

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-33213
Exam Date: 05/15/2019

1. Current Owner:
DANIEL P RULE PO BOX 1237 CALDWELL ID 83606

2. Accompanied by: Daniel Rule
Phone No:
Address:
Relationship to permit Holder:

3. **SOURCE:**
GROUND WATER

Tributary

Method of Determination: Site visit

B. OVERLAP REVIEW

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

Comments: _____

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

Comments: _____

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

GROUND WATER L3 (NW¼ NE¼), Sec. 19, Twp 04N, Rge 05W, B.M. CANYON County
GROUND WATER L3 (NW¼ NE¼), Sec. 19, Twp 04N, Rge 05W, B.M. CANYON County

Method of Determination: Aerial imagery, site visit, pond centroids

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	
04N	05W	19	2.9 L4	1.2 L3															4.1

Total Acres: 4.1

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	
04N	05W	19		X L3															

Method of Determination: Aerial imagery, site visit

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
NONE					

D. FLOW MEASUREMENTS

1.

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

2. Measurements:

No direct diversion rate measurement required per IDAPA BU Exam Rule 35.01.r.i

E. FLOW CALCULATIONS

_____ Additional Computation Sheets Attached

Measured Method:

$$Q = \frac{8.8 \times 0.7 \times 2 \text{ hp}}{2.31 \times 65 \text{ psi}} = 0.08 \text{ cfs}$$

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 4.1 \text{ acres} \times 4.5 \text{ afa/acre} = 18.5 \text{ afa}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.08 \text{ cfs} \times 260 \text{ days} \times 1.9835 = 41.3 \text{ afa}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{18.5 \text{ afa}}$$

2. Volume Calculations for Other Uses:

North Pond

$$\text{Capacity} = 0.07 \text{ acres surface area} \times 10 \text{ ft max depth} \times 0.4 = 0.3 \text{ afa}$$

$$\text{Evaporation} = 0.7 \text{ afa (Homedale NWS Station)}$$

Southwest Pond

$$\text{Capacity} = 0.20 \text{ acres surface area} \times 4 \text{ ft max depth} \times 0.4 = 0.3 \text{ afa}$$

$$\text{Evaporation} = 0.2 \text{ afa (Homedale NWS Station)}$$

TOTAL: 1.5 afa**PERMIT:** 1.3 afa

RECOMMENDED: 1.5 afa (see narrative for explanation)

G. NARRATIVE/REMARKS/COMMENTS

Permit 63-33213 was approved on May 12, 2010 authorizing the diversion of ground water for irrigation and aesthetic storage purposes. Proof of beneficial use was submitted March 21, 2014. I completed this field exam on May 15, 2019.

The two points of diversion are centroids for two ponds which intercept groundwater that has been considered tributary to the Snake River. The total capacity of these two ponds is 0.6 afa. The annual evaporation from the ponds is 0.9 afa. The ponds are obviously kept full year-round as there is no way to control infiltration of groundwater into the excavated areas. The total storage requirement is 1.5 afa. The permit only allowed for 1.3 afa storage. However, 0.9 fewer acres were developed than permitted. That means that the permit had an additional implied consumptive volume of 3.2 afa. Therefore, I am recommending that some of that unused consumptive irrigation volume be converted to cover the additional 0.2 afa of developed aesthetic storage use.

A 2-hp pump diverts water from the north pond to a pressurized sprinkler irrigation system. The pressure at the pump is 65 psi. Using the water-horsepower equation, I have estimated the diversion rate of the pump to be 0.08 cfs. I measured 4.1 acres of total irrigated area from aerial imagery. I confirmed the boundaries of area during the site visit because the extent of irrigation was not readily apparent from aerial imagery due to the tree canopy. The BU Standard allows up to 0.03 cfs per acre in this case, which comes to a total of 0.12 cfs. However, the calculated pumping capacity is limiting, so I have recommended 0.08 cfs for the irrigation diversion rate. I did not account for any lift when calculating the rate from the horsepower equation, so the figure I produced is likely an overestimate and is therefore a fair figure to use for limiting the recommended diversion rate.

There are no overlapping irrigation rights nor are there overlapping uses of the ponds. There is no justification for listing the source as being tributary to the Snake River in the backfile, so I have removed the tributary information from the license.

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	03/01 to 11/15	0.08 CFS	18.5 AF
AESTHETIC STORAGE	01/01 to 12/31		1.5 AF

Totals: 0.08 CFS 20.0 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

Cody Parker - Water Resource Agent, Senior

Field Examiner's Name Cody Parker Date 6-12-19

Reviewer Patricia Kelley Date 6-13-2019

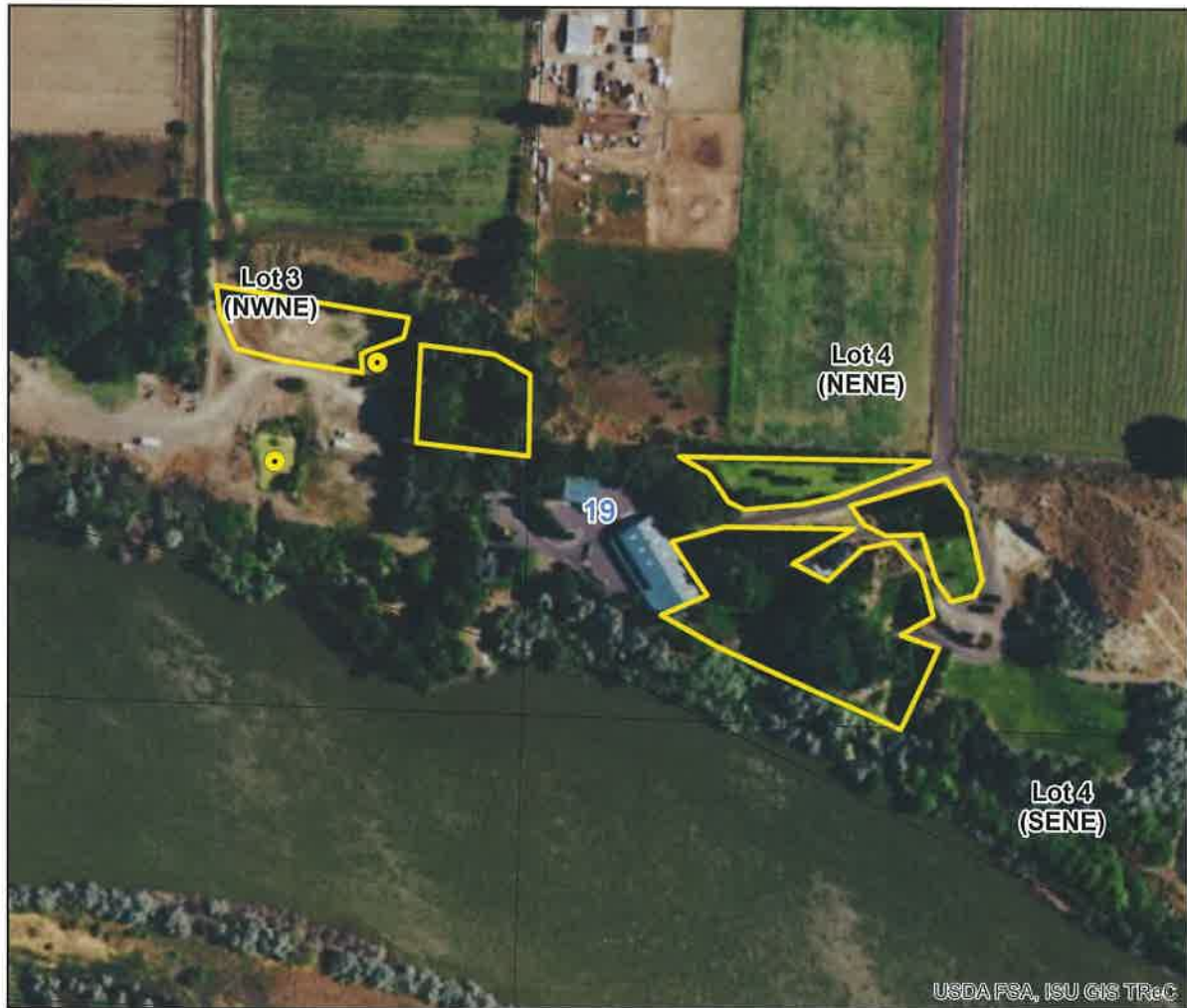


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IRRIGATION

05W

04N



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

0 0.035 0.07 0.14 Miles

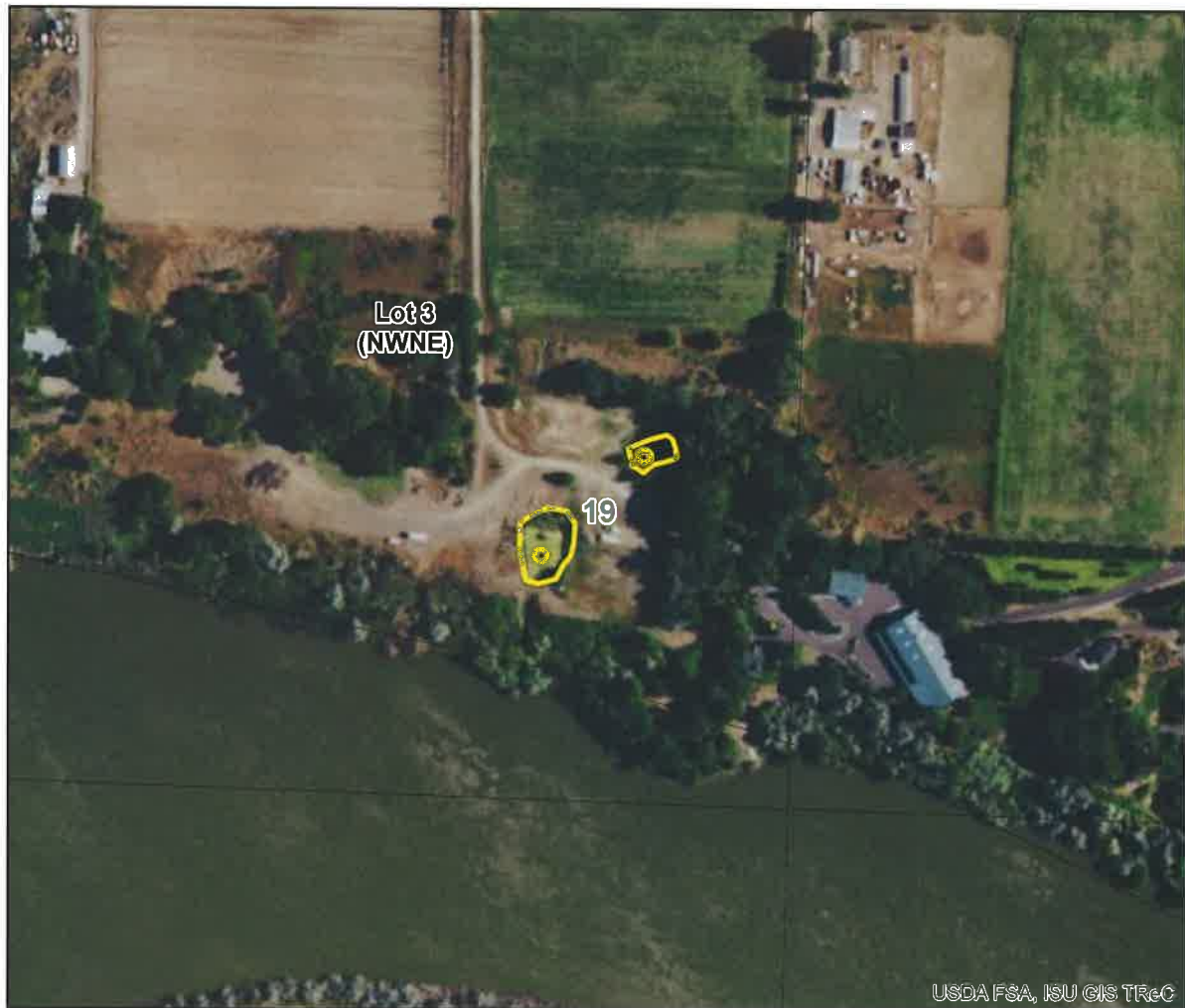


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AESTHETIC STORAGE

05W

04N



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

0 0.035 0.07 0.14 Miles





The northern pond from the eastern shore looking west. Surface area is 0.07 acres and max depth is 10 ft.



The 2-hp pump used to divert water from the northern pond.



The southwestern pond looking west. Surface area is 0.20 acres with a 4 ft max depth.



Additional pond development that is not covered under the permit.



Irrigation to the northeast of the ponds. The pressurized irrigation system runs pop-up spray-head sprinklers used to water primarily lawn and some drip irrigation for shrubs and trees.



More of the lawn irrigation watered using the pressurized irrigation system.

North Pond

Total Storage Calculations

FILE NUMBER	63-33213
REVIEWER	Cody Parker
DATE	5/7/2019

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.)	0.2	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	1.6	"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)	0.32	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 " <u>From Storage</u> " 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)	0.7	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	1.0	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.

SW Pond

Total Storage Calculations

FILE NUMBER	63-33213
REVIEWER	Cody Parker
DATE	6/7/2019

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.)	0.07	"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)	0.28	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)	0.2	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	0.5	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.

[illegible]

Surface water shares, no overlap
Different use, same QQ, no overlap

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04N05W19

BasinSeq#	Owner	Source	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE
2-10166	DBH LLC:	SNAKE RIVER							X									
2-10261	JOHNSTO	SNAKE RIVER							X									
2-10262	JOHNSTO	SNAKE RIVER							X									
2-2432A	DBSI SNA	SNAKE RIVER							X									
2-7415	DBSI SNA	SNAKE RIVER							X									
57-10303	NELSON,	GROUND WATER															X	
57-10736	SALOMO	GROUND WATER										X						
57-2332	MC RAE,	GROUND WATER														X		
57-7176	DBSI SNA	UNNAMED DRAIN								X								
63-26370	SORRELL	GROUND WATER		X														
63-26708	WARD, G	GROUND WATER		X														
63-3057	BARTLES	WASTE WATER					X											
63-33213	RULE, D	GROUND WATER		X														

 Separate diversion, no overlap