

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED

Sep 18, 2023

DEPARTMENT OF
WATER RESOURCES

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 63-345491. Owner Chad BowersPhone No. 702-806-8889Current address PO Box 1014 Eagle, ID 836162. Examiner's name Patrick Kelly and Terry Scanlan (CE 23-129)EXAM DATE 5/31/20233. Accompanied by Permit OwnerEmail bowers@lawyer.comAddress same

Relationship to permit holder _____

Phone No. same4. Source Ground Water

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use None2. Other water rights with the same source and point of diversion None**C. DIVERSION AND DELIVERY SYSTEM**

1. Point(s) of Diversion:

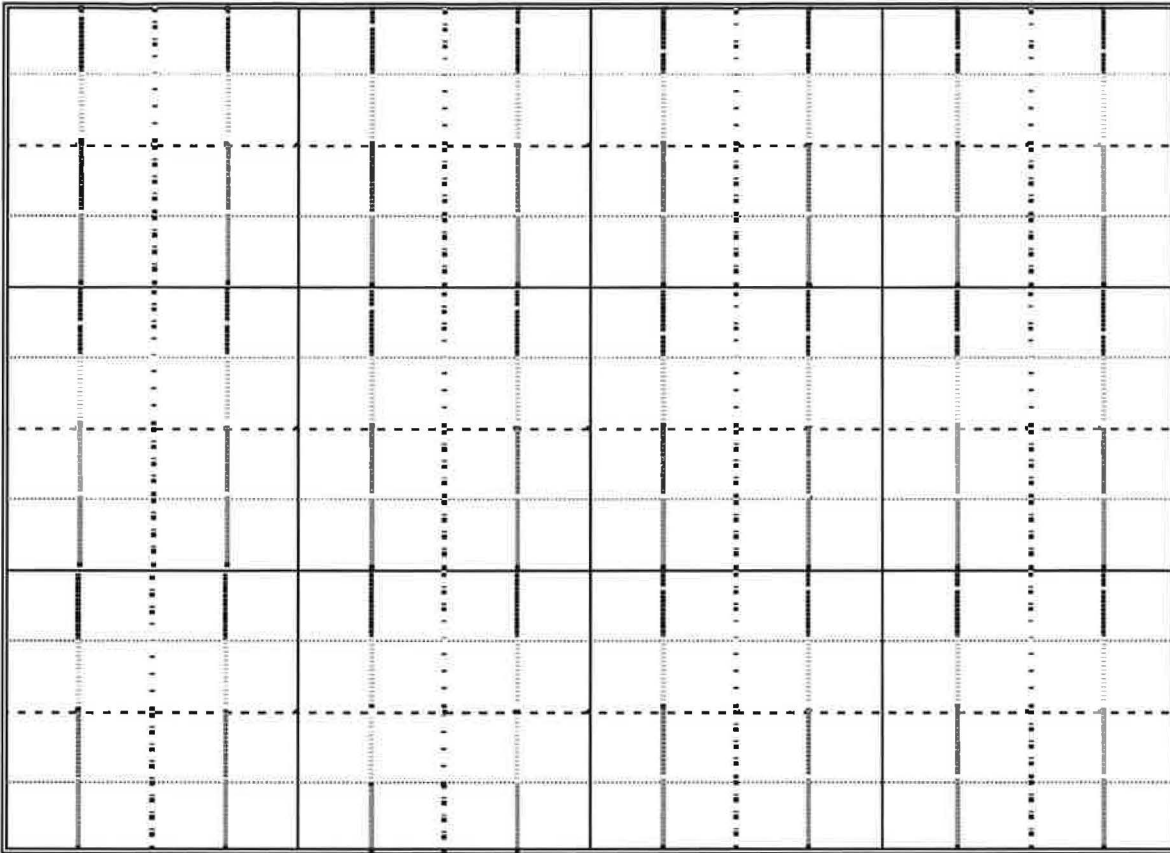
Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
P1	07		NE	SE	18	04N	01W	Ada	GPS = -116 29.873; 43 41.016
P2	07		NE	SE	18	04N	01W	Ada	GPS = -116 29.842; 43 40.974

2. Place(s) of Use:

Method of determination 2021 Satellite imagery and digital PLSS map tools

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	01W	18													X				

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.



Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☒ Aerial photo attached (required for irrigation of 10+ acres)
☒ Photo of diversion and system attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
	No diversion equipment installed				

*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

2. Measurements: _____

No diversion rate permitted. Satellite imagery and digital PI SS map tools used to measure pond surface area

E. NARRATIVE/REMARKS/COMMENTS

Narrative attached to this report.

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There are no vertical margin lines, and the page is completely blank except for the lines themselves.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

All conditions of approval have been met.

[illegible]

F. FLOW CALCULATIONS☐ Additional computation sheets attached

Measured Method:

No diversion rate permitted.

G. 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:

Surface area = $0.53 + 0.14 = 0.67$ ac Maximum depth = 20 ft. Slope = 0.4Total Capacity = surface area $\times$ maximum depth $\times$ slope = $0.67 \times 20 \times 0.4 = 5.36$ afConsumptive losses = evaporation + seepage = $1.25 + 0 = 1.25$ afTotal Annual Volume = Total Capacity + Consumptive Loss = $5.36 + 1.25 = 6.6$ af

IDWR Application Processing Memo #76 attached with additional detail.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Aesthetic Storage	01/01	12/31		6.6 af
Totals:				6.6 af

2. Recommended Amendments

☐ Change P.D. as reflected on page 1☒ Add P.D. as reflected on page 1☐ None☐ Change P.U. as reflected on page 1☐ Add P.U. as reflected on page 1☐ Other**I. AUTHENTICATION**

Field Examiner's Signature

Terry M. Scanlan

Date

June 20, 2023

Reviewer

Date



Ownership

Water right permit 63-34549 was applied for and issued in the name of Chad Bowers, signed by Mr. Bowers. Parcel data collected from Ada County Assessor's Office shows the place of use is owned by Levi Pants LLC. Levi Pants LLC is owned by Mr. Bowers. Changes to ownership are not necessary.

Water Right Overlap

Pioneer Ditch water from the Boise River is delivered to the property for irrigation use. No other water rights overlap the property.

Point of Diversion

Permit 63-34549 was issued with one point of diversion. A new pond was developed during the beneficial use period. A second pond was discovered by the field examiner. An amendment to add a POD are recommended to license the existing aesthetic storage use on the property.

Place of Use

2021 aerial imagery and ArcMap tools were used to measure a total surface area of 0.67 acres. Permit 63-34549 was permitted with a pond surface area up to 1 acre. Both ponds are within the property boundary described by the permit. Amendments to the POU are not recommended.

Diversion System

The southern pond was excavated by Mr. Bowers. Maximum depth was not directly measured. Statements from the permit owner stated that the pond was excavated to 20 feet, with sloped sides. Mr. Bowers stated that if he did it again, he would make a shallower pond, but the depth helps keep the pond from freezing in the winter and keeps fish alive. The pond behind the house was developed by previous property owners. Satellite imagery suggests the pond has been around for many years, prior to 1992. Both ponds intercept shallow groundwater.

Conditions of Approval

Conditions of approval limited the pond surface area, capacity, and evaporation. Arcmap tools were used to measure a total surface area of 0.67 acres. IDWR Application Processing Memo No. 76 was used to calculate total storage use. Even with two ponds on the property, the aesthetic storage use is less than the permitted limits.

Recommendations

An amendment of permit is required to add a second point of diversion. Aesthetic storage use on the property totals 6.6 af.



DATA SOURCE: NAIP 2021

63-34549 BENEFICIAL USE FIELD EXAM SYSTEM DIAGRAM

CHAD BOWERS

APPENDIX A – IDWR APP PROCESSING No. 76

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	63-34549
REVIEWER	HDR
DATE	6/5/2023

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	0.67	AC.
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Pond Surface Area (SQ. FT.)	29185	SQ. FT.
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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
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Convert to GPD	0	GPD
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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.

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	63-34549
REVIEWER	HDR
DATE	6/5/2023

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: Emmett 2E (NWS -- USC00102942)

Month	mm/day ¹	Days per month	mm/Month
Jan	-0.91	31	0.00
Feb	-0.44	28	0.00
March	0.48	31	14.88
April	1.81	30	54.30
May	2.45	31	75.95
June	3.31	30	99.30
July	3.96	31	122.76
August	3.44	31	106.64
September	2.12	30	63.60
October	0.94	31	29.14
November	-0.76	30	0.00
December	-1.51	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 = 566.57

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

$$(566.57 \div 304.8) \times 0.67 = 1.2 \text{ AFA}$$

Total Storage Calculations

FILE NUMBER	63-34549
REVIEWER	HDR
DATE	6/5/2023

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.)	0.67	"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)	5.36	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)	1.25	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	6.61	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)	NA	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)	3.96	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)	0.00	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	#VALUE!	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. <i>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.</i>
Days Required to Fill the Pond at 13,000 Gallons per Day	172	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. <i>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.</i> 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.

APPENDIX B – FIELD EXAM PHOTOGRAPHS



Aesthetic Storage use.

Photo of southern pond, standing on north shore facing south.

Hersley, Jean

From: Kelly, Patrick <Patrick.Kelly@hdrinc.com>
Sent: Monday, September 18, 2023 3:05 PM
To: IDWR File
Cc: Graves, Lori; chad bowers
Subject: 63-34549 BUFE
Attachments: BUFE to IDWR.pdf

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: This email originated outside the State of Idaho network. Verify links and attachments BEFORE you click or open, even if you recognize and/or trust the sender. Contact your agency service desk with any concerns.

Hello,
Attached is a copy of beneficial use field exam report for permit 63-34549. Please confirm that it has been received.
Thank you,
Patrick Kelly

Patrick Kelly
Project Hydrologist

HDR Engineering, Inc.
412 E. Parkcenter Blvd., Suite 100
Boise, ID 83706
D 208.387.7000 M 208.954.4805
patrick.kelly@hdrinc.com



RECEIVED

Sep 18, 2023

DEPARTMENT OF
WATER RESOURCES

September 18, 2023

Justin Shearer
IDWR State Office
200 E. Front St.
Boise, ID 83702

Subject: 63-34549 Beneficial Use Field Exam Report

Dear Justin,

HDR conducted a field exam on behalf of Chad Bowers for this permit May 31, 2023, and submitted a beneficial use field exam report to IDWR on June 20, 2023. On September 1, 2023, permit 63-34549 lapsed. This report is a copy of the report submitted in June.

Regardless, per Idaho Code §42-218a, within sixty days after notice of lapsing, the department may, upon a showing of reasonable cause, reinstate the permit with the priority date advance a time equal to the number of days that said showing is subsequent to the date set for proof. As described in this field exam report, Mr. Bowers has accomplished the beneficial use authorized by the permit within the beneficial use period. We expect IDWR to find reasonable cause in this case.

Thank you very much for your service in this matter. Please contact Terry or I with any questions.

Sincerely,

A handwritten signature in blue ink that reads "Patrick Kelly".

Patrick Kelly
Project Hydrologist