

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9292

Exam Date: 07/18/2019

1. Current Owner:
STEPHEN C BARNHART 485 KRIPPLE CREEK RD ATHOL ID 83801

2. Accompanied by: Steven Barnhart
Phone No: 208-597-5199
Address: Same as above
Relationship to permit Holder: Permit Holder

3. **SOURCE:**
UNNAMED STREAM

Tributary
THREE SISTERS 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
96-4436	SPRING	IRRIGATION, STOCKWATER, and DOMESTIC	STATUTORY CLAIM
96-9407	UNNAMED STREAM	IRRIGATION, IRRIGATION STORAGE, and IRRIGATION FROM STORAGE	LICENSE

Comments: Right 96-4436 is an active statutory claim that uses spring water for irrigation and stockwater uses that overlap this right's irrigation from storage and stockwater from storage POU. 96-4436 was issued with a 40 acre tract as the POU, and it is unclear what portions of the applicant's parcel are associated with the 1.0 acre of irrigation authorized with regard to assigning overlap concerns. Additionally, right 96-4436 is authorized a direct flow rate of 0.004 cfs for stockwater use from a spring for 2 horses; it is unclear whether the statutory right is still in use, and is not being recommended assignment as overlap concern with right 96-9292 with regard to the stockwater from storage POU. During the upcoming adjudication of Basin 96, claims filed by the applicant will determine statutory claim 96-4436's association with the applicant's other water rights.

Right 96-9407 is one of two children of parent right 96-8267 that uses water from and unnamed stream for irrigation, irrigation storage, and irrigation from storage purposes. The pond associated with right 96-9407 is a separate POU located north from this right's storage pond POU. Water usage from 96-9407 was licensed after the subdivision of family property under the name(s) Philip and Patsy Barnhart, and the place of use for irrigation and irrigation from storage is in the NWNW of Section 15. Arcmap aerial imagery with the water right POU layer active shows right 96-9407 was assigned a 40 acre tract POU shape which extends into the NENW illustrating overlap between 96-9407 and 96-9292. Based on the description of the water usage for right 96-9407 being authorized for use in the NWNW, right 96-9407 is not recommended assignment as overlap concern with right 96-9292 with regard to the irrigation from storage POU.

It is unclear how the direct flow beneficial use authorized under right 96-9408 interacts with this right, and as right 96-9292 does not have a direct flow stockwater beneficial use being recommended for licensing based on field exam documentation, overlap between the two rights for stockwater as a direct flow is not recommended for assignment of concern.

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 NE¼ NW¼, Sec. 15, Twp 54N, Rge 02W, B.M. BONNER County

UNNAMED STREAM NE¼ NW¼, Sec. 15, Twp 54N, Rge 02W, B.M. BONNER County

Method of Determination: GPS. POD(s) are a pipe in barrel from unnamed stream located at -116°33.607, 48°02.083, and a pond's earthen dam located at -116°33.673, 48°01.944.

PLACE OF USE: IRRIGATION STORAGE, STOCKWATER STORAGE, 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	
54N	02W	15					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	02W	15					8.0												8.0

Total Acres: 8.0

PLACE OF USE: STOCKWATER 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	02W	15					X												

Method of Determination: Field exam and Arcmap aerial imagery.

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
5 GALLON BUCKET MEASUREMENT						

2. Measurements: A 5 gallon bucket measurement was completed from the water systems 2 inch poly pipe, resulting in a flow rate equaling **0.13 cfs** considering department rounding standards.

E. FLOW CALCULATIONS

Measured Method: 5 gallon bucket test = 5 gal / 5 seconds x 60 seconds = 60.0 gpm = 0.13 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 8.0 \text{ acres} \times 3.0 \text{ afa} = 24.0 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \text{irrigation from a pond, no diversion rate applied to irrigation from storage beneficial use.}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} =$$

2. Volume Calculations for Other Uses:

See attached pond analysis worksheet.

Stockwater storage / Stockwater from storage annual volume = 15 head mixed stock x 12 gpd x 365 days = 65,700 gal / 325,850 gal per af = **0.2 af** considering department rounding standards.

Irrigation storage / Irrigation from storage = **2.5 af**, limited in value to the permit authorized value, which is less than the department standard for 8 acres of irrigation volume.

Recreation storage = 1.1 af (pond capacity) + 1.4 af (pond seepage and evaporation) = **2.5 af**, limited in value to the permit authorized value, which is less volume than the pond analysis worksheet derived.

Maximum Diversion Volume = 2.5 af (Recreation Storage) + 2.5 af (Irrigation from Storage) + 0.2 af (Stockwater from Storage) = **5.2 af**.

G. NARRATIVE/REMARKS/COMMENTS

Field exam conducted on 07/18/2019 with the applicant, Stephen Barnhart, showed water being diverted from an unnamed stream for multiple storage and from storage uses. At the POD, the applicant used a 50 gal barrel as a catch basin with a 2 inch screened poly pipe to divert flow from the creek. A 5 gallon bucket flow measurement was completed from the water systems 2 inch poly pipe, resulting in a flow rate equaling 60.0 gpm or **0.13 cfs** considering department rounding standards, which is recommended as the maximum diversion rate for licensing purposes. 0.13 cfs is also designated as the diversion to storage beneficial use rate of diversion. The 2 inch poly pipe routed down grade to a pond not associated with this water permit, which was used as a pass through mechanism allowing water to flow and down channel to the storage pond for this permit. Flow through pond is covered under water right 96-9408.

The storage pond designated as the irrigation storage, stockwater storage, and recreation storage POU. The pond has a 6 inch overflow pipe that allows water to discharge back to the natural stream channel. The pond has a surface area of 0.2 acres, a pond capacity of 1.1 af, a maximum depth of 14 feet, an average depth of 5.6 feet, an estimated seepage loss of 14.6 af, and an estimated evaporation loss of 0.2 af. There is a multiple fill volume of 2.7 af that accounts for irrigation from storage (2.5 af) and stockwater from storage (0.2 af) use annually. The current pond analysis worksheet total volume required for the pond equals 18.6 af, with a majority of the volume factored in for seepage based on the soil type. The applicant is limited to the volume values permit approved for as annotated below.

The recreation storage beneficial use annual volume equals 1.1 af pond capacity + 1.4 af seepage and evaporation loss =

2.5 af, which is the maximum allowable based on permit approved volume of 2.5 af. The stockwater storage beneficial use annual volume equals 15 head mixed stock x 12 gpd x 365 days = 65,700 gal / 325,850 gal per af = **0.2 af** considering department rounding standards, which will be also applied as the stockwater from storage volume for licensing purposes. The irrigation storage beneficial use annual volume equals **2.5 af**, limited in value to the permit authorized value, which is less than what the 8 acres of irrigation found during the field exam will provide as described below. 2.5 af is also applied as the irrigation from storage volume for licensing purposes. The maximum diversion volume recommended for licensing equals 2.5 af (Recreation Storage volume) + 2.5 af (Irrigation from Storage volume) + 0.2 af (Stockwater from Storage volume) = **5.2 af**.

During the field exam the irrigated acreage was observed and sketched out on field maps. During licensing review, Arcmap aerial imagery was used to trace out the irrigation from storage POU, equaling 8.0 acres. The annual volume associated with the irrigation of 8 acres equals 8.0 ac x 3.0 afa = 24.0 af, but as identified above the applicant is limited to the permit approved volume for irrigation. The applicant pumped water from the pond using a portable water transfer pump, cycling irrigation of the 8 acres using sprinkler hand line. Active irrigation was observed during the field exam. The applicant only irrigated from the pond, resulting in irrigation as a direct flow beneficial use component being removed from the permit during licensing review. Additionally, stockwater was withdrawn from the pond and not developed as a direct flow beneficial use, resulting in the stockwater beneficial use being removed from the permit during licensing review. The applicant used water from the pond for 15 head of mixed stock, and stock use on the applicant's property was observed during the field exam.

Conditions 082, 26A, and X02 were removed from the permit during licensing review. Condition 220 was added describing the ponds surface area in acres and pond capacity in acre-feet. Condition 219 was replaced with 259 and updated to reflect the pond volume factors and multiple fill volume factors associated with irrigation and stockwater uses. Condition 004 was added describing the right does not grant trespass across land of another.

Overlap Concerns:

Right 96-4436 is an active statutory claim that uses spring water for irrigation and stockwater uses that overlap this right's irrigation from storage and stockwater from storage POU. 96-4436 was issued with a 40 acre tract as the POU, and it is unclear what portions of the applicant's parcel are associated with the 1.0 acre of irrigation authorized with regard to assigning overlap concerns. Additionally, right 96-4436 is authorized a direct flow rate of 0.004 cfs for stockwater use from a spring for 2 horses; it is unclear whether the statutory right is still in use, and is not being recommended assignment as overlap concern with right 96-9292 with regard to the stockwater from storage POU. During the upcoming adjudication of Basin 96, claims filed by the applicant will determine statutory claim 96-4436's association with the applicant's other water rights.

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It is unclear how the direct flow beneficial use authorized under right 96-9408 interacts with this right, and as right 96-9292 does not have a direct flow stockwater beneficial use being recommended for licensing based on field exam documentation, overlap between the two rights for stockwater as a direct flow is not recommended for assignment of concern. The upcoming adjudication of Basin 96 will be used to clean up the multiple overlapping concerns regarding this water right. There are no additional overlap concerns.

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		2.5 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		2.5 AF
STOCKWATER STORAGE	01/01 to 12/31		0.2 AF
STOCKWATER FROM STORAGE	01/01 to 12/31		0.2 AF
RECREATION STORAGE	01/01 to 12/31		2.5 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.13 CFS	

Totals:

0.13 CFS

5.2 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

[Signature]

Date

11/30/2020

Reviewer

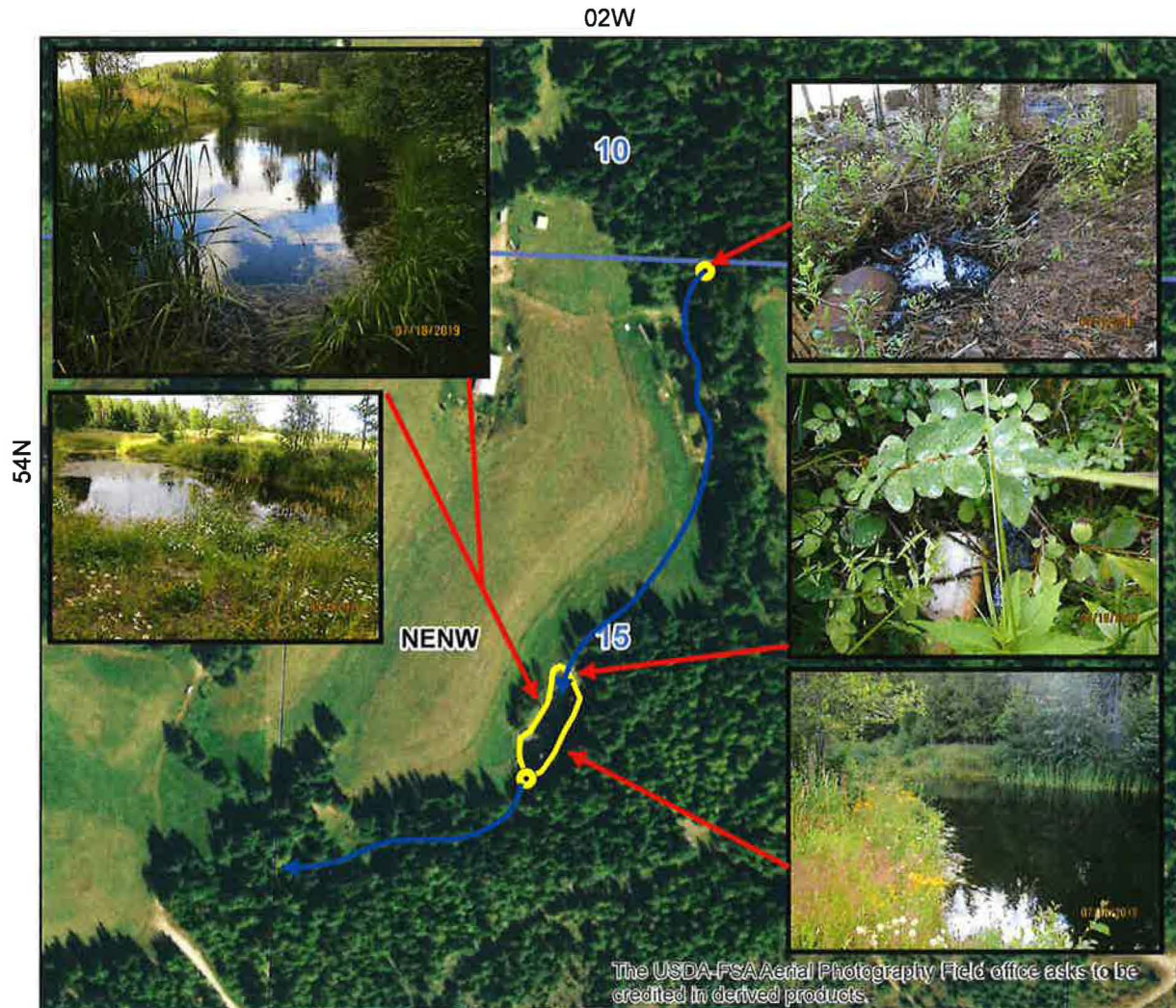
Adm. Fink

Date

11/30/2020

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9292

IRRIGATION STORAGE, STOCKWATER STORAGE, and RECREATION STORAGE system diagram



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

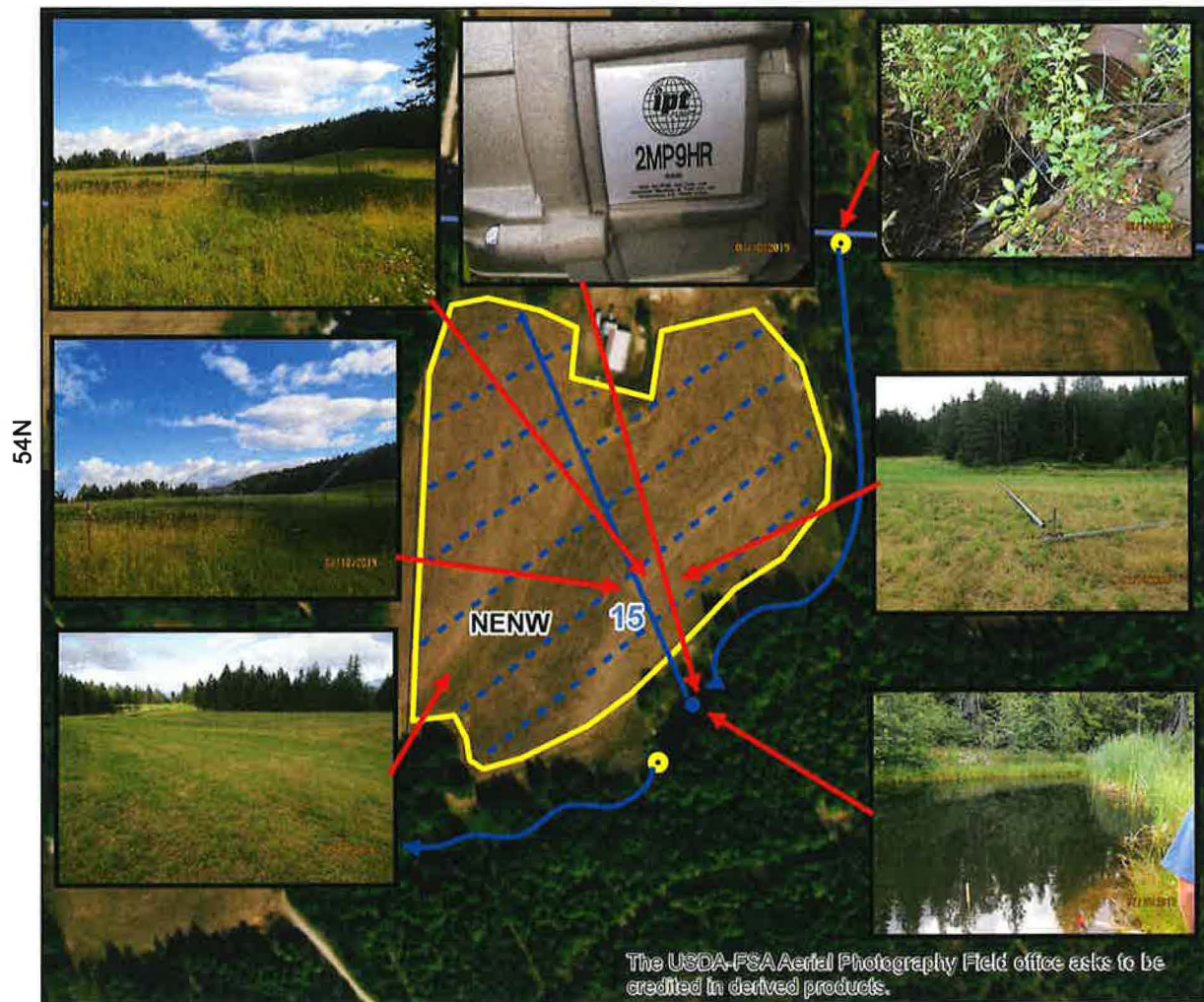
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IRRIGATION FROM STORAGE system diagram.

02W



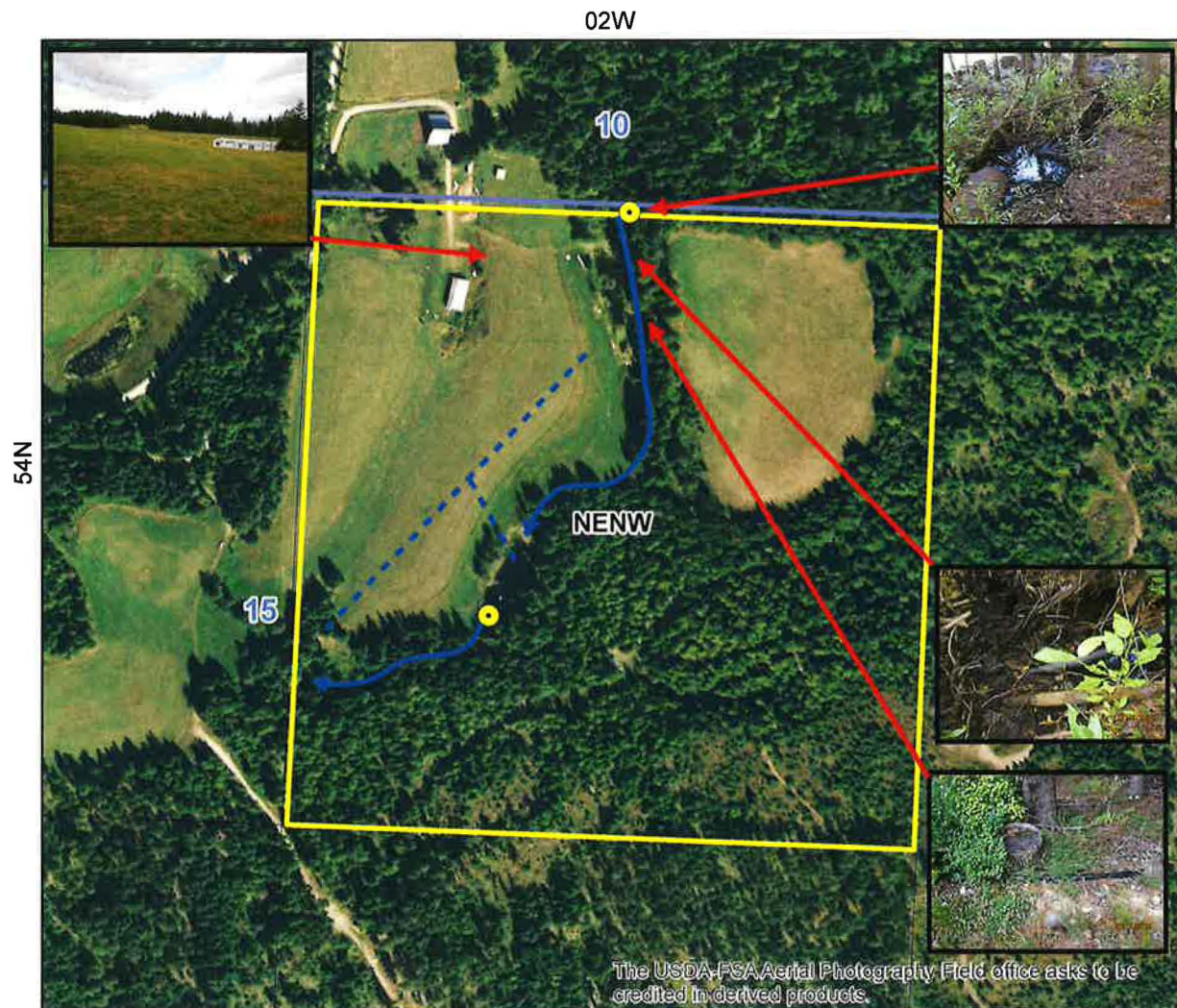
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles



State of Idaho
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STOCKWATER FROM STORAGE system diagram.



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

0 0.045 0.09 0.18 Miles



Total Storage Calculations

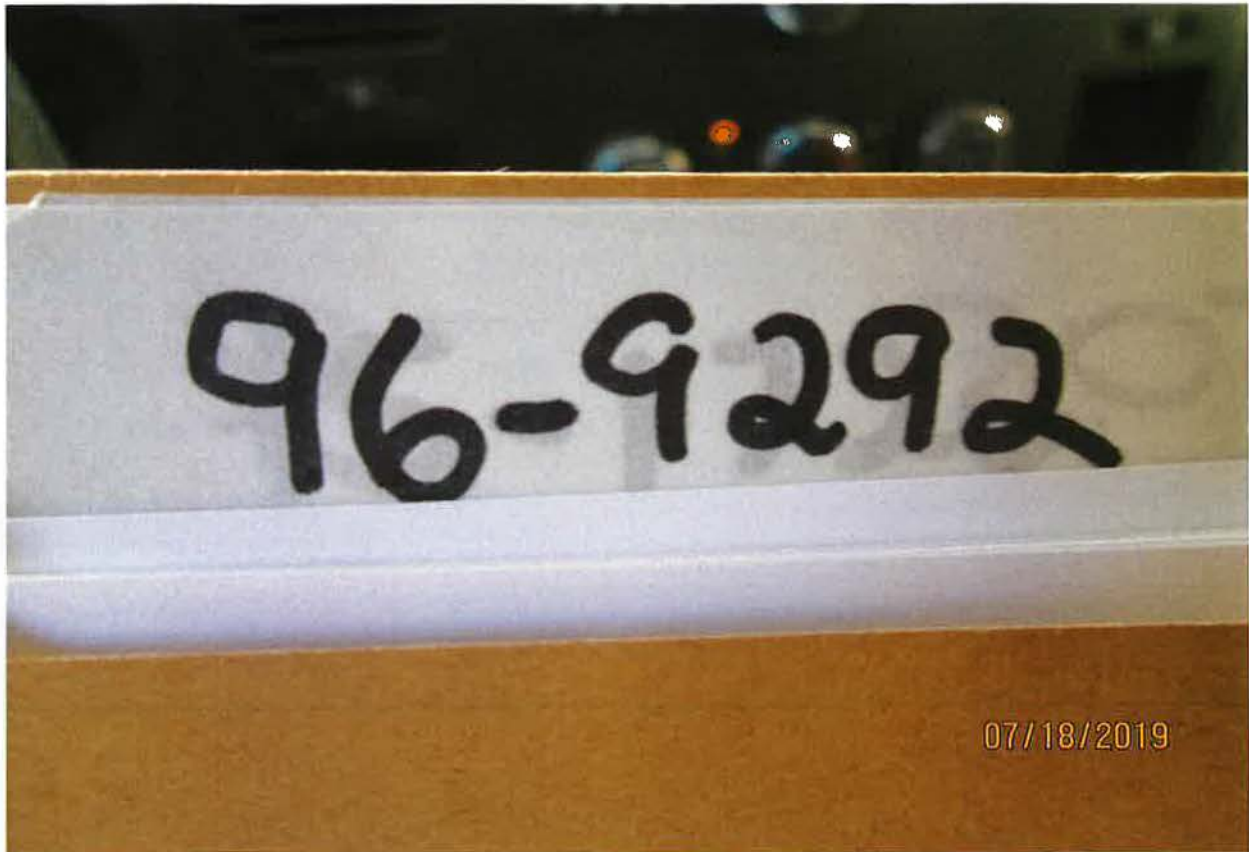
FILE NUMBER	96-9292
REVIEWER	Luke Bates
DATE	11/16/2020

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.)	5.6	"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)	1.1	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)	2.7	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)	14.6	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)	18.6	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.



POD – 55 GAL CATCH BASIN IN UNNAMED STREAM WITH 2" INTAKE POLY PIPE



POD – 2 INCH SCREENED POLY PIPE IN BARREL



UNNAMED STREAM TRIBUTARY TO THREE SISTERS CREEK



2 INCH POLY PIPE ROUTED THROUGH FOREST FROM POD TO POU





WATER PIPE ROUTING FROM POD TO POU



MULTIPLE STORAGE USES POU – POND



MULTIPLE STORAGE USES (IRRIGATION, STOCKWATER, & RECREATION) POU – POND





IRRIGATION FROM STORAGE INTAKE PIPE FROM POND



PORTABLE WATER TRANSFER PUMP FOR IRRIGATION FROM STORAGE USE



IRRIGATION FROM STORAGE POU





IRRIGATION FROM STORAGE POU





IRRIGATION FROM STORAGE & STOCKWATER FROM STORAGE POU





IRRIGATION FROM STORAGE & STOCKWATER FROM STORAGE POU

