STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-15105
Exam Date: 07/16/2015

1. Current Owner:
   JOHN RAGAN 11948 HWY 5 SAINT MARIES ID 83861 AND/OR
   JANIE RAGAN 11948 HWY 5 SAINT MARIES ID 83861

2. Accompanied by: John Ragan
   Phone No: 208-245-3167
   Address: Same as above
   Relationship to permit Holder: Permit Holder.

3. **SOURCE:**	**Tributary**
SPRING	BENEWAH CREEK
UNNAMED STREAM	BENEWAH CREEK

Method of Determination: Arcmap and DRG.

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
95-2208	SPRING	DOMESTIC	LICENSE
95-4715	SPRING	DOMESTIC	STATUTORY CLAIM

Comments: WR 95-2208 uses water from a spring for domestic purposes by the same owners as this WR, but from a different POD. WR 95-4715 uses water from a spring for domestic purposes by a different land owner, and from a different spring. Both WRs 95-2208 and 95-4715 overlap this WR, but are not associated with the source or water usage by this applicant, and not a concern for overlap.

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:**
UNNAMED STREAM SW¼ NE¼, Sec. 14, Twp 46N, Rge 03W, B.M. BENEWAH County
SPRING SW¼ SE¼ NE¼, Sec. 14, Twp 46N, Rge 03W, B.M. BENEWAH County

Method of Determination: GPS. Unnamed stream POD is an earthen dam located at -116°40.655, 47°20.148. Spring POD is located at -116°40.615, 47°20.055.

PLACE OF USE: RECREATION STORAGE and 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	
46N	03W	14			X														

Method of Determination: Field Exam and Arcmap.

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
N/A					

D. FLOW MEASUREMENTS

1.

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

2. Measurements: Unable to perform flow measurements, as water flowed from spring to pond by buried 1 inch poly pipe. A Manning's Equation was completed in order to determine flow rate.

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method: Manning's Equation was completed to determine the diversion rate from the spring source. There was a 560 foot run with 70 feet of rise, and a full 1 inch pipe diameter; results from Manning's Equation derived a diversion to storage rate of **0.02 cfs**.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

$V_{I.R.}$ = (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:

See attached pond analysis sheet.

G. NARRATIVE/REMARKS/COMMENTS

An initial field exam conducted on 7/16/2015 resulted in incomplete information in order to license permit. A follow-on field exam was conducted on 6/15/2020 with applicant, John Ragan, which showed a pond being used for recreation and fire protection storage. The pond is an in-stream pond with earthen dam, with an overflow culvert that routes water back to the historic stream channel. The applicant diverts water from a spring to supplement the unnamed stream in keeping the pond full throughout the year. Flow measurements for diversion to storage from spring was not attainable, as water flowed from

spring to pond by a buried 1 inch poly pipe. A Manning's Equation was completed in order to determine flow rate, consisting of a 560 foot run with 70 feet of rise, and a full 1 inch pipe diameter; results from Manning's Equation derived a diversion to storage rate of **0.02 cfs**, which will be applied to license as the Maximum Diversion Rate. At time of permit approval, applicant was authorized a diversion rate of 0.04 cfs, but is limited to the value of 0.02 cfs derived from the Manning's Equation.

During field exam it was found that the applicant's well on property was not associated with the pond, and the POD related to ground water was removed from permit during licensing review.

The pond area was identified during field exam, and traced out using arcmap during licensing review. The pond had a surface area of 0.2 af, a maximum depth of 11 ft, an average depth of 4.4 ft, pond capacity of 1.3 af, a seepage loss of 0.2 af, and estimated evaporation loss of 0.2 af annually. The total volume required equals 1.3 af annually. Applicant was permitted for 2.0 af of storage, but is limited by the constructed pond size plus seepage/evaporation losses, resulting in recreation and fire protection storage of 1.3 af, which will be applied at time of licensing.

Conditions 26A, 046, and 082 were removed from license. Conditions 219 and 220 were updated to reflect current pond analysis sheet data post field exam. WR 95-2208 uses water from a spring for domestic purposes by the same owners as this WR, but from a different POD. WR 95-4715 uses water from a spring for domestic purposes by a different land owner, and from a different spring. Both WRs 95-2208 and 95-4715 overlap this WR, but are not associated with the source or water usage by this applicant, and not a concern for overlap.

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
RECREATION STORAGE	01/01 to 12/31		1.3 AF
FIRE PROTECTION STORAGE	01/01 to 12/31		1.3 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.02 CFS	
	Totals:	0.02 CFS	1.3 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

Luke Bates - Water Resource Agent

Field Examiner's Name _____ Date 7/7/2020

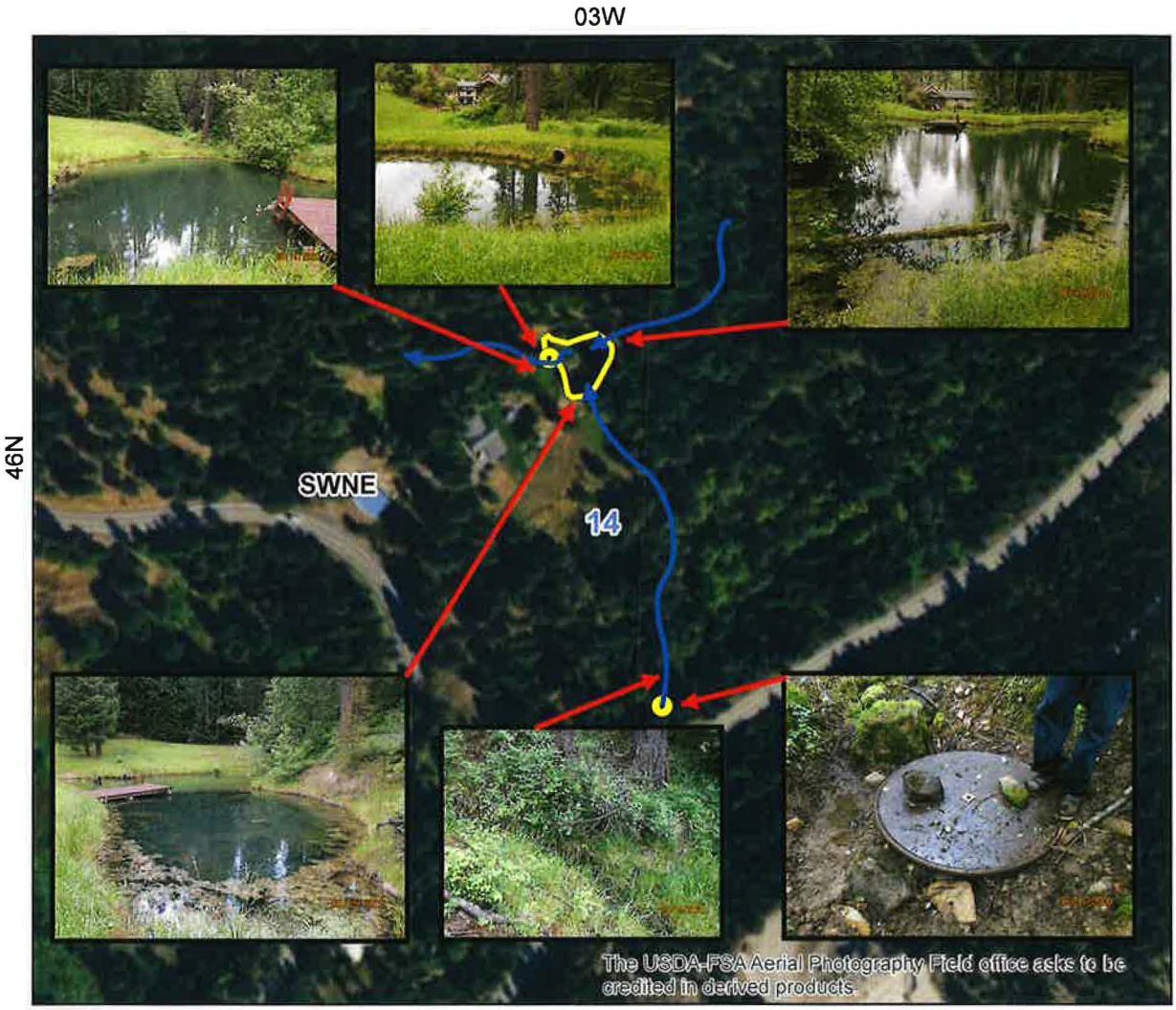
Reviewer _____ Date 7/8/2020

State of Idaho
Department of Water Resources

Attachment to Field Exam

95-15105

RECREATION STORAGE and FIRE PROTECTION STORAGE system diagram.



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

0 0.035 0.07 0.14 Miles

N

Manning's Equation Calculator for Flow Rate in a Circular Conduit Flowing Full

S =	0.1250	ft/ft
n =	0.009	manning's coefficient
d =	1.0	pipe diameter (inches)
D =	0.08	pipe diameter (feet)
r =	0.04	pipe radius (feet)
A =	0.01	area (ft^2)
WP =	0.26	wetted perimeter (ft)
R =	0.02	hydraulic radius (ft)
Q =	**0.02**	**flow rate (CFS)**

Channel Slope

Slope Options

○ Manual Entry ◉ Slope Calculator

Slope Calculator

Rise = 70 **feet**

Run = 560 **feet**

Slope, S = 0.1250 **ft/ft**

Pipe Material, (n):

plastic (pvc, abs)

Total Storage Calculations

FILE NUMBER	95-15105
REVIEWER	Luke Bates
DATE	7/7/2020

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

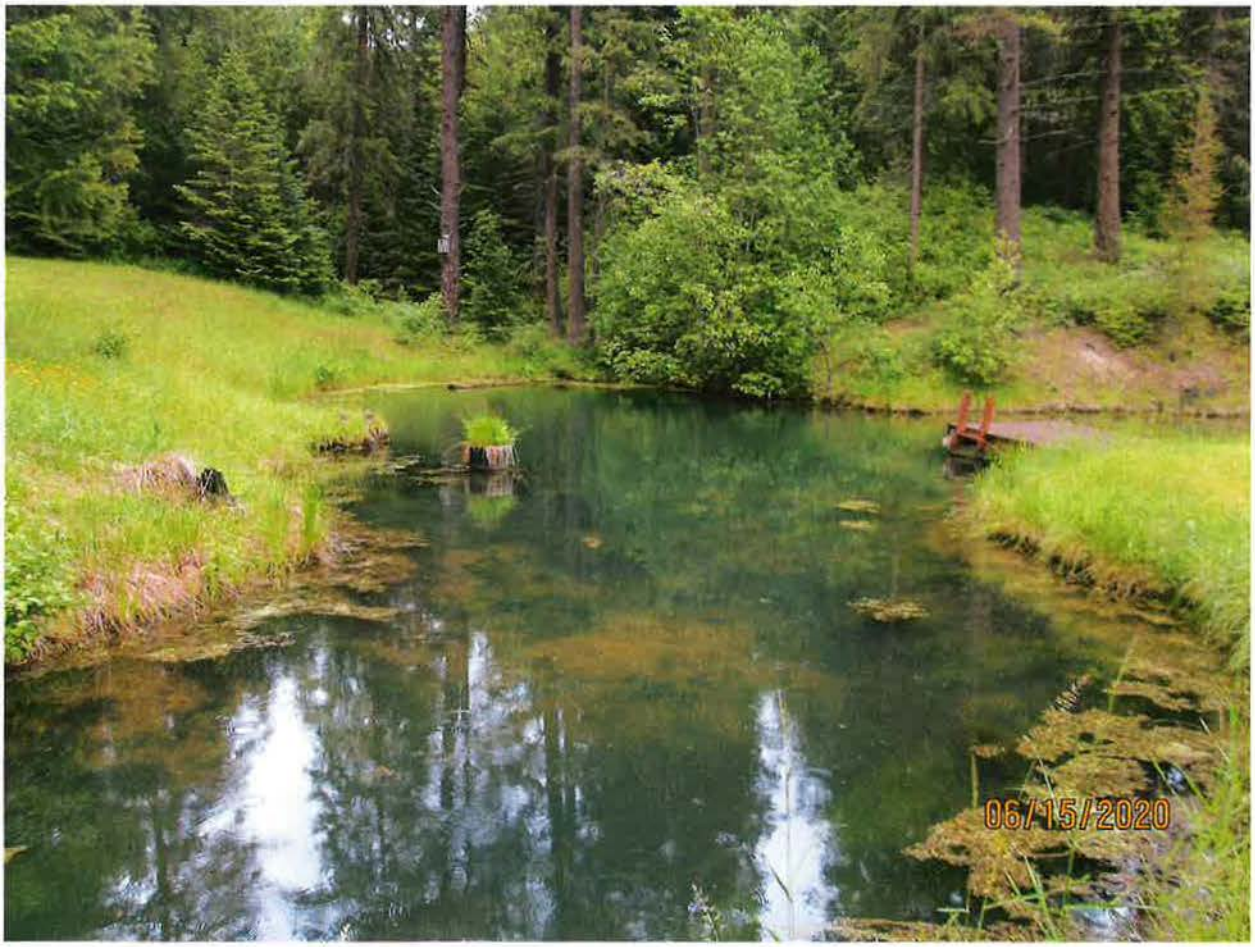
Surface Area (AC.)	0.2	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4.4	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook 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)	0.9	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)	0.2	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.2	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	1.3	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.

INFLOW FROM UNNAMED STREAM

POD – POND DAM

OUTFLOW FROM POND

RECREATION AND FIRE PROTECTION STORAGE POND



CULVERT FROM POND AT OVERFLOW

POD – SPRING