STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 86-11985
Exam Date: 07/01/2020

1. Current Owner:
AISC INC 1311 BRUSH CREEK RD DEARY ID 83823

2. Accompanied by: Edward French
Phone No: 208-877-1600
Address: Same as above
Relationship to permit Holder: Representative to AISC INC

3. **SOURCE:** UNNAMED STREAM

Tributary BRUSH 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
86-11986	UNNAMED STREAM	STOCKWATER FROM STORAGE	PERMIT IN PROCESS FOR LICENSING
86-12088	UNNAMED STREAM	STOCKWATER FROM STORAGE	PERMIT IN PROCESS FOR LICENSING

Comments: WRs 86-11986 and 86-12088 use water from ponds filled by unnamed streams for stockwater from storage use that overlaps this water rights stockwater from storage and irrigation from storage POU. Condition X35 has been incorporated in licensing to limit the three WRs to state when combined shall not exceed a total annual diversion volume of 0.7 af for stockwater from storage use for 50 head of mixed stock.

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 NW¼ SE¼, Sec. 30, Twp 40N, Rge 01W, B.M. LATAH County

Method of Determination: Arcmap; POD (dam) located at -116°30.389, 46°46.781.

PLACE OF USE: IRRIGATION STORAGE, STOCKWATER STORAGE, WILDLIFE STORAGE, 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	
40N	01W	30														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	
40N	01W	30																2.8	2.8
40N	01W	31	9.6																9.6

Total Acres: 12.4

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	
40N	01W	30													X	X	X	X	
40N	01W	31	X	X		X													
40N	01W	32						X	X										

Method of Determination: Field exam and Arcmap.

3.

X Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.

X Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 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: N/A

E. FLOW CALCULATIONS

Measured Method: N/A

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$V_{I.R}$ = (Acres Irrigated) x (Irrigation Requirement) = 12.4 acres x 3.0 afa = **37.2 af**

$V_{D.R}$ = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = N/A, there is no diversion rate applied.

V = Smaller of $V_{I.R}$ and $V_{D.R}$ = 37.2 af

2. Volume Calculations for Other Uses:

See attached pond analysis sheet.

Stockwater from Storage annual volume = 50 head mixed stock x 12 gpd x 365 days = 219,000.00 gal / 325,850 gal per af = 0.67 af, which is rounded up to **0.7 af**, conforming to department administrative memorandum, application processing memo No. 6, Significant Figures for Numerical Values.

Wildlife storage, recreation storage, and fire protection storage annual volume = 29.5 af (pond capacity) + 4.5 af (seepage loss) + 5.9 af (evaporation loss) = **39.9 af**

Maximum diversion volume = 37.2 af (irrigation from storage) + 0.7 af (stockwater from storage) + 39.9 af (multiple pond storage components) = **77.8 af**

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 7/1/2020 with the applicant's representative, Edward French, showed a pond that was being fed by an unnamed stream. Overflow from pond fed back to the natural stream channel. The applicant's pond was used for multiple storage components, and irrigation/stockwater from storage uses. Water was diverted via gravity flow to a buried main trunk irrigation pipe from the opposite end of the pond than the dam side. As the Pond is considered an in-stream pond, there is no diversion rate for this water right. Applicant only used water from the pond, so the irrigation and stockwater components as a diversion rate were removed at time of licensing.

The pond has a surface area of 4.1 acres and pond capacity of 29.5 af. The pond has a maximum depth of 18 feet, an average depth of 7.2 feet, seepage loss of 4.5 af, and evaporation loss of 5.9 af. The pond has a multi-fill component equaling the combined irrigation and stockwater from storage volumes of 37.9 af annually. The total volume required for pond equals 77.8 af, the sum of afore mentioned pond components. The Maximum diversion volume for this water right will be licensed at **77.8 af**.

During the field exam, irrigated acreage was identified and sketched on a map. During licensing review, arcmap was used to trace out irrigated acreage equal to 12.4 acres. The annual volume applied to the irrigation from storage component equals 12.4 acres x 3.0 afa = **37.2 af**. Irrigation was done using a main trunk line buried from pump at pond to the far reach of the irrigated area, with risers in place at intervals to allow above ground sprinkler systems to access water. Photographs were taken showing risers with fire hose couplers, and pvc pipe sprinkler lines that could be manually rotated along the main trunk.

During field exam, stock was observed on the applicant's property, with stock tanks in use. The stockwater from storage annual volume = 50 head mixed stock x 12 gpd x 365 days = 219,000.00 gal / 325,850 gal per af = 0.67 af, which is rounded up to **0.7 af**, conforming to department administrative memorandum, application processing memo No. 6, Significant Figures for Numerical Values.

The wildlife storage, recreation storage, and fire protection storage components from pond annual volume equals 29.5 af (pond capacity) + 4.5 af (seepage loss) + 5.9 af (evaporation loss) = **39.9 af**, which is not additive for each component.

Conditions 26A, 029, and a department text condition related to combined irrigation of 32 acres was removed from license. Condition X02 was updated to reflect 50 head of mixed stock that was identified by applicant's representative at time of field exam, which is less than the permitted value of 125 head. Conditions 220 and 259 were added describing pond size, capacity, and volume factors. Condition X35 was added describing overlap between three water rights for stockwater from storage use listed below. WRs 86-11986 and 86-12088 use water from ponds filled by unnamed streams for stockwater from storage use that overlaps this water rights stockwater from storage and irrigation from storage POU. Condition X35 has been incorporated in licensing to limit the three WRs to state when combined shall not exceed a total annual diversion volume of 0.7 af for stockwater from storage use for 50 head of mixed stock. There are no other overlap concerns for this water right.

Arcmap overlay is slightly askew from the DRG layer, resulting in the pond's northern boundary crossing into the SWNE ¼¼. Based on the discrepancy in imagery products, and minimum pond area within the current aerial imagery SWNE section, no amendment is recommended for license.

Have conditions of permit approval been met? __X__ Yes ____ No

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use	Annual Volume
IRRIGATION STORAGE	01/01 to 12/31	37.2 AF
IRRIGATION FROM STORAGE	04/01 to 10/31	37.2 AF
STOCKWATER STORAGE	01/01 to 12/31	0.7 AF
STOCKWATER FROM STORAGE	01/01 to 12/31	0.7 AF
WILDLIFE STORAGE	01/01 to 12/31	39.9 AF
RECREATION STORAGE	01/01 to 12/31	39.9 AF
FIRE PROTECTION STORAGE	01/01 to 12/31	39.9 AF
	Totals:	77.8 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 7/6/2020

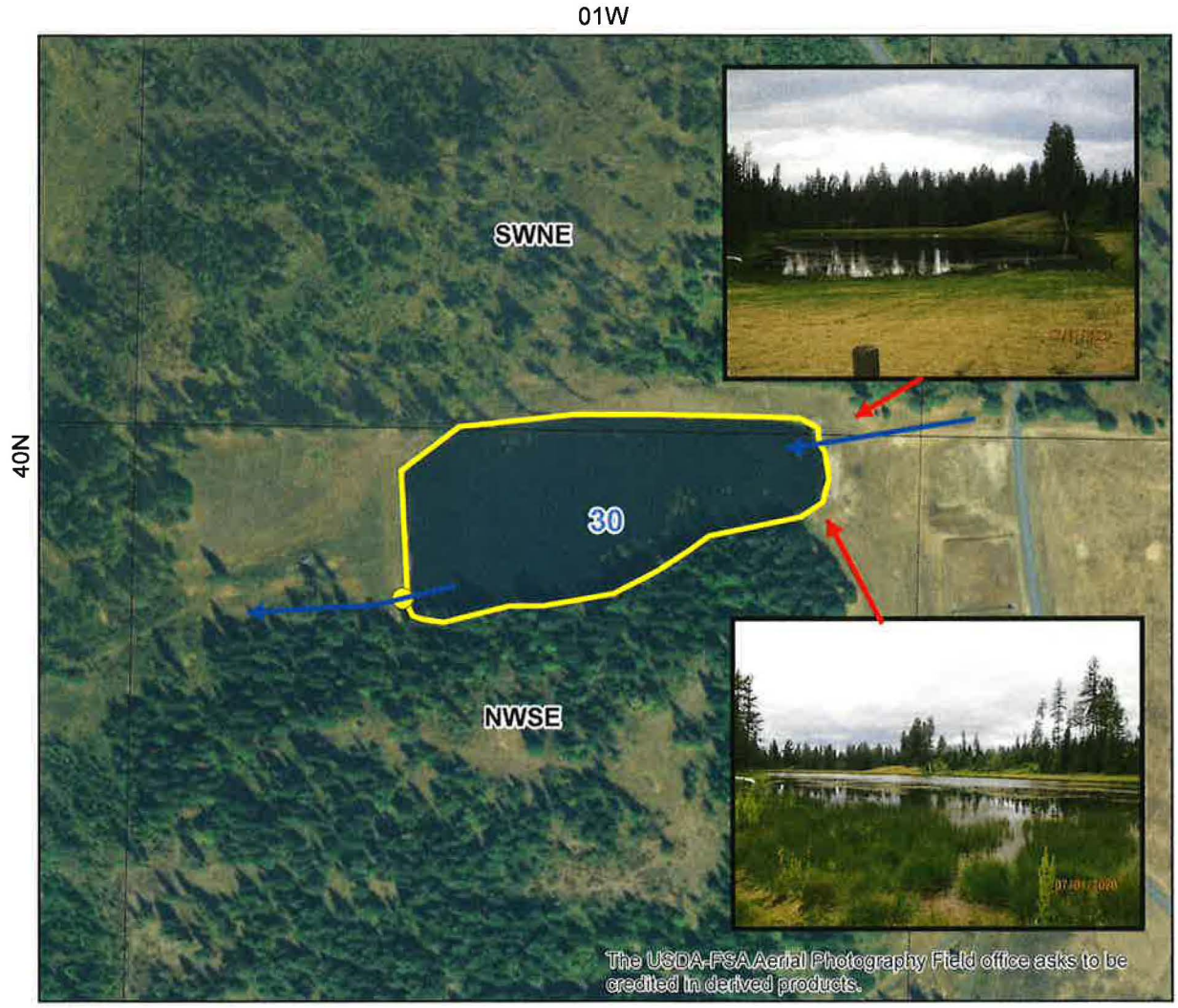
Reviewer _____ Date 7/7/2020

State of Idaho
Department of Water Resources

Attachment to Field Exam

86-11985

IRRIGATION STORAGE, STOCKWATER STORAGE, WILDLIFE STORAGE, RECREATION STORAGE, and FIRE PROTECTION STORAGE system diagram.

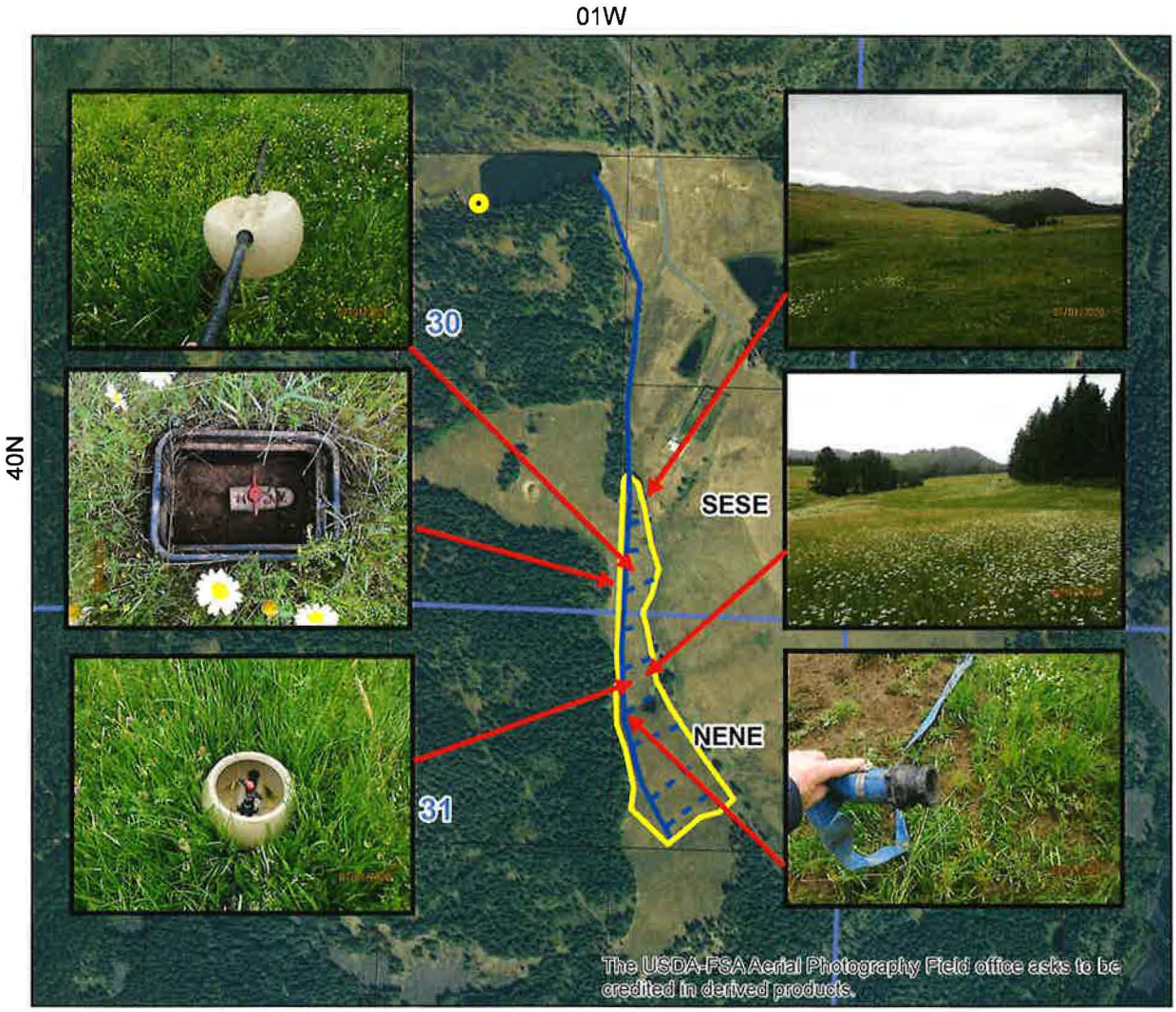


State of Idaho
Department of Water Resources

Attachment to Field Exam

86-11985

IRRIGATION FROM STORAGE system diagram.



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

0 0.125 0.25 0.5 Miles

N

State of Idaho
Department of Water Resources

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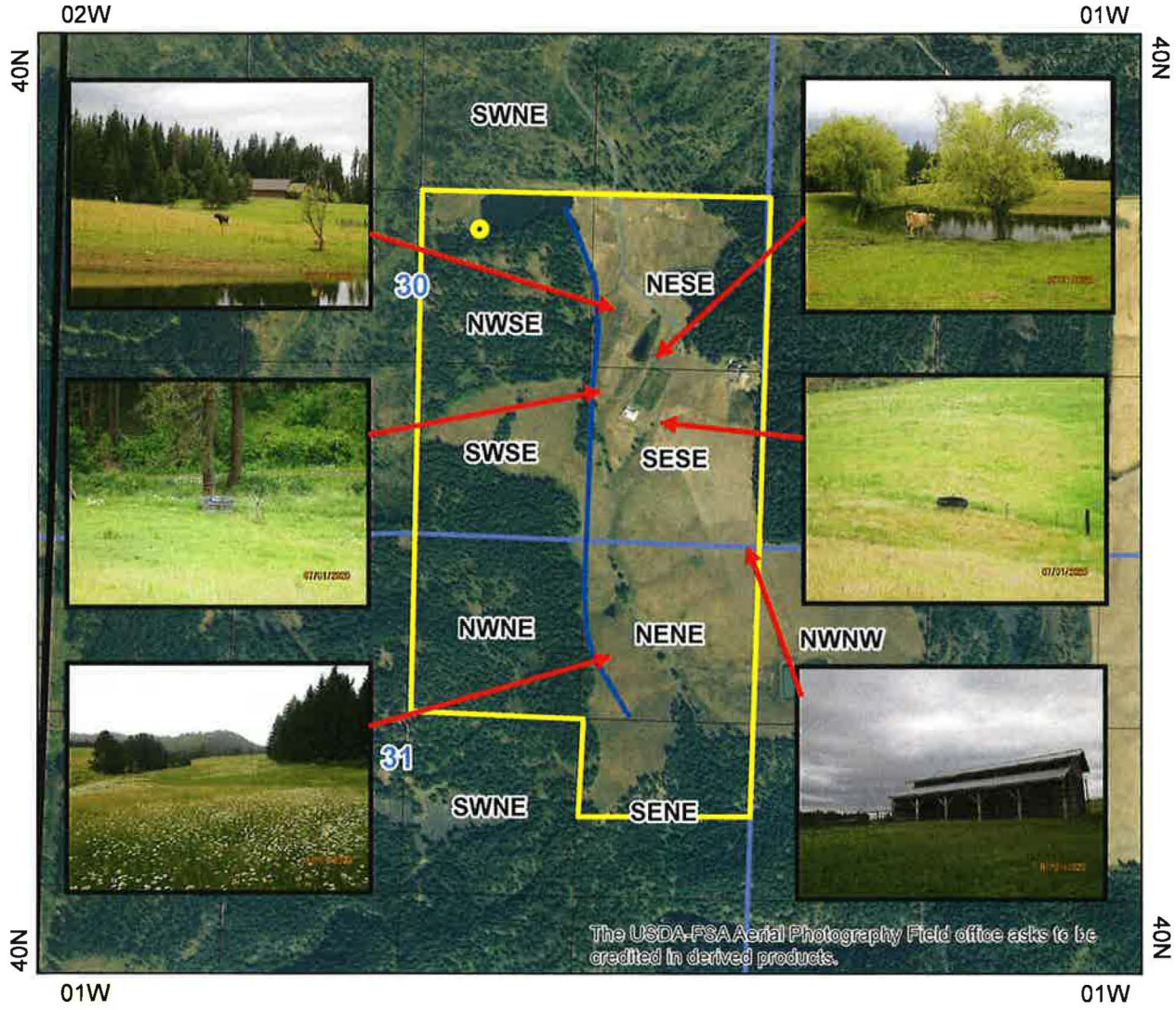
STOCKWATER FROM STORAGE system diagram.



Total Storage Calculations

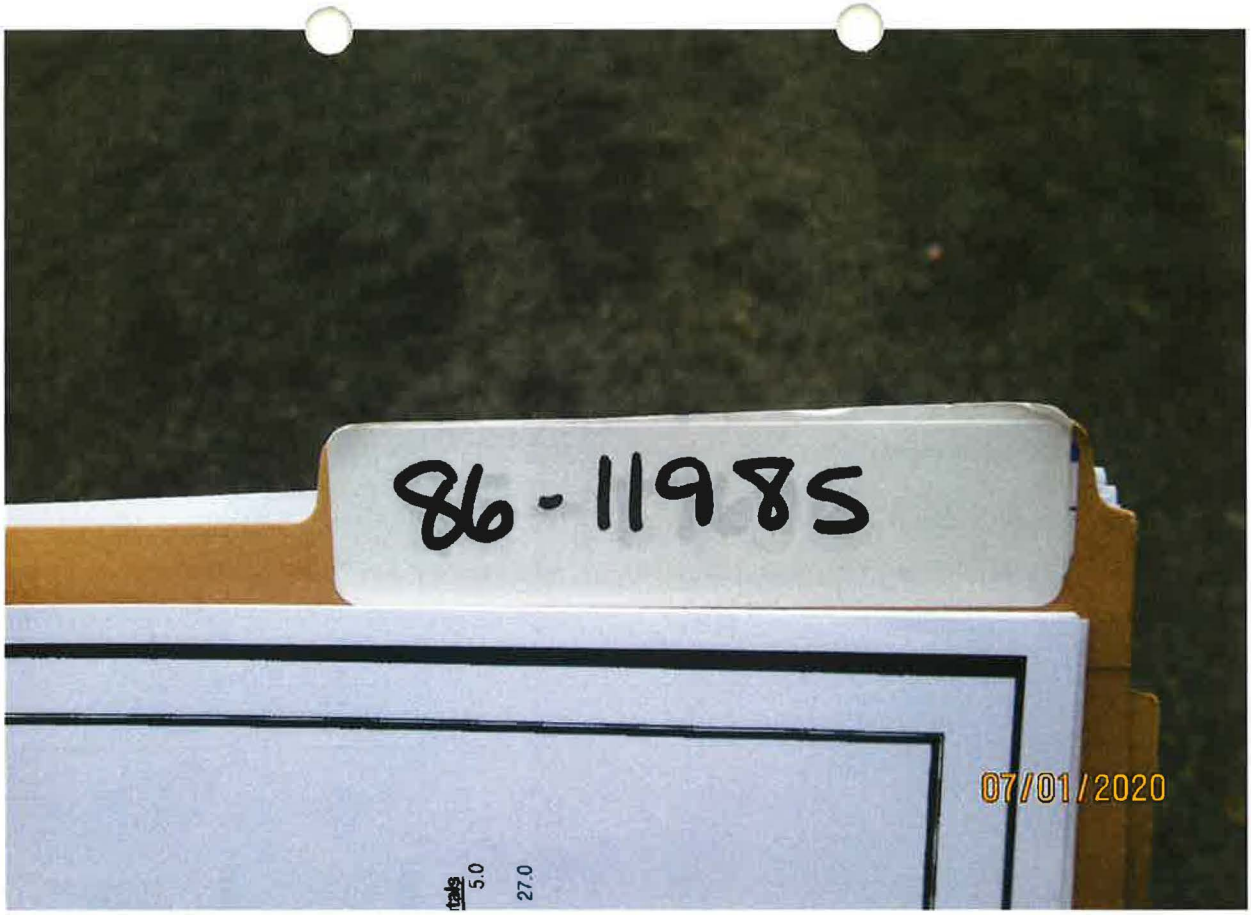
FILE NUMBER	86-11985
REVIEWER	Luke Bates
DATE	7/6/2020

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.)	4.1	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	7.2	"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)	29.5	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)	37.9	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)	4.5	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	5.9	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	77.8	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.



POU - MULTIPLE STORAGE USE, STOCKWATER FROM STORAGE, AND IRRIGATION FROM STORAGE POND

POU - MULTIPLE STORAGE USE, STOCKWATER FROM STORAGE, AND IRRIGATION FROM STORAGE POND

POD – EARTHEN DAM

STOCKWATER FROM STORAGE POU

IRRIGATION FROM STORAGE POU

IRRIGATION SYSTEM RISES OFF BURIED MAIN LINE

IRRIGATION HOSE

IRRIGATION SPRINKLERS