

Micron Station Production Well No. 4 Project Solicitation Number: CO-00247 Job No.: 16-6004

ADDENDUM 1 January 7, 2019

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bid proposal, plans and specifications and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the Addendum number and issue date on the space provided in submitted copies of the bid proposal.

RESPONSES TO QUESTIONS

- 1. **Question:** In Section 5.18 of General Conditions In paragraph titled "Working Hours" it implies all work must be performed between 8 am & 5 pm during the week and no work on Saturday and Sunday. Will it be allowable to conduct drilling on a 24 hour basis? Response: Not without approval as described in General Conditions. See also section 01110.
- 2. Question: In Section 02633, Part 1.01 A 3. The Contractor will be required to demonstrate that Contractor can provide a drilling rig with a minimum of 200,000-lb hook-load capacity. How will SAWS confirm the rig capability offered by the Contractor?

Response: The Contractor will report this information.

- 3. **Question:** In Part 3.03 Pilot Hole Specifications, it states in Part B. that at least 40 feet of temporary 12 to 14 inch diameter casing shall be set in the top of pilot hole. If Pilot Hole is drilled with the rotary reverse-circulation technique, the temporary casing will be unnecessary. Can the Contractor omit this requirement if using rotary reverse-circulation drilling techniques? *Response: Yes, the 12- to 14-inch temporary casing may be omitted if reverse-circulation is used.*
- **4. Question**: In Section 3.13, Well Development and Pre-Test, paragraph B, item #2 states the discharge piping and pump unit be sufficient to conduct water to box culvert along the east side of Micron Drive. During Pre-Bid Meeting, we noticed there are stormwater grates near the proposed well site. Can the Contractor discharge well development water into these grates? *Response: No, they cannot be used.*
- 5. **Question:** In Section 3.15, Well Development, paragraph B, item #2 states the discharge piping and pump unit be sufficient to conduct water to box culvert along the east side of Micron Drive. Can Contractor discharge well development water into these onsite stormwater grates? *Response: No, they cannot be used.*
- 6. **Question:** During the Pre-Bid Meeting, it was discussed that any road base brought in for pad construction may be allowed to stay in place after well completion. Is this a correct assumption? *Response:* Yes.
- 7. **Question:** During the Pre-Bid Meeting, it was implied the entire open area around the proposed wells site would be available for staging and storing equipment. Is this a correct assumption? Response: Staged and stored equipment and materials should be no less than 30 feet from existing facilities.

8. **Comment:** Reference on page 74; Item 5.8-1, that NSF certified material will be required if water is going to be in contact. The casing that is specified is 30" OD x .500" Wall; Low Carbon Steel (LCS) Casing. Where Low Carbon Steel is not available as NSF approved, High Strength Low Alloy (HSLA) is available with NSF Certifications. High Strength Low Alloy A606, Type-4 is the same material that is being used in the SAWS- Turtle Creek Wells. The material has 9 times the corrosion resistance of Low Carbon, it has 42% more yield strength, and (again) can be provided as a certified NSF material for drinking water. With the increased strength of HSLA versus LCS, the wall thickness for the steel could possibly be changed from .500" (as is the case with LCS) to .437" (on the HSLA). 30" OD x .437" Wall HSLA has a collapse strength of 160.36 psi.

Response: We are aware of this material. Thanks for the information.

9. **Question:** What is the finished elevation on the wellsite? Response: 822 ft, or existing grade under this contract.

10. Question: Can the Contractor cut and balance the padsite?

Response: Yes.

11. Question: What are the padsite dimensions?

Response: Please refer to the construction area shown in the drawings.

12. **Question:** Does the padsite location and access road have to be removed after well is complete? *Response: These may remain.*

13. Question: Does excess spoil from cutting and balancing wellsite have to be hauled off or can it remain onsite?

Response: It may be spread onsite.

14. Question: Need additional sound wall as 300 LF is not enough and needs to be 32 ft. tall (Turtle Creek has 800 LF of 32 ft. tall and that is what will be needed here).

Response: Question was submitted late. There is insufficient time to investigate the assumptions behind this question and provide a response.

15. Question: Can spiral weld casing be used or will it need to be straight seam?

Response: Yes, spiral well casing will be acceptable, provided it meets the standards in the technical specifications.

16. Question: Discharge location for testing water?

Response: Provided in plan sheet C-2.0

17. Question: NTP date?

Response: SAWS anticipates a NTP in early March.

18. Question: TCEQ Approval?

Response: Plans have been approved by TCEQ.

19. Question: EAA Approval?

Response: EAA drilling permit is in process.

20. Question: Is there data for another well that we can study in order to prepare our bid?

Response: Reports for wells 1-3 are included in this Addendum.

CHANGES TO THE SPECIFICATIONS

- 1. **INVITATION TO BIDDERS.** The previous Invitation to Bidders is replaced with the attached revised Invitation to Bidders, noting the following change:
 - a. Sealed Bids Due Date was updated to correctly reflect the new calendar year, 2019.
- 2. **SUPPLEMENTAL CONDITIONS. ARTICLE V, CONTRACT RESPONSIBILITIES.** Remove Section 5.6.2 in its entirety and replace with the following:

The Contractor shall immediately, and before such discovered conditions and/or structures are disturbed, notify the Owner with a RFI of (1) subsurface or latent physical and/or structural conditions at the site within a depth of 20 feet or less from land surface differing materially from those indicated in the Plans, Specifications, and other Contract Documents or (2) newly discovered. unknown physical conditions at the site within a depth of 20 feet or less from land surface of an unusual nature differing materially from those geophysical conditions typically encountered in the type Work being performed and generally being recognized as not indigenous to the Texas environs and are not indicative of otherwise disclaimed in the plans, Specifications, and Contract Documents. The Owner, or designated representative, shall promptly investigate the reported physical and/or structural conditions, and shall determine whether or not the physical and/or structural conditions do materially so differ and whether they cause an increase or decrease in the Contractor's cost of, and/or the time required for performance of any part of the Work under this Contract. In the event that the Owner in its reasonable determination finds that the physical and/ or structural conditions do materially so differ from the provisions of the Contract Documents, a negotiated, equitable, adjustment may be made to either the Contract Time or Contract Sum, or both as in the Owner's determination is reasonable, and a Contract Change Order shall be issued in writing accordingly.

3. **SECTION 02633, WELL DRILLING AND TESTING, GENERAL. PAGE 02633-16, PARAGRAPH F.** ADD the following sentences to the paragraph:

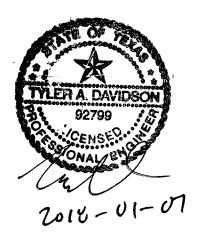
The security guard shall be present during working hours, and whenever site gates are not locked. The guard should be a commissioned guard from SECURITAS (SAWS' approved security contractor). No approved equals. The Guard should have familiarity with SAWS facilities, security policies, communication procedures, emergency response codes, and chemical response protocols. The guard shall have NIMS-certification, first aid/AED certification, and shall meet all SAWS requirements for psychological testing. Provision of the security guard for the duration of the Work is included in mobilization, and no additional payment will be made for the provision of the security guard.

END OF ADDENDUM

This Addendum, including these <u>3</u> pages, is <u>65</u> pages with attachments in its entirety.

Attachments:

Invitation to Bidders
State well reports and other information for Wells 1-3



INVITATION TO BIDDERS

Solicitation No. CO-00247

Sealed bids are requested by the San Antonio Water System for the construction of one public water supply well for the **Micron Station Production Well No. 4 Project**, SAWS Job No. 16-6004.

To view additional project information, as well as obtain the plans and specifications for this project, visit our website located at www.saws.org and click on the Business Center. Then select Bidder, Consultant, and Vendor Registration, which is located on the left-hand side of the screen. Select the Register Now button and proceed with registration.

For difficulties downloading plans and specifications, contact the Contracting Department at 210-233-3341.

A **non-mandatory** pre-bid meeting and site visit will be held at **10:00 AM (CT)** on **December 18, 2018** at the San Antonio Water System's Micron Pump Station, 7531 Micron Drive, San Antonio, Texas 78251.

For questions regarding this solicitation, technical questions or additional information, please contact **Janie M. Powell, Contract Administrator**, in writing via email to: Janie.Powell@saws.org or by fax to (210) 233-5351 until **4:00 PM (CT)** on **December 20, 2018**. Answers to the questions will be posted to the web site by **5:00 PM (CT)** on **January 7, 2018** as a separate document or included as part of an addendum. Please be advised that Bidders are prohibited from communicating with any other SAWS staff, the Consultant, the Developer, or City of San Antonio officials regarding this IFB up until the contract is awarded as outlined in the Instructions to Bidders.

Sealed bids will be received by Counter Services in the Customer Service office across from the Guard Station, 2800 U.S. Hwy 281 North, Customer Center Building, San Antonio, Texas 78212, **until 10:00 AM (CT), January 14, 2019**. Bids will then be publicly opened and read aloud by Contract Administration in **CR-C145**, Customer Center Building, 2800 U.S. Hwy 281 North, San Antonio, Texas. Each bid must be accompanied by a cashier's check, certified check, or bid bond in an amount not less than five percent of the total bid price.

WELL SCHEDULE

		Davis Wall Name	
State Well Number:	Ay 68-35-616	Previous Well Number:	O Atomin
Aquifer:	EDWARDS ▼	River Basin:	San Antonio
County:	Bexar	State:	Texas
Elevation:	817.25	Determined By:	USGS topo
Latitude:	29-27-16	Longitude:	098-38-29
Location:	See Attached Map		
Depth to Top of Aquifer:			
PWS Number:	G0150018DD	Well Name:	Micron # 1
Owner:	San Antonio Water System		
Address:	1001 E. Market St. San Antonio,	TX 72298	
Tenant:			
Address:			
Driller:	Frank Rosenkranz & Son		
Address:	6839 Leslie Rd., San Antonio, TX	78254	
Well Use:	PUBLIC SUPPLY		
Date Drilled:	6/24/02	Drilling Method:	Mud Rotary
Depth Reported:	855	Measured from:	Land Surface
- Opin Halanda			
Bore Hole Completion:	Open Hole	Screen Data:	
Well Completion:	Steel		
Well Diameter:	35" from 0' to 366		
Well Diameter:	24" from 366' to 855'		
Well Diameter.	24 110111 000 10 000		
Casing Diameter:	30" from 0' to 366'		
Casing Diameter:	30 110111 0 10 000		
Casing Diameter:			
Casing Diameter.			
Competing Data:	Pressure	Number of Sacks used:	700
Cementing Data:	Pressure	Hullibel Of Cacks assa.	700
O - manufa d Dvu	Clumborgor		
Cemented By:	Slumberger		*
		Dewar Tunor	
Type of Pump:	100 m odd Oldensides method	Power Type:	
Well Test Data:	1007 gpm with 9' drawdown after		0/4/0000
Water Level:	155'	Date:	6/4/2002
		Occurs of Datas	Mall Danard
Recorded By:	Jim O'Connor	Source of Data:	Well Report
	SAWS	Date:	8/5/2003
			.
l_ ,		J&. 2	35-616
Comments:		'	

'Culebra Hill; TX; Scale: 1" = 0.288Mi 464Mt 1,522Ft, 1 Mi = 3.470", 1 cm = 183Mt

68-35-616

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program

P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616 Toll free (800)803-9202

Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

		WELL R				×		
1) OWNER		DENTE DESCRIPTION		SATION.	nata.			
Sanfatonolistas S	Address n WOOE, k	larket St.	Sanf	hton	io .	State	Zip 182	18-3W
2) WELL LOCATION							2	
Belar	Physical Address 12034 CTO	X.	SanAr	Horic	2	State	Zip	
3) Type of Work New Well Reconditioning Replacement Deepening	Rig Supply	rigation Injection	public supply well, were	Supply plans submit	De-watering tted?	Testwell No	<u>-35-9</u> 5)	n↑
Started 10/07/01 Completed 6 24 / 22	Diamete Dia.(in) From	n (ft) To (ft)	ir Rotary	hod (check) Mud Rotary Cable Too	Bored		
From (ft) To (ft) Descrip	ption and color of f	ormation materi	u	Under-rean	ned 🛭 Grav	Open Hol	Other	t Wall
1' Ich Limes	doile Diam	Mhila	* *		give the interval k Pipe, and	Well Screen	ft. to Data	
150 150 Tal	a bil	ie Gre	Dia.	New Or Used	Steel, Plasti Perf., Slotte	c, etc.	Setting (ft) From To	Gage Casing Screen
D' BOY FOO	Jac P	Sage	30	Não	Sie	II commercia	जि उब्ब	500
35 352 PIK	May B	yelorey	haad					
200 211000	HUM HUM	sinc Cr	ame.				L	
311 800 Falls	1192 MAX	SAMO CIE	Cen	ementing inenting from		3don	# of sacks used # of sacks used	100
(Use reverse side of We	I Owner's copy, If neces	sary)			essu ic	Stirm of	V56V	
Casing left in well: Cement/Bentonite			Distar Metho			other concentrate	d contamination	aft.
From (ft) To (ft) From (ft) To (ft)	Sacks us						
			D √spc	ecified Surfac	e Slab Installed e Sleeve Install			
14) Type Pump Turbine Other	Submersible Cylin	nder		less Adapter U proved Altern	Jsed native Procedur	e Used		
Depth to pump bowls, cylinder, jet etc.,	ft.		11) \	Water Ley		2 10 1	1.00	
15) Water Test Typetest	ed Estimated	hrs.		level	ft. below gpm.	Date /		
16) Water Quality			12)	Packers		Гуре	Depth	
Did you knowingly penetrate a strata who YES No If yes, did you submi								
Type of water COUCLE	Depth of StrataQ	00	-					
Was a chemical analysis made Yes	No							
ompany or individual's Name (t	ype or print)	inkhosen	yranz	480		Lic. No.	218/10	-
Address 10279 LEST	e hal	Im A0	DOWN	Atoni	Δ	State X	Zip 8	by H
Signature Winds L. Koon	man 18	10 14	Signature					1

Service Order

Customer				Per	rson Taking	Call	Dowell Loca	rtion	Order	Cate	Job Number
FRANK RO	SENKRAN	Z & SONS		Ho	olmes, Jes	se	Len	ning, TX	1/	/14/2002	2206335100
Well Name and	Number			Legal Lo	cation	Field		County		Star	Province
Micron 1								Bexar		Tex	CBS .
Rig Name			Well	Age	Sale	s Engineer		Job T	ype		
			New	,	Hote	mes, Jesse		Cem	Surface	Casing	
Time Well Res	edy:	Deviation		Bit St	20	Well MD	Well TVD	SHP		BHST	BHCT
			•	3	5 in	365 ft	n		psi	85 *	F ! "F
Treat Down	Packer	Type P	acker De	pth	WellHead	Connection	HHP on Location	Max Allowed	Pressure	Max Allo	wed AnnPressure
Casing				R	4 1/2" IF	FDP pin	500				
		Casing				Servic	es Instructions:				
Depth, ft	Size, in	Weight, I	DAL .	Grade	Thre	cmt 30	Casing with 600	sks 50/50 Pd	z/H + 2%	6 D20 + 10	00 siks Class H
Depth, ft	-	Weight, 1		Grade	Thre	cmt 30	O" Casing with 600	sks 50/50 Pd	z/H + 2%	6 D20 + 10	00 sks Class H
	-			Grade	Thre	cmt 30	O" Casing with 600	sks 50/50 Pd	z/H + 2%	6 D20 + 10	XX sks Class H
	-			Grade	Thre	Cmt 36	O" Casing with 600	sks 50/50 Pd	z/H + 2%	6 D20 + 10	00 sks Class H
	-	118.6	5	Grade			O" Casing with 600	sks 50/50 Pd	∞z/H + 2%/	6 D20 + 10	00 siks Class H
365	30	118.6	5			and .		sks 50/50 Pd	vz/H + 2%	6 D20 + 10	00 sks Class H
365 Depth,	Stze, in	118.6 Tubing Weight, 8	5			ed Extra	Equipment:	sks 50/50 Pd	oz/H + 2%	6 D20 + 10	00 sks Class H
365 Depth,	30 Size, in 4.5	118.6 Tubing Weight, 8	5 BAR			and .	Equipment:	sks 50/50 Pd	vz/H + 2%	6 D20 + 10	00 sks Class H
365 Depth,	30 Size, in 4.5	Tubing Weight, 1	5 BAR	Grade		Extra 4.5 F I	Equipment:	sks 50/50 Pd	z/H + 2%	6 D20 + 10	00 sks Class H
365 Depth. 345.5	\$ 30 \$ \$ze, in 4.5	Tubing Weight, 1 16.6	b/R ervals	Grade	Thre	Extra 4.5 F I	Equipment:	sks 50/50 Pd	oz/H + 2%	6 D20 + 10	00 sks Class H
365 Depth. 345.5	\$ 30 \$ \$ze, in 4.5	Tubing Weight, 1 16.6	b/R ervals	Grade	Thre	Extra 4.5 F b	Equipment:	sks 50/50 Pd	xz/H + 2%	6 D20 + 10	00 sks Class H

Contact	Voice	Mobile	FAX	Notes
Frank Rosenkrantz				

Notes:	
Mileage 140 RT, Discoun	t 35 New Book
Directions:	
	go to Sea World Exit TI on Loop 151 go to Pontranca TR go to Micron TL go to rig on right
	go to Sea World Exit TL on Loop 151 go to Pontranca TR go to Micron TL go to rig on right
	. go to Sea World Exit TL on Loop 151 go to Pontranca TR go to Micron TL go to rig on right
	. go to Sea World Exit TL on Loop 151 go to Pontranca TR go to Micron TL go to rig on right
	. go to Sea World Exit TL on Loop 151 go to Pontranca TR go to Micron TL go to rig on right
	. go to Sea World Exit TL on Loop 151 go to Pontranca TR go to Micron TL go to rig on right
Take 281 North to 410 Tl	
Take 281 North to 410 Tb	
Take 281 North to 410 Tl	
Take 281 North to 410 Tl	

Comments:
Work And Drive Safely

Material	Description	Quantity Needed	
D020	Bentonite Extender D20	1190 LB	
D035-CF	LITEPOZ 3 Extender D35	302 CF	
D909	Cement, Class H D909	402 CF	

Fluid Systems:

rud System						
			Lead			
600 sks 50/5	0 Poz/H	+ 2% D2	: 0			
Density:	14.2	lb/gal	Thickening Ti	ime:		
Yield:	1.26	ft³/sk	Viscosity:			ср
H2O Mix:	5.75	gal/sk	Break Time:			
H2O:	3450	gal	Eq. Sack We	ight:	87	Þ
Dowell Co	de	Con	c/ Amount	Tota	l Quanti	ty
D20		1.7	4 lbe/sk		1044	
D35		4	0 lbs/sk		24000	1
D909		4	7 libs/sk		28200	

	A)		Tail	3.30	er e	
100 sks Clas	s H				-	
Density:	15.6	lb/gal	Thickening 7	Time:		
Yield:	1.18	ft³/sk	Viscosity:			ср
H2O Mb:	5.2	gal/sk	Break Time:			
H2O:	520	gal	Eq. Sack W	eight:	94	lb
Dowell Co	de	Con	c/ Amount	Total	Quanti	ty
D909		9	4 lbs/sk		9400	

Customer:

Frank Rosenkranz & Sons

District:

LEMING

Representative: Frank Rosenkranz

DS Supervisor: Cameron Tollett

Job Date: 01-14-2002

Well:

Micron 1

Time mm:dd:yyyy:hh:mm:ss	Treating Pressure psi	Flow Rate bbl/min	Density lb/gal	
01:14:2002:16:43:16	9	1.1	-6.25	
01:14:2002:16:43:26	Start Pumping Wash		- 1-2-1	
01:14:2002:16:43:26	50	2 .7	-6.25	
01:14:2002:16:44:06	55	4.2	-6.25	
01:14:2002:16:44:57	92	4.8	-6.25	
01:14:2002:16:45:47	151	4.8	-6.25	
01:14:2002:16:46:37	23	0.0	-6.25	
01:14:2002:16:47:27	27	0.0	-6.25	
01:14:2002:16:48:17	27	0.0	-6.25	
01:14:2002:16:49:07	27	0.0	-6.25	
01:14:2002:16:49:57	32	0.0	-6.25	
01:14:2002:16:50:47	32	1.0	-6.25	
01:14:2002:16:51:37	69	2.1	-6.25	
01:14:2002:16:52:27	82	2.7	-6.25	
01:14:2002:16:53:17	105	3.7	-6.25	
01:14:2002:16:54:07	156	4.9	-6.25	
01:14:2002:16:54:57	156	4.9	-6.25	
01:14:2002:16:55:48	137	4.9	-6.25	
01:14:2002:16:56:38	133	4.9	-6.25	
01:14:2002:16:57:28	188	4.9	-6.25	
01:14:2002:16:57:52	Reset Total, Vol = 40.91	bbl		
01:14:2002:16:57:52	192	4.9	-6.25	
01:14:2002:16:57:56	Start Mixing Lead Slurry			
01:14:2002:16:57:56	179	4.9	<i>-</i> 6.25	
01:14:2002:16:58:18	220	5.0	14.34	
01:14:2002:16:59:08	87	4.9	13.45	
01:14:2002:16:59:58	87	5.1	13.53	
01:14:2002:17:00:48	82	5.2	12.92	
01:14:2002:17:01:38	233	5.2	14.63	
01:14:2002:17:02:28	78	4.2	13.43	
01:14:2002:17:03:18	165	5.0	12.60	
01:14:2002:17:04:08	27 5	5 .0	14.33	
01:14:2002:17:04:58	211	5.0	13. 4 1	
01:14:2002:17:05:48	229	5.0	14.11	
01:14:2002:17:06:38	206	5.0	14.00	
01:14:2002:17:07:29	243	5.0	14.21	
01:14:2002:17:08:19	55	5.0	13.85	
01:14:2002:17:09:09	192	5.0	14.07	
01:14:2002:17:09:59	220	5.2	13.43	
01:14:2002:17:10:49	206	4.9	14.17	
01:14:2002:17:11:39	215	4.9	13.91	
01:14:2002:17:12:29	197	4.9	14.01	

. . . 4 . . .

Time mm:dd:yyyy:hh:mm:ss	Treating Pressure psi	Flow Rate bbl/min	Density lb/gal	
	F		yuı	
01:14:2002:17:14:09	188	4.9	14.33	
01:14:2002:17:14:59	215	4.9	14.14	
01:14:2002:17:15:49	206	4.9	14.17	
01:14:2002:17:16:39	229	4.9	14.04	
01:14:2002:17:17:29	243	4.9	14.51	
01:14:2002:17:18:19	243	4.9	14.14	
01:14:2002:17:19:10	220	4.9	14.22	
01:14:2002:17:20:00	243	4.9	14.17	
01:14:2002:17:20:50	224	4.9	14.14	
01:14:2002:17:21:40	243	4.9	14.40	
01:14:2002:17:22:30	256	4.9	14.47	
01:14:2002:17:23:20	243	5.0	14.44	
01:14:2002:17:24:10	206	4.9	14.30	
01:14:2002:17:25:00	233	4.9	14.23	
01:14:2002:17:25:50	238	4.9	14.25	
01:14:2002:17:26:40	238	4.9	14.34	
01:14:2002:17:27:30	247	4.9	14.45	
01:14:2002:17:28:20	243	4.9	14.42	
01:14:2002:17:29:10	247	4.9	14.52	
01:14:2002:17:29:23	Start Mixing Tail Slurry			
01:14:2002:17:29:23	252	4.9	14.88	
01:14:2002:17:30:00	279	4.9	15.84	
01:14:2002:17:30:51	261	4.9	15.52	
01:14:2002:17:31:41	261	4.9	15.48	
01:14:2002:17:32:31	279	4.9	15.82	
01:14:2002:17:33:21	243	4.5	15.78	
01:14:2002:17:34:11	5	0.0	-6.25	
01:14:2002:17:34:17	Reset Total, Vol = 179.6			
01:14:2002:17:34:17	5	0.0	-6.25	
01:14:2002:17:34:25	Start Displacement	2.3	<u></u>	
01:14:2002:17:34:25	5	0.0	-6.25	
01:14:2002:17:35:01	119	4.8	-6.25	
01:14:2002:17:35:51	169	4.7	-6.25	
01:14:2002:17:36:41	60	0.8	-6.25	
01:14:2002:17:36:44	End Displacement	- · ·		
01:14:2002:17:36:44	96	0.0	-6.25	
01:14:2002:17:37:31	92	0.0	-6.25	
01:14:2002:17:38:09	Shutdown	J. J	- ·	
01:14:2002:17:38:09	87	0.0	-6.25	
01:14:2002:17:38:21	End Job	2.3	J.= V	
01:14:2002:17:38:21	87	0.0	-6.25	
01:14:2002:17:40:32	Reset Total, Vol = 9.54		V.20	
01:14:2002:17:40:37	9	0.0	-6.25	
	ū	0.0	0.20	

Cement Job Report

Well Micron 1

Field Pontrance

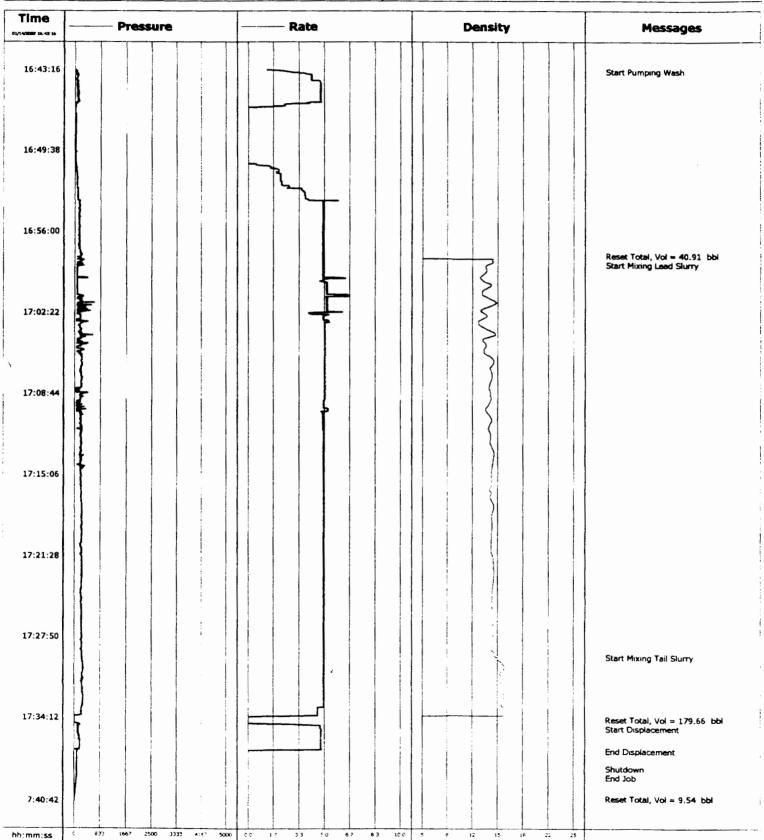
Field Pontranca Micron
Engineer Cameron Tollett
Country United States

United States

Client Frank Rosenkranz Sons

SIR No. 2206335100 Job Type Water Well

Job Date 01-14-2002



Cementer: Fill in shaed areas. Operator: Fill in other items

RAILROAD COMMISSION OF TEXAS

Form W-15 Cementing Report Rev. 4/1/83 483-045

Oil and Gas Divsion

1. Operator's Name (As shown on Form P-5, Organization Report)	2. RRC Operator No.		3. RRC District No.	4. County of Well Site	
Frank Rosenkranz & Sons					Bexar
5. Field Name (Wildcat or exactly as shown on RRC records)		6. A	PI No.		7. Drilling Permit No.
			42-		
8. Lease Name	9. Rule 37 Case No.		10. Oil Lease/Gas ID N	O.	11. Well No.
ficro	<u> </u>		1		1

	ASING CEMENTING DATA:		SURFACE CASING	INTER- MEDIATE	ł	DUCTION SING	MULTI-	
Cam	eron Tollet - SS II			CASING	Single String	Multiple Parallel Strings	Tool	Shoe
12.	Cementing Date				01/14/2002			
13.	●Drilling hole size							
	●Est. % wash or hole enlargement							
14.	Size of casing (in. O.D.)							
15.	Top of liner (ft.)			1				
16.	Setting depth (ft.)							
17.	Number of centralizers used	ヿ						
18.	Hrs. waiting on cement before drill-out	\neg						
<u>}</u>	19. API cement used: No. of sacks	•			600			
1et Slurry	Class	•			50/50 Poz/H		8 - 190	
-	Additives	•			2% D020			
È	No. of sacks	P			100			<u> </u>
Slarry	Class				Н			
2md	Additives	•						
F	No. of sacks	P			. He gas to the	• • • • • •	an + chance an a n	
Srd Signay	Class	•					tigge de a gre car	ese jes
5	Additives	•						
Ħ	20. Shurry pumped: Volume (cu. ft.)	▶			756		i e e i i i	
-	Height (ft.)				426	•	Comp. 4 g	
$\overline{}$	Volume (cu. ft.)	•			. 118			
780	Height (fl.)	•			67		n yan	
Ę,	Volume (cu. ft.)	•					The state of the s	
^	Height (ft.)	•						
	Volume (cu. ft.)	P			874			
	Height (ft.)	•			493	1 18 2		
	Was cement circulated to ground surface (or bottom of cellar) outside casing?				Yes	2000 F 10		r:

TEMENTING TO PLUG AND ABANDON	PLUG#1	PLUG#2	PLUG#3	PLUG#4	PLUG#5	PLUG#6	PLUG#7	PLUG#8
23. Cementing date								
24. Size of hole or pipe plugged (in.)								
25. Depth to bottom of tubing or drill pipe (ft.)								
26. Sacks of cement used (each plug)								
27. Slurry volume pumped (cu. ft.)								
28. Calculated top of plug (ft.)								
29. Measured top of plug, if tagged (ft.)					.:			
30. Slurry wt. (lbs/gal)								
31. Type cement								

CEMENTER'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that the cementing of casing and/or the placing of cement plugs in this well as shown in the report was performed by me or under my supervision, and that the cementing data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers cementing data only.

Cameron Tollet - SS II	Dowell Schlumberger	(Ameror	1 Wtolk
Name and title of cementer's representative	Cementing Company	Signature	
P.O. Box 379	Leming, Texas 78050	(830)569-2595	14-Jan-02
Address	City, State, Zip Code	Tel.: Area Code Number	Date: mo. day yr.
	P.O. Box 379 Leming, Texas 78050 (830)569-2595 City, State, Zip Code Tel.: Area Code Number Date: OPERATOR'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to certification, that I have knowledge of the well data and information presented in this report, and that data and facts presented on both sides true, correct, and complete, to the best of my knowledge. This certification covers all well data.		
true, correct, and complete, to the best of my knowledge.	edge. This certification covers all well data.	·	our sides of this form are
Typed or printed name of operator's representative		Signature	our sides of this form are

Instructions to Form W-15, Cementing Report

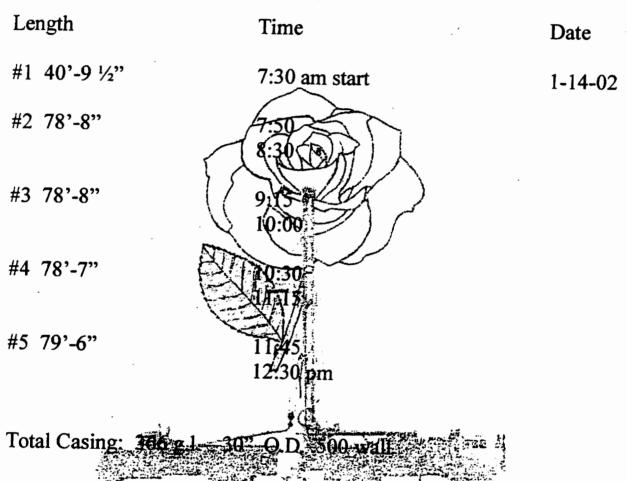
IMPORTANT: Operators and cementing companies must comply with the requirements of the Commission's State Rules 8 (Water Protection), 13 (Casing, Cementing, Drilling, and Completion), and 14 (Well Plugging). For offshore operations, see the requirements of Rule 13 (c).

- A. What to file. An operator should file an original and one copy of the completed Form W-15 for each cementing company used on a well. The cementing of different casing strings on a well by one cementing company may be reported on one form. Form W-15 should be filed with the following:
 - An initial oil or gas completion report, Form W-2 or G-1, as required by Statewide or special field rules;
 - Form W-4, Application for Multiple Completion, if the well is a muliple parallel casing completion; and
 - Form W-3, Plugging Record, unless the W-3 is signed by the cementing company representative. When reporting dry holes, operators must complete Form W-1S, in addition to Form W-3, to show any casing comented in the hole.
- B. Where to file. The appropriate Commission District Office for the county in which the well is located.
- C. Surface casing. An operator must set and cement sufficient surface casing to protect all usable-quality water strata, as defined by the Texas Department of Water Resources, Austin. Before drilling a well in any field or area in which no field rules are in effect or in which surface casing requirements are not specified in the applicable rules, an operator must obtain a letter from the Department of Water Resources stating the protection depth. Surface casing should not be set deeper than 200 feet below the specified depth without prior approval from the Commission.
- D. Centralizers. Surface casing must be centralized at the shoe, above and below a stage collar or diverting tool, if run, and through usable-quality water zones. In nondeviated holes, a centralizer must be placed every fourth joint from the cement shoe to the ground surface or to the bottom of the cellar. All centralizers must meet API specifications.
- E. Exceptions and alternative cosing programs. The District Director may grant an exception to the requirements of Statewide Rule 13. In a written application, an operator must state the reason for the requested exception and outline an alternate program for casing and comenting through the protection depth for strata containing usable-quality water. The District Director may approve, modify, or reject a proposed program. An operator must obtain approval of any exception before beginning easing and comenting operations.
- F. Intermediate and production casing. For specific technical requirements, operators should consult Statewide Rule 13 (b) (3) and (4).
- G. Plugging and abundoning. Cement plugs must be placed in the wellbore as required by Statewide Rule 14. The District Director may require additional cement plugs. For onshore or inland wells, a 10-foot cement plug must be placed in the top of the well, and the casing must be cut off three feet below the ground surface. All sement plugs, except the top plug, must have sufficient slurry volume to fill 100 feet of hole, plus ten percent for each 1,000 feet of depth from the ground surface to the bottom of the plug.

To plug and abandon a well, operators must use only cementers approved by the Director of Field Operations. Cementing companies, service companies, or operators can qualify as approved cementers by demonstrating that they are able to mix and pump cement in compliance with Commission rules and regulations.

(210) 688-3414 • FAX (210) 688-9206 • 6839 Lealie Rd. • San Antonio, TX 78254

Micron Well #1 Casing Tally



Note: 1:00 pm to 4:30 pm made ready for inner-string pressure cement method via float/cementing collar.

4: 45-5:45 cementing completed with positive cement return with negligible settling of cement.

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INSPECTION ICHMOSER ...

HYDNDAI PIPE CO, , LTD

ACCEPTO 11 ACCORDANCE WITH THE PLEACENESS SPECIFICATION AND OADER

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MICRON WELL #1 PUMP TEST RECORD

DATE	TIME	PUMPING LEVEL	PUMPING GPM	ENGINE RPM	PUMP RPM	, REMARKS	PUMP SETTING
·2-02	10:30 Ar	212'	4154	1100	1100	5-02: W.L. 152'	305
	11:00	11	5249	1300	1300	At 70679pm draw-	
	11:15	1.1	5986	1400	1400	down 15 64.	
	11:45	214'	6414	1500	1500	Well will be Acidize	1
	12:15	216'	7007	1600	1600	with 49000 gal 15/140)
	12:30	216'	7007	1600	1600		
		1 Pos-	- Acidiz	ntion	1		
5-31-02	3:30 pm	151.6	3552	1000	1000	5-31: W.L. 151	
	3:55	153.5	4154	1100	1160	color-cloudy to	
	4:15	154.5	4644	1200	1200	Start but clearing	
	5:00	156.0	5249	1300	1300	Sediment-little	
	6:15	128.2	5986	1400	1400	taste - bitter	
	6:30	160.0	7007	1600	1600		-
6-07-05	9:00 H	151.5	3552	1000	.1000	6-01: W.L. 151.5	
	9:30	154.5	4644	1200	1200	color-dougly to	
(10:30	156.0	5249	1300	1300	Start, but cleans up	•
	T REPAIR			;		Sediment - NONE	
,	11:00	154.5	4644	1200	1200	taste - bitter	
	11:45	156.0	5249	1300	1300		
	12:45	158.5	5986	1400	1408		
	2:15	158.5	5986	1400	1400		
	3:45	158.5	7007	1600	1600		
	4:00	160.5	7007	1600	1600		
0-02-02	10:00 An	152.0	3552	LOOD	1000	6-02: W.L 152.0'	
	10:15	154.0	4154	1100	1100	color-cloudy to.	
	10:30	1555	4644	1266	1200	Start but clearcup	:
	10:45	157.0	5249	1300	1300	Sedimenst-NONE	
	11:30	159	5986	1400	1400	toste-notas bitter	:

FRANK ROSENKRANZ & SONS
WATERWELL DRILLING & PUMP SERVICE
6839 LESLIE RD
SAN ANTONIO, TX 78254
SINCE 1920

DATE	TIME	PUMPING LEVEL	PUMPING GPM	ENGINE RPM	PUMP RPM	REMARKS	PUMP SETTING
	12:30	159.0	5986	1400	1400		
	1:00	159.0	6414	1500	1500		
	1:30	159.0	6414	1500	1500		
6-03-02	11:00 An	159.5	5986	1400	1400	6-03: W.L. 152.5	
	1:00	159.5	5986	1460	1400	color - clear	
	2:00	159.5	5986	1400	1400	Sediment - DOBE	
	3:00	159.5	5986	1400	1400	taste - better	
	3:30	159.5	6414	1500	1500		
	4:00	159.5	6414	1500	1500		
6-04-02	8:00	153.0	3522	1000	1000	6-04: W.L 153.0	
	8:15	155.0	4154	1000	1100	Color - Clear	
	8:30	156.5	4644	1200	1200	Sediment - KONE	
	9:30	158.0	5249	1300	1300	taste - better	
	10:00	460.0	5986	1400	1400		
,	11:00	160.0=	5986	1400	1400	·	
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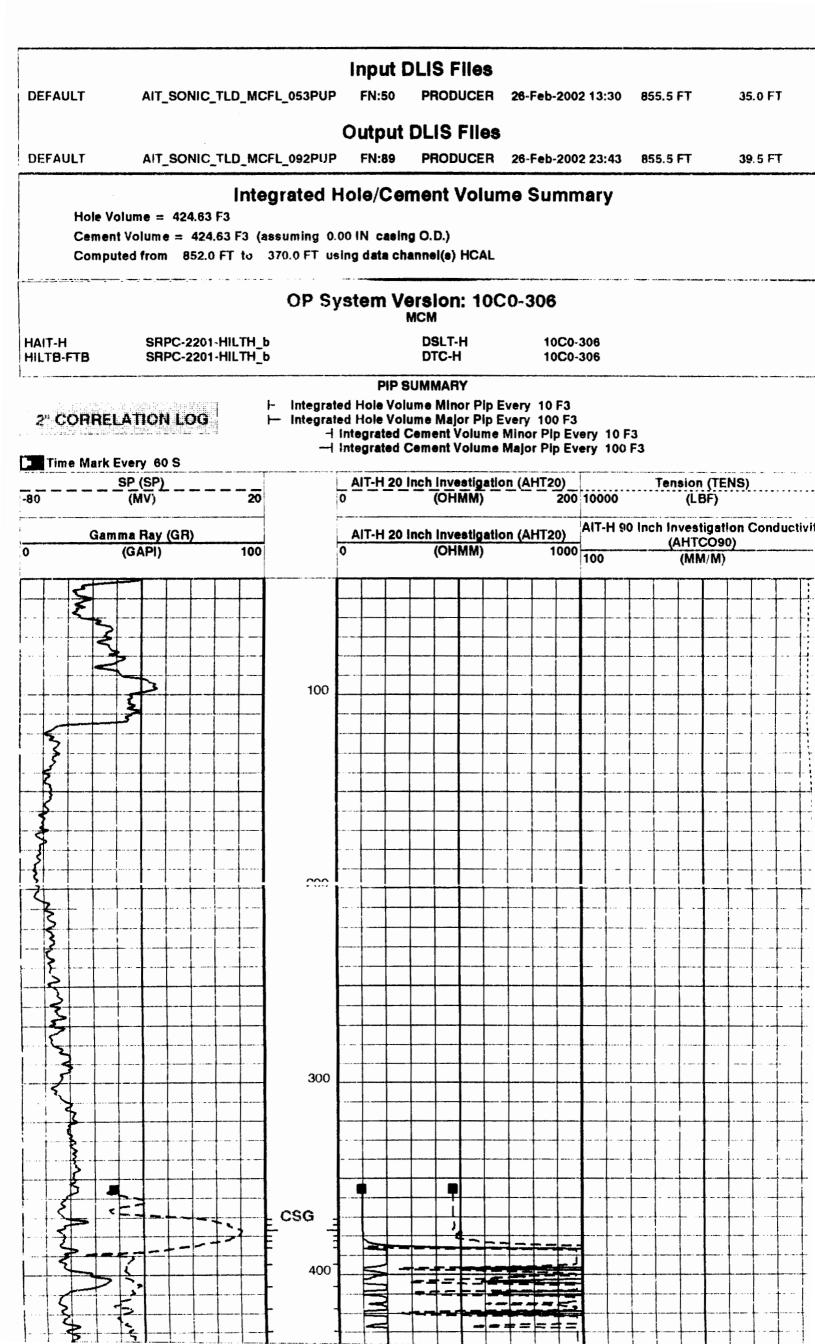
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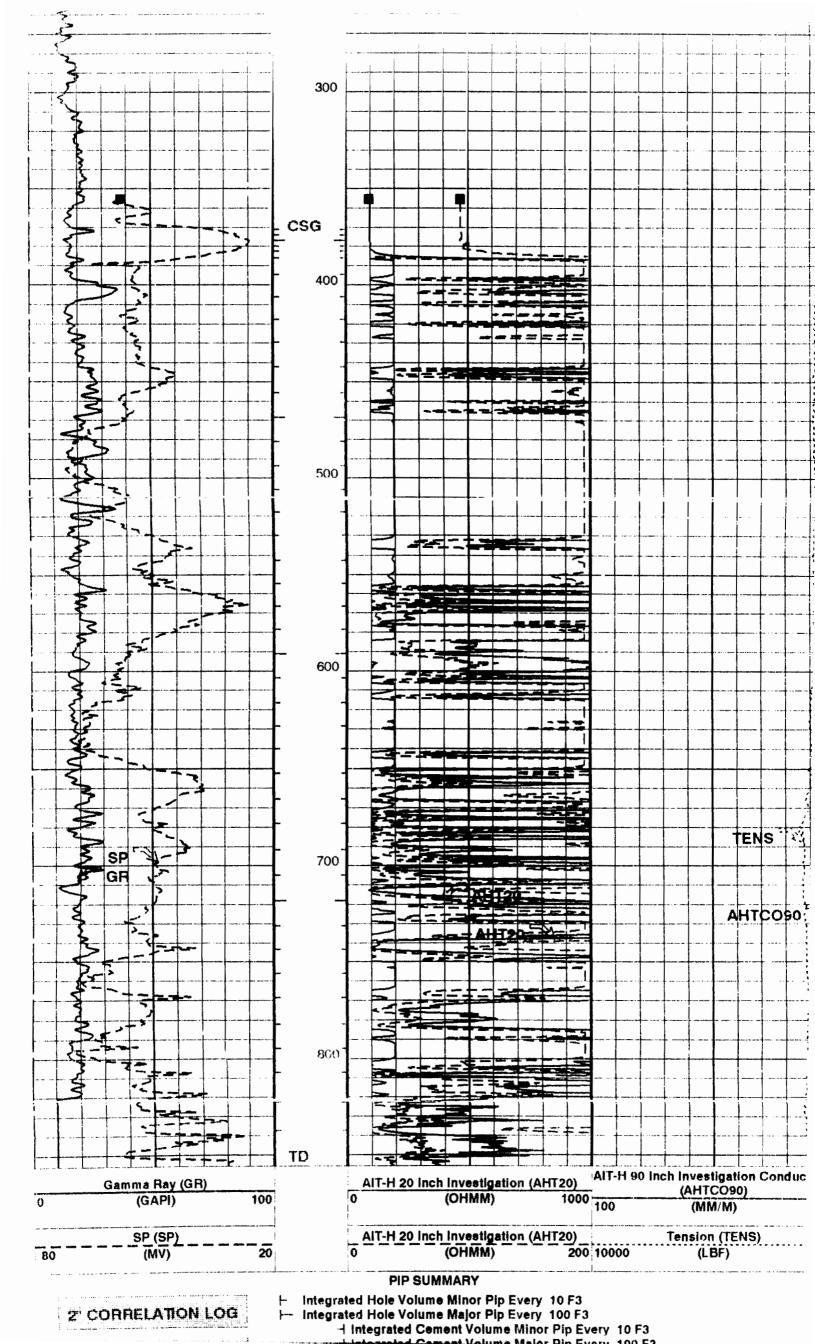
OTHER SERVICES

OS1: CMR

OTHER SERVICES2 OS1:

OS2:





TEXAS WATER DEVELOPMENT BOARD WELL SCHEDULE

Owner - Micron Driller - #2	
ldress Tenant/Oper	
te Drilled - / /2002 Depth - 850 ft. Source of Depth - R Altitude - 3	B16 ft. Source of Alt M ell Type - W User -
Const. Casing Material - Material - Casing	
Screen Completion Material	Well Screen or Slotted Zone Open Hole (O) Cemented from to
FT DATA - Pump Mfr No. Stages _	
owls Diamin. Settingft. Column Diam	in.
otor Mfr Fuel or Power - Horsepower -	2
[ELD Flow GPM Pump GPM Meas.,Rept.,Est Date-	•
ERFORMANCE TEST Date Length of Test Production-	
tatic Levelft. Pumping Levelft. Drawdownft. Sp.CapGPM/	
JALITY (Remarks-	10 11
ATER USE Primary Secondary Tertiary-	•
THER DATA AVAILAIBLE Water Levels- N Quality- N Logs- Other Data-	14 15
ATER LEVELS Date- / / Measurement-	16
Date / / Measurement- ecorded By $\int e_{rm} \int \mathcal{R} \int e_{rm} \mathcal{R} \int D$ Date Record Collected or Updated- 03/27/2003	17 18 19

Reporting Agency - CONSULTING COMPANIES OR FIRMS

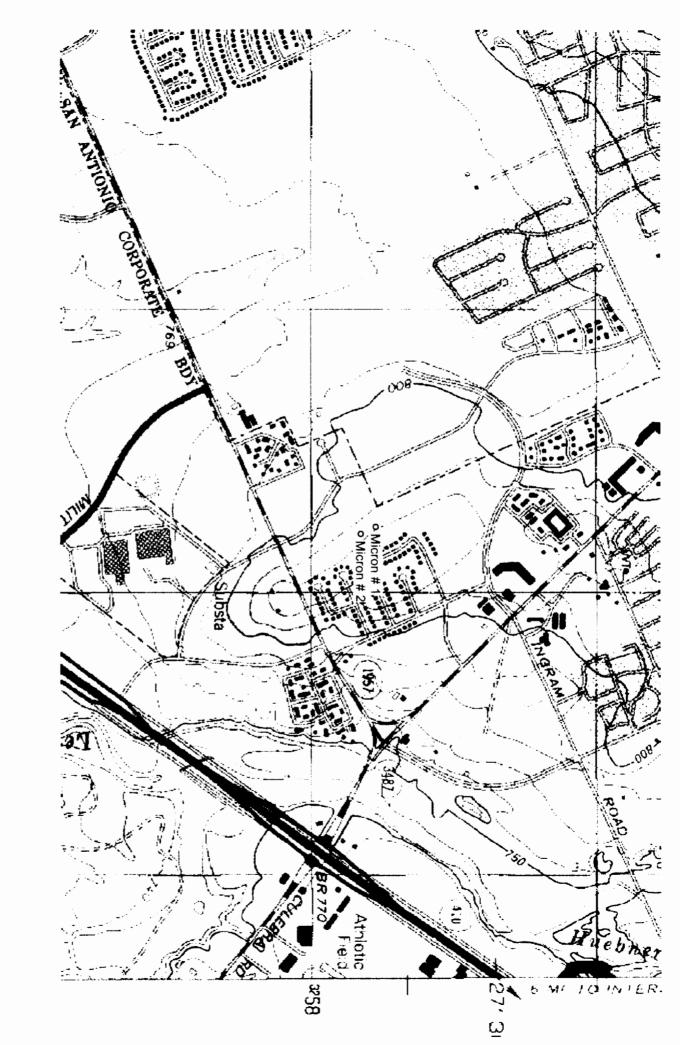
REMARKS -

Aquifer - 218EDRDA Well No. - 68 35 617

WELL SCHEDULE

State Well Number:	Ay 68-35-617	Previous Well Number:	
Aquifer:	EDWARDS	River Basin:	San Antonio
County:	Bexar	State:	Texas
Elevation:	816.17	Determined By:	USGS topo
Latitude:	29-27-14	_	•
		Longitude:	098-38-28
Location:	See Attached Map		
Depth to Top of Aquifer:			
PWS Number:	G0150018DE	Well Name:	Micron # 2
Owner:	San Antonio Water System		
Address:	1001 E. Market St. San Antonio,	TX 72298	
Tenant:			
Address:			
Driller:	Frank Rosenkranz & Son		
Address:	6839 Leslie Rd., San Antonio, TX	78254	
Well Use:	PUBLIC SUPPLY ▼	1.11	

Date Drilled:	11/12/02	Drilling Method:	Mud Rotary
Depth Reported:	850	Measured from:	Land Surface
Doptii itopolita.		1110404104110111	Lana Canaca
Bore Hole Completion:	Open Hole	Screen Data:	
Well Completion:	Steel	October Data.	
Well Diameter:	35" from 0' to 480		
Well Diameter:	24" form 480' to 850'		
Casing Diameter:	30" form 0' to 480'		
Casing Diameter:			
Casing Diameter:			
Cementing Data:	Pressure	Number of Sacks used:	805
Cemented By:	Slumberger		
Type of Pump:		Power Type:	
Well Test Data:	7007 gpm with 2' drawdown after		
Water Level:	106'	Date:	11/24/2002
Recorded By:	Jim O'Connor	Source of Data:	Well Report
Necolucu by.	SAWS	Date:	8/5/2003
	T	Date.	0/3/2003
		1	C 7C (1-
Comments:		()	8-35.617



Attention Owner:

Confidentiality Privilege Notice on reverse side of owner's copy. Micron WENEZ

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616 Toll free (800)803-9202

> Email address: water.well@license.state.tx.us WELL REPORT

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

	A WELLIDE	NTECATION AL	D LOC	ATION I	DATA			
Name o h	Address	City			20 X E	State /	Zin	F- F-12
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3) Type of Work	Lator al	OCH Long		50/	124M	Grid#	J-35-C	1
New Well Reconditioning	4) Proposed Use (ch						5)	NT
Replacement Deepening	Industrial Irrigat							
() D-illing Data	Rig Supply Diameter of	If Public Supply v			ed? U Yes	7000		
5) Drilling Date Started 5 / 8 / 6	Dia.(in) From (fi			_	Mud Rotary	Driven Bored		
Started Or Or	25"	" LIV 7'	J		Cable Too	_ 1		
Completed 11/12/02	25	. 100	Othe					
	30" 48	5 8575						
From (ft) To (ft) Descrip	ption and color of form	nation material					le 🗆 Straight	Wall
0, 1, 100	Soil				ned Grave	el Packed 🗅	Other	ft
1/ 1/5/ 1/10	Store Caliche	white lell				Well Screen		П.
150 130 Bul	r Shale.	Buelora		New	Steel, Plasti		Setting (ft)	Gage
F5' 3210' AUS	Hindhalk	white -	Dia. (in.)	Or Used	Perf., Slotte Screen Mfg	d, etc ., if commercial	From To	Casing Screen
1 358 Fade	ford Shar.	Blach	35	New	See		0-480'	,50°
W8 412' BIN	alimestone.	White						
112, 4100 TELK	in Clay 1	Duelgrey						
190 ASS DEDI	OCHRAMMA	one Crea	_				<u> </u>	
100 - 800 tally	resumesty.	E CALL	9) Cer	nenting I	Data fi. to	480 1	# of sacks used	475
(Use reverse side of Wei	ll Owner's copy, If necessary)	_1	Used	5001 V		# of sacks used _	
	ed within 48 hours	<u></u>	Сепи	ing By	A ATOMA A		K	
Casing left in well: Cement/Bentonite	placed in well:				ystem field or o ion of above di		d contamination	ft.
From (ft) To (ft) From ((ft) To (ft)	Sacks used	10) 6	- f C-				
MIL					mpletion Slab Installed	1		
14) 7		l		fied Surface is Adapter U	Sleeve Install	ed		
14) Type Pump ☐ Turbine ☐ Jet	Submersible 🗖 Cylinder				ative Procedur	Used		
Other	ft.		11) W	aten Leve	ei	11 _	11 (2)	
15) Water Test	5		Static le	vel_104	ft. below	Date 1/2	4,00	
Typetest Pump Bailer lett Yield! Pump Bailer lett	iwdown after	hrs.	Artesiar	riow	gpm.	Date/		
16) Water Quality			12) Pa	ckers		Гуре	Depth	
Did you knowingly penetrate a strata who YES NO III yes, did you submit	REPORT OF UNDESHRA	BLE WATER	1 N	117				
Type of water Yes	Depth of Strata No	J U	<u> </u>				·	
		1. 0	1,	> - 6	10		10 MA	
ompany or individual's Name (t	ype or print)	MUNDSE	MY	ZP/14	+201	Lic. No.	NO IN	<u>L</u> ,
55 Le (39 be)	slierd	City	Δc	Hote	SIN	State X	Zip	254
enature Vario - Com	12	02 / 02 Sig	nature			-		

Service Order

2002-Aug-22

Customer				Person	Taking Ca	ill	Dowell Locati	on .	Order	Date	Job Number		
FRANK R	OSENKRANZ	& SONS		Holme	es, Jesse	;	Lemir	ng, TX	2002	2-Feb-26	Feb-26 2206340287		
Well Name a	nd Number	-	Leg	al Locati	ion	Field		County		s	State/Province		
Micron 2										۲	evas		
Well Master:			AP	1 / UWI:					·				
	06304051	15											
Rig Name			Well Age)	Sales E	ingineer		Job Ty	pe				
			New		Lewis	, Јегту		Cem	Prod Ca	asing			
Time Well R	eady:	Deviation		Sit Size		Well MD Y	Veli TVD	BHP		BHST	BHCT		
	02 8:00 PM		•	35 in		480 ft	ft		psi		°F °F		
Freat Down	Packer 1	λbe l	Packer Depth	W	feliHead Co	onnection HHF	on Location	Max AllowedP	ressure	Max A	Nowed AnnPressure		
Drill Pipe				1 4	1/2 IF D		250	-··					
		Casing			,		structions:						
Depth, ft	Size, in	Weight, I	PW G	rade	Thread		rod. Csg. 35"			64 . 40	O alm Class I.		
480	30	118.6	5		ļ	System: 70	05 sks 50/50 Pc	12/FI + 276 U2	2U + 270	51 + 10	U SIKS CIASS IT		
					<u> </u>	_							
D	1 8:	Tubing			1 =	\dashv							
Depth,	Size, in	Weight, I		irade	Thread								
457	4.5	16.6	5			Extra Equi	pment:				•		
						4 1/2 IF DP	•						
Top, ft	Peri Bottom, ft	orated Inf	No. of Sh	<u> </u>	stal Interva	_							
IDD:RT	Bottom, π	sb _t	NO. OF SA	DES 10									
	† · · · · · · · · · · · · · · · · · · ·					R !							
			-										
				0	Nameter								
	ted On Loca	tion:	8/22/2002		Nameter	n Ready To Pun	np: 8/22/20	02					
		tion:		8:00	i D PM	n Ready To Pun		02		Notes			
Expec	Contact		8/22/2002 Voic	8:00	i D PM	in	np: 8/22/20 FAX	02		Notes			
Expec				8:00	i D PM	n Ready To Pun		002		Notes			
Expec	Contact			8:00	i D PM	n Ready To Pun		02		Notes			
Expec	Contact			8:00	i D PM	n Ready To Pun		02		Notes			
Expect Fran	Contact	2		8:00	i D PM	n Ready To Pun		02		Notes			
Expect Fran	Contact nk Rosenkran	2		8:00	i D PM	n Ready To Pun		02		Notes			
Expect Fran	Contact nk Rosenkran	2		8:00	i D PM	n Ready To Pun		02		Notes			
Expect Fran	Contact nk Rosenkran	2		8:00	i D PM	n Ready To Pun		02		Notes			
Expect Fran	Contact nk Rosenkran	2		8:00	i D PM	n Ready To Pun		02		Notes			
Fran Notes: 140 Mi. R	Contact nk Rosenkran T.; 35% Disc	2		8:00	i D PM	n Ready To Pun		02		Notes			
Expec Fran Notes: 140 Mi. R	Contact nk Rosenkran .T.; 35% Disc	count	Voic	8:00 e	D PM	Ready To Pun		02		Notes			
Expec Fran Notes: 140 Mi. R	Contact nk Rosenkran .T.; 35% Disc	count	Voic	8:00 e	D PM	n Ready To Pun		02		Notes			
Expec Fran Notes: 140 Mi. R	Contact nk Rosenkran .T.; 35% Disc	count	Voic	8:00 e	D PM	Ready To Pun		02		Notes			
Expec Fran Notes: 140 Mi. R	Contact nk Rosenkran .T.; 35% Disc	count	Voic	8:00 e	D PM	Ready To Pun		02		Notes			
Expec Fran Notes: 140 Mi. R	Contact nk Rosenkran .T.; 35% Disc	count	Voic	8:00 e	D PM	Ready To Pun		02		Notes			
Fran Notes: 140 Mi. R	Contact nk Rosenkran	count	Voic	8:00 e	D PM	Ready To Pun		02		Notes			
Expection Take 281	Contact nk Rosenkran T.; 35% Disc s: to 410 TL go	count	Voic	8:00	D PM	Ready To Pun Mobile		02		Notes			
Expection Take 281	Contact nk Rosenkran	count	Voic	8:00	D PM	Ready To Pun Mobile		02		Notes			
Expection Take 281	Contact nk Rosenkran T.; 35% Disc s: to 410 TL go	count	Voic	8:00	D PM	Ready To Pun Mobile		02		Notes			
Expection Take 281	Contact nk Rosenkran T.; 35% Disc s: to 410 TL go	count	Voic	8:00	D PM	Ready To Pun Mobile		02		Notes			

Comments:

Orive Safe

Fluid Systems:

113.					
	ſ	_ead		, ,	
)/50 Poz/H	+ 2% D2	0 + 2% S1			
14.2	lb/gai	Thickening Ti	me:		
1.34	ft³/sk				
6.27	gal/sk				
4420.35	gal	Eq. Sack We	ight:	87	łb
		Total Blend:		705	sacks
ode	Conc	/ Amount	Total	Quanti	ty
	1.74	lbs/sk		1226.7	,
	1.74	łbs/sk		1226.7	,
	40	lbs/sk		28200	
	47	fbs/sk		33135	,
	14.2 1.34 6.27 4420.35	14.2 lb/gal 1.34 ft³/sk 6.27 gal/sk 4420.35 gal code Conc 1.74	1.34 ft³/sk 6.27 gal/sk 4420.35 gal	14.2 lb/gal Thickening Time: 1.34 ft³/sk 6.27 gal/sk 4420.35 gal Eq. Sack Weight: Total Blend: 1.74 lbs/sk 1.74 lbs/sk 40 lbs/sk	14.2 lb/gal Thickening Time: 1.34 ft³/sk 6.27 gal/sk 4420.35 gal Eq. Sack Weight: 87 Total Blend: 705 Total Blend: 1226.7 1.74 lbs/sk 1226.7 40 lbs/sk 28200

			Tail			
100 sks Clas	s H					
Density:	15.6	lb/gal	Thickening Tim	he:		
Yleid:	1.18	ft³/sk				
H20 Mix:	5.2	gal/sk				
H2O:	520	gal	Eq. Sack Weig	ht:	0	ib
			Total Blend:		100	sacks
Dowell Co	de	Con	c/ Amount	Total	Quanti	ity
D909		9	4 ibs/sk		9400	

Cementing Service Report

•			Custor	ner								Job Nu	nber
			FRAN	NK ROSENI	KRANZ & SOI	NS						22	06340287
Well	Well Location (legal)								Schlumber	rger Lo	cation		Job Start
		Micron 2								Lemi	ng, TX		2002-Aug-22
Field			Fort	nation Name/T	ype		Devia	ition	Bit Si				Well TVD
										15 in	ļ	480 ft	ft
County			Stat	e/Province			BHP		BHST		BHCT		Press. Gradient
•				,	Texas			psi	85	°F		°F	psi/ft
Well Master:	061	0405115	ΔPI	/ UWI:	CAGS			PSI			g/Line		рып
Rig Name Drifted For				Service Via		D=0	Ath, ft	Size, in	_	ight, Ib/		Thread	
ring Haline							<u> </u>			 -			1111000
Offshore Zone		Oth	Class	Well 1	Land		4	80	30	-	118.65	<u>'</u>	
Chisiore Zone		Well		******						1			
0.00			New		Development						Drill P		***************************************
Drilling Fluid Typ	æ		"	lax. Density	Plastic VI	ср	Dep		Size, ir	, we	ight, I	b/ft Grade	Thread
Bentonite				ib/	gal		4	57	4.5		16.6		
Service Line		Job '											
Ceme				rod Casing								n Hole	
Max. Allowed Tu	bing Pres	sure Max.	Allowed Ann.	Pressure \	WellHead Connec	noit	Тор	. R	Bottom, ft	3	pf	No. of Shots	Total Interval
	psi		P	si 4	4 1/2 IF DP								ft
Service Instructi	ions												Diameter
Cmt. 30" Prod													in
System: 705	sks 50/	50 Poz/H + :	2% D20 + 2	% S1 + 100	sks Class H		Treat	Down	Displac	ement	Pa	cker Type	Packer Depth
							Dri	Il Pipe	3	35 bb	1		f
							Tubin	g Vol.	Casing	Yol.	Ar	mular Vol.	OpenHole Vo
								bb	4	bb	4	bbl	bt
Casing/Tu	bing Sec	ured 🗸	1 Hole Volt	ıme Circulated	prior to Cementi	ng 🗸		Casin	g Tools			Squeeze	Job
.ift Pressure:		ps	i				Shoe	Туре:			Sque	eze Type	
	Pipe Rot	ated			Pipe Reciprocat	ed	Shoe	Depth:		ft	Tool	Туре:	
No. Centralizers:		Тор	Plugs:	Bot	tom Plugs:		Stage	Tool Typ	•:		Tool	Depth:	ft
Cement Head Type	٤		Single				Stage	Tool De	xth:	ft	Tali	Pipe Size:	in
Job Scheduled Fo	XT.	Arrived	on Location:	1	Leave Location:		Colta	r Type:			Tail	Pipe Depth:	ft
8/22/2002	20:00	2002	-Aug-22	20:00 2	002-Aug-22 2	23-00	Colla	r Depth:		ft	Saz	Total Vol:	bbl
Date	Time	CMT TREAT	CMT RATE	CMT DENS			0	0	0		Messa		
		PRES			1								3-
	24 hr clock	pei	bblimin	folgal	bbi	١,		٥		,	-		
2002-Aug-22		0	0.0	8.34	0.0		0	0)			
2002-Aug-22		0	0.0	8.34	0.0	ļ	0	0		<u>,</u>			
			0.0	0.54	0.0	<u> </u>	-			,	G11	1-1-	
2002-Aug-22				ļ							Start .		
2002-Aug-22					+						Press	ure Test Line	*
2002-Aug-22		0	0.0	8.33	0.0		0	0			-		
2002-Aug-22						1					Start I	Pumping Wa	ter
2002-Aug-22		0	0.0	8.33	0.0		0	0					
2002-Aug-22		9	2.1	8.32	2.9		0	0)			
2002-Aug-22		96	5.3	8.25	17.5		0	0	()			
2002-Aug-22											End V	Vater	
2002-Aug-22			5.3	12.53	21.9		0	0	()			
2002-Aug-22	1										Reset	Total, Voi =	22.11 bbl
2002-Aug-22	21:17	114	5.3	12.67	22.1		0	0	()			
2002-Aug-22	21:17	110	5.3	13.14	22.7		0	0		0			
2002-Aug-22	+										Start	Mixing Lead	Slurry
2002-Aug-22		87	5.6	14.14	40.5		0	0		0		~ <u>~</u>	
2002-Aug-22		87	5.4	14.51	64.0	_	0	0		<u> </u>	1		
2002-Aug-22		87	5.5	14.35	86.7		0	0		0	-		
2002-Aug-22	·	82	5.5	14.29	109.5	 	0	0		0			
			+			-					-		
2002-Aug-22		87	5.5	14.04	132.3		0	0		0	-		
2002-Aug-22	+		5.6	14.43	155.1		0	0		0			
2002-Aug-22	21:45	114	5.6	14.75	178.6	1	0	0		0	1		

₩ell			Field		S	rvice Date	Customer		Job Number
	Micron			,		02234-Aug-22	J	ROSENKRA	NZ & SONS 2206340287
Date	Time	CMT TREAT PRES	CMT RATE	CMT DENS	CMTV))	0	0	Message
	24 hr clock	psi	bblmin	lbigal	bbl	0	0	0	
002-Aug-22	21:47	114	5.6	15.58	184.	3 0	0	0	
2002-Aug-22	21:47								End Lead Slurry
002-Aug-22	21:47								Reset Total, Vol = 162.90 bbl
2002-Aug-22	21:47	110	5.6	15.43	185.	0	0	0	
2002-Aug-22	21:47	101	5.6	15.30	185.	3 0	• 0	0	
2002-Aug-22	21:47			L			į		Start Mixing Tail Sturry
2002-Aug-22	21:50			:					End Tail Slurry
2002-Aug-22	21:50	96	5.0	15.35	202.	1 0	0	0	
2002-Aug-22	21:50								Reset Total, Vol = 17.26 bbl
2002-Aug-22	21:50	-5	0.1	15.35	202.	3 0	0	0	
2002-Aug-22	21:50	0	0.0	15.34	202.	3 0	0	0	
2002-Aug-22	21:50								Start Displacement
2002-Aug-22	21:54	183	5.7	9.14	218.	2 0	0	0	
2002-Aug-22	21:58	137	0.0	8.86	238.	3 0	0	0	
2002-Aug-22	21:58								End Displacement
2002-Aug-22	21:58	137	0.0	8.86	238.	3 0	0	0	
2002-Aug-22	21:58								Reset Total, Vol = 35.99 bbi
2002-Aug-22	22:00	0	0.0	9.47	238.	3 0	0	0	
2002-Aug-22	22:00								Shutdown
2002-Aug-22	22:00								End Job
2002-Aug-22	22:00	0	0.0	9.48	238.	3 0	0	0	
2002-Aug-22	22:00	0	0.0	9.52	238.	3 0	0	0	
2002-Aug-22	22:00								Stopped Acquisition
					Post J	ob Summary			
	A	verage Pump	Rates,	bpm			Vol	ume of Flu	id Injected, bbl
Siurry		N2	Mud	Maximu	ım Rate	Total Slurry	Mud		Spacer N2
					6	189			30
		Treating Pre	ssure Summ	nary, psi			В	reakdown	Fluid
Municell	Final	Averag	e Bump	Plug to Brea	ikdown		, •	olume	Density
Avg. N2 Percent		Designed Sturn	ry Volume	Displacement		ix Water Temp	Coment	Arculated to	bbl lb/gal Surface? Volume 20 bbl
•	*	_	89 bbl		bbi	*F	1 =	Thru Perfs	To ft
		Representative		Schlumberger					- 1

Cement Job Report

Weil Mi

MICRON 2

Fie:Id

Engineer JESSE HOLMES

Country

United States

Client

FRANK ROSENKRANZ SONS

SIR No.

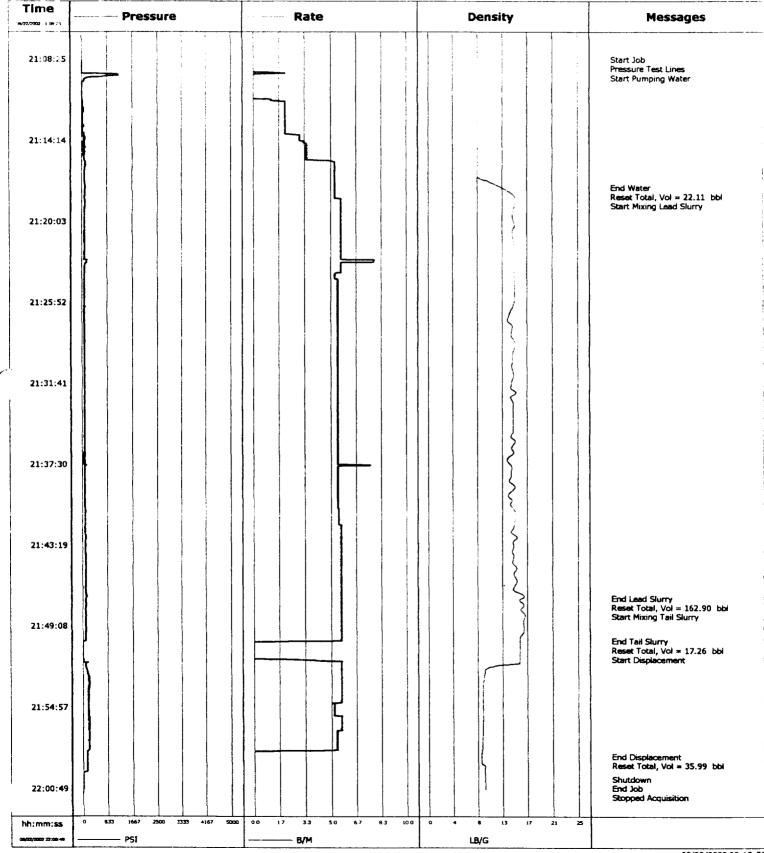
2206340287

Job Type

30 " WATER WELL

Job Date

08-22-2002



Job Date: 08-22-2002

Customer: F

FRANK ROSENKRANZ & SONS

District:

LEMING

Representative: FRANK ROSENKRANZ

DS Supervisor: JESSE HOLMES

Well:

MICRON 2

Time mm:dd:yyyy:hh:mm:ss	CMT TREAT PRES	CMT RATE bbl/min	CMT DENS lb/gal	
08:22:2002:21:08:25	0	0.0	8.34	
08:22:2002:21:08:26	Start Job	5.5		
08:22:2002:21:08:26	0	0.0	8.34	
08:22:2002:21:08:33	Pressure Test Lines	5.5	5.5 .	
08:22:2002:21:08:33	0	0.0	8.33	
08:22:2002:21:08:35	Start Pumping Wate		0.00	
08:22:2002:21:08:35	0	0.0	8.33	
08:22:2002:21:12:35	9	2.1	8.32	
08:22:2002:21:16:45	96	5.3	8.25	
08:22:2002:21:17:36	End Water	0.0	0.20	
08:22:2002:21:17:36	114	5.3	12.53	
08:22:2002:21:17:38	Reset Total, Vol = 2		12.00	
08:22:2002:21:17:38	114	5.3	12.67	
08:22:2002:21:17:45	Start Mixing Lead SI		12.07	
08:22:2002:21:17:45	110	5.3	13.14	
08:22:2002:21:20:56	87	5.6	14.14	
08:22:2002:21:25:06	87	5.4	14.51	
08:22:2002:21:29:16	87	5.5	14.35	
08:22:2002:21:33:27	82	5.5	14.29	
08:22:2002:21:37:37	87	5.5 5.5	14.04	
08:22:2002:21:41:48	96	5.6	14.43	
08:22:2002:21:45:58	114	5.6	14.75	
08:22:2002:21:47:04		5.6	14.75	
08:22:2002:21:47:04	End Lead Slurry	5 C	45 50	
	114	5.6	15.58	
	Reset Total, Vol = 10		45.40	
08:22:2002:21:47:06	110	5.6	15.43	
08:22:2002:21:47:09	Start Mixing Tail Slu		45.20	
08:22:2002:21:47:09	101	5.6	15.30	
08:22:2002:21:50:08	End Tail Slurry	5 0	45.25	
08:22:2002:21:50:08	96	5.0	15.35	
08:22:2002:21:50:12	Reset Total, Vol = 1		45.05	
08:22:2002:21:50:12	-5	0.1	15.35	
08:22:2002:21:50:16	Start Displacement		45.04	
08:22:2002:21:50:16	0	0.0	15.34	
08:22:2002:21:54:19	183	5.7	9.14	
08:22:2002:21:58:27	End Displacement			
08:22:2002:21:58:27	137	0.0	8.86	
08:22:2002:21:58:29	Reset Total, Vol = 3			
08:22:2002:21:58:29	137	0.0	8.86	
08:22:2002:22:00:05	Shutdown			
08:22:2002:22:00:05	0	0.0	9.47	
08:22:2002:22:00:08	End Job			

Well: MICRON 2 Job Date: 08-22-2002

Time mm:dd:yyyy:hh:mm:ss	CMT TREAT PRES psi	CMT RATE bbl/min	CMT DENS lb/gal	
08:22:2002:22:00:49 08:22:2002:22:00:49	Stopped Acquisition	0.0	9.52	

Cementer: Fill in shaed areas. Operator: Fill in other items

1. Operator's Name (As shown on Form P-5, Organization Report)

RAILROAD COMMISSION OF TEXAS

2. RRC Operator No.

Form W-15 Cementing Report

Rev. 4/1/83

Oil and Gas Divsion

483-045

3. RRC District No. 4. County of Well Site

L	Frank Rosenkra	nz & Sons	i					
5.	Field Name (Wildcat or exactly as shown on RRO	C records)		1	PI No.	7. Drilli	ng Permit No.	
Ļ								
L.	Lease Name Micro	n	9. Rule	9. Rule 37 Case No. 10. Oil Lease/Gas ID No. 11. Well No. 2				
CA	SING CEMENTING DATA:	SURFACE CASING	INTER- MEDIATE		DUCTION ASING	MULTI-S CEMENTING		
L_			CASING	Single String	Multiple Parallel Strings	Teol	Shoe	
12	Comenting Date			22-Aug-02				
13.	Drilling hole size							
_	Est. % wash or hole enlargement	ļ						
	Size of casing (in. O.D.)	ļ						
_	Top of liner (ft.)	 						
	Setting depth (ft.)							
├	Number of centralizers used							
18.	Hrs. waiting on coment before drill-out						<u> </u>	
tet Shirry	12. Far i comen used. No. of sacg			705				
2	Class			Н			<u> </u>	
-	AMMUVES			REMARK			ļ	
Ē	NO. Of SECE			100				
2nd Slurry	Ciass			H				
	Additives			NEAT				
3rd Slurry	No. of sacks							
374	Ç.							
_	Additives 20. Sharry pumped: Volume (ca. ft.)			045		······		
Ä	Height (ft.)			945				
-	Volume (cu. ft.)	<u> </u>		770				
2nd	Height (ft.)			118				
_	Volume (ca. ft.)			96				
3rd	Height (ft.)							
7	Volume (cu. ft.)			1063				
Total	Height (fl.)							
21.	Was coment circulated to ground surface							
				866 YES				

22. Remarks

50/50 POZ / H + .2 % D-20 + 2 % S1

CEMENTING TO PLUG AND ABANDON	PLUG#1	PLUG#2	PLUG#3	PLUG#4	PLUG#5	PLUG#6	PLUG#7	PLUG#8
. Cementing date								
24. Size of hole or pipe plugged (in.)								
25. Depth to bottom of tubing or drill pipe (ft.)								
26. Sacks of cement used (each plug)								
27. Shurry volume pumped (cu. ft.)								
28. Calculated top of piug (ft.)								
29. Measured top of plug, if tagged (ft.)								
30. Shun y wt. (Ibe/gal)								
31. Type cement								

CEMENTER'S CERTIFICATE: I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this certification, that the cementing of easing and/or the placing of cement plugs in this well as shown in the report was performed by me or under my supervision, and that the cementing data and facts presented on both sides of this form are true, correct, and complete, to the best of my knowledge. This certification covers cementing data only.

Joe Flores	D	owell Schlumberger	The C	m			
Name and title of cementer's representative	Comenting	Company	Signature				
P.O. Box 379	Leming	, Texas 78050	(830)569-259 5		22-Aı	2-Aug-02	
Address	City,	State, Zip Code	Tel.: Area Code Number	Date:	200.	day	ут.
OPERATOR'S CERTIFICATE: I declare under certification, that I have knowledge of the well d true, correct, and complete, to the best of my kno	lata and information pr	esented in this report, and	that data and facts presented on bo			are	
Typed or printed name of operator's representative	Title		Signature				
Address	City	State. Zin Code	Tel: Area Code Number	Date:	mo.	dev	VT.

Instructions to Form W-15, Cementing Report

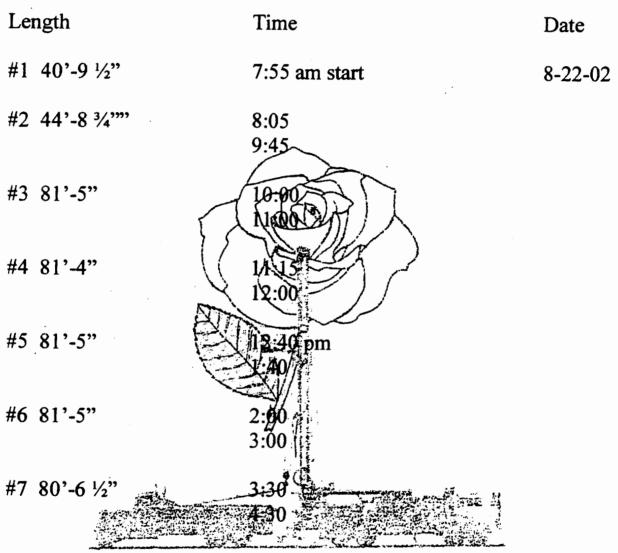
IMPORTANT: Operators and companies must comply with the requirements of the Commission's State Rules 8 (Water Protection), 13 (Casing, Comenting, Drilling, and Completion), and 14 (Well Pingging). For effishere operations, see the requirements of Rule 13 (c).

- A. What to file. An operator should file an original and one copy of the completed Form W-15 for each comenting company used on a well. The cementing of different casing strings on a well by one comenting company may be reported on one form. Form W-15 should be filed with the following:
 - An initial oil or gas completion report, Form W-2 or G-1, as required by Statewide or special field rules;
 - Form W-4, Application for Multiple Completion, if the well is a syntiple parallel casing completion; and
 - Form W-3, Plugging Record, unless the W-3 is signed by the comenting company representative. When reporting dry holes, operators must complete Form W-15, in addition to Form W-3, to show any casing comented in the hole.
- B. Where to file. The appropriate Commission District Office for the county is which the well is located.
- C. Surface casing. An operator must set and coment sufficient surface easing to protect all usable-quality water strata, as defined by the Texas Department of Water Resources, Austin. Before drilling a well in any field or area in which no field rules are in effect or in which surface casing requirements are not specified in the applicable rules, an operator must obtain a letter from the Department of Water Resources stating the protection depth. Surface casing should not be set deeper than 200 feet below the specified depth without prior approval from the Commission.
- D. Centralizers. Surface casing must be centralized at the shoe, above and below a stage collar or diverting tool, if run, and through usable-quality water zones. In nondeviated holes, a centralizer must be placed every fourth joint from the cement shoe to the ground surface or to the bottom of the cellar. All centralizers must meet API specifications.
- E. Exceptions and alternative easing programs. The District Director may grant an exception to the requirements of Statewide Rule 13. In a written application, an operator must state the reason for the requested exception and outline an alternate program for casing and cementing through the protection depth for strata containing usable-quality water. The District Director may approve, modify, or reject a proposed program. An operator must obtain approval of any exception before beginning casing and cementing operations.
- F. Intermediate and production casing. For specific technical requirements, operators should consult Statewide Rate 13 (b) (3) and (4).
- G. Plugging and abandoning. Cement plugs must be piaced in the wellbore as required by Statewide Rule 14. The District Director may require additional cement plugs. For cashore or inland wells, a 10-foot cement plug must be placed in the top of the well, and the casing must be out off three feet below the ground surface. All cement plugs, except the top plug, must have sufficient sharry volume to fill 100 feet of hole, plus ten percent for each 1,000 feet of depth from the ground surface to the bottom of the plug.

To plug and abandon a well, operators must use only ocmenters approved by the Director of Field Operations. Cementing companies, service companies, or operators can qualify as approved cementers by demonstrating that they are able to mix and pump cement in compliance with Commission rules and regulations.

(210) 688-3414 • FAX (210) 688-9206 • 6839 Leslie Rd. • San Antonio, TX 78254

Micron Well #2 Casing Tally



Total Casing: 480' g.l. - 30" O.D. .500 wall

Note: 4:30 pm - 8:00 pm made ready for inner-string pressure cementing method via float/cementing collar.

9:00 pm - 10:00 pm cementing completed with positive cement returns with no settling of cement.

24174

METALLURGICAL AND PIPE TEST REPORT

% SHEAR | ENERGY 0.5% FXT CER PERMENTAL OSSIENCEN P O NUMBER This is to certify that the product described herein was manufactured, sampled, and tested in 11//10 DPY WELD SEAM INSPECTED BY FLUOROSCOPIC RADIOLOGICAL METHOD accordance with the specifications and requirements in such specifications * SHEAR | ENFRGY CHARPY WIOTH 1 503 TENSILE ELON 36.0 0.002 0.0002 0.002 0.002 0.0002 0.002 0 004 0 006 0 0001 0 002 % ROOT BEND SATISFACTORY FACE BEND. SATISFACTORY WELD TENSILE, BASE METAL 68,900 67,500 PSI FRACTURE LOCATION GUIDED BEND TEST. YIELD 55,900 PSI 1000 0 001 SFCONDS HYDRO MINIMUM 1,260 PSI Approved 0 100 0 970 0 016 0 013 0 270 0 030 0 020 0 030 0 003 0 037 0.140 0.980 0.017 0.020 0.280 0.016 0.014 0.037 0.000 0.034 ()ale 0 130 0 980 0 0 17 0 0 17 0 270 0 0 15 0 0 14 0 0 37 0 0 0 0 HEAT/I OT 11214 5.1 5G7224 VASS PIPE & STREL CUSTOMER PICK-UP AAT DSAW JULY 2000 A2ND EDITION P.O. DATE 30" X 0.500" 51. GRADE BIX42 PSL. 1 SPECIFICATION AND GRADE MATERIAL OL SCRIPTION 158 THIRD ST., P.O.BOX 583 A TRANSVERSE 5 **0000 CAD (185)** MINEOLA, NY 11501 VASS PIPE & STEEL B WELD <u>-</u> 14, 14, 140 5G7274 ITEM NO. CUSTOME PRODUCI

-:::

0.034

PRODUCI



Baytown, 1X 77522 7349

SAW Pipes USA, Inc.

P U Piox 2349

MICRON WELL #2 PUMP TEST RECORD

DATE	TIME	PUMPING LEVEL	PUMPING	ENGINE	PUMP	<u> </u>	PUMP
1 = -	111:		GPM	RPM	RPM	REMARKS	SETTING
1. <u>5-0</u>		106.0	3991	900	900	11-25: W.L -101	215
	11:30	10	4154	1000	1000	Color - cloudy,	
	11:45	11 .	4608	1100	1100	Clearedupat	
	1:00	1)	5152	1200	1500	3:30pm	
	2:00		5644	1300	1300	Sediment - little	
	3:00	н.	6204	1400	1400	TASTE - good	
-	3:30	107:0	6618	1800	1200		
-	4:00	108.5	7377	1600	1600		
	4:30	108:0	7007	1550	1550		
	5:30	106	5644	1300	1300		
	6:00	li .	5644	1300	1300		
11-26-02	9:00	106.0	4154	1000	1000	11-26: W.L. 106	215
	9:15	11	4608	1160	1100	Color-clear	
	9:30	11	5152	1200	.1200	Sediment - NONE	
(3:30	14	5644	1300	1300		
	4,30	11	6204	1400	1400		
•	5:00	108.0	7007	1550	1550		· · ·
	5:30	106.0	5644	1300	1300		···
	5;45	108.0	7007	1550	1550		
<u> </u>	6:00	ıı,	7007	1550	1550		
1-27-02	9:00	106.0	4154	1000		11-27: W.L. 106'	215'
	9:15	11	4608	1100	lios	Color- Clear	<u>~13</u>
	9:30	1.77	5152	1200	1200	SEGIMENT - NONE	
	11:00	н	5644	1360	1300	TARTE - 9 001	
	12:30	• • •	6264	1400	1400	7000	
	3:30	1080	7007	1550	1550		
	4:30	106.0	6204	1400			
1	5:01	1000	6204	1400	1400		
		SENKRANZ		1400	1400		

FRANK ROSENKRANZ & SONS
WATERWELL DRILLING AND PUMP SERVICE
6839 LESLIE RD.
SAN ANTONIO, TX 78254

RUN 1 DEPTH SUMMARY LISTING Date Created: 20-MAY-2002 14:22:	- -					Mahula	J. Waugh / D. Mahula		J. Waugh		X	Witnessed By	With
Warrow W		-					Sherif Shakou		Neville Zuzarte		'	corded B	P _O C
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PLATFORM EXPRESS ARRAY INDUCTION ARRAY							9.7 lbm/gal		9.7 Ibm/gal	COSTLY	ş	eredity	D
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Micron #2 San Antonio Water System LOCATION GPS Coordinates are: PLATFORM EXPRESS/ FINAL COMPOSITE Bear: GRAND Bear Bear: Ground Level Bear: Be		1A						ghing	ļ,	Drilling Measur	any	on:	y:
Acron aps Coordinates are: Alcron #2 An Antonio Water System COATION PUAL COMPOSITE Bev.: K.B. 829,177† OL. 816,177† Def. 828,177† Def. 828,177† Def. 828,177† Public Commodulates are: Bev.: 816,177† Public Commodulates are: Bev		R				e Perm. Datum		BAB	1	Log Measured	: 5	3	
Confinates are: On #2 Antonio Water System ATON GPS Coordinates are: FINAL COMPOSITE Bev:: KB. 829.17th GL. 816.17th DF. 829.17th DF. 829.17th DF. 829.17th Bev:: KB. 829.17th Bev:: KB. 829.17th Composite Created: 20-MAY-2002 14:22:		 Y				1/11	1	Level	ı	Permanent Date	an)PS	
Corlo Water System Vilcion #2 PLATFORM EXPRESSY ARRAY INDUCTION FINAL COMPOSITE Bev.: K.B. 829.17 ft C.L. 816.17 ft D.F. 829.17 ft C.L. 816.17 ft C.L. 81		LI									An	C	
MICION FZ MICION FZ PLATFORM EXPRESS/ ARRAY INDUCTION FINAL COMPOSITE Bew: K.B. 829.17th C.L. 816.17th C.L. 816.17th C.L. 816.17th C.L. 816.17th C.L. 816.17th		- IS				828.17 ft	D.F.		,	•	ton		
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Depth System Equipment
DEPTH SUMMARY LISTING

RUN 1

DEPTH SUMMARY LISTING

Date Created: 20-MAY-2002 14:22:1

Depth System Equipment DEPTH SUMMARY LISTING

Date Created: 20-MAY-2002 14:22:1

Depth System Equipment

Device	Tension De	vice	Logging	Cable
IDW-B 4838 15-Mar-2002	Type: Serial Number: Calibration Date:	CMTD-B/A 1448 7-May-2002	Type: Serial Number: Length:	7-46NT-XS 405 21865.00 FT
1 7-46NT-XS -8 -8	Calibrator Serial Number: Calibration Gain: Calibration Offset:	80719 1.01 -2504.00	Conveyance Method: Rig Type:	Wireline LAND
	IDW-B 4836 15-Mar-2002 1 7-46NT-XS -8	IDW-B 4836 15-Mar-2002 Calibration Date: Calibration Gain: Calibration Offset:	IDW-B Type: CMTD-B/A 4836 Serial Number: 1448 15-Mar-2002 Calibration Date: 7-May-2002 1 Calibrator Serial Number: 80719 7-46NT-XS Calibration Gain: 1.01 -8 Calibration Offset: -2504.00	Type: CMTD-B/A 4836 Serial Number: 1448 Serial Number: 15-Mar-2002 Calibration Date: 7-May-2002 1 Calibrator Serial Number: 80719 7-46NT-XS Calibration Gain: 1.01 Conveyance Method: Rig Type:

Depth Control Parameters

Log Sequence:

First Log in the Well

Rig Up Length At Surface:

132.00 FT

Rig Up Length At Bottom:

132.00 FT

Rig Up Length Correction:

0.00 FT

Stretch Correction:

OTHER SERVICES1

0.00 FT

Tool Zero Check At Surface:

0.00 FT

Depth Control Remarks

1.

2.

3.

4.

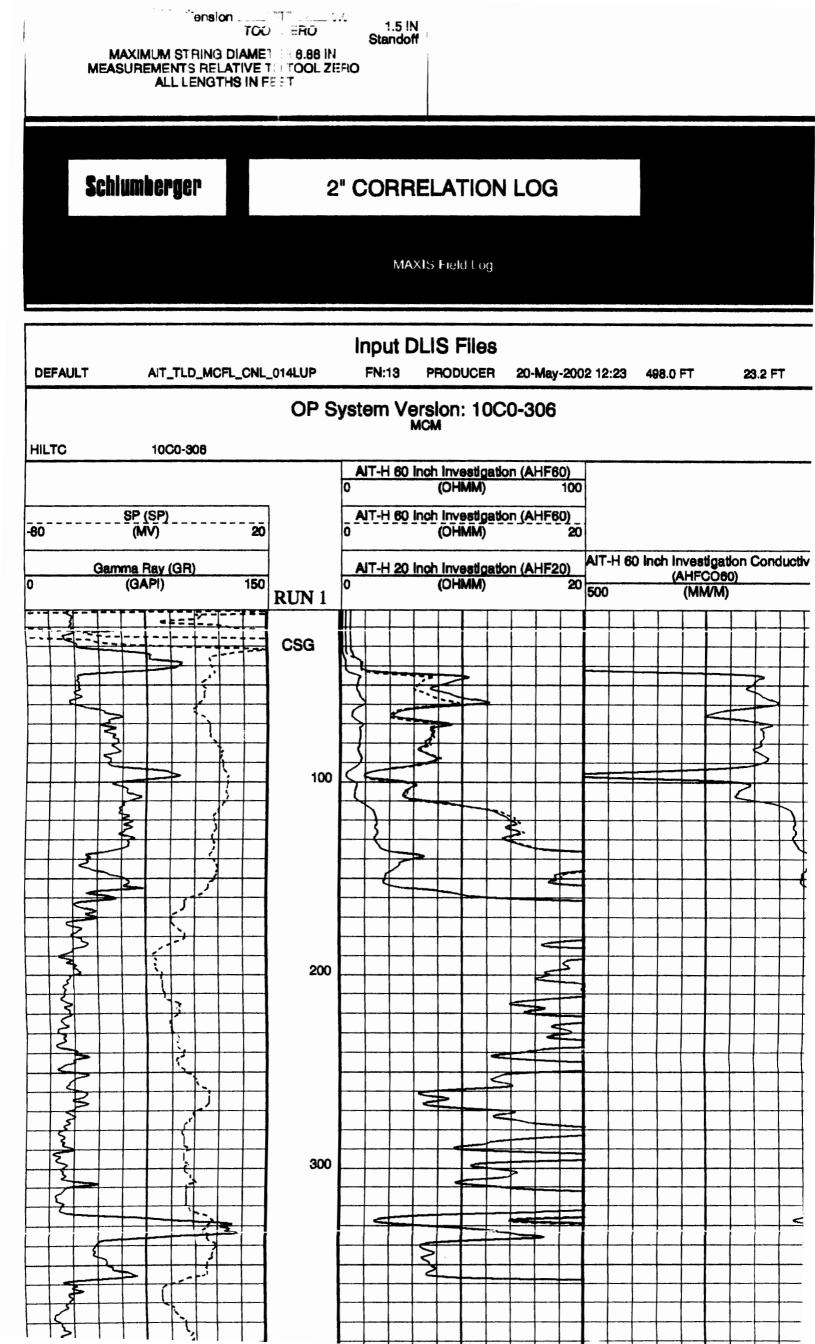
5. 6.

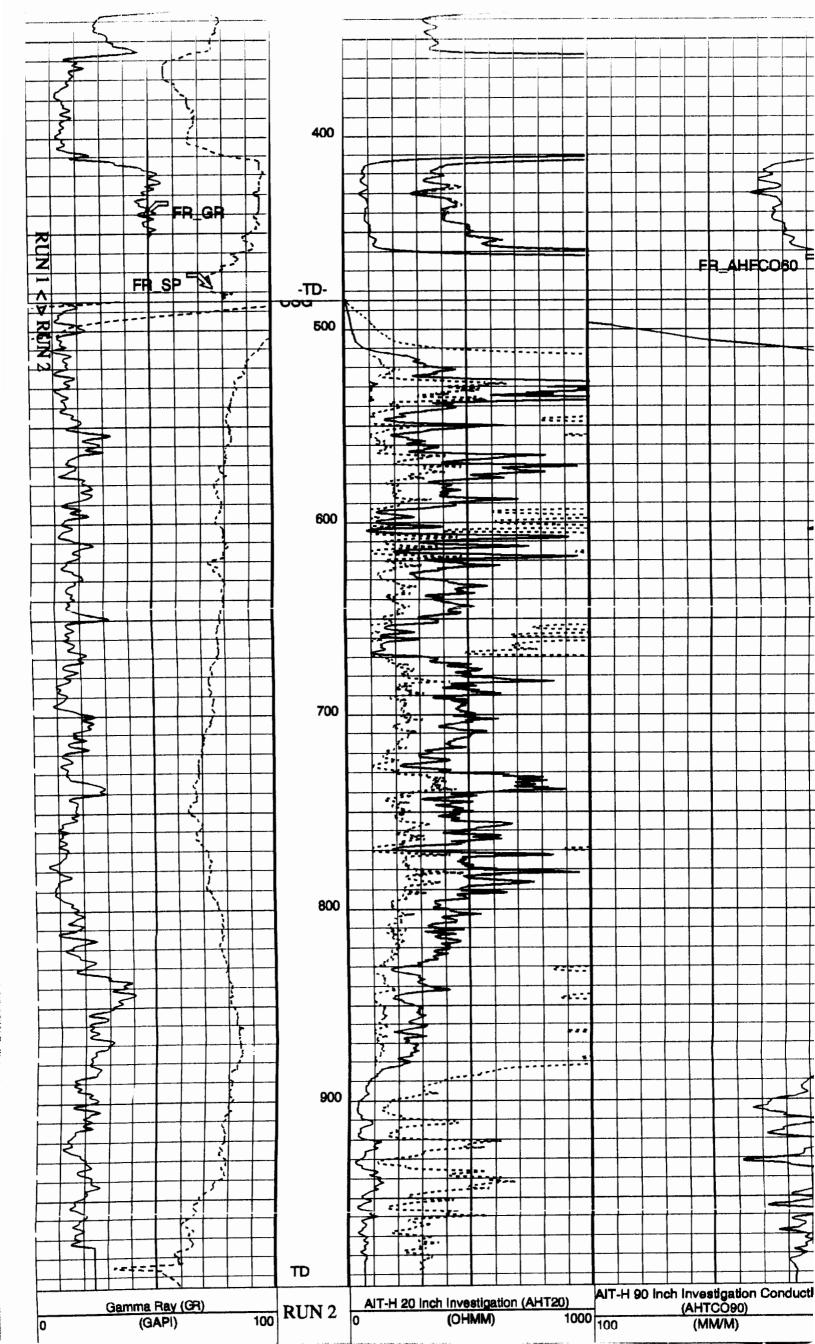
DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES2

OS1: Run 1:AIT-GH	081:
OS2: Run 2:Incl-GR	O82:
OS3:	O83:
OS4:	O84:
OS5:	O85:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Thank you for Choosing Schlumberger	
This is a primary Depth for this well	
API # and other well side data unavallable.	
Presentations as per client request.	





WQ FY09 COOP	COOP			TWDB V	Vater Q	TWDB Water Quality Field Data Sheet	ld Data	Sheet			Newly Inventoried Well
SWN: AY	SWN: AY-68-35-617			Name:	San Antonio	Name: San Antonio Water System					ID Number: 4609
County: Bexar	xar		1	Address:	2800 U.S. Hv	Address: 2800 U.S. Hwy. 281 North					Date: 8/19/09
County Code: 29					San Antonio,	San Antonio, Texas 78212					Sampler(s): David M. Mahula
Aquifer Code: 218 EDRDA	3 EDRDA										
Aquifer Id: 11				Attention:	Attention: David M. Mahula	nula					Calibration Verification Readings
			Well	Well Name or #:	Micron #2						pH 7 = 7.00
1	2	3	4		6	7	8	9	10	11	4 or 10 =
500 ml filtered 51	500 ml filtered	250 ml filtered									SLP = 99.3
Cation Ar	Anions/T. Alk.	Nitrate									
HNO3 by lab	ICE	ICE + H2SO4									2000 =
All acidified samples pH <2.0.		(*) If natural pH<7, then add NaOH until pH is >7. If natural pH is ≥7, no NaOH required.	then add NaC)H until pH is	>7. If natural	pH is ≥7, no NaC)H required.				5000 =
Time In:	10:15 AM				Time Out:	11:30 AM				-	
Water Level:	N/A			5	W.L. remark:			A.P.	N/A		7.31 Start pH 4.50 End pH
Pumping time: Start 10:30 End 11:15 (45 Min.)	rt 10:30 End	11:15 (45 Min.)		Sam	pling Point:	Sampling Point: Raw Water Sample Port	nple Port	j	,		mL Sample Size mL Acid Phenol (> 8.3) 11.3 ml Acid Total (to pH 4.5)
Well Use:	סי	1			FIELD G.F	FIELD G.P.S. readings					ed x
Lift:	S				Latitude:	Latitude: N 29° 27' 15.8"	ထ္	•			Phenol Alkalinity (82244): mg/L
Power:	m	600 Horse Power	/er		Longitude:	Longitude: W 98° 38' 29.2"	.2"				Total Alkalinity (39086): 226 mg/L
Casing Type:	Steel			0	Casing Size:	30 "					Colorimeter DO (00300): mg/L
Sample Time:	11:15 AM			Filte	er pressure:	Filter pressure: hand pump (line)spring	spring				Field Data entered into GWDB: yes / no Balanced:
Wa	ter Quality S	Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)	rameters Ta	ble (At least 3	readings @	min. intervals)				Notes:	
Time	10:55	11:00	11:05	11:10							
밀	7.26	7.24	7.22	7.21							
Celsius Temp.	23.8	23.9	23.9	23.9							
Conductivity	532	533	529	535							
Revised 12/19/2008											

Date: 10-Sep-09

CLIENT:

Texas Water Development Board

Lab Order:

0908720

Project:

TWDB FY2009

Lab ID:

0908720-009

Client Sample ID: 68-35-617

Collection Date: 8/19/2009 11:15:00 AM

Matrix: GROUNDWATER

Tag No: 4609

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
ICP METALS, DISSOLVED		E2	00.7		Analyst: MV
Calcium	79.4	0.2	mg/L	1	8/26/2009 3:07:34 PM
Magnesium	16.6	0.2	mg/L	1	8/26/2009 3:07:34 PM
Potassium	1.2	0.2	mg/L	1	8/26/2009 3:07:34 PM
Sodium	10.7	0.5	mg/L	1	8/26/2009 3:07:34 PM
ICP METALS, DISSOLVED		E2	00.7		Analyst: MV
Boron	. ND	51	µg/L	1	8/26/2009 3:07:34 PM
Iron	ND	51	μg/L	1	8/26/2009 3:07:34 PM
Strontium	483	20	μg/L	1	8/26/2009 3:07:34 PM
ICPMS METALS, DISSOLVED		E2	8.00		Analyst: SW
Aluminum	ND	4.1	μg/L	1	8/25/2009 9:08:04 PM
Antimony	ND	1.0	µg/L	1	8/25/2009 9:08:04 PM
Arsenic	ND	2.0	μg/L	1	8/25/2009 9:08:04 PM
Barium	37.7	1.0	μg/L	1	8/25/2009 9:08:04 PM
Beryllium	ND	1.0	μg/L	1	8/25/2009 9:08:04 PM
Cadmium	ND	1.0	μg/L	1	8/25/2009 9:08:04 PM
Chromium	2.8	1.0	μg/L	1	8/25/2009 9:08:04 PM
Cobalt	ND	1.0	μg/L	1	8/25/2009 9:08:04 PM
Copper	1.2	1.0	μg/L	1	8/25/2009 9:08:04 PM
Lead	ND	1.0	μg/L	1	8/25/2009 9:08:04 PM
Lithium	4.3	2.0	A μg/L	1	8/25/2009 9:08:04 PM
Manganese	ND	1.0	μg/L	1	8/25/2009 9:08:04 PM
Molybdenum	ND	1.0	μg/L	1	8/25/2009 9:08:04 PM
Selenium	ND	4.1	μg/L	1 ·	8/25/2009 9:08:04 PM
Silver	ND	1.0	μg/L	1 .	8/25/2009 9:08:04 PM
Thallium	ND	1.0	μg/L	1	8/25/2009 9:08:04 PM
Uranium	ND	1.0	A μg/L	1.	8/25/2009 9:08:04 PM
Vanadium	3.4	1.0	μg/L	1	8/25/2009 9:08:04 PM
Zinc	ND	4.1	μg/L	1	8/25/2009 9:08:04 PM
MERCURY, TOTAL		SW	7470A		Analyst: AE
Mercury	ND	0.200	μg/L	1	8/27/2009 11:39:00 AM
CATION/ANION BALANCE		CALC	JLATION		Analyst: AMJ
Cation/Anion Balance	-3.03	5.0	%	1	9/4/2009
DISSOLVED ANIONS BY ION CHR	OMATOGRAPH	E3	300.0		Analyst: WR
Bromide Dissolved	0.09	0.02	mg/L	1	8/25/2009 7:10:00 PM
Chloride Dissolved	16.0	1.00	mg/L	1	8/25/2009 7:10:00 PM
Fluoride Dissolved	0.21	0.01	mg/L	1	8/25/2009 7:10:00 PM
Sulfate Dissolved	31.3	1.00	mg/L	1	8/25/2009 7:10:00 PM

Qualifiers:

- Not Available for Accreditation
- E Value Above Quantitation Range
- N Not Accredited
- S Spike Recovery Outside Recovery Limits
- B Analyte Detected in Method Blank
- H Holding Time Exceeded
- ND Not Detected at Reporting Limit
 - X Value Exceeds Maximum Contaminant Level

CLIENT: Texas Water Development Board

Lab Order: 0908720

Project: TWDB FY2009

Lab ID: 0908720-009

Date: 10-Sep-09

Client Sample ID: 68-35-617

Collection Date: 8/19/2009 11:15:00 AM

Matrix: GROUNDWATER

Tag No: 4609

Analyses	Result	PQL Qua	al Units	DF	Date Analyzed
ALKALINITY		. SM2	320 B		Analyst: JB
Alkalinity, Phenolphthalein	ND	0 A	mg/L CaCO3	1	8/28/2009
Alkalinity, Total (As CaCO3)	218	2	mg/L CaCO3	1	8/28/2009
NITRATE AND NITRITE		SM4500-NO	D3-H/E353.1		Analyst: KK
Nitrogen, Nitrate & Nitrite	1.56	0.020	mg/L	1	8/24/2009
DISSOLVED PHOSPHATE AS P IN	WATER	E3(65.4		Analyst: CM
Phosphorus, Dissolved (As P)	ND	0.020	mg/L	1	8/28/2009
SILICA		SM4500)-SIO2-C		Analyst: KK
Silica, Dissolved (as SiO2)	12.5	2.50	mg/L	5	8/25/2009

Qualifiers:

Not Available for Accreditation

E Value Above Quantitation Range

N Not Accredited

S Spike Recovery Outside Recovery Limits

B Analyte Detected in Method Blank

H Holding Time Exceeded

ND Not Detected at Reporting Limit

X Value Exceeds Maximum Contaminant Level

WQ FY 2010	010			TWDB \	Water Q	TWDB Water Quality Field Data	eld Data	Sheet			Newly Inventoried Well
SWN:	SWN: AY-68-35-617			Name:	San Antonio	Name: San Antonio Water System	n				ID Number: 3608
County: Bexar	Bexar			Address:	2800 U.S. H	Address: 2800 U.S. Hwy. 281 North					Date: 8/24/10
County Code: 29	29				San Antonio	San Antonio, Texas 78212					Sampler(s): David M. Mahula
Aquifer Code: 218 EDRDA	218 EDRDA										
Aquifer ld: 11	11			Attention:	Attention: David M. Mahula	hula					Calibration Verification Readings
			We	Well Name or #: Micron #2	Micron #2						pH 7 = 7.00
1	2	3	4	5	9	7	8	6	10	11	4 or 10 = 4.01
500 ml filtered	500 ml filtered	250 ml filtered									SLP = 100.5
Cation	Anions/T. Alk.	Nitrate									
HNO3 by lab	ICE	ICE + H2SO4									2000 =
All acidified san	nples pH <2.0.	All acidified samples pH <2.0. (*) If natural pH<7, then add NaOH until pH is >7. If natural pH is ≥7, no NaOH required.	7, then add Na	OH until pH is	>7. If natural	pH is ≥7, no N	aOH required.	į			5000 =
Time In:	11:30 AM				Time Out:	12:15 PM					
											Field Alk. Titration (0.0200 N) H2SO4
Water Level:	N/A			_	W.L. remark:			M.P. =	NA		7.21 Start pH 4.50 End pH
Pumping time: Pumping upon arrival	Pumping upon	arrival		Sar	npling Point:	Sampling Point: Raw Water Sample Port	ample Port				mL Acid Phenol (> 8.3)
Well Use:	٩				FIELD G.I	FIELD G.P.S. readings					mL acid added x 20 = Alkalinity
Lift.	S				Latitude:	Latitude: N 29° 27' 15.8"	5.8"				Phenol Alkalinity (82244): mg/L
Power:	E	600 Horse Power	wer		Longitude:	Longitude: W 98° 38' 29.2"	9.2"				Total Alkalinity (39086): 232 mg/L
Casing Type:	Steel				Casing Size:	30 "	•				Colorimeter DO (00300): mg/L
Sample Time:	11:55 AM			Fit	er pressure:	Filter pressure: hand pump(line)spring	ine)spring				Field Data entered into GWDB: yes / no
1	Water Quality	Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)	arameters T	able (At least	3 readings @	5 min. intervals	5)			Notes:	
Time	11:35	11:40	11:45	11:50						ı	
РН	7.04	7.06	7.07	7.07							
Celsius Temp.	23.7	23.6	23.7	23.6						ı	
Conductivity	559	560	556	556						1	
Revised 12/19/2008	∞										

CLIENT: Texas Water Development Board

Lab Order: 1008C99

Project: TWDB FY2010

Lab ID: 1008C99-008

Date: 20-Sep-10

Client Sample ID: 68-35-617

Collection Date: 8/24/2010 11:55:00 AM

Matrix: GROUNDWATER

Tag No: 3608

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed
ICP METALS, DISSOLVED		E	200.7		Analyst: MV
Calcium	84.3	0.20	mg/L	1	9/13/2010 2:02:47 PM
Magnesium	16.9	0.20	mg/L	1	9/13/2010 2:02:47 PM
Potassium	1.31	0.20	mg/L	1	9/13/2010 2:02:47 PM
Sodium	10.9	0.51	mg/L	1	9/13/2010 2:02:47 PM
ICP METALS, DISSOLVED		E	200.7		Analyst: MV
Boron	55	51	μg/L	1	9/13/2010 2:02:47 PM
Iron	< 51	51	μg/L	1	9/13/2010 2:02:47 PM
Strontium	528	20	μg/L	1	9/13/2010 2:02:47 PM
ICPMS METALS, DISSOLVED		E	200.8		Analyst: SW
Aluminum	< 4.1	4.1	μg/L	1	9/13/2010 3:00:49 PM
Antimony	1.8	1.0	μg/L	1	9/13/2010 3:00:49 PM
Arsenic	< 2.0	2.0	μg/L	1	9/13/2010 3:00:49 PM
Barium	39.4	1.0	μg/L	1	9/13/2010 3:00:49 PM
Beryllium	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Cadmium	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Chromium	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Cobalt	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Copper	1.2	1.0	μg/L	1	9/13/2010 3:00:49 PM
Lead	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Lithium	4.7	2.0	A μg/L	1	9/13/2010 3:00:49 PM
Manganese	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Molybdenum	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Selenium	< 4.1	4.1	μg/L	1	9/13/2010 3:00:49 PM
Silver	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Thallium	< 1.0	1.0	μg/L	1	9/13/2010 3:00:49 PM
Uranium	< 1.0	1.0	A μg/L	1	9/13/2010 3:00:49 PM
Vanadium	2.8	1.0	μg/L	1	9/13/2010 3:00:49 PM
Zinc	< 4.1	4.1	μg/L	1	9/13/2010 3:00:49 PM
MERCURY, TOTAL		sv	V7470A		Analyst: AE
Mercury	< 0.200	0.200	μg/L	1	9/3/2010 2:39:00 PM
DISSOLVED ANIONS BY ION CHR	OMATOGRAPH	E	300.0		Analyst: WR
Bromide Dissolved	0.10	0.02	mg/L	1	9/3/2010 8:03:00 AM
Chloride Dissolved	16.6	1.00	mg/L	1	9/3/2010 8:03:00 AM
Fluoride Dissolved	0.21	0.01	mg/L	1	9/3/2010 8:03:00 AM
Sulfate Dissolved	33.8	1.00	mg/L	1	9/3/2010 8:03:00 AM
ALKALINITY		SM	12320 B		Analyst: JB
Alkalinity, Phenolphthalein	< 2	2	A mg/L CaCo	03 1	8/31/2010

Qualifiers:

- A Not Available for Accreditation
- E Value Above Quantitation Range
- N Not Accredited
- X Value Exceeds Maximum Contaminant Level (MCL)
- B Analyte Detected in Method Blank
- H Holding Time Exceeded
- S Spike Recovery Outside Recovery Limits

CLIENT:

Texas Water Development Board

Lab Order:

1008C99

Project: TWDB FY2010

Lab ID:

1008C99-008

Date: 20-Sep-10

Client Sample ID: 68-35-617

Collection Date: 8/24/2010 11:55:00 AM

Matrix: GROUNDWATER

Tag No: 3608

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
ALKALINITY		SM2	320 B		Analyst: JB
Alkalinity, Total (As CaCO3)	227	2	mg/L CaCO3	1	8/31/2010
CATION/ANION BALANCE		CALC	JLATION		Analyst: AMJ
Cation/Anion Balance	-3.11	5.0	A %	1	9/20/2010
NITRATE AND NITRITE		SM450	0-NO3-H		Analyst: KK
Nitrogen, Nitrate & Nitrite	1.67	0.020	mg/L	1	9/9/2010
DISSOLVED PHOSPHATE AS P IN	WATER	E3	65.4		Analyst: CM
Phosphorus, Dissolved (As P)	< 0.020	0.020	mg/L	1	9/14/2010
SILICA		SM450	0-SIO2-C		Analyst: KK
Silica, Dissolved (as SiO2)	13.7	2.50	mg/L	5	9/1/2010

 ${\bf Qualifiers:}$

PQL: Practical Quantitation Limit

A Not Available for Accreditation

E Value Above Quantitation Range

N Not Accredited

X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank

H Holding Time Exceeded

S Spike Recovery Outside Recovery Limits

Texas Water Development Board - Well Location Sketch

By: H. Rein Date: 5/5/11 G.P.S Coordinates: 29-34-34. " 98-53-54. " Behar M.P. = Well Number: <u>68-25-617</u> 155 on Mailbox FM1283

WQ FY 2011 - SAWS	011 - SA	MS		TWDB	Water C	Water Quality Field Data Sheet	eld Data	Sheet			Newly Inventoried Well
SWN:	SWN: AY-68-35-617			Name:	San Antonic	San Antonio Water System					ID Number: 4606
County: Bexar	Bexar	:		Address:		2800 U.S. Hwy. 281 North	:				Date: <u>6/28/11</u>
County Code: 29	29				San Antonic	San Antonio, Texas 78212					Sampler(s): David M. Mahula
Aquifer Code: 218 EDRDA	218 EDRDA										
Aquifer Id: 11	1			Attention:	David M. Mahula	ahula					Calibration Verification Readings
•			Š	Well Name or #:	Micron #2						pH 7 = 7.00
1	2	3	4	2	9		8	6	10	11	4 or 10 = 4.01
500 ml filtered	500 ml filtered	250 ml filtered									
Cation	Anions/T. Alk.	Nitrate									
HNO3 by lab	CE	ICE + H2SO4									2000 =
All acidified san	nples pH <2.0.	All acidified samples pH <2.0. (*) If natural pH<7, then add NaOH until pH is >7. If natural pH is ≥7, no NaOH required.	7, then add N	aOH until pH i	s >7. If natura	lpHis≥7, no Na	OH required.				2000 =
Time In:	8:00 AM				Time Out:	8:55 AM					
•											Field Alk. Titration (0.0200 N) H2SO4
Water Level:	N/A				W.L. remark:			M.P. =	N/A		7.14 Start pH 4.50 End pH
Pumping time: Pumping upon arrival	Pumping upon	arrival		SS	mpling Point:	Sampling Point: Raw Water Sample Port	ample Port				50 mL Sample Size mL Acid Phenol (> 8.3) 11.4 ml Acid Total (to PH 4.5)
Well Use:	G.				FIELD G.	FIELD G.P.S. readings					9d x 2
E	S				Latitude:	Latitude: N 29° 27' 15.8"	.8.				Phenol Alkalinity (82244): mg/L
Power	Ш	600 Horse Power	wer		Longitude:	Longitude: W 98° 38' 29.2"	9.2"				Total Alkalinity (39086): 228 mg/L
Casing Type:	Steel				Casing Size:	30					Colorimeter DO (00300): mg/L
Sample Time:	8:35 AM			证	lter pressure:	Filter pressure: hand pump(line)spring	ne spring				Field Datz entered into GWDB: yes / no
	Water Quality	Water Quality Stabilization Parameters Table (At least	arameters 1	Fable (At least	3 readings @	3 readings @ 5 min. intervals)	•			Notes:	balanceu:
Lime	8:15	8:20	8:25	8:30							
H.	6.99	7.06	7.06	7.07							
Celsius Temp.	23.5	23.5	23.5	23.5							
Conductivity	543	542	542	542							

CLIENT:

Texas Water Development Board

Lab Order:

1107020

Project:

TWDB Suite

Lab ID:

1107020-006

Date: 21-Jul-11

Client Sample ID: 68-35-617

Collection Date: 6/28/2011 8:35:00 AM

Matrix: GROUNDWATER

Tag No: 4606

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed
ICP METALS, DISSOLVED		E	200.7		Analyst: MV
Calcium	83.4	0.20	mg/L	1	7/12/2011 2:42:12 PM
Magnesium	17.0	0.20	mg/L	1	7/12/2011 2:42:12 PM
Potassium	1.34	0.20	mg/L	1	7/12/2011 2:42:12 PM
Sodium	10.5	0.50	mg/L	1	7/12/2011 2:42:12 PM
ICP METALS, DISSOLVED		E	200.7		Analyst: MV
Boron	< 50	50	μg/L	1	7/12/2011 2:42:12 PM
Iron	< 50	50	μg/L	1	7/12/2011 2:42:12 PM
Strontium	504	20	μg/L	1	7/12/2011 2:42:12 PM
ICPMS METALS, DISSOLVED		E	200.8		Analyst: SW
Aluminum	< 4.0	4.0	μg/L	1	7/8/2011 4:47:01 PM
Antimony	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Arsenic	< 2.0	2.0	μg/L	1	7/8/2011 4:47:01 PM
Barium	38.9	1.0	μg/L	1	7/8/2011 4:47:01 PM
Beryllium	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Cadmium	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Chromium	4.7	1.0	μg/L	1	7/8/2011 4:47:01 PM
Cobalt	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Copper	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Lead	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Lithium	4.7	2.0	A μg/L	1	7/8/2011 4:47:01 PM
Manganese	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Molybdenum	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Selenium	< 4.0	4.0	μg/L	1	7/8/2011 4:47:01 PM
Silver	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Thallium	< 1.0	1.0	μg/L	1	7/8/2011 4:47:01 PM
Uranium	< 1.0	1.0	A μg/L	1	7/8/2011 4:47:01 PM
Vanadium	3.4	1.0	μg/L	1	7/8/2011 4:47:01 PM
Zinc	< 4.0	4.0	μg/L	1	7/8/2011 4:47:01 PM
MERCURY, TOTAL		sv	V7470A		Analyst: AE
Mercury	< 0.200	0.200	μg/L	1	7/6/2011 4:47:00 PM
DISSOLVED ANIONS BY ION CHRO	MATOGRAPH	E	300.0		Analyst: JB
Bromide Dissolved	0.09	0.02	mg/L	1	7/11/2011 9:27:00 PM
Chloride Dissolved	16.4	1.00	mg/L	1	7/11/2011 9:27:00 PM
Fluoride Dissolved	0.22	0.01	mg/L	1	7/11/2011 9:27:00 PM
Sulfate Dissolved	35.5	1.00	mg/L	1	7/11/2011 9:27:00 PM
ALKALINITY		SM	12320 B		Analyst: KH
Alkalinity, Phenolphthalein	< 2	2	A mg/L CaCC	3 1	7/6/2011

Qualifiers:

- A Not Available for Accreditation
- E Value Above Quantitation Range
- N Not Accredited
- X Value Exceeds Maximum Contaminant Level (MCL)
- B Analyte Detected in Method Blank
- H Holding Time Exceeded
- S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit

Values Below PQL Considered Estimated

CLIENT:

Texas Water Development Board

Lab Order:

1107020

Project:

TWDB Suite

Lab ID:

1107020-006

Date: 21-Jul-11

Client Sample ID: 68-35-617

Collection Date: 6/28/2011 8:35:00 AM

Matrix: GROUNDWATER

Tag No: 4606

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
ALKALINITY		SM2	320 B		Analyst: KH
Alkalinity, Total (As CaCO3)	232	2	mg/L CaCO3	1	7/6/2011
CATION/ANION BALANCE		CALCU	ILATION		Analyst: JB
Cation/Anion Balance	-1.41	5.0	%	1	7/14/2011
NITRATE AND NITRITE		SM450	0-NO3-H		Analyst: KH
Nitrogen, Nitrate & Nitrite	1.54	0.020	mg/L	1	7/11/2011
DISSOLVED PHOSPHATE AS P IN	WATER	E3	65.4		Analyst: CM
Phosphorus, Dissolved (As P)	< 0.020	0.020	mg/L	1	7/7/2011
SILICA		SM450	0-S102-C		Analyst: KH
Silica, Dissolved (as SiO2)	12.3	2.50	mg/L	5	7/6/2011

Qualifiers:

A Not Available for Accreditation

E Value Above Quantitation Range

N Not Accredited

X Value Exceeds Maximum Contaminant Level (MCL)

H Holding Time Exceeded

S Spike Recovery Outside Recovery Limits

								541	541	541	542	Conductivity
								23.6	23.5	23.4	23.4	Celsius Temp.
								7.13	7.13	7.13	7.08	РН
			_					8:30	8:25	8:20	8:15	Time
	Notes:				s	min. interval	readings @ 5	ble (At least 3	arameters Ta	Stabilization Pa	Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)	1 -
Field Data entered into GWDB: yes / no Balanced:				gr	line /sprir	Filter pressure: hand pump (line)spring	er pressure:	Filt			8:35 AM	Sample Time:
Colorimeter DO (00300): mg/L					1	30 "	Casing Size:				Steel	Casing Type:
Total Alkalinity (39086): 228 mg/L					29.2"	Longitude: W 98° 38' 29.2'	Longitude:		ver	600 Horse Power	Е	Power:
Phenol Alkalinity (82244): mg/L					5.8"	Latitude: N 29° 27' 15.8"	Latitude:				S	Lift:
mL acid added x 20 = Alkalinity						FIELD G.P.S. readings	FIELD G.F				Ъ	Well Use:
mL Acid Phenol (> 8.3) 11.4 mL Acid Total (to pH 4.5)				٦	ample Po	Sampling Point: Raw Water Sample Port	npling Point:	San		rrival	oumping upon a	Pumping time: Pumping upon arrival
Ü		N/A	M.P. = N	<			W.L. remark:	<			N/A	Water Level:
Field Alk. Titration (0.0200 N) H2SO4						8:50 AM	Time Out:				8:00 AM	Time In:_
2000 -				red.	aOH requi	pH is ≥7, no N	>7. If natural	OH until pH is	, then add Na) If natural pH<7	ples pH <2.0. (*	All acidified samples pH <2.0. (*) If natural pH<7, then add NaOH until pH is >7. If natural pH is ≥7, no NaOH required.
2000 =			L							ICE + H2SO4	ICE	HNO3 by lab
1000 = 1007										Nitrate	Anions/T. Alk.	Cation
										250 ml filtered	500 ml filtered	500 ml filtered
4	11	10	9	-	8	7	6	Ŋ	4	ω	2	_
				$\ $			Micron #2	Well Name or #: Micron # 2	Wel			
libration Verification Read						ıula	Attention: David M. Mahula	Attention: [1	Aquifer Id: 11
								ı			18 EDRDA	Aquifer Code: 218 EDRDA
Sampler(s): David M. Mahula						Texas 78212	San Antonio, Texas 78212	Leo			.9	County Code: 29
Date: 8/7/12						y. 281 North	Address: 2800 U.S. Hwy. 281 North	Address: 2			3exar	County: Bexar
ID Number: 1206						Name: San Antonio Water System	San Antonio \	Name: S			SWN: AY-68-35-617	SWN: A
Newly Inventoried Well			eet	ta Sh	eld Da	ality Fig	/ater Qu	TWDB Water Quality Field Data Sheet			- SAWS	WQ FY 2012 - SAWS

CLIENT: Texas Water Development Board

Lab Order: 1208500 **Project:** TWDB Suite

Lab ID: 1208500-006

Date: 31-Aug-12

Client Sample ID: 68-35-617

Collection Date: 8/7/2012 8:35:00 AM
Matrix: GROUNDWATER

Tag No: 1206

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ICP METALS, DISSOLVED			E200	.7		Analyst: MV
Calcium	78.7	0.20		mg/L	1	8/28/2012 12:50:20 PM
Magnesium	16.3	0.20		mg/L	1	8/28/2012 12:50:20 PM
Potassium	1.23	0.20		mg/L	1	8/28/2012 12:50:20 PM
Sodium	10.4	0.50		mg/L	1	8/28/2012 12:50:20 PM
ICP METALS, DISSOLVED			E200	.7		Analyst: MV
Boron	< 50	50		μg/L	1	8/28/2012 12:50:20 PM
Iron	< 50	50		μg/L	1	8/28/2012 12:50:20 PM
Strontium	486	20		μg/L	1	8/28/2012 12:50:20 PM
ICPMS METALS, DISSOLVED			E200	.8		Analyst: SW
Aluminum	< 4.0	4.0		μg/L	1	8/24/2012 9:21:10 PM
Antimony	< 1.0	1.0		μg/L	1	8/28/2012 3:13:24 PM
Arsenic	< 2.0	2.0		μg/L	1	8/24/2012 9:21:10 PM
Barium	38.5	1.0		μg/L	1	8/28/2012 3:13:24 PM
Beryllium	< 1.0	1.0		μg/L	1	8/28/2012 3:13:24 PM
Cadmium	< 1.0	1.0		μg/L	1	8/28/2012 3:13:24 PM
Chromium	5.4	1.0		μg/L	1	8/24/2012 9:21:10 PM
Cobalt	< 1.0	1.0		μg/L	1	8/24/2012 9:21:10 PM
Copper	. 1.0	1.0		μg/L	1	8/24/2012 9:21:10 PM
Lead	< 1.0	1.0		μg/L	1	8/28/2012 3:13:24 PM
Lithium	4.6	2.0	Α	μg/L	1	8/24/2012 9:21:10 PM
Manganese	< 1.0	1.0		μg/L	1	8/24/2012 9:21:10 PM
Molybdenum	< 1.0	1.0		μg/L	1	8/28/2012 3:13:24 PM
Selenium	< 4.0	4.0		μg/L	1	8/24/2012 9:21:10 PM
Silver	< 1.0	1.0		μg/L	1	8/28/2012 3:13:24 PM
Thallium	< 1.0	1.0		μg/L	1	8/28/2012 3:13:24 PM
Uranium	< 1.0	1.0	Α	μg/L	1	8/28/2012 3:13:24 PM
Vanadium	3.7	1.0		μg/L	1	8/24/2012 9:21:10 PM
Zinc	< 4.0	4.0		μg/L	1	8/24/2012 9:21:10 PM
MERCURY, TOTAL		:	SW74	70A		Analyst: AE
Mercury	< 0.200	0.200		µg/L	1	8/21/2012 2:02:00 PM
DISSOLVED ANIONS BY ION CHR	OMATOGRAPH		E300	0.0		Analyst: JB
Bromide Dissolved	0.08	0.02		mg/L	1	8/18/2012 1:38:00 PM
Chloride Dissolved	16.6	1.00		mg/L	1	8/18/2012 1:38:00 PM
Fluoride Dissolved	0.20	0.01		mg/L	. 1	8/18/2012 1:38:00 PM
Sulfate Dissolved	31.8	1.00		mg/L	1	8/18/2012 1:38:00 PM
ALKALINITY		;	SM232	20 B		Analyst: KH
Alkalinity, Phenolphthalein	< 2	2	Α	mg/L CaCO3	1	8/16/2012

Qualifiers:

PQL: Practical Quantitation Limit

Values Below PQL Considered Estimated

Page 14 of 44

A Not Available for Accreditation

E Value Above Quantitation Range

N Not Accredited

X Value Exceeds Maximum Contaminant Level (MCL)

B Analyte Detected in Method Blank

H Holding Time Exceeded

S Spike Recovery Outside Recovery Limits

CLIENT: Texas Water Development Board

Lab Order: 1208500 Project: TWDB Suite

Lab ID: 1208500-006

Date: 31-Aug-12

Client Sample ID: 68-35-617

Collection Date: 8/7/2012 8:35:00 AM

Matrix: GROUNDWATER

Tag No: 1206

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
ALKALINITY		SM2	320 B		Analyst: KH
Alkalinity, Total (As CaCO3)	218	2	mg/L CaCO3	1	8/16/2012
CATION/ANION BALANCE		CALC	JLATION		Analyst: JB
Cation/Anion Balance	-1.99	5.0	4 %	1	8/30/2012
NITRATE AND NITRITE		SM450	0-NO3-H		Analyst: JB
Nitrogen, Nitrate & Nitrite	1.63	0.020	mg/L	1	8/13/2012
DISSOLVED PHOSPHATE AS P IN	WATER	E3	65.4		Analyst: CM
Phosphorus, Dissolved (As P)	< 0.020	0.020	mg/L	1	8/16/2012
SILICA		SM450	0-SIO2-C		Analyst: KH
Silica, Dissolved (as SiO2)	13.3	2.50	mg/L	5	8/22/2012

Qualifiers:

- A Not Available for Accreditation
- E Value Above Quantitation Range
- N Not Accredited
- X Value Exceeds Maximum Contaminant Level (MCL)
- B Analyte Detected in Method Blank
- H Holding Time Exceeded
- S Spike Recovery Outside Recovery Limits

PQL: Practical Quantitation Limit

Values Below PQL Considered Estimated



Fax: (512)356-6021



ANALYTICAL RESULTS

Workorder: Q1302936

Lab ID:

Q1302936003

MCL

Date Received: 6/28/2013 10:30 Matrix:

Ву

Analyzed

Aqueous

Sample ID: 68-35-617 (1203) Date Collected: 6/24/2013 10:30 Sample Type:

Prepared

SAMPLE

Ву

Qual

Project ID:

Parameters

TWDB CAN

Results Units

Analysis Desc: E200.7 Metals, Trace	Pre	eparation Method	d: E200.7 Pre	р				
Elements	An	alytical Method:	E200.7 Metal	s, Trace	Elements			
Boron Dissolved	61.5 ug/L	20.4	51.0	1	7/30/2013 00:00	FM	7/31/2013 11:57	CW
Calcium Dissolved	79.6 mg/L	0.0714	0.204	1	7/30/2013 00:00	FM	7/31/2013 11:57	CW
Strontium Dissolved	480 ug/L	4.08	10.2	1	7/30/2013 00:00	FM	7/31/2013 11:57	CW
ron Dissolved	<51.0 ug/L	20.4	51.0	1	7/30/2013 00:00	FM	7/31/2013 11:57	CW
Magnesium Dissolved	17.0 mg/L	0.0714	0.204	1	7/30/2013 00:00	FM	7/31/2013 11:57	CW
Potassium Dissolved	1.25 mg/L	0.0714	0.204	1	7/30/2013 00:00	FM	7/31/2013 11:57	CW
Sodium Dissolved	11.5 mg/L	0.204	0.510	1	7/30/2013 00:00	FM	7/31/2013 11:57	CW

PQL

LOD

Sodium Dissolved	11.5 Hig/L	0.204	0.510	'	7/30/2013 00:00	LIVI	7/3//2013 11.3/	CVV	
Analysis Desc: E200.8, ICP-MS	Prep	aration Method	d: E200.8, ICI	P-MS Pro	ер				
	Analy	ytical Method:	E200.8, ICP-	MS					
Aluminum Dissolved	<4.00 ug/L	1.50	4.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Antimony Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Arsenic Dissolved	<2.00 ug/L	0.700	2.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Barium Dissolved	36.6 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Beryllium Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Cadmium Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Chromium Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Cobalt Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Copper Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Lithium Dissolved	4.25 ug/L	0.700	2.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	Ν
Lead Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Manganese Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Molybdenum Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Selenium Dissolved	<4.00 ug/L	1.50	4.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Silver Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Thallium Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Uranium Dissolved	<1.00 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	Ν
Vanadium Dissolved	2.48 ug/L	0.400	1.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	
Zinc Dissolved	<4.00 ug/L	1.50	4.00	1	8/6/2013 00:00	FM	8/14/2013 21:12	SLW	

ANIONS by ION CHROMATOGRAPHY

Report ID: 16493 - 281928 Page 9 of 91





ANALYTICAL RESULTS

Workorder: Q1302936

Project ID:

Lab ID: Q1302936003

Sample ID: 68-35-617 (1203) **TWDB CAN**

Date Received: 6/28/2013 10:30 Matrix:

Aqueous

Date Collected: 6/24/2013 10:30 Sample Type:

SAMPLE

Parameters	Results Units	LOD	PQL	MCL	DF	Prepared	Ву	Analyzed	Ву	Qual
Analysis Desc: E300.0, Anions	Prep	paration Metho	od: E300.0), Anion	s	80b 18				10.45
	Ana	lytical Method	E300.0,	Anions						
Bromide	0.102 mg/L	0.00800	0.0200)	1	7/10/2013 18:35	WR	7/10/2013 18:35	WR	
Chloride	18.2 mg/L	0.400	1.00)	1	7/10/2013 18:35	WR	7/10/2013 18:35	WR	
Fluoride	0.214 mg/L	0.00400	0.0100)	1	7/10/2013 18:35	WR	7/10/2013 18:35	WR	
Sulfate	33.1 mg/L	0.400	1.00)	1	7/10/2013 18:35	WR	7/10/2013 18:35	WR	

TOTAL PHOSPHATE AS P

Analysis Desc: E365.4 Phosphorus	s, Prep	paration Metho	d: E365.4 / E3	351.2 Wa	iter Prep			
Total	Ana	lytical Method:	E365.4 Phos	phorus, 1	Total			
Phosphorus, Dissolved (As P)	<0.0200 mg/L	0.00800	0.0200	1	7/18/2013 00:00	ML	7/18/2013 00:00	CM

ALKALINITY

Analysis Desc: SM2320B, Alkalinity	Prepa	ration Method	: SM2320B,	Alkalinity	/				
	Analy	tical Method:	SM2320B, All	kalinity					
Bicarbonate Alkalinity	223 mg/L	10.0	10.0	1	7/2/2013 00:00	KH	7/2/2013 00:00	KH	N
Carbonate Alkalinity	<10.0 mg/L	10.0	10.0	1	7/2/2013 00:00	KH	7/2/2013 00:00	KH	Ν
Hydroxide Alkalinity	<10.0 mg/L	10.0	10.0	1	7/2/2013 00:00	KH	7/2/2013 00:00	KH	Ν
Phenolphthalein Alkalinity	<10.0 mg/L	10.0	10.0	1	7/2/2013 00:00	KH	7/2/2013 00:00	KH	Ν
Total Alkalinity	223 mg/L	10.0	10.0	1	7/2/2013 00:00	KH	7/2/2013 00:00	KH	

NITRATE AND NITRITE

Analysis Desc: SM4500-NO3-H,	Prep	paration Metho	d: SM4500-NO	03-H, Ni	rate/Nitrite			
Nirate/Nitrite	Ana	lytical Method:	SM4500-NO3	-H, Nira	te/Nitrite			
Nitrate/Nitrite	1.72 mg/L	0.00800	0.0200	1	7/22/2013 00:00	ML	7/22/2013 00:00	ML

SILICA

Analysis Desc: SM4500-SiO2-C, Silica	Prepa	ration Method	: SM4500-Si	02-C, Si	lica			
	Analyt	ical Method: 8	SM4500-SiO	2-C, Silic	a			
Silica	11.9 mg/L	1.00	2.50	5	7/10/2013 00:00	KH	7/10/2013 00:00	KH

HEAVY METALS

Analysis Desc: E245.1 Mercury Water	Pre	paration Method	d: E245.1 Me	rcury Wa	ter				
	Ana	alytical Method:	E245.1 Merc	ury Wate	r				
Mercury Dissolved	<0.200 ug/L	0.0700	0.200	1	7/8/2013 08:00	AE	7/9/2013 10:44	AE	

Report ID: 16493 - 281928

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Environmental Laboratory Services 3505 Montopolis Drive Austin, TX 78744

> Phone: (512)356-6022 Fax: (512)356-6021

ANALYTICAL RESULTS

Workorder: Q1302936

Lab ID:

Q1302936003

Date Received: 6/28/2013 10:30 Matrix:

Aqueous

68-35-617 (1203) Sample ID:

Date Collected: 6/24/2013 10:30 Sample Type:

SAMPLE

Project ID:

TWDB CAN

Parameters

Results Units

LOD PQL MCL DF

Prepared

Ву Analyzed

Qual By

INORGANICS

Analysis Desc: SM1030B Cation/Anion Balance

Preparation Method: SM1030B Cation/Anion Balance

Analytical Method: SM1030B Cation/Anion Balance

Cation/Anion Balance

-1.81 %

8/22/2013 09:14 CW 8/22/2013 09:14 CW

WQ FY 2014 - SAWS	- SAWS			TWDB \	Water Q	TWDB Water Quality Field Data Sheet	eld Data	Sheet			Newly Inventoried Well
SWN: A	SWN: AY-68-35-617			Name:	San Antonio	Name: San Antonio Water System	ח				ID Number: 1203
County: Bexar	Bexar			Address:	2800 U.S. H	Address: 2800 U.S. Hwy. 281 North					Date: 8/4/14
County Code: 29	29				San Antonio	San Antonio, Texas 78212					Sampler(s): David M. Mahula
Aquifer Code: 218 EDRDA	218 EDRDA										
Aquifer Id: 11	=			Attention:	Attention: David M. Mahula	ahula					Calibration Verification Readings
			We	Well Name or #: Micron # 2	Micron #2						pH 7 = 7.00
1	2	ω	4	5	6	7	8	9	10	11	4 or 10 = 4.01
250 ml filtered	500 ml filtered	250 ml filtered									SLP = 99.4
Cation	Anions/T. Alk.	Nitrate									Conductivity 500 =
ICE + HNO3	ICE	ICE + H2SO4									2000 =
All acidified samples pH <2.0.		(*) If natural pH<7, then add NaOH until pH is >7. If natural pH is ≥7, no NaOH required.	7, then add Na	OH until pH is	s >7. If natural	pH is ≥7, no N	aOH required.				5000 =
Time In:	10:50 AM				Time Out:	11:50 AM					
Water Level:	N/A				W.L. remark:			M.P. =	N/A		7.28 Start pH 4.50 End pH
Pumping time: Pumping upon arrival	oumping upon	arrival		Sa	mpling Point:	Sampling Point: Raw Water Sample Port	ample Port				mL Acid Phenol (> 8.3)
Well Use:	P				FIELD G.	FIELD G.P.S. readings					mL acid added x 20 = Alkalinity
Lift: _	S				Latitude:	Latitude: N 29° 27' 15.8"	5.8				Phenol Alkalinity (82244): mg/L
Power: _	Е	600 Horse Power	wer		Longitude:	Longitude: W 98° 38' 29.2"	9.2"				Total Alkalinity (39086): 228 mg/L
Casing Type:_	Steel				Casing Size:	30 "	'				Colorimeter DO (00300): mg/L
Sample Time:_	11:25 AM			₽	lter pressure:	Filter pressure: hand pump (line)spring	line spring				Field Data entered into GWDB: yes / no Balanced:
1	Water Quality	Water Quality Stabilization Parameters Table (At least 3 readings @ 5 min. intervals)	arameters T	able (At least	3 readings @	5 min. interval	s)			Notes:	
Time	11:05	11:10	11:15	11:20							
рН	7.11	7.12	7.13	7.13							
Celsius Temp.	23.6	23.6	23.6	23.6							
Conductivity	556	554	550	549							

44787 XT ,nitsuA 3505 Montopolis Drive LCRA Environmental Laboratory Services

FM 08/18/14 15:22:21 MV

FM 08/18/14 15:22:21 MV

FM

VM 15:22:21 41/81/80

08/18/14 15:22:21 MV

Fax: (512)356-6021 Phone: (512)356-6022



Report ID: 110837 - 1148760

Magnesium Dissolved

Strontium Dissolved

Calcium Dissolved

Iron Dissolved

J\gu S.£8 **Boron Dissolved** 08/18/14 15:22:21 MV **\$1/\$1/80** 0.02 L 0.08 Analytical Method: E200.7 Metals, Trace Elements Elements Preparation Method: E200.7 Prep Analysis Desc: E200.7 Metals, Trace INORGANICS By Qual Analyzed Вλ Prepared MCL ГОБ Parameters $\mathsf{D}\mathsf{E}$ PQL Results Units Project ID: TWDB CAN SAMPLE Sample Type: 719-35-89 Sample ID: Date Collected: 8/4/2014 11:25 snoənb∀ Q1434842003 Lab ID: :xintsM Date Received: 8/8/2014 11:15 Workorder: Q1434842 **STUCAL RESULTS**

0.200

0.02

0.01

0.200

0.070

0.02

4.00

0070.0

J\gm 4.81

7/gu ∂74

J\gm 7.87

J/gu 0.0d>

	08/18/14 12:05:00 SLW	ЬM	11/11/80	L	4.00	1.50	J\gu 00.4>	Zinc Dissolved
	08/18/14 12:05:00 SLW	ЬM	セレ/セレ/80	l	1.00	0.400	J\gu 84.£	Vanadium Dissolved
Ν	08/18/14 12:05:00 SLW	ЬM	t1/t1/80	L	1.00	004.0	J\gu 00.f>	Uranium Dissolved
	08/18/14 12:05:00 SLW	ЬM	セレ/ヤレ/80	L	1.00	004.0	J\gu 00.f>	Thallium Dissolved
	08/18/14 12:05:00 SLW	ЬM	セレ/セレ/80	L	1.00	0.400	J\gu 00.f>	Silver Dissolved
	08/18/14 12:05:00 SLW	ЬM	セレ/ヤレ/80	L	4.00	1.50	J\gu 00.4>	Selenium Dissolved
	08/18/14 12:05:00 SLW	ЬM	カ レ/ カ レ/80	L	00.1	0.400	J\gu 00.f>	Molybdenum Dissolved
	08/18/14 12:05:00 SLW	ЬM	セレ/セレ/80	L	00.↑	0.400	J\gu 00.f>	Manganese Dissolved
	08/18/14 12:05:00 SLW	ЬM	ヤレ/ヤレ/80	L	00.↑	0.400	J\gu 00.↑>	Lead Dissolved
Ν	08/18/14 12:05:00 SLW	ЬM	カト/カト/80	L	2.00	0.700	J/gu f4.4	Lithium Dissolved
	08/18/14 12:05:00 SLW	ЬM	カ 1/ カ 1/80	L	1.00	0.400	J\gu 00.f>	Copper Dissolved
	08/18/14 12:05:00 SLW	ЬM	カ 1/ ナ 1/80	l	١.00	0.400	J\gu 00.↑>	Cobalt Dissolved
	08/18/14 12:05:00 SLW	ЬM	カ 1/ カ 1/80	l	00.1	0.400	J\gu ff.f	Chromium Dissolved
	08/18/14 12:05:00 SLW	ЬM	<i>ÞI/ÞI/80</i>	l	00.1	0.400	J\gu 00. f>	Cadmium Dissolved
	08/18/14 12:05:00 SLW	ЬM	<i>ÞI/ÞI/80</i>	l	00.1	0.400	J\gu 00. f>	Beryllium Dissolved
	08/18/14 12:05:00 SLW	ЬM	11/11/80	L	00.1	0.400	J\gu 7.68	Barium Dissolved
	08/18/14 12:05:00 SLW	ЬM	11/41/80	l	2.00	0.700	√2.00 ug/L	Arsenic Dissolved
	08/18/14 12:05:00 SLW	ЬM	⊅ 1/ ⊅ 1/80	L	00.1	0.400	J\gu 00.↑>	Antimony Dissolved
	08/18/14 12:05:00 SLW	ЬM	11/11/80	l	4.00	1.50	J\gu 00.4>	Anuminal Dissolved
				SM-d	ES00.8, IC	nalytical Method	A	
			də	ICP-MS Pr	d: E200.8,	reparation Metho	Ь	Analysis Desc: E200.8, ICP-MS
	08/18/14 15:22:21 MV	ЬM	11/11/80	ı	009.0	0.200	J\gm 8.S1	Sodium Dissolved
	VM 15:22:21 41/81/80	ЬM	11/41/80	ı	0.200	0070.0	J\gm 6S. f	Potassium Dissolved

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b1/b1/80

Þ1/**Þ**1/80

\$1/\$1/80

tr/tr/80

l

LCRA Environmental Laboratory Services 3505 Montopolis Drive Austin, TX 78744

Phone: (512)356-6022 Fax: (512)356-6021



STLUSAR ANALYTICAL RESULTS

J\gu 00S.0> Mercury Dissolved 38/12/14 10:00:00 AE 08/14/14 09:29:00 AE 0.200 0.070 Analytical Method: E245.1 Mercury Water Preparation Method: E245.1 Mercury Water Analysis Desc: E245.1 Mercury Water **HEAVY METALS** J\gm S.& I Silica, Dissolved ٦W ML 08/20/14 08/20/14 2.50 00.1 Analytical Method: SM4500-SiO2-C, Silica Preparation Method: SM4500-SiO2-C, Silica Analysis Desc: SM4500-SiO2-C, Silica J\gm 68. f Nitrate/Nitrite ٦W ML 08/13/14 \$1\£1\80 0.020.0 00800.0 Analytical Method: SM4500-NO3-H, Nitrate/Nitrite Aitrate/Nitrite Preparation Method: SM4500-NO3-H, Nitrate/Nitrite Analysis Desc: SM4500-NO3-H, *HARLE AND NITRATE* Total Alkalinity 223 mg/L КH bl/bl/80 КH t1/t1/80 L 0.02 0.02 Carbonate Alkalinity КH КH 0.02 J\gm 0.0S> **セレ/セレ/80** t1/t1/80 0.02 Ν Bicarbonate Alkalinity **カレ/カレ/80** 0.02 ZZ3 mg/L Ν КH КH bl/bl/80 J\gm 0.0S> Hydroxide Alkalinity Ν KН bl/bl/80 КH bl/bl/80 0.02 0.02 J\gm 0.0S> Phenolphthalein Alkalinity Ν KН t1/t1/80 t1/t1/80 0.02 0.02 Analytical Method: SM2320B, Alkalinity Preparation Method: SM2320B, Alkalinity Analysis Desc: SM2320B, Alkalinity ALKALINITY CW 71/91/80 NR 00:08:90 71/71/80 0.0800 J\gm 00S0.0> Phosphorus, Dissolved (As P) 0.020.0 Analytical Method: E365.4 Phosphorus, Total Preparation Method: E365.4 / E351.2 Water Prep Analysis Desc: E365.4 Phosphorus, **9 SA STAH9SOH9 JATOT** 08/20/14 20:23:00 WR 08/20/14 20:23:00 WR 0.400 J\gm č. f & Sulfate Dissolved 1.00 Fluoride Dissolved 08/20/14 20:23:00 WR 08/20/14 20:23:00 WR J\gm &\$\subseteq 52.0 0010.0 0.00400 08/20/14 20:23:00 WR 08/20/14 20:23:00 WR 0.0200 00800.0 J\gm £01.0 Bromide Dissolved J\gm 8.1S Chloride Dissolved 08/20/14 20:23:00 WR 08/20/14 20:23:00 WR 00.1 0.400 Analytical Method: E300.0, Anions Preparation Method: E300.0, Anions Analysis Desc: E300.0, Anions Qual By Analyzed Вλ Prepared WCL DF PQL COD Results Units Parameters Project ID: **TWDB CAN** SAMPLE Sample Type: Sample ID: Date Collected: 8/4/2014 11:25 719-35-89 suoeupA Lab ID: :XinteM Date Received: 8/8/2014 11:15 Ø1434842003 Workorder: Q1434842

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Report ID: 110837 - 1148760

LCRA Environmental Laboratory Services 3505 Montopolis Drive

Abrata, XT, nibauA 203-336-6021 Fax: (512)356-6021



STUUSAR ANALYZICAL

Morkorder: Q1434842

NORGANICS										
Parameters		Results Units	ГОБ	PQL	WCF	DE	Prepared	By Analyzed	βλ	Qual
:Ol toejon	TWDB CAN									
gample ID:	719-35-89]	ate Colle	:betoe	8/4/2014 11:25	Sample Type:	SAMPLE	
:Olds.	Ø1434842003]	ste Rec	:bəviə	8/8/2014 11:15	:xintsM	snoənbA	

Analytical Method: SM1030B Cation/Anion Balance

08/51/14 50:58:14 CM 08/51/14 50:58:14 CM

% 0068.0

Cation/Anion Balance

Balance

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Report ID: 110837 - 1148760

Texas Water Development Board Well Schedule

	*			•			
State Well Number 6835618	Ť	Previous Well I	Number		County	Bexar .	29
River Basin 19 San Antonio River	GMA 9	Latitude :	292715	Longitude 983834	Source of	Coords 2	
Owner's Well No.	Location	•				· · · · · · · · · · · · · · · · · · ·	<u> </u>
Owner	•	Driller					
San Antonio Water System (Micron #3)	*				:	•	
	-				. `	• • .	
Address			·	Tenant/Oper.			<u>.</u>
		•		`			
Date Drilled 03/28/2006 Dept	h 880	Source of D	Depth A	Altitude 805	Source of	Alt. M	
			· .	Well Type W	User	764200	
WELL Const- CONSTRUCTION Method			Casing Material			• • • • • • • • • • • • • • • • • • •	
Completion	1 blank		Screen Material			Well Scree (S) or Ope	Blank Pipe (C) in or Slotted Zono n Hole (O) fromto
LIFT DATA - Pump Mfr		Type -		No. Stages			
Bowls Diam in.	Setting -	f	t. Column	Diam	in.		
Motor Mfr	Fuel or Power	- ELECTRIC M	IOTOR	Horsepower -			
A YIELD FlowGPM	Pump	GPM Mo	eas.,Rept.,Est	Date-			
in the state of th							
WATER USE Primary PUBL	LIC SUPPLY	Secondary -	•	Tertiary -	,		
ÖTHER DATA AVAILABLE Wa	ter Levels - N	Quality - N	Logs -	Other Data -			
WATER LEVELS				·	•		
Assertion 1		•					
D D	1000				2000		
Recorded By	Jone	Date	Record Collect	ed or Updated - 01/30/	2009		
Reporting Agency 03							1

Aquifer - 218EDRDA ID - 11

EDWARDS AND ASSOCIATED LIMESTONES

Well Number - 6835618

1486

REMARKS -

Öwners Micron #3 well.

TRACKING# 182927	STATE OF TEX	AS WELL REPORT	Date Entered: 6/16/2009
OWNER: San Antonio Water System ADDRESS OF WELL'S LOCATION:	OWN ADDR	ER 2800 US Hwy 281 N RESS: San Antonio ,	TX 78212
7203 Micron San Antonio , TX			V04 VV 4000
COUNTY: Bexar LATITUDE: 292710		E: 983834	d/Model of GPS:
Owner's Well Number:	ELEVATION	V:	Grid Number: 68 - 35 - 6
✓ New Well☐ Replacement Well☐ Deepening☐ Reconditioning	Industrial 🔲 I Public Supply	Monitor Well Env. Soint Env. Env. Soint Env. Env. Env. Env. Env. Env. Env. Env.	Geothermal Heat Loop
WELL LOG: DIAMETER OF H	OLE D	RILLING METHOD:	
Date DrillingDia. (in)From (ftStarted7/1/200536SurfaceCompleted3/28/200624372	372	Driven Air Ham Air Rotary Cable To Mud Rotary Jetted	mer Hollow Stem Auger Bored ool Reverse Circulation Other
		IULAR SEAL DATA	,
BOREHOLE COMPLETION:	, Fro Fro	,	#Sacks + Material 810 #Sacks + Material
☐ Open Hole ☐ Underreamed ☐ Other☐ Straight Wall ☐ Gravel Packed	Fre	om ft. to ft.	#Sacks + Material
Gravel Packed Interval from ft. to	_	ethod Used Pressure mented By Schlumberger	
SURFACE COMPLETION: Surface Slab Installed Surface Sleeve Installed Alternative Pro	Dis Used Me	stance to Septic System stance to Property Line: ethod of Verification eproved by Variance No.	
WATER LEVEL:		PLUGGING INFO:	
Static Level 131.8 ft. below land surface	,	☐ Well Plugged within 4	8 hours
	ate 3/28/2006		Cement/Bentonite left in well:
TYPE OF PUMP:		-	om (ft.) To (ft.) Cem/Bent Sacks Used:
☐ Turbine ☐ Jet ☑ Submersible ☐ Other	Cylinder	·	
Depth to pump bowls, cylinder, jet, etc.		PACKERS:	
WELL TESTS:		Туре	Depth
Type of test: ✓ Pump ☐ Bailer ☐ Jette Yield: 7007 gpm with 9.2 ft. drawdown a			
WATER QUALITY:			
Did Driller knowingly penetrate any strata wl contained undesirable constituents?	nich ☐ Yes ✓ No	Type of water: Edwards Depth of Strata: Chemical Analysis made	? ☐ Yes 🗹 No

Registered Driller Apprentice

San Antonio

TX 78254

WELL DRILLER'S LICENSE NO.

COMPANY NAME: Frank Rosenkranz & Sons

Name as Signature Charles L. Rosenkranz

ADDRESS 6839 Leslie Rd

Driller Comments

\$mew

68.35.618 Wedatev

1518

WELL REPORT CONFIDENTIALITY NOTICE

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner. Please include the report's Tracking number on your written request.

Texas Department of Licensing Regulation Water Well Driller/Pump Installer Section P.O. Box 12157 Austin, TX 78711 Toll free (800)803-9202 (512)463-7880 FAX (512)463-8616

Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

DESCRIPTION AND COLOR OF FORMATION MATERIAL From (ft.) To (ft.) Description		SING, BL New/Used	,	AND WELL SCREEN DATA Setting From/To Gage
0 - 1 Top Soil 1 - 67 Limestone / Caliche - White / Yellow 67 - 90 Anacacho / Limestone - White / Yellow 90 - 157 Taylor Shale - Blue / Gray 157 - 316 Austin Chalk - White 316 - 322 Eagleford Shale - Black 322 - 330 Buda Limestone - White 330 - 349 Del Rio Shale - Blue / Gray 349 - 369 Georgetown Limestone - Orange / Brown	30	New	Steel	0 - 372 .500

369 - 880 Edwards Limestone - Creme