

Nelson, Dan

From: Terry Scanlan <TScanlan@spfwater.com>
Sent: Friday, August 11, 2017 7:05 PM
To: Nelson, Dan
Subject: RE: Sabal Whitetail Permits.
Attachments: Well 2 pumping test.pdf; Pump Recommendation.pdf

Dan --

The drawdown on the well driller's report was for air-lift pumping. In the exams, there are two well driller reports for Well 7. The first lists 5 gpm at 220 ft. The well was then deepened to 330 feet and produced 150 gpm from 200 feet by airlift. Drawdown is less with a pump than with airlift.

For Well 2, I found the attached pumping test data in my files. It supports a nominal 100' pumping water level (or less) for Well 2 at a 170 gpm rate. In the test, the well produced 220 gpm from 131 feet after several hours of pumping. If I plug a 100' pumping water level into your spreadsheet, plus add 27 psi discharge pressure (42 feet of headloss and 20 feet of lift to the high point), it comes out with 170 gpm.

The monitoring records for Well 7 show that the well was producing 170 gpm with a pumping water level of 165.5 feet on 9/26/2006. If I plug that pumping level into your spreadsheet, along with a 27 psi discharge pressure, it give sme a 182 gpm rate.

Looking back in my records, the installed pumps in Wells 2 and 7 were designed to produce a bit more than what is calculated. Well 7 was equipped with a Berkeley 6T200 that would produce 200 gpm with 233 feet of lift (171 feet + 27 psi). So either it was showing some wear in 2006, or maybe the meter was off. Well 2 was equipped with a 6T150 rated to produce 170 gpm at the 170' lift. Note that Berkeley pumps typically operate in the service factor, so the 10-hp pump is designed to pull about a 10.5-hp load, and the 15-hp pump is designed to pull about a 16-hp load.

Terry

From: Nelson, Dan [mailto:Dan.Nelson@idwr.idaho.gov]
Sent: Friday, August 11, 2017 3:07 PM
To: Terry Scanlan <TScanlan@spfwater.com>; Lori Graves <LGraves@spfwater.com>
Subject: Sabal Whitetail Permits.

Terry,

I am struggling trying to justify the diversion rates that you recommended for the two wells diverting into Annie's Pond. You read the flow meter on Well # 7 and listed a diversion rate of 170 gpm. You did a theoretical analysis on Well # 2 and came up with the exact same flow rate. In the report, you list Well # 2 with a 10 Hp pump motor, and Well # 7 with a 15 hp pump motor. The well driller reports show Well # 2 has 180 ft drawdown, and Well # 7 has a 220 ft drawdown, so I thought that this could be the reason. And from the diagram in the field exam, both pumps deliver water to Annie's pond in the same pipeline, so the pressures should have been the same.

However, when I did a theoretical calculation to verify the numbers. I came up with a diversion rate of 0.30 cfs for Well # 2 and 0.38 cfs for Well #7. I have attached my theoretical analysis for you to look over. Could you look over the information and let me know what you think?

Thank you,

W⁰ DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

ILLING PERMIT NO. 65-96-W-0156

IDWR No.

OWNER:

Name M Resorts #2
Address Box 1006
City McCall State ID Zip 83638

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

Twp. 18 North ☒ or South ☐
 Rge. 3 East ☒ or West ☐
 Sec. 7 1/4 NE 1/4 SE 1/4
 Gov't Lot _____ 10 acres County Valley 40 acres 160 acres
 Lat. : : Long. : :
 Address of Well Site Bear Basin
 City McClellan
 (Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)

 New Well: ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
Bentonite	0	20	5 Bags	Overlaid

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 187

Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	1	127	250	Steel	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations Method_____

Screens	Screen Type
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From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

52 ft. below ground Artesian pressure — lb.

Depth flow encountered 180 ft. Describe access port or control devices: WEI CAP

11. WELL TESTS:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
160	—	180'	4 hrs.

Water Temp. 49° Bottom hole temp _____

Water Quality test or comments: clear

Depth first Water Encountered

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

[illegible]

Completed Depth 192' (Measurable)

Date: Started 6.28.96 Completed 8.30.96

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name MENASCO Drilling Firm No. 391

Firm Official [Signature] Date 6.30.96

and
Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Pump Test well # 2 -

Pump set at Alox 10ft off bottom -
Static at start well # 2 - 53 ft - well # 153.6

Flow meter - 7053⁰⁰ -

	Flow meter trap	Depth.
start time - 12.40	50 gpm	-
12.45	"	60'
12.50	"	61'
12.55	"	61' 7"
1.00	"	62'
1.01	100 gpm	-
1.05	"	67' 7"
1.10	"	68' 4"
1.15	"	68' 10"
1.16	Flow meter	7080 ⁰⁰
1.20	150 gpm	74' - 4"
1.25	"	75' - 0"
1.30	"	75' - 8"
1.31	200	- meter 7103 ⁰⁰
1.35	"	83'
1.40	"	83' - 10"
1.45	"	84' - 10"
1.50	"	85' - 4"
1.51	250 -	-

Time	meter	By Flow meter	meter 7163
2:00	250-	125'	97'-3"
2:02	"	150'	102'-4"
2:05	"	"	"
2:10	"	150'	103'-6"
2:15	"	"	103'-11"
2:16	300	200	7207
2:20	"	"	116'-4"
2:25	"	"	117' 10"
2:30-	"	"	118'-8"
2:55-		122'-	7438

Pump stop - Re-start when saturated

400' - 220 gal by 55 gal barrel - 110'

By meter

4:08'	220'	118'
4:20	"	127' 3 1/2"
4:25	"	128' 6"
4:46	"	129'
5:00	"	129' 4"
5:08	"	129' 8"
5:27	"	130' 10"

Open Pump up to max Flow

275 gpm by 55 gal barrel

5:45 Pump shut off

6:48' 80' st.

well # 1 - still at 63'-6" at 5:30

Well No. 2 Equipment. The pump at Well No. 2 will be a 10 hp submersible pump (Berkeley 6T150) rated for 170 gpm at 170 feet total head. The pump will be set at a depth of 175 feet on 3-inch column pipe with a column check valve. A 1-inch diameter sounding tube should be provided for water level measurement. The pump will discharge below ground through a pitless adapter. A combination air and vacuum valve (2-inch Waterman CR-101) valve shall be provided at the high point of the discharge. Other components include a pressure gage, 4-inch gate valve, 4-inch check valve, and 4-inch flow meter. These components can be installed in a vault or small shelter near the well. The pump will be started and stopped manually. Pump electrical controls would be mounted adjacent to the well on unistrut framing or at the meter vault.

Well No. 7 Equipment. The pump at Well No. 7 will be a 15-hp submersible pump (6T200) rated for 225 gpm @ 200 feet total head. The pump will be set at an approximate depth of 240 feet on 4-inch column pipe with a column check valve. A 1-inch diameter sounding tube should be provided for water level measurement. The pump can discharge either above ground through a discharge tee at the top of the casing or below ground through a pitless adapter. A combination air and vacuum valve (2-inch Waterman CR-101) valve shall be provided at the high point of the discharge. Other components include a pressure gage, 4-inch gate valve, 4-inch check valve, and 4-inch flow meter. The pump would be started and stopped manually. These components can be installed in a vault or small shelter near the well. The pump would be started and stopped manually. Pump electrical controls would be mounted adjacent to the well on unistrut framing or at the meter vault.

Responsibilities for Installation

This project will involve three separate contractors working for M Resorts.

Pipeline Contractor. The pipeline contractor (Dan Place) shall install the following.

- 800 feet (+/-) of 4-inch pipe
- 800 feet (+/-) of 6-inch pipe
- 3,000 feet (+/-) of 8-inch pipe
- 3-inch Waterman CR-101 combination air valve
- approximately four 1-inch Waterman CAV-6 air release valves.
- concrete wet well at Betsey Lake with Waterman C-11 canal gate
- miscellaneous fittings as needed

Dan will stub 4-inch buried pipe within 20 feet of each well, and will stub 6-inch buried pipe within 20 feet of the Betsey Lake wet well. Pipe shall have a 125 psi or higher pressure rating.

Electrical Contractor. The electrical contractor (Tri-State Electric, Alan Lattimer, 861-7533 cell) shall be responsible for coordinating for power service with Idaho Power Company. The electrical contractor shall coordinate with the pipeline contractor for installation of conduit, and with the pump contractor for connection of pumps. The electrical contractor shall bring conduit from the panels to the well head or wet well at each pump site. The electrical contractor shall install the following.

- all conduit and wire (except submersible pump cable)
- 5 hp panel at Betsey Lake pump