

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 71-11013
Exam Date: 08/27/2024

1. Current Owner:
STATE OF IDAHO FISH & GAME COMMISSION
PO BOX 25 BOISE ID 83707-0025

2. Accompanied by: N/A
Phone No:
Address:
Relationship to permit Holder:

3. **SOURCE:**
WILLIAMS CREEK

Tributary
SALMON RIVER

Method of Determination: On-site inspection

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
71-10149	Williams Creek	Irrigation	Decree
71-2052	Williams Creek	Irrigation	Decree

Comments: _____

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
N/A			

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM

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

WILLIAMS CREEK NW¼ SE¼, Sec. 20, Twp 09N, Rge 14E, B.M. CUSTER County

Method of Determination: On-site inspection

PLACE OF USE: FISH PROPAGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
09N	14E	20								X									

Method of Determination: On-site inspection

3.

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

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Indicate weir size/pipe as applicable.

Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

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

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Photo of Diversion and System Attached

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4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
POD ID 1077371					

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Staff Gauge & Tape Measure						

2. Measurements: 1.5", 3" & 4" diameter orifices on a rotating slide plate, High water mark 1.87' above center of 4" orifice

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method: Utilized orifice flow equation from an 8/24/2011 memorandum regarding methodology for flow measurements for fish bypass permits:

$$Q = C_d A_o (2gh)^{1/2}$$

Where C_d = coefficient of discharge for orifice (0.67 was determined to be an appropriate coefficient per memo) A_o = Area of orifice opening in feet² $G = 32.2$ ft per second² h = measured head above center of orifice opening in feet

$$0.67 \times 0.08727 \text{ sf} \times [2(32.2 \text{ fps}^2)(1.87')]^{1/2} = 0.64 \text{ cfs}$$

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

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

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

$$V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} =$$

2. Volume Calculations for Other Uses: Fish Propagation:

$$V = [\text{Diversion Rate (cfs)}] \times (\text{Days in Season of Use}) \times 1.9835 = (0.64 \text{ cfs}) \times (184 \text{ days}) \times 1.9835 = 233.6 \text{ afa}$$

G. NARRATIVE/REMARKS/COMMENTS

On 8/27/2024 I visited the fish screen and headgate for this right to conduct a field exam. I found a functioning fish screen with a bypass structure and a headgate on Williams Creek. There were three bypass openings on a rotating slide plate which covered the opening of the bypass pipe and allows juvenile fish to travel back out to the stream. The orifices measured 1.5", 3" & 4" in diameter. I utilized the larger 4" orifice for calculating the flow for licensing. The head measured above the center of the 4" orifice was 1.87'. Based on the orifice flow equation, there would be approximately 0.64 cfs flowing through the bypass during high water flows.

Recommend licensing 0.64 cfs with a volume of 233.6 af.

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>	
FISH PROPAGATION	05/01 to 10/31	0.64 CFS	233.6 AF
<u>Totals:</u>		0.64 CFS	233.6 AF

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

Bill Mills - Water Resource Agent, Senior

Field Examiner's Name

Date

Reviewer

Date

9-18-2024
9/30/2024



Figure 1: Fish screen with bypass (T-handle front left side located over bypass opening)



Figure 2: Measuring 3" Orifice (plate rotates to allow use of 1 of 3 orifices, 1.5", 3" & 4" diameter, allowing variable control of flow into the bypass pipe). The 4" orifice was used for the licensing measurement



Figure 3: Bypass discharge into Williams Creek