

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 71-7170
Exam Date: 07/21/2021

1. Current Owner:
JON L CHRISTIANSON HC 64 BOX 9473 KETCHUM ID 83340 AND
WEI S CHRISTIANSON HC 64 BOX 9473 KETCHUM ID 83340
2. Accompanied by: Allen
Phone No: (208) 573-0021
Address:
Relationship to permit Holder: **Farm Manager**

3. SOURCE:
SALMON RIVER

Tributary
SNAKE RIVER

Method of Determination: ArcMap and Personal observation

B. OVERLAP REVIEW

1. Other water rights with the same place of use: **NO Overlap**
2. Other water rights with the same point-of-diversion: **NO Overlap**

Water Right No.	Source	Purpose of Use	Basis
71-10767	Salmon River	Irrigation	Decreed
71-2004A	Salmon River	Irrigation	Decreed
71-2063	Salmon River	Irrigation	Decreed
71-4037	Salmon River	Irrigation	Decreed
71-10764	Salmon River	Irrigation	Decreed
71-2085B	Salmon River	Irrigation	Decreed
71-7154	Salmon River	Fish Propagation	License
71-2004B	Salmon River	Irrigation	Decreed

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**
SALMON RIVER SE¼ NE¼ SE¼, Sec. 8, Twp 08N, Rge 14E, B.M. CUSTER County

Method of Determination: **ArcMap, Imagery, and personal observation**

PLACE OF USE: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
08N	14E	9						5.7	1.8										7.5

Total Acres: 7.5

Method of Determination: **ArcMap, Imagery, and personal observation**

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.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Salmon River S-42 Diversion	N/A	N/A	N/A	N/A	N/A

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Flume	N/A	N/A	N/A	N/A	N/A	N/A

2. Measurements: Staff Gage at flume: **On the day of the field exam we observed a staff gage water level of 0.83 feet. There is also a visible high water mark on the staff gage that indicates a maximum historic upstream head of 1.1 feet.**

E. FLOW CALCULATIONS☒ Additional Computation Sheets Attached

Measured Method: Water Measurement Table for Salmon River S-42 Diversion

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: No volume calculation required for irrigation from natural stream flow as per IDAPA 37.03.02, Beneficial Use Exam Rules, Rule 35.

2. Volume Calculations for Other Uses: **N/A**

G. NARRATIVE/REMARKS/COMMENTS

Permit 71-7170 was approved for the irrigation of up to 12.0 acres and the diversion of up to 0.24 cubic feet per second (cfs) from the Salmon River. The Place of Use (POU) is a field located adjacent to the west side of highway 75 approximately 12 miles south and 5 miles east of Stanley. The Point of Diversion (POD) is south of the POU and is located on land owned by the Sawtooth National Forest. On July 21, 2021 David Graybill and I met with the farm manager who showed us the developed irrigation system for Permit 71-7170.

The POD is in a side channel parallel to the Salmon River that is known locally as the Williams Ditch or Williams Canal and also referred to as the "Salmon River S-42 Diversion". There are eight water rights presently diverted into the side channel that, collectively, total 20.31 cfs. Water in the channel flows north to a flume and then to a fish screen structure. From the fish screen water continues north to a re-diversion structure that divides the channel into two separate ditches. Separate gate valves control the flow of water in the ditches.

One ditch goes northeast, from the re-diversion structure, and conveys water through a pipe underneath Highway 75. The pipe discharges water back into the ditch and is delivered to seven water rights that, collectively, total 19.51 cfs. (20.31 cfs minus 0.8 cfs for the fish screen water right). The second ditch conveys water from the re-diversion structure to the south end of the field that is the POU of permit 71-7170. The POU is a relatively long and narrow field approximately 1800 feet in length and 500 feet at its widest point. The ditch runs north through the length of the field until it stops approximately 200 feet from the north boundary. Canvas check dams are used to divert water to the east side of the field and to some portions of the west side of the field. The irrigated area totals 7.5 acres as shown on map.

The U.S. Bureau of Reclamation designed the flume and developed a water measurement rating table to derive a flow rate from the water level measured at the staff gage. We observed a visible high water mark on the staff gage that indicates a maximum historic upstream head of 1.1 feet. This indicates that 18.9 cfs is the highest flow rate that has ever been in the ditch. On the day of the field exam we observed a staff gage water level of 0.83 feet which indicates a flow rate of 12.2 cfs. As mentioned above, existing water rights authorized for a total of 20.31 cfs, already flow through the channel (that only historically flows 18.9 cfs.).

As previously mentioned, the most water that has been measured at the flume below the point of diversion is 18.9 cfs based on the high-water mark on the staff gage. The existing rights for this point of diversion total 20.31 cfs. Permit 71-7170 potentially adds additional water to this amount. Since the 18.9 cfs (highest amount of actual water diverted) is less than the 20.31 cfs (what is allowed by the existing rights), it appears that no additional water has been diverted via 71-7170. This would mean that the 7.5 acres developed under 71-7170 were irrigated with water diverted under the permit holder's existing right, 71-10767, (not additional water diverted from

the river). Recognizing 0.02 cfs per acre (as permitted under 71-7170), I recommend licensing 71-7170 for 7.5 acres and 0.15 cfs. However, I recommend a condition that when 71-7170 and 71-10767 are combined, they are limited to 3.39 cfs (amount of water under 71-10767). This indicates that no additional water was diverted from the river, just what is allowed by 71-10767.

Because no additional water was diverted from the river (therefore no additional water was conveyed across federal land), and water use of permit 71-7170 will be combined with water right 71-10767, I recommend removing permit condition 939 upon licensing.

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>	
IRRIGATION	05/01 to 10/31	0.15 CFS	

Totals: 0.15 CFS

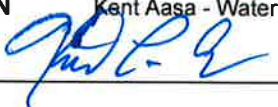
2. Recommended Amendments

☐ 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

Kent Aasa - Water Resource Agent, Senior

Field Examiner's Name  Date 9-30-2021

Reviewer _____ Date _____

Salmon River S-42 Diversion

Water Measurement Table

Broad-Crested Weir

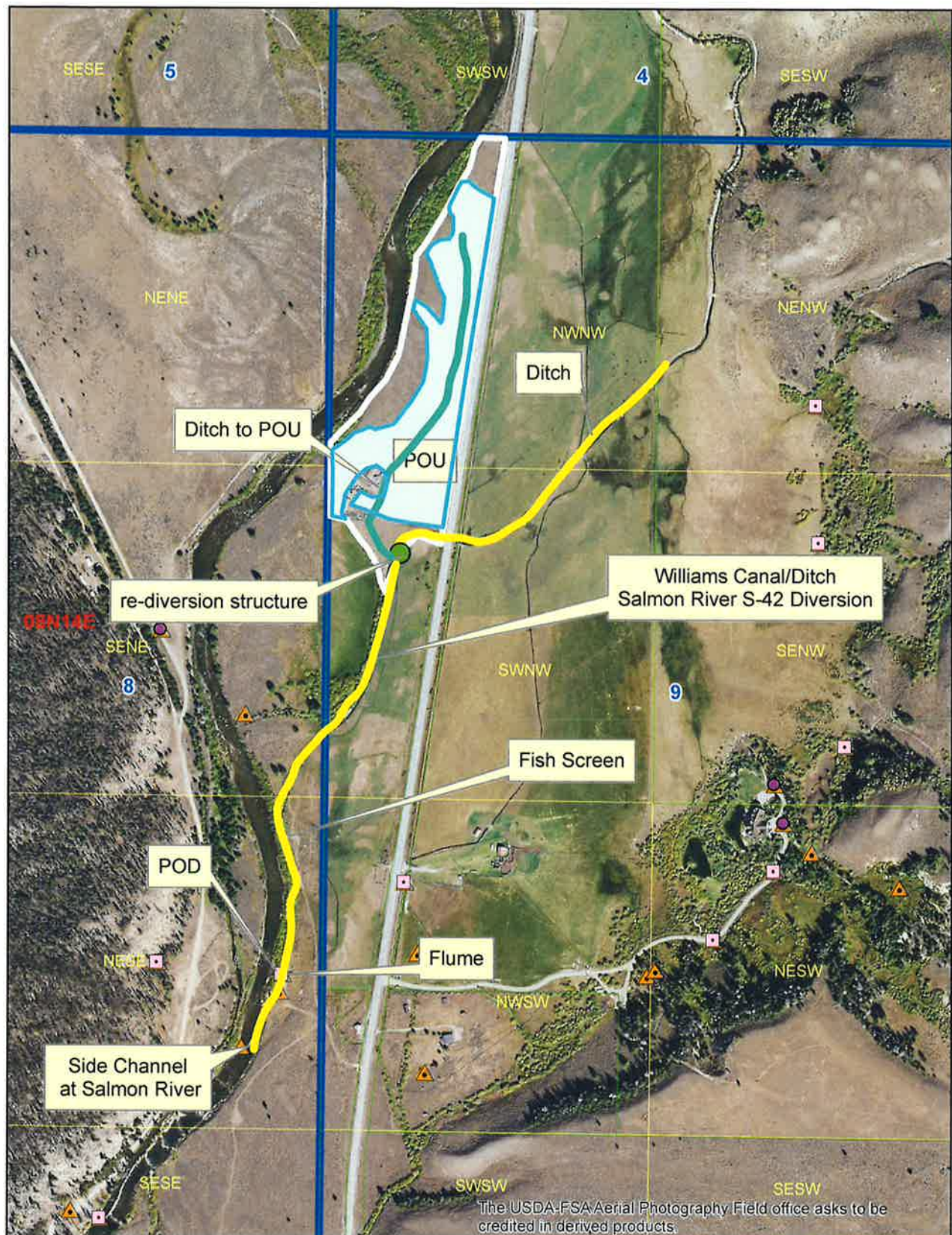
12" Crest Height
2' Crest Length
5' Crest Width
Vertical Side Walls (Steel)

Flow Equation
 $Q = K1 * (Head + K2)^{1.5}$
16.13 = K1
0.01 = K2
1.574 = U

50 Miners Inches = 1 CFS

Head (feet)	Flow Rate (cfs) (Inches)		Head (feet)	Flow Rate (cfs) (Inches)	
0.20	1.3	67	0.70	9.3	466
0.21	1.4	72	0.71	9.5	477
0.22	1.6	78	0.72	9.7	487
0.23	1.7	83	0.73	10.0	498
0.24	1.8	89	0.74	10.2	509
0.25	1.9	94	0.75	10.4	519
0.26	2.0	100	0.76	10.6	530
0.27	2.1	106	0.77	10.8	541
0.28	2.2	112	0.78	11.0	552
0.29	2.4	119	0.79	11.3	563
0.30	2.5	125	0.80	11.5	574
0.31	2.6	132	0.81	11.7	586
0.32	2.8	138	0.82	11.9	597
0.33	2.9	145	0.83	12.2	608
0.34	3.0	152	0.84	12.4	620
0.35	3.2	159	0.85	12.6	631
0.36	3.3	166	0.86	12.9	643
0.37	3.5	173	0.87	13.1	655
0.38	3.6	180	0.88	13.3	667
0.39	3.8	188	0.89	13.6	678
0.40	3.9	195	0.90	13.8	690
0.41	4.1	203	0.91	14.0	702
0.42	4.2	211	0.92	14.3	715
0.43	4.4	218	0.93	14.5	727
0.44	4.5	226	0.94	14.8	739
0.45	4.7	234	0.95	15.0	751
0.46	4.8	242	0.96	15.3	764
0.47	5.0	251	0.97	15.5	776
0.48	5.2	259	0.98	15.8	789
0.49	5.3	267	0.99	16.0	801
0.50	5.5	276	1.00	16.3	814
0.51	5.7	285	1.01	16.5	827
0.52	5.9	293	1.02	16.8	840
0.53	6.0	302	1.03	17.1	853
0.54	6.2	311	1.04	17.3	866
0.55	6.4	320	1.05	17.6	879
0.56	6.6	329	1.06	17.8	892
0.57	6.8	338	1.07	18.1	905
0.58	7.0	348	1.08	18.4	918
0.59	7.1	357	1.09	18.6	932
0.60	7.3	367	1.10	18.9	945
0.61	7.5	376	1.11	19.2	959
0.62	7.7	386	1.12	19.4	972
0.63	7.9	396	1.13	19.7	986
0.64	8.1	405	1.14	20.0	999
0.65	8.3	415	1.15	20.3	1013
0.66	8.5	425	1.16	20.5	1027
0.67	8.7	435	1.17	20.8	1041
0.68	8.9	446	1.18	21.1	1055
0.69	9.1	456	1.19	21.4	1069

71-7170 System Diagram



Legend

- | | | |
|---|--|----|
|  Field Exam_POU |  Township/Range | QQ |
|  Water Right POD |  Sections | |

71-7170 Irrigation



Legend

 developed_irrigation

 Sections

 Township/Range

 QQ

Fish Screen



Re-Diversion Structure



Flume Inlet



Flume Outlet



Staff Gage on Flume at POD



Lockable Gate Valves at Re-Diversion



Ditch to Downstream Users



East Side of Field



Ditch Within POU



East Side of Field



East Side of Field



West Side of Field

