

**STATE OF IDAHO**  
**DEPARTMENT OF WATER RESOURCES**  
**IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT**

**A. GENERAL INFORMATION**

Permit No: 96-09651

Exam Date: 1/19/2018

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? ☒ Yes ☐ No
- a. **Irrigation of 5 acres or less**
- b. Storage of up to 14.6 AF for stockwater purposes only
- c. Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
- d. Other < >

2. Current Owner: Name: Pat And Karen Doherty
- Owner-of-Record Correct? ☒ Yes ☐ No
- Address-of-Record Correct? ☒ Yes ☐ No
- If No:

3. Beneficial Use Fees have been paid: ☒ Yes ☐ No Receipt No: N033108

4. **SOURCE** TRIBUTARY
- Pack River Lake Pend Oreille
- Method of Determination: Taxlots, GIS, aerial photography
- Change in Source: ☐ Yes ☒ No

**B. OVERLAP REVIEW**

Refer to the attached overlap analysis spreadsheet

1. Other water rights with the same place of use: Overlap? ☐ Yes ☒ No

| Water Right No. | Source | Purpose of Use | Basis |
|-----------------|--------|----------------|-------|
|                 |        |                |       |
|                 |        |                |       |

Comments:

2. Other water rights with the same point of diversion: Overlap? ☐ Yes ☒ No

| Water Right No. | Source | Purpose of Use | Basis |
|-----------------|--------|----------------|-------|
|                 |        |                |       |
|                 |        |                |       |

Comments:

**C. DIVERSION AND DELIVERY SYSTEM**

1. **LOCATION OF POINT(S) OF DIVERSION:**

| Source     | Govt. Lot | % | %  | %  | Sec. | TWP | RGE |      | County |
|------------|-----------|---|----|----|------|-----|-----|------|--------|
| Pack River |           |   | SE | NE | 14   | 59N | 02W | B.M. | Bonner |
|            |           |   |    |    |      |     |     |      |        |

Method of Determination: Taxlots, GISChange in POD? ☐ Yes ☒ NoAmendment Required? ☐ Yes ☒ No

2. **PLACE(S) OF USE:** Use: Irrigation

| TWP | RGE | Sec | NE |    |    |     | NW |    |    |    | SW |    |    |    | SE |    |    |    | Totals |
|-----|-----|-----|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|--------|
|     |     |     | NE | NW | SW | SE  | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE |        |
| 59N | 02W | 14  |    |    |    | 0.2 |    |    |    |    |    |    |    |    |    |    |    |    | 0.2    |

Method of Determination: The legal description in the permit is validated by Bonner County Tax Assessor files. The home is visible in aerial photography and listed in tax records and the permit holder provided a map modified from 2014 imagery.

Change in POU? ☐ Yes ☒ No

Amendment Required? ☐ Yes ☒ No

3.

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

Indicate weir size/pipe as applicable.

☐ Aerial Photo Attached (required for irrigation of 10+ acres).

☐ Photo of Diversion and System Attached

| 4. Well or Diversion Identification No.* | Motor Make | Hp | Motor Serial No. | Pump Make | Pump Serial No. or Discharge Size |
|------------------------------------------|------------|----|------------------|-----------|-----------------------------------|
|                                          |            |    |                  |           |                                   |

\*Code to correspond with No. on map and aerial photo

D. **FLOW MEASUREMENTS**

| 1. Measurement Equipment | Type | Make | Model No. | Serial No. | Size | Calib. Date |
|--------------------------|------|------|-----------|------------|------|-------------|
|                          |      |      |           |            |      |             |

2. Measurements: In-office field exam. No measurements taken

E. **FLOW CALCULATIONS**

☐ Additional Computation Sheet Attached

|                               | Irrigation                                                                                                                                        |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Policy standard</b>        | 0.03 cfs/ acre                                                                                                                                    |
| <b>Permit allowed</b>         | 0.03 cfs x .6 acres = 0.02 cfs                                                                                                                    |
| <b>License recommendation</b> | 0.03 cfs x .2 acres = 0.01 cfs<br>Calculation based on existing pump<br>(see theoretical horsepower equation worksheet attached)= <b>0.02 cfs</b> |

F. **VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{0.6 \text{ af}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{8.5 \text{ af}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{0.6 \text{ af}}$$

Volume Calculations for Other Uses: \_\_\_\_\_

**H. NARRATIVE/REMARKS/COMMENTS**

Permit 96-9651 authorized diversion of 0.02 cfs from the Pack River for irrigation of 0.6 acres. Because the permit authorizes irrigation of less than five acres, this permit qualifies for an in-office field exam.

Bonner County tax parcel information shows that Patrick and Karen Doherty are the owners of the POD and POU locations. Tax records and aerial photography indicate that there is a house on the property with irrigated land. The most recent satellite imagery for the property was from 2014. Irrigated portions were visible on this imagery and a map was provided to the permit holder to verify or modify the place of use for accuracy. Based on the returned map, there are approximately 0.2 irrigated acres.

The permit application reports that water is diverted from Pack River with a 1 hp irrigation pump with a two inch intake. According to the pump data sheet found on the internet, this pump has a maximum pressure limit of 45 psi, so 45 psi was used to determine the flow rate of this pump. The contour lines on the map show that there is approximately 40 feet of elevation difference from the river to a location east of the road, so I used the maximum possible lift. Using these numbers, the current pump can produce 19 gpm. Since the system can divert 19 gpm, the diversion rate for this license should be limited to the maximum allowed on the permit (0.02 cfs) even though the standard rate per acre will be exceeded.

The POU shape was created based on the aerial photography and information provided by the permit holder. The POD is located on the western side of the lot along the Pack River.

Condition 1 (236) was removed because the condition had been met with the permit. Condition 2 (806) was removed because the condition is no longer active. Condition 3 was changed to X31 to reflect actual limits for the license. Conditions 4-7 were retained for the license.

Have conditions of permit approval been met? ☒ Yes ☐ No

**I. RECOMMENDATIONS****1. Recommended Amounts**

| <u>BENEFICIAL USE</u> | <u>PERIOD OF USE</u> | <u>DIVERSION RATE</u> | <u>ANNUAL VOLUME</u> |
|-----------------------|----------------------|-----------------------|----------------------|
| Irrigation            | 4/01-10/31           | 0.02 cfs              | 0.6 af               |
|                       | <u>Totals</u>        | 0.02 cfs              | 0.6 af               |

**2. Recommended Amendments**

- ☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None
- ☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

**J. I. AUTHENTICATION - Rachael Smith - Water Right Agent**

Field Examiner's Name Rachael Smith Date 1/19/18

Reviewer Donna A. Miller Date 1-29-18

**Workflow**

- Exam Date Entered ☒
- POU/POD shapes ☒
- Combined Rights Entry ☐
- Wild & Scenic Entry ☐
- Draft License and Maps ☒

**Supporting Documents**

- Historical Imagery ☐
- Photographs ☐
- LandSat ☐
- Well Log ☐
- Diagrams ☐
- Theoretical ☒
- Other: Theoretical Horsepower Equation Worksheet

State of Idaho  
Department of Water Resources

# Attachment to Water Right License 96-9651

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

02W



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

0 0.0225 0.045 0.09 Miles



THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 96-9651  
 Reviewer: Rachael Smith  
 Date of Review: 1/29/2018

P/D No.:

PUMP HORSEPOWER  
 BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)

| Well #1 |
|---------|
| 1       |
| 0       |
| 40      |
| 45      |
| 0.04    |
| 19      |

The above calculates the formula =  $Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$

Assumptions: %70 efficiency.  
 No Friction

**Examiners Notes:**

According to the pump data sheet found on the internet, this pump has a maximum pressure limit of 45 psi, so 45 psi was used to determine the flow rate of this pump. The contour lines on the map show that there is approximately 40 feet of elevation difference from the river to a location east of the road, so I used the maximum possible lift. Using these numbers, the current pump can produce 19 gpm. Since the system can divert 19 gpm, the diversion rate for this license should be limited to the maximum allowed on the permit (0.02 cfs) even though the standard rate per acre will be exceeded.

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Inlet Size

**2"**

Style



GPM

**63**  
Gallons

## Features

**1 HP Lawn Sprinkler Pump**

- For use in underground or above ground lawn sprinkling systems
- Also for garden irrigation, boosting household water pressure

## Specifications

**Motor**

- Can be used for recirculation of large volumes of water

**Heavy-Duty Cast Iron Construction w/ Thermoplastic Impeller**

- Designed for years of service and reliability

**115/230 Volt Heavy-Duty Century Motor**

- Voltage selector for simple connection to existing power source

**Self-Priming Design**

- After initial fill, no additional priming required

**Engineered Pump Housing & Hydraulics**

- For high performance, efficiency and quiet operation

**Additional Specs**

- 2" NPT Intake
- 1-1/2" NPT Discharge

|         |              |
|---------|--------------|
| Voltage | 120/240 Volt |
|---------|--------------|

|              |     |
|--------------|-----|
| Running Amps | 8.2 |
|--------------|-----|

**Engine**

|            |      |
|------------|------|
| Horsepower | 1 hp |
|------------|------|

**Pump**

|                    |            |
|--------------------|------------|
| Gallons Per Minute | 63 Gallons |
|--------------------|------------|

|                |    |
|----------------|----|
| Inlet Diameter | 2" |
|----------------|----|

|                 |        |
|-----------------|--------|
| Outlet Diameter | 1-1/2" |
|-----------------|--------|

|              |     |
|--------------|-----|
| Self Priming | Yes |
|--------------|-----|

|                  |           |
|------------------|-----------|
| Housing Material | Cast Iron |
|------------------|-----------|

|                   |         |
|-------------------|---------|
| Impeller Material | Plastic |
|-------------------|---------|

|              |         |
|--------------|---------|
| Suction Head | 20 Feet |
|--------------|---------|

|             |    |
|-------------|----|
| Maximum PSI | 45 |
|-------------|----|

|             |    |
|-------------|----|
| Submersible | No |
|-------------|----|

**Overview**

|             |    |
|-------------|----|
| Made in USA | No |
|-------------|----|

|        |           |
|--------|-----------|
| Weight | 57 Pounds |
|--------|-----------|

|                |             |
|----------------|-------------|
| Product Length | 19.9 Inches |
|----------------|-------------|

|               |             |
|---------------|-------------|
| Product Width | 9.26 Inches |
|---------------|-------------|

|                |             |
|----------------|-------------|
| Product Height | 10.6 Inches |
|----------------|-------------|

|                   |         |
|-------------------|---------|
| Consumer Warranty | 2 Years |
|-------------------|---------|

|     |              |
|-----|--------------|
| UPC | 010121124868 |
|-----|--------------|

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PK Doherty &lt;pkdoherty74@gmail.com&gt;

**Question regarding permit 96-9651**

1 message

Smith, Rachael <Rachael.Smith@idwr.idaho.gov>  
To: "pkdoherty74@gmail.com" <pkdoherty74@gmail.com>

Fri, Jan 19, 2018 at 8:07 AM

**RECEIVED****JAN 25 2018****DEPARTMENT OF  
WATER RESOURCES**

Good morning Pat and Karen,

Idaho Dept. of Water Resources has received your Statement of Completion for proof of beneficial use of permit 96-9651. Typically for irrigation of five acres or less, we are able to complete an in-office review and license the right rather than competing a field exam. The in-office review relies on current satellite imagery; however, the most recent satellite imagery in your area is from 2014. Using this image, I have attached a map of my estimate of what may be irrigated at your property. Because this imagery is not current, I am requesting that you confirm or modify the map to reflect all irrigated portions of your property.

Please sign and return the confirmed/modified map within 10 days (mail or e-mail would work). When the map is received, your permit will be processed.

Please let me know if you have any questions.

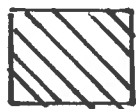
Thank you,

Rachael Smith, Water Resource Agent, Sr.  
Idaho Dept of Water Resources  
322 E. Front Street  
Mail: PO Box 83720 Boise, ID 83720-0098  
Rachael.Smith@idwr.idaho.gov  
208.287.4912

96-9651.pdf  
330K

01/19/18  
Hi RACHAEL,  
ENCLOSED IS  
THE MODIFIED,  
SIGNED MAP OF  
IRRIGATED PORTIONS  
OF PROPERTY  
SINCERELY,  
PATRICK DOHERTY

Permit 96-9651



DESIGNATES APPROX.  
= AREAS OF IRRIGATION  
FROM PACK RIVER

*Patrick T. Doherty*

PATRICK T. DOHERTY

0/19/18