

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 75-07596
Exam Date: 6/24/2013

1. Current Owner:
LEE A ROBERSON 11 PEPPER LN SALMON ID 83467 (208) 756-8667

2. Accompanied by: Carolyn Roberson
Phone No:
Address:
Relationship to Permit Holder:

3. SOURCE:
SPRING

TRIBUTARY:
TWELVEMILE CREEK

B. OVERLAP REVIEW

1. Other water rights with the same place of use:
75-11622 is an existing domestic right from a spring in the same QQ;
2. Other water rights with the same point-of-diversion: NA

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

SPRING L3 (SE¼NE¼NW¼) Sec. 1, Twp 19N, Rge 21E, B.M. LEMHI County

Method of Determination: site visit and gps

2.

PLACE OF USE: RECREATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
19N	21E	1					X L 3												

Method of Determination:

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 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
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*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

2. Measurements:

Culvert outlet:

1.5 (18 inches) feet

Water 5 inches deep

Velocity approximately .25 feet per second

Cross Sectional Area of Flow 0.60

 $0.25 \times 0.6 = 0.15$ cfs

It was not possible to get a measurement from the inflow to the pond. Several small channels over 10 to 15 feet feed into the pond to the east. The culvert mentioned above is at the outflow from the pond.

E. FLOW CALCULATIONS

Measured Method:

 X Additional Computation Sheets Attached**F. VOLUME CALCULATIONS****1. Volume Calculations for Irrigation: NA** $V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ $V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$ $V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \text{NA}$ **2. Volume Calculations for Other Uses:**

Pond Storage

Pond acres 0.19

Pond depth 10 feet

 $0.19 \times 10 = 1.9$ AF for recreation storage

Permit Amount: 0.9 AF

 $0.4 \text{ af consumptive use from domestic } 0.4 + 0.9 = 1.3 \text{ AF}$ Recommended Volume for Recreation Storage 1.3 AF**G. NARRATIVE/REMARKS/COMMENTS**

The permit identifies a spring in T19N R21E Section 1 NENW Lot 3 as the point of diversion for a beneficial use of Recreation. The pond receives water from a series of small channels that flow from the east side. There is a spring within the approved quarter quarter; however there is a spring in the NWNE Lot 2 that also contributes water to the pond.

The point of diversion for rights 75-7013A and 75-7013B falls within Lot 2. The channel flows west from that spring, through the pond. From there the water continues to the south west to the place of use for those rights. There is no other channel to provide water for these rights from the approved point of diversion. Since the spring in Lot 3 contributes to the pond there are two points of diversion for the pond.

Water flows approximately 530 feet from the spring in Lot 2 and approximately 170 feet from the spring in lot 3. Several small channels flow into the pond through a marsh area. Water leaves the pond through a 1.5-foot culvert to the northwest.

Historically, previous owners of the property diverted spring water for domestic use. At the time of the field exam, a domestic well supplied water to the house. This permit also includes domestic; however, there is also a domestic water right from a spring for the house, 75-11622. The pond volume is greater than the volume allowed on the permit. Since the domestic use is covered under the right mentioned above, the domestic use from this permit can be applied to increase the authorized pond volume. The standard domestic use for the irrigation component is 0.6 af. Only the consumptive use portion may be used for storage. Consumptive use traditionally is approximately 70% of the headgate requirement. Seventy percent of 0.6 is 0.4. This additional 0.4 af can be applied to the pond volume.

Existing water rights 75-7013A (0.08 cfs) and 75-7013B (0.04 cfs) together have a diversion rate of 0.12 cfs. I measured 0.15 cfs.

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>
RECREATION STORAGE	01/01 to 12/31		1.3 AF

Totals:

1.30 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 ☐ None

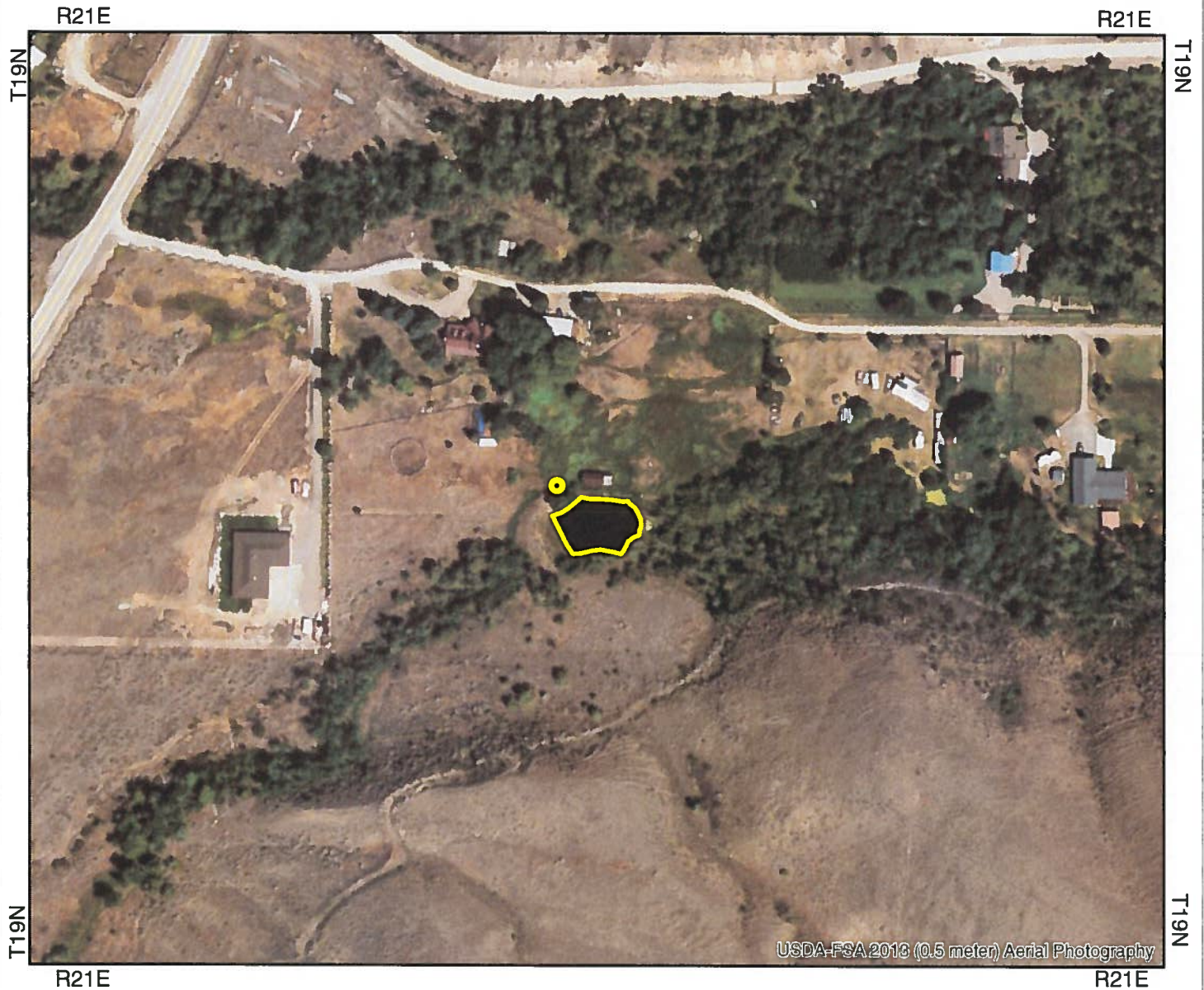
I. AUTHENTICATION

Field Examiner's Name Samuel Thiel Date 9/2/2016

Reviewer _____ Date _____

State of Idaho
Department of Water Resources
Water Right License
75-7596

This map depicts the RECREATION and RECREATION STORAGE place of use boundary and point of diversion for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



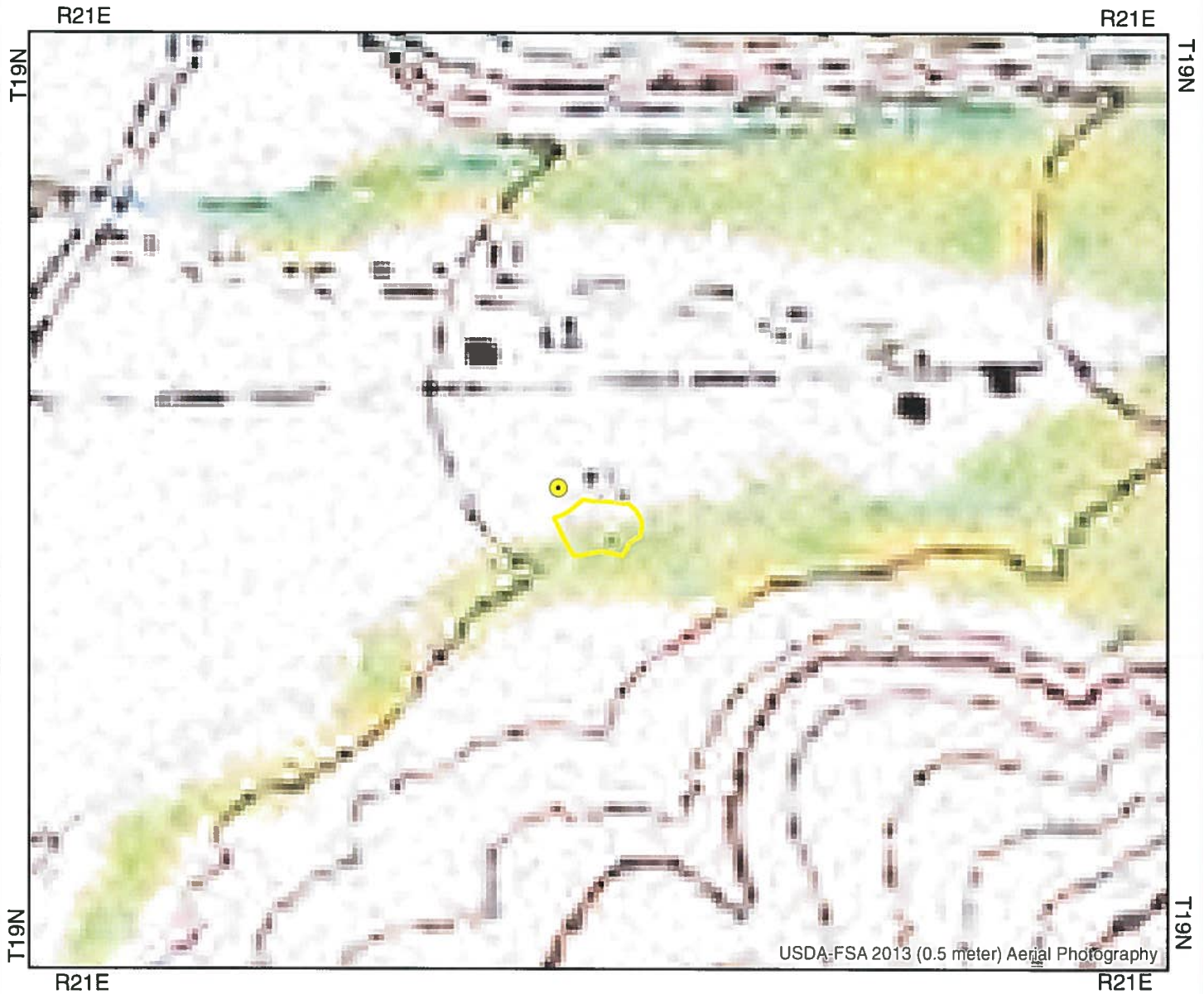
- Point of Diversion
- Place Of Use Boundary



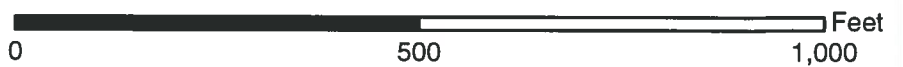
0 500 1,000 Feet

State of Idaho
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- Point of Diversion
- Place Of Use Boundary



System for Water Right 75-7596



The pond authorized under this permit receives water from a series of small channels that flow from the east side. There is a spring within the approved quarter quarter; however there is a spring in the NWNE Lot 2 that also helps contribute water to the pond.

The point of diversion for rights 75-7013A and 75-7013B falls within Lot 2. The channel flows west from that spring, through the pond. From there the water continues to the south west to the place of use for those rights. There is no other channel to provide water for these rights from the approved point of diversion. Since the spring in Lot 3 contributes to the pond there are two points of diversion for the pond.

Water flows approximately 530 feet from the spring in Lot 2 and approximately 170 feet from the spring in lot 3. Several small channels flow into the pond through a marsh area. Water leaves the pond through a 1.5-foot culvert (orange dashed line) to the northwest.

Historically, previous owners of the property diverted spring water for domestic use. At the time of the field exam, a domestic well supplied water to the house.

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	75-7596
REVIEWER	Sandra Thiel
DATE	8/23/2016

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 negative precipitation deficit values.

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

Precipitation Deficit

Station: Twin Falls 2 NNE (NWS -- 109294)

Month	mm/day ¹	Days per month	mm/Month
Jan	-0.34	31	0.00
Feb	0.10	28	2.80
March	0.99	31	30.69
April	1.83	30	54.90
May	2.08	31	64.48
June	2.64	30	79.20
July	3.55	31	110.05
August	3.14	31	97.34
September	1.72	30	51.60
October	0.71	31	22.01
November	-0.21	30	0.00
December	-0.45	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 = 513.07

$$[(513.07) \div (304.8)] \times 1.90 = 3.2 \text{ AFA}$$

Total Storage Calculations

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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.)	0.19	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	10	"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)	1.9	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.

Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	0	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <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)	0.5	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.3	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	2.7	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)	0.15	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)	3.55	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table". Flow rate was actually taken at the out flow from the pond. Was not able to measure inflow...
Required Daily Maintenance Volume (AF/Day)	0.00	"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	6	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. 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.
Days Required to Fill the Pond at 13,000 Gallons per Day	52	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. 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. 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.

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

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

Salmon (NWS -- 108076)

Statistics based on thirty year normal spans 1979 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 ^j	mm/day												mm		
Monthly ^c	-0.34	0.10	0.99	1.83	2.08	2.64	3.55	3.14	1.72	0.71	-0.21	-0.45	483	0	483
15-Day Moving Average ^d	-0.34	0.02	1.02	1.83	2.10	2.57	3.62	3.14	1.72	0.74	-0.20	-0.40			
7-Day Moving Average ^e	-0.34	0.05	0.99	1.82	2.06	2.60	3.59	3.14	1.69	0.73	-0.23	-0.42			
3-Day Moving Average ^f	-0.34	0.09	0.98	1.83	2.07	2.62	3.56	3.15	1.71	0.71	-0.23	-0.44			
Standard Deviation ^k	mm/day												mm		
Monthly ^c	0.39	0.34	0.48	0.61	1.23	1.02	1.12	0.95	0.72	0.75	0.44	0.56	76	0	76
15-Day Moving Average ^d	0.43	0.46	0.44	0.82	1.28	1.26	1.06	0.92	1.02	0.66	0.56	0.45			
7-Day Moving Average ^e	0.65	0.61	0.65	1.14	1.76	1.74	1.40	1.19	1.37	1.00	0.80	0.65			
3-Day Moving Average ^f	0.90	0.81	0.98	1.64	2.34	2.37	2.05	1.62	1.87	1.41	1.15	0.97			
20% Exceedance ^l	mm/day												mm		
Monthly ^c	-0.07	0.37	1.33	2.31	2.86	3.63	4.21	3.66	2.28	1.14	0.15	-0.06	540	0	540
	0.15	0.48	1.78	2.95	3.88	4.40	4.70	4.17	2.87	1.65	0.44	0.11			

**Wetted Perimeter and X-Sectional Flow Calculator for
Flow Rate in a Circular, Rectangular, V-Notch, or Trapezoidal Open Channel**

Select Channel Type from Pull Down Menu

Circular

Input Parameters

Depth = 0.42 feet (depth of the flow of water)

Radius = 1.50 feet (radius of circular channel)

Input Parameter 3 = Not Used

Input Parameter 4 = Not Used

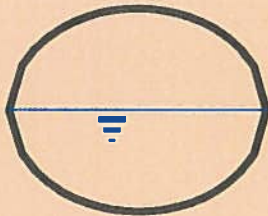
Cross Sectional Area of Flow

A = 0.60 square feet

Wetted Perimeter

WP = 2.29 feet

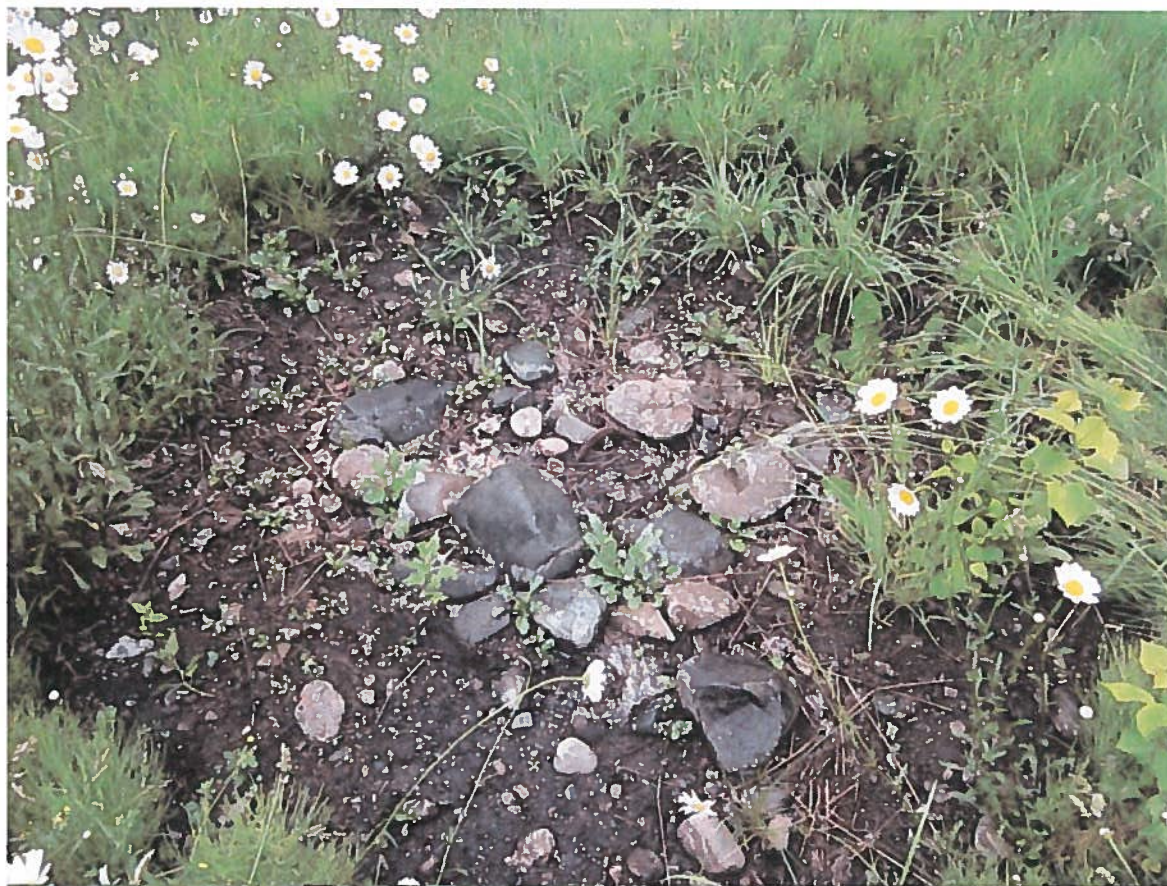
Channel Type Sketch



Permit 75-7596

PHOTOGRAPHER AND DATE OF PHOTOS: Sandy Thiel, June 24, 2013

FILE NUMBER 75-7596



Cistern
For domestic use



Spring to the south
of the cistern

