

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 87-10092
Exam Date: 06/28/2023

1. Current Owner:
WARREN FAMILY SURVIVING SPOUSE TRUST C/O KATHLEEN J WARREN
3270 W TWIN RD MOSCOW ID 83843-8130

2. Accompanied by: Ted Warren
Phone No: (208) 769-3484
Address: 3270 W Twin Rd, Moscow ID 83843
Relationship to permit Holder: member of Warren Family Trust

3. SOURCE:
SPRING
UNNAMED STREAM

Tributary
PARADISE CREEK
PARADISE CREEK

Method of Determination: Field Observation

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis

Comments: N/A

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

Water Right No.	Source	Purpose of Use	Basis

Comments: N/A

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

UNNAMED STREAM NE¼ SE¼, Sec. 22, Twp 40N, Rge 05W, B.M. LATAH County
UNNAMED STREAM NE¼ SE¼, Sec. 22, Twp 40N, Rge 05W, B.M. LATAH County
SPRING SW¼ NE¼ SE¼, Sec. 22, Twp 40N, Rge 05W, B.M. LATAH County

Method of Determination: GIS and field observations

PLACE OF USE: IRRIGATION 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	
40N	05W	22													X				

PLACE OF USE: IRRIGATION FROM 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	
40N	05W	22				0.5									1.9				2.4

Total Acres: 2.4

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	
40N	05W	22													X				

PLACE OF USE: FIRE PROTECTION 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	
40N	05W	22													X				

Method of Determination: GIS and field observations

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
993207- upper pond		3			
993208- lower pond					
993209- spring					

* ID number represents Point of Diversion ID on AdHoc. Pump HP represents pump in lower pond used for irrigation/fire protection

D. FLOW MEASUREMENTS

Measurements: N/A (no diversion to storage, spring not measurable)

E. FLOW CALCULATIONS

Measured Method: N/A (no flow quantity on permit)

☐ Additional Computation Sheets Attached

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement})^{**} = 2.4 \text{ acres} \times 2 \text{ acre-ft/acre} = 4.8 \text{ acre-ft}$$

** The permit had a requirement of 2 acre-ft per acre. I could not discern why. We cannot alter the permit to be the headgate standard (3 ft) or the storage standard (5 ft).

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

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 4.8 \text{ acre-ft annual}$$

2. Volume Calculations for Other Uses: See attached pond calculation sheets (2) for aesthetic storage and fire protection storage.

$$\text{Initial fill volume} = \text{upper pond volume} + \text{lower pond volume} = 1.2 \text{ AF} + 6.9 \text{ AF} = 8.1 \text{ AF}$$

$$\text{Total seepage and evaporation losses} = 0.4 \text{ (upper)} + 2.0 \text{ (lower)} = 2.4 \text{ AF}$$

$$\text{Irrigation volume} = 4.8 \text{ AF}$$

$$\text{Aesthetic storage} = \text{initial fill} + \text{losses} = 10.5 \text{ AF}$$

$$\text{Fire protection storage} = \text{initial fill} + \text{losses} = 10.5 \text{ AF}$$

$$\text{Total yearly volume} = 8.1 + 2.4 + 4.8 = 15.3 \text{ AF}$$

G. NARRATIVE/REMARKS/COMMENTS

Warren Family Surviving Spouse Trust represented by Ted and Kathleen Warren and James Browitt, attorney, were issued a permit authorizing the diversion of 25 acre-ft of water from an unnamed stream in NE¼ SE¼, Sec. 22, Twp 40N, Rge 05W and from a spring in SW¼ NE¼ SE¼, Sec. 22, Twp 40N, Rge 05W, both tributary to Paradise Creek in Latah County, ID. The priority date was May 11, 2018 and proof was submitted on-time. A field exam was performed on June 28, 2023 with Ted Warren present.

We confirmed the sources to be in the correct QQ/QQQ via GPS and aerial imagery. While there is not necessarily a stream, diffuse surface water runoff runs downhill to where the Warrens have constructed two ponds by creating downstream embankments. We confirmed the existence of the spring in the lower pond; Ted mentioned that when the pond water level is low, he can see water bubbling out of the ground in the marked location.

Pond surface area measurements were confirmed via aerial imagery with various years of high-water lines. Ted estimated the upper and lower maximum depths to be 17 and 20 feet, respectively. These values seemed accurate to me given how high the embankments rise above the natural slope of the ground. Capacity volumes were calculated to be 1.2 and 6.9 acre-ft, respectively. IDWR's *Total Storage Calculations* Workbook was used to determine seepage and evaporation losses; the total volume required to maintain the ponds for a year is 10.5 acre-ft, which is the recommended volume for aesthetic and fire protection storage.

Conversations with the permit holder, photographs, and aerial imagery confirm 2.4 acres of irrigation in NE¼ SE¼, Sec. 22, Twp 40N, Rge 05W and SE¼ NE¼, Sec. 22, Twp 40N, Rge 05W. The Warrens maintain a lawn and grow fruit trees with the irrigation from storage use on their permit. A 3 hp pump in the lower pond conveys water to a junction near the upper pond where water can be conveyed to the yard, a spigot at the north end of the property for tree watering, or to top-off the upper

pond. A condition on their permit limiting the irrigation quantity to 2 acre-ft per acre prevents the licensing of volumes based on the standard field headgate requirements, so the irrigation storage volume I am recommending is 4.8 acre-ft, which is based on the permitted volume per acre.

Ted Warren is a nature photographer and has created an environment to photograph waterfowl, deer, and other wild animals. The animals likely drink water from the pond but without evidence demonstrating the ponds created new habitat or increased populations the water use term should be changed to "Aesthetic Storage". Also the water can be used to fight fires using the developed spigots near the house or at the northernmost end of the property, I am recommending keeping the fire protection storage use for licensing. Condition 259 should be revised to reflect 15.3 acre-feet as the total volume which includes 8.1 acre-ft for the initial fill, 2.4 acre-ft for losses, and up to 4.8 acre-ft for irrigation purposes.

Condition 220 should also be revised to represent the maximum capacity for the ponds at one time, which is 8.1 acre-ft or 1.1 acres for surface area. The condition restricting the maximum volume per acre annually should be carried to licensing as it cannot be removed at this point. Condition 218 restricting diversion for fire protection to only fight existing fires should also be carried to licensing. Condition 004 should be removed as the POD and POU are confirmed as owned by the permit holders. Condition 26A requiring development within 1 year of issuance of permit can also be removed as proof has been established.

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>Rate of Diversion</u>	<u>Annual Volume</u>
IRRIGATION STORAGE	01/01 to 12/31		4.8 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		4.8 AF
AESTHETIC STORAGE	01/01 to 12/31		10.5 AF
FIRE PROTECTION STORAGE	01/01 to 12/31		10.5 AF

Totals:

15.3 AF

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

Blake Burkard -

Field Examiner's Name _____ Date _____

Reviewer PK _____ Date 7/9/25 _____



Figure 1: System and Flow diagrams

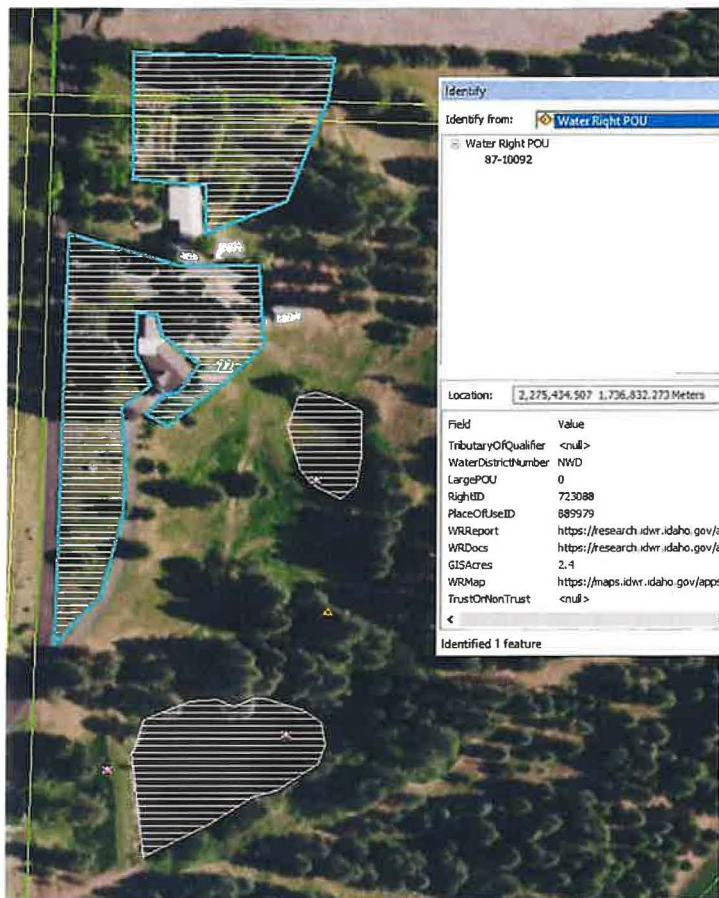


Figure 2: Highlighted shapes show acreage



Figure 3: Photos confirming irrigation. Facing east (left) and southwest(right)



Figure 4: Installed sprinkler irrigation system



Figure 5: Tee for lines going in, to sprinklers, to orchard, and to fill upper pond



Figure 6: outflow for upper pond (southeast side)



Figure 7: Lower pond with installed pump, facing south

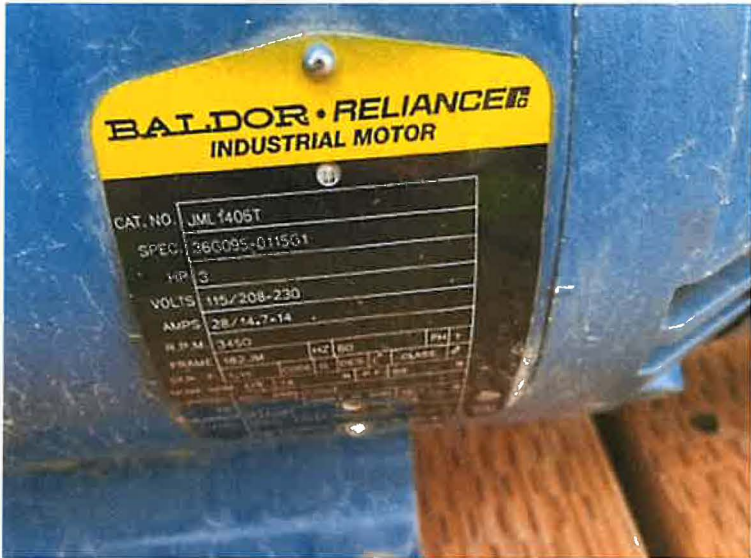


Figure 8: Pump specs



Figure 9: GPS for lower pond outflow on southeast end of embankment



Figure 10: Orchard spigot



Figure 11: Fruit tree with spigot behind it to the east

UPPER Pond w/ No "From Storage"

Total Storage Calculations

FILE NUMBER	87-10092
REVIEWER	Blake Burkard
DATE	8/2/2023

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.)	0.1763	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	6.8	"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)	1.19884	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)	0.2	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)	1.6	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)	3.68	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)	0.00	"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)	0.00	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	-451	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	32	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.

Total Storage Calculations

FILE NUMBER	87-10092
REVIEWER	Blake Burkard
DATE	8/2/2023

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.)	0.859	"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)	6.872	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)	0.9	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	1.1	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	8.9	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.

LOWER POND

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)	3.68	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)	0.01	"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)	0.01	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	-531	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	255	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.