

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9540

Exam Date: 09/19/2019

1. Current Owner:

WAITE INVESTMENTS LTD PARTNERSHIP 600 TRAVIS ST STE 6600 HOUSTON TX 77002

2. Accompanied by:

Phone No:

Address:

Relationship to permit Holder:

3. **SOURCE:**

PEND OREILLE LAKE

Tributary

PEND OREILLE RIVER

Method of Determination: Arcmap and DRG

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

2. Other water rights with the same point-of-diversion: None

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:PEND OREILLE LAKE L1 (NE $\frac{1}{4}$ NE $\frac{1}{4}$), Sec. 32, Twp 57N, Rge 01W, B.M. BONNER County

Method of Determination: Maps and GPS. POD located at -116° 27.737, 48° 14.944

PLACE OF USE: FIRE PROTECTION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
57N	01W	32	X L1																

Method of Determination: Google Earth and Arcmap

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.

 X Indicate weir size/pipe as applicable. X Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater. X Aerial Photo Attached (required for irrigation of 10+ acres). X Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
N/A					

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: N/A

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method: See attached Pipe Flows document.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} =$$

2. Volume Calculations for Other Uses: N/A

G. NARRATIVE/REMARKS/COMMENTS

Field exam with the applicant's representative, Mark McCormick, showed a dry hydrant into Lake Pend Oreille. The hydrant was dry so there was no pump there during exam and would only be used during time of fire by the local fire department. Mr. McCormick said they buried the intake line 150 feet out so that it could be used during the winter time when the lake level was lowered. The system was installed and ready to go, though had never been used or tested by the fire department. The applicant also had a storage box next to the hydrant that was loaded with a portable pump and hoses for firefighting in case of emergency.

Because the hydrant was dry with no flowing water, I thought it would be challenging to determine or verify a flow rate for which the applicant had applied. In conferring with the state office, it was brought to my attention that there was a form in the Field Examiners Handbook that would determine a rate. The form was located under pipe flows pdf which was in the folder theoretical in the closed conduit file of measurements. This table would estimate a flow rate based upon the size of pipe installed. In this case, the system had a 6 inch pipe installed which would be equal to a 0.98 cfs diversion rate. Because the applicant only applied for a rate of 0.90 cfs, that is all that can be licensed. The license will be issued with a diversion rate of 0.90 cfs with no annual volume.

Condition 26A will be removed from the license and all other conditions will remain that were on the permit. There are no overlap concerns even though this place of use does overlap with water rights 96-2080 and 96-9489. 96-2080 irrigation does not appear to overlap this right by the place of use map in the backfile. 96-9489 may overlap the shape drawn for this right, but the uses are different and thus there is no overlap with place of use or point of diversion.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	
FIRE PROTECTION	01/01 to 12/31	0.90 CFS	

Totals: 0.90 CFS

2. Recommended Amendments

 Change P.D. as reflected above Add P.D. as reflected above X None

 Change P.U. as reflected above Add P.U. as reflected above X None

I. AUTHENTICATION

Adam Frederick - Water Resource Agent, Senior

Field Examiner's Name Adam Frederick Date 10/1/2019

Reviewer Douglas Jones P.E. Date 10/10/19

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9540

FIRE PROTECTION / SYSTEM DIAGRAM

01W



-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.025 0.05 0.1 Miles



PIPE FLOWS -- PUMPING SYSTEMS

[properly designed @ 5 ft. / sec.]

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

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

$$\pi = 3.1416$$

<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



"Dry" fire hydrant made with 6 inch piping.



Applicant also had emergency fire protection station located next to dry hydrant in case of emergencies.