

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-15287
Exam Date: 7/25/2017

1. Current Owner:
MICHAEL B HAWKINS 815 S MADISON RD POST FALLS ID 83854
2. Accompanied by: Michael Hawkins
3. **SOURCE:**
SPOKANE RIVER
- TRIBUTARY:**
COLUMBIA 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: None

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

SPOKANE RIVER SW¼NW¼ Sec. 8, Twp 50N, Rge 05W, B.M. KOOTENAI County

Method of Determination: Maps and GPS. POD located at -116° 59.892, 47° 41.876

2.

PLACE OF USE: FIRE PROTECTION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
50N	05W	8							X										

PLACE OF USE: RECREATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
50N	05W	8							X										

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
50N	05W	8							0.4										.4

Total Acres: 0.4

DIVERSION TO STORAGE same as IRRIGATION

Method of Determination: Google Earth and Arcmap.

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
UNKNOWN					

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
5 GALLON BUCKET						

2. Measurements: 5 gallon bucket test performed in 10 seconds

5 gal / 10 sec x 60 sec = 30 gpm or 0.07 cfs

E. FLOW CALCULATIONS

Measured Method: N/A

_____ Additional Computation Sheets Attached

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.4 \text{ AC} \times 3.0 \text{ AF} = 1.2 \text{ AF}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.01 \text{ CFS} \times 246 \times 1.9835 = 4.9 \text{ AF}$$

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

2. Volume Calculations for Other Uses: See attached pond analysis sheet for storage volumes.

G. NARRATIVE/REMARKS/COMMENTS

Field exam with applicant, Michael Hawkins, showed a pump diverting water for a pond and irrigation. The system was a little confusing and it is unknown how exactly it works and why parts were put in. From the river, water was diverted towards the pond. There was a frost free hydrant before the pond that was supplied by the pump. After the frost free, the pipe continued towards the pond, there was apparently a t-section of pipe there where water could go to the pond and to pressure tanks. The pressure tanks supplied water for irrigation only. A 5 gallon bucket test was performed and filled in 10 seconds which is equal to 30 gpm or 0.07 cfs.

It was unclear why the system was set up the way it was. With a diversion rate of 0.07 cfs, it would seem pressure tanks would not be required. The applicant had Hunter PGP nozzles that produced 0.5 gpm. Those nozzles were used the larger irrigation of grass and had 8 nozzles running in one zone. The rest of the irrigation used smaller nozzles and less water. It is unclear why the pressure tanks were there when the pump could divert enough water to supply the irrigation system. It was unclear how much water was diverted to the pressure tanks for irrigation when the irrigation component would only be given a diversion rate of 0.01 cfs. The largest irrigation zone only used 4 gpm or 0.01 cfs even though that rate came from the pressure tanks. The only theoretical option I could come up with was the system ran once or twice per day to fill up the pond and pressure tanks. The irrigation could then be performed and not require the river pump to be running.

During license review, the actual irrigated acreage was measured to be 0.4 acres. There is some uncertainty about how much water is being diverted to the pressure tanks for irrigation. Because the largest zone of irrigation is equal to 4 gpm or 0.01 cfs, the license will be recommended by the field examiner. The permit also had irrigation storage and irrigation from storage as uses. Mr. Hawkins said the pond was not used for irrigation purposes so those 2 uses will be removed at licensing.

The pond had a surface area of 0.2 acres with an average depth of 4 feet. Pond analysis sheet shows pond is capable of storing 0.8 acre-feet with an additional 0.3 acre-feet for evaporation. The pond was lined and does not lose any water to seepage. Condition 221 will be added to license to ensure a liner is always present. Conditions 219 and 220 will be tweaked to show storage values found during exam. Conditions X15, X16, R66, and 004 will all be left on license. Condition WB9 will be changed to condition 227 for the MSF 95-8780. There is a USGS site just upstream for this location that applicant can use to monitor river conditions. There are no overlap concerns.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
DIVERSION TO STORAGE	01/01 to 12/31	0.07 CFS	
IRRIGATION	03/15 to 11/15	0.01 CFS	
FIRE PROTECTION STORAGE	01/01 to 12/31		1.1 AF
RECREATION STORAGE	01/01 to 12/31		1.1 AF
<u>Totals:</u>		0.070 CFS	

2. Recommended Amendments

____ Change P.D. as reflected above ____ Add P.D. as reflected above X None

____ Change P.U. as reflected above ____ Add P.U. as reflected above X None

I. AUTHENTICATION

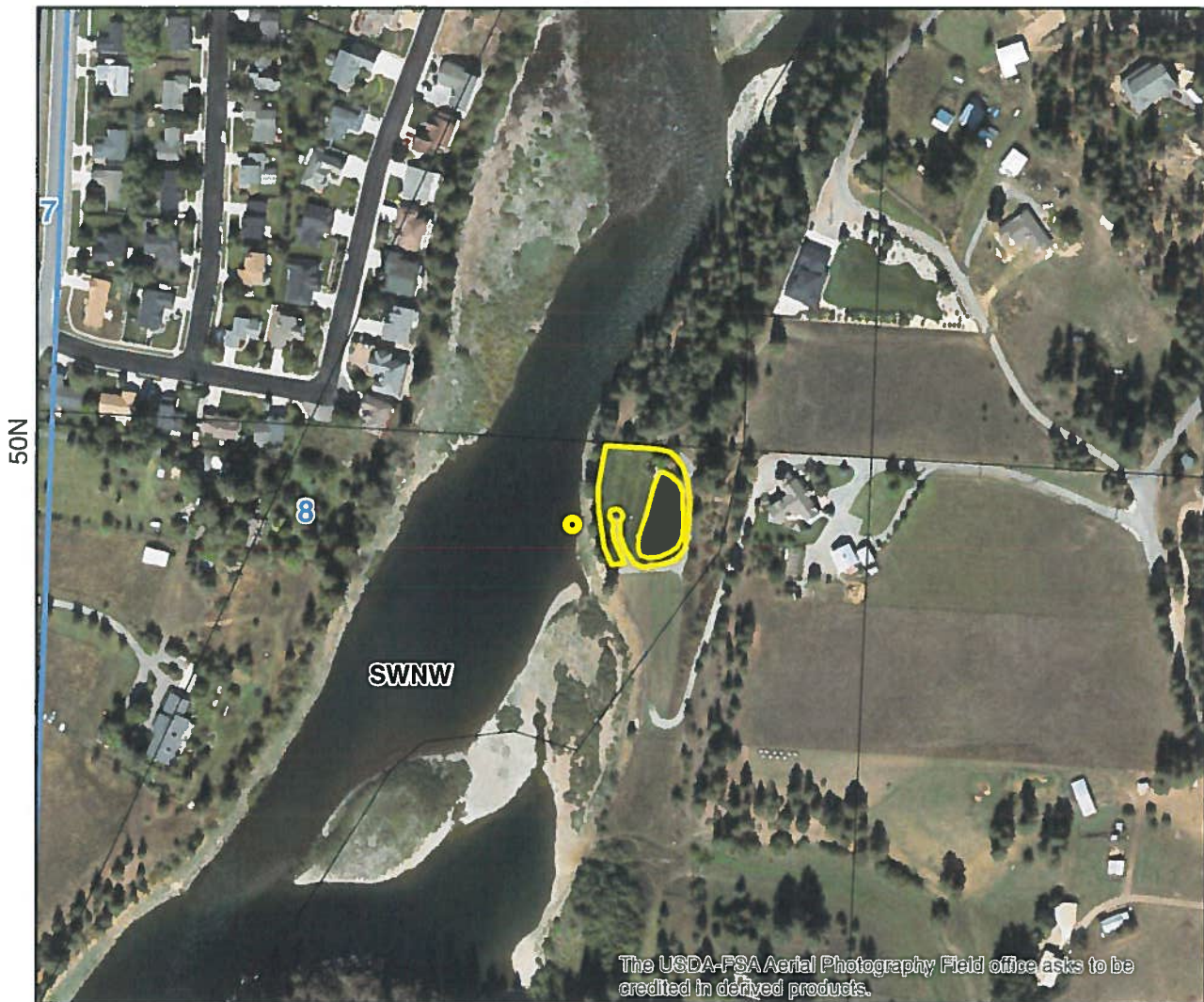
Field Examiner's Name Adam Fendall Date 2/28/2018

Reviewer Douglas Jones P.E. Date 3/7/2018

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-15287

IRRIGATION

05W



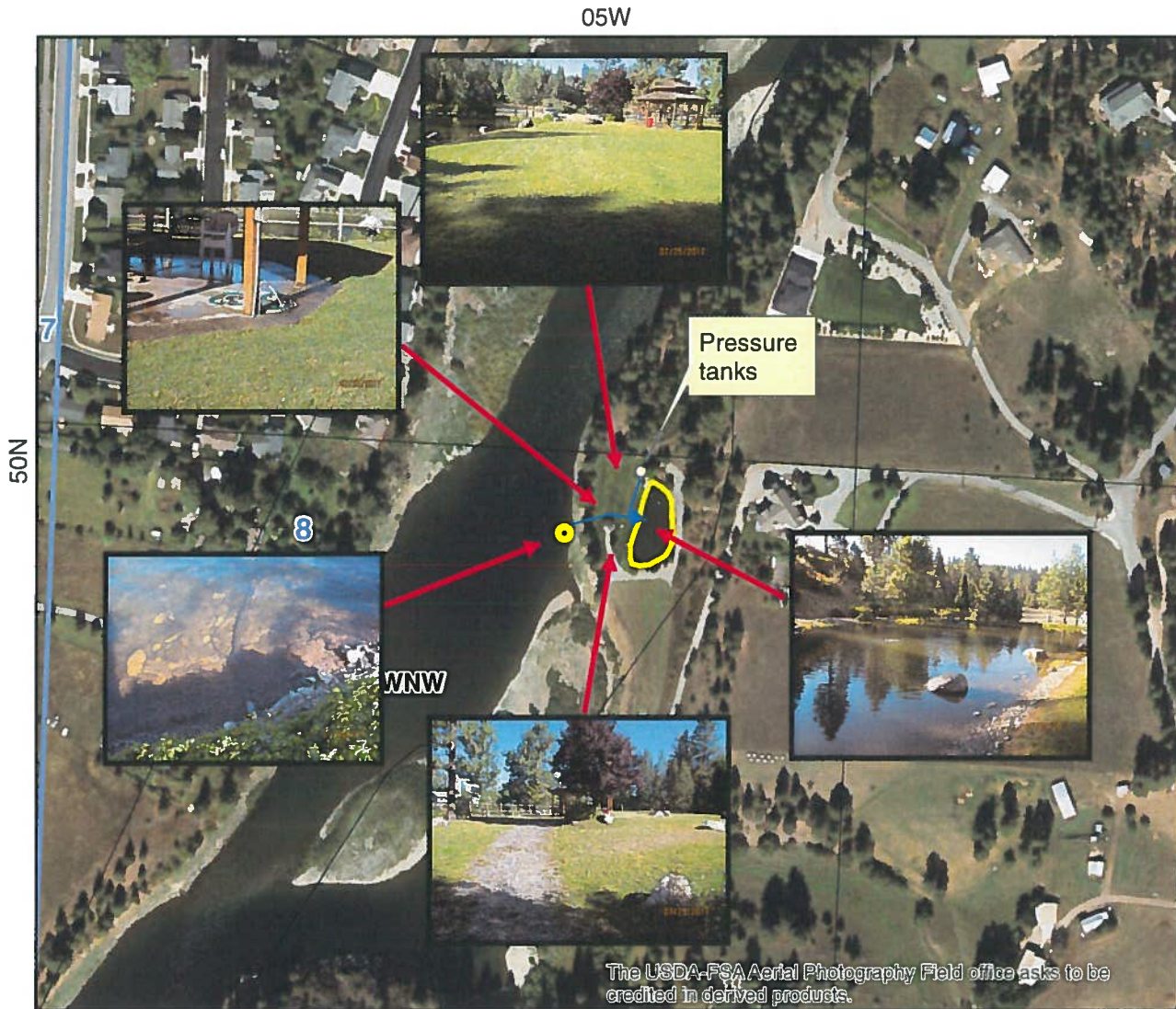
0 0.035 0.07 0.14 Miles

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



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FIRE PROTECTION STORAGE and RECREATION STORAGE / SYSTEM DIAGRAM



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

0 0.035 0.07 0.14 Miles



Total Storage Calculations

FILE NUMBER	95-15287
REVIEWER	Adam Frederick
DATE	2/26/2018

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.2	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook suggests multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that seems reasonable to attain average depth.
Pond Capacity (AF)	0.8	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	0	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: If a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	0.0	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.3	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	1.1	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

	35	40	5.6	0.67	0.78
	45	43	6.0	0.62	0.72
	55	44	6.7	0.67	0.77
	65	44	7.3	0.73	0.84
	25	37	6.0	0.84	0.97
	35	41	7.0	0.80	0.93
	45	44	8.0	0.80	0.92
	55	46	9.0	0.82	0.95
	65	46	9.8	0.89	1.03

**8.0 ●
Blue**

Notes:

Bold = Recommended pressure.

All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

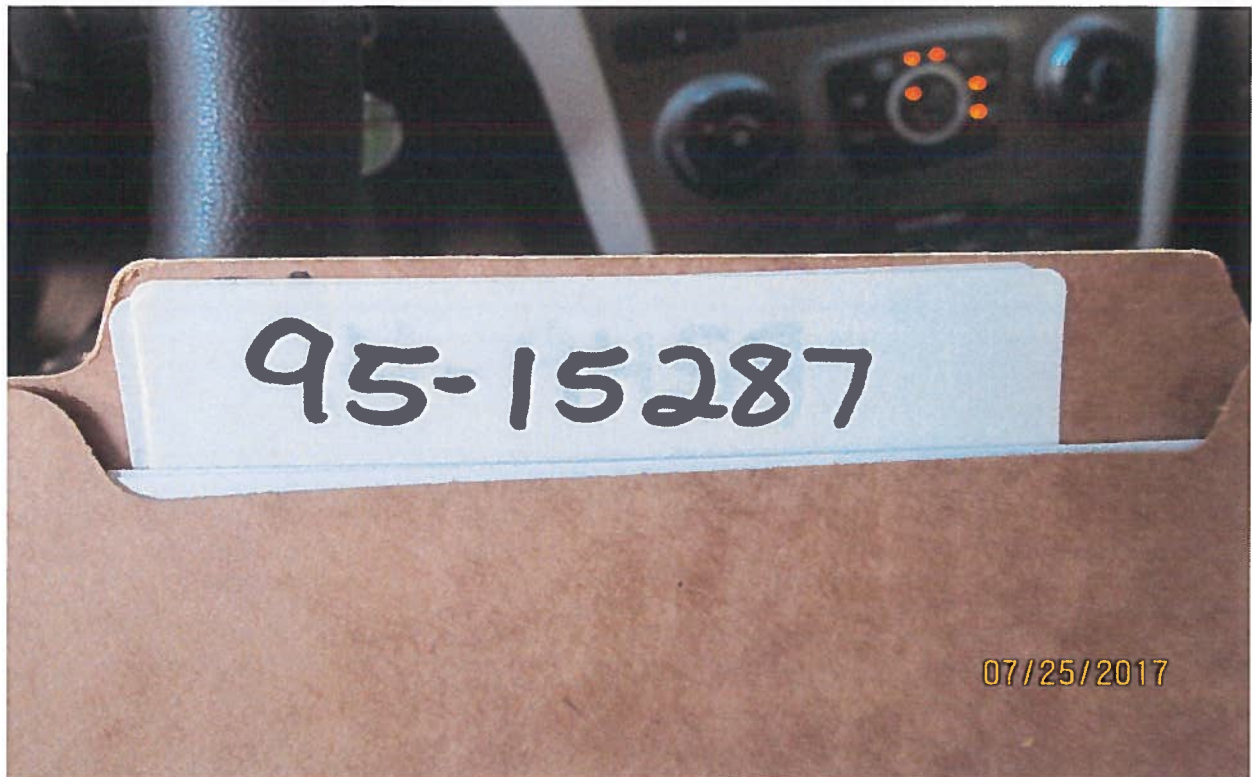
(/NODE/410)

PGP Red Nozzle Performance Data

[View Nozzle \(/sites/default/files/pgp-red-nozzles.png\)](/sites/default/files/pgp-red-nozzles.png)

Nozzle	Pressure	Radius	Flow	Precip in/hr	
	PSI	ft	GPM	■	▲
	30	28	0.5	0.12	0.14
	40	29	0.6	0.14	0.16

**1 ●
Red**



Point of diversion.



Frost free hydrant where 5 gallon bucket test was performed in 10 seconds.



Irrigation POU.



Irrigation POU.





Irrigation sprinkler.



Storage and irrigation POU.



Storage POU.

