

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 83-11930
Exam Date: 6/8/2017

1. Current Owner:
STATE OF IDAHO DEPT OF FISH & GAME
PO BOX 25 BOISE ID 83707 (208) 334-3700

2. Accompanied by: In office exam

3. **SOURCE:**
DEER CREEK

TRIBUTARY:
REEDS CREEK

B. OVERLAP REVIEW

1. Other water rights with the same place of use: Application 83-11987
2. Other water rights with the same point-of-diversion: Application 83-11987

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

DEER CREEK NW¼NW¼ Sec. 24, Twp 38N, Rge 05E, B.M. CLEARWATER County

Method of Determination: Maps and GPS. POD location at 115° 46.765, 46° 37.551

2.

PLACE OF USE: RECREATION 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	
38N	05E	13								X	X		X	X		X			
38N	05E	24					X	X	X										

Method of Determination: Google Earth and Arc map.

3.

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

X Indicate weir size/pipe as applicable.X Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.X Aerial Photo Attached (required for irrigation of 10+ acres).X Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

*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: N/A

E. FLOW CALCULATIONS

Measured Method: N/A

_____ Additional Computation Sheets Attached

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} =$$

2. Volume Calculations for Other Uses: See attached pond analysis sheet

G. NARRATIVE/REMARKS/COMMENTS

In office exam performed using aerial photography to determine surface and dam safety information for depth on reservoir. Joe Carlson, dam safety engineer, helped by using dam safety database to determine the maximum depth and surface area and providing photos and GPS location of dam.

Pond analysis tool was used to determine total storage for reservoir. With average surface area of 62 acres and average depth of 15.8 feet the total storage was 979.6 acre-feet. Evaporation and seepage was calculated at 15.3 acre-feet and 67.9 acre-feet. Total storage for water right license will be 1,062.8 acre-feet. Applicant had only applied for 900 acre-feet of storage, so an additional application for permit was submitted to cover the remaining storage and to cover the evaporation and seepage. License will be issued for 900 acre-feet of storage, it will not cover the evaporation or seepage. Those uses will be covered under application 83-11987. An amendment was sent out because applicant did not apply for storage in enough QQ as what the reservoir ended up covering.

** Approved permit copy Attached 11/9/17*

Have conditions of permit approval been met? X 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		900.0 AF
<u>Totals:</u>			900.00 AF

2. Recommended Amendments

 Change P.D. as reflected above Add P.D. as reflected above X None

 Change P.U. as reflected above X Add P.U. as reflected above None

I. AUTHENTICATION

Field Examiner's Name *Adam Fendrick* Date 9-27-2017

Reviewer *Douglas Jones PE* Date 11/9/17

Total Storage Calculations

FILE NUMBER	Deer Creek
REVIEWER	Adam Frederick
DATE	7/17/2017

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.)	62	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	15.8	"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)	979.6	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. <i>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.</i>
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). <i>Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.</i>
Estimated Seepage Loss (AF)	67.9	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	15.3	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	1062.8	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.

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	Deer Creek
REVIEWER	Adam Frederick
DATE	7/17/2017

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 negative precipitation deficit values.

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

Precipitation Deficit

Station: [Elk River 1 S \(NWS -- 102892\)](#)

Month	mm/day ¹	Days per month	mm/Month
Jan	-4.28	31	0.00
Feb	-3.16	28	0.00
March	-2.29	31	0.00
April	-1.49	30	0.00
May	-1.06	31	0.00
June	-0.53	30	0.00
July	1.19	31	36.89
August	1.24	31	38.44
September	-0.26	30	0.00
October	-1.02	31	0.00
November	-3.41	30	0.00
December	-3.80	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 = **75.33**

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

(**75.33**) $\div$ (**304.8**) $\times$ (**62.00**) = **15.3 AFA**

State of Idaho
Department of Water Resources
Permit to Appropriate Water

NO. 83-11987

Priority: July 24, 2017

Maximum Diversion Volume: 162.8 AF

This is to certify, that STATE OF IDAHO
DEPT OF FISH & GAME
PO BOX 25
BOISE ID 83707

has applied for a permit to appropriate water from:

Source: DEER CREEK

Tributary: REEDS CREEK

and a permit is APPROVED for development of water as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>ANNUAL VOLUME</u>
RECREATION STORAGE	01/01 to 12/31	162.8 AF

LOCATION OF POINT(S) OF DIVERSION:

DEER CREEK NW1/4NW1/4 Sec. 24, Twp 38N, Rge 05E, B.M. CLEARWATER County

PLACE OF USE: RECREATION 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	
38N 05E 13			X					X	X		X	X		X			
38N 05E 24					X	X	X										

CONDITIONS OF APPROVAL

1. Proof of application of water to beneficial use shall be submitted on or before **November 01, 2018**.
2. Subject to all prior water rights.
3. The storage of water under this right is contingent upon continued certification by the Department of Water Resources under the dam safety provisions of the Idaho Code, authorizing storage.
4. Rights 83-11930 and 83-11987 authorize a total annual storage volume of 1,062.8 acre-feet, 979.6 acre-feet to be used for the initial filling or carryover storage of the reservoirs and 83.2 acre-feet for the replacement of losses caused by seepage and evaporation.
5. The reservoir established by the storage of water under this right and right 83-11930 shall not exceed a total capacity of 979.6 acre-feet or a total surface area of 62 acres.
6. Recreation storage is for fishing and boating.
7. This right does not grant any right-of-way or easement across the land of another.

This permit is issued pursuant to the provisions of Section 42-204, Idaho Code.

Signed this 26th day of October, 20 17.

COPY


DOUGLAS JONES, Northern Regional Manager

Frederick, Adam

From: Carlson, Joseph
Sent: Tuesday, June 06, 2017 4:05 PM
To: Frederick, Adam
Subject: Deer Creek

Idaho Department of Water Resources

Dam Safety Data Sheet

06/06/2017

Dam Name: DEER CREEK
Other Dam Name:
State ID: 83-11930

Region: N
National ID Number: ID00499
Last Modified: 04/24/2017

General Information

Status: REGULATED
Purpose: RECREATION

Hazard: SIGNIFICANT
Size Category: 1

Location

County: CLEARWATER
River or Stream: DEER CREEK - REEDS CREEK
Township: 38N
Range: 05E
Section: 24
Quad Name: HEADQUARTERS

Latitude: 46.6258255844
Longitude: -115.779422421
IDTM X: 2363778.07
IDTM Y: 1715346.43
Location Method: NAIP
Quad Number: K12

Dam Owner

Name: IDAHO FISH & GAME
Address: C/O MIKE MAFFEY
PO BOX 25
City: BOISE
State: ID

Phone: (208) 334-3730

Email:

Embankment Physical Characteristics

Dam Type: EARTH
Dam Height: 47.8
Dam Length: 330

Hydraulic Height: 42.3
Year Completed: 2003
Condition: POOR

Regulatory Data

Inspection Date: 05/08/2014
Storage Authorization: 05/27/2014
Certificate Expired: 12/31/2014
Survey Date: MM/dd/yyyy
Condition Assessment: POOR

Emergency Action: YES
Next Dam Inspection: 2014
Inspection Frequency: 4
Joint Inspection: IDFG

Reservoir

Drainage Area: 2.3
Surface Area: 62

Normal Storage: 975
Maximum Storage:

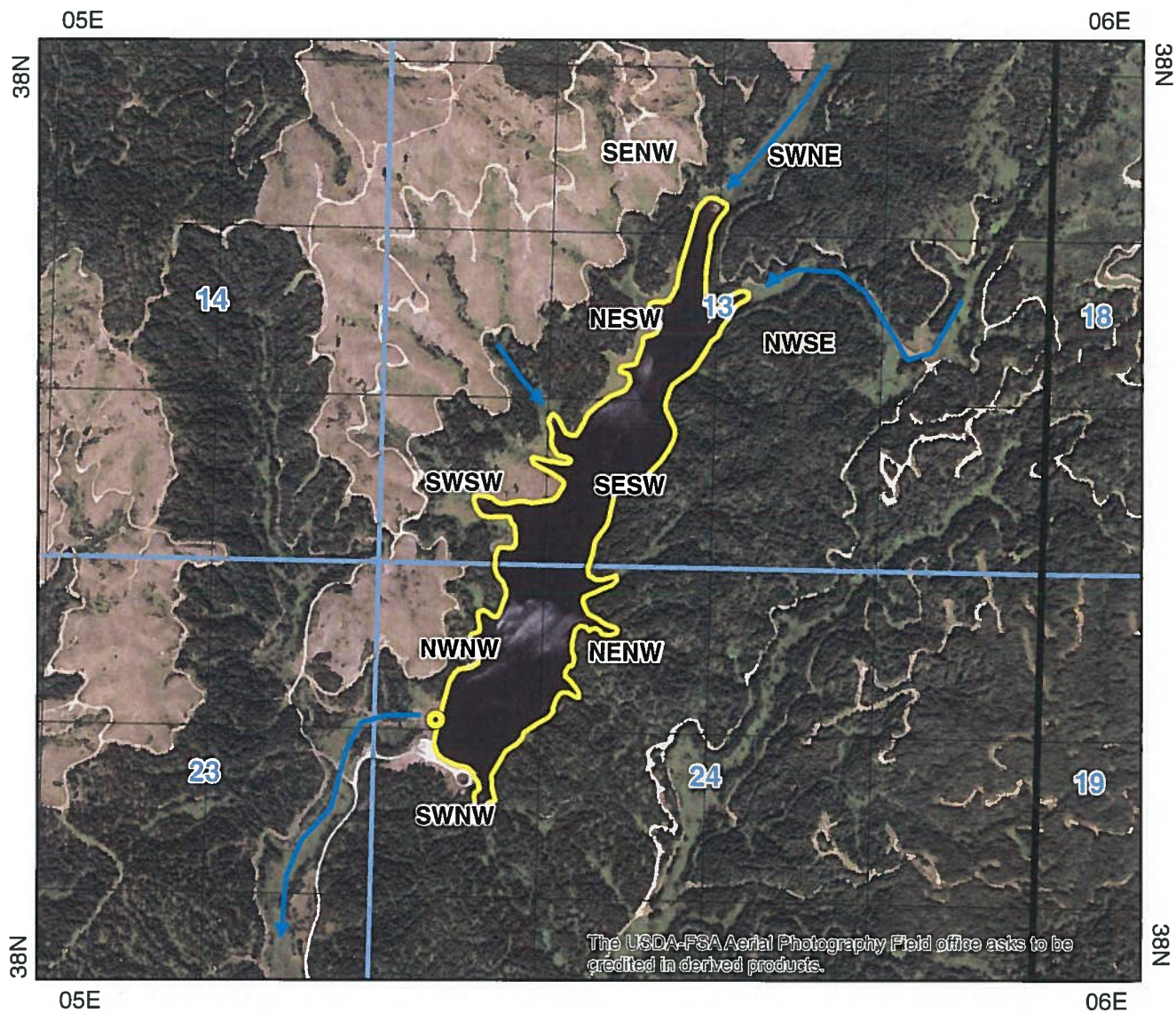
Spillway

Spillway Depth: 5.5

Spillway Type: UNCONTROLLED

State of Idaho
Department of Water Resources
Attachment to Field Exam
83-11930

RECREATION STORAGE / SYSTEM DIAGRAM



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

0 0.15 0.3 0.6 Miles

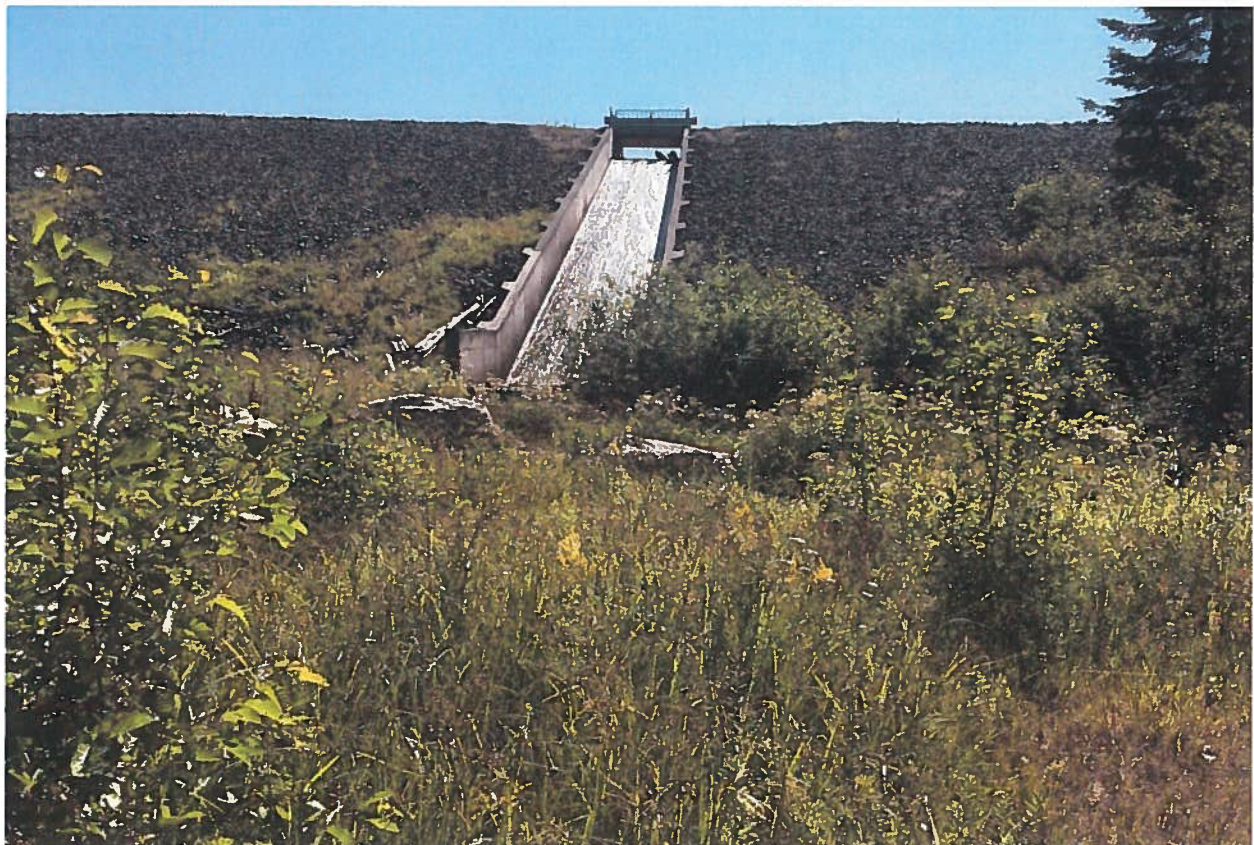


Field Exam photos for Water Right 83-11930

Photos were taken from Dam Safety site visits because in-office exam is being performed on permit.



Photo of Deer Creek Dam.



View of dam from downstream.



Place of use.





Place of use.