

3409 Executive Center Drive
Suite 226
Austin, Texas 78731

512/345-2379
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R. W. Harden & Associates, Inc.
Hydrologists - Geologists - Engineers

Tuesday, March 18, 2003

Mr. Podzemny
3019 S.W. 114th St.
Amarillo, TX 79118

Dear Mr. Podzemny:

Enclosed you will find drilling, construction, development, and testing records for your new water well drilled and constructed last fall. These documents are for your records. As you know, I will continue to monitor your new well in the future and will send you copies of the results.

If you have any questions, please call.

Sincerely,

R. W. Harden & Associates, Inc.



Dennis Drews

Podzemny Water Well - 24A

Formation Log

<u>Depth</u>	<u>Formation Description</u>
0-5	Tan and brown sandy clay - Top soil
5-185	Tan sand with some clay streaks
185-218	Firm white caliche with green and white clay streaks
218-230	Red and white clay
230-265	White and tan clay with sand streaks
265-288	Firm red clay
288-320	Tan and red fine sand
320-355	Tan, white, and brown medium to coarse sand with clay streaks
355-360	Firm tan, yellow and white clay

Well Construction Record

Owner: Dan Podzemny
Well Number: 24A
Well Use: Domestic
Measuring Point: 2' Above Ground Level
Northing: 35.0966°
Easting: 101.8073°

Drilling Company: Turn Key Drilling Co.
Driller's License No.: 2984 TX
Date Drilled: 10-10,11-02
Drilling Method: Mud Rotary
Bit Size and Type: 8 3/4 - Inch Roller Cone
Drilling Fluid: Native
Depth Drilled, Feet Below Ground Level: 360

Date / Time of Construction: 10-11-02 / 945 - 1545

Casing

Type: Certainteed Certa-Lok IB Well Casing IC-1 PVC
Size: 5-Inch ID
Weight: Sch. - 40
Interval:
Top: +2' Bottom: 325'
Top: 355' Bottom: 360'

Screen

Type: Certainteed Certa-Lok IB Well Casing IC-1 PVC
Size: 5-Inch ID
Weight: Sch. - 40
Interval:
Top: 325' Bottom: 355'

Bottom Construction PVC Cap

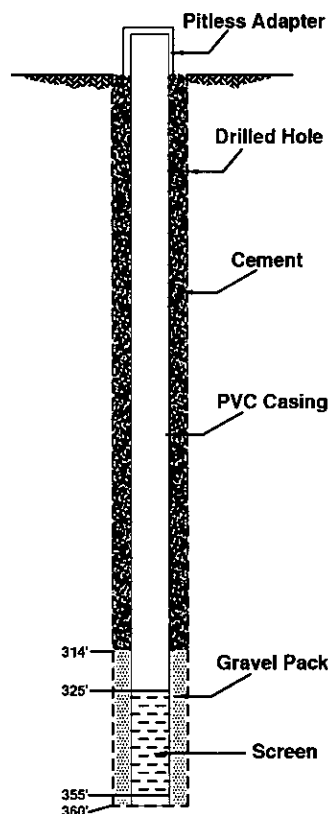
Gravel Pack

Type: Garden City #1, Fine, Double Washed
Volume: 10 cu. ft.
Placement Method: Tremie
Interval:
Top: 314' Bottom: 360'

Anular Seal

Type: Portland Neat Cement
Volume: 60 cu. ft.
Placement Method: Tremie
Interval:
Top: 15' Bottom: 314'

Well Construction Diagram



Development and Testing

Date / Time of Development: 10-14-02 / 930 - 1500
Method of Development: Pumped with submersible pump

Notes: Static water level = 208' BMP
Pumping water level = 235' BMP @ 2 hours
Pumping rate = 20 gpm
2 hour specific capacity = .74 gallons
per minute per foot of drawdown
Specific conductance = 423 uS

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Dear Mr. Podzemny:

At your request, the following are the results of the chemical analyses on the water sample I collected from your well in January of 2003.

Constituent	Concentration*
Total Hardness (CaCO ₃)	185.08
Calcium (Ca)	19.93
Magnesium (Mg)	32.83
Aluminum (Al)	0.0
Iron (Fe)	0.018
Sodium (Na)	29.6
Potassium (K)	6.257
Manganese (Mn)	0.01
Copper (Cu)	0.005
Zinc (Zn)	0.01
Lead (Pb)	0.007
Sulfate (SO ₄)	23.916
Chloride (Cl)	11.087
Fluoride (F)	4.201
Nitrate (N)	0.695
Phosphorus (P)	0.0
Ammonia (NH ₃)	0.0
Silica (SiO ₂)	48
Cyanide (CN)	0.0
Total Dissolved Solids	355.0
Total Alkalinity (CaCO ₃)	235.0
P Alkalinity (CaCO ₃)	0.0
Dissolved Oxygen	7.6
Total Carbon (C)	66.769
Total Organic Carbon (C)	1.704
Field Specific Conductance (micro S)	538
Lab Conductivity (micro S)	530.0
Turbidity (NTU)	1.477
pH	7.66

*Results are in milligrams per liter (mg/l) except for specific conductance and pH.