

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-11008
Exam Date: 04/18/2024

1. Current Owner:
DENNIS R MC INTOSH 647 SCHNEIDERS RD SAGLE ID 83860-8903
2. Accompanied by: Dennis R McIntosh
Phone No: 208-263-5533
Address: Same as above
Relationship to permit Holder: Permit Holder.

3. **SOURCE:**
UNNAMED STREAM

Tributary
LAKE PEND OREILLE

Method of Determination: ArcMap and DRG layer.

B. OVERLAP REVIEW

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

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

UNNAMED STREAM NW¼ SE¼, Sec. 4, Twp 55N, Rge 03W, B.M. BONNER County

Method of Determination: Garmin GPS located intake pipe w/pump at -116 42.2880, 48 8.3928

PLACE OF USE: RECREATION and RECREATION 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	
55N	03W	4														X			

Method of Determination: Beneficial use field examination 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 Model No.	Pump Make	Pump Model No. or Discharge Size
JET PUMP	CENTURY	1	C48K2EC11C3	SIMER	3310P, 1-INCH

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
5-Gal Bucket						

2. Measurements: I used water balance concept to formulate diversion calculations, in this case overflow rate is equivalent to inflow rate, to derive the 1 hp diverting pumps flow rate. I completed a 5-gal Bucket measurement from a 6-inch corrugated drainpipe to calculate overflow discharge equivalent to 20.7 gpm or 0.05 considering department rounding standards.

E. FLOW CALCULATIONS

 X Additional Computation Sheets Attached

Measured Method: one 5-gal bucket measurement equaled (5 gal / 14.47 sec) x 60 sec/min = 20.7 gpm or 0.05 cfs considering department rounding standards.

- Evaluating the split between 0.04 cfs & 0.05 cfs as determined by rounding conventions, if a flow rate is below 20.20 gpm, I round down to 0.04 cfs and if it is above 20.20 gpm, I round up to 0.05 cfs.
- As the flow rate observed from the 5-gal bucket measurement was 0.5 gpm above the split, I calculated it at 0.05 cfs. The difference in rounding convention is negligible toward licensing recommendations for **0.04 cfs** which is the largest rate I can recommend licensing for, and I don't have concerns for the diversion rate being enlarged by the applicant's pump system as developed.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A
2. Volume Calculations for Other Uses: See attached pond analysis worksheet.
 - Recreation (flow through) beneficial use annual volume =
 - 0.04 cfs x 1.9835 x 123 days (3/15 – 7/15) = 9.8 af considering Department rounding standards
 - 0.04 cfs x 1.9835 x 32 days (10/1 – 11/1) = 2.5 af considering Department rounding standards
 - Total annual volume = sum of two seasons of use = **12.3 af**

G. NARRATIVE/REMARKS/COMMENTS

I performed a beneficial use field exam on 4/18/2024 with the Permit Holder, Dennis R McIntosh, which showed unnamed stream water being diverted for Diversion to Storage, Recreation Storage, & Recreation (flow through water) uses. At the POD, a screened intake with short flexible intake pipe is attached to a 1 HP Simer pump paired with Century pump motor. From the POD water is conveyed in 300-ft of 1-inch poly pipe where its inflows to fill two small ponds. At the upper pond the poly pipe daylight into an elevated wooden flume before discharging into the pond in a 6 ft arc. I didn't capture a flow rate from the inflow point based on how the system was designed limiting access to fill a 5-gal bucket. During licensing review I evaluated Simer pump specifications based on the pump model to provide additional flow rate information toward licensing this Permit.

There are two small ponds which serve as the Recreation Storage POU and as water is diverted to fill the upper pond, overflow connects to the lower pond that has a minor rock dike separating them due to elevation change in each pond's location. I used water balance concepts to evaluate the system's diversion rate; in this case the amount of water outflowing from the lower pond is considered to be equivalent to the amount of water inflow (filling) the upper pond. Overflow water discharges from the lower pond into a buried 6-inch corrugated plastic drainpipe routed 120-ft down slope prior to spilling into an earthen channel prior to reconnecting with the source unnamed stream. I took a 5-gal bucket measurement at the outflow pipe where it daylight deriving a flow rate of 20.7 gpm or 0.05 cfs. The applicant is limited to the Permitted maximum diversion rate of **0.04 cfs** as my licensing recommendation for the Diversion to Storage & Recreation beneficial uses. As discussed above in my flow calculations, due to rounding standards I don't have concerns for enlargement of diversion rate based on the Permit Holders existing system development.

The Recreation POU consists of 1-inch pipeline from POD to the upper storage pond, flow through water circulating within the two storage ponds prior to discharging via 6-inch pipeline to open channel conveyance where it returns flow to the source unnamed stream. Due to the ponds not being lined, there is minor volume loss annually due to seepage & evaporation. The open channel flow prior to returning to source water is shallow and incurs an unknown amount of seepage to ground. Based on this information, recreation water use is not being considered non-consumptive in nature. The applicant asserts he starts diverting in mid-March and the stream reduces flow by mid-July where he stops diverting, but the pump is reactivated in late fall (Oct – Nov) prior to winter to top off the ponds before shutting the diverting system down. Late season pumping is variable depending on the two pond's water levels each fall as they benefit from seasonal runoff waters to some extent.

Mr. McIntosh asserts that he pumps water from 3/15 to 7/15 and from 10/1 to 11/1 annually to top off the pond and circulate water associated with the recreation beneficial use. Based on my calculations above, I'm recommending a total annual volume of **12.3 af** toward licensing the recreation (flow through) water usage. I have changed the season of use to reflect 3/15 to 11/1 for this use, which will enable the applicant to pump at any time within the start/end dates up to a total of 155 days. I recommended this season of use versus designating two separate recreation uses on the face of the license with different seasons of use and volume split between them to provide flexibility for the applicant to adjust seasonal due to climate changes but not exceeding the earliest start & latest end date for this beneficial use component. ArcMap aerial imagery was used to assign the Recreation POU which aligns with the two storage ponds but doesn't illustrate the two pipeline conveyance routes as shown on the attached Field Exam Map.

I walked a loop with the applicant during the exam observing all parts of the water system and using field maps to sketch key elements of the system. The ponds are located in an area of dense tree canopy on the applicant's property, but photographs were taken to illustrate them. During licensing review, ArcMap aerial imagery coupled with field exam notes were used to trace out the Recreation Storage POU shape for each pond's surface area, with size & volume factors detailed below:

- Upper Pond – has a maximum depth of 5 feet, an average depth of 3 ft, a pond capacity of 0.1 af, and an estimated seepage & evaporation loss of 0.2 af. Based on pond development and current pond analysis worksheet calculations, the annual volume for the upper pond equals 0.3 af.
- Lower Pond – has a maximum depth of 3 feet, an average depth 3 ft, a pond capacity of 0.1 af, and an estimated seepage & evaporation loss of 0.2 af. Based on pond development and current pond analysis worksheet calculations, the annual volume for the upper pond equals 0.3 af

The annual diversion volume for Recreation Storage use equals **0.6 af**, which is the sum of both ponds volume factors. I've recommended the maximum diversion volume toward licensing Permit 96-11008 as the sum of all volumetric beneficial uses, or $12.3 \text{ af} + 0.6 \text{ af} = \mathbf{12.9 \text{ af}}$.

I've removed condition 029 from the permit during licensing review; the applicant has a ¼-inch fish screen installed on the diverting works intake pipe. I removed condition 220 based on informal directive from the Deputy Director – Shelley Keen. All other conditions on the Permit are being carried forward to the license. There aren't any overlapping water right concerns toward licensing 96-11008.

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>
RECREATION	03/15 to 11/01	0.04 CFS	12.3 AF
RECREATION STORAGE	01/01 to 12/31		0.6 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.04 CFS	

Totals: 0.04 CFS 12.9 AF

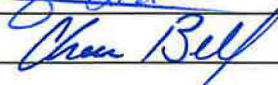
2. Recommended Amendments

☐ 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

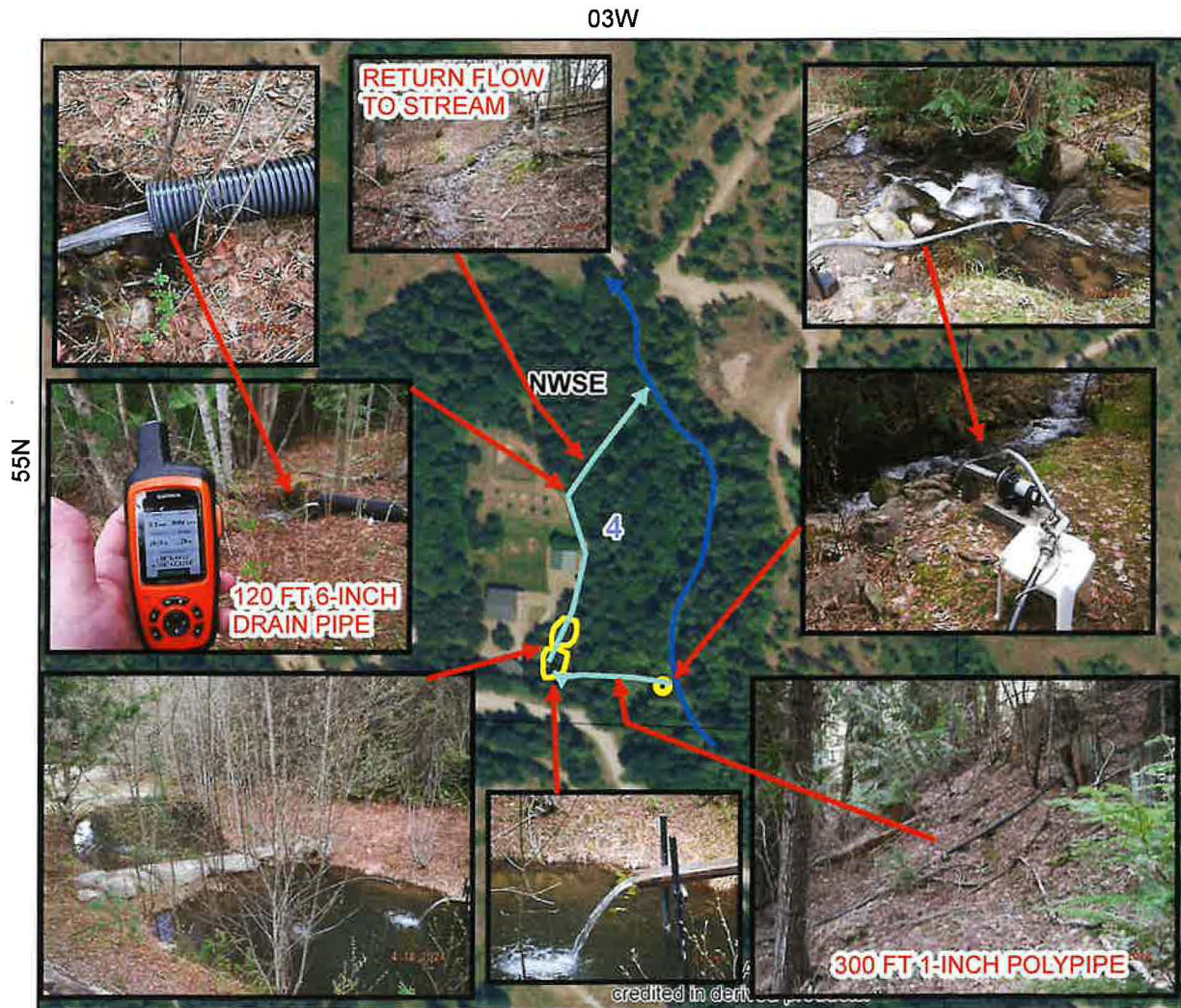
I. AUTHENTICATION Luke Bates – Sr Water Resource Agent

Field Examiner's Name  Date 6/7/2024

Reviewer  Date 2/21/2025

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-11008

This map depicts the DIVERSION TO STORAGE, RECREATION and RECREATION STORAGE system diagram.



0 0.035 0.07 0.14 Miles

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



HOME WATER SYSTEMS

MODELS 3305P, 3307P, 3310P



NOTE:

APPLICANT'S Simer Pump is Paired
With a Century Pump Motor.
Pump Capacity is comparable to
the Same Voltage, Hz, RPM Style
Motors with Simer Pump as designed.



yBates 6/7/2024

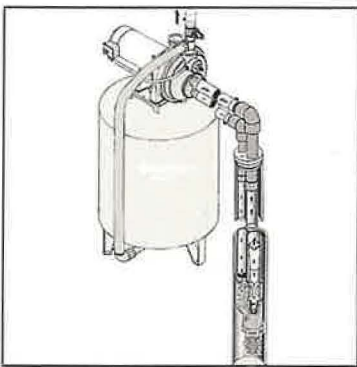
CONVERTIBLE JET PUMPS

MODEL 3305P 1/2 HP

MODEL 3307P 3/4 HP

MODEL 3310P 1 HP

- Superior performance at depths of water 100' or less
- Fiberglass reinforced thermoplastic pump housing for the highest corrosion resistance
- Ready-to-install heavy-duty dual-voltage motor. Preset at 230V for 3/4 and 1 HP models and preset at 115V for 1/2 HP model
- Self-priming after pump housing is initially filled, check valve or foot valve required
- Pressure switch preset to 30-50 PSI
- 1" discharge, 1-1/4" suction, 1" drive



Ejector kit sold separately.
See page 61.

PERFORMANCE - SHALLOW WELL OF 25 FEET OR LESS

Model	HP	Voltage	Full Load Amps	Pressure Switch		GPH Pumped at Different Depths to Water*					Max Pressure Shut-off
				On	Off	5'	10'	15'	20'	25'	
3305P	1/2	115/230	9.9/4.95	30	50	540	468	396	342	258	62 PSI
3307P	3/4	115/230	12.4/6.2	30	50	918	828	708	552	408	52 PSI
3310P	1	115/230	14.8/7.4	30	50	1242	1098	948	738	510	52 PSI

1242 GPH = 20.7 GPM

1098 GPH = 18.3 GPM

PERFORMANCE - DEEP WELL WITH 4" DIAMETER CASING OR LARGER

Model	GPH Pumped at Different Depths to Water*											Max Pressure Shut-off
	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'	110'	
3305P	354	324	270	210	168	138	102	-	-	-	-	54 PSI
3307P	450	426	390	306	240	180	150	108	90	60	-	56 PSI
3310P	540	528	504	438	372	300	264	174	120	-	-	56 PSI

All performances shown in gallons per minute at 40 PSI (pound per square inch) discharge pressure at top of well. FP4800 jet kit sold separately.

ORDERING INFORMATION

Model	UPC	Carton (L x W x H)	Cube (FT)	Pallet Qty.	Weight
3305P	0 22315 32426 8	21.063" x 12.313" x 12.375"	1.857	18	25 lbs.
3307P	0 22315 32427 5	21.063" x 12.313" x 12.375"	1.857	24	28 lbs.
3310P	0 22315 32428 2	21.063" x 12.313" x 12.375"	1.857	18	31 lbs.

Total Storage Calculations

FILE NUMBER	96-11008
REVIEWER	Luke Bates
DATE	6/7/2024

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

UPPER POND		
Surface Area (AC.)	0.04	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	3	"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)	0.1	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)	0.1	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.1	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	0.3	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.

Total Storage Calculations

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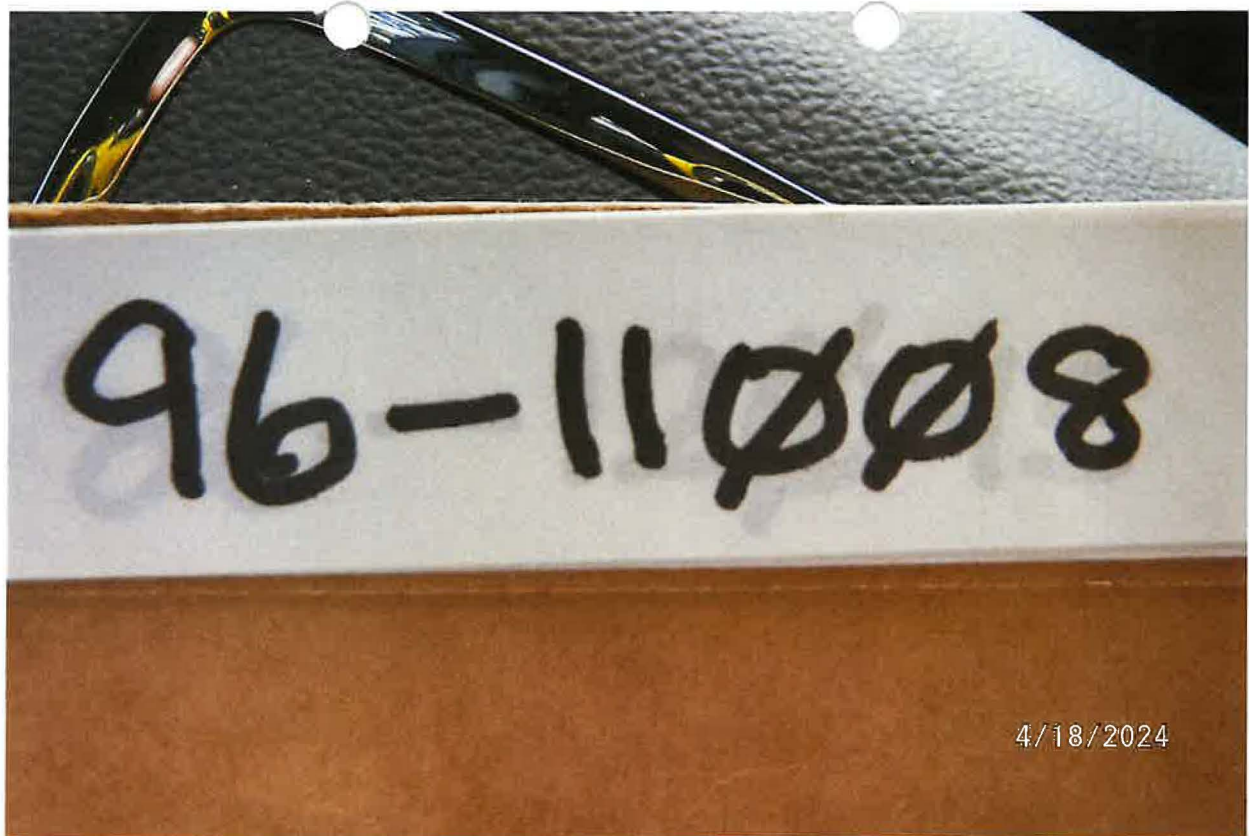
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Calculated value
Formula Explanations

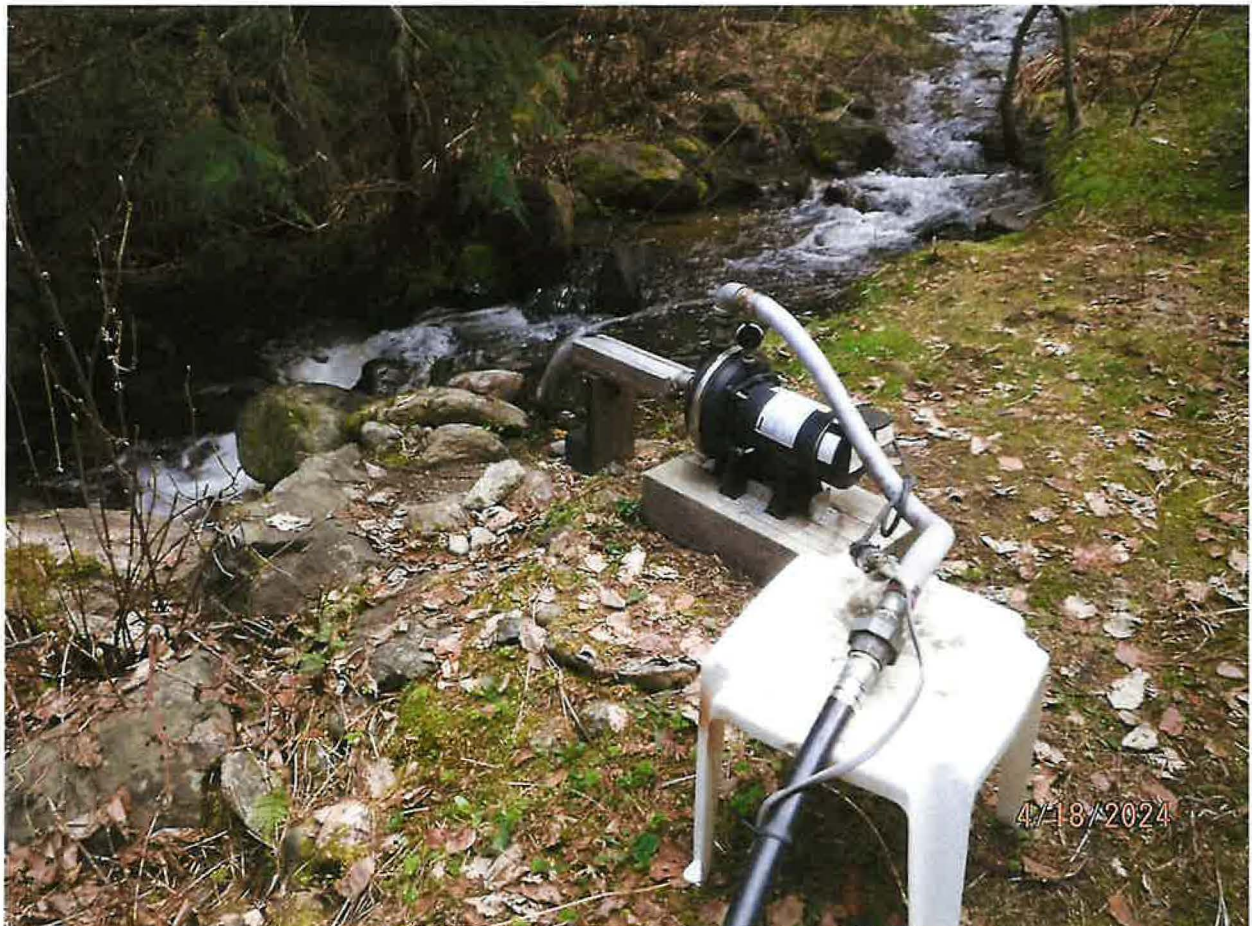
LOWER POND

Surface Area (AC.)	0.03	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	3	"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)	0.1	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)	0.1	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.1	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	0.3	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.



BENEFICIAL USE FIELD EXAM DATE 4/18/2024



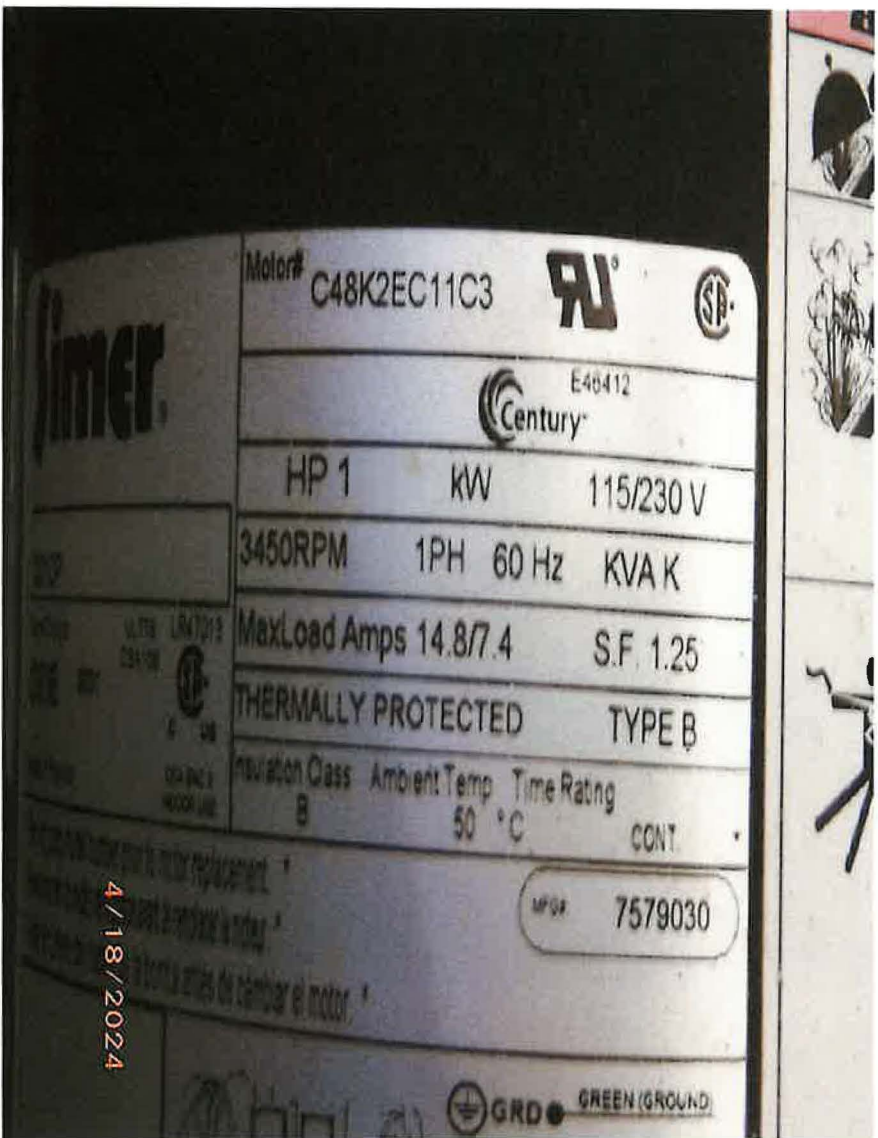
POD – HORIZONTAL SHAFT CENTRIFUGAL PUMP WITH INTAKE PIPE IN CREEK



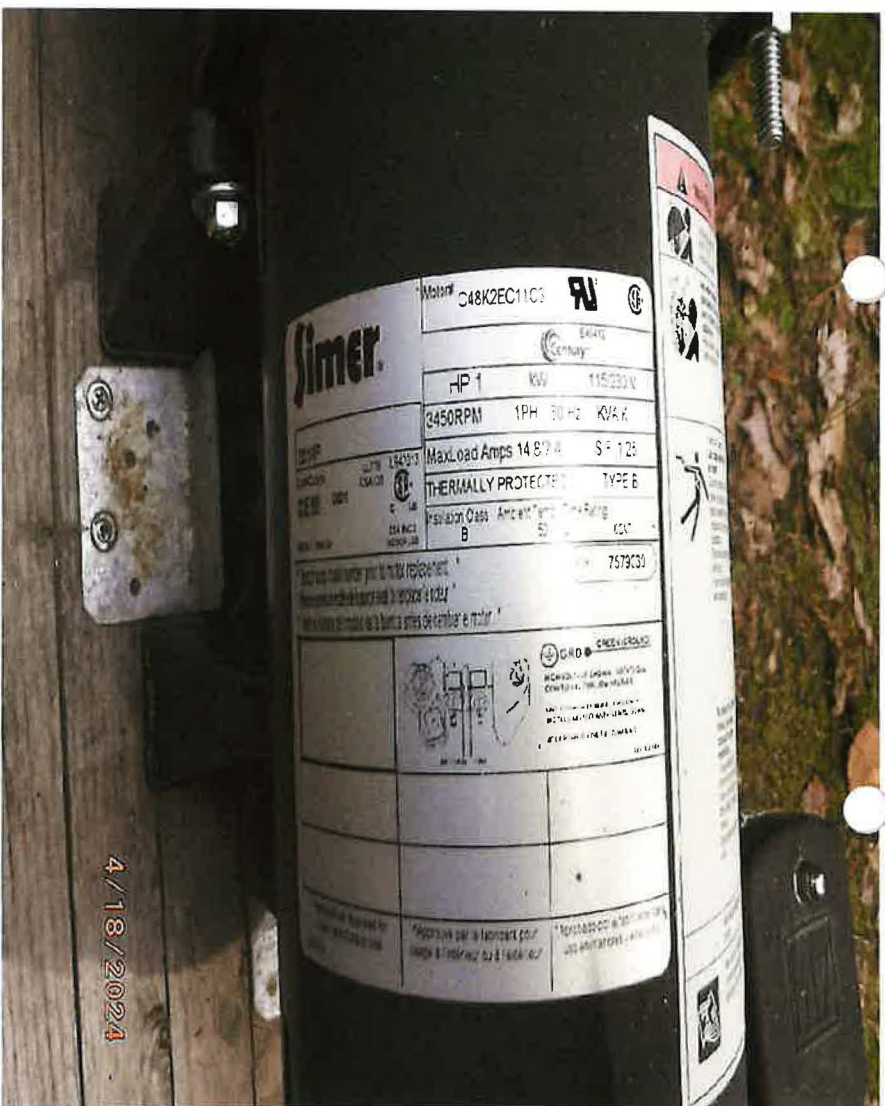
POD – SCREENED FLEX PIPE IN CREEK TO PUMP



PUMP OPERATES AT 15 PSI



DIVERTING WORKS – SIMER 1 HP PUMP MODEL 3310P PAIRED WITH CENTURY 1HP PUMP MOTOR
MODEL C48K2EC11C3





DIVERSION TO STORAGE USE – CONVEYANCE SYSTEM INCORPORATES A 1-INCH DISCHARGE FROM PIPE TO 300-FT OF 1-INCH POLY PIPE ROUTED FROM CREEK TO UPPER POND INFLOW



DIVERSION TO STORAGE USE – 1-INCH POLY PIPE ROUTED THROUGH WOODS TO STORAGE POND



INFLOW FROM CONVEYANCE SYSTEM 1-INCH PIPE TO WOODEN RACEWAY TO UPPER STORAGE POND





POU – RECREATION STORAGE & RECREATION (FLOW THROUGH WATER) 2EA SMALL STORAGE PONDS



POU – UPPER STORAGE POND



POU – LOWER STORAGE POND, VIEW STANDING ON SMALL EARTHEN DIKE SEPARATING UPPER & LOWER PONDS



POU – 2EA STORAGE PONDS WITH SMALL EARTHEN DIKE AND FLOW THROUGH CHANNEL INTERCONNECTING THEM



OVERFLOW WATER FROM LOWER POND DISCHARGES INTO A BURIED 120-FT RUN OF 6-INCH CORRUGATED PIPELINE THAT RETURNS UNNAMED STREAM WATER BACK TO THE SOURCE FROM TWO OFF-STREAM PONDS





RECREATION POU – WATER FLOWS FROM POD TO TWO PONDS THEN RETURNS FLOW EXITING 6-INCH CORRUGATED DRAIN PIPE AND DOWN A SHORT EMBANKMENT BEFORE ADJOINING THE UNNAMED STREAM.



UNNAMED STREAM OVERFLOW WATERS DISCHARGED DOWN EMBANKMENT RETURNING FLOWS TO UNNAMED STREAM SOURCE