

MEMO

To: File 65-13824 Barnes

From: Sandy Hemenway

Date: 12/23/2010

REF: Licensing Review Memo

The **Permit to Appropriate** was approved on **4/26/1999** for both the POD and POU being located in T9N R4E Sec 35 Lot 6 NESW. Proof of beneficial use was due on or before 5/1/2004. On **4/29/2004**, **Proof of Beneficial Use** was submitted for 0.04 cfs, Domestic 1-home.

On 7/9/2007, an **ownership** change was conducted, changing the ownership to Barnes Ventures Inc. Taxlot Information, which was updated on 3/15/2010, shows the owner as Barnes Ventures Inc, C/O Southfork Landing.

The **field exam** was conducted on 4/24/2004 by Ed Squires, Hydro Logic Inc. The following information was obtained: 202 ft deep well, 6 inch casing, 18.9 ft static, 11 ft drawdown, 1 Hp Franklin pump, 1 1/4 inch discharge to a pitless adaptor at a frost free hydrant, and 1 1/4 inch line to an 81 gallon hydro pneumatic tank, model 244 Challenger series, 73 psi, 1 1/4 inch reducing to 1 inch galvanized pipe and 1 inch black plastic pipe to the house. The well house is 4 ft X 5 ft X 7.5 ft. The well is located to 50 ft from the NE corner of 1133 Alder Creek Rd. Use is for Domestic (1-home), internal and external use. The external use is provided by a frost free hydrant, with a hose attached, and sprinkler head that is moved around the landscaping surrounding the house (see pictures in the file)

POU Overlaps within the same quarter-quarter are: 65-11324 owner Barnes Venture, Inc. (aesthetic, irrigation, and stockwater---source: Payette River), 65-8650 owner Haile (stockwater from storage, wildlife from storage, wild life storage, recreation storage, fish propagation, stockwater storage diversion to storage--source: Alder Creek), 65-8850 owner Barnes Venture, Inc (aesthetic---source: Payette River)

There are no **POD Overlaps** from the same groundwater source.

There are notes in file dated 2/10/1999 that indicated that the legal description and placement on map had changed, per Dan Nelson. Notification had been sent to the attorney in reference to these changes. With the 4/24/2004 field exam, the actual location for the POU for this house, and POD were confirmed to be T9N R4E Sec 35 NWSE. These changes **required an amendment for licensing**.

RECOMMENDATIONS:

CFS (different methods of calculating):

(1) The 9/25/1995 Well Drillers Report indicated a yield of 40 gpm X 0.00223 = 0.089 = 0.09 cfs (for a 3 hr pump test).

(2) Pipe Conversion: the discharge from the well is 1 1/4 inch which has a capacity of 0.04 cfs. It then reduces down to 1 inch galvanized pipe and 1 inch black pipe after the hydro pneumatic tank to the house. One (1)-inch pipe capacity is 0.03 cfs. ($Q = 5 \times 3.1416 \times R\text{-squared}$). $R = (\text{diameter}/12)/2$.

(3) During the 4/24/2004 field exam, a 5-gallon measurement was conducted. 5 gallons in 25 seconds = 12 gpm 12 gpm X 0.00223 = 0.02676 = 0.03 cfs

(4) Theoretical: $(8.8) \times (1 \text{ Hp}) \times (*0.7 \text{ efficiency}) / (13\text{ft static} + 10) + (2.31 \times 73 \text{ psi}) = 0.032 = 0.03 \text{ cfs}$

*In the 4/24/2004 field exam, 80% efficiency was used, where IDWR uses 70% unless the operator can show proof that the efficiency is at a higher value.

The field exam indicated high quantities of sand that could cause production to be reduced, causing wear on the propellers, but sizing of pipe, theoretical, and physical measurement all indicate capacity of 0.03 cfs.

RECOMMEND FOR LICENSE: 0.03 cfs

Volume

RECOMMEND FOR LICENSE: Domestic internal/external 1.2 af.

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PIPE FLOWS -- PUMPING SYSTEMS

[properly designed @ 5 ft. / sec.]

$$Q = 5 \pi r^2 \text{ (r in ft.)} \quad Q = 5 \pi R^2 \text{ (R in ft.)}$$

$$R = (\text{diameter}/12) / 2 \quad \left(\frac{\text{dia}}{12} \right) \div 2$$

$$\pi = 3.1416$$

<u>PIPE DIAMETER(")</u>	<u>CFS (1/100)</u>	^(1/10) <u>MINER INCH</u>	^(1/10) <u>GALLONS/ MINUTE</u>
1	.03	1.5	13.5
2	.11	5.5	49.4
3	.25	12.5	112.2
4	.44	22.0	197.5
6	.98	49.0	439.8
8	1.74	87.0	780.9
10	2.73	136.5	1225.2
12	3.93	196.5	1763.8
14	5.34	267.0	2396.6
16	6.98	349.0	3132.6
18	8.83	441.5	3962.9
20	10.90	545.0	4891.9
22	13.19	659.5	5919.7
24	15.70	785.0	7046.2

THEORETICAL PSI's

- Internal domestic - 20 psi
- Internal/external domestic - 30 psi
- Domestic w/ 5-10 acres - 40 psi
- Medium systems (up to 50 acres) - 40 psi
- Large pivots - 60 psi

$$1\frac{1}{4}" = Q = 5 \pi \left[\frac{\left(\frac{5/4}{12} \right)}{2} \right]^2 = 0.04 \text{ cfs}$$

1 1/4" discharge to 1 1/4" pipe that
reduces to 1" gal. pipe + 1" blk. plastic pipe
 to the house, which is 0.03 cfs (the
 capacity of the pipe.

