

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-17324
Exam Date: 05/18/2023

1. Current Owner:
KENNETH BOWMAN 671 KELSO WOODS DR ATHOL ID 83801-9687 AND/OR
JUDY FORCINO 671 KELSO WOODS DR ATHOL ID 83801-9687

2. Accompanied by:
Phone No: (208) 216-9436
Address: Same as above
Relationship to permit Holder: Kenneth Bowman, Applicant

3. **SOURCE:**
UNNAMED STREAM
SPRING

Tributary
SINKS
SINKS

Method of Determination: ArcMap & DRG, no overflow device for pond as it sinks

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
95-10024	Unnamed Stream & Spring	Stockwater Storage	License

Comments: This license shares the pond for stockwater storage on 95-10024, fire protection storage, wildlife storage and irrigation storage for 95-17324. The seepage and evaporation of 0.2 acre-feet is duplicated on both water rights and should not be considered in a cumulative amount when water rights are combined.

2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
95-10024	Unnamed Stream & Spring	Stockwater Storage	License

Comments: This license was issued for stockwater storage for the pond plus evaporation which is equal to a total of 2.0 acre-feet. The initial fill for the pond was 1.8 acre-feet. The seepage and evaporation of 0.2 acre-feet is duplicated on both water rights and should not be considered in a cumulative amount when water rights are combined.

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

UNNAMED STREAM NE¼ NE¼, Sec. 21, Twp 54N, Rge 03W, B.M. BONNER County
SPRING NE¼ NE¼ NE¼, Sec. 21, Twp 54N, Rge 03W, B.M. BONNER County

Method of Determination: Field Exam, ArcMap and GPS Locator shows POD at -116 41.9599, 48 1.2121 +/-12 feet

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	
54N	03W	21	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	
54N	03W	21	5.0																5.0

Total Acres: 5.0

PLACE OF USE: WILDLIFE 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	
54N	03W	21	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	
54N	03W	21	X																

Method of Determination: GPS Locator, ArcMap & DRG

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.

X 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

X 1:24,000 or greater.X Aerial Photo Attached (required for irrigation of 10+ acres).X 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
NONE					

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

E. FLOW CALCULATIONS

Measured Method: N/A

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 5.0 \text{ acres} \times 3 \text{ af} = 15.0 \text{ af}$$

$$V_{D.R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.15 \text{ cfs} \times 214 \times 1.9835 = 63.7 \text{ af}$$

$$V = \text{Smaller of } V_{I.R} \text{ and } V_{D.R} = 15.0 \text{ af}$$

2. Volume Calculations for Other Uses: N/A

G. NARRATIVE/REMARKS/COMMENTS

Beneficial use field exam conducted on 5/18/2023 with the applicant, Kenneth Bowman, for a pond with water being diverted for irrigation purposes. At the POD, a screened intake pipe routes to a Honda GX 160 cc pump which equates to almost 11 hp. Discharge from the pump's 2" diameter orifice reduces to a 1 1/2 inch poly pipe main irrigation line that routes to irrigation lines going out as far as 450 feet. I'm recommending a diversion rate based on Administrative Memo – Application Processing No. 17, which authorizes up to 0.03 cfs per acre for small acreage irrigation. Generally, a 5 HP pump used to divert water from the spring and unnamed stream is oversized regarding diversion capacity; this is required to achieve

elevation lift while maintaining adequate head pressure to water using the sprinkler system established by the applicant. A 5 HP gas high pressure water pump is capable of producing **0.3 cfs** or 135.0 gpm. I am recommending 15.0 af for licensing purposes.

The irrigation POU was walked with Mr. Bowman and water lines drawn out on field maps along with the active irrigated acreage on the property. The system incorporates numerous 100 ft hoses to sprinklers that are rotated throughout the POU for lawn and tree watering. Photographs were taken and cataloged illustrating the irrigation practices. Active irrigation was taking place during the exam.

During licensing review, ArcMap aerial imagery was used to accurately trace out the irrigation POU, which consists of 4.7 acres of the property. The annual volume for 5 acres of irrigation equals 15.0 acre-feet which is the volume applied to the face of the license. The applicant is limited to 3.0 afa per acre for irrigation of the POU as designated by condition R58 on the license. The permit approved development in section 16, which was 0.5 acres in the SE¼SE¼ of Twp 54N, Rge 3W, Bonner County. During licensing review, perhaps the shift in mapping, determined that the parcel owned by the Bowmans was not is Section 16 and the 0.5 acres was shifted to the legal parcel description to better represent 5 acres in the NE¼NE¼ of Section 21, Twp 54N, Rge 3W Bonner County. There is a part of the parcel that appears to be in Section 22 but this was not on the original Application for Permit and therefore cannot be included on the License.

Conditions 26A and 220 were removed from the permit during licensing review. Condition X60 was added to describe the POU located within a named subdivision lot. Condition 259 was also added to the License due to overlap concerns. This water right has one overlap water right for seepage & evaporation from the same pond with the same sources, an unnamed stream & spring. Rights 95-10024 and 95-17324 when combined shall not exceed a total annual maximum storage volume of 1 af at the headgate, which equates to the pond capacity of 0.8 plus seepage of 0.1 af and evaporation of 0.1 af totaling 1 af.

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		15.0 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		15.0 AF
WILDLIFE STORAGE	01/01 to 12/31		1.0 AF
FIRE PROTECTION STORAGE	01/01 to 12/31		1.0 AF

Totals:

15.0 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

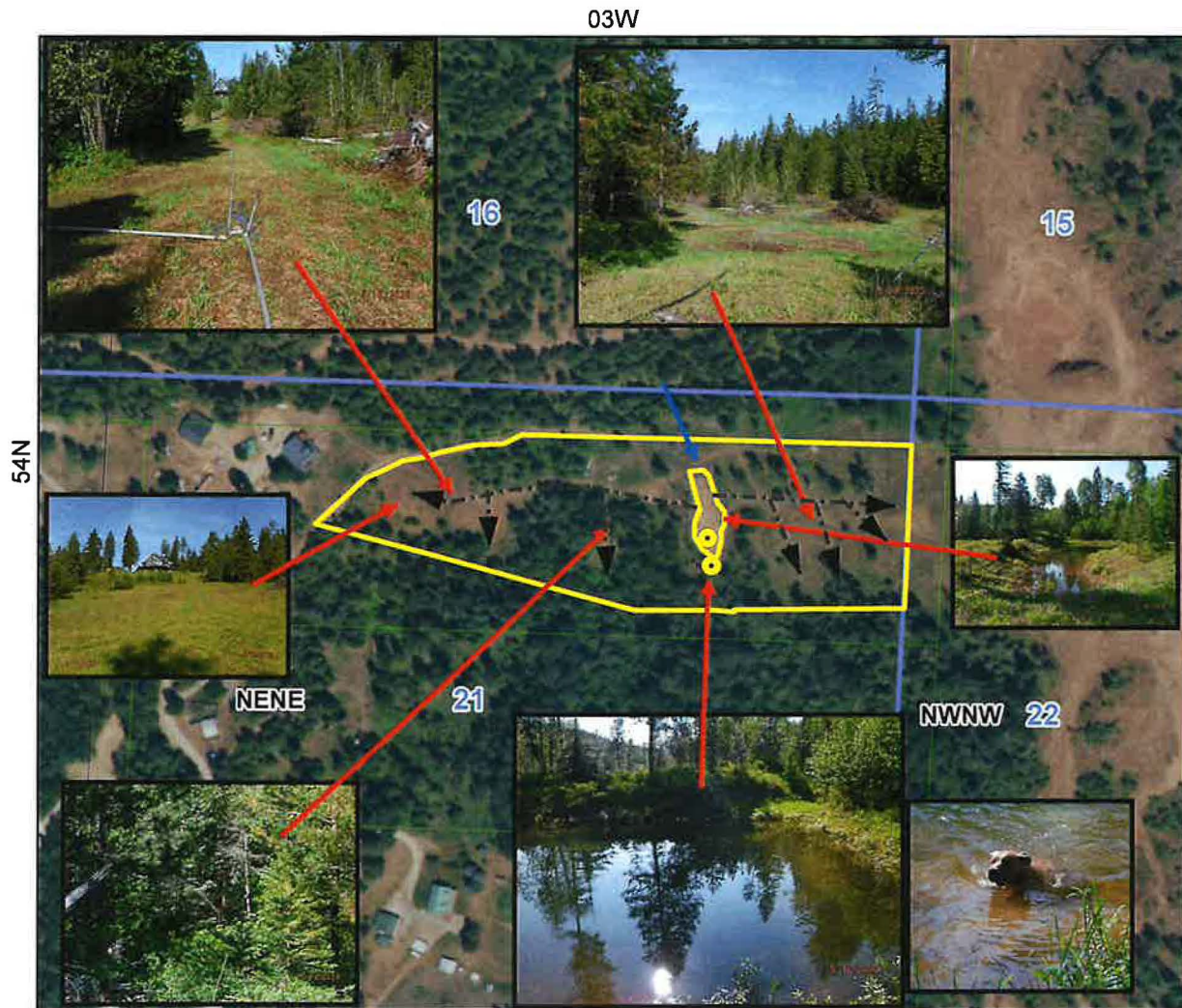
Tammy Alleman – (Water Resource Agent)

Field Examiner's Name Tammy Alle Date 11/30/23

Reviewer Chase Bull Date 5/15/24

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-17324

This map depicts the IRRIGATION FROM STORAGE, IRRIGATION STORAGE, FIRE PROTECTION STORAGE, & WILDLIFE STORAGE places of use and points of diversion system diagram.



0 0.035 0.07 0.14 Miles

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

- Irrigation lines
- Stream Flow
- Pictures of POU



Total Storage Calculations

FILE NUMBER	95-17324
REVIEWER	Tammy Alleman
DATE	11/28/2023

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

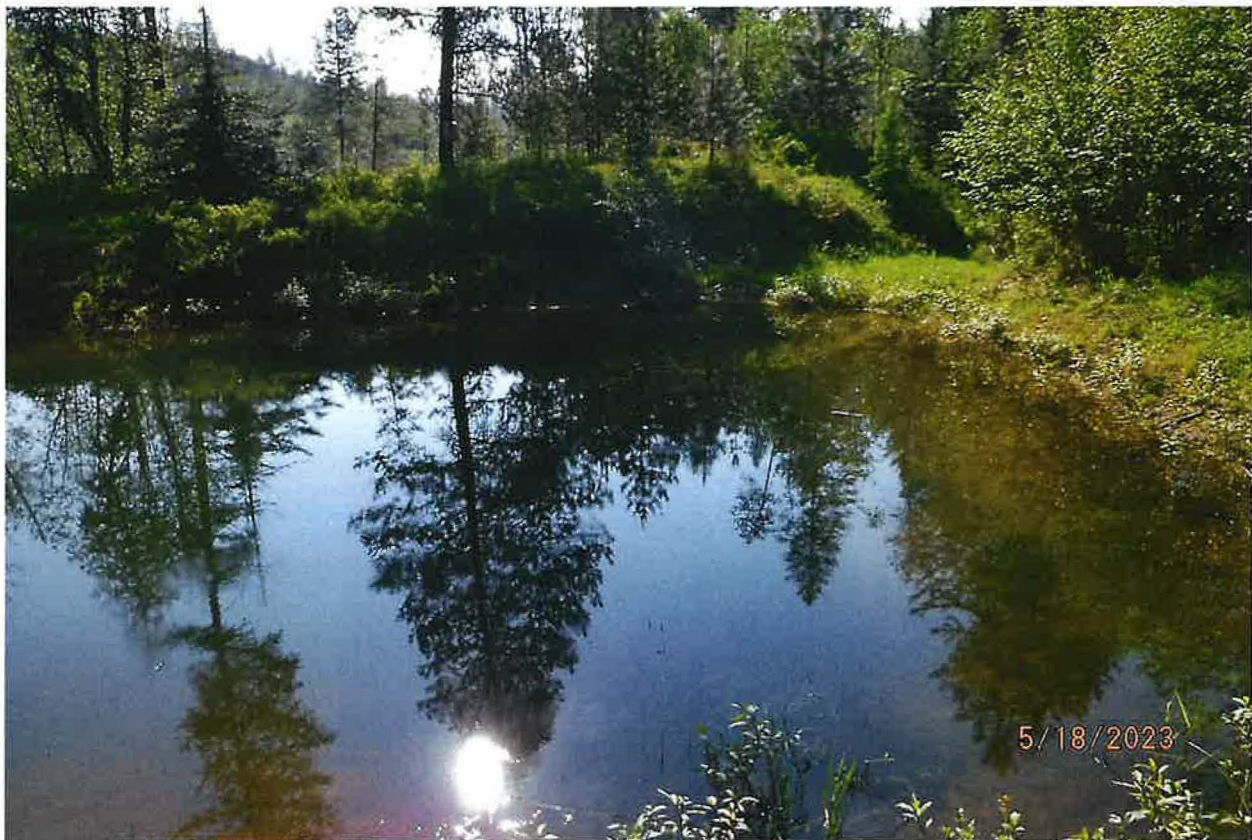
User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.1	"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)	0.8	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)	15	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)	16.0	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 5/18/2023



POD – POND EARTHEN DAM WITH NATURAL GRASS OVERFLOW CHANNEL



POU – FIRE PROTECTION STORAGE, WILDLIFE STORAGE, & IRRIGATION STORAGE POND



INTERMITTENT STREAM FLOWS INTO POND FROM THE NORTH, POND EXCAVATED ON SPRING SOURCE



IRRIGATION FROM STORAGE DIVERTING WORKS – HONDA PUMP





HONDA PUMP AND GX 160 MOTOR WITH 2 INCH INTAKE / 1 ½ INCH DISCHARGE PORT



IRRIGATION FROM STORAGE POU – HAND LINE WITH IMPACT SPRINKLERS MOVED THROUGHOUT THE POU



APPLICANT IRRIGATES FOREST LAND TO GROW TIMBER STAND





IRRIGATION POU – HAND LINE LATERALS OFF MAIN TRUNK LINE INTO FORESTED AREAS





IRRIGATION FROM STORAGE POU



IRRIGATION FROM STORAGE – SPRINKLER HAND LINE USED FOR IRRIGATION SYSTEM