

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-17142
Exam Date: 08/30/2021

1. Current Owner:
JACK HERN 20464 N GUNNING RD RATHDRUM ID 83858-6959
2. Accompanied by: Jack Hern
Phone No: 208-659-1181
Address: Same as above
Relationship to permit Holder: Permit holder

3. **SOURCE:**
TWIN LAKES

Tributary
RATHDRUM CREEK

Method of Determination: Arcmap and DRG.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Comments: Applicant's property is within the North Kootenai Water District municipal service area which has numerous water right's that overlap the property, but do not factor regarding overlap concerns for 95-17142's irrigation and stockwater POU(s).

2. Other water rights with the same point-of-diversion: NO Overlap

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

TWIN LAKES NE¼ NW¼, Sec. 17, Twp 52N, Rge 04W, B.M. KOOTENAI County

Method of Determination: GPS. POD is located at -116°51.8817, 47°51.4600.

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	
52N	04W	17					1.3			1.5									2.8
52N	04W	17								0.2 L2									0.2

Total Acres: 3.0

PLACE OF USE: STOCKWATER

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
52N	04W	17					X			X									
52N	04W	17								X L2									

Method of Determination: field examination and Arcmap aerial imagery.

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	Pump Capacity	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
WATER TRANSFER PUMP		212 CC	69730	PREDATOR	

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
GE PANEMETRIC	ULTRASONIC		PT878	PCC1316134		4/6/2021

2. Measurements: flow measurements were taken using GE Panemetric Ultrasonic Flowmeter during the field exam. The flow measurement resulting in the derived GPM flow rate equaling 85.82 gpm or 0.18 cfs.

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method: flow rate determined by GE Panemetric Ultrasonic Flowmeter = 0.18 cfs

Starting gallons on meter = 12,656.336 gal

Ending gallons on meter = 13,514.538 gal

13,514.538 gal – 12,656.336 gal = 858.202 gallons / 10 minutes = 85.820 gpm or 0.18 cfs, considering Department rounding standards.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 3.0 \text{ ac} \times 3.0 \text{ afa} = 9.0 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.18 \text{ cfs} \times 246 \text{ days} \times 1.9835 = 87.8$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 9.0 \text{ af}$$

2. Volume Calculations for Other Uses:

- Stockwater annual volume = (15 head cattle x 12 gpd x 365 day = 65,700 GPY) + (20 chickens using 1 gpd total x 365 days = 365 GPY) = 66,065 GPY / 325,850 gal per af = **0.2 af** considering department rounding standards.

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 8/30/2021 with the applicant, Jack Hern, showed Twin Lake water being used for irrigation & stockwater uses. At the POD, a screened intake pipe routed to a 212 cc Predator water transfer pump was used to divert water to a 3-inch sprinkler handline irrigation system. Flow measurements were taken using a GE Panemetric Ultrasonic Flowmeter during the field exam. The flow measurement resulted in a flow rate equal to 85.82 gpm or 0.18 cfs. The approved Permit had a maximum diversion rate of 0.14 cfs based on 5.3 acres of proposed irrigation use and stockwater use for 15 head mixed stock. The observed diversion rate is larger than the permit was authorized to develop and are a concern for enlargement.

Based on the 3.0 acres of irrigation observed during the field exam, the irrigation beneficial use diversion rate recommended to license this permit equals $3.0 \text{ ac} \times 0.03 \text{ cfs per acre} = \mathbf{0.09 \text{ cfs}}$, which is the department standard and maximum I can recommend for 3 acres of irrigation. The stockwater beneficial use diversion rate of **0.02 cfs** is recommended based on the number of stock the applicant proofed upon and stock use validated during the field exam. The maximum diversion rate recommended to license 95-17142 equals the sum of the two beneficial uses which equals **0.11 cfs**. Following licensing of right 95-17142 the water master for Twin Lakes Water District 95C shall be responsible for ensuring diversion of water by the applicant conforms to the licensed diversion rate of 0.11 cfs.

During the exam it was identified that the applicant only developed a single POD, and that an older existing point alongside an inlet channel on the NW extent of the applicant's property was not used during the development period. This POD was removed from the permit during licensing review. In the future, if the applicant seeks to develop the 2nd POD a new application for permit shall be required.

During the field exam the irrigation system was operated by the applicant, and water conveyance system showed irrigation handline with sprinklers watering a large pasture for stock feed throughout the season. The irrigation POU was sketched out on field maps, and during licensing review Arcmap aerial imagery was used to trace out the POU consisting of 3.0 acres. The annual volume associated with irrigation use equals $3.0 \text{ ac} \times 3.0 \text{ afa} = \mathbf{9.0 \text{ af}}$. There is a clear difference between irrigation occurring around the applicant's home, which likely uses a pressurized sprinkler system from a well or North Kootenai Water District municipal provider, and the pastureland irrigated from the lake source. As such, the irrigation occurring around the home was not included as part of the POU recommended to license this right. During licensing review, a second PLSS legal description row was added in ADHOC to account for quarter-quarter SENW of Section 17 having irrigation in the SENW & SENW GOV Lot 2.

The Stockwater POU for licensing purposes is the same as the irrigation POU, which includes pastureland and stock pens for cattle and chickens along a fence-line separating pasture from lawn. Stockwater is used by filling portable stock tanks from sprinkler lines, and stock use was observed during the exam. The annual volume for stockwater recommended to license equals $(15 \text{ head cattle} \times 12 \text{ gpd} \times 365 \text{ day} = 65,700 \text{ GPY}) + (20 \text{ chickens using } 1 \text{ gpd total} \times 365 \text{ days} = 365 \text{ GPY}) = 66,065 \text{ GPY} / 325,850 \text{ gal per af} = \mathbf{0.2 \text{ af}}$ considering department rounding standards. The maximum diversion volume for licensing purposes equals **9.2 af**.

Conditions 26A and X02 were removed from the permit during licensing review. Condition R62 was replaced by R66 describing irrigation of less than 5 ac occurring at the POU. Condition 01M was added at time of license due to irrigation occurring within active Water Master District 95C – Twin Lakes, identifying the potential for future measuring device requirements by the Department. All other conditions on the permit are carried to licensing. Overlap concerns: the

applicant's property is within the North Kootenai Water District municipal service area which has numerous water right's that overlap the property, but do not factor regarding overlap concerns for 95-17142's irrigation and stockwater POU(s). There are no additional overlap concerns for this water right.

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>
IRRIGATION	03/15 to 11/15	0.09 CFS	9.0 AF
STOCKWATER	01/01 to 12/31	0.02 CFS	0.2 AF

Totals: 0.11 CFS 9.2 AF

2. Recommended Amendments

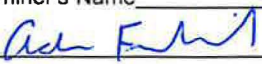
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

I. AUTHENTICATION

Luke Bates -

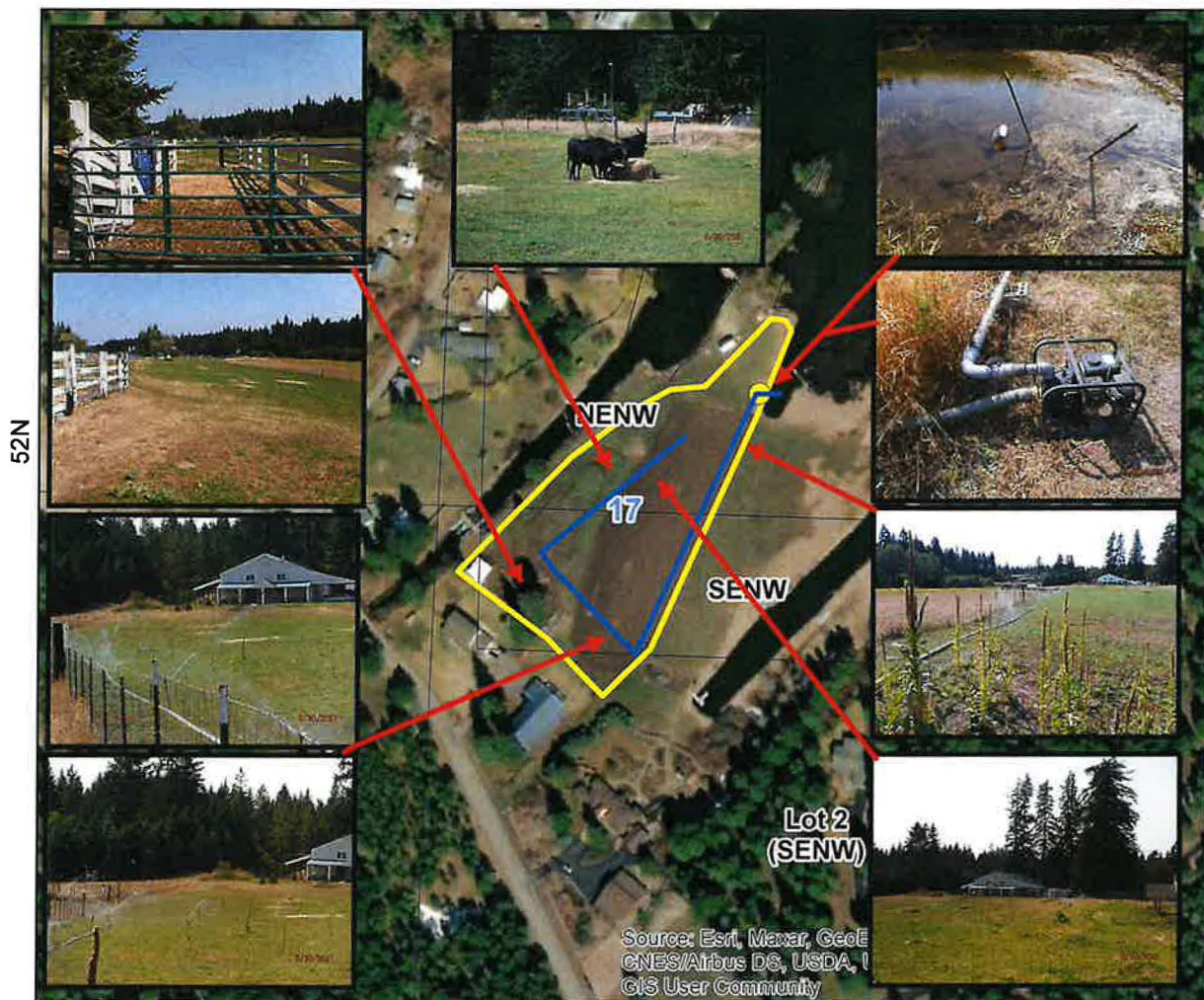
Field Examiner's Name  Date 12/30/2021

Reviewer  Date 12/30/2021

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-17142

IRRIGATION and STOCKWATER system diagram.

04W



-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.035 0.07 0.14 Miles



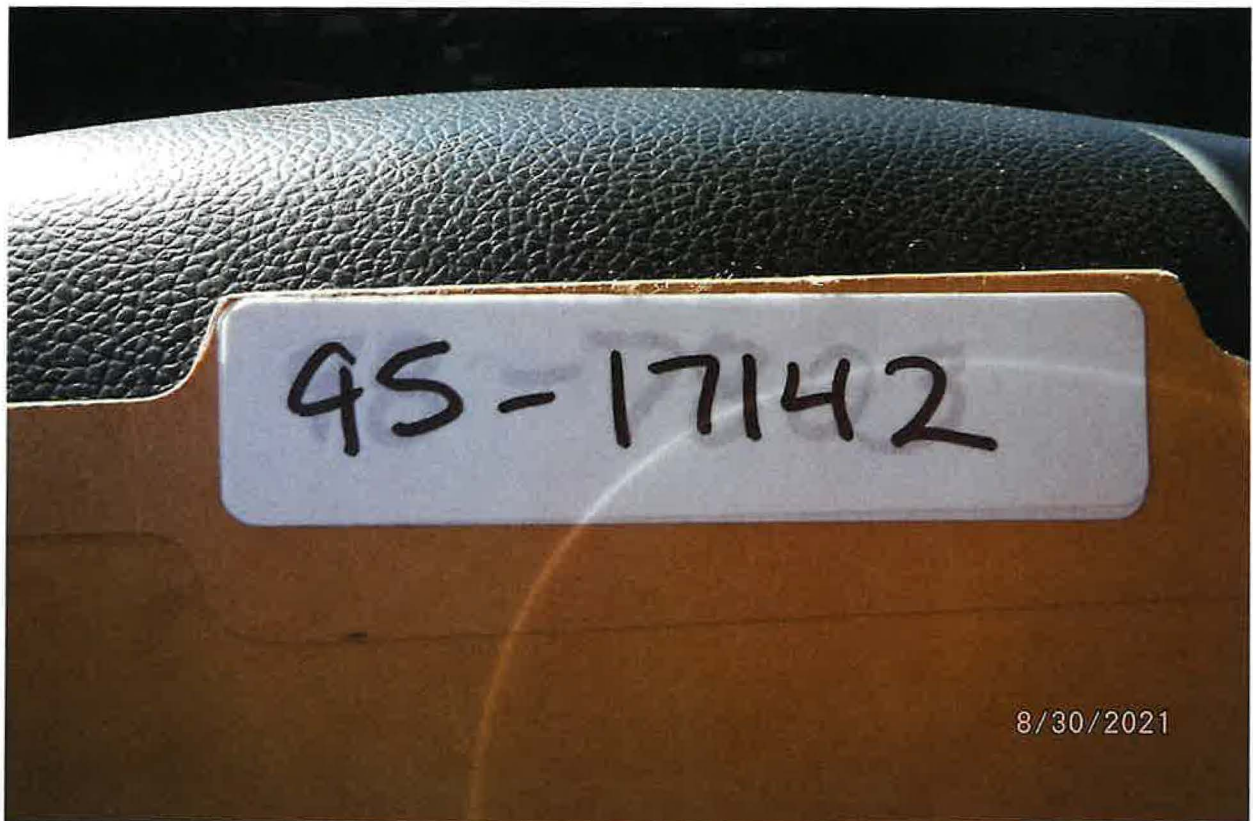
Flow Measurement for permit 95-17142

Date/Time	Velocity ft/s	Volume Gallons/min	Fwd Totalizer Fwd Gallons	Error
21/08/30				
11:40:50	3.68	79.4	12656.336	Error:0
11:41:50	3.77	81.4	12739.930	Error:0
11:42:50	4.8	103.6	12810.973	Error:0
11:43:50	3.27	70.5	12884.911	Error:0
11:44:50	3.77	81.4	12964.212	Error:0
11:45:50	3.91	84.3	13053.001	Error:0
11:46:50	3.9	84.0	13133.591	Error:0
11:47:50	3.76	81.1	13228.585	Error:0
11:48:50	4.68	100.9	13322.503	Error:0
11:49:50	4.17	89.8	13410.217	Error:0
11:50:50	5.06	109.2	13514.538	Error:0

Average Velocity	4.07
Max Velocity	5.06
Min Velocity	3.27

Average GPM	87.8
Max GPM	109.2
Min GPM	70.5

Beginning Reading	12656.336
Ending Reading	13514.538
Difference in Readings	858.202
Difference / 10 readings	85.820



FIELD EXAM DATE 8/30/2021



POD – SCREENED INTAKE PIPE IN LAKE



POD – 212 CC PREDATOR WATER TRANSFER PUMP



PANEMETRIC PT878 ULTRASONIC FLOWMETER INSTALLED NEAR POD FOR FLOW MEASUREMENTS



IRRIGATION POU – 3 INCH HAND LINE AND SPRINKLERS





IRRIGATION POU





STOCKWATER POU





STOCKWATER POU

