

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 57-11677

Exam Date: 07/10/2019

1. Current Owner:
RICHARD E LARITZ
10555 W AMITY RD
BOISE ID 83709
2. Accompanied by:
Phone No: Larry Sellers
Address: 1148 HWY 78 Melba, ID 83641
Relationship to permit Holder: Caretaker of property. Lives on the property

3. **SOURCE:**
SPRING

Tributary
SNAKE RIVER

Method of Determination: Field Exam/GIS

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
2-2072	Snake River	Irrigation	GIS
57-10842	Ground Water	Irrigation	GIS
57-4032	Spring	Heating, Commercial	GIS
57-11614	Spring	Irrigation, aesthetic storage, wildlife storage	GIS

Comments: The ponds were originally established under water right 57-11614. Permit 57-11677 authorizes the expansion and enlargement of the ponds, specifically ponds 1 and 3. Right 57-11614 is owned by Richard Lartiz and authorizes 18.5 AF for the storage uses and .1 cfs for irrigation. Water right 2-2072 for irrigation from the Snake River, owned by Opaline Irrigation District overlaps the POU. The ponds do not receive any water under this right. Elizabeth Cuff owns right 57-10842 for irrigation from groundwater and right 57-4032 from a spring for heating and commercial uses. The ponds under this permit do not receive any irrigation, heating or commercial uses with any rights.

2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
57-11614	Springs	Irrigation, Wildlife storage and aesthetic storage	Licensed

Comments: The only right that overlaps the pond POD's is right 57-11614. The permit shares 2 points of diversion with right 57-11614, both originating from different springs underneath the ponds. The first spring is in the large pond (common name 20 spring) and located in the NENW Govt. Lot 2, Sec. 21, T01N R03W. The second overlapping POD is a spring under pond 2 (common name 5 springs) located in the NWNE Govt. lot 2, Sec 21, T01N R03W. Right 57-11614 authorizes 18.5 acre-feet of storage under the wildlife and aesthetic uses. The rights are additive so combined limits were not necessary to address the overlap with right 57-11614 at the spring POD's.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

SPRING L2 (NW¼ NE¼), Sec. 21, Twp 01N, Rge 03W, B.M. OWYHEE County
SPRING L2 (NE¼ NW¼), Sec. 21, Twp 01N, Rge 03W, B.M. OWYHEE County

Method of Determination:

PLACE OF USE: WILDLIFE STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
01N	03W	21		X L2															

PLACE OF USE: AESTHETIC STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
01N	03W	21		X L2															

Method of Determination: GIS

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.

x 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

x 1:24,000 or greater.N/A Aerial Photo Attached (required for irrigation of 10+ acres).x 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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: Measurements were not possible. The ponds intercept shallow ground water from springs so gathering a measurement was not achievable.

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method:

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

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

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

2. Volume Calculations for Other Uses:

Wildlife Storage and Aesthetic Storage

Maximum depth of ponds is 20 feet according to Mr. Sellers. Average depth was determined from Pond spreadsheet. 20 feet X .4= **8 feet deep average.**

A value of 0 was input for the seepage loss on the pond loss calculation, for the reason that the ponds are sourced from spring water. Therefore, seepage is projected to not be a contributing factor to the losses to the ponds.

See attached pond spreadsheets.

From the pond loss calculation sheet, evaporation loss is estimated at 5.6 AF

The pond capacity is estimated at 18.4 AF

5.6 AF + 18.4 AF= **24.0 AF total volume required.**

$$(2.3 \text{ total acres for ponds 1-3}) \times 8" \text{ average depth} = 18.4 \text{ AF} + 5.6 \text{ estimated evaporation loss} = 24.0 \text{ AF}$$

24.0 AF-18.5 AF=**5.5 AF for the additional pond volume under this permit.**

The additional pond volume under this permit was determined by taking the total surface area of the ponds as they fully exist now (2.3 acres), determining the total present volume (24.0 AF) and subtracting the authorized volume under original right 57-11614. The volume authorized under right 57-11614 is 18.5 AF for wildlife and aesthetic storage.

Recommend Wildlife Storage **5.5 AF**

Recommended Aesthetic storage **5.5 AF**

G. NARRATIVE/REMARKS/COMMENTS**History:**

The property is located on Highway 78, along the Snake River approximately 1.6 miles SE from Givens Hotsprings, ID. This permit is intended to account for an increase in the size of ponds approved under water right 57-11614. Right 57-11614 was licensed to Richard Laritz in 2012 for irrigation, wildlife storage and aesthetic storage using 3 ponds. The irrigation component included 4.1 acres around and in between these ponds. The storage components for right 57-11614 were permitted in 2002 eventually licensed for 18.5 AF in 2015. Mr. Laritz has passed away and his spouse, Katherine Laritz, owns right 57-11614. This permit is still in the name of Richard Laritz. We briefly spoke with Katherine Laritz on the property at the time of the field exam. We gave her an ownership change form and recommended that she file it in order to have this permit licensed in her name.

The application for permit 57-11677 was received in 2005 and initially requested 5 years to develop the use. A 5 year extension was granted for the permit in 2010.

The field exam for right 57-11614 was conducted on 9/19/2012. The diversion system transferring water between ponds has changed slightly since then. All ponds are still interconnected with pipes that overflow via gravity. The transfer of water between ponds has not changed. Water flows from pond 3 into pond 2 and then into pond 1 where it finally drains into the Snake River. The large pond closest to Highway 78, will be labeled pond 2. This drains into another pond that we will call

maximum of 20 feet. An average depth of 8 feet was determine by multiplying 20 by .4 per the pond calculation excel spreadsheet (20 feet X .4=8 feet average depth).

Water from pond 3 flows into pond 2 by two plastic PVC pipes. From an aerial point of view looking north, the pipe on the left has a 6" inlet from the large pond and a 6" outlet to pond 2. The pipe on the right has an 8" inlet and a 6" outlet. Once water is in pond 2, it slowly flows in an eastern direction and drains into pond 1 via a single 10" PVC pipe. Pond 1 was enlarged on the other side of a road on the property. There is a 10" pipe under this road connecting the enlarged area to the original part of pond 1. Water flows out of pond 1 with a 12" pipe.

When the Richard Laritz applied for this permit to enlarge the volume of the ponds, it did not include a wildlife use. Rather it was for wildlife storage and aesthetic storage. The ponds have water actively flowing through them which would constitute a wildlife use in addition to the storage uses on the permit. The applicant did not apply for the wildlife use so this permit will only be licensed for the storage uses. Additionally, in the pond loss calculation spreadsheet, a value of 0 was input for the flow rate into the pond.

Overlap:

The only right that overlaps the pond POD's is right 57-11614. The permit shares 2 points of diversion with right 57-11614, both originating from different springs underneath the ponds. The first spring is in pond 3 (common name 20 spring) and located in the NENW Govt. Lot 2, Sec. 21, T01N R03W. The second overlapping POD is a spring under pond 2 (common name 5 springs) located in the NWNE Govt. lot 2, Sec 21, T01N R03W. The rights are additive so combined limits were not necessary to address the overlap with right 57-11614 at the spring POD's. Other rights that overlap the POU are right 2-2072 for irrigation from the Snake River, owned by Opaline Irrigation District. The ponds do not receive any water under this right. Elizabeth Cuff owns right 57-10842 for irrigation from groundwater and right 57-4032 from a spring for heating and commercial uses. The ponds under this permit do not receive any irrigation, heating or commercial uses associated with the other rights.

Conditions:

At the time of licensing, we removed condition 2 (26A). We kept conditions 1 (121) and 3 (wildlife storage and aesthetic storage uses are for an excavated pond). Condition 1 was changed to condition 103 per standards. We added condition 219 to define the parameters of the wildlife and aesthetic storage uses.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use	Rate of Diversion	Annual Volume
WILDLIFE STORAGE	01/01 to 12/31		5.5 AF
AESTHETIC STORAGE	01/01 to 12/31		5.5 AF

Totals:

5.5 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

Alex Dalglish - Water Resource Agent

Field Examiner's Name

Alex Dalglish

Date

7/23/2019

Reviewer

Charles A. Dalglish

Date

7/23/19

State of Idaho
Department of Water Resources
Attachment to Field Exam
57-11677

This map depicts the AESTHETIC STORAGE and WILDLIFE STORAGE place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

03W



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

0 0.035 0.07 0.14 Miles





Evaporation Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

FILE NUMBER	57-11677
REVIEWER	Alex Dagleish
DATE	7/18/2019

User Input
Calculated value
Formula Explanations

The acronyms used on the Kimberly Research Center website are defined below:

P = Precipitation
ET= Evapotranspiration
P _d = Precipitation deficit
P _d =ET-P

USING THIS SPREADSHEET

Use the link below to access the Kimberly Research Center website. This website provides the Precipitation Deficit for a station most representative of the pond under examination. The Precipitation Deficit is the total amount of free water surface evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used throughout the state. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at X:/Spatial/Climate/ETIdahostations.shp.

Instructions:

1. Use the link below to navigate to ET Idaho 2012.
2. Select the station which is most representative to your pond location.
3. Click Submit Query.
4. Under "Land Covers with Evapotranspiration Estimates," select "Open Water - Shallow Systems (ponds, streams)" or "Open Water - small stock ponds" depending on the pond size.
5. Click the link to "Precipitation Deficit."
6. Reference and copy (ctrl + C) the first subheading "Mean" values.
7. Click the "Paste Values from ET Idaho" button. The table will automatically enter a zero (0) for any negative precipitation deficit values.

Found at: <http://data.kimberly.uidaho.edu/ETIdaho/>

Precipitation Deficit

Station: Nampa(PN-AM--NMPI)

Month	mm/day ¹	Days per month	mm/Month
Jan	-0.20	31	0.00
Feb	0.47	28	13.16
March	1.57	31	48.67
April	2.27	30	68.10
May	2.89	31	89.59
June	3.89	30	116.70
July	4.83	31	149.73
August	4.11	31	127.41
September	2.65	30	79.50
October	1.42	31	44.02
November	0.37	30	11.10
December	-0.29	31	0.00

PLEASE NOTE: The seasonal average for precipitation deficit should not be used for calculations because precipitation often exceeds evaporation during wetter months of the year. If the pond is kept full, excess precipitation during wetter months does not serve to refill the pond during drier months.

For example, see Sandpoint KSPT (NWS -- 108137), the annual precipitation deficit is -106 mm. However, April through September have positive precipitation deficit values. To properly estimate the annual volume of water necessary to refill a pond due to evaporation losses, the table will automatically enter a zero (0) for each month that the precipitation value is reported as a negative value.

As described above, precipitation offsets evaporation in winter months, so the net effect is that wintertime precipitation deficit is usually zero.

Total mm/year = 747.98

$[(\text{mm/yr}) \div (\text{convert to feet})] \times (\text{Surface area of pond, in acres}) = \text{Evaporation Loss in Acre Feet}$

$$\left(\frac{747.98}{304.8} \right) \times 2.30 = 5.6 \text{ AFA}$$

Total Storage Calculations

FILE NUMBER	57-11677
REVIEWER	Alex Dalglish
DATE	7/18/2019

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.)	2.3	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	8	"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)	18.4	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)	5.6	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	24.0	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.

Flow Rate into Pond (CFS)	0.00	The "Flow Rate into Pond" depicts the actual flow, either measured or estimated, into the pond. For offstream facilities, this will be equivalent to "diversion to storage" rate.
Highest Daily Evaporation Rate From Evaporation Tab. (mm/Day)	4.83	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table".
Required Daily Maintenance Volume (AF/Day)	0.04	"Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year to maintain pond volume. It is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (CFS)	0.02	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determined by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	-505	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.
Days Required to Fill the Pond at 13,000 Gallons per Day	5335	Some water users may want to fill a pond under the 13,000 gallons per day domestic exemption. The "Days Required to Fill the Pond at 13,000 Gallons per Day" is calculated by converting the "Pond Capacity" and the "Required Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Required Daily Maintenance Volume" in gallons to determine the number of days to fill pond. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond. Negative values indicate that the supply of 13,000 gallons per day is not enough volume to overcome the required daily maintenance volume; the pond will never fill.

Soil Classification with Published Soil Surveys

Alternative to Soil Classification with the NRCS Web Soil Survey

This spreadsheet has been designed by Idaho Department of Water Resources to determine the soil type and classification at the pond site.

FILE NUMBER	57-11677
REVIEWER	Alex Dalglish
DATE	7/18/2019

User Input
Calculated value
Formula Explanations

County: **Owyhee**, Idaho

1. Navigate to the NRCS Soil Survey Website

NRCS Published Soil Surveys for Idaho found at:

<https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateID=ID>

Reviewer used the Survey entitled:

Owyhee County Area

2. Use GIS and the Soil Survey to determine Soil Type

Utilize ArcGIS to Obtain the Soil Symbol (may be a number or abbreviated name)

The shapefile SSURGOOnePlan is found at X:\Spatial\Soils\SSURGOOnePlan\soils.shp

Soil Symbol (GIS field MUSYM):

Ma

What if my Soil Symbol is 999?* (see box)

Find the name of the soil in the Soil Legend.

The Soil Legend is typically the last bookmark in the Soil Survey report.

The Full Name of This Soil is:

Marsh

3. Use the Soil Survey to determine the USCS Classification

Within the county NRCS Soil Survey report, click the bookmarked link to "Tables."

Scroll down until you reach a table called "Engineering Properties and Classifications" or

"Engineering Index Properties." The table is ordered by soil symbol and the soil name.

Scroll down until you reach the soil which matches your soil symbol and name.

The table lists the USCS Classification for each depth in the soil profile.

Be sure to use the predominant soil classification for the pond depth where seepage occurs.

If the pond has a greater depth than the soil survey, use data from the lowest depth reported.

Pond Depth: **8** feet = **96** inches

The Soil Survey states the soil USCS Classification at **96** inches is **SM**

Nampa (PN-AM -- NMPI)

Statistics based on thirty year normal spans 1997 to 2016 years

For a different land cover or crop click on the above link.

You can highlight this table and copy via the clipboard to a Microsoft Excel or OpenOffice spreadsheet to plot or otherwise work with this data.

Open water - shallow systems (ponds/streams)
Precipitation Deficit ([Click here for a graph](#))

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Growing Season ^a	Non Growing Season ^b	Annual
Mean^c	mm/day												mm		
Monthly ^d	-0.20	0.47	1.57	2.27	2.89	3.89	4.83	4.11	2.65	1.42	0.37	-0.29	734	0	734
15-Day Moving Average ^e	-0.19	0.43	1.63	2.35	2.92	3.94	4.83	4.14	2.66	1.38	0.37	-0.32			
7-Day Moving Average ^f	-0.18	0.46	1.58	2.29	2.87	3.91	4.83	4.11	2.64	1.41	0.36	-0.32			
3-Day Moving Average ^g	-0.19	0.48	1.57	2.27	2.88	3.88	4.84	4.11	2.64	1.41	0.37	-0.29			
Standard Deviation^h	mm/day												mm		

PHOTOGRAPHER AND DATE OF PHOTOS ALEX DALGLISH 7/10/19

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The above photos show the 2 pipe inlets in pond 3. The arrow in the above left photo shows the 8" pipe. The above right photo is a close up of this inlet. The photo on the bottom shows the other inlet, a 6" pipe from pond 3.



The above photos show the outlet pipes from pond 3 into pond 2. Both pipes are 6" at the outlet. The photo on the left corresponds to the 6" inlet pipe and the photo on the right shows the outlet pipe that is connected to the 8" inlet pipe.

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The above photos show the single 10" outlet pipe from pond 2. This pipe transfers water from pond 2 into pond 1. The culvert in the above right photo is the old pipe between pond 2 and pond 1. It is no longer in use. The photo to the right shows the 10" inlet pipe from pond 2.



The photos above and to the right show the inlet and outlet from pond 1 into the Snake River. The photo on bottom left shows the outlet. The other two photos above show the inlet area leading to the 12" pipe.