

MEMORANDUM

To: File no. 17-7041
From: Gary Spackman *Gary*
Date: November 23, 2004

Re: Licensed Flow Rate

In October 2004, Joe Daniels called me and stated that the licensed flow of 1.93 cfs for water right license no. 17-7041 was too low and that the water right should have recognized a higher flow rate. He told me he would send some information and I told him I would review the license and the field examination.

The field exam was conducted in August 1980. Harold Jones measured pressures in sprinkler heads with a pitot gage and calculated flow rates for seven quarter mile sprinkler lines owned by Daniels. The exam is devoid of details about how many sprinkler heads were measured, the location of the sprinkler heads, the pressures measured, and the nozzle sizes. Nonetheless, the exam is consistent with measurement methods employed by IDWR at the time and the calculated flow rates for each sprinkler line are within the reasonable range of flow rates for quarter mile sprinkler lines.

Daniels sent the following: A well driller's report; a billing for a pump test that contains some flow rate numbers; a handwritten sheet that appears to be a portion of design computation for the sprinkler system; a handwritten table that appears to be a portion of the pump shaft specifications; and a faded, one sheet summary of what appears to be an energy audit of the pump and irrigation system.

The only documents of value in my review were the billing for the pump test and the energy audit. Unfortunately the billing document only contains some cryptic entries of drawdown and discharge. It does not describe how long the well was pumped. It also does not describe whether the pump was discharging from an open pipe. I assume that the pump was not pressurizing an irrigation system. Open discharge, the possibility of a short pump test, and pumping in early June are all factors that could inflate the flow rate.

If more information were available about the energy audit, the field examiner's measurement might be questioned. Unfortunately, I can't determine when the energy audit was conducted, whether it was done on the Daniels well, or whether the water flow was actually measured.

I conversed with Daniels on November 22, 2004 and told him that a license will only be changed if there is a showing of clear error by IDWR. I told him the licensing exam seemed reasonable, and he had an opportunity to object after issuance of the license. I also told him his documentation was not sufficient to overcome the assumption of finality of the license. I told him if he wanted to pursue this further, he would need to petition to amend the license. Water right no. 17-7041 is also located within the Curlew Valley Critical GW Area.

Joe Daniels -
water right -

17-7041 -

(208) 766-4545

294 N 100 W

Malad ID 83252 -

Look at old licensing
records -

Call on Tuesday
cell 766-3129 (208)

RHODES BROS.

Box 271

Filmmore, Utah

Phone 745-6277

INVOICE

DATE

6-3-75

32

1766 433 76

TERMS

CREDIT APPROVED

REMARKS

will take up
all work order

CHARGE

Joe Hancock
1594 W. 100 West
Mebel

1550 27 PM 240.12
1225 27 PM 215.12
1715 in character 25 for
1558 28 PM

F.O.B.

SALESMAN

WRITTEN

FIGURED

PKG. NO.	QUANTITY	DETAILED DESCRIPTION	LIST PRICE EACH	EXTENSION AT LIST	AMOUNT
		Start as follows:			
	360	Setting up pump @ 6.00 each.			2160.00
		Part of work done			240.00
	134	On Pumping time @ 32.00 each.			4288.00
		Total			3168.00
		Paul Shank			
		July 18, 1975			
		20			

The order, subject to the conditions on the reverse side hereof, has been read by the undersigned and acknowledged to be correct.

SIGNED

PURCHASER

Joe Daniels - Howard Neal Ranch
East of Holbrook

South of Highway 37

Soils - 674 Bothell Silt Loam 11.5" to 12.5" in = 60"

474 " " Clay loam " " " "

679 Parleys Silt Loam 11" to 12" " "

672 " " " " " "

WHC 60" for Alfalfa - (90% = 12") - 10% = 11.5"
Infiltration

Peak Consumptive Use per Climate III .23"/day

Allowable depletion 50% $4.8 \div 2 = 2.4 = 9.6 \times .5 = 4.8'$

Irrig. freq $4.8 \div .23 = 21$ days.

Gross application/irrig $4.8 \div .65\% = 7.38$

" " Lhr. $7.38 \div 11 = .67$

$7.38 \div 23 = .32$

Rotation 12 day. $7.38 \div 23 \times .23 \text{ per} = 2.76$ net/irrig

$2.76 \div .65 = 4.25$ gross/irrig

$4.25 \div 11.5 \text{ hrs} = .37$ gross appl/hr

$4.25 \div 23 = .18$ " " " "

1/64 Noz @ 50 psi = 6.0 gpm. on 40x60 = 245

3/16 Noz @ 50 PSI 7.11 GPM - 11.5 HR

CYCLE - PDS. - 7-31-75

REPLY MESSAGE



Johnston Pump Company

BOB HOLVERSON
Branch Manager

South Yellowstone Hwy.
Idaho Falls, Idaho 83401
Telephone 208/522-8144

TO 30 N. STATE ST.

PRESTON, ID. 83263

SUBJECT:

DATE: 4-18-79

FOLD

attached is a copy on column & shift switch.
The last page is based on Johnston Pump
impeller only. For other manufacturers
you will have to find their own charts
constant on their impeller.

Bob Ferguson

PLEASE REPLY TO →

SIGNED

Bob Ferguson

40 00

DATE

SIGNED

RELATIVE STRETCH BETWEEN SHAFT AND COLUMN

$$\text{Shaft stretch} = \frac{H \times S \times \text{SPGR} \times K_I}{2,500,000 \times A_s}$$

$$\text{Column stretch} = \frac{H \times S \times \text{SPGR} \times K_C}{2,500,000 \times A_{c+t}}$$

Rel. stretch = Shaft stretch minus column stretch

H = Head in feet

S = Setting in feet

K_I = Impeller thrust constant (Weight of water column one foot high supported by impeller eye)

A_s = Cross sectional area of shaft

K_C = Column thrust constant (Weight of water per foot of column pipe contained between column pipe tube or shaft, minus K_I)

A_{c+t} = Cross sectional area of metal of column pipe and tube

OIL

LUBE

COLUMN TUBE & SHAFT	NET WEIGHT OF WATER	METAL AREA COLUMN & TUBE	COLUMN TUBE & SHAFT	NET WEIGHT OF WATER	METAL AREA COLUMN & TUBE
3 x 1 1/4 x 3/4	2.26	3.11	12 x 4 x 2 1/16	42.8	17.3
4 x 1 1/4 x 3/4	4.57	4.05	14 x 2 1/2 x 1 1/2	56.9	18.3
4 x 1 1/2 x 1	4.29	4.24	14 x 2 1/2 x 1 1/16	56.9	18.3
4 x 2 x 1 3/16	3.58	4.65	14 x 3 x 1 5/16	55.5	19.1
5 x 1 1/4 x 3/4	7.72	5.18	14 x 3 1/2 x 2 3/16	54.3	19.7
5 x 1 1/2 x 1	7.44	5.37	14 x 3 1/2 x 2 7/16	54.3	19.7
5 x 2 x 1 3/16	6.76	5.78	14 x 4 x 2 1/16	52.9	20.5
5 x 2 1/2 x 1 1/2	5.85	6.56	SPECIALS		
5 x 2 1/2 x 1 1/16	5.85	6.56			
6 x 1 1/4 x 3/4	11.57	6.46	SCHD. 40 PIPE		
6 x 1 1/2 x 1	11.29	6.65	8 x 1 1/2 x 1	20.5	9.5
6 x 2 x 1 3/16	10.58	7.06	8 x 2 x 1 3/16	19.8	9.9
6 x 2 1/2 x 1 1/2	9.70	7.84	8 x 2 1/2 x 1 1/2	18.9	10.7
6 x 2 1/2 x 1 1/16	9.70	7.84	8 x 2 1/2 x 1 1/16	18.9	10.7
6 x 3 x 1 5/16	8.34	8.60	8 x 3 x 1 5/16	17.5	11.4
8 x 1 1/2 x 1	20.93	8.33	8 x 3 1/2 x 2 3/16	16.2	12.1
8 x 2 x 1 3/16	20.22	8.74	8 x 3 1/2 x 2 7/16	16.2	12.1
8 x 2 1/2 x 1 1/2	19.34	9.52	SCHD 30 PIPE		
8 x 2 1/2 x 1 1/16	19.34	9.52	10 x 2 x 1 3/16	33.0	11.6
8 x 3 x 1 5/16	17.98	10.28	10 x 2 1/2 x 1 1/2	32.1	12.3
8 x 3 1/2 x 2 3/16	16.71	10.94	10 x 2 1/2 x 1 1/16	32.1	12.3
8 x 3 1/2 x 2 7/16	16.71	10.94	10 x 3 x 1 5/16	30.7	13.1
10 x 2 x 1 3/16	33.4	10.7	10 x 3 1/2 x 2 3/16	29.5	13.8
10 x 2 1/2 x 1 1/2	32.5	11.4	10 x 3 1/2 x 2 7/16	29.5	13.8
10 x 2 1/2 x 1 1/16	32.5	11.4	SCHD 40 PIPE		
10 x 3 x 1 5/16	31.2	12.2	10 x 2 x 1 3/16	32.2	13.4
10 x 3 1/2 x 2 3/16	29.9	12.9	10 x 2 1/2 x 1 1/2	31.3	14.2
10 x 3 1/2 x 2 7/16	29.9	12.9	10 x 2 1/2 x 1 1/16	31.3	14.2
12 x 2 1/2 x 1 1/2	46.9	15.1	10 x 3 x 1 5/16	29.9	14.9
12 x 2 1/2 x 1 1/16	46.9	15.1	10 x 3 1/2 x 2 3/16	28.7	15.6
12 x 3 x 1 5/16	45.6	15.9	10 x 3 1/2 x 2 7/16	28.7	15.6
12 x 3 1/2 x 2 3/16	44.3	16.6	SCHD 40 PIPE		
12 x 3 1/2 x 2 7/16	44.7	16.6	12 x 2 1/2 x 1 1/2	45.7	18.0
			12 x 2 1/2 x 1 1/16	45.7	18.0
			12 x 3 x 1 5/16	44.3	18.8
			12 x 3 1/2 x 2 3/16	43.1	19.4
			12 x 3 1/2 x 2 7/16	43.1	19.1
			12 x 4 x 2 1/16	41.7	20

# SHAFT	OF WATER	OF COLUMN	# SHAFT	OF WATER	OF COLUMN
2½ x ¾	..88	1.70	12 x ¾	48.1	12.9
3 x ¾	3.01	2.23	12 x 27/16	47.7	"
4 x ¾	5.32	3.17	12 x 27/16	47.2	"
4 x 1	5.17	"	14 x 1½	58.9	16.1
4 x 1 1/16	5.03	"	14 x 1 1/16	58.7	"
5 x ¾	8.47	4.3	14 x 1 5/16	58.4	"
5 x 1	8.32	"	14 x 2 3/16	58.1	"
5 x 1 1/16	8.18	"	14 x 2 7/16	57.7	"
5 x 1 1/2	7.89	"	14 x 2 7/16	57.2	"
5 x 1 5/16	7.69	"	SPECIALS		
6 x ¾	12.32	5.6	SCHD 40 8 x ¾	21.3	8.4
6 x 1	12.17	"	8 x 1	21.2	"
6 x 1 1/16	12.03	"	8 x 1 1/16	20.9	"
6 x 1 1/2	11.74	"	8 x 1 1/2	20.7	"
6 x 1 5/16	11.54	"	8 x 1 5/16	20.4	"
6 x 1 5/8	11.23	"	8 x 1 5/8	20.1	"
8 x ¾	21.81	7.3	8 x 2 3/16	19.7	"
8 x 1	21.67	"	SCHD 30 10 x 1 1/16	34.4	10.1
8 x 1 1/16	21.38	"	10 x 1 1/2	34.1	"
8 x 1 1/2	21.18	"	10 x 1 5/16	33.9	"
8 x 1 5/16	20.87	"	10 x 1 5/8	33.6	"
8 x 1 5/8	20.53	"	10 x 2 3/16	33.3	"
8 x 2 3/16	20.14	"	10 x 2 7/16	32.9	"
10 x 1 1/16	34.8	9.2	SCHD 40 10 x 1 3/16	33.6	11.9
10 x 1 1/2	34.5	"	10 x 1 1/2	33.3	"
10 x 1 5/16	34.3	"	10 x 1 5/16	33.1	"
10 x 1 5/8	34.0	"	10 x 1 5/8	32.8	"
10 x 2 3/16	33.7	"	10 x 2 3/16	32.5	"
10 x 2 7/16	33.3	"	10 x 2 7/16	32.1	"
12 x 1 1/2	48.9	12.9	SCHD 40 12 x 1 1/2	47.7	15.7
12 x 1 5/16	48.7	"	12 x 1 5/16	47.5	"
12 x 1 5/8	48.4	"	12 x 1 5/8	47.2	"
			12 x 2 3/16	46.9	"
			12 x 2 7/16	46.5	"

SIZE	UNBALANCED	DALANCED
6 EC	4.8	2.8
7 A.-A-B-APC	3.7	1.4
7 BC-CC	4.6	2.2
8 AC	4.6	1.5
8 CC	6.8	2.5
8 EC	8.5	3.4
10 AC	8.6	3.2
10 BC-CC	10.0	3.8
10 DC-EC	12.0	4.7
12 AC	10.3	4.0
12 BC-CC	13.6	5.3
12 DC-EC	15.7	5.9
14 AC-BC	14.2	5.6
14 CC ¹⁶⁻⁹⁸	20.5	8.2
14 DC-EC	23.3	9.0
16 AMC-AHC	17.5	6.9
16 CLC-CMC-CHC	27.5	11.0
18 CC-DC-EC	34.1	13.6
20 CC-DC-EC-FC	48.4	20.8
24 CC-DC-EC	67.2	26.9
27 CC-DC-EC	83.5	33.4
30 CC-DC-EC	112.6	34.3
33 CLC-CMC-CHC	139.0	53.1
36-CC-DC-EC	166.0	68.0
42	210.0	60.0
48	263.0	87.5
64	484.0	162.0

SHAFT AREAS	
SIZE	AREA
$\frac{3}{4}$	.442
1	.7854
$1\frac{3}{16}$	1.11
$1\frac{1}{2}$	1.77
$1\frac{11}{16}$	2.24
$1\frac{15}{16}$	2.95
$2\frac{3}{16}$	3.76
$2\frac{7}{16}$	4.67
$2\frac{11}{16}$	5.67
$3\frac{3}{16}$	7.78
$3\frac{1}{4}$	8.30
$3\frac{7}{16}$	9.28
4	12.57

ACCOUNT NO. 83252 DIVISION REGIONAL WATER NO. 832521892
 CUSTOMER JOSEPH DARDILL
 LOCATION HILBROOK ROAD RD 29 X 100 W
 MALAD CITY ID 83252

ACCOUNT HISTORY									
DATE	KWH	PERDY	KW	AMOUNT	DATE	KWH	PERDY	KW	AMOUNT
082878	78800	387	165	1891.36	120178	0	0	0	0.00
072678	114960	832	166	2779.52	120178	0	0	0	0.00
062678	66880	825	173	2414.12	120178	0	0	0	0.00
040678	0	0	0	0.00	120178	0	0	0	0.00
040678	0	0	0	0.00	120178	0	0	0	2.90
040678	0	0	0	0.00	092278	0	0	0	26.76

TOTAL RATED HORSEPOWER 250 H.P. NO. OF ACRES IRRIGATED 280.0 AC.
 WATER APPLIED DURING PREVIOUS 12 MONTHS 14.8 AC.-IN./AC.

HEAD MEASUREMENTS

STANDING WATER LEVEL	90.0 FT.	PUMPING WATER LEVEL	254.0 FT.
DRAWDOWN	164.0 FT.	DISCHARGE PRESSURE	57.0 PSI.
TOTAL LIFT	385.5 FT.		

FLOWRATE MEASUREMENTS

INSIDE PIPE DIAMETER	25.0 CM.	AVG. WATER VELOCITY	5.06 FPS.
WATER PUMPED 2.6 CFS=	1204.1 GPM.	YIELD OF WELL	7.3 GPM/FT. DRAWDOWN

HORSEPOWER MEASUREMENTS

ELECTRICAL HORSEPOWER INPUT	223.4 H.P.	AT	166.7 KW DEMAND
WATER HORSEPOWER OUTPUT	117.2 H.P.		

COMPARISON OF PUMPING PLANT EFFICIENCIES

	OPERATING CONDITIONS AT PRESENT	OPERATING CONDITIONS AT ACCEPTED EFFICIENCY
OVERALL PLANT EFFICIENCY (%)	52.45	65.00
ACRE-FEET PUMPED/YEAR	345.38	345.38
ACRE-FEET PUMPED/24 HOURS	5.32	6.59
ANNUAL KWH CONSUMPTION	260,640.00	210,337.00
KWH CONSUMPTION/ACRE-FOOT	754.63	608.98
HOURS OPERATED / YEAR	1,558.00	1,257.24
AVERAGE COST / KWH	0.0253	0.0282
AVERAGE COST/ACRE-FOOT	19.09	17.17
COST/YEAR	6,605.68	5,928.09
PERCENT KWH SAVINGS		19.30
PERCENT DOLLAR SAVINGS		0.11
SAVINGS / ACRE-FOOT		1.91
SAVINGS / YEAR		~~677.59~~
		707.25

USE TYPEWRITER OR
BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Joe Daniels
Address 294 N. 100 West Malad, Idaho
Owner's Permit No. _____

2. NATURE OF WORK

- ☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

- ☐ Domestic ☒ Irrigation ☐ Test ☐ Other (specify type)
☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

- ☒ Cable ☐ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

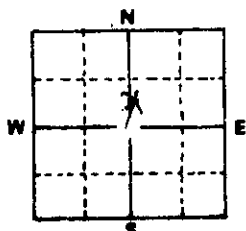
Diameter of hole 20 inches Total depth 400 feet
Casing schedule: ☒ Steel ☐ Concrete
Thickness Diameter From To
250 inches 20 inches + 1 feet 399 feet
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
_____ inches _____ inches _____ feet _____ feet
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☐ No
Perforated? ☒ Yes ☐ No
How perforated? ☐ Factory ☐ Knife ☒ Torch
Size of perforation 250 inches by 12 inches
378 Number From To
_____ perforations 70 feet 400 feet
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet

Well screen installed? ☐ Yes ☐ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 20 Material used in seal ☐ Cement grout
☒ Pudding clay ☐ Well cuttings
Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing
☒ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____

Lot No. _____ Block No. _____

County _____

N 41, NE 1, Sec 33 T 14 N R 33 E W

7. WATER LEVEL

Static water level 78 feet below land surface
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Temperature _____ ° F. Quality _____
Artesian closed-in pressure _____ p.s.i.
Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

- ☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
20	0	5	Top Soil		✓
	5	10	Brown clay & Gravel		✓
	10	15	Brown clay		✓
	15	25	Brown Clay & gravel		✓
	25	35	Brown clay		✓
	35	95	clay & gravel		✓
	95	100	bitum gravel		✓
	90		bit water		✓
	100	155	gravel all sizes, brown clay		✓
	155	180	Red clay		✓
	180	210	brown clay & sand stone		✓
	210	266	gravel and clay		✓
	266	305	brown clay		✓
	305	310	snuddy gravel		✓
	310	340	Hard sandstone & clay		✓
	340	375	Sand stone		✓
	375	385	brown clay & gravel large		✓
20	385	400	brown sandstone clay & gravel		✓
	78		static water level where done		

10.

Work started April 24 finished May 22, 1975

11. DRILLERS CERTIFICATION

Firm Name Intermountain Drilling Firm No. 106
Address P.O. Box 747 Lava Hot Spring Date June 2, 1975
Signed by (Firm Official) _____
and
(Operator) TERENCE TRUNDSEN