

1998 WATER WELL / PLUGGING

10/11/98



SHIMEK, JACOBS & FINKLEA, L.L.P.
CONSULTING ENGINEERS

8333 Douglas Avenue, #820

Dallas, Texas 75225-5816

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ROSS L. JACOBS, P.E.
RONALD V. CONWAY, P.E.
JOHN W. BIRKHOFF, P.E.
JOE R. CARTER, P.E.
GARY C. HENDRICKS, P.E.
I. C. FINKLEA, P.E.

November 23, 1998

Mr. John Baumgartner, P.E.
Director of Public Works
Town of Addison
Post Office Box 144
Addison, Texas 75001-0144

Re: Y2K Water Well

Dear Mr. Baumgartner:

We have completed our review for construction of a water well at the Celestial Pump Station site and find that it is feasible. It is our understanding that this water well is being considered as a secondary source of water in the case of extreme emergencies such as a Y2K meltdown of the electrical grid and/or Dallas's inability to supply water to Addison. The feasibility of a well producing approximately 1.0 million gallons a day is realistic in Addison. It has been reported that EDS to the north drilled a well into the Trinity formation and are producing 1800 gpm (2.6MGD). In order to achieve a well producing 1.0 MGD (694 gpm) will require a 16-inch casing and a 10-inch carrier pipe (16 x 10 well). The well will reach depths of approximately 2800 feet which will produce water at a temperature in the range of 105 to 115 degrees.

The water being produced from the Trinity formation has high amounts of total solids and sulfates, which leads to undesirable taste and odor concerns. The TNRCC's Secondary Constituent Levels establishes a maximum limit for Solids at 1000 mg/L and 300 mg/L for Sulfates. The EPA has no limits on these constituents, but has recommended limits of 500 mg/L for Solids and 250 mg/L for Sulfates. Area well reports indicate Trinity waters have solids in the range of 1200 mg/L and Sulfates in the range of 450 mg/L. Until the water can be tested it is unknown whether it will meet within TNRCC limits. For extreme emergency use, water quality issues may not be a major concern at these levels. Surface water from the City of Dallas has Solids in the range of 190 mg/L and Sulfates in the range of 50 mg/L.

Once drilled and placed into operation, the well will need to be exercised to insure its effectiveness when needed. The Trinity water can be blended with Dallas at the intake to the Ground Storage Reservoir. This type of operation can utilize the water from the well while exercising the well. A 90 - 10 blending rate would result in Solids in the range of 291mg/L and Sulfates in the range of 90mg/L which would meet TNRCC limits.

In addition to the 2800 foot Trinity Well, the Town will require a 300 HP Well Pump, Cooling Tower, Disinfecting Facilities (Chlormines), Pump/Well Building and a Disinfecting Building. Our opinion of cost for these facilities including engineering is approximately \$1,300,000.00.

Mr. John Baumgartner, P.E.
Town of Addison
11/25/98
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A 12 x 8 well producing 0.79 MGD (550gpm) with appurtenances would cost in the range of \$1,050,000.00 and a 10 x 6 well producing 0.58 MGD (400 gpm) with appurtenances would cost in the range of \$900,000.00.

The disinfection facility will contain ammonia and chlorine, such a facility is required by the Uniform Fire Code to include scrubbers. The cost for scrubbers would be an additional \$200,000.00. The council has the ability to waive this requirement. We recommend that it be a part of the project.

The Town's original well was located near the Post Office, if it has not been plugged, it will need to be plugged. It was reported from a local well contractor that the Town's original well (small producer) had holes in the casing and was contaminating the formation with brackish water. They had no record that the well had been plugged. The State requires abandoned wells to be plugged.

The time required to drill a well and place it in service is approximately three months. Construction to include buildings, piping and cooling tower is on the order of six months. We are available at your convenience to discuss any questions you may have with our findings or to proceed with preliminary site layout and engineering at the Celestial Pump Station.

Sincerely,



John W. Birkhoff, P.E.

Joe Dillard

1-2-01

Run Camera
\$2,000

Old well - 8" - 6" - only designed
for 100 gpm - water quality may
be bad

Test Pump
20-25K

Could put a test pump in it -
to see how much could be pumped w/o pumping sand

Drill 500 gpm Trinity well = \$500,000
well & pump

150 gpm Paluxy

~~8"~~ 8" well
\$185,000 well & pump

Static Water not falling too bad in Trinity
Bent Tree } largest users
TI }

Paluxy - a little more water use

12-18-00

Joe Dillard

214-388-7407

Glen Rose — Cased off
High sulfate water

Would need to run a camera to
check integrity of the casing blanking
out the Glen Rose Formation

Water quality is an issue to check

Le Jacks ^{is a} ~~Paluxy~~ Paluxy well
Formations

↳ Woodbine — Not good

Paluxy — 150-1600 ft 200 gpm Quality OK

Glen Rose 700' ± thick Quality N.G.

~~2500'~~ 2500' Trinity — water quality OK ± 500 gpm

Jim Montgomery

Greensmiths — Frisco

Treats Irving water — national reputation

A surface lake or ground storage tank
helps keep the pump motor size down,
electrical reqs down

How much water do we need?

CDM Camp Dresser & McKee Inc.

consulting
engineering
construction
operations

One Glen Lakes
8140 Walnut Hill Lane, Suite 1000
Dallas, Texas 75231
Tel: 214 346-2800 Fax: 214 987-2017

April 15, 1998

Mr. Jim Pierce, P.E.
Town of Addison
P.O. Box 144
Addison, Texas 75001-0144

Re: Estimated Water Well Closure Costs
Town of Addison Water Well
Southeast Corner of Addison Airport
Addison, Texas

Dear Mr. Pierce:

Pursuant to your request, Camp Dresser & McKee Inc. (CDM) has developed budgetary estimates for your use concerning the closure of the above referenced water well located at Addison Airport. The estimates presented in this letter were developed by CDM to assist the Town in budgeting funds for this work and should not be considered a proposal to perform the work. Based on our experience in the plugging and abandonment of water wells and following discussions with two separate water well drilling and plugging contractors, we estimate that the following funds should be budgeted for the sampling and closure of this well.

Sampling of Water Well\$ 2,000.00

(Includes labor, equipment, supplies and analytical testing for benzene, toluene, ethylbenzene, xylenes (BTEX), total petroleum hydrocarbons and polynuclear aromatic hydrocarbons (PAH's) and a letter report documenting the results of the investigation.)

Design Well Closure Specifications\$ 2,500.00

(Includes verifying closure methods and procedures, development of closure specification documents, pre-bid conference, bid evaluation and award.)

Well Closure Construction Costs\$ 27,000.00

(Includes all labor, equipment and materials required to plug the well in accordance with State requirements.)

Construction Oversight.....\$ 1,000.00

Total Budgetary Estimate\$ 32,500.00

Mr. Jim Pierce, P.E.
April 15, 1998
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CDM appreciates the opportunity to be of service to the Town of Addison. If you have any questions about the budgetary estimates provided above, please phone me at 214-346-2800.

Sincerely,

CAMP DRESSER & McKEE INC.

A handwritten signature in black ink, appearing to read "Ron Hartline", with a long horizontal flourish extending to the right.

Ron Hartline, P.E.



WATER IS OUR BUSINESS

SINCE 1904

8325 FORNEY ROAD • DALLAS, TEXAS 75227 • (214) 388-7407 FAX (214) 388-0059

April 14, 1998

Mr. Jim Pierce
City of Addison
P. O. Box 9010
Addison, TX 75001

Re: City of Addison Trinity Water Well

Dear Jim:

In response to our telephone conversation we are enclosing a copy of the electric log, drillers log and material settings on the well drilled in 1957 for the City.


The recommended plugging method for this well is to run tubing to total depth and pump in a cement slurry to fill the casing and liner from 2500 to 2778 feet followed by heavy 10#/gal drilling mud from 1800 to 2500 feet. A cement plug opposite the Paluxy sand from 1600 to 1800 feet then mud from 20 to 1600 feet with cement from surface to 20 feet to complete the plugging.

An estimated cost for this is \$15,000.00. This figure was given to Ron Hartline.

If you have any questions, please call.

Sincerely,

J. L. MYERS COMPANY


Joe W. Dillard
Vice-President

JWD:va

Enclosures

J. L. MYERS' SONS
DALLAS - DENTON

MATERIAL RECORD FOR
CITY OF ADDISON, TEXAS

<u>From</u>	<u>To</u>	<u>Amount</u>	<u>Description</u>
0	15	15'	12" O. D.
0	1009	1009'	8-5/8" O. D., 27.02# upper casing
1009	1010	1'	8-5/8" O. D. X 7" O. D. Swedge Nipple
1010	2614	1604'	7" O. D., 20# lower casing
2614	2615	1'	7" O. D. X 6-5/8" O. D. Swedge Nipple
2615	2768	153'	6-5/8" O. D. mill slotted pipe set opposite sand section
2768	2778	10'	6-5/8" O. D. Blank with shoe on bottom

Casing cemented from top of 6-5/8" mill slotted pipe to surface of ground cementing by Halliburton Oil Well Cementing Company.

J. L. MYERS' SONS
DALLAS - DENTON

WELL LOG

WELL OWNER: City of Addison, Texas

WELL LOCATION: City of Addison, Texas

WELL COMPLETED: November, 1957

DRILLER:

Depth of Stratum	Each Strata	Formation
0 - 15	15	Surface Soil
15 - 120	105	Chalk Rock
120 - 640	520	Shale
640 - 650	10	Sand
650 - 862	212	Shale
862 - 1015	153	Broken Sand
1015 - 1025	10	Shale
1025 - 1255	230	Shale & Lime
1255 - 1415	160	Lime
1415 - 1450	35	Shale
1450 - 1520	70	Lime
1520 - 1570	50	Lime
1570 - 1798	228	Sandy Shale
1798 - 2073	275	Broken Lime
2073 - 2185	112	Shale & Lime
2185 - 2330	145	Shale & Sand
2330 - 2395	65	Broken Sand
2395 - 2465	70	Broken Lime
2465 - 2570	105	Shale
2570 - 2750	180	Sand
2750 - 2778	28	Shale

4-8-98

Called

Steve Music TNRCC Re Sealing Well
Have Rules & Regulations

Need a Licensed Water Well Driller

Steve will look up rules &
regs & give me a call.

^{Dupont}
John - Dept. of Licensing & Regulation 512-463-6509

Licensed Driller -

Look for Licensed Drillers

^{copy of Rules}
will check for all regs that need
to be followed

Measure water level -

Take Sample for Quality.

4/9

Telecon - Joe Dillard - J.L. Myers -

Cement plug in screen area

heavy mud to within 20' of surface

20' cement plug @ top. Need to

isolate the Glen Rose formation

which has poor water quality. Glen

Rose water is aggressive and can

eat away casing & cement seal which

could cause cross contamination of "The Trinity"

Form GW-1

TEXAS BOARD OF WATER ENGINEERS
GROUND-WATER DIVISION

WELL SCHEDULE

Date 3/28, 19 61 Field No. _____
Record by WS Office No. HR3302201
Source of data AKL 1/1/70 Home Hunter

1. Location: County Dallas
Map about 200' NW of Post office
Survey _____
2. Owner: City of Addison Address Addison
Tenant _____ Address _____
Driller JL Myers & Sons Address _____

3. Topography: _____
4. Elevation: 635± ft. ^{above} MSL _{below}
5. Type: Dug, drilled, driven, bored, jetted 19 DS7
6. Depth: Rept. 2778 ft. Meas. _____ ft.
7. Casing: Diam. _____ in., to _____ in., Type _____
Depth _____ ft., Finish _____

8. Chief Aquifer: Kfp From _____ ft. to _____ ft.
Others _____
9. Water level: _____ ft. rept. _____ 19 _____ above
meas. _____ below
which is _____ ft. above surface
below

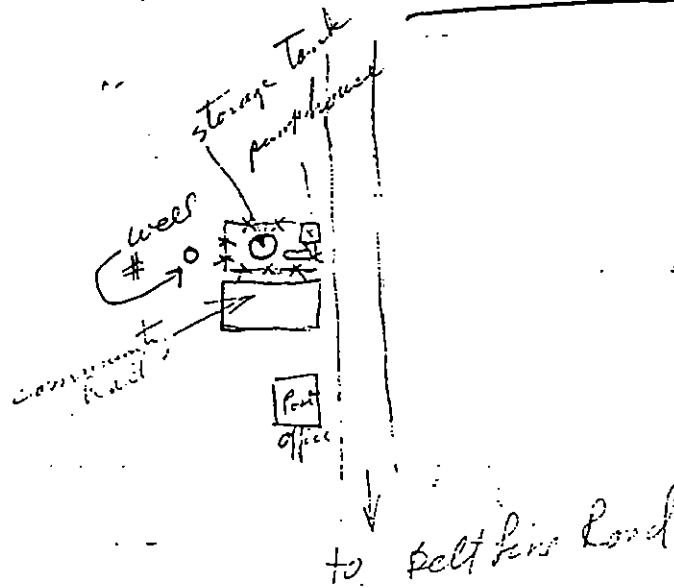
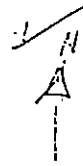
10. Pump: Type T Capacity _____ gpm
Power: Kind EV Horsepower 50
11. Yield: Flow _____ gpm, Pump 200 gpm, Meas. Rept. Est. 1961
Drawdown _____ ft. after _____ hours pumping _____ gpm

12. Use: Dom., Stock, PS RR., Ind., Obs. Irr. _____
Adequacy, permanence _____
13. Quality: _____

Temp. _____ °F Sample Yes _____ No _____

14. Log: Yes Driller's log at Myers
No _____
15. Remarks: check Myers & Hunter

33-02-201



- ✓
- 0-15 12" OD
 - 0-1009 8⁵/₈" OD
 - 1009-1010 8⁵/₈" OD x 7" OD swedge nipple
 - 1010-2614 7" OD
 - 2614-2615 7" OD x 6⁵/₈" OD swedge nipple
 - 2615-2768 6⁵/₈" OD mill slotted pipe
 - 2768-2778 6⁵/₁₆" OD blank w/ shoe on bottom

cemented

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer: TEJON MOUNTAINS

Field No. _____
Owner's Well No. _____

State Well No. 33 02 201
County DALLAS

1. Location: 1/4, 1/4 Sec., Block _____, Survey _____

2. Owner: CITY OF ARLISON Address: _____

Tenant: _____ Address: _____

Driller: J. L. MYERS SON Address: DALLAS, TEXAS

3. Elevation of _____ is 635 ft. above msl, determined by TOPO

4. Drilled: NOV 3 1957; Dug, Cable Tool, Rotary

5. Depth: Rept. 2774 ft. Meas. _____ ft.

6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfg. _____ Type Turbine

No. Stages _____, Bore Diam. _____ in., Setting _____ ft.

Column Diam. _____ in., Length Tailpipe _____ ft.

8. Motor: Fuel Elect Make & Model _____ HP 50

9. Yield: Flow _____ gpm, Pump _____ gpm, Meas., Rept., Est. _____

10. Performance Test: Date _____ Length of Test _____ Made by _____

Static Level _____ ft. Pumping Level _____ ft. Drawdown _____ ft.

Production _____ gpm Specific Capacity _____ gpm/ft.

11. Water Level: 2000 ft. rept. 1961 above 150'

1177 ft. rept. 1975 above OVER 500'

_____ ft. rept. 19 _____ above _____

_____ ft. rept. 19 _____ above _____

12. Use: Dom., Stock Public Supply, Ind., Irr., Waterflooding, Observation, not Used

13. Quality: (Remarks on taste, odor, color, etc.) _____

Temp. _____ °F, Date sampled for analysis 10-1-76 Laboratory THD

Temp. _____ °F, Date sampled for analysis _____ Laboratory _____

Temp. _____ °F, Date sampled for analysis _____ Laboratory _____

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, MYERS

Formation Samples, Pumping Test, _____

15. Record by: Gene Davis Date 6-16 1975

Source of Data TRONE SCHUBS

16. Remarks: CITY ON SURFACE WATER

E-log Picks → Top of
Wb @ 652, Wash @ 967, F @ 1444, Pa @
1550, GR @ 1720, Tm @ 2210, F @ 2760

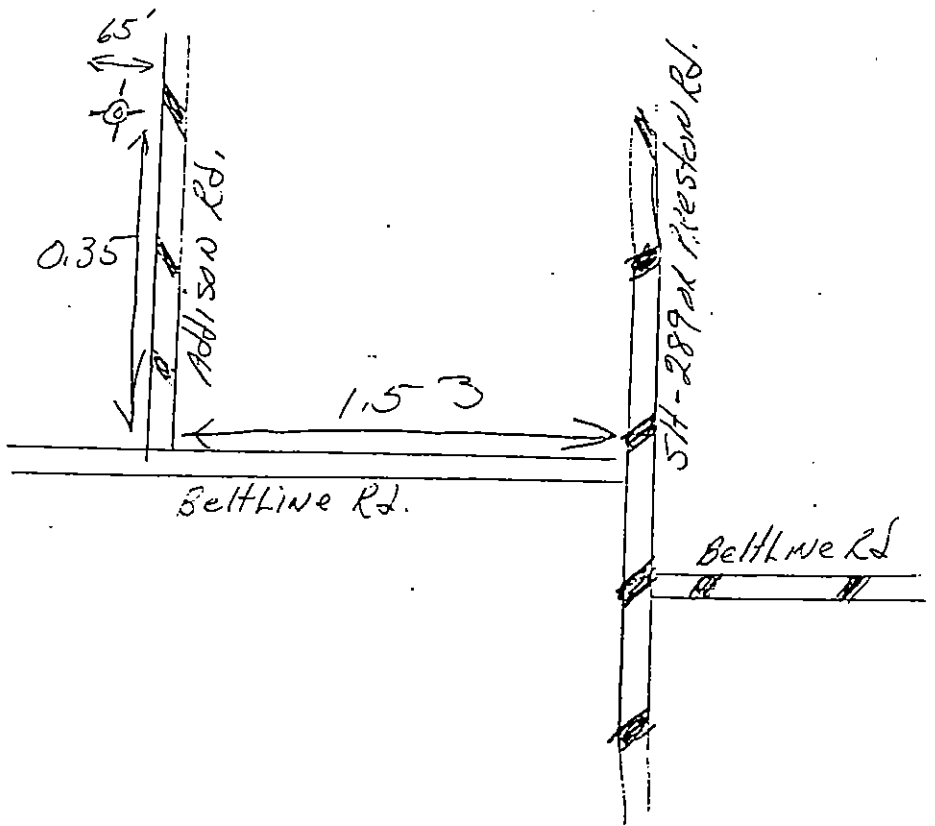
CASING & BLANK PIPE			
Cemented From <u>0</u> ft. to <u>2615</u> ft.			
Diam. (in.)	Type	Setting, ft.	
		from	to
12	steel	0	15
8 5/8	"	0	1009
7	steel	1009	2615
6 5/8	"	2615	2778

WELL SCREEN			
Screen Openings <u>Slotted</u>			
Diam. (in.)	Type	Setting, ft.	
		from	to
6 5/8	steel	2615	2768

V. L. Myers Co 8325 Forney Rd 214-388-7407
Joe Dillard - will send logs out on 4/13

Drillers Log

- 5 - surface soil
- Chalk Rock
- 40 - Shale
- SAND
- 2 - Shale
- 5 - BROKEN SAND
- 5 - Shale
- 5 - Shale & limp
- 5 - Lime
- 50 - Shale
- 10 - Lime
- 5 - Lime
- 4 - SANDY Shale
- BROKEN Lime
- 35 - Shale & Lime
- 10 - Shale & SAND
- 1 - BROKEN SAND
- 1 - BROKEN LIMP
- 10 - Shale
- 5 - SAND
- 8 - Shale



33-02-201

Typewrite (Black ribbon) or Print Plainly
(soft pencil or black ink)
Do not use ball point pen

State Department of Health Laboratories
West 49th Street
Austin, Texas 78756

TWDBE-GW ONLY

Program No. _____
Proj. No. _____

CHEMICAL WATER ANALYSIS REPORT

057

HR DALLAS

County HR DALLAS

State Well No. 33-02-201

Well No. _____

Date Collected 10-01-71

By city

Send report to:

Ground Water Data and Protection Division
Texas Water Development Board
P.O. Box 13087
Austin, Texas 78711

Location _____

Source (type of well) Turbine-Elect Owner City of Addison

Date Drilled 1957 Depth 2778 ft. WBF TWIN MOUNTAINS

Producing intervals 2615-2768' Water level 200.0 (1961)

Sampled after pumping _____ hrs. Yield _____ GPM meas. est. Temperature °F °C

Point of collection well Appearance clear turbid colored other

Use P.S. Remarks _____

(FOR LABORATORY USE ONLY)

CHEMICAL ANALYSIS KEY PUNCHED

Laboratory No. _____ Date Received _____ Date Reported _____

	MG/L				ME/L			
Silica								
Calcium			5					.25
Magnesium			2					.16
Sodium			384			16		.70
Total						17		.11
<input type="checkbox"/> Potassium								
<input type="checkbox"/> Manganese								%Na _____
<input type="checkbox"/> Boron								SAR _____
<input type="checkbox"/> Total Iron								RSC _____
<input type="checkbox"/> (other) _____								MG/L _____
Specific Conductance (micromhos/cm ³)								
Adjusted Conductance (micromhos/cm ³)								X _____

	MG/L				ME/L			
Carbonate								
Bicarbonate			534					
Sulfate			183			3		.81
Chloride			140			3		.95
Fluoride			2.3					
Nitrate			4.4					
pH			8.4					Total
<input checked="" type="checkbox"/> Dissolved Solids (sum in MG/L)								1250
Phenolphthalein Alkalinity as CaCO ₃								
Total Alkalinity as CaCO ₃								438
Total Hardness as CaCO ₃								19
2/ Nitrogen Cycle								
Ammonia - N								
Nitrite - N								
Nitrate - N								

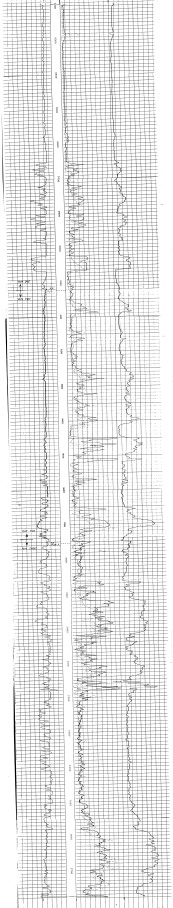
The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

PROJECT NO. 1000000000
 DATE: 10/10/2000
 LOCATION: 1000000000
 CLIENT: 1000000000
 OPERATOR: 1000000000
 INSTRUMENTS: 1000000000

WELL NO. 1000000000
 DATE: 10/10/2000
 LOCATION: 1000000000
 CLIENT: 1000000000
 OPERATOR: 1000000000
 INSTRUMENTS: 1000000000

SPONTANEOUS POTENTIAL (millivolts)	RESISTIVITY (ohm-cm)	RESISTIVITY (ohm-m)
10	1.000	1.000
20	1.000	1.000
30	1.000	1.000
40	1.000	1.000
50	1.000	1.000

SPONTANEOUS POTENTIAL (millivolts)	RESISTIVITY (ohm-cm)	RESISTIVITY (ohm-m)
10	1.000	1.000
20	1.000	1.000
30	1.000	1.000
40	1.000	1.000
50	1.000	1.000



SPONTANEOUS POTENTIAL (millivolts)	RESISTIVITY (ohm-cm)	RESISTIVITY (ohm-m)
10	1.000	1.000
20	1.000	1.000
30	1.000	1.000
40	1.000	1.000
50	1.000	1.000