

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 75-14835
Exam Date: 11/5/2020

1. Current Owner:
STATE OF IDAHO
DEPT OF FISH AND GAME
PO BOX 25
BOISE, ID 83707-0025

2. Accompanied by: None

3. **SOURCE:**
FREEMAN CREEK

Tributary
CARMEN CREEK

Method of Determination: Field exam and GIS

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
75-10929	Groundwater	Domestic	Decreed

2. Other water rights with the same point-of-diversion:

Water Right No.	Source	Purpose of Use	Basis
75-4005	Freeman Creek	Irrigation	Decreed
75-10061AH	Freeman Creek	Irrigation	Decreed
75-10062AG	Freeman Creek	Irrigation	Decreed

Comments: The purpose of this fish propagation right is to allow IDFG to provide a screened diversion with fish bypass to satisfy the water rights listed above.

C. DIVERSION AND DELIVERY SYSTEM

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

FREEMAN CREEK NE¼ SE¼, Sec. 36, Twp 23N, Rge 22E, B.M. LEMHI County

Method of Determination: Field exam and GIS

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	
23N	22E	36													X				

Method of Determination: Field exam and GIS

D. FLOW MEASUREMENTS

1. Measurements: None taken. The configuration of this diversion does not allow for the direct measurement of only the Fish Propagation portion of the water being diverted.

E. FLOW CALCULATIONS

_____ Additional Computation Sheets Attached

Measured Method:

The following equation has been used historically by IDWR for similar IDFG fish bypass structures:

$$Q = C_d A_o \sqrt{(2gh)}$$

Where:

Q = flowrate (cfs)

 C_d = coefficient of discharge A_o = Area of orifice opening (ft²)g = gravitational acceleration $\left(32.2 \frac{\text{ft}}{\text{s}^2}\right)$

h = Measured head above center of orifice opening (ft)

The orifice diameter for this structure is 4.5 inches, which results in $A_o = 0.11 \text{ ft}^2$.

The high water mark measured above the orifice center was 1.9 ft.

The standard coefficient of discharge used by IDWR for similar IDFG diversion structures is 0.67.

$$Q = 0.82 \text{ cfs}$$

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

2. Volume Calculations for Other Uses: $0.8 \text{ cfs} \times 1.9835 \text{ AF/cfs/day} \times 229 \text{ days/season} = 363 \text{ AF/season}$

G. NARRATIVE/REMARKS/COMMENTS

This diversion structure is similar to many other diversions built by Fish & Game throughout the Lemhi and Salmon River basins to protect fish from entering the irrigating works. The calculated flowrate for the structure exceeds the permitted rate.

Have conditions of permit approval been met?

☒ Yes ☐ No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual volume</u>
FISH PROPAGATION	04/01 to 11/15	0.80 CFS	363 AF

Totals: 0.80 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

Brian Normandeau – Associate Engineer

Field Examiner's Name: Brian Normandeau

Date: 12/2/2020

Reviewer _____ Date _____



Photo 1: Diversion on Freeman Creek



Photo 2: Fish screen/bypass approach



Photo 3: Fish screen structure



Photo 4: Fish bypass return to Freeman Creek



Legend

-  Place of Use
-  Point of Diversion
-  Township/Range
-  Sections
-  QQ

0 155 310 620 Feet

1 inch = 225 feet

