38531

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SHAWVER WELL COMPANY, INC

To: Jean Young **From:** Jill Sternat

Fax #: 563.387.1080 **Date:** February 27, 2003

RE: City of Waukon **Pages:** 3

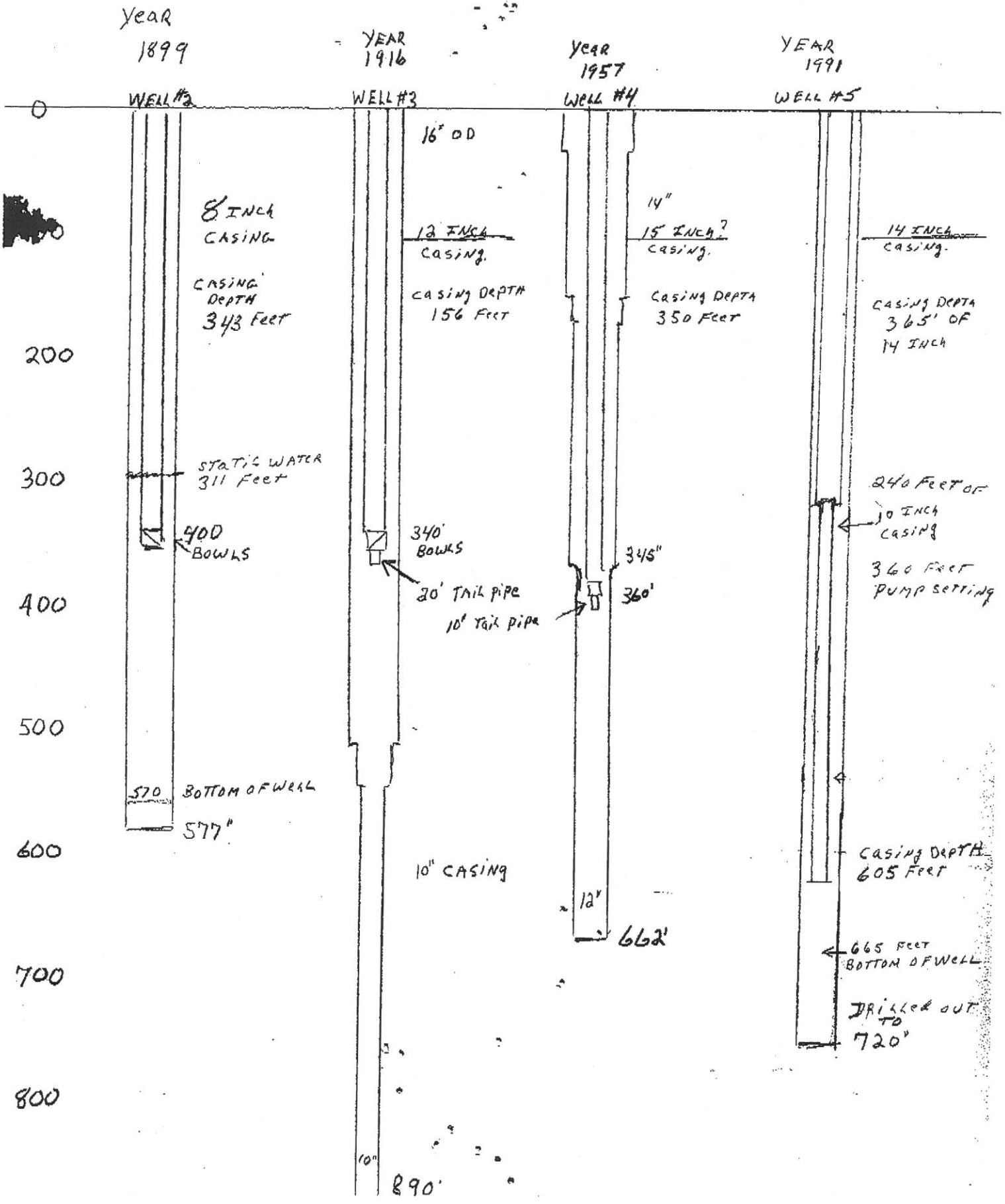
Jean,

The well was drilled deeper at a later date by Northway. Gary did not know to what depth.

jas

LOG · PRESENT · WELLS

WAUKON, IOWA



GEOSAM # 38531 38531

Shawver Well Company, Inc.
2700 Stanley Avenue
Fredericksburg, IA 50630

id	well number	
	489	9112034
owner name		Waukon, City of
second name		City of Waukon
address 1		
address 2		
city/state		Waukon
zip		52172
county		Allamakee
township		Union Prairie
section		25
quarters		SENWSE
startdate		06/26/91
enddate		09/12/91

LOG OF WELL

0'	to	18'	Brown clay
18'	to	135'	Limerock
135'	to	179'	Shale
179'	to	220'	Brown limerock
220'	to	225'	Shale
225'	to	279'	Sandstone
279'	to	282'	Shale
282'	to	299'	Limerock
299'	to	304'	Sandstone
304'	to	350'	Limerock
350'	to	354'	Made water
		396'	Limerock
396'	to	408'	Gray limerock
		408'	Made water, 50 gpm
408'	to	415'	Brown limerock
		415'	Made water, 100 gpm
415'	to	450'	Limerock
450'	to	548'	Made water
548'	to	557'	Brown limerock
		557'	Made water
557'	to	571'	Brown limerock
571'	to	576'	Sandstone, made water
576'	to	583'	Red-brown limerock
583'	to	588'	Sandstone
588'	to	598'	Sandstone and limerock
598'	to	603'	Brown limerock
603'	to	605'	Sandstone

DESCRIPTION OF WELL

The well was started with a 19' hole drilled to approximately 20' and an estimated 21' of 18 5/8' OD casing was installed. A 11 7/8' pilot hole was then drilled to 395'. The hole was then reamed to 17 1/2' with the hammer. A plumbness test was run and it was found that the hole was out of alignment but was within tolerances for plumbness.

We attempted to set the 14' casing but after 150' was installed the casing wouldn't go. We pulled the 14' out and made up a bit and stabilizer to ream the hole to 19 1/4'.

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We reamed the hole with air to approximately 275'. At 275' the cuttings caught up to the bit. Because we did not have enough CFM to clean the hole, the cuttings locked the stabilizer in place. After fishing for a week, including acidizing the tools, we were able to fish them out by vibrating the drill string with a hammer and pulling back at the same time.
We then ran another plumbness test and decided to set the casing. the casing was installed successfully and grouting proceeded with no problems.
After the grout set up, we drilled a 13" hole with a hammer down thru the underlying Prairie Du Chien Limerock and into the top of the dordan Sandstone. We encountered over 100 gpm at approximately 390'. by the time we got to the Jordan we estimated we were blowing over 800 gpm out of the well.
Subsequently, we installed the test pump, but had some problems when a column came unscrewed and we had to pull the pump and fix the columnm. We then reinstalled the pump and test pumped the well for an additional 14 hours.
The well is cased from 1' above ground level to 395' below ground. A 22 7/8" hole was drilled to 20'. A 19 1/4" hole was drilled to approximately 275' and a 17 1/2" hole was drilled to 395'. The well is cased with 14" od steel x .375 wall casing. A cement shoe made by Shawver Well was used to pump the grout. a 2" tremie was used ard 200 sacks of cement grout was pumped thru the shoe with the balance being one day. a 300 psi wilden Pump was used during the procedure. After the grout set for a week, we drilled a 13" open hole from 395' to 605' using a 100-15 hammer with a 13" bit. Water was made from 396' to 397', estimated to be around 100 gpm. Water was made again at 408', estimated at 50 gpm; at 415', estimated at 100 gpm; and at 548', 557' and 571' to the bottom of the well. The static water level is at 305'. The test pump was installed to 350'. the well was pumped at around 425 gpm with the water drawing down to approximately 322'. the well pumped very little sand during the test pumping.

s w l	305'
r p s	350'

water test info

BOREHOLE DATA

driller Jim Bunting