STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 65-23543
Exam Date: 716//20

1. Current Owner:
RYAN BALDWIN PO BOX 2022 MC CALL ID 83638
KELSIE BALDWIN PO BOX 2022 MC CALL ID 83638

3. **SOURCE:** GROUND WATER

Tributary LAKE FORK CREEK

Method of Determination: Permit application, ArcMap, aerial imagery, and USGS topography.

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
N/A	N/A	N/A	N/A

Comments: All overlapping rights within the same QQ are pertinent to neighboring properties

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

Water Right No.	Source	Purpose of Use	Basis
N/A	N/A	N/A	N/A

Comments: No overlapping POD.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**
GROUND WATER NW¼ NW¼, Sec. 11, Twp 17N, Rge 03E, B.M. VALLEY County

Method of Determination: Permit application, ArcMap, aerial imagery, and USGS topography

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	
17N	03E	11						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	
17N	03E	11						1.0											1.0

Total Acres: 1.0

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	
17N	03E	11						X											

Method of Determination: Permit application, ArcMap, aerial imagery, and USGS topography

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).

N/A 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
N/A	General Electric	1.5	5KC39QN1010CX	Myers Ejecto Pump	460

D. FLOW MEASUREMENTS

Theoretical Flow Calculation:

Irrigation Permit:	6 af
Aesthetic Permit	12 af
Storage Capacity & Consumptive Loss	5.7 af
Irrigation B.U.	3.0 af

B.U. Proof Fee: $50 → 0.00 af to 0.20 af

License Recommendation **8.7 af (Aesthetic storage & irrigation use)**

E. FLOW CALCULATIONS

Measured Method:

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$V_{I.R.}$ = (Acres Irrigated) x (Irrigation Requirement) =

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

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

2. Volume Calculations for Other Uses:

Using the Pond Loss Calculation Spreadsheet, GIS, and depth approximations the following theoretical calculations were determined:

Surface area (GIS): 1.3 acres
Average pond depth: 3.2 feet
Pond Capacity (Spreadsheet): 4.2 af
Evaporation: 1.5 af
Irrigation from storage: 3 af

Total Volume Recommended: 8.7 af

Pond Spreadsheet attached

G. NARRATIVE/REMARKS/COMMENTS

On April 1, 2020, Kelsie and Ryan Baldwin submitted proof of beneficial use for water permit 65-23543. Based on the information provided in the water right file, this qualifies for an in office field exam. Taxlot ownership: The ArcMap taxlot data from 3/18/20 states that the land is owned by Ryan Baldwin.

While conducting the overlap analysis, there were three other water rights found in the same general QQ as the land described in this permit. The analysis found that all other water rights are pertinent to neighboring properties. Analysis can be viewed in attached spreadsheet.

The permit 65-23543 authorized to appropriate groundwater from Lake Fork Creek and approved 12 AF for aesthetic storage and 6 AF for irrigation storage and irrigation from storage, to irrigate up to 2 acres of land. To mitigate the depletion of water Ryan and Kelsie Baldwin retired 18 af previously stored at Browns Pond. The 18 AF of water was formally abandoned as a condition of permit approval.

A field exam was conducted on July 16, 2020 by Water Resource Agent Kate Huelse accompanied by permit holder Kelsie Bladwin. The POU was determined using aerial photography GIS, and was verified during the field exam. A 1.3 acre pond used is as aesthetic storage and irrigation storage and approximately 1 acre of developed irrigation was observed. 0.75 acres uses sprinkler irrigation and 0.25 acres uses drip irrigation.

Based on aerial photography, the pond appears to have a surface area of approximately 1.3 acres. The maximum depth of the pond is about 12 feet as confirmed by Ryan Baldwin per a phone conversation April 27, 2020. Department standards suggest multiplying the maximum depth by 0.4 in order to get an average depth, in this case the pond has an average depth of 3.2 feet. This means the total capacity of the pond would be 4.16 AF and the total evaporation loss would be 1.5 AFA . The original application for permit indicated that proposed volume includes 12 AF of total pond volume, and an additional 6 AF of water to allow for irrigation of up to 2 acres. I am recommending 5.7 AF for the aesthetic storage, 3.0 AF for irrigation storage, and 3 AF for 1 acre of irrigation, for a total of 8.7 AF.

Irrigation storage normally gets a standard of 5.0 af/ acre. This volume recognizes the consumptive loss associated with the storage use. Because the permit includes aesthetic storage, the consumptive volume is identified in the max volume. In this recommendation, we are considering the pond will be kept full and maintained by the aesthetic use, and the headgate volume limit will be diverted for irrigation.

Have conditions of permit approval been met? __x__ Yes ____ No

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use	Rate of Diversion	Annual Volume
IRRIGATION STORAGE	01/01 to 12/31		3.0 AF
IRRIGATION FROM STORAGE	04/15 to 10/31		3.0 AF
AESTHETIC STORAGE	01/01 to 12/31		5.7 AF
	Totals:		8.7 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** Kate Huelse - Water Resource Agent

Field Examiner's Name Kate Huelse Date 7/29/20

Reviewer Patrick Willey Date 7-31-2020

Baldwin Photo Log

Point of Diversion (44.830064, -116.065261)

Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
General Electric	1.5	5KC39QN1010CX	Myers Ejecto Pump	460

0.75 acres adjacent to pond irrigated using sprinklers.

Pond

Surface area (GIS): 1.3 acres
Average pond depth: 3.2 feet
Pond Capacity (Spreadsheet): 4.16 af
Seepage: 3.3 af
Evaporation: 1.5 af

Northwestern 0.25 acre orchard irrigated with drip.

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 65-23543
Reviewer: Kate Huelse
Date of Review: 7/23/2020

P/D No.:	Scenario 1	Scenario 2	Scenario 3	
PUMP HORSEPOWER	1	1	1	
BOOSTER HORSEPOWER	0	0	0	
PUMPING LEVEL	15	15	15	
DISCHARGE PRESSURE	60	60	60	
RATE OF FLOW (cfs)	0.04	0.04	0.04	0.04

The above calculates the formula = $$Q = \frac{8.8 * (\text{Efficiency}) * hp}{\text{depth to water} + 2.31*(psi)+\text{friction}}$$

Assumptions: %70 efficiency.
No Friction

Examiners Notes:

The system uses a 1 hp general electric pump. The pumping level was measured using the DRG map. Topography from the shore waters to the irrigated grass measured close to 15 feet. An oberved discharge pressure of 60 psi is used in the calculations. The theorectical average flow rate is 0.04 cfs.

State of Idaho
Department of Water Resources

System Diagram

65-23543

Townships
PLS Sections
Quarter Quarters

0 0.035 0.07 0.14 Miles

N

Seepage Loss Calculations

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

FILE NUMBER	65-23543
REVIEWER	Kate Huelse
DATE	7/20/2020

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	1.3	AC.
Pond Surface Area (SQ. FT.)	56628	SQ. FT.
I used the following method to obtain my Soil Classification information:	NRCS Web Soil Survey	
My Soil Classification is	GrndWtr	
Suggested Seepage Rate (FT./DAY)	0.0000	FT./DAY

Formula: (Surface Area X Seepage Rate) X 7.48 = Gallons Per Day Loss

Convert to GPD	0	GPD
Total Seepage Loss (AFA)	0.0	AFA

Though sand and gravel seepage rates may actually be higher, the maximum allowable rate is 0.2 ft/day, pursuant to Administrative Memo "Seepage Loss Standards for Ponds and Reservoirs."

Suggested Seepage Rates for Different Soil Types:
GW, GP, GM, GC, SW, SP and SM (silty sand, sand silt mixtures and gravel mixtures) = **0.2 ft per day**
OL and ML (inorganic silts - very fine sands, silty, or clayey fine sands) = **0.02 ft per day**
SC (clayey sands, sand clay mixtures) = **0.007 ft per day**
CL (Low to medium plasticity clays) = **0.003 ft per day**
MH, OH, PT and CH (high plasticity clays) = **0.0003 ft per day**
LINED PONDS (liners can be chemical, fabric, or bentonite) = **0 ft per day**
Ponds Intercepting Groundwater (excavated ponds filled by ground water) = **0 ft per day**

PLEASE NOTE: The initial basis for the Suggested Seepage Rates in the table above is found on Page 16 of Seepage from Fish Ponds, Bulletin 599, August 1989 Alabama Agricultural experiment Station, Auburn University, Auburn University Alabama. If you don't know the soil type, please refer to the map provided at the NRCS Web Soil Survey (Tab #1) , an ArcMap Soil Classification Map (Tab #1.1), or published NRCS Soil Survey (Tab #1.2) . Use "0" if the pond fill relies on the water table.

Total Storage Calculations

FILE NUMBER	65-23543
REVIEWER	Kate Huelse
DATE	7/20/2020

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.)	1.3	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	3.2	"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)	4.16	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 *from storage* component if the *from storage* 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)	1.5	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	5.7	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)	3.57	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)	0.02	"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	-273	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	169	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	65-23543
REVIEWER	Kate Huelse
DATE	7/20/2020

User Input
Calculated value
Formula Explanations

County:	Valley , 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:	Valley 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):	116	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:	Donnel Sandy Loam 0 to 2 percent slopes	

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 SC

BasinSequence	Owner	Source	Use	NENE	NWNW	TotalAcres
65-10371	CAREY, D JOHN; MILLEMANN, S	SPRING	DOMESTIC	X		
65-13281	LAKEY, RODNEY E	GROUND V	DOMESTIC			
65-13468	CORNELL, CARMEN; MITCHELL,	SPRING	IRRIGATION			38
65-13923	LANGREDER, DEANNE; LANGREI	GROUND V	DOMESTIC			
65-17390	NELSON, PAUL L	GROUND V	DOMESTIC			
65-17626	STEWART, MABLE KAY; STEWAR	GROUND V	DOMESTIC			
65-17626	STEWART, MABLE KAY; STEWAR	GROUND V	STOCKWATER			
65-17627	STEWART, MABLE KAY; STEWAR	GROUND V	DOMESTIC			
65-17627	STEWART, MABLE KAY; STEWAR	GROUND V	STOCKWATER			
65-17667	STATHIS, HARRY M; STATHIS, N/	GROUND V	DOMESTIC			
65-17705	ANDERSON, DANIEL R; ANDERS(	GROUND V	DOMESTIC			
65-18005	LINDSAY, JAMES E	GROUND V	DOMESTIC			
65-18042	BROWN, ROBERT WARREN	GROUND V	DOMESTIC			
65-2308	BOULDER IRRIGATION CO	BOULDER (	IRRIGATIOI	X		
65-23314	KESLER, ROD	GROUND V	IRRIGATION			2.3
65-23543	BALDWIN, KELSIE; BALDWIN, RY	GROUND V	AESTHETIC STORAGE		X	
65-23543	BALDWIN, KELSIE; BALDWIN, RY	GROUND V	IRRIGATION FROM STC		2	2
65-23543	BALDWIN, KELSIE; BALDWIN, RY	GROUND V	IRRIGATION STORAGE		X	
65-2676A	COURTNEY, WALTER; HEARNE, [	UNNAMED	IRRIGATION		5	5
65-2676B	REISWIG, JUSTIN	UNNAMED	IRRIGATION		8.3	8.3
65-2916	BOULDER IRRIGATION CO	LOUIE LAKI	IRRIGATIOI	X		
65-4211	SUMMERS, GREG E; SUMMERS,	GROUND V	DOMESTIC			
65-5887	COURTNEY, WALTER; HEARNE, [	GROUND V	DOMESTIC		X	
65-8460	CARTER, JANELL; CARTER, JEFF; (	GROUND V	DOMESTIC			
65-8698	BLACKBURN, VAL J; PROCTOR, B	GROUND V	DOMESTIC			