

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 67-14758
Exam Date: 07/29/2019

1. Current Owner:
SMA LAND & CATTLE LLC 5345 N EL DORADO ST STE 10 STOCKTON CA 95207
2. Accompanied by:
Phone No:
Address:
Relationship to permit Holder:

3. **SOURCE:**
SPRING

Tributary
RUSH CREEK

Method of Determination: Site Visit

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Comments: _____

2. Other water rights with the same point-of-diversion: NO Overlap

Comments: _____

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

UNNAMED STREAM SW¼ SE¼ NE¼, Sec. 3, Twp 15N, Rge 03W, B.M. WASHINGTON County

Method of Determination: GPS, digital PLS map

PLACE OF USE: STOCKWATER, RECREATION, and RECREATION STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
15N	03W	3			X	X													

Method of Determination: Aerial imagery, digital PLS map

3.

✓ Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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.

✓ Aerial Photo Attached (required for irrigation of 10+ acres).

✓ 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
Bucket						

2. Measurements:

5-gallon bucket test:

48 seconds to fill 5-gallons = 6.25 gpm = 0.013 cfs

E. FLOW CALCULATIONS

✓ Additional Computation Sheets Attached

Measured Method:

Measured: 0.01 cfs

Permit: 0.20 cfs

Exam Fee Limit: 0.20 cfs

RECOMMENDED: 0.01 cfs**F. VOLUME CALCULATIONS**

1. Volume Calculations for irrigation: NONE

2. Volume Calculations for Other Uses:

Recreation Storage:

Capacity = 0.2 acres x 10 ft max depth x 0.4 = 0.8 afa

Seepage = 0.2 afa (see pond loss spreadsheet)

Evap = 0.4 afa (see pond loss spreadsheet)

TOTAL = 1.4 afa

Recreation:

0.01 cfs x 365 days x 1.9835 = 7.2 afa

Subtract capacity evap and seepage volumes that are accounted for in Rec Storage

TOTAL = 5.8 afa

Stockwater:

0.7 afa per Admin AP Memo No. 3**TOTAL VOLUME: 7.9 afa**

G. NARRATIVE/REMARKS/COMMENTS

This permit was approved on December 6, 2007, authorizing the diversion of 0.20 cfs for stockwater and recreation use. The permit also authorizes recreation storage of up to 1.5 afa. I completed this field exam on July 29, 2019.

The point of diversion is a two-inch aluminum pipe which diverts water from a spring into a trough. The water flows into the trough continuously keeping it full for cattle to drink from. Overflow from the trough empties into a PVC pipe which empties into the western most pond. There is a pipe from the first pond into the second. Flow between ponds is controlled by a valve.

I measured the diversion rate using a bucket test. It took roughly 48 seconds to fill a five-gallon bucket, which comes out to a diversion rate of 0.013 cfs. The manager says that the flow is fairly constant throughout the year. Therefore, I have recommended a diversion rate of 0.01 cfs for the license.

The total annual stockwater use is 0.7 afa per Admin AP Memo 3. The ponds have a total capacity of 0.8 acre-feet. The total annual loss predicted by the pond spreadsheet is 0.6 acre-feet. I have recommended a total storage volume of 1.4 acre-feet. The spring is diverted into the ponds year-round. I believe excess water runs back into the stream downstream of the eastern pond, though I could not find where the water re-entered the stream. The recreation component of this right must be for flow-through water. To quantify the volume, I assumed that the spring runs year-round at roughly the same rate as I measured. I converted that rate to an annual volume. Then I subtracted the volume of the capacity, seepage and evaporation of the ponds from that volume.

The permit has condition 18B which states that the storage component is contingent upon certification of the dams. However the current policy is to require dam certification if the dam height is greater than 10 ft AND there is more than 50 acre-feet of storage. Therefore, this condition no longer applies and is dropped at licensing.

The permit also required the owner to install a measuring device and lockable controlling works prior to diversion of water. However, they developed a diversion rate of 0.01 cfs rather than the 0.20 cfs they initially proposed. According to our current guidelines, the measuring device for a project this size is only required upon notification by the Department. A cap could be put on the end of the aluminum pipe which takes water from the spring and would serve as a lockable device if needed.

Have conditions of permit approval been met? / Yes No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
STOCKWATER	01/01 to 12/31	0.01 CFS	0.7 AF
RECREATION	01/01 to 12/31	0.01 CFS	5.8 AF
RECREATION STORAGE	01/01 to 12/31		1.4 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.01 CFS	

Totals:

0.01 CFS

7.9 AF

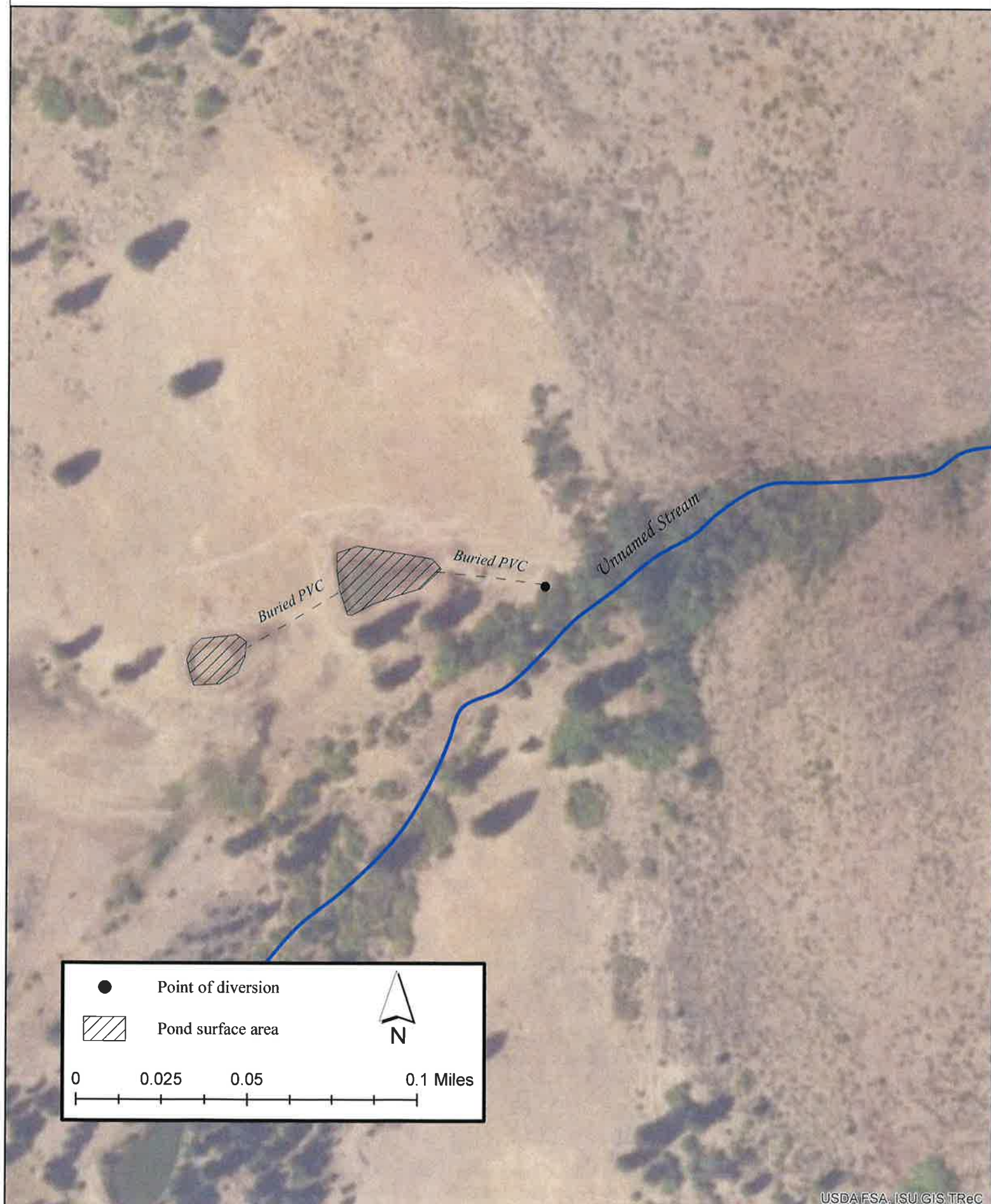
2. Recommended Amendments

____ 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

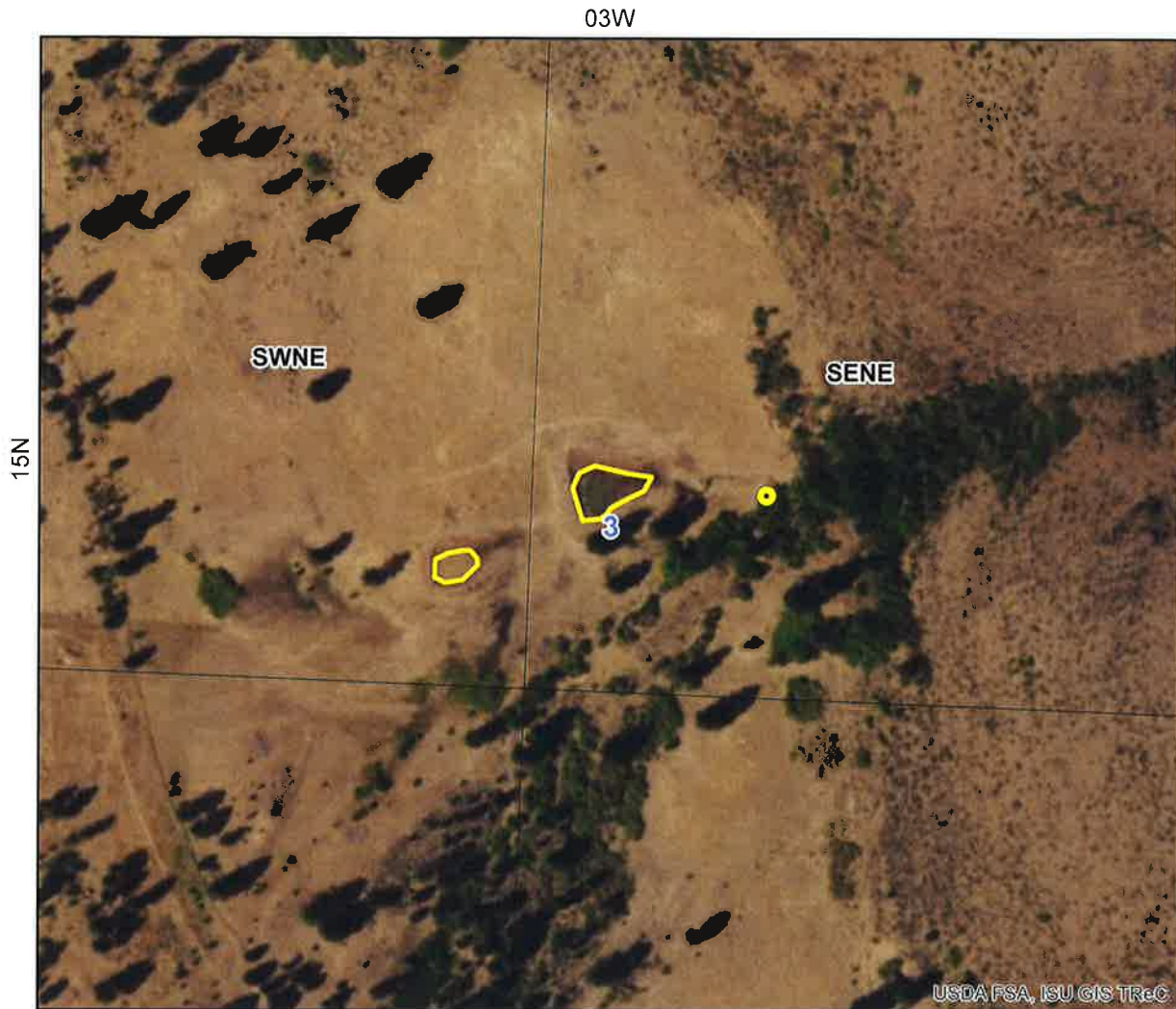
Cody Parker - Water Resource Agent, Senior

Field Examiner's Name Cody Parker Date _____Reviewer Patrick H. H. H. Date 8-26-2019



State of Idaho
Department of Water Resources
Beneficial Use Field Report
67-14758

STOCKWATER, RECREATION, and RECREATION STORAGE



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

0 0.035 0.07 0.14 Miles





The aluminum pipe diverting water from the spring into the trough.



Overflow from the trough runs into a pvc pipe which goes to the first pond.



Overflow from the trough runs into this pond. A pipe with a valve at the toe of the dam releases water from this pond into the second. My phone did not save the picture of the second pond.

STATE OF IDAHO
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15N03W3

BasinSeq	Owner	Source	Use
67-10576	WARD, BI SPRING	DOMESTIC	
67-10576	WARD, BI SPRING	STOCKWATER	
67-14758	SMA LAN UNNAME	RECREATION	
67-14758	SMA LAN UNNAME	RECREATION STORAGE	
67-14758	SMA LAN UNNAME	STOCKWATER	
67-15085	FARREN	RUSH CR IRRIGATION	
67-15086	FARREN	RUSH CR IRRIGATION	
67-291A	HINSHAV	RUSH CR IRRIGATION	
67-296	FORD, W.	RUSH CR IRRIGATION	
67-4586	WARD, BI	RUSH CR IRRIGATION	

NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	TotalAcres
							X									
							X									
		X	X													
		X	X													
		X	X													
													20	40	20	80
													20	40	20	80
				0.8	21	11	14	10			12					68.8
				0.8	21	11	14	10			12					68.8
				0.8	21	11	14	10			12					68.8

Total Storage Calculations

FILE NUMBER	67-14758
REVIEWER	Cody Parker
DATE	7/29/2019

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.2	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4	"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)	0.8	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)	0.2	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.4	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	1.4	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.

Seepage Loss Calculations

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

FILE NUMBER	XX-XXXXXX
REVIEWER	Joe Agent
DATE	1/1/2000

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	0.2	AC.
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Pond Surface Area (SQ. FT.)	8712	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	CL	
Suggested Seepage Rate (FT./DAY)	0.0030	FT./DAY

Formula: (Surface Area X Seepage Rate) X 7.48 = Gallons Per Day Loss
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Convert to GPD	195	GPD
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Total Seepage Loss (AFA)	0.2	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	XX-XXXXX
REVIEWER	Joe Agent
DATE	1/1/2000

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: Cambridge

Month	mm/day ¹	Days per month	mm/Month
Jan	-2.14	31	0.00
Feb	-1.08	28	0.00
March	-0.01	31	0.00
April	2.14	30	64.20
May	2.73	31	84.63
June	3.88	30	116.40
July	4.93	31	152.83
August	4.32	31	133.92
September	2.84	30	85.20
October	0.96	31	29.76
November	-1.47	30	0.00
December	-2.76	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 = 666.94

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

(666.94 ÷ 304.8) X 0.20 = 0.4 AFA