

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 72-16968
Exam Date: 5/22/2019

1. Current Owner:
STATE OF IDAHO 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:**
BAYHORSE 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:

Water Right No.	Source	Purpose of Use
72-4081	Bayhorse Creek	Irrigation
72-4082	Bayhorse Creek	Irrigation
72-4077	Bayhorse Creek	Irrigation, Domestic, Mitigation

Comments: The fish screen is at the head of the pipeline/ditch serving these water rights. Its purpose is to keep fish from being entrained in either the irrigation channel or between the headgate and the irrigation channel and flush them back to Bayhorse Creek.

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

BAYHORSE CREEK L8 (NW¼ SW¼), Sec. 7, Twp 12N, Rge 19E, B.M. CUSTER County

Method of Determination: aerial imagery in ArcMap, GPS

2. **LOCATION OF 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	
12N	19E	7										X L8							

Method of Determination: aerial imagery in ArcMap, GPS

3. **ATTACHMENTS**

- 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. Well Specifications

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Weir	Contracted rectangular				17.75" = 1.48'	

2. Measurements:

Measured head of 0.51' flowing over weir.

Note that high water marks were visible above the measured head value, indicating that additional water has been used in the past.

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method: measured head flowing over contracted rectangular weir

Referencing Chapter 7, Section 9 in the US Bureau of Reclamation Water Measurement Manual, the Francis (1883) equation can be used to calculate flow over a contracted rectangular weir: $Q = 3.33(L - 0.2h)h^{1.5}$ where L is the length of the weir in feet and h is the head on the weir in feet.

In this case, that results in:

$$Q = 3.33 * [1.48 - 0.2*(0.51)] * [(0.51)^{1.5}] = 1.67 \text{ cfs}$$

Per IDAPA 37.03.02, Rule 35.01.o the amount of water shall be limited to the smaller of the following amounts:

- Permitted amount: 0.80 cfs
- Amt. upon which the license exam fee is paid: up to 1.0 cfs
- Capacity of diversion works: unknown
- Amt. beneficially used: 1.67 cfs

In this case, the permitted amount is the limiting factor at 0.80 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

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

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

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

2. Volume Calculations for Other Uses: Fish Propagation

This fish screen was designed and permitted to operate when the irrigation diversion is operating, so it is prudent to calculate the volume based on the number of days in the irrigation season.

$$V = \text{Diversion Rate (cfs)} \times (\text{Days in Irrigation Season}) \times 1.9835 = (0.80 \text{ cfs})(214 \text{ days})(1.9835) = 339.6 \text{ AFA}$$

G. NARRATIVE/REMARKS/COMMENTS

Permit 72-16968 was filed on July 23, 2018 by the State of Idaho, Idaho Fish & Game Commission for the diversion of 0.80 cfs from 4/1 – 11/1 for fish propagation purposes. The intent is a non-consumptive fish screen structure which uses a bypass pipe to flush fish back to Bayhorse Creek that would otherwise be entrained between the headgate and the fish screen at the head of the irrigation channel. The permit was issued on December 28, 2018 with proof due by January 1, 2020. Proof of beneficial use was filed on March 15, 2019.

The day before the field exam, I spoke by phone with Mike Demick of Idaho Fish & Game, who is identified as a representative on the permit. He informed me that he believed the fish screen was in operation and that he could provide notification to the landowner that I would be inspecting the fish screen. On the day of the field exam, Jim Bitzenburg (IDWR agent) and I visited the fish screen. From Bayhorse Creek, there is a lockable headgate (referred to as Bayhorse Creek 4 diversion) which flows through an open channel approximately 66' to the fish screen structure. Most of the flow for the irrigation water rights continues through a screened inlet to a buried irrigation pipeline (not visible). The portion of flow that is relevant to this permit flows from the fish screen structure over a weir and into a 10" PVC bypass pipe for approximately 65' where it empties into Bayhorse Creek. The pipeline is buried near the fish screen structure but is exposed closer to the creek. Water was flowing through the structure and we were able to collect a flow measurement at the weir where water enters the bypass pipe. Note that permit 72-16968 was permitted with a season of use from 4/1 – 11/1; however, the standard irrigation season in that area is 4/1 – 10/31. The standard irrigation season of 214 days was used for the volume calculations. It is recommended that the permit be licensed with the standard irrigation season.

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 10/31	0.80 CFS	339.6 AFA

Totals: 0.80 CFS 339.6 AFA

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

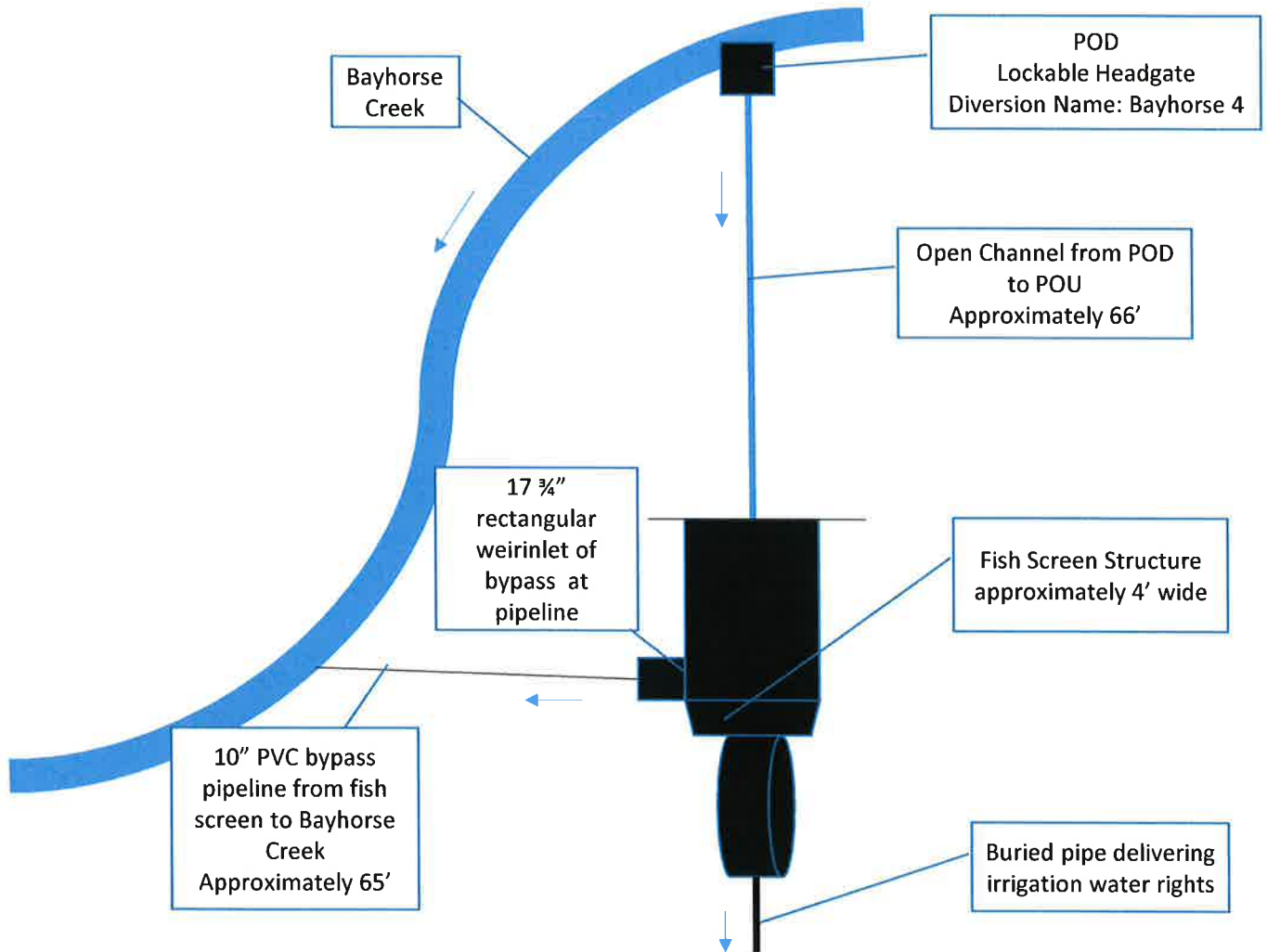
I. AUTHENTICATION

Allison Inouye - Water Resource Agent, Senior

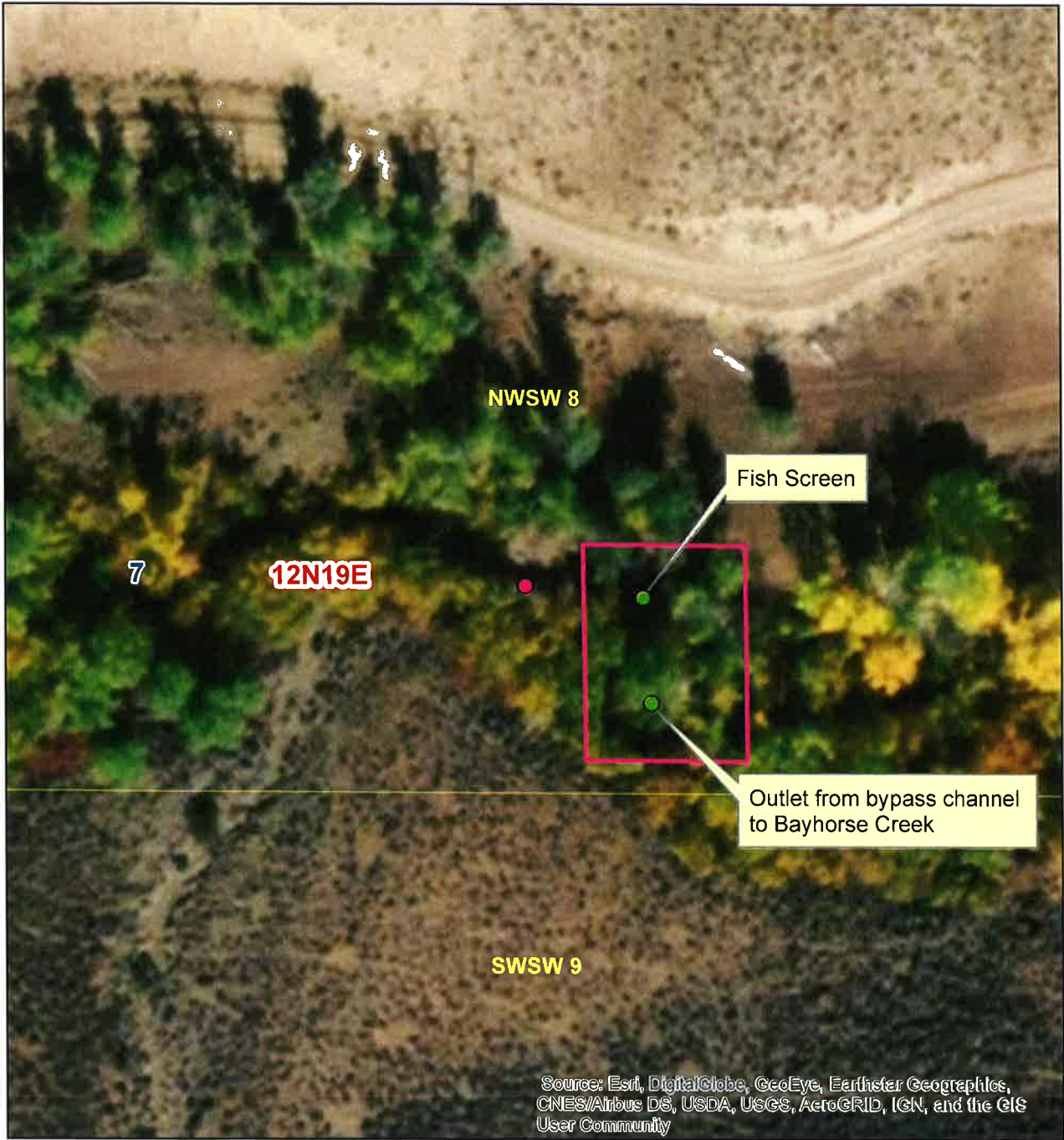
Field Examiner's Name Allison Inouye Date 5/24/2019

Reviewer _____ Date _____

Attachment to 72-16968 Beneficial Use Field Report:
System Diagram



Attachment to 72-16968 Beneficial Use Field Report: Aerial Photograph & Map



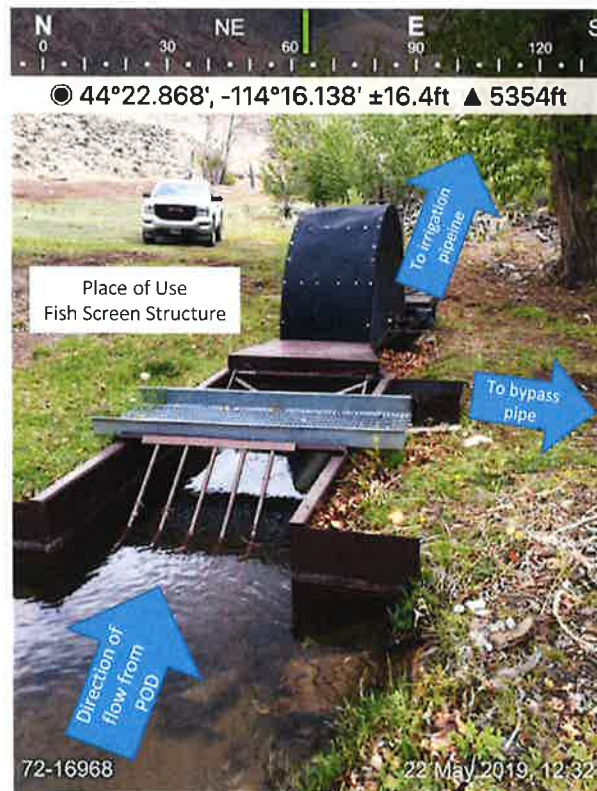
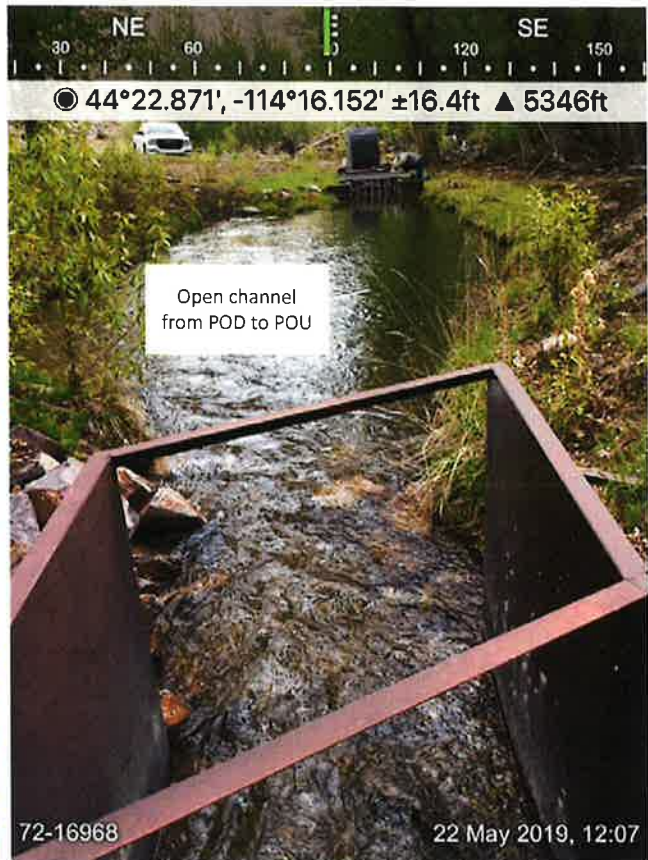
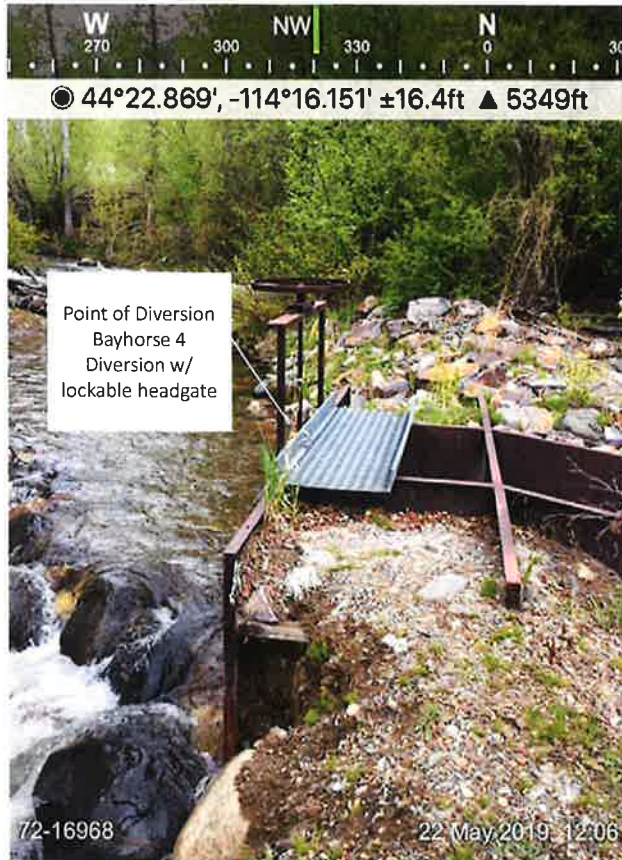
Legend

- POD
- POU
- Township/Range
- Sections
- QQ



0 0.0125 0.025 0.05 Miles

Attachment to 72-16968 Beneficial Use Field Report - Photographs



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