

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 71-10916

Exam Date: 8/23/2011

1. Current Owner: STATE OF IDAHO
DEPT OF FISH & GAME
600 S WALNUT
BOISE ID 83707
(208)334-3700
2. Accompanied by: Corey Skinner (IDWR)
Phone No:
Address:
Relationship to Permit Holder:

3. **SOURCE**

CHAMPION CREEK

TRIBUTARY

SALMON RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None
2. Other water rights with the same point of diversion: 71-4006, 71-10080, and 71-10081

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

CHAMPION CREEK

NW1/4NE1/4

Sec. 23, Twp 08N, Rge 14E, B.M.

CUSTER County

Method of Determination: Field observation and IDWR spatial data point

2.

PLACE OF USE: FISH PROPAGATION

Twp	Rge	Sec	NE				NW				SW				SE				
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>Totals</u>
08N	14E	23		X															

Method of Determination: Field observation and IDWR spatial data point

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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.
- ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached

4.

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

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

D. FLOW MEASUREMENTS

1.

<u>Measurement</u> <u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
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None taken

2. Measurements: At the time of the exam, water was flowing through the fish screen structure. The Diameter of the orifice was measured at 4 inches and the amount of head above the center of the orifice was measured at 32 inches. However a high water mark on the fish screen structure was measured from the center of the orifice at 47.5 inches.

E. FLOW CALCULATIONS

_____Additional Computation Sheets Attached

Measured Method:

Discharge from a tank through an orifice (see attached 8/24/11 memo for formula and orifice coefficient)

$$Q = C_d A_o (2gh)^{1/2} \quad \text{where } C_d = 0.67 \text{ coefficient of discharge}$$

$$A_o = \text{Area of orifice opening}$$

$$g = 32.2 \text{ ft per second}^2$$

$$h = \text{measured head above center of orifice opening (in feet)}$$

Orifice is a 4 inch diameter hole so $A_o = \pi r^2 = \pi (2 \text{ inch})^2 = 12.566 \text{ inch}^2 = .087 \text{ ft}^2$

h was measured at 47.5 inches (to high water mark) = 3.96 feet

$$Q = (0.67)(0.087)[2(32.2)(3.96)]^{1/2}$$

$$Q = 0.93 \text{ cfs}$$

Permitted at 0.80 cfs, so recommended a flow of 0.80 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:

$$V = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = (0.80 \text{ cfs})(184 \text{ days})(1.9835) = 292.0 \text{ afa}$$

G. NARRATIVE/REMARKS/COMMENTS

Permit 71-10915 was permitted for the diversion of up to 0.80 cfs from Champion Creek for use in a fish screen to flush fish back to the creek that would otherwise be trapped between the point of diversion and the fish screen. During the exam it was observed that water was being diverted through the fish screen and water was flowing back to Champion Creek through a 4 inch orifice, with 32 inches of head above the center of the orifice. However a prominent high water mark of 47.5 inches above the center of the orifice on the fish screen was measured indicating that additional water had been utilized by the fish screen bypass in the past. With the use of this high water mark (47.5 inches) in the flow calculation, this fish screen has utilized more flow (0.93 cfs) than was permitted (0.80 cfs) therefore only 0.80 cfs is recommended. Note that permit 71-10916 was permitted with the wrong irrigation season (04/01 to 11/01), when the standard for the area is actually 05/01 to 10/31. It is recommended that the standard irrigation season be licensed for the period of use (05/01 to 10/31). The standard irrigation season of 184 days was utilized in the annual volume calculations.

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

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
FISH PROPAGATION	05/01 to 10/31	0.800 CFS	292.0 AF
<u>Totals:</u>		0.800 CFS	292.0 AF

2. Recommended Amendments

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

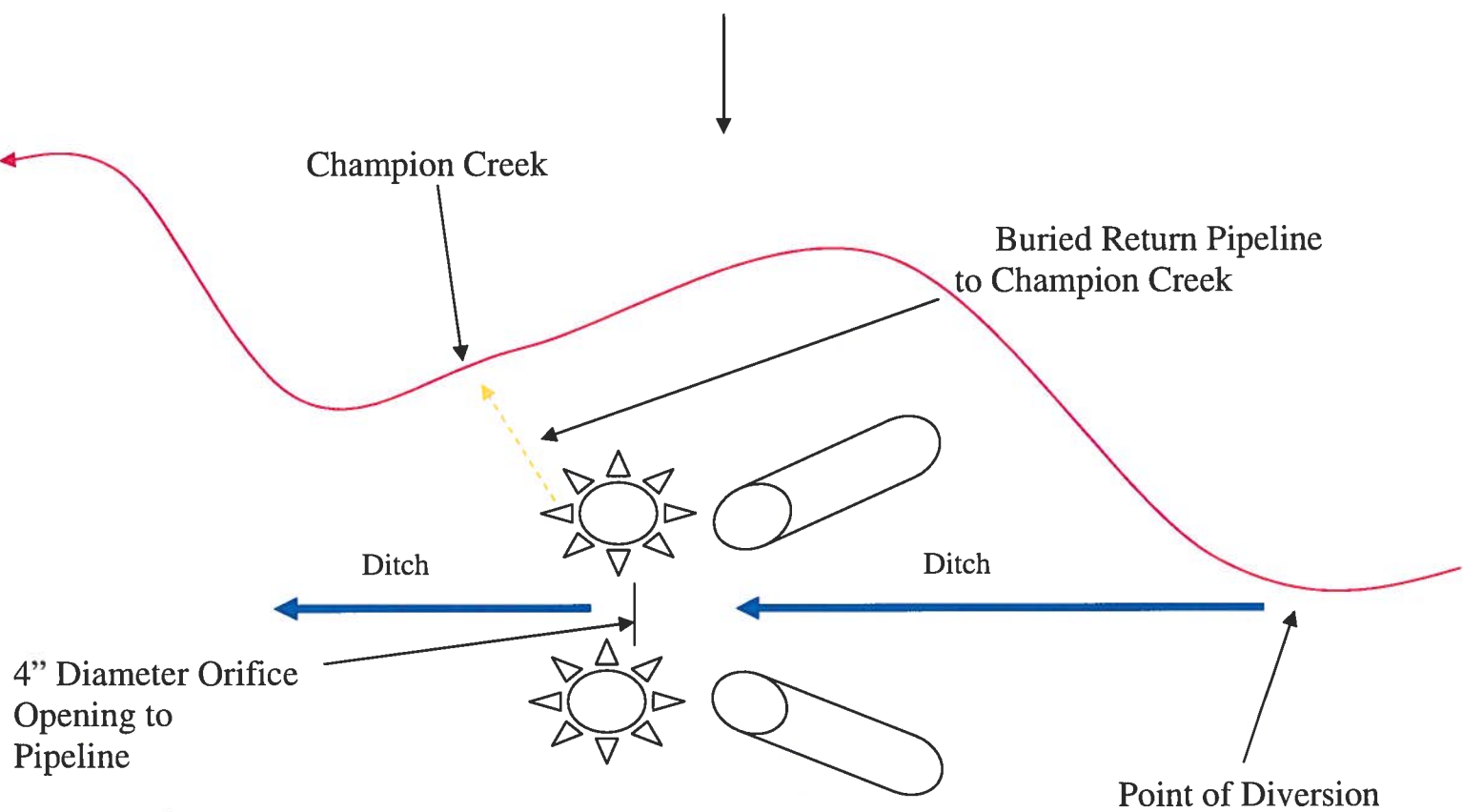
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name Benny Walker Date 11/16/11
 Reviewer Chris Metten Date 12/6/11

System Diagram for 71-10916

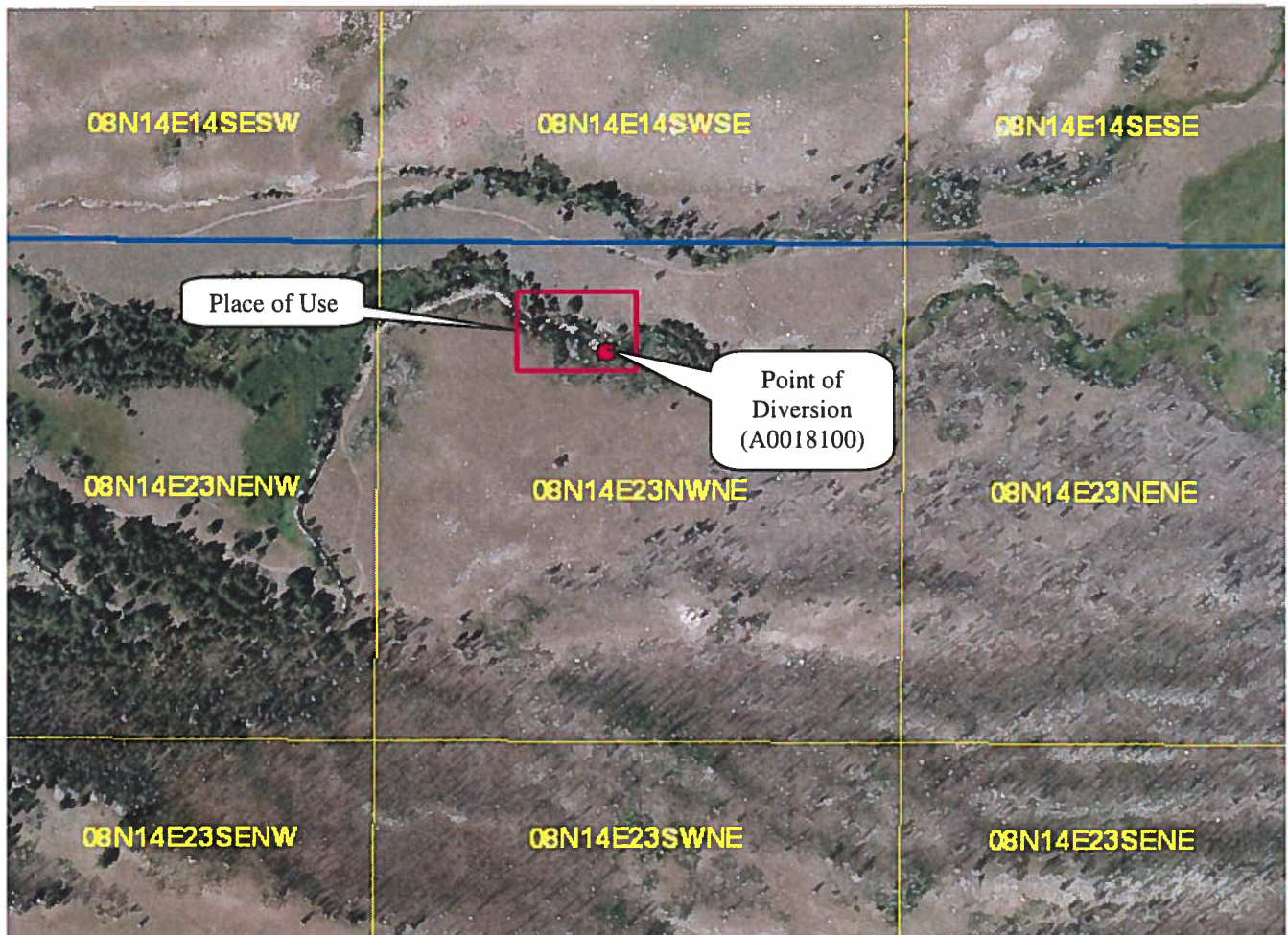
Fish Screen Structure



(Diagram Not to Scale)

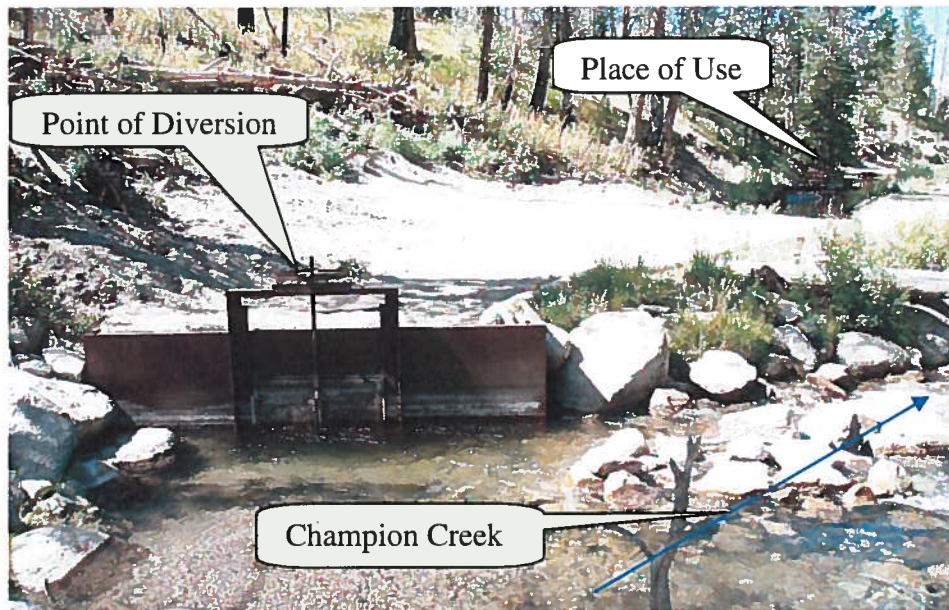


71-10916 Field Exam Map



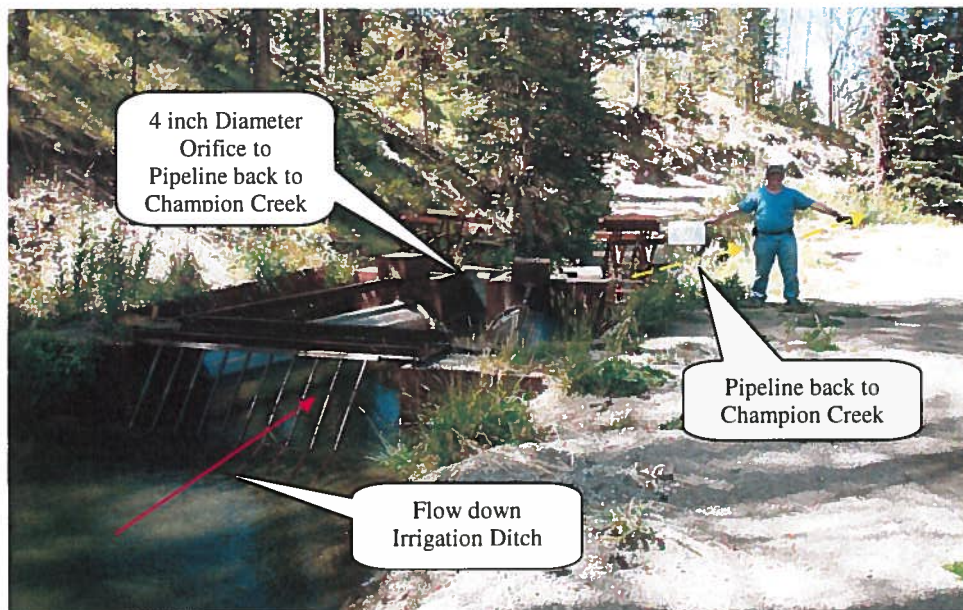
Photos for 71-10916 Field Exam

August 23, 2011



Above: View of Point of Diversion for 71-1091 (site tag #A0018100)

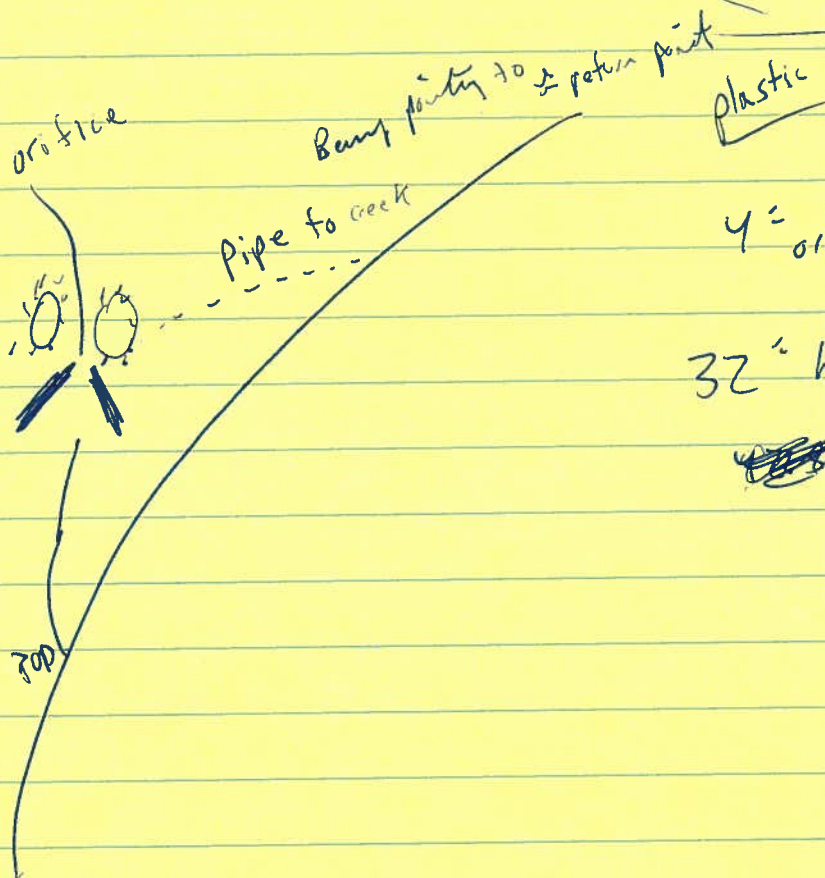
Below: View of Place of Use for 71-10916



71-10916

~ 1:00

POV gps
2437320
1423959



plastic

4" orifice

32' head @ of orifice

~~47.5~~ 47.5 High Water
20 for 611

71-10916

14

FSH SCREEN

POD

POD

28

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