

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 47-8076
Exam Date: 10/23/2015

1. Current Owner:

JUDITH K RAY
AND/OR
LEO E RAY
4647D RIVER RD BUHL ID 83316

2. Accompanied by: Jana Reeder, IDWR and Leo Ray, permit holder

Phone No: 208-358-3721(Leo cell)/208-837-6114(Leo home)

Address:

Relationship to permit Holder:

3. **SOURCE:**

UNNAMED STREAMS

Tributary

DEEP CREEK

Method of Determination: ArcMap DRG layer and site visit

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None

Water Right No.	Source	Purpose of Use	Basis

Comments: Right 47-8429 is appurtenant to nearby ponds for water quality improvement.

2. Other water rights with the same point-of-diversion: None

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

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

UNNAMED STREAM NW¼ SE¼, Sec. 8, Twp 10S, Rge 14E, B.M. TWIN FALLS County

UNNAMED STREAM SW¼ SE¼, Sec. 8, Twp 10S, Rge 14E, B.M. TWIN FALLS County

Method of Determination: ArcMap aerial imagery and site visit

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	
10S	14E	8														X			

Method of Determination: ArcMap aerial imagery and site visit

3.

X Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.

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

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

X Photo of Diversion and System Attached

4.

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Staff gauge	1/100 foot increments					

2. Measurements: Measurements were made at three 2' rectangular suppressed weirs; two located at the end of the south raceways (South POD), and one at the end of the east raceway (North POD). The formula for discharge of standard suppressed rectangular weirs is: $Q = 3.33Lh^{1.5}$, where 3.33 is a constant, L is the weir width, and h is the head on the weir. The heads measured were: South POD = east weir- 0.78', west weir- 0.68'; North POD = 0.66'.

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method:

South POD, east weir: $Q = 3.33 \times 2.0' \times 0.78^{1.5} = 4.59$ cfs

South POD, west weir: $Q = 3.33 \times 2.0 \times 0.68^{1.5} = 3.74$ cfs

North POD, $Q = 3.33 \times 2.0 \times 0.66^{1.5} = 3.57$ cfs

Total flow = 11.9 cfs – round to 12.0 cfs to allow for measurement error.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: NA

$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \text{NA}$

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

$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \text{NA}$

2. Volume Calculations for Other Uses: Flow is used around the clock, year-round, so $V = 12.0 \text{ cfs} \times 1.9835 \text{ AF/day} \times 365 \text{ days} = \mathbf{8687.7 \text{ AF}}$.

G. NARRATIVE/REMARKS/COMMENTS

The field exam for permit 47-8076 was completed on October 23, 2015 with IDWR Water Resource Agent Jana Reeder leading; IDWR water resource agent Jim Bitzenburg and permit holder Leo Ray were in attendance. Although the permit and the database appear to show only one point of diversion (POD), it is clear from the application that two points of diversion were intended to be developed in the SENWSE of Section 8, T10S, R14E. However, an amendment of permit will be necessary, as the south POD, also known as the Cox Tunnel, is actually located in the SWSE of Section 8. Additionally, the north POD is located in the NENWSE, rather than the SENWSE, so it would be appropriate to drop the QQQ designation from the POD description.

Water from the Cox Tunnel (south POD) runs in a ditch covered by concrete slabs for approximately 115' where it enters the South Raceway. The measurement for the south POD was made at two rectangular suppressed weirs at the end of the raceways. After leaving the south raceway, the water runs in an open ditch for about 510' where it enters the Middle Raceway and then in another open ditch for 750' into Deep Creek. The flow measured from the south POD was 8.33 cfs.

The water from the north POD also flows in a ditch covered by concrete slabs for about 70' where it flows into the East Raceway. The north POD was measured at the end of the East Raceway at a rectangular suppressed weir as it enters the Middle Raceway. The flow from the north POD was measured at 3.57 cfs. After exiting the Middle Raceway, this water also flows north, then east, for a total distance of 750' into Deep Creek.

The permit condition requiring the right holder to convey effluent water from the fish propagation facility through an open ditch of at least ¼ mile in length before the water is discharged into Deep Creek should be dropped due to the fact that right 47-8429 (Water Quality Improvement) was filed to mitigate for the discharge from this facility associated with permit 47-8076. Right 47-8429 was licensed in 2016, and was filed for the sole purpose of mitigating for water quality issues associated with this permit.

At the time of the exam, the raceways were stocked with small trout or sturgeon, and sturgeon occupied the open ditches between the raceways, where Mr. Ray noted that they keep the water almost totally clear of moss and other aquatic plants.

The total of the three flow measurements above was 11.9 cfs, but with a reasonable margin of error in the measurement, a permitted flow rate of 12.0 cfs is recommended. Volume is calculated at the flow rate running around the clock for the entire year, or $12.0 \times 1.9835 = 23.802$ acre-feet/day $\times 365$ days = 8687.7 AF recommended volume.

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>Volume</u>
FISH PROPAGATION	1/01 to 12/31	12.0 CFS	8687.7 AF
<u>Totals:</u>		12.0 CFS	8687.7 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

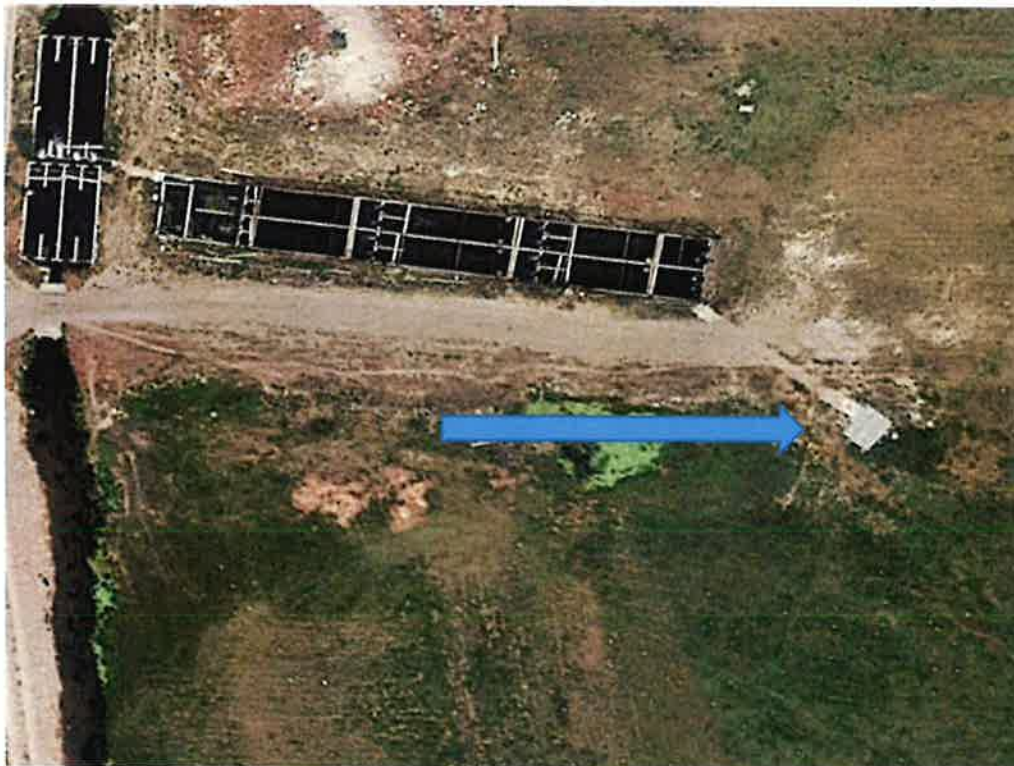
I. AUTHENTICATION

Field Examiner's Name  Date 4-29-19
Reviewer _____ Date _____



Aerial view of south POD (arrow)

Aerial view of north POD (arrow)





South POD

North POD



Ray Permit 47-8076



View of South raceways looking south

View of South raceways looking north





Middle raceways looking north (note sturgeon in raceways)

Middle raceways looking east with East raceways in background





Numerous sturgeon below Middle raceways

Young fry in South raceways



Ray Permit 47-8076

Ray Permit 47-8076 System Diagram



Legend

- Township/Range
- Sections
- QQ

0 0.0325 0.065 0.13 Miles





**CONTRACT
No. 226**

W.F. Cox

**Legal Description:
N1/2SE1/4**

**Section 8
Township 10 South
Range 14 East**

Legend	
	Man Holes
	Observation Wells
	Tunnel Portals
	Vertical Shafts
	Wells
	Drains
	Tunnels
	City Limits
	Canals
	Roads
	Section Line
	Parcels



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Created 9/2016

