. The Mechanical seal increased drag effect on power and efficiency is not included, unless the correction is shown in the appropriate field above. 2. Magnetic drive eddy current and viscous effect on power and efficiency is not included. 3. Elevated temperature effects on performance are not included.

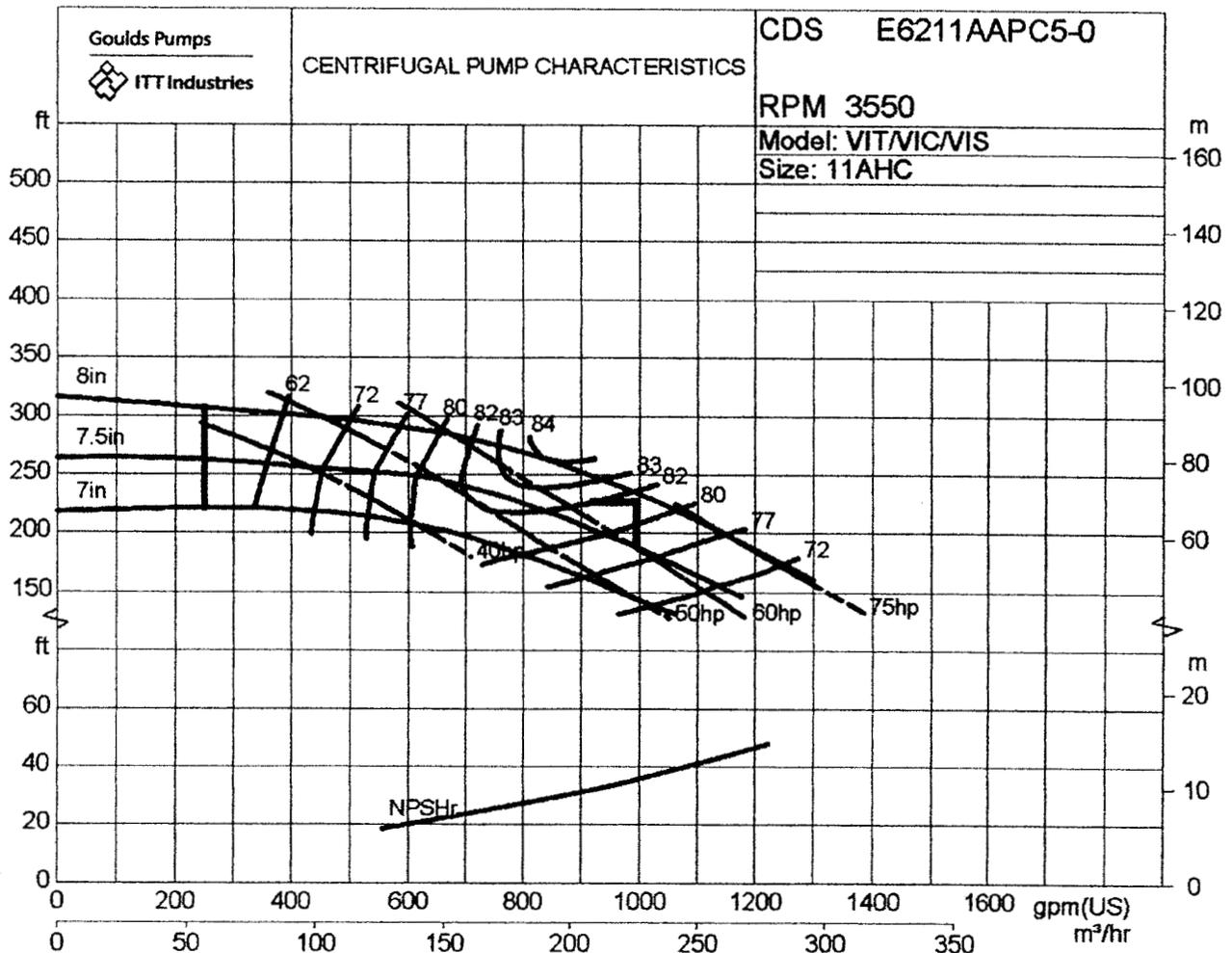
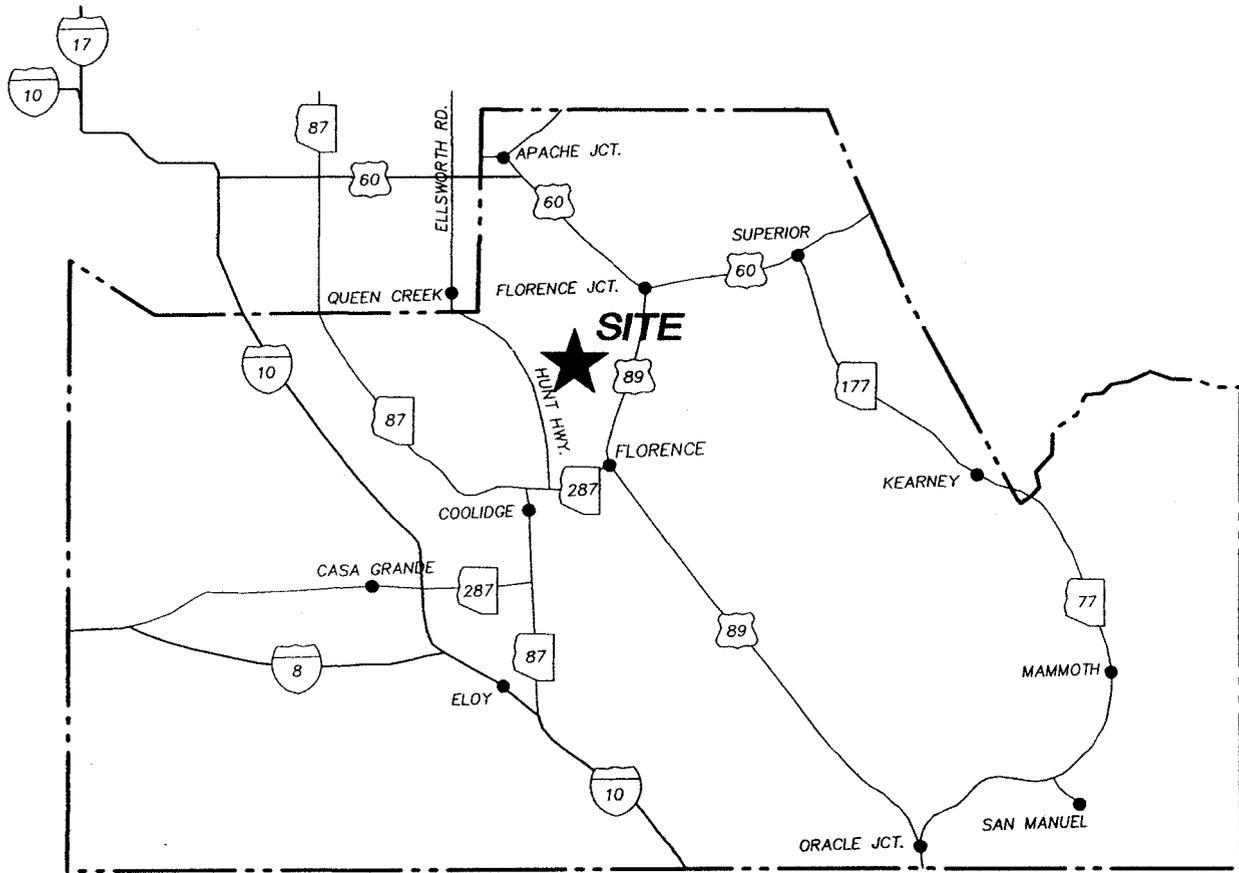


FIGURE 1



VICINITY MAP

N.T.S.

S:\Specific_Engineering\3009\B030\acad\Cut-shts\EXHIBITS\VICINITY.DWG Plotted: Jul 18, 2005

ELLSWORTH WELL #1
VICINITY MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



SPECIFIC ENGINEERING, LLC.

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
FAX: (480) 596-6437



T3E, R8E

FIGURE 2

SECTION 7

SECTION 8

SECTION 9



HUNT HIGHWAY

SECTION 18

SECTION 17

SECTION 16

VINYARD ROAD

SITE

BELLE VISTA ROAD

SECTION 19

SECTION 20

SECTION 21

HUNT HIGHWAY

JUDD ROAD



S:\Specific Engineering\2009\6030\accd\cur-shs\EXHIBITS\LOCATION.DWG Plotted: Jul 18, 2005

ELLSWORTH WELL #1
LOCATION MAP

DRAWN RSW
DATE 7/2005
SCALE N.T.S.



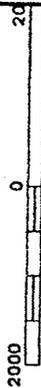
SPECIFIC ENGINEERING, LLC.

5230 E. SHEA BOULEVARD SUITE 220
SCOTTSDALE, ARIZONA 85254
Phone: (480) 596-6335
FAX: (480) 596-6437





APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

PINAL COUNTY,
ARIZONA
(UNINCORPORATED AREAS)

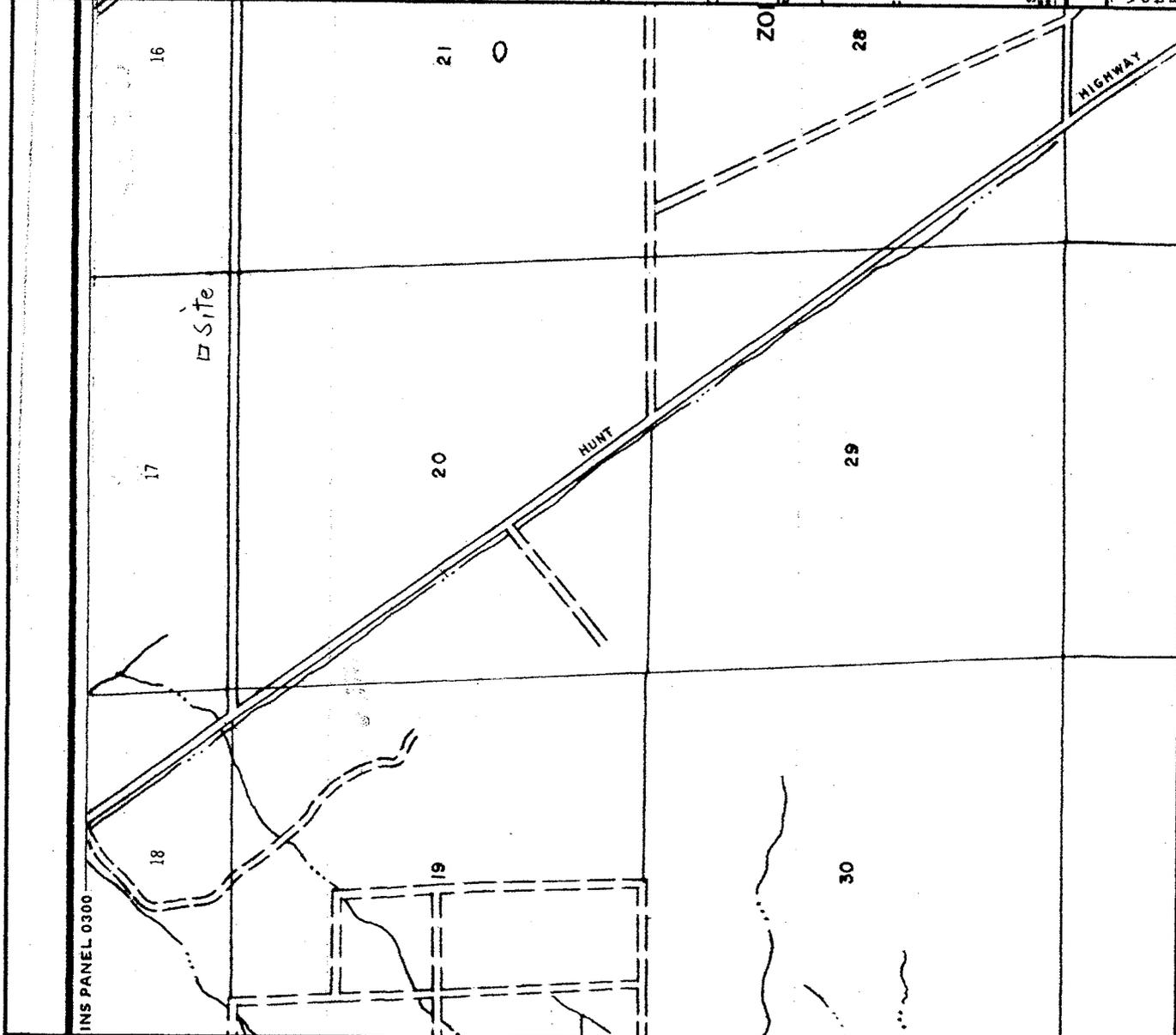
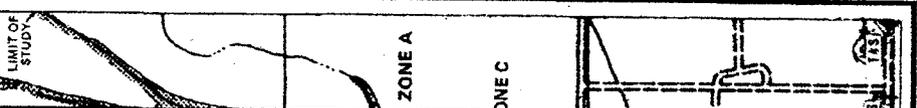
PANEL 500 OF 1525
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
040077 0500 C

EFFECTIVE DATE
AUGUST 15, 1983



Federal Emergency Management Agency



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

DEPARTMENT OF WATER RESOURCES
22 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input checked="" type="checkbox"/>

118

FOR OFFICE USE ONLY	
REGISTRATION NO. 82-	627099
FILE NO.	D(3-8)17ddc
FILED	6-14-82 AT 3:45p
(DATE)	(TIME)
INA	
AMA	PHOENIX

- Name of Registrant: Ellsworth Land & Livestock, Inc.
P.O. Box 369 Queen Creek, Az. 85212
(Address) (City) (State) (Zip)
- File and/or Control Number under previous groundwater law:
D(3-8)17 ddc 35-
(File Number) (Control Number)
- a. The well is located within the SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 17
of Township: 3 South N/S. Range 8 East E/W, G & SRB & M, in the
County of Pinal.
- b. If in a subdivision: Name of subdivision _____
Lot No. _____, Address _____
- The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
IRRIGATION
- If for irrigation use, number of acres irrigated from well 690.
- Owner of land on which well is located. If same as Item 1, check this box

(Address) (City) (State) (Zip)

- Well data (If data not available, write N/A)
 - Depth of Well 866 feet
 - Diameter of casing 20 inches
 - Depth of casing 866 feet
 - Type of casing "Kai-well"
 - Maximum pump capacity 7150 gallons per minute.
 - Depth to water 500 feet below land surface.
 - Date well completed 4/21/58
(Month) (Day) (Year)
- The place(s) of use of water. If same as Item 3, check this box
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____

Attach additional sheet if necessary.

MICROFILMED

9. DATE 6/14/82 SIGNATURE OF REGISTRANT Bruce M. Ormsby
Bruce M. Ormsby
Vice-President

MICROFILMED

Ellsworth Land & Livestock
 P O Box 369
 Queen Creek AZ 85242

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

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55 -	627081
	THRU
55 -	627117

FOR: ELLSWORTH & ORMSBY
 ELLSWORTH LAND & LIVESTOCK INC

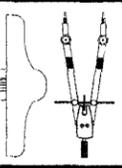
FUND SOURCE	ACCOUNT NO.			INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
	AGENCY	CHAPTER	DIV.				
					Filing Fee for Registration of Existing Wells	10.00	370.00
					File #		
					A(8-22)1aba D(3-8)16dcd D(3-8)27aaa		
					A(14-14)2cdd D(3-8)17cda D(3-8)27aba		
					D(2-7)16daa D(3-8)17dab D(3-8)27bab		
					D(2-7)21ddd D(3-8)17ddc D(3-8)27bdb		
					D(2-7)21cda D(3-8)20bdc D(3-8)34aaa		
					D(2-7)24dad D(3-8)20ccc D(3-8)35baa		
					D(2-8)26bcc D(3-8)21baa		
					D(2-8)27dda		
					D(2-8)27gdd D(3-8)21bcc		
					D(2-8)27dad D(3-8)21bdc		
					D(2-8)27ada D(3-8)21bdd		
					D(2-8)34aad D(3-8)25aaa		
					D(3-8)35bdb D(3-8)26aaa		
					D(3-8)11aaa D(3-8)26aca		

WATER PAYMENT
 GUESTS 37
 CHK NO 10257
 55-I 370.00
 TRX 0.00
 TOTL 370.00
 GEN. CHEK 370.00

4445 A 13:44

Paid Check #10257 11-17-82 pb

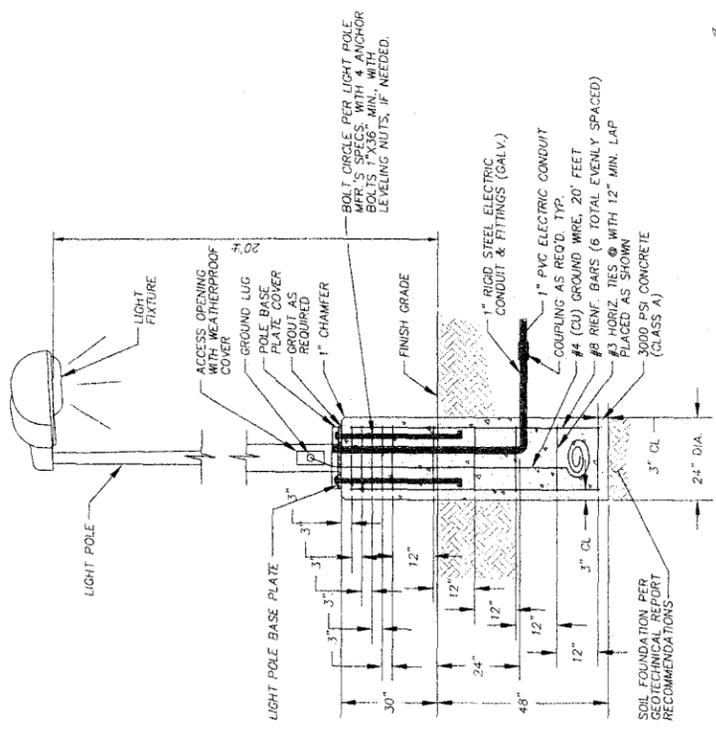
TOTAL \$ 370.00



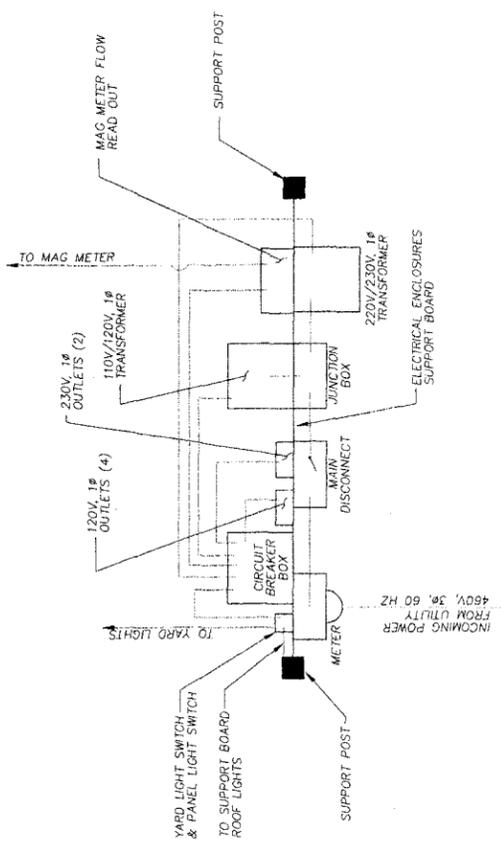
NO.	DATE	APP.	DESCRIPTION

DESIGNED: CKH
 DRAWN: TEAM
 CHECKED: GB
 DATE: JULY 2005
 SCALE:
 PROJECT: ELLSWORTH #1
 FILE NAME: 3009B010

ELECTRIC DETAILS
ELLSWORTH WELL #1

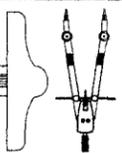


A YARD LIGHT DETAIL
 (OR APPROVED EQUAL)
 N.T.S.



B ELECTRICAL ENCLOSURES CONCEPT
 (OR APPROVED EQUAL)
 N.T.S.

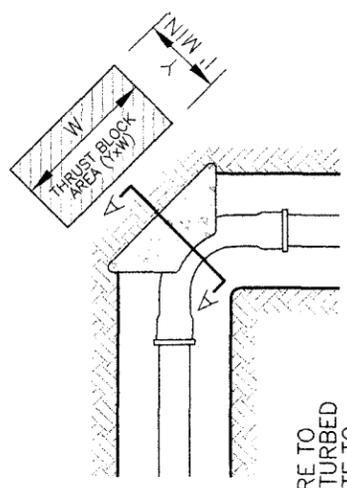
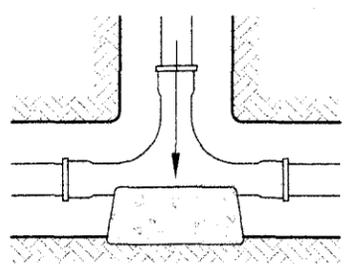
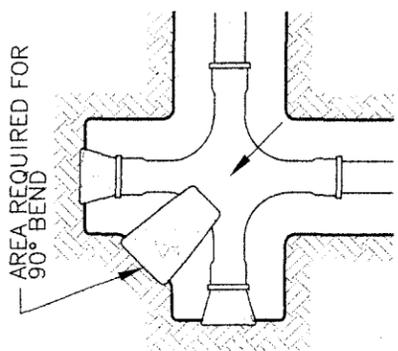




NO.	DATE	APPROVED	DESCRIPTION

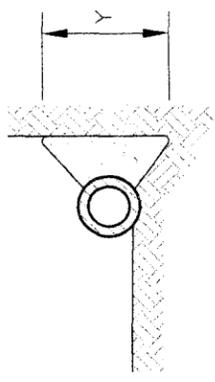
DESIGNED BY: GREGORY H. BROWN
 DRAWN BY: GREGORY H. BROWN
 CHECKED BY: GREGORY H. BROWN
 DATE: JULY 2005
 PROJECT: ELLSWORTH #1
 SCALE: AS SHOWN
 FILE NAME: 3009B030

CLIENT/PROJECT: ELLSWORTH WELL #1
 TITLE: THRUST BLOCK DETAILS



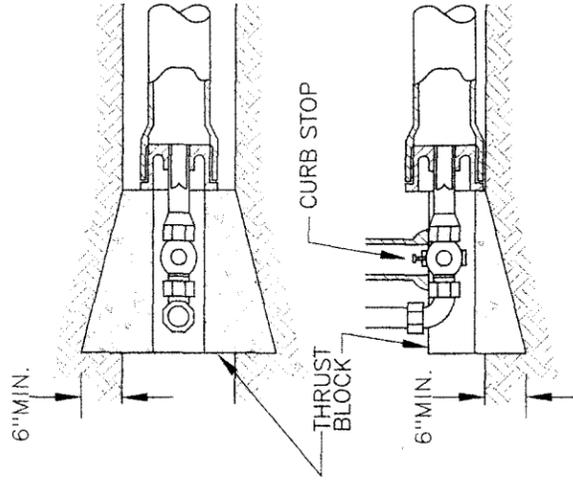
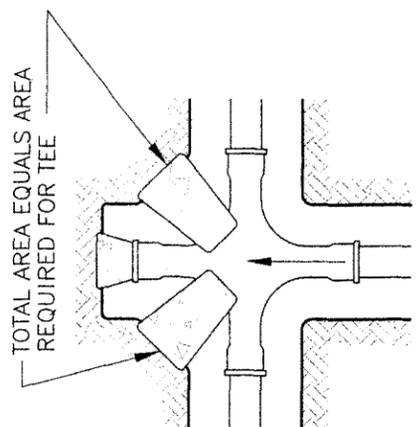
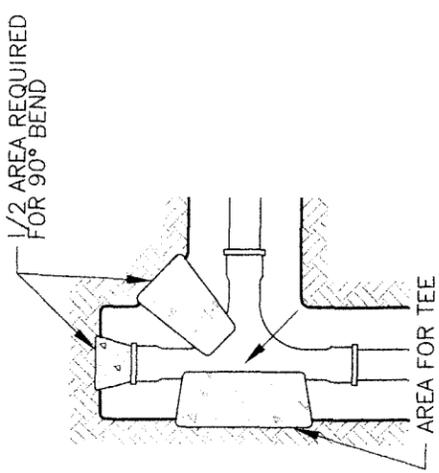
NOTE: THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND. CONCRETE TO BE CLASS C, SECT. 725.

SECTION A-A



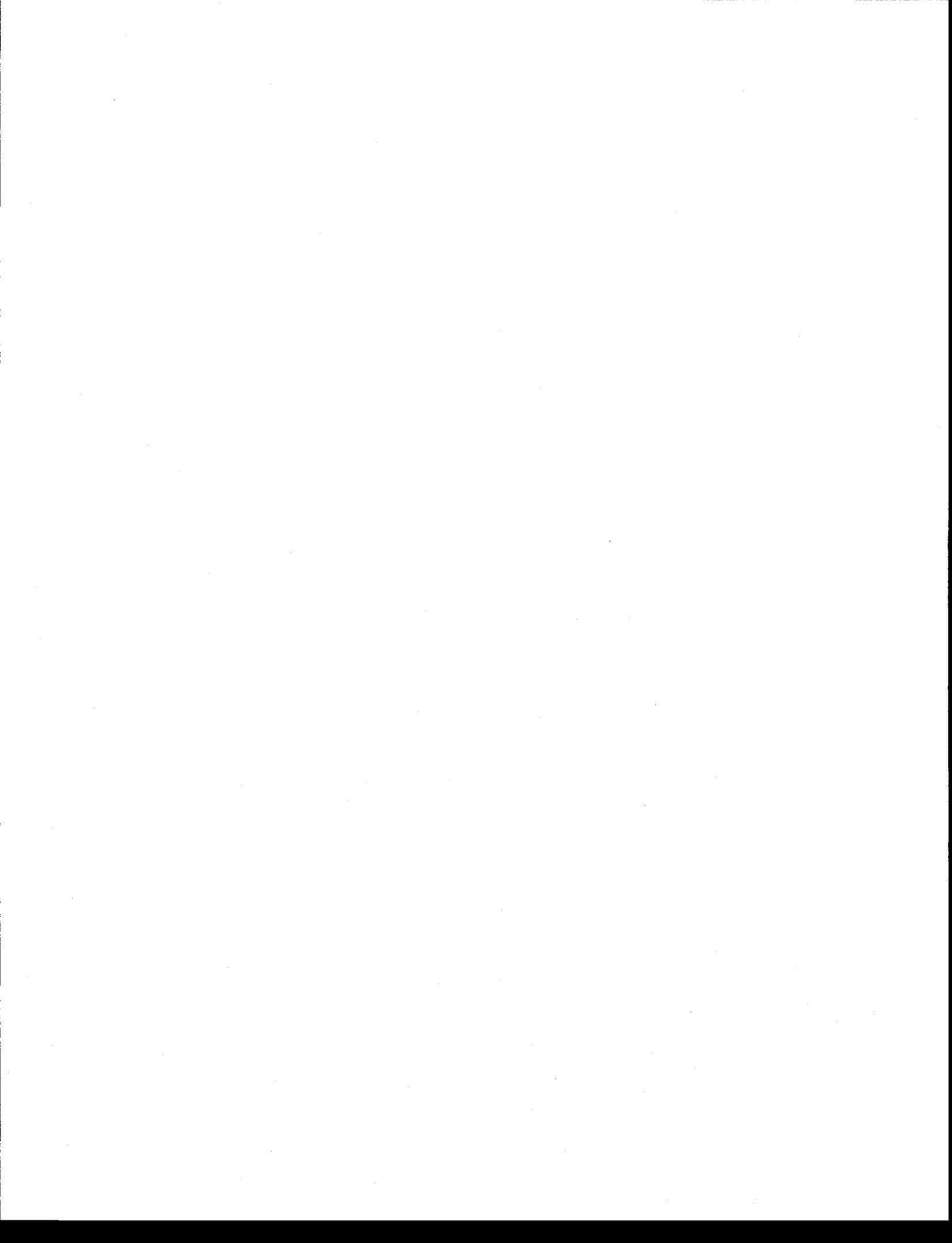
PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22 1/2° BENDS
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET

- NOTES:
- TABLE IS BASED ON 3000 LBS./SQ. FT. SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
 - AREAS FOR PIPE LARGER THAN 18" SHALL BE CALCULATED FOR EACH PROJECT.
 - FORM ALL NON-BEARING VERTICAL SURFACES.



*AS AN ALTERNATE THRUST RESTRAINT, PIPE JOINTS MAY BE RESTRAINED FOR THE REQUIRED THRUST RESISTANCE DEVELOPMENT LENGTH USING SMITH BLAIR 982 OR SMITH BLAIR 981 PIPE JOINT RESTRAINTS OR APPROVED EQUALS.
 THE PROPOSED JOINT RESTRAINT AND THE REQUIRED THRUST RESISTANCE DEVELOPMENT LENGTH CALCULATIONS SHALL BE SUBMITTED TO THE UTILITY'S ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF THE WATER MAIN.

TYPICAL LOCATION OF THRUST BLOCKS



Johnson Utilities Company - System #11-128

Well Identification Name System # 11-128	Well Identification Number	LOCATED WITHIN THE AREA OF:	ADEQ FILE NUMBER	ARSENIC LEVEL MG/L	POE
Production:					
J.R. Well No. 4 (untreated)	55-558445	Johnson	980006	0.003	#1
J.R. Well No. 4 (Treated with R.O. Unit)	55-558445	Johnson	980006		
J.R. Well #4 plus #5 (blended)	55-559843	Johnson	980006	0.005	#1
J.R. Well #4 plus #5 (blended & treated)	Misc.	Johnson	980006	0.005	#1
Edwards Road Well No. 2 (untreated)	55-586189	Johnson	2001037	0.002	#1
Oasis Well No. 1 (untreated)	55-582085	Oasis	20010611	0.022	#2
Oasis Well No. 3 (untreated)	55-582087	Oasis	20010611	0.003	#2
Oasis Well No. 2 (untreated)	55-582088	Oasis	20010611	0.008	#2
Skyline (untreated)	55-621462	Skyline	20020539	0.003	#3
Circle Cross Well #1 (untreated)	55-599026	Circle Cross	20020489	0.002	#4
Morning Sun Farms	55-201429	Morning Sun	20050258	0.004	#6
San Tan Heights #2	55-598836	San Tan Hts.	20050161	0.004	#5

EXHIBIT 4

Johnson Utilities Co., LLC 968 E. Hunt Hwy Queen Creek AZ, 85242	Project: Drinking Water Analysis Project Number: Monitoring Wells Project Manager: Gary Larsen	Reported: 03/15/05 10:24
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OASIS WELLS

Johnson Utilities (JR Well #3) (5021229-01) Drinking Water (Grab) Sampled: 02/23/05 12:30 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Total Metals

Arsenic	0.023	0.002	mg/L	1	B503084	03/03/05	03/03/05	EPA 200.9
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Johnson Utilities (JR Well #2) (5021229-02) Drinking Water (Grab) Sampled: 02/23/05 13:21 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Total Metals

Arsenic	0.008	0.002	mg/L	1	B502699	02/25/05	03/01/05	EPA 200.9
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Johnson Utilities (Oasis Well #2) (5021229-03) Drinking Water (Grab) Sampled: 02/23/05 14:00 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Total Metals

Arsenic	0.003	0.002	mg/L	1	B502699	02/25/05	03/01/05	EPA 200.9
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Johnson Utilities (JR Well #7) (5021229-04) Drinking Water (Grab) Sampled: 02/23/05 14:13 Received: 02/24/05 12:45

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Total Metals

Arsenic	<0.002	0.002	mg/L	1	B503084	03/03/05	03/03/05	EPA 200.9
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Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.

Notes and Definitions

Johnson Utilities Co., LLC%Drinking Water 968 E. Hunt Hwy Queen Creek AZ, 85242	Project: New Source Project Number: [none] Project Manager: Gary Larsen	Reported: 04/01/05 12:56
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MORNING SUN FARMS
Well #1 (5030148-01) Drinking Water (Grab) Sampled: 03/02/05 11:30 Received: 03/02/05 13:35

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Radiation Safety Engineering #AZ0462

Calculation

Combined Radium	<0.4		pCi/L	1	NA	03/14/05	03/14/05	Calculation	
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EPA 600/00-02

Gross Alpha Activity	7.7 +/- 1.5		pCi/L	1	NA	03/09/05	03/09/05	EPA 600/00-02	
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EPA 903.1

Radium 226 Activity	<0.4		pCi/L	1	NA	03/14/05	03/14/05	EPA 903.1	
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EPA 904.0

Radium 228 Activity	<0.4		pCi/L	1	NA	03/14/05	03/14/05	EPA 904.0	
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Microbiology

Total Coliforms	Absent		P/A	1	B503115	03/02/05	03/02/05	SM 9223B	
E. coli	Absent		P/A	1	B503115	03/02/05	03/02/05	SM 9223B	

Total Metals

Antimony	<0.004	0.004	mg/L	1	B503146	03/04/05	03/14/05	EPA 200.9	
Arsenic	0.004	0.002	mg/L	1	B503146	03/04/05	03/07/05	EPA 200.9	
Barium	0.20	0.01	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Beryllium	<0.002	0.002	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Cadmium	<0.0002	0.0002	mg/L	1	B503146	03/04/05	03/07/05	EPA 200.9	
Calcium Hardness	342	5	mg/L	2	[CALC]	03/04/05	03/09/05	SM 2340B	
Calcium	137	2	mg/L	2	B503145	03/04/05	03/09/05	EPA 200.7	
Chromium	<0.005	0.005	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Copper	<0.01	0.01	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Lead	0.004	0.002	mg/L	1	B503146	03/04/05	03/07/05	EPA 200.9	
Magnesium	26	1	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Mercury	<0.0002	0.0002	mg/L	1	B503257	03/09/05	03/09/05	EPA 245.1	
Nickel	<0.02	0.02	mg/L	1	B503145	03/04/05	03/07/05	EPA 200.7	
Selenium	0.002	0.002	mg/L	1	B503146	03/04/05	03/09/05	EPA 200.9M2	
Sodium	159	2	mg/L	2	B503145	03/04/05	03/09/05	EPA 200.7	
Thallium	<0.001	0.001	mg/L	1	B503146	03/04/05	03/08/05	EPA 200.9	

12 July 2005

Gary Larsen
Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

RE: Drinking Water Analysis - SAN TAN HEIGHTS - WELL #2
WELL # 55-598836
Legend ID: 5070388

Legend Technical Services of Arizona, Inc. is pleased to provide the enclosed analytical results for the aforementioned project. This cover letter and the accompanying pages represent the full report for these analyses and should only be reproduced in full. Samples for this project were received by the laboratory on 07/11/05 12:10.

The samples were processed in accordance with the Chain of Custody document and the results presented relate only to the samples tested. The Chain of Custody is considered part of this report.

All samples will be retained by LEGEND for 30 days from the date of this report and then discarded unless other arrangements are made.

This entire report was reviewed and approved for release by the undersigned. If you have any questions concerning this report, please feel free to contact me.

Sincerely,
LEGEND TECHNICAL SERVICES OF ARIZONA, INC.

DRAFT REPORT
DATA SUBJECT TO CHANGE

This laboratory report is confidential and is intended for the sole use of LEGEND and it's client.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
DRAFT: Santan Well #2	5070388-01	Drinking Water	Grab	07/11/05 08:10	07/11/05 12:10

Case Narrative:

Holding Times: All holding times were met unless otherwise qualified.
QA/QC Criteria: All analyses met method requirements unless otherwise qualified.
Comments: There were no problems encountered during the processing of the samples, unless otherwise noted.

DRAFT REPORT

Certifications: AZ #0004 MN #004-999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

DRAFT: Santan Well #2 (5070388-01) Drinking Water (Grab) Sampled: 07/11/05 08:10 Received: 07/11/05 12:10

Analyte	Result	RL	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
DRAFT: Total Metals									
Arsenic	0.004	0.002	mg/L	1	B507271	07/12/05	07/12/05	EPA 200.9	

DRAFT REPORT

Certifications: AZ #0004 MN #004--999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

DRAFT: Total Metals - Quality Control
Legend Technical Services of Arizona, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B507271 - EPA 200.9										
Blank (B507271-BLK1)				<i>Prepared & Analyzed: 07/12/05</i>						
Arsenic	<0.002	0.002	mg/L							
LCS (B507271-BS1)				<i>Prepared & Analyzed: 07/12/05</i>						
Arsenic	<0.002	0.002	mg/L	0.0200			85-115			
Matrix Spike (B507271-MS1)				Source: 5070388-01		<i>Prepared & Analyzed: 07/12/05</i>				
Arsenic	<0.002	0.002	mg/L	0.0200	0.004	NR	70-130			
Matrix Spike Dup (B507271-MSD1)				Source: 5070388-01		<i>Prepared & Analyzed: 07/12/05</i>				
Arsenic	<0.002	0.002	mg/L	0.0200	0.004	NR	70-130		25	

DRAFT REPORT

Certifications: AZ #0004 MN #004-999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Johnson Utilities Co., LLC
968 E. Hunt Hwy
Queen Creek, AZ 85242

Project: Drinking Water Analysis
Project Number: 11-128
Project Manager: Gary Larsen

Reported:
07/12/05 16:18

Notes and Definitions

BLK Method Blank
LCS/Dup Laboratory Control Sample/Laboratory Fortified Blank/Duplicate
MS/Dup Matrix Spike/Duplicate
Dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

DRAFT REPORT

Certifications: AZ #0004 MN #004-999-387 AIHA #102982

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

From: Aide Marin [amarin@cableaz.com]
Sent: Wednesday, April 06, 2005 10:40 AM
To: Brian Tompsett
Subject: Arsenic for JU Wells

Aquatic Consulting & Legend Technical Testing Laboratory Reports for Wells

Source	Date		Date	
<i>Oasis POE001</i>	9/14/2004		6/16/2003	
<i>Skyline POE001</i>	9/14/2004		8/20/2003	
<i>Johnson Ranch POE001</i>	8/11/2004		6/18/1997	
<i>Sun Valley 5 POE001</i>	8/24/2004		6/5/2004	
<i>Circle Cross POE001</i>	8/31/2004		11/5/2003	
<i>Wildhorse POE001</i>	9/14/2004		3/31/2004	

Johnson Ranch Well # 2		2/23/2005	
Johnson Ranch Well # 3		2/23/2005	
Johnson Ranch Well # 4		1/26/2005	
Johnson Ranch Well # 5		1/26/2005	
Johnson Ranch Well # 7		2/23/2005	
Oasis Well # 2		2/23/2005	
Oasis Well # 3		1/26/2005	
Rickey # 1		1/26/2005	