

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 67-08026
Exam Date: 5/9/2017

1. Current Owner:
SHERYL A WOODY 2058 MISSMAN RD COUNCIL ID 83612 2082536082
2. Accompanied by: SHERYL A WOODY
Phone No: 2082536082
Address: 2058 MISSMAN RD COUNCIL ID 83612
Relationship to Permit Holder: Owner

3. **SOURCE:**
SPRING

TRIBUTARY:
GROSSEN CREEK

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 67-11487 (Sorenson Rinehart Ditch Co.), 67-11380, and 67-7239
2. Other water rights with the same point-of-diversion: 67-7239

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

SPRING SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 11, Twp 16N, Rge 01W, B.M. ADAMS County

Method of Determination: Aerial imagery and field exam.

2.

PLACE OF USE: AESTHETIC STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
16N	01W	11		X															

PLACE OF USE: IRRIGATION FROM STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
16N	01W	11		7.8															7.8

Total Acres: 7.8

PLACE OF USE: IRRIGATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
16N	01W	11		X															

Method of Determination: Aerial imagery and field exam.

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
NA	NA	NA	NA	NA	NA

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NA	NA	NA	NA	NA	NA	NA

2. Measurements: A five (5) gallon bucket test was used to measure the discharge into the pond. The test was done five times to establish an estimated average fill time.

E. FLOW CALCULATIONS

Measured Method: Fill times are in seconds

1. 8.17	4. 7.51
2. 8.28	5. 7.03
3. 7.55	

This produces an average fill time of 7.71 seconds and a discharge rate of ~ 0.09 cfs.

$(60 \text{ seconds/minute}) / (7.71 \text{ seconds}) = 7.78 \text{ refills/minute}$; $5 \text{ gallons} \times 7.78 \text{ refills} = 38.9 \text{ gpm}$. $(38.9 \text{ gpm}) / (9 \text{ gpm}) = 4.32 \text{ miner's inches}$. $4.32 \text{ miner's inches} \times 0.02 \text{ cfs} = 0.086 \text{ or } 0.09 \text{ cfs}$.

F. VOLUME CALCULATIONS

1. Volume Calculations:

Diversion to Storage:

V = NA per IDAPA 37.03.02.035.01.j.i.

Aesthetic Storage:**East Pond**

Surface Area: 0.1 acre

Average Depth: 4.8' (12 X 0.40)

Capacity: 0.5 AF

 $V_{D,R} = (\text{Capacity} + \text{Evaporation} + \text{Seepage} + \text{Beneficial Use}) = 0.48 \text{ AF} + 0.1 \text{ Af} + 7.3 \text{ AF} = 7.9 \text{ AF}$
West Pond

Surface Area: 0.04 acre

Average Depth: 2.4' (6 X 0.40)

Capacity: 0.1 AF

 $V_{D,R} = (\text{Capacity} + \text{Evaporation} + \text{Seepage}) = 0.1 \text{ AF} + 0.1 \text{ Af} + 2.9 \text{ AF} = 3.1 \text{ AF}$
Total Aesthetic Storage = 11.0 AF (7.9 AF + 3.1 AF)**Irrigation:**
 $V_{I,R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirements}) = 7.8 \text{ acres} \times 4.0 \text{ H.G.R.} = 31.2 \text{ AF}$
 $V_{D,R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 0.09 \text{ cfs} \times 246 \text{ days} \times 1.9835 = 43.9 \text{ AF}$
V = Smaller of $V_{I,R}$ and $V_{D,R}$ = **31.2 AF****G. NARRATIVE/REMARKS/COMMENTS**

Permit No. 67-8026 authorizes a diversion rate of 0.60 cfs and assumes a volume limit of 240 AF (30 acres X 4 H.G.R.) for irrigation purposes. A field exam was conducted by WRA Aaron Skinner on May 9, 2017, who was accompanied by Sheryl Woody, the new owner.

BACKGROUND:

The purpose of this right was to add additional acres for irrigation that is not covered by WR No. 67-7239. This permit uses the same Point of Diversion (POD) and Place of Use (POU) as WR No. 67-7239, but converts more acres. Historically,

a pond has been present and full year round, but was not identified on the permit or any water rights associated to the property. So, an amendment is necessary to add the component aesthetic use for both the east and west ponds. Mrs. Woods has 23.5 irrigation shares with the Sorenson Rinehart Ditch Company. A 2" hand line is used to deliver water to the place of use. This equates to a rough rate of 0.09 cfs. That said, it is assumed the pond is initially filled under the aesthetic use and irrigation water is "skimmed" off the top to fulfill the irrigation component of Sorenson Rinehart Ditch shares and this permit. The tributary was also changed from SINKS to GROSSEN CREEK since it is inferred that the spring, undeveloped by man, would flow naturally to Grossed Creek.

System Description:

Spring water is collected from the "Rinehart Spring" into a collection box at approximately 44°44'33.314N 116°25'4.063W. A 3" buried pipe runs about 80' northeast from the collection box and discharges into the southeast corner of the east pond. Water is used for irrigation in two ways. The bulk of the water is pumped out of the pond using a 2 hp pump and irrigates the 7.8 acres via 2" hand lines. The other way is an overflow ditch on the west side of the east pond that conveys excess water around the property and into the west pond. Water out of this ditch is used to irrigate around the house, shop area, and garden. The west pond also has an overflow ditch that conveys excess water across Missman Road and into an unnamed stream. Mrs. Woody has 23.5 irrigation shares from the Sorenson Rinehart Ditch Company that discharges into the east pond. Combination use limit will be recommended for licensing.

Diversion Rate and Volume:

The permitted rate and assumed volume for this right is 0.60 cfs and 240 AF respectively. These calculations were based on development of 30 acres. Aerial imagery and field exam notes recommend adjusting the development to 7.8 acres. Diversion into the pond was measured using a 5 gallon bucket test totaling 0.09 cfs and will be recommended to licensing. Pond analysis were completed for the east and west ponds and are outlined above in Section F. The analyses are also included in the file. The east pond's maximum depth is 12', while the west pond's max depth is 6'. Both ponds are bowl shaped, so multiplying the max depth by 0.40 establishes the average depth for the east and west pond as 4.8' and 2.4' respectively. Aesthetic Storage for both ponds totaled 11.0 AF. Irrigation volume limits calculated by # of acres X headgate requirement totals 31.2 AF as outlined in Section F.

Ownership:

Current taxlot data was used to verify land ownership and confirms that Sheryl Woody does own the land associated to this right. Helen and Frank Jones were her parents who submitted the original application for permit. Notice of Change in Ownership form was received by the Department on June 1, 2017. The database has since been updated.

Overlap:

An overlap analysis was completed for the POD and POU. WR No. 67-7239 is an overlapping right that uses the same delivery system and POD. The POU overlaps with 5 of the 7.8 acres for this permit. WR No. 67-11380 has a different POD, but does overlap the complete POU of this permit. WR No. 67-11380 is a Sorenson Rinehart Ditch Company right that allows 23.5 shares to the same POU. Recommended combine use limits will be as follows:

- 67-7239 / 67-8026 = not to exceed 0.12 cfs and 7.8 acres
- 67-7239 / 67-8026 / 67-11380 = not to exceed 20 acres.

Conditions:

Condition 26A and 004 were removed and not forwarded to licensing. Condition 121 was updated to 103 and recommended to licensing. Condition R04 was updated to R05 and recommended for licensing as it is inferred that the spring, undeveloped by man, would flow naturally to Grossed Creek. Similarly, WR No. 67-7239 uses Grossen Creek as the tributary not SINKS. Condition 01M and R64 were recommended for licensing. Condition X35 (twice) was added to fulfill surface water combine use limits.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
AESTHETIC STORAGE	03/15 to 11/15	0.09 CFS	11.0 AF
IRRIGATION	03/15 to 11/15		31.2 AF
DIVERSION TO STORAGE	03/15 to 11/15	0.09 CFS	
	<u>Totals:</u>	0.090 CFS	42.20 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 ☒ OTHER

I. AUTHENTICATION

Field Examiner's Name Aaron Skinner ASL Date 9/22/2017

Reviewer _____ Date _____

System Diagram for Permit No. 67-8026

SESW

SWSE

2

SESE

NENW

16N01W
NWNE

11

NENE

Legend

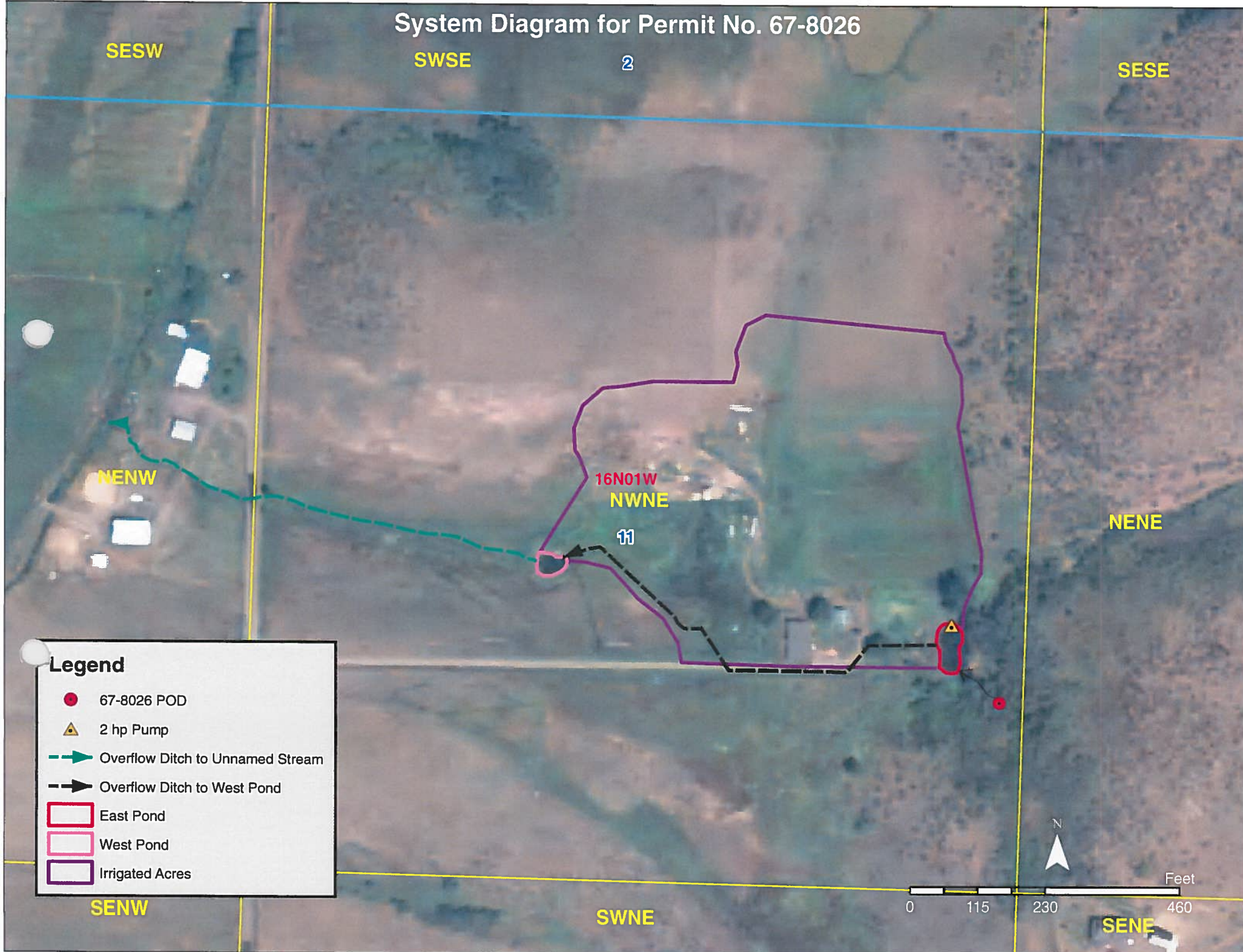
- 67-8026 POD
- ▲ 2 hp Pump
- Overflow Ditch to Unnamed Stream
- Overflow Ditch to West Pond
- East Pond
- West Pond
- Irrigated Acres

SENW

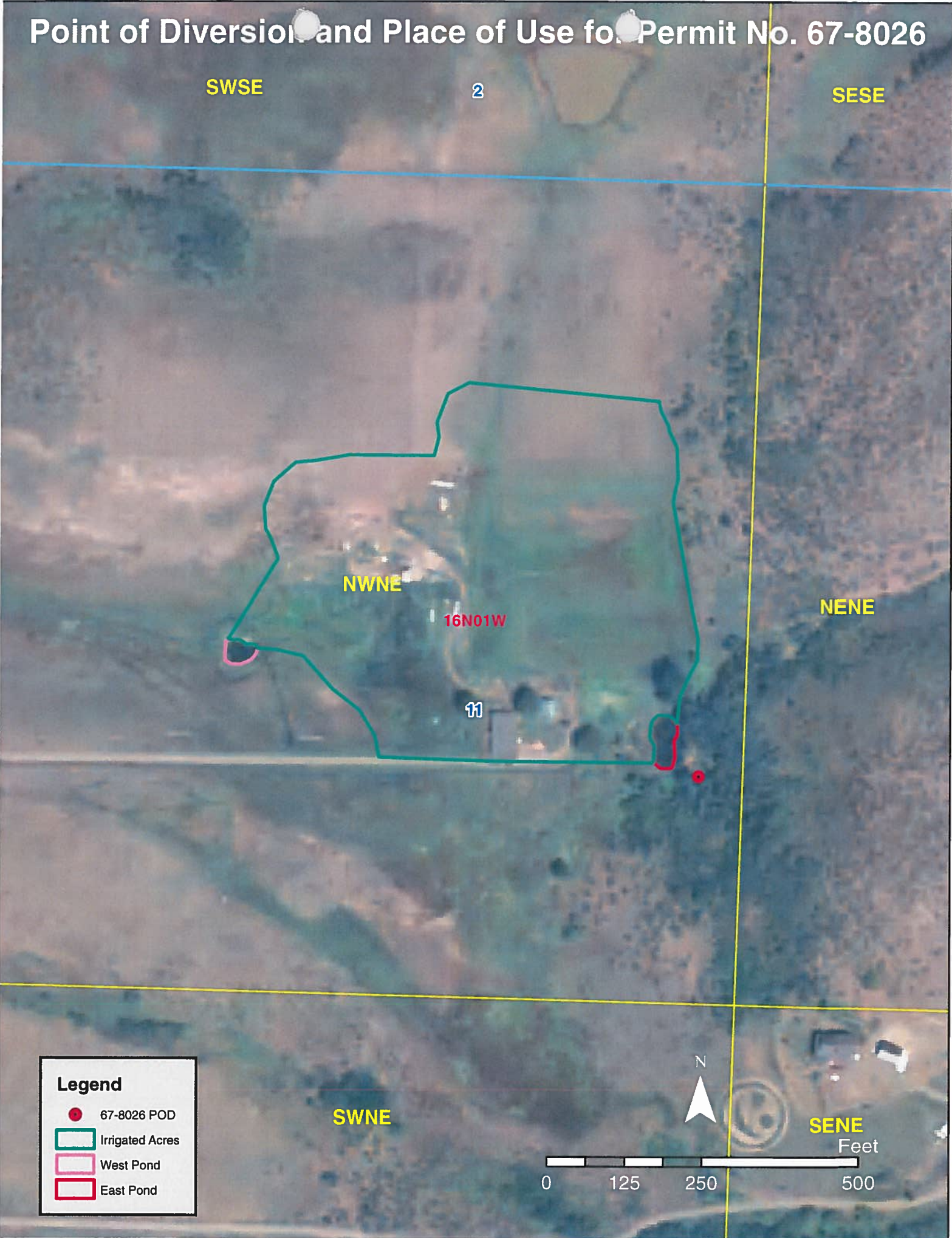
SWNE

SENE

0 115 230 460 Feet



Point of Diversion and Place of Use for Permit No. 67-8026



Overlap Analysis for Permit No. 67-8026 POD

16N01W11	Process	BasinSequence	Draft	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	TotalAcres
Water Right	67-10832	N	GROSS, COY; GROSS, PATRICIA	GROSSEN CREEK					X														
Water Right	67-11232	N	BRIDGES, BENNY C; BRIDGES, DIANNE L; LEONARD SR, ROBERT S; LE	GROSSEN CREEK																			
Water Right	67-11381	N	JONES, FRANK L; JONES, HELEN; WOODY, SHERYL A	SPRING																			
Water Right	67-11446	N	COUNCIL METAL FABRICATORS; LITTLE, BARBARA W	GROUND WATER																			
Water Right	67-11464	N	NEUMANN, OPAL	GROUND WATER																			
Water Right	67-11491	N	MADSEN, CHESTER LEO; MADSEN, EUNICE	GROSSEN CREEK																			
Water Right	67-11492	N	CHILDERS, MERRELL; CHILDERS, SHARON	GROSSEN CREEK																			
Water Right	67-11510	N	COLEMAN, ANNA M	GROSSEN CREEK																			
Water Right	67-11511	N	ROGERS, ELAINE K; ROGERS, JAMES A; WEEMS, AGNES C	GROSSEN CREEK																			
Water Right	67-11718	N	BAKER, EDWARD S; BAKER, YOLANDA E; CHILDERS, DERRELL C; CHIL	GROUND WATER																			
Water Right	67-11778	N	SUMMERS, BILL D	GROUND WATER																			
Water Right	67-13892	N	HILL, DORIS; HILL, WILLIAM L; MARVIN, CATHY E; MARVIN, PAUL D	GROUND WATER																			
Water Right	67-13904	N	HILL, DORA R; HILL, WILLIAM L; MARVIN, CATHY E; MARVIN, PAUL C	SPRINGS																			
Water Right	67-13905	N	GROSS, COY; GROSS, PATRICIA	GROUND WATER																			
Water Right	67-14119	N	BLEVINS, KARON J; BLEVINS, LA DELLE F; <u>CAMP 34 LE</u>	GROUND WATER																			
Water Right	67-14161	N	ROGERS, ELAINE K; ROGERS, JAMES A	SPRING																			
Water Right	67-14974	N	ADAMS COUNTY HEALTH CENTER INC	GROUND WATER																			
Water Right	67-14975	N	FOLKE, CAROLYN; FOLKE, TIM; KESSLER, DEBORAH C	GROSSEN CREEK																			
Water Right	67-4419	N	NEUMANN, OPAL; SHELTON, DELBERT	SPRINGS																			
Water Right	67-4587	N	COLEMAN, ANNA M	GROUND WATER																			
Water Right	67-7046	N	ROGERS, ALVA B	GROUND WATER																			
Water Right	67-7152	N	CHEVERTON, RICHARD; GARRETT, DALE; JENKINS, NELLO A; JENKIN	GROUND WATER																			
Water Right	67-7170	N	AMBROSE, KIRT M; AMBROSE, SANDRA K; IDOHL, ELAINE M	GROUND WATER																			
Water Right	67-7239	N	JONES, FRANK L; JONES, HELEN M; WOODY, SHERYL A	SPRING																			
Water Right	67-7257	N	AMBROSE, KIRT M; AMBROSE, SANDRA K; COTTON, ELAINE M; COT	SPRING																			
Water Right	67-7454	N	BRIDGES, BENNY C; BRIDGES, DIANNE L; LEONARD SR, ROBERT S; LE	GROUND WATER																			
Water Right	67-7575	N	HANSEN, HOWARD T; HANSEN, JOYCE ANN; RALEIGH, PAULINE C; R	GROUND WATER																			
Water Right	67-7701	N	FREDRICKSON, ARNIE E; FREDRICKSON, EVELYN; GOODWIN, BETTY	GROUND WATER																			
Water Right	67-7812	N	ROMAN CATHOLIC DIOCESE	GROUND WATER																			
Water Right	67-7924	N	CITY OF COUNCIL	GROUND WATER																			
Water Right	67-8026	Y	JONES, FRANK L; JONES, HELEN M; WOODY, SHERYL A	SPRING																			
Water Right	67-8035	N	LEONARD, ROBERT; LEONARD, SHARLETT	UNNAMED STREAM																			
Water Right	67-8042	N	HENNING, CHRISTINE R; HENNING, JEFFREY C; LUNDY, SCOTT	GROUND WATER																			

no overlap west of POD along fence.

no overlap; POD is a centroid. Property location is south of permit. (domestic use)

overlap; same system.

Overlap Analysis for Permit No. 67-8026 POU

16N01W11	Process	BasinSequence	Draft	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	TotalAcres
Water Right	67-10832	N	GROSS, COY; GROSS, PATRICIA	GROSSEN CREEK	IRRIGATION				2.5														2.5
Water Right	67-11232	N	BRIDGES, BENNY C; BRIDGES, DIANNE L; LEONARD SR, ROBERT S; LE	GROSSEN CREEK	STOCKWATER				X						X	X							
Water Right	67-11380	N	JONES, FRANK L; JONES, HELEN M; WOODY, SHERYL A	GROSSEN CREEK	IRRIGATION																		20
Water Right	67-11381	N	JONES, FRANK L; JONES, HELEN; WOODY, SHERYL A	SPRING	DOMESTIC																		
Water Right	67-11381	N	JONES, FRANK L; JONES, HELEN; WOODY, SHERYL A	SPRING	STOCKWATER																		
Water Right	67-11413	N	EAST FORK DITCH CO LTD	WEISER RIVER	IRRIGATION																		
Water Right	67-11416	N	EAST FORK DITCH CO LTD	CAMP CREEK	IRRIGATION																		
Water Right	67-11416	N	EAST FORK DITCH CO LTD	MILL CREEK	IRRIGATION																		
Water Right	67-11416	N	EAST FORK DITCH CO LTD	WEISER RIVER	IRRIGATION																		
Water Right	67-11446	N	COUNCIL METAL FABRICATORS; LITTLE, BARBARA W	GROUND WATER	COMMERCIAL																		
Water Right	67-11464	N	NEUMANN, OPAL	GROUND WATER	DOMESTIC																		
Water Right	67-11464	N	NEUMANN, OPAL	GROUND WATER	STOCKWATER																		
Water Right	67-11487	N	SORENSEN RINEHART DITCH CO	COTTONWOOD CREEK	IRRIGATION																		
Water Right	67-11510	N	COLEMAN, ANNA M	GROSSEN CREEK	IRRIGATION																		
Water Right	67-11511	N	ROGERS, ELAINE K; ROGERS, JAMES A; WEEMS, AGNES C	GROSSEN CREEK	IRRIGATION																		
Water Right	67-11718	N	BAKER, EDWARD S; BAKER, YOLANDA E; CHILDERS, DERRELL C; CHIL	GROUND WATER	DOMESTIC																		
Water Right	67-11718	N	BAKER, EDWARD S; BAKER, YOLANDA E; CHILDERS, DERRELL C; CHIL	GROUND WATER	STOCKWATER																		
Water Right	67-11737	N	BAILEY, JMA JEAN; BAILEY, LARRY O; KITZHABER, JAMES L; KITZHAB	GROSSEN CREEK	IRRIGATION																		
Water Right	67-11778	N	SUMMERS, BILL D	GROUND WATER	DOMESTIC																		
Water Right	67-11778	N	SUMMERS, BILL D	GROUND WATER	STOCKWATER																		
Water Right	67-13892	N	HILL, DORIS; HILL, WILLIAM L; MARVIN, CATHY E; MARVIN, PAUL D	GROUND WATER	DOMESTIC																		
Water Right	67-13904	N	HILL, DORA R; HILL, WILLIAM L; MARVIN, CATHY E; MARVIN, PAUL C	SPRINGS	DOMESTIC																		
Water Right	67-13904	N	HILL, DORA R; HILL, WILLIAM L; MARVIN, CATHY E; MARVIN, PAUL C	SPRINGS	STOCKWATER																		
Water Right	67-13905	N	GROSS, COY; GROSS, PATRICIA	GROUND WATER	DOMESTIC																		
Water Right	67-14119	N	BLEVINS, KARON J; BLEVINS, LA DELLE F; <u>CAMP 34 LF</u>	GROUND WATER	DOMESTIC																		
Water Right	67-14161	N	ROGERS, ELAINE K; ROGERS, JAMES A	SPRING	STOCKWATER																		
Water Right	67-14566	N	LOST VALLEY RESERVOIR CO	LOST CREEK	IRRIGATION FROM STORAGE																		
Water Right	67-14567	N	LOST VALLEY RESERVOIR CO	LOST CREEK	IRRIGATION FROM STORAGE																		

overlap
different use

overlap

no overlap

no overlap

Water Right	APN	Owner	Location	Use	Flow (cfs)	Priority	Comments
Water Right 67-14568	N	LOST VALLEY RESERVOIR CO	LOST CREEK	IRRIGATION FROM STORAGE	X	X	
Water Right 67-14974	N	ADAMS COUNTY HEALTH CENTER INC	GROUND WATER	IRRIGATION		X	
Water Right 67-14975	N	FOLKE, CAROLYN; FOLKE, TIM; KESSLER, DEBORAH C	GROSSEN CREEK	STOCKWATER STORAGE			2.2
Water Right 67-15116	N	BEAR, HAZEL L; BEAR, JOHN A; MASON, ROBERT D; MASON, THERE	UNNAMED DRAIN	IRRIGATION	30		
Water Right 67-2329A	N	BEAR, HAZEL L; BEAR, JOHN A; MASON, ROBERT D; MASON, THERE	UNNAMED DRAIN	IRRIGATION	5		
Water Right 67-4419	N	NEUMANN, OPAL; SHELTON, DELBERT	SPRINGS	DOMESTIC		X	
Water Right 67-4419	N	NEUMANN, OPAL; SHELTON, DELBERT	SPRINGS	IRRIGATION	3	1	
Water Right 67-4419	N	NEUMANN, OPAL; SHELTON, DELBERT	SPRINGS	STOCKWATER		X	
Water Right 67-4587	N	COLEMAN, ANNA M	GROUND WATER	DOMESTIC			
Water Right 67-7046	N	ROGERS, ALVA B	GROUND WATER	DOMESTIC			
Water Right 67-7120	N	CITY OF COUNCIL	GROUND WATER	MUNICIPAL		X	
Water Right 67-7152	N	CHEVERTON, RICHARD; GARRETT, DALE; JENKINS, NELLO A; JENKIN	GROUND WATER	DOMESTIC		X	
Water Right 67-7170	N	AMBROSE, KIRT M; AMBROSE, SANDRA K; IDOHL, ELAINE M	GROUND WATER	IRRIGATION	1.5		
Water Right 67-7239	N	JONES, FRANK L; JONES, HELEN M; WOODY, SHERYL A	SPRING	IRRIGATION			1.5
Water Right 67-7257	N	AMBROSE, KIRT M; AMBROSE, SANDRA K; COTTON, ELAINE M; COT	SPRING	IRRIGATION	4		
Water Right 67-7454	N	BRIDGES, BENNY C; BRIDGES, DIANNE L; LEONARD SR, ROBERT S; LE	GROUND WATER	DOMESTIC		X	
Water Right 67-7575	N	HANSEN, HOWARD T; HANSEN, JOYCE ANN; RALEIGH, PAULINE C; R	GROUND WATER	IRRIGATION	4		
Water Right 67-7701	N	FREDRICKSON, ARNIE E; FREDRICKSON, EVELYN; GOODWIN, BETTY	GROUND WATER	DOMESTIC			
Water Right 67-7812	N	ROMAN CATHOLIC DIOCESE	GROUND WATER	DOMESTIC		X	
Water Right 67-7924	N	CITY OF COUNCIL	GROUND WATER	MUNICIPAL			
Water Right 67-8026	Y	JONES, FRANK L; JONES, HELEN M; WOODY, SHERYL A	SPRING	AESTHETIC STORAGE	X		
Water Right 67-8026	Y	JONES, FRANK L; JONES, HELEN M; WOODY, SHERYL A	SPRING	IRRIGATION FROM STORAGE	7.8		
Water Right 67-8026	Y	JONES, FRANK L; JONES, HELEN M; WOODY, SHERYL A	SPRING	IRRIGATION STORAGE	X		
Water Right 67-8035	N	LEONARD, ROBERT; LEONARD, SHARLETT	UNNAMED STREAM	IRRIGATION		1.5	
Water Right 67-8035	N	LEONARD, ROBERT; LEONARD, SHARLETT	UNNAMED STREAM	IRRIGATION FROM STORAGE		1.5	
Water Right 67-8035	N	LEONARD, ROBERT; LEONARD, SHARLETT	UNNAMED STREAM	IRRIGATION STORAGE		X	
Water Right 67-8035	N	LEONARD, ROBERT; LEONARD, SHARLETT	UNNAMED STREAM	WILDLIFE STORAGE		X	

Seepage Loss Calculations For East Pond

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total annual seepage losses from a pond.

FILE NUMBER	67-8026
REVIEWER	Aaron Skinner
DATE	6/19/2017

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	0.1	AC.
-------------------------	-----	-----

Pond Surface Area (SQ. FT.)	4356	SQ. FT.
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I used the following method to obtain my Soil Classification information:	NRCS Web Soil Survey	
My Soil Classification is	GM	
Suggested Seepage Rate (FT./DAY)	0.2000	FT./DAY

Formula: (Surface Area X Seepage Rate) X 7.48 = Gallons Per Day Loss
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Convert to GPD	6517	GPD
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Total Seepage Loss (AFA)	7.3	AFA
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Though sand and gravel seepage rates may actually be higher, the maximum allowable rate is 0.2 ft/day, pursuant to Administrative Memo "Seepage Loss Standards for Ponds and Reservoirs."

Suggested Seepage Rates for Different Soil Types:
GW, GP, GM, GC, SW, SP and SM (silty sand, sand silt mixtures and gravel mixtures) = 0.2 ft per day
OL and ML (Inorganic silts - very fine sands, silty, or clayey fine sands) = 0.02 ft per day
SC (clayey sands, sand clay mixtures) = 0.007 ft per day
CL (Low to medium plasticity clays) = 0.003 ft per day
MH, OH, PT and CH (high plasticity clays) = 0.0003 ft per day
LINED PONDS (liners can be chemical, fabric, or bentonite) = 0 ft per day
Ponds Intercepting Groundwater (excavated ponds filled by ground water) = 0 ft per day

PLEASE NOTE: The initial basis for the Suggested Seepage Rates in the table above is found on Page 16 of Seepage from Fish Ponds, Bulletin 599, August 1989 Alabama Agricultural experiment Station, Auburn University, Auburn University Alabama. If you don't know the soil type, please refer to the map provided at the NRCS Web Soil Survey (Tab #1), an ArcMap Soil Classification Map (Tab #1.1), or published NRCS Soil Survey (Tab #1.2). Use "0" if the pond fill relies on the water table.

Evaporation Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

FILE NUMBER	67-8026
REVIEWER	Aaron Skinner
DATE	6/19/2017

User Input
Calculated value
Formula Explanations

The acronyms used on the Kimberly Research Center website are defined below:

P = Precipitation
ET= Evapotranspiration
P _d = Precipitation deficit
P _d =ET-P

USING THIS SPREADSHEET

Use the link below to access the Kimberly Research Center website. This website provides the Precipitation Deficit for a station most representative of the pond under examination. The Precipitation Deficit is the total amount of free water surface evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used throughout the state. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at <X:/Spatial/Climate/ETIdahostations.shp>.

Instructions:

1. Use the link below to navigate to ET Idaho 2012.
2. Select the station which is most representative to your pond location.
3. Click Submit Query.
4. Under "Land Covers with Evapotranspiration Estimates," select "Open Water - Shallow Systems (ponds, streams)" or "Open Water - small stock ponds" depending on the pond size.
5. Click the link to "Precipitation Deficit."
6. Reference and copy (ctrl + C) the first subheading "Mean" values.
7. Click the "Paste Values from ET Idaho" button. The table will automatically enter a zero (0) for any

Found at: <http://data.kimberly.uidaho.edu/ETIdaho/>

Precipitation Deficit

Station: Council (NWS -- 102187)			
Month	mm/day ¹	Days per month	mm/Month
Jan	-2.61	31	0.00
Feb	-2.02	28	0.00
March	-0.42	31	0.00
April	1.13	30	33.90
May	1.94	31	60.14
June	2.47	30	74.10
July	4.02	31	124.62
August	3.21	31	99.51
September	1.71	30	51.30
October	-0.10	31	0.00
November	-2.46	30	0.00
December	-2.98	31	0.00

PLEASE NOTE: The seasonal average for precipitation deficit should not be used for calculations because precipitation often exceeds evaporation during wetter months of the year. If the pond is kept full, excess precipitation during wetter months does not serve to refill the pond during drier months.

For example, see Sandpoint KSPT (NWS -- 108137), the annual precipitation deficit is -106 mm. However, April through September have positive precipitation deficit values. To properly estimate the annual volume of water necessary to refill a pond due to evaporation losses, the table will automatically enter a zero (0) for each month that the precipitation value is reported as a negative value.

As described above, precipitation offsets evaporation in winter months, so the net effect is that wintertime precipitation deficit is usually zero.

Total mm/year = 443.57

$[(\text{mm/yr}) \div (\text{convert to feet})] \times (\text{Surface area of pond, in acres}) = \text{Evaporation Loss in Acre Feet}$

$$(443.57 \div 304.8) \times 0.10 = 0.1 \text{ AFA}$$

Total Storage Calculations

FILE NUMBER	67-8026
REVIEWER	Aaron Skinner
DATE	6/19/2017

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.)	4.8	"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)	0.48	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)	7.3	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)	7.9	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.

Flow Rate into Pond (CFS)	0.09	The "Flow Rate into Pond" depicts the actual flow, either measured or estimated, into the pond. For offstream facilities, this will be equivalent to "diversion to storage" rate.
Highest Daily Evaporation Rate From Evaporation Tab. (mm/Day)	4.02	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table".
Required Daily Maintenance Volume (AF/Day)	0.02	"Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year to maintain pond volume. It is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (CFS)	0.01	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determined by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	3	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. <i>If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.</i>
Days Required to Fill the Pond at 13,000 Gallons per Day	26	Some water users may want to fill a pond under the 13,000 gallons per day domestic exemption. The "Days Required to Fill the Pond at 13,000 Gallons per Day" is calculated by converting the "Pond Capacity" and the "Required Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Required Daily Maintenance Volume" in gallons to determine the number of days to fill pond. <i>If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.</i> Negative values indicate that the supply of 13,000 gallons per day is not enough volume to overcome the required daily maintenance volume; the pond will never fill.





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Particle Size and Coarse Fragments

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Soil Qualities and Features

Vegetative Productivity

Waste Management

Water Features

Water Management

Soil Map


Scale: (not to scale)



Report — Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Adams-Washington Area, Parts of Adams and Washington Counties, Idaho

Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification	Unified AASHTO	Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
							>10 Inches	3-10 Inches	4	10	40	200		
							L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
7—Appledella loam, 4 to 8 percent slopes														
Appledella	90	D	0-10	Loam	CL	A-7, A-6	0-0-0	0-0-0	95-98-100	95-98-100	80-88-95	60-68-75	29-36-43	12-15-18
			10-18	Clay, clay loam	CL, CH	A-7	0-0-0	0-0-0	90-95-100	90-95-100	85-93-100	75-85-95	44-50-56	25-28-32
			18-32	Clay, gravelly clay	CH	A-7	0-0-0	0-5-10	70-83-95	65-78-90	60-75-90	50-65-80	50-56-62	29-33-36
			32-33	Cemented material	—	—	—	—	—	—	—	—	—	—
			33-60	Extremely gravelly sand, extremely gravelly coarse sand	GP-GM, GP, GW	A-1	0-0-0	5-25-45	10-18-25	10-18-25	5-13-20	0-3-5	0-0-14	NP
100—Jackknife loam, 12 to 30 percent slopes														
Jackknife	85	C	0-13	Loam	CL, ML	A-6, A-7	0-0-0	0-8-15	95-98-100	95-98-100	85-93-100	70-80-90	37-42-46	13-15-18
			13-41	Silty clay loam, clay, clay loam	CH, CL	A-7	0-0-0	0-10-20	95-98-100	95-98-100	90-95-100	70-83-95	47-57-66	25-31-36
			41-60	Very cobbly clay loam, gravelly loam, gravelly clay loam	GC, SC	A-7, A-2	0-0-0	5-18-30	60-70-80	55-63-70	40-48-55	35-43-50	36-44-51	17-23-29

Seepage Loss Calculations For West Pond

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total annual seepage losses from a pond.

FILE NUMBER	67-8026
REVIEWER	Aaron Skinner
DATE	6/19/2017

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	0.04	AC.
-------------------------	------	-----

Pond Surface Area (SQ. FT.)	1742	SQ. FT.
-----------------------------	------	---------

I used the following method to obtain my Soil Classification information:	NRCS Web Soil Survey	
My Soil Classification is	GM	
Suggested Seepage Rate (FT./DAY)	0.2000	FT./DAY

Formula: (Surface Area X Seepage Rate) X 7.48 = Gallons Per Day Loss
--

Convert to GPD	2607	GPD
----------------	------	-----

Total Seepage Loss (AFA)	2.9	AFA
--------------------------	-----	-----

Though sand and gravel seepage rates may actually be higher, the maximum allowable rate is 0.2 ft/day, pursuant to Administrative Memo "Seepage Loss Standards for Ponds and Reservoirs."

Suggested Seepage Rates for Different Soil Types:
GW, GP, GM, GC, SW, SP and SM (silty sand, sand silt mixtures and gravel mixtures) = 0.2 ft per day
OL and ML (inorganic silts - very fine sands, silty, or clayey fine sands) = 0.02 ft per day
SC (clayey sands, sand clay mixtures) = 0.007 ft per day
CL (Low to medium plasticity clays) = 0.003 ft per day
MH, OH, PT and CH (high plasticity clays) = 0.0003 ft per day
LINED PONDS (liners can be chemical, fabric, or bentonite) = 0 ft per day
Ponds Intercepting Groundwater (excavated ponds filled by ground water) = 0 ft per day

PLEASE NOTE: The initial basis for the Suggested Seepage Rates in the table above is found on Page 16 of Seepage from Fish Ponds, Bulletin 599, August 1989 Alabama Agricultural experiment Station, Auburn University, Auburn University Alabama. If you don't know the soil type, please refer to the map provided at the NRCS Web Soil Survey (Tab #1), an ArcMap Soil Classification Map (Tab #1.1), or published NRCS Soil Survey (Tab #1.2). Use "0" if the pond fill relies on the water table.

Evaporation Loss Calculations

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the annual evaporation losses from a pond.

FILE NUMBER	67-8026
REVIEWER	Aaron Skinner
DATE	6/19/2017

User Input
Calculated value
Formula Explanations

The acronyms used on the Kimberly Research Center website are defined below:
P = Precipitation
ET= Evapotranspiration
P _d = Precipitation deficit
P _d = ET-P

USING THIS SPREADSHEET

Use the link below to access the Kimberly Research Center website. This website provides the Precipitation Deficit for a station most representative of the pond under examination. The Precipitation Deficit is the total amount of free water surface evaporation minus the precipitation for a given area, which gives the total amount of evaporative losses incurred by the pond. There are several weather sites that are used throughout the state. IDWR staff can find the nearest site using Arc Map. The shape file containing the sites can be found at X:/Spatial/Climate/ETIdahostations.shp.

Instructions:

1. Use the link below to navigate to ET Idaho 2012.
2. Select the station which is most representative to your pond location.
3. Click Submit Query.
4. Under "Land Covers with Evapotranspiration Estimates," select "Open Water - Shallow Systems (ponds, streams)" or "Open Water - small stock ponds" depending on the pond size.
5. Click the link to "Precipitation Deficit."
6. Reference and copy (ctrl + C) the first subheading "Mean" values.
7. Click the "Paste Values from ET Idaho" button. The table will automatically enter a zero (0) for any

Found at: <http://data.kimberly.uidaho.edu/ETIdaho/>

Precipitation Deficit

Station:	Council (NWS -- 102187)		
Month	mm/day ¹	Days per month	mm/Month
Jan	-2.61	31	0.00
Feb	-2.02	28	0.00
March	-0.42	31	0.00
April	1.13	30	33.90
May	1.94	31	60.14
June	2.47	30	74.10
July	4.02	31	124.62
August	3.21	31	99.51
September	1.71	30	51.30
October	-0.10	31	0.00
November	-2.46	30	0.00
December	-2.98	31	0.00

Total mm/year = 443.57

PLEASE NOTE: The seasonal average for precipitation deficit should not be used for calculations because precipitation often exceeds evaporation during wetter months of the year. If the pond is kept full, excess precipitation during wetter months does not serve to refill the pond during drier months.

For example, see Sandpoint KSPT (NWS -- 108137), the annual precipitation deficit is -106 mm. However, April through September have positive precipitation deficit values. To properly estimate the annual volume of water necessary to refill a pond due to evaporation losses, the table will automatically enter a zero (0) for each month that the precipitation value is reported as a negative value.

As described above, precipitation offsets evaporation in winter months, so the net effect is that wintertime precipitation deficit is usually zero.

[(mm/yr) ÷ (convert to feet)] X (Surface area of pond, in acres) = Evaporation Loss in Acre Feet

$$\left(\frac{443.57}{304.8} \right) \times 0.04 = 0.1 \text{ AFA}$$

Total Storage Calculations

FILE NUMBER	67-8026
REVIEWER	Aaron Skinner
DATE	6/19/2017

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.)	0.04	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	2.4	"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)	0.096	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)	2.9	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)	3.1	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.

Flow Rate into Pond (CFS)	0.09	The "Flow Rate into Pond" depicts the actual flow, either measured or estimated, into the pond. For offstream facilities, this will be equivalent to "diversion to storage" rate.
Highest Daily Evaporation Rate From Evaporation Tab. (mm/Day)	4.02	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table".
Required Daily Maintenance Volume (AF/Day)	0.01	"Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year to maintain pond volume. It is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (CFS)	0.00	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determined by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	1	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. <i>If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.</i>
Days Required to Fill the Pond at 13,000 Gallons per Day	3	Some water users may want to fill a pond under the 13,000 gallons per day domestic exemption. The "Days Required to Fill the Pond at 13,000 Gallons per Day" is calculated by converting the "Pond Capacity" and the "Required Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Required Daily Maintenance Volume" in gallons to determine the number of days to fill pond. <i>If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.</i> Negative values indicate that the supply of 13,000 gallons per day is not enough volume to overcome the required daily maintenance volume; the pond will never fill.

West Pond


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Soil Chemical Properties

Soil Erosion

Soil Health

Soil Physical Properties**Engineering Properties**[View Description](#)[View Soil Report](#)**Options**Include minor soils? ☐[View Description](#)[View Soil Report](#)

Particle Size and Coarse Fragments

Physical Soil Properties

Soil Qualities and Features

Vegetative Productivity

Waste Management

Water Features

Water Management

Soil Map

Scale: (not to scale)

**Report — Engineering Properties**

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Adams-Washington Area, Parts of Adams and Washington Counties, Idaho

Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	
100—Jackknife loam, 12 to 30 percent slopes														
Jackknife	85	C	0-13	Loam	CL, ML	A-6, A-7	0-0-0	0-8-15	95-98-100	95-98-100	85-93-100	70-80-90	37-42-46	13-15
			13-41	Silty clay loam, clay, clay loam	CH, CL	A-7	0-0-0	0-10-20	95-98-100	95-98-100	90-95-100	70-83-95	47-57-66	25-30
			41-60	Very cobbly clay loam, gravelly loam, gravelly clay loam	GC, SC	A-7, A-2	0-0-0	5-18-30	60-70-80	55-63-70	40-48-55	35-43-50	36-44-51	17-20

Description — Engineering Properties

ETIdaho 2012 -- Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho

Please send suggestions for improving this site to robison@kimberly.uidaho.edu Copyright 2012, University of Idaho

Council (NWS -- 102187)

Statistics based on thirty year normal spans 1944 to 2010 years

For a different land cover or crop click on the above link

You can highlight this table and copy via the clipboard to a Microsoft Excel or OpenOffice spreadsheet to plot or otherwise work with this data.

Open water - shallow systems (ponds, streams)														Precipitation Deficit (Click here for a graph)		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Growing Season ^a	Non Growing Season ^b	Annual	
Mean ^c	mm/day												mm			
Monthly ^d	-2.64	-2.02	-0.42	1.13	1.94	2.47	4.02	3.21	1.74	-0.10	-2.46	-2.98	121	0	121	
15-Day Moving Average ^d	-2.74	-2.30	-0.51	1.16	2.09	2.39	4.10	3.16	1.46	-0.06	-2.62	-3.04				
7-Day Moving Average ^e	-2.65	-2.21	-0.49	1.15	1.99	2.43	4.08	3.20	1.57	-0.18	-2.62	-3.01				
3-Day Moving Average ^f	-2.62	-2.07	-0.44	1.16	1.96	2.45	4.03	3.22	1.65	-0.13	-2.50	-3.00				
Standard Deviation ^g	mm/day												mm			
Monthly ^d	3.17	1.45	1.45	1.60	1.51	1.33	0.59	1.02	1.13	2.37	1.83	2.51	169	0	169	
15-Day Moving Average ^d	3.20	2.27	1.68	1.87	1.66	1.81	0.51	1.21	1.69	2.18	2.43	2.57				
7-Day Moving Average ^e	3.83	3.32	2.20	2.33	2.15	2.52	0.77	1.58	2.19	3.12	3.30	3.53				
3-Day Moving Average ^f	4.86	4.41	3.05	3.14	3.01	3.50	1.22	2.01	2.79	4.04	4.46	4.91				
20% Exceedance ^h	mm/day												mm			
Monthly ^d	-0.87	-0.34	0.52	2.24	2.61	3.51	4.35	3.63	2.45	1.27	-1.13	-1.38	256	0	256	
15-Day Moving Average ^d	0.21	0.55	1.48	3.20	4.08	4.63	4.65	4.18	3.18	2.05	0.18	0.12				
7-Day Moving Average ^e	0.47	1.00	2.35	3.85	4.84	5.05	4.91	4.43	3.66	2.63	1.02	0.36				
3-Day Moving Average ^f	0.55	1.15	2.78	4.42	5.31	5.48	5.25	4.59	3.85	2.87	1.36	0.51				
80% Exceedance ^h	mm/day												mm			
Monthly ^d	-3.83	-3.18	-1.50	-0.44	0.57	1.23	3.53	2.73	0.68	-1.62	-3.99	-4.62	-64	0	-68	
15-Day Moving Average ^d	-6.04	-6.21	-2.74	-1.28	-0.15	-0.48	2.96	1.61	-1.08	-3.66	-6.38	-8.04				
7-Day Moving Average ^e	-9.44	-10.63	-5.47	-4.19	-3.20	-4.52	1.66	-0.55	-4.50	-7.51	-9.13	-10.93				
3-Day Moving Average ^f	-17.43	-17.75	-11.39	-10.04	-8.45	-10.19	-0.93	-5.75	-8.51	-14.62	-16.64	-18.54				
Ave Highest P _{def}	mm/day												--			
15-Day Moving Average ^d	0.08	0.24	0.95	2.36	3.14	3.82	4.44	3.83	2.58	1.51	0.14	0.06				
7-Day Moving Average ^e	0.28	0.70	1.77	3.35	4.18	4.74	4.72	4.23	3.33	2.22	0.65	0.25				
3-Day Moving Average ^f	0.45	1.06	2.35	3.96	4.90	5.19	5.02	4.45	3.67	2.59	1.06	0.40				
Ave Lowest P _{def}	mm/day												--			
15-Day Moving Average ^d	-4.55	-3.75	-1.72	0.15	0.69	0.98	3.63	2.42	0.53	-1.61	-4.28	-5.08				
7-Day Moving Average ^e	-7.26	-6.80	-3.66	-1.62	-1.45	-1.21	2.82	1.02	-1.18	-4.48	-6.91	-8.06				
3-Day Moving Average ^f	-12.35	-12.04	-7.66	-5.13	-5.22	-5.25	1.16	-1.19	-4.18	-8.85	-12.16	-13.68				
Special normal distribution parameters for monthly, seasonal, and annual intervals																
Skew ^m	-0.58	0.25	-0.15	-0.97	-0.24	-0.51	-0.17	-0.54	-0.97	-0.24	-1.00	-0.30	-0.13	0.00	-0.19	
Kurtosis ⁿ	1.60	2.02	0.70	3.52	0.67	2.37	0.53	1.46	3.54	0.70	4.17	0.64	3.07	0.00	3.07	

^a Growing Season. This is usually the time from green up or planting in the spring to a killing frost or harvest in the fall. It is not applicable for entries without a growing season and will be blank.^b Nongrowing Season. This is usually the time from a killing frost or harvest in the fall to the of green up in the spring. It is not applicable for entries without a growing season.^c Mean of the average daily value for month^d Mean of the fourteen 15-day period averages contained in the month^e Mean of the twenty three 7-day period averages contained in the month^f Mean of the twenty seven 3-day period averages contained in the month^g Mean of the highest/lowest 15-day period average in month^h Mean of the highest/lowest 7-day period average in monthⁱ Mean of the highest/lowest 3-day period average in month^j This value represents the mean value for the parameter for the month over the 'normal' period of record. Generally, the 'normal' period is the last thirty years with data.^k This value represents the standard deviation for the parameter for the month over the 'normal' period.^l This value represents the value for the parameter that has a 20% chance of being exceeded that month during any particular year. Conversely, there is an 80% chance that the parameter value will be less than the value shown.^m This value represents the value for the parameter that has a 80% chance of being exceeded that month during any particular year. Conversely, there is an 20% chance that the parameter value will be less than the value shown.ⁿ This value represents the skewness (asymmetry) of the distribution of the parameter values for the month (year) over the 'normal' period. A value near zero indicates that the distribution approximates a normal (Gaussian) and symmetrical distribution. A negative skew indicates that the parameter distribution has relatively few low values compared to high values. A positive skew indicates that the distribution has relatively few high values compared to the number of low values. A skew value near 1 indicates that the underlying distribution approximates a lognormal distribution.^o This value represents the kurtosis of the parameter value distribution for the month (year) over the 'normal' period. Kurtosis is a measurement of the height to width ratio of the probability distribution, or the peakedness (slenderness). A normal (Gaussian) distribution has a kurtosis of 3. A high kurtosis distribution has a sharper peak and longer tails, while a low kurtosis distribution has a more rounded peak and shorter tails.

This work and report were prepared by the University of Idaho Research and Extension Center at Kimberly, Idaho under contract with the Idaho Department of Water Resources. Work was supported by funding from IDWR and the Idaho Agricultural Experiment Station and Idaho Engineering Experiment Station. The authors gratefully acknowledge the long-term evapotranspiration data collection and long-standing advice provided by Dr. James L. Wright, USDA-ARS Kimberly (ret.), the more than two decades of high quality agricultural weather data collection by the U.S. Bureau of Reclamation AgriMet system, and the very long-standing, routine data collection by the hundreds of cooperative weather station volunteers across the state who, for more than one-hundred years, have faithfully observed daily air temperature and precipitation.

The citation for the evapotranspiration data used from this site should be: Allen, Richard G. and Clarence W. Robison, 2012. *Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho: Supplement updating the Time Series through December 2008*. Research Technical Completion Report, Kimberly Research and Extension Center, University of Idaho, Moscow, ID.

Questions regarding the data should be addressed to [Clarence W. Robison](mailto:Clarence.W.Robison@uidaho.edu) or [Richard G. Allen](mailto:Richard.G.Allen@uidaho.edu), University of Idaho, Kimberly Research and Extension Center, 3793 North 3600 East, Kimberly, ID 83341. Telephone (208)423-6610.



Spring Box located at 44°44'33.314N 116°25'4.063W. Water is captured here and diverted to the pond via a 3" PVC pipe that runs to the pond.



Discharge into the pond from the Spring. A bucket test was used here to measure the rate at 0.09 cfs or 38.9 gpm.



East Pond used for aesthetic storage. Pond capacity is 0.48 AF with estimated losses of 7.3 AF for seepage and 0.1 AF for evaporation.



Sorenson Rinehart Ditch Company discharge pipe into the east pond.



Overflow outlet that conveys water to the west pond and irrigation water around the garden area and house.



Ditch that conveys water to the west pond.



Ditch along the driveway that conveys water to the west pond.



West pond that has a capacity of 0.01 AF with estimated losses of 2.9 AF for seepage and 0.1 AF for evaporation.



Cat walk the 2 hp pump sits on and diverts water to the 7.8 acres. The 2" PVC that is laying on the cat walk is placed down into the corrugated stilling well and connects to the pump.



2 hp pump that is used to divert water from the pond to the 7.8 acres.



Some of the 2" hand lines used to irrigate the fruit trees, yard, and grass around the east pond.



Hand lines irrigating the fruit trees just west of the east pond.



Part of the 7.8 acres that encompasses the place of use area.



Grass around the house and shop area.

Idaho Dept. of Water Resources

Write Tag Number Here

Start Card/Permit - Single Family Domestic Well Only

(Cold Water less than 85 degrees F.)

1. Owner's Name (please print): Dave and Tawni Limesand
 2. Owner's Mailing Address: 1385 So. Ash Ave.
 City: Kuna State: ID Zip Code: 83634 Telephone: ()
 3. Proposed Well Location: Twp 2N, Rge. 1W, Sec. 26, 1/4 SW 1/4 SW 1/4
 Gov't Lot No. County Ada Lat. 43 : 28 : 57 Long. 116 : 25 : 858
 Street Address of Well Site same City
 Must give at least name of road + Distance to Road or Landmark

Lot Block and Subdivision 4. Are all adjacent septic tanks and drain fields accurately located? By Property Owner: Yes ☒ No ☐ By Health District: Yes ☐ No ☐

5. Well Construction Information:

A. ☒ New well ☐ Replace ☐ Deepen ☐ Modify Previous well #: B. Proposed Casing Dia 6" C. Proposed Maximum Depth: 220'6. Construction Start Date: 9/23/17 7. Well Driller: Cam Ada Driller's Lic. No 309

8. The Driller hereby accepts the terms and conditions of the Start Card/Permit.

Driller's Signature: Cam Ada Date 9/21/17

9. The Well Owner affirms to have read this Start Card/Permit, validates its accuracy and accepts the conditions.

Owner's Signature: Dave Limesand Date 9/19/17

CONDITIONS FOR USE OF START CARD:

1. This permit authorizes the construction or modification of one domestic well for a single-family residence. No additional residences businesses, or dwellings may be connected to this well without a valid water right.
2. This form must be complete, including the prepaid tag number and signature of the driller. The owner should sign the start card after reviewing these conditions. Mailing must take place no less than 72 hours prior to construction (Dept. address below), hand delivered or faxed to the Dept. prior to commencing construction. The start construction date shall be no more than 10 days after, the Department receives the permit. An incomplete form will not be considered a valid permit to drill.
3. This permit does not constitute an approval of the District Health Department or the Idaho Department of Health and Welfare. All wells must be drilled a minimum distance of 100' from a drain field. Domestic wells must be drilled a minimum of 50' from a septic tank.
4. Only Well Drillers licensed in Idaho may use a Start Card for construction of a well. The driller shall maintain a copy of the Start Card and the well I.D tag at the drilling site during construction.
5. This drilling permit does not authorize trespass on the land of another party.
6. This drilling permit does not constitute other local, county, state or federal approvals, which may be required for construction of a well.
7. This drilling permit does not represent a right to divert and use the water of the State of Idaho.
8. If a bottom hole temperature of 85° F. or greater is encountered, well construction shall cease and the well driller shall contact the Department immediately.
9. Idaho Code, S 55-2201 - 55-2210 requires the applicant and/or his contractors to contact "Digline" (Digline is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Digline" Number for your area is 1-800-342-1585.
10. The stainless steel I. D. tag must be welded to the well casing upon completing the well and must remain permanently attached above ground level for the life of the well. Other tags may be added following a repair or modification of the well. The well driller is responsible for permanently attaching the I.D. tag to the casing upon completing the well. The well tag shall be attached by welding at least 3 sides or using Four (4) stainless steel, closed-end pop rivets.
11. A start card is not valid for drilling in Areas of Drilling Concern, Critical Groundwater Areas, Groundwater Management Areas or Areas Identified by the Department as Contaminated.
12. The possession of a well tag does not authorize construction of a well.
13. Any well being replaced by a new well, shall be properly abandoned by the well driller prior to removing the drilling equipment, unless otherwise authorized by the department.

Your Start Card/Application and Tag purchase may be submitted to one of the following offices:

Western Region
 Idaho Department of Water Resources
 2735 Airport Way Boise, ID 83705-5082
 Phone: (208) 334-2190 Fax: (208) 334-2348

Northern Region
 Idaho Department of Water Resources
 1910 Northwest Blvd., STE 210 Coeur d'Alene, ID 83814-2615
 Phone: (208) 769-1450 Fax (208) 769-1454

Eastern Region
 Idaho Department of Water Resources
 900 North Skyline Drive STE A Idaho Falls, ID 83402-1718
 Phone: (208) 525-7161 Fax: (208) 525-7177

Southern Region
 Idaho Department of Water Resources
 1341 Fillmore Street, STE 200 Twin Falls, ID 83301-3380
 Phone: (208) 736-3033 Fax (208) 736-3037

Effective June 1, 2004



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region • 2735 Airport Way • Boise, Idaho 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

April 17, 2017

SHERYL SHIPLEY
2058 MISSMAN ROAD
COUNCIL, IDAHO 83612

COPY

RE: Scheduling Field Exam for Water Right Permit No. 67-8026

Dear Mrs. Shipley:

We are planning to conduct water right examinations in the vicinity of the above-referenced permit during the weeks of May 8th – May 26, 2017. An examination is needed to verify the water use in order to issue a water right license. We have scheduled an exam with you on **May 9th at 9:30 am**. Please be advised that we will **need the system running so we can obtain a water measurement** during the exam. If this date does not work, please let the Department know as soon as possible.

The above-referenced permit authorizes **a diversion rate of 0.6 cfs for irrigation use from a spring, a tributary of Sinks.**

Enclosed is the water permit report (Proof Report) and map that depicts the Place of Use and Point of Diversion. Also, included is a Change in Ownership form that will need to be filled out, a conveyance document located, and a check for \$25 per water permit/right submitted. My hope is to collect the Change Ownership form on May 9th and submit it for you upon returning to the office.

Please call me at (208) 334-2190 if you have any questions. I appreciate your attention in this matter and I look forward to visiting with you on May 9th.

Sincerely,

Aaron Skinner
Water Resource Agent
aaron.skinner@idwr.idaho.gov

Enclosures: Water Permit Report and Map
Change in Ownership form



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region • 2735 Airport Way • Boise, Idaho 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

April 7, 2017

COPY

HELEN JONES AND/OR
FRANK JONES
2084 MISSMAN ROAD
COUNCIL, IDAHO 83612

RE: Scheduling Field Exam for Water Right Permit No. 67-8026

Dear Permit Holder:

We are planning to conduct water right examinations in the vicinity of the above-referenced permit **during the weeks of May 8th – May 26, 2017**. An examination is needed to verify the water use in order to issue a water right license.

The above-referenced permit authorizes a **diversion rate of 0.6 cfs for irrigation use from a spring, a tributary of Sinks. If you have developed a beneficial use and still own the place of use property, please contact me at your earliest convenience to schedule an examination.**

If you did not develop a beneficial use of water under the permit or if you did develop that use, but subsequently abandoned it, a license cannot be issued. Please relinquish the permit by submitting the enclosed Relinquishment of Permit form (no fee required). The permit will be voided if beneficial use under the permit was not developed or was developed, but is now abandoned and you do not relinquish the permit.

If you did develop a beneficial use of water under the permit, but you no longer own the place of use property identified in the permit, please submit the enclosed Assignment of Permit form with the applicable \$25 processing fee.

Please contact me within the next thirty (30) days to either schedule an examination, submit a relinquishment, or submit an assignment. If you no longer own the place of use property and/or do not respond to this letter, the department will work with the current property owner to issue a license or void the permit.

Please call me at (208) 334-2190 if you have any questions. I appreciate your attention in this matter and I look forward to hearing from you.

Sincerely,

Aaron Skinner
Water Resource Agent

Enclosures: Water Permit Report and Map
Relinquishment of Permit form
Assignment of Permit form

Boise, Idaho 83705-5082

WR Permit No. 67-8026

RE: Letter Dated 4/7/17

Resent letter to PO Box 279 per B/U form contact

**PRESORTED
FIRST CLASS**



ZIP 83702 \$ 000.37³
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0001393358 APR 07 2017

RECEIVED

APR 14 2017

WATER RESOURCES
WESTERN REGION

1947-1948 1949-1950 1951-1952 1953-1954 1955-1956 1957-1958 1959-1960 1961-1962 1963-1964 1965-1966 1967-1968 1969-1970 1971-1972 1973-1974 1975-1976 1977-1978 1979-1980 1981-1982 1983-1984 1985-1986 1987-1988 1989-1990 1991-1992 1993-1994 1995-1996 1997-1998 1999-2000 2001-2002 2003-2004 2005-2006 2007-2008 2009-2010 2011-2012 2013-2014 2015-2016 2017-2018 2019-2020 2021-2022 2023-2024 2025-2026 2027-2028 2029-2030 2031-2032 2033-2034 2035-2036 2037-2038 2039-2040 2041-2042 2043-2044 2045-2046 2047-2048 2049-2050 2051-2052 2053-2054 2055-2056 2057-2058 2059-2060 2061-2062 2063-2064 2065-2066 2067-2068 2069-2070 2071-2072 2073-2074 2075-2076 2077-2078 2079-2080 2081-2082 2083-2084 2085-2086 2087-2088 2089-2090 2091-2092 2093-2094 2095-2096 2097-2098 2099-2100 2101-2102 2103-2104 2105-2106 2107-2108 2109-2110 2111-2112 2113-2114 2115-2116 2117-2118 2119-2120 2121-2122 2123-2124 2125-2126 2127-2128 2129-2130 2131-2132 2133-2134 2135-2136 2137-2138 2139-2140 2141-2142 2143-2144 2145-2146 2147-2148 2149-2150 2151-2152 2153-2154 2155-2156 2157-2158 2159-2160 2161-2162 2163-2164 2165-2166 2167-2168 2169-2170 2171-2172 2173-2174 2175-2176 2177-2178 2179-2180 2181-2182 2183-2184 2185-2186 2187-2188 2189-2190 2191-2192 2193-2194 2195-2196 2197-2198 2199-2200 2201-2202 2203-2204 2205-2206 2207-2208 2209-2210 2211-2212 2213-2214 2215-2216 2217-2218 2219-2220 2221-2222 2223-2224 2225-2226 2227-2228 2229-2230 2231-2232 2233-2234 2235-2236 2237-2238 2239-2240 2241-2242 2243-2244 2245-2246 2247-2248 2249-2250 2251-2252 2253-2254 2255-2256 2257-2258 2259-2260 2261-2262 2263-2264 2265-2266 2267-2268 2269-2270 2271-2272 2273-2274 2275-2276 2277-2278 2279-2280 2281-2282 2283-2284 2285-2286 2287-2288 2289-2290 2291-2292 2293-2294 2295-2296 2297-2298 2299-2300 2301-2302 2303-2304 2305-2306 2307-2308 2309-2310 2311-2312 2313-2314 2315-2316 2317-2318 2319-2320 2321-2322 2323-2324 2325-2326 2327-2328 2329-2330 2331-2332 2333-2334 2335-2336 2337-2338 2339-2340 2341-2342 2343-2344 2345-2346 2347-2348 2349-2350 2351-2352 2353-2354 2355-2356 2357-2358 2359-2360 2361-2362 2363-2364 2365-2366 2367-2368 2369-2370 2371-2372 2373-2374 2375-2376 2377-2378 2379-2380 2381-2382 2383-2384 2385-2386 2387-2388 2389-2390 2391-2392 2393-2394 2395-2396 2397-2398 2399-2400 2401-2402 2403-2404 2405-2406 2407-2408 2409-2410 2411-2412 2413-2414 2415-2416 2417-2418 2419-2420 2421-2422 2423-2424 2425-2426 2427-2428 2429-2430 2431-2432 2433-2434 2435-2436 2437-2438 2439-2440 2441-2442 2443-2444 2445-2446 2447-2448 2449-2450 2451-2452 2453-2454 2455-2456 2457-2458 2459-2460 2461-2462 2463-2464 2465-2466 2467-2468 2469-2470 2471-2472 2473-2474 2475-2476 2477-2478 2479-2480 2481-2482 2483-2484 2485-2486 2487-2488 2489-2490 2491-2492 2493-2494 2495-2496 2497-2498 2499-2500 2501-2502 2503-2504 2505-2506 2507-2508 2509-2510 2511-2512 2513-2514 2515-2516 2517-2518 2519-2520 2521-2522 2523-2524 2525-2526 2527-2528 2529-2530 2531-2532 2533-2534 2535-2536 2537-2538 2539-2540 2541-2542 2543-2544 2545-2546 2547-2548 2549-2550 2551-2552 2553-2554 2555-2556 2557-2558 2559-2560 2561-2562 2563-2564 2565-2566 2567-2568 2569-2570 2571-2572 2573-2574 2575-2576 2577-2578 2579-2580 2581-2582 2583-2584 2585-2586 2587-2588 2589-2590 2591-2592 2593-2594 2595-2596 2597-2598 2599-2600 2601-2602 2603-2604 2605-2606 2607-2608 2609-2610 2611-2612 2613-2614 2615-2616 2617-2618 2619-2620 2621-2622 2623-2624 2625-2626 2627-2628 2629-2630 2631-2632 2633-2634 2635-2636 2637-2638 2639-2640 2641-2642 2643-2644 2645-2646 2647-2648 2649-2650 2651-2652 2653-2654 2655-2656 2657-2658 2659-2660 2661-2662 2663-2664 2665-2666 2667-2668 2669-2670 2671-2672 2673-2674 2675-2676 2677-2678 2679-2680 2681-2682 2683-2684 2685-2686 2687-2688 2689-2690 2691-2692 2693-2694 2695-2696 2697-2698 2699-2700 2701-2702 2703-2704 2705-2706 2707-2708 2709-2710 2711-2712 2713-2714 2715-2716 2717-2718 2719-2720 2721-2722 2723-2724 2725-2726 2727-2728 2729-2730 2731-2732 2733-2734 2735-2736 2737-2738 2739-2740 2741-2742 2743-2744 2745-2746 2747-2748 2749-2750 2751-2752 2753-2754 2755-2756 2757-2758 2759-2760 2761-2762 2763-2764 2765

NOT TO BE USED FOR FORWARDING

BC: 85705308735 5014-04066-08-22

040505



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region, 2735 Airport Way • Boise, Idaho 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348 • Web Site: www.idwr.idaho.gov

C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Interim Director

April 16, 2013

Frank L. & Helen M. Jones
2084 Missman Road
Council, ID 83612

RE: Scheduling Field Exam for Water Right Permit No. 67-8026

We are planning to **conduct water right field examinations** in the vicinity of the above-referenced permit **during the week of April 29, 2013**. An examination is needed to verify your water use in order to issue a water right license.

Please be advised that you will need to operate your system under normal operating conditions during the examination. The permit authorizes the diversion of 0.60 cfs of spring water for irrigation of 30.0 acres.

In order to conduct your exam as efficiently as possible, we ask that you call this office to schedule a day and time convenient for you. **Please call me at 208-334-2190 by April 26, 2013, to conduct the exam during the week of April 29, 2013.** If there is a problem with scheduling or conducting the examination at this time, please let me know so we can reschedule or make other arrangements.

I appreciate your attention to this matter and I look forward to hearing from you.

Sincerely,

A handwritten signature in black ink that reads "Rick Collingwood". The signature is written in a cursive, flowing style.

Rick Collingwood, P.E.
Water Resource Agent, Sr.