

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 65-13780
Exam Date: 09/30/2016

1. Current Owner:
JOHN W SWANDER 4333 BUTTE RD EMMETT ID 83617 (208) 365-4762
2. Accompanied by: John W Swander
Phone No: (208) 365-4762
Address: 4333 Butte Road, Emmett, Idaho 83617
Relationship to Permit Holder: Owner

3. **SOURCE:**
SPRING CREEK

TRIBUTARY:
PAYETTE RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None
2. Other water rights with the same point-of-diversion: None

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

SPRING CREEK SW¼NE¼ Sec. 11, Twp 07N, Rge 01W, B.M. GEM County

Method of Determination: Field exam and PLS data was used to verify the WR permit legal descriptions.

2.

PLACE OF USE: STOCKWATER 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	
07N	01W	11			X														

DIVERSION TO STORAGE same as STOCKWATER STORAGE

Method of Determination: Field exam and PLS data was used to verify the WR permit legal descriptions.

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
NA 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:

E. FLOW CALCULATIONS☒ Additional Computation Sheets Attached

Measured Method:

No flow calculations were obtained during the field exam. A theoretical measurement was calculated to establish a system capacity. The system capacity of the 3" pipe totaled 0.22 cfs. This is below the 1.0 cfs submitted on the beneficial use form.

Theoretical = 0.22

Permit	2.00 cfs
B.U. Submitted	1.00 cfs
B. U. Proof Fee	\$100 → 0.21 – 1.01
Measurement or Theoretical Rate	0.22
License Recommendation	0.22 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: NA

 $V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \text{NA}$ $V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \text{NA}$ $V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \text{NA}$

2. Volume Calculations for Other Uses:

Administrator's Memorandum #3 suggests a volume limit of 1.4 af for 51-100 cattle. Therefore, seepage + evaporation + stockwater use = 3.7 af.

Pond Analysis:

Seepage: 1.3 afa
 Evaporation: 1.0 afa
 Capacity: 1.2
 Use: 1.4

Diversion to Storage = 2.0 cfs

Stockwater Storage = 3.7 afa (seepage + evaporation + use)

G. NARRATIVE/REMARKS/COMMENTS

A field exam was conducted on September 30, 2016 by agents Patrick Kelly and Aaron Skinner. They were accompanied by the permit holder, John Swander.

Taxlot data indicates Mr. Swander as the current property owner matching ownership of WR permit no. 65-13780.

A dirt road crosses Spring Creek in the SWNE QQ. A pipe system has been installed to allow the creek to continue downhill beneath the road. On the south side of the road is a hand gate used to control the creek flow. From this point, a 3" PVC pipe is used to divert water ~740' to the pond. Although no water measurements were taken during the field exam, theoretical calculations were done to better understand the system capacity relative to the diversion rate of 1.0 cfs that was submitted on the beneficial use form. Parameters used for the estimate included an elevation drop of 17', 3" (0.25' diameter) PVC that gravity feeds water 740' feet to the pond, and a pipe area of 0.0491 ft². The maximum rate within the established parameters totaled 0.22 cfs. The spreadsheet is attached for clarity purposes. **It is recommended to license this permit at a rate of 0.22 cfs.**

The pond has a surface area of 0.5 acres that was measured using ArcMap tools and correlating field notes. The maximum depth of the pond was estimated to be 6'. The average depth was then calculated by multiplying the maximum depth by 0.4 based on the sloped sides and shape of the pond. This totaled 2.4'. The pond capacity was established by multiplying the pond's surface area by the average depth of the pond (0.5 acres X 2.4'). The pond capacity is 1.2 af.

WR permit no. 65-13780's beneficial use listed irrigation, irrigation storage, irrigation from storage, stockwater storage, and diversion to storage. The field exam confirmed irrigation was not taking place in the SWNE, SENE, and SESE of Section 11.

There was no proof of risers or irrigation pipe in any of the QQs. The Mr. Swander mentioned that those areas were dry farmed and irrigation water was not used. The ~~4~~ acres in Section 2 of this permit overlap with WR permit 65-13792. The POD for this permit did not divert water to any of the ~~4~~ acres. The POD diverts water to the pond only. As a result, beneficial use of irrigation, irrigation to storage, and irrigation from storage were removed for licensing. Volume was calculated using the pond loss spreadsheet and explained in Section F of the field exam. **The volume limit for this permit is recommended to be 3.7 af.** The field exam also noted no measuring device or lockable box was installed. A waiver has since been received by the Department from the local watermaster, Ron Shurtleff.

Overlap analysis of the POD and POU reveal no overlap (after removing the 70 acres mentioned above).

Condition 18B and 26A were removed for licensing. Conditions X23, R05, ~~219~~²⁵⁹, and 220 were added and forwarded to licensing. Condition 120 was changed to 103 and forwarded to licensing. Condition 01J was removed while Condition R43 was added due to the condition waiver received by the watermaster. MODIFIED VERSION OF

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>
STOCKWATER STORAGE	01/01 to 12/31		3.7 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.22 CFS	
	<u>Totals:</u>	0.220 CFS	3.7 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 Aaron Skinner Date 2/9/2017

Reviewer [Signature] Date 4/19/17

System Diagram for WR no. 65-13780

NWNE

SWNE

11

07N01W

SENE

Legend



POD 65-13780



3" Pipe



Pond

NWSE

NESE

N

0

125

250

500

Feet

POD and POU for WR no. 5-13780

NENW

NWNE

NENE

SENW

SWNE

SENE

11

07N01W

NESW

NWSE

NESE

Legend

 Pond

 Place of Diversion



0 12 250 500

Estimating Pipeline Flow Rates for WR Permit No. 65-13780

	POD	Storage Pond
Pipe Diameter (in.)	3	
Elevation (ft.)	3,279	3,262
$z_1 - z_2$		17
Length (ft.)		740
Area of Pipe (ft ²); A	0.0491	
Q (cfs); Q = VA	0.22	

POD to Storage Tank	
Velocity; V=	4.43
Pipe Length; L=	740
Pipe Diameter (ft); D=	0.25
f(x)=	17

$$(z_1 - z_2) = (0.0232919) * (v^2) + (0.0002816) \left(\frac{L}{D^{1.167}} \right) (v^{1.852})$$

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	65-13780
REVIEWER	Aaron Skinner
DATE	9/30/2016

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	0.5	AC.
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Pond Surface Area (SQ. FT.)	21780	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	SC	
Suggested Seepage Rate (FT./DAY)	0.0070	FT./DAY

Formula: (Surface Area X Seepage Rate) X 7.48 = Gallons Per Day Loss
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Convert to GPD	1140	GPD
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Total Seepage Loss (AFA)	1.3	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	65-13780
REVIEWER	Aaron Skinner
DATE	9/30/2016

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 [K:\Spatial\Climat/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.idaho.edu/ETIdaho/>

Precipitation Deficit

Station:

Emmett 2 E (NWS-102942)

Month	mm/day ¹	Days per month	mm/Month
Jan	-1.06	31	0.00
Feb	-0.25	28	0.00
March	0.64	31	19.84
April	1.84	30	55.20
May	2.60	31	80.60
June	3.23	30	96.90
July	4.08	31	126.48
August	3.52	31	109.12
September	2.11	30	63.30
October	1.01	31	31.31
November	-0.70	30	0.00
December	-1.42	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 = 582.75

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

$$(582.75) \div (304.8) \times 0.50 = 1.0 \text{ AFA}$$

Total Storage Calculations

FILE NUMBER	65-13780
REVIEWER	Aaron Skinner
DATE	9/30/2016

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.)	0.5	"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)	1.2	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)	0.2	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 " <u>From Storage</u> " component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	1.3	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	1.0	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	3.6	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

Flow Rate into Pond (CFS)	0.22	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)	4.08	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)	0.01	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	40	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.



Storage pond in the SWSE QQ of section 11. The maximum depth of the pond was 6 feet. The farmed parcel above the pond in the image is dry farmed.



Close up of the pond and stockwater use. The white pipe close to the date on the image is the outlet for the diverted water.



Close up of the discharge area. Water is diverted to this spot via 3" scheduled 40 PVC.



Valve used to open up the diversion point and allow water to flow to the pond.



Point of diversion located along Spring Creek. Water is partially blocked by the hand gate shown in the image.

**REQUEST TO WAIVE/MODIFY
CONDITION OF APPROVAL**

Permit # 65-13780

I request the condition(s) of approval requiring (select 1 or more):

- ☒ measuring device
- ☒ lockable controlling works
- ☐ Annual measuring/reporting or power records alternative
- ☐ Other – identify in space below

be waived or modified because:

Since mitigation for this water right is not required at this time I believe it is appropriate to waive
the condition of installing a measuring and lockable control device. Future mitigation require-
ments may make it necessary to re-instate these conditions.

Ron Shurtleff
Signature

February 6, 2017
Date

Ron Shurtleff, Watermaster
Print name



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

May 3, 2013

John W. Swander
4333 Butte Road
Emmett, ID 83617

RE: Scheduling Field Exam for Water Right Permit No. 65-13780

We are planning to **conduct water right field examinations** in the vicinity of the above-referenced permit **during the week of May 13, 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 2.0 cfs of surface water from Spring Creek for irrigation of 100.0 acres, and 10.0 AF of irrigation and stock water storage.

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 May 10, 2013, to conduct the exam during the week of May 13, 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,

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



State of Idaho

DEPARTMENT OF WATER RESOURCES

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

PHONE: (208) 334-2190 FAX: (208) 334-2348 www.idwr.idaho.gov

C.L. "BUTCH" OTTER, Governor

GARY SPACKMAN, Director

April 16, 2014

John W. Swander
4333 Butte Road
Emmett, ID 83617

RE: Scheduling Field Exam for Water Right Permit No. 65-13780

Dear Permit Holder:

The Idaho Department of Water Resources (IDWR) is planning to conduct water right field examinations in the vicinity of the above-referenced permit **during the week of May 5**. An examination is needed to verify water use(s) developed under the permit in order to issue a water right license.

Your permit authorizes the diversion of water from Spring Creek for irrigation, irrigation storage, and stock water storage. If you developed a beneficial use of water and still own the place of use property identified in the permit, please contact me at your earliest convenience to schedule an examination.

If you developed a beneficial use of water under the permit but no longer own the place of use property, please use the enclosed Assignment of Permit form (\$25 fee). This will allow IDWR to work with the new permit owner through the water right licensure process.

A water right license cannot be issued if beneficial use of water was not developed or if use was developed but abandoned. In either of these cases, please relinquish the permit by using the enclosed Relinquishment of Permit form (no fee required). The permit will be voided if a relinquishment form is not submitted within thirty (30) days. If you no longer own the property and do not assign or relinquish your permit, IDWR will work with the current property owner to issue a license or to void the permit.

Please contact me to schedule a field examination for a day and time that is convenient for you. **Please call me at (208) 334-2190 by May 2 to conduct the field exam during the week of May 5.** If there is a problem with scheduling or conducting the field examination at this time, please let me know so we can reschedule.

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

Sincerely,

Rick Collingwood, P.E.
Staff Engineer

Enclosure: Relinquishment and Assignment of Permit Forms