

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 71-10917

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**

IRON CREEK

TRIBUTARY

VALLEY CREEK

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None
2. Other water rights with the same point of diversion: 71-25B (See Narrative)

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

IRON CREEK

SE1/4NE1/4

Sec. 7, Twp 10N, Rge 13E, B.M.

CUSTER County

Method of Determination: Field observation, GPS, and IDWR GIS

2.

PLACE OF USE: FISH PROPAGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
10N	13E	7				X													

Method of Determination:

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 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 Size</u>
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N/A

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

D. FLOW MEASUREMENTS

1.

<u>Measurement 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: The Orifice is a 3.75 inch diameter Half Circle opening and the amount of head above the bottom of the opening was measured at 11.5 inches. However a high water mark on the fish screen structure was measured from the bottom of the opening at 14 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 3.75 inch diameter Half Circle opening so $A = (\pi r^2) \div 2 = \pi (1.875)^2 \div 2 = 5.52 \text{ inch}^2 = .038 \text{ ft}^2$

h was measured at 14 inches (to high water mark) – 1.875 (1/2 of 3.75 for center) = 1.01 feet

$$Q = (0.67)(0.038)[2(32.2)(1.01)]^{1/2}$$

$$Q = 0.21 \text{ cfs}$$

Recommend a flow of 0.21 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:

$$V = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = (0.21 \text{ cfs})(184 \text{ days})(1.9835) = 76.6 \text{ afa}$$

G. NARRATIVE/REMARKS/COMMENTS

Permit 71-10917 was permitted for the diversion of up to 0.80 cfs from Iron 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 Iron Creek through a 3.75 inch half circle opening, with 11.5 inches of head above the bottom of the opening. However, 14 inches of head above the bottom of the 3.75 inch half circle opening to the high water mark on the fish screen structure was measured indicating that additional water had been utilized by the fish screen bypass in the past. For the orifice flow calculations head is measured from the center of the orifice opening so using the 14 inch high water mark measurement results in a head reading of 12.125 inches $(14 - 3.75 \div 2)$. Note that permit 71-10917 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. Water right 71-25B is also diverted via the same irrigation system, however the point of diversion for water right 71-25B is described down to the 10 acre tract and linked to a point (A0017910) where a side channel splits off from Iron Creek and runs parallel to Iron Creek which eventually merges back to Iron Creek further downstream. The point of diversion for water right 71-10917 is from the side channel of Iron Creek at the fish screen structure that has a gate attached with an identification tag located on the gate (A0017935).

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	0.210 CFS	76.6 AF
<u>Totals:</u>		0.210 CFS	76.6 AF

2. Recommended Amendments

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

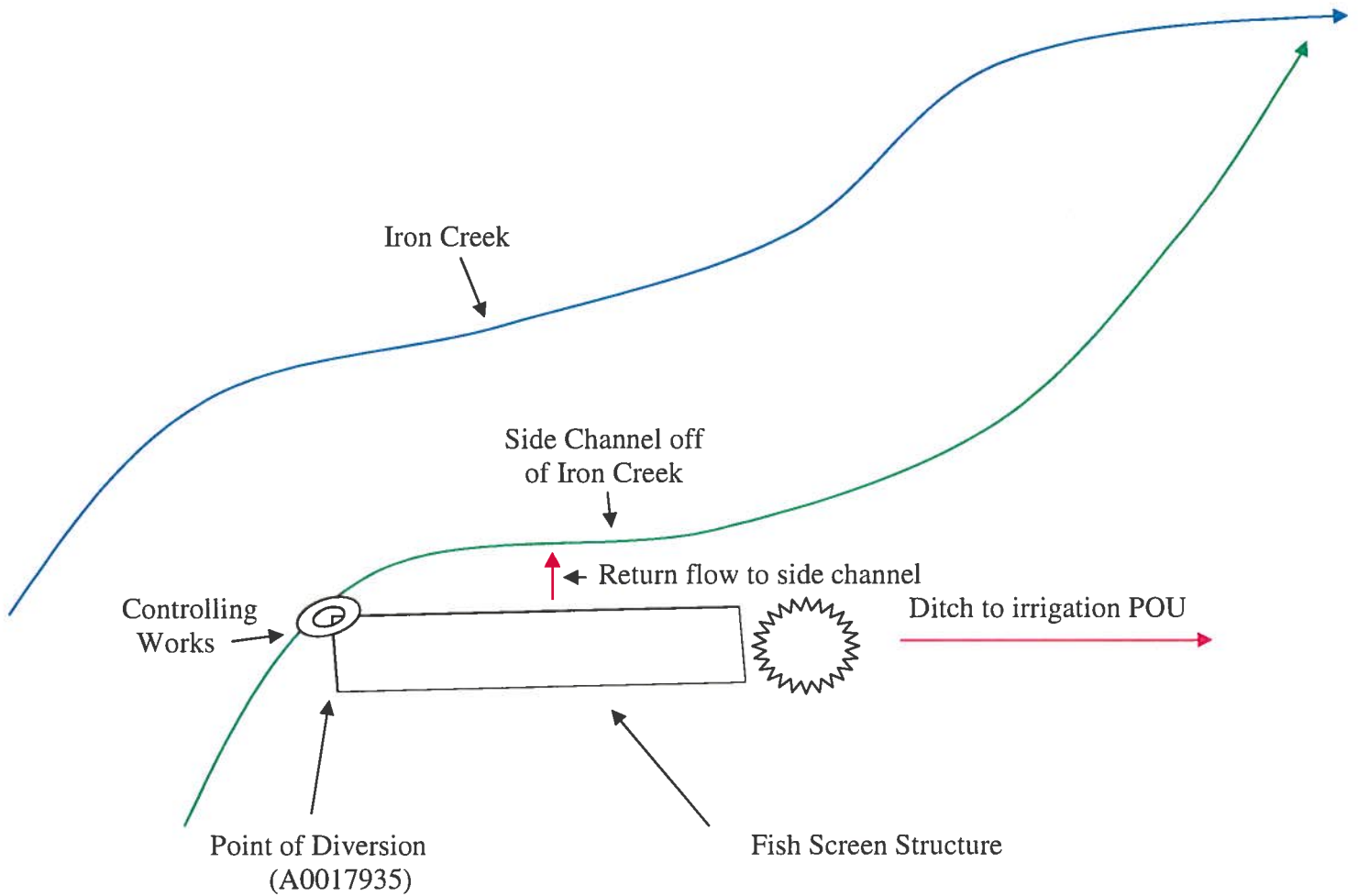
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name Benny Walker Date 2/9/2012

Reviewer [Signature] Date 2/15/2012

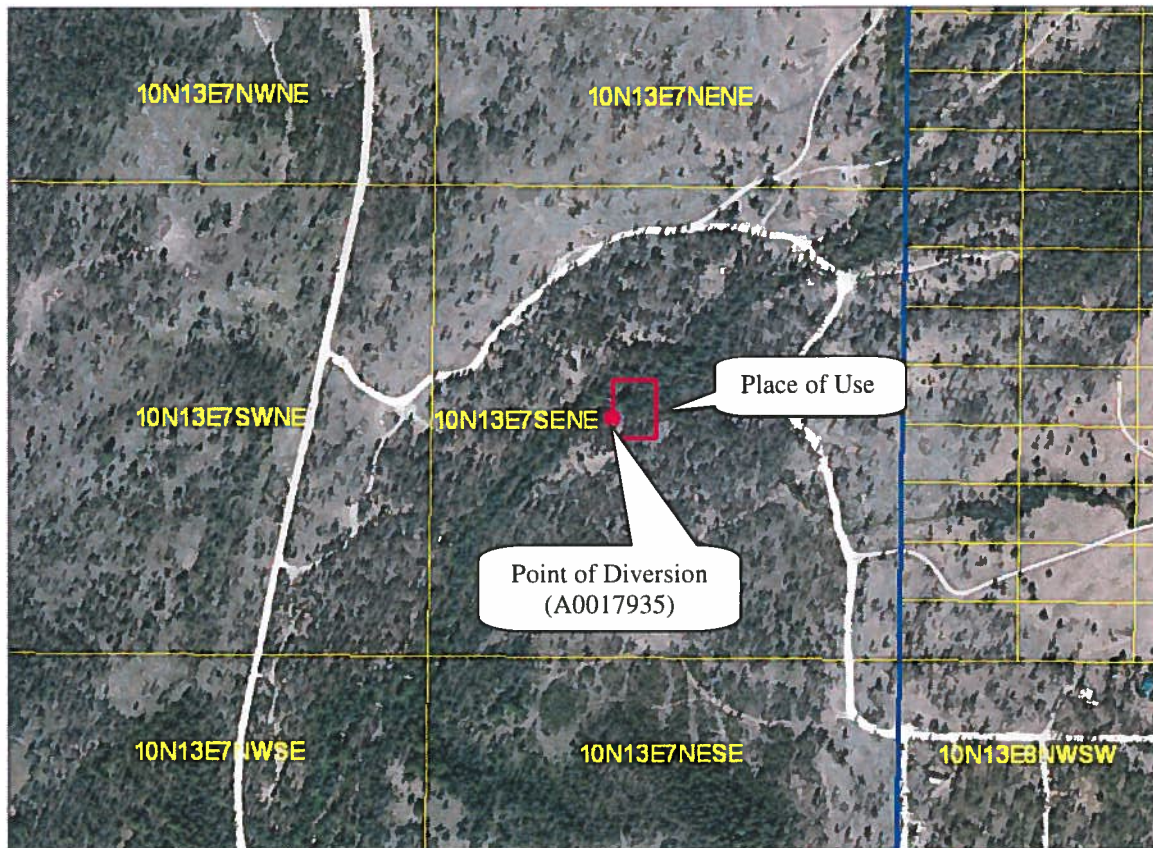
System Diagram for 71-10917



(Diagram Not to Scale)

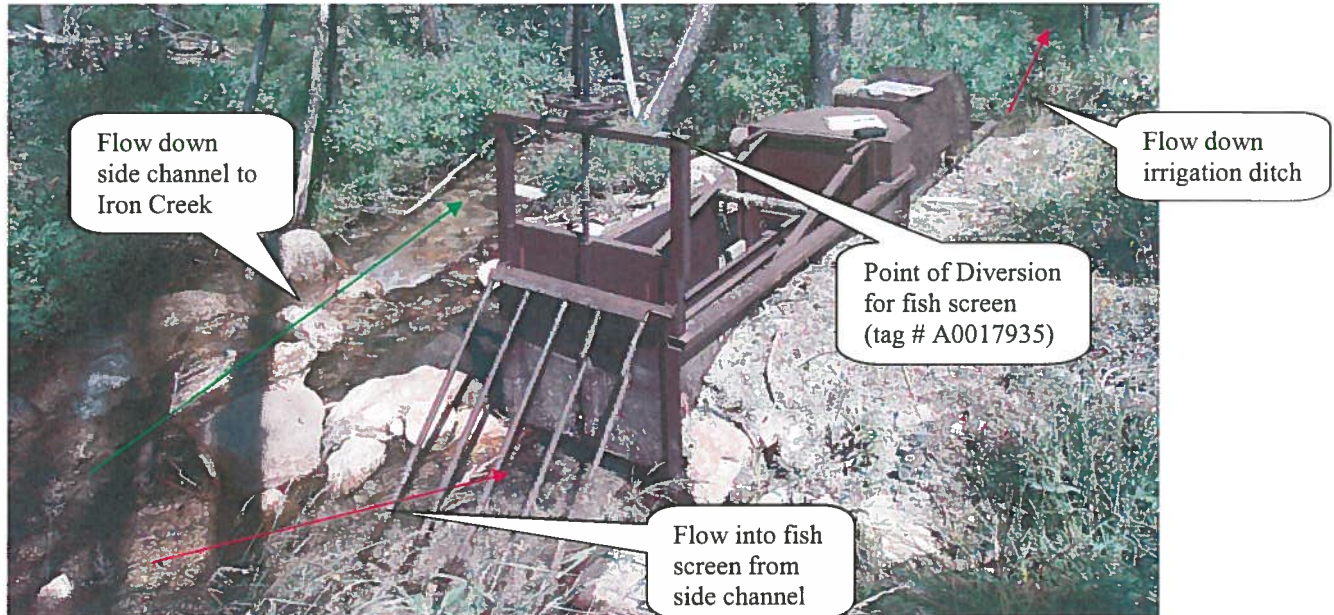


71-10917 Field Exam Map



Photos for 71-10917 Field Exam

August 23, 2011



Above: View of Point of Diversion for 71-10917 (site tag #A0017935)

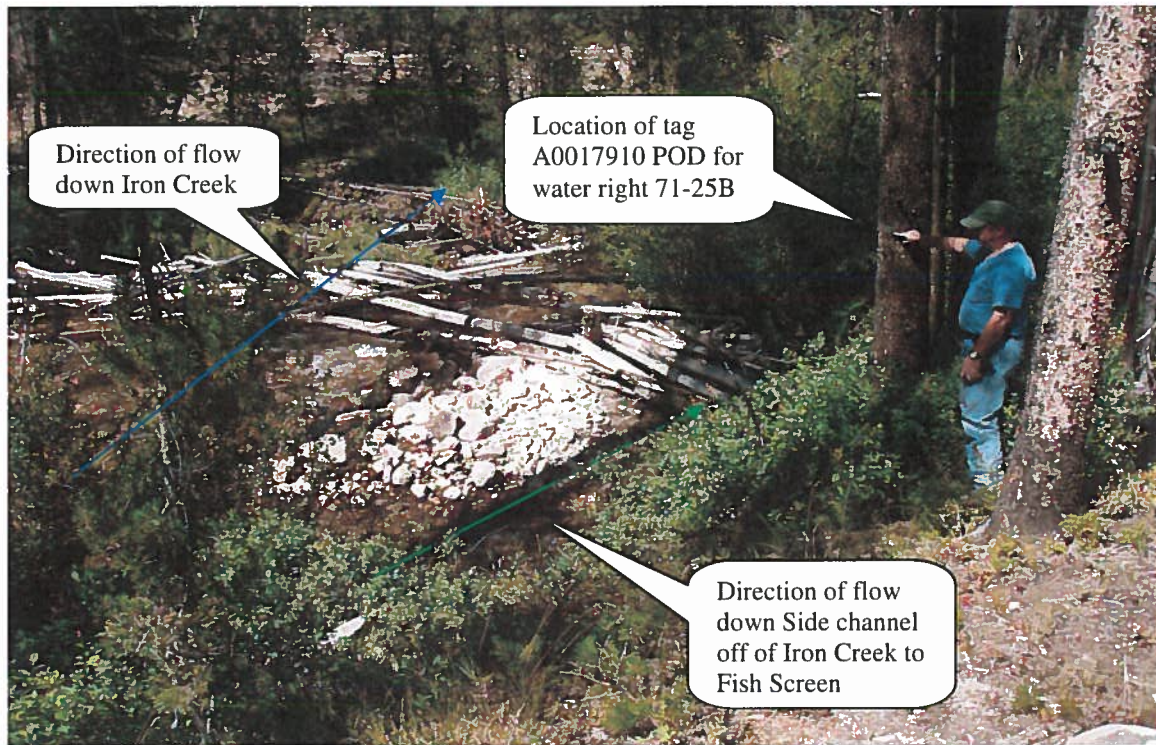
Below: View of Place of Use for 71-10917



Photos for 71-10917 Field Exam

August 23, 2011

View of side channel off of Iron Creek towards Fish Screen
No physical controlling works until the location of Fish Screen



Below: Diagram of opening in fish screen
for water to flow back to
Iron Creek

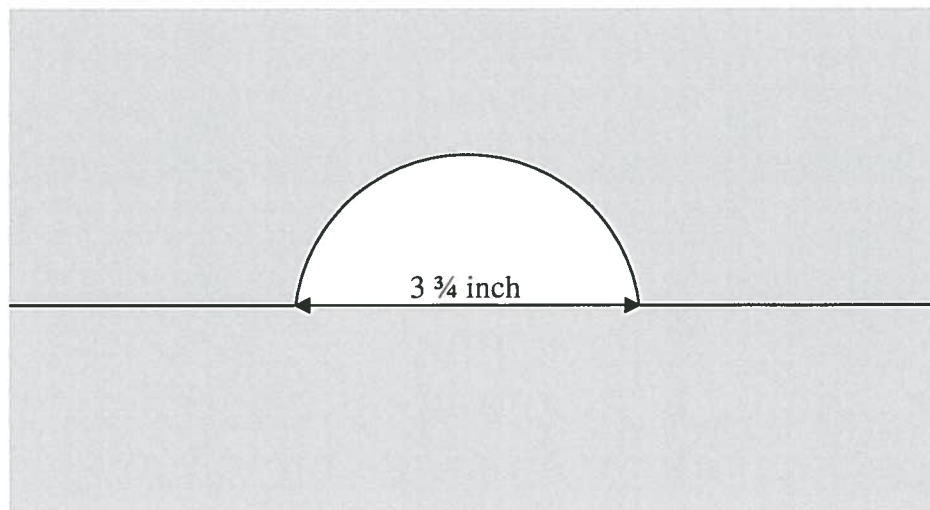


Diagram not to scale

71-10917 A0017910[?]

tag # A0017935



orifice $3\frac{3}{4}$ " $\frac{1}{2}$ circle
in 2x lumber



head
from bottom ~~to~~ !

11.5" to water

14" to high water
line

GPS
2421774
1486129

$$14 - \frac{1}{2}(3\frac{3}{4}) = 12.125"$$

1.01"

use this for h

