

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9538
Exam Date: 07/28/2020

1. Current Owner:
S. STEVE LAFRENZ PO BOX 1356 SANDPOINT ID 83864 AND/OR
DEBORAH A LAFRENZ PO BOX 1356 SANDPOINT ID 83864
2. Accompanied by: Steve Lafrenz
Phone No: 208-263-5000
Address: Same as above
Relationship to permit Holder: Permit Holder

3. **SOURCE:**
GROUND WATER

Method of Determination: Arcmap and DRG.

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

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

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM

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

GROUND WATER NE¼ NE¼, Sec. 29, Twp 56N, Rge 02W, B.M. BONNER County

Method of Determination: GPS. POD located at -116° 35.478, 48° 10.665.

PLACE OF USE: INDUSTRIAL STORAGE and INDUSTRIAL 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	
56N	02W	29	X																

Method of Determination: Field Exam and Arcmap aerial imagery.

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
WATER TRANSFER PUMP	WACKER NEUSON	7.1	20203766		

D. FLOW MEASUREMENTS

1.

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

2. Measurements: A 50 gallon graduated plastic barrel was used to complete the flow measurement, resulting in a 45 gallons filled in 15.03 seconds. Using these volume and time metrics, the resulting flow measurement equals 179.64 gpm or 0.40 cfs considering department rounding standards.

E. FLOW CALCULATIONS

Measured Method: 50 gal barrel filled to 45 gallons in 15.03 seconds.

$$= (5 \text{ gal} / 15.03 \text{ sec} \times 60 \text{ sec/min}) \times (45 \text{ gal} / 5 \text{ gal bucket factor}) = 19.96 \text{ gpm} \times 9 \text{ (factor of 45)} = 179.64 \text{ gpm} = 0.40 \text{ cfs considering department rounding standards.}$$

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

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

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

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

2. Volume Calculations for Other Uses:

SEE ATTACHED POND ANALYSIS WORKSHEET.

- Industrial from storage annual volume = 150 hours pump operation per year x 90 gpm (0.20 cfs) x 60 min = 810,000 gal per year / 325,850 gal per af = **2.5 af** considering department rounding standards.
- Maximum Diversion Volume = 1.0 af (pond capacity and industrial from storage use) + 0.4 af (evaporation loss) + 1.5 af (industrial from storage) = **2.9 af**

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 7/28/2020 with the applicant, Steve Lafrenz, showed a shallow hand dug groundwater well being used for industrial purposes. At the open pit groundwater well the applicant used a 7.1 hp Wacker Neuson water transfer pump for diversion to storage use. A series of fire hydrant hoses were coupled and run to the storage pond associated with this permit. During the exam, a 50 gallon graduated plastic drum was used to conduct a flow measurement. Water from the fire hose was allowed to run for brief time to allow it to stabilize its discharge rate, then with the applicant's assistance a flow measurement was taken. Since the measurement used 45 gallons versus the normal 5 gal bucket, a factor of 9 was used to derive the flow rate which equals: $(5 \text{ gal} / 15.03 \text{ sec} \times 60 \text{ sec/min}) \times (45 \text{ gal} / 5 \text{ gal bucket factor}) = 19.96 \text{ gpm} \times 9 \text{ (factor of 45)} = 179.64 \text{ gpm} = 0.40 \text{ cfs}$ considering department rounding standards. The applicant is limited by the permit approved diversion rate of 90 gpm or **0.20 cfs**, which is recommended for licensing of this right.

The applicant is in the process of applying for a new application for water permit to account for the additional 90 gpm or 0.20 cfs the water transfer pump has shown to divert. The applicant stated they had elected to operate a larger capacity pump to reduce the total hours of run time required to pump water to storage throughout the year. The applicants have submitted for a new water permit No. 96-9841 prior to the licensing of this right.

A lined pond was used for the industrial storage POU and industrial from storage purposes, which was observed during the exam. Sedimentation was cleaned out annually to keep the pond volume approximately the same from year to year. The pond has a surface area of 0.3 acres, a maximum depth of 8 feet, average depth of 3.2 feet, pond capacity of 1.0 af, estimated evaporation loss of 0.4 af, and multiple fill capacity of 1.5 af. The pond capacity and multiple fill component combined equal the industrial from storage volume equal to $1.0 \text{ af} + 1.5 \text{ af} = \mathbf{2.5 \text{ af}}$ annually, which will be carried forward to the license as the industrial from storage volume. The total volume required for the pond equals **2.9 af**, which will be applied as the industrial storage annual volume and maximum diversion volume for licensing purposes.

The industrial from storage uses include a rock crushing and aggregate washing operation. Heavy machinery was used throughout the industrial from storage POU, which accounts for dust abatement as well rock operational uses. The applicant stated they used a separate plant and City of Sandpoint water source to mix their concrete. The volume for licensing purposes was derived using the actual annual pumping time total supplied by the applicant as described above. The values identified in this report equal $\frac{1}{2}$ of the overall industrial use by the applicant annually. The second $\frac{1}{2}$ of the volume (2.5 af) is being accounted for on the new application for permit No. 96-9841 submitted by the applicant to capture the overage of diversion rate the applicant's water transfer pump can produce. This satisfies the correlation between the 90 gpm or 0.20 cfs permit approved diversion, which is exactly $\frac{1}{2}$ the total pump performance.

The applicant uses a 50 hp pump to divert from storage, and the pond is a recirculation pond that is in a loop system. Water is diverted from the groundwater well, flows to the pond, is diverted from the pond for industrial from storage use, and any overflow/excess water from operations is diverted back to the pond. In this manner, the applicant states they recycle a substantial amount of water for re-use annually. This volume has no way of accurately measuring, and is not being calculated for licensing purposes.

Conditions 26A, 046, and 082 were removed from the permit during licensing review. Condition 220 was updated to reflect pond acreage size and capacity volume. Condition 219 was replaced with 259 describing pond volume metrics and from storage volume use. Condition 221 was added to describe the pond liner upkeep requirements. All other conditions from permit will remain on the license. There are no overlap concerns for this water right. Overlap from the applicant's new water right No. 96-9841 will be assessed once that permit is developed and Statement of Completion/field exam conducted.

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>
INDUSTRIAL STORAGE	01/01 to 12/31		2.9 AF
INDUSTRIAL FROM STORAGE	01/01 to 12/31		2.5 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.20 CFS	

Totals: 0.20 CFS 2.9 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 Luke Bates - Water Resource Agent

Field Examiner's Name  Date 1/25/2021

Reviewer  Date 1/29/2021

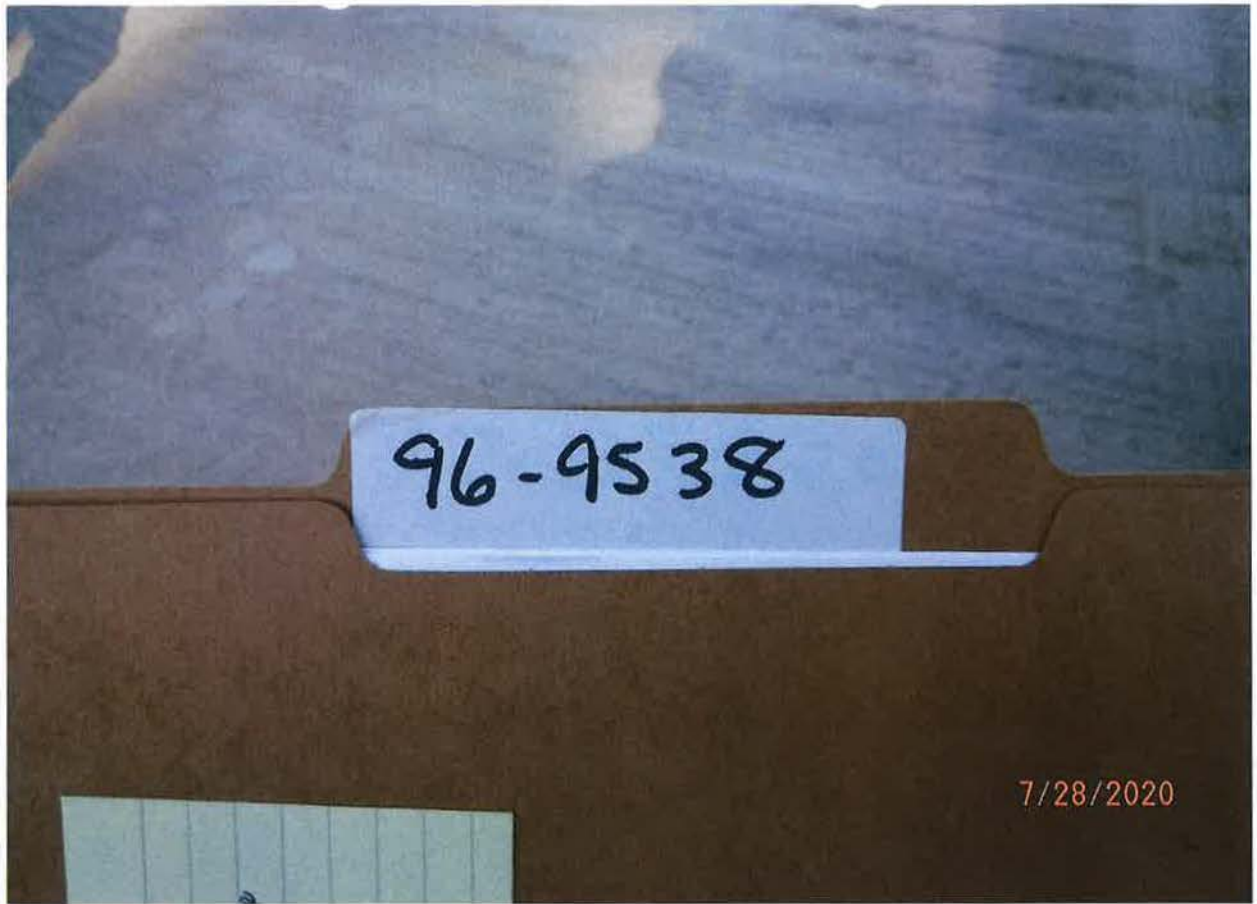
Total Storage Calculations

FILE NUMBER	96-9538
REVIEWER	Luke Bates
DATE	12/11/2020

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.)	0.3	"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)	1.0	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)	1.5	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)	0.4	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	2.9	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.



GROUND WATER SOURCE – MANMADE OPEN PIT WELL



POD – HONDA GX 240 7 HP WATER TRANSFER PUMP





WATER CONVEYANCE FROM POD TO SETTLING POND





SMALL SETTLING POND FOR SILT FALL OUT BEFORE ENTERING STORAGE POU



FLOW MEASUREMENT 45 GAL IN 15.03 SECONDS



INDUSTRIAL STORAGE POU – RECIRCULATION POND





RECIRCULATION PUMP BACK TO INDUSTRIAL OPERATIONS



RECIRCULATION FEED PIPES FROM STORAGE POU TO INDUSTRIAL FROM STORAGE POU



INDUSTRIAL FROM STORAGE POU



OVERFLOW FROM AGGREGATE WASHING RECYCLED BACK TO OPEN PIT WELL FOR USE

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Attachment to Field Exam
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INDUSTRIAL STORAGE system diagram.



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

0 0.035 0.07 0.14 Miles



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INDUSTRIAL FROM STORAGE system diagram.

02W



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

0 0.045 0.09 0.18 Miles

