



United States Department of the Interior

FISH AND WILDLIFE SERVICE

911 NE. 11th Avenue
Portland, Oregon 97232-4181

IN REPLY REFER TO:

FWS/R1/EN

WD
RECEIVED

JAN 07 2008

**DEPARTMENT OF
WATER RESOURCES**

JAN - 9 2007

Mr. Tim Luke
Idaho Department of Water Resources
322 E Front Street
Boise, Idaho 83720-0098

Dear Tim:

The U.S. Fish and Wildlife Service requests an exemption from the Preliminary Order Requiring Measuring Devices and Controlling Works on Diversions From the Salmon River and Tributaries in Water District 170, issued February 20, 2007, for Certificate 72-07185.

Water right 72-07185, a copy of which is enclosed, diverts water from the East Fork of the Salmon River into a fish trapping and spawning facility that is a satellite of the Sawtooth Fish Hatchery. On September 12, 2007, Region 1 Water Resources Branch visited the East Fork Satellite Facility (Facility) and evaluated the feasibility of measuring diversions. A copy of that field report is enclosed.

The Facility is adjacent to the East Fork of the Salmon River. Water diverted from the river flows through a trash rack, a 30 inch Waterman gate, thence underground through a concrete conduit to the upwelling points in the raceways. Some portion of the water is discharged directly below the facility into the river to provide attraction flows. There is also an overflow pipe that discharges to the river. The impacted reach of the river is less than 200 feet. There is no meaningful consumptive use of water at the Facility.

The physical conditions at the Facility render it impossible to make a meaningful water measurement. As discussed in the attached field report, the Service could generate a theoretical discharge value based on the river elevation, the opening of the Waterman gate, and the elevation of the water below the gate. This approach presents several challenges: the gate is often adjusted to regulate flow during the operation season, downstream head cannot be measured because the flow is in a deeply buried conduit, and there is no practical way to make check measurements of discharge to calibrate the theoretical submerged orifice equation. Any theoretical discharge rating based on incomplete head data, changing submerged orifice dimensions, and without calibration would be practically useless.

Excavating the concrete conduit and installing a measuring device, the other approach outlined in the field reconnaissance report, is economically infeasible. This construction activity would require considerable disturbance of operations, environmental impacts, and expense. Further, it


is unclear whether the conduit experiences full-pipe discharge at all times, which would undermine accuracy of measurements. And, as previously discussed, there is no practicable way to perform check measurements to calibrate the measuring device.

Consumptive water use at the facility is effectively zero. There is no discernable effect from the operation of the facility on downstream water users. Residence times on the order of minutes do not lead to appreciable temperature increases or nutrient concentration. Diverted water may return to the river slightly higher in dissolved oxygen.

There is no feasible way to provide meaningful diversion measurement at this facility. Further, there is no meaningful consumptive use of water or impact on water quantity or quality. The East Fork facility provides a strong positive benefit to the region's fisheries. For these reasons, the Service believes that the facility should be exempted from the Proposed Order.

As part of the exemption process, if IDWR wishes to make a field visit and evaluate the facility, please contact Dar Crammond, Water Resources Branch Chief, at (503) 231-2098.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dar Crammond', with a long horizontal flourish extending to the right.

Water Resources Branch Chief

Enclosures

cc:

Chris Starr, LSRCP Office

David Langman, R1 WRB

Brent Snider, Hatchery Manager, Sawtooth FH

Nick Miller, Watermaster, Water District 170

Close

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

02/26/2007

WATER RIGHT NO. 72-7185

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	UNITED STATES OF AMERICA ACTING THROUGH USDI BUREAU OF LAND MANAGEMENT IDAHO STATE OFFICE 1387 S VINNELL WAY BOISE, ID 83709-1657 (208)373-4000
Original Owner	STATE OF IDAHO DEPT OF FISH & GAME PO BOX 25 BOISE, ID 83707 (208)334-3700

Priority Date: 04/23/1982
Basis: Decreed
Status: Active

<u>Source</u>	<u>Tributary</u>
EAST FORK SALMON RIVER	SALMON RIVER

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
FISH PROPAGATION	1/01	12/31	15 CFS	10859.7 AFA
Total Diversion			15 CFS	

Location of Point(s) of Diversion:

SALMON RIVER|NWNW|Sec. 14|Township 09N|Range 17E|CUSTER County

Place(s) of use:

Place of Use Legal Description: FISH PROPAGATION CUSTER County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
09N	17E	14		NWNW										

Conditions of Approval:

- | | | |
|----|-----|---|
| 1. | C18 | THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE ENTRY OF A FINAL UNIFIED DECREE. SECTION 42-1412(6), IDAHO CODE. |
| 2. | | FOR USE IN TWO HOLDING PONDS. |
| 3. | L08 | RETURN FLOW IF DISCHARGED TO A SURFACE WATER SYSTEM SHALL MEET IDAHO WATER QUALITY STANDARDS. |
| 4. | M02 | LOCKABLE CONTROLLING WORKS OF A TYPE ACCEPTABLE TO IDWR SHALL BE PERMANENTLY INSTALLED AND MAINTAINED AS PART OF THE DIVERTING WORKS. |

Dates:

Licensed Date:

Decreed Date: 12/01/2000

Permit Proof Due Date: 8/1/1987

Permit Proof Made Date: 7/14/1987

Permit Approved Date: 8/26/1982

Permit Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date: 04/23/1982

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal: S

Owner Name Connector:

Water District Number:

Generic Max Rate per Acre:
Generic Max Volume per Acre:
Civil Case Number:
Old Case Number:
Decree Plaintiff:
Decree Defendant:
Swan Falls Trust or Nontrust:
Swan Falls Dismissed:
DLE Act Number:
Cary Act Number:
Mitigation Plan: False

Close |

December 6, 2007

To: Dar Crammond, Branch Chief
ABA/EN/WR

From: David J. Langman, Hydrologist
ABA/EN/WR

Subject: Sawtooth NFH – Water-use monitoring

As requested, on September 12, 2007, I visited the Sawtooth National Fish Hatchery's (Hatchery) Satellite Facility on the East Fork Salmon River near Stanley, Idaho. The purpose of my visit was to determine what the facility would need to monitor its water-use. The purpose of this memorandum is to provide my findings and recommendations.

The Hatchery's East Fork satellite facility was built to trap and spawn both Chinook salmon and Steelhead. To do so, the hatchery diverts its water supply from the East Fork Salmon River through a trash-rack and 30-inch screw-gate manufactured by Waterman Industries. Beyond the screw-gate, water is conveyed through an underground pipe to the raceways. This water-use is non-consumptive and exits the facility in a by-pass pipe back to the river and/or over a fish-ladder which also reenters the river approximately 200 feet downstream. According to hatchery staff, the 30-inch screw-gate is always completely submerged when the holding ponds and trap are in use (end of March thru early May and mid-June to early September). The water supply for the hatchery is diverted under water right number 72-7185 (15cfs).

The screw-gate is set at various openings and adjusted as needed depending on the season and species. The flow is highly dependent on the river level and flow characteristics as well as the gate setting.

The trash-rack is cleaned multiple times each day during the runoff season which brings leaves, branches, and debris into the intake.

The existing system of diverting and conveying water through the facility is fairly complex and does not allow easy measuring and/or monitoring flows. Water passes through the trash-rack and screw-gate and into an underground pipe to the raceways. There are potentially two possible ways to measure/monitor flows diverted from the river to the raceways:

- 1) Excavate to gain access to the underground pipe which conveys water from the East Fork Salmon River to the facility. This would allow installation of some type of in-line flow meter, Manometer, or Ultrasonic measuring device.

This option is available only if the pipe runs full, under pressure, at all times. A man-hole access would be required.

2) Develop a submerged orifice equation that defines the flow through the intake (screw-gate) as a function of the river-level and the screw-gate setting. Monitoring of these two parameters may allow us to calculate a theoretical estimate of discharge. However, there are many variables and operational procedures that could undermine this type of monitoring.

Furthermore, the nature of the existing system does not allow conducting instantaneous check measurements and therefore, there is no way to check the validity or accuracy of the calculated values.

Complicating either of the above options is an existing over-flow pipe which bypasses excess water back to the river. I believe this excess water would have to be measured and accounted for, and subtracted from the total water-use for the facility.

I also inspected the outflow from the facility to determine whether it could be measured. Unfortunately, water is conveyed through the facility and out over a fish ladder, which, without major re-designs, does not allow any way to measure.

The dynamics of the water-supply system at the hatchery makes it very difficult to measure and monitor and, given the many variables in operation, accurate measurement may prove to be impossible.