

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: 57-7684

Exam Date: 10/26/12

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)?
- X
- Y
-
- N

- a. Irrigation of 5 acres or less
b. Storage of up to 14.6 AF for stockwater purposes only
c. Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
d. Other < >

2. Current Owner: Name: Bureau of Land Management
Owner of Record Correct? X Y N
Address of Record Correct? X Y N
If No: Address

3. Beneficial Use Fees have been paid:
- X
- Y
-
- N Receipt No: W026320

4. **SOURCE** **TRIBUTARY**
Spring White Horse Creek
Method of Determination: GPS provided by permit holder
Change in Source: X Y N

Change in source a clarification, not a change in source. The unnamed stream is from the spring and shallow groundwater upwelling. Water flows from spring, into White Horse Reservoir #1, down into White Horse Reservoir #2, down to White Horse Creek.

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis

Comments:

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

Water Right No.	Source	Purpose of Use	Basis

Comments: POD fills a second reservoir not permitted by this right.

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

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Spring		NE	NW	SE	13	07S	02W	B.M.	Owyhee
Spring		NE	NW	SE	13	07S	02W	B.M.	Owyhee

Method of Determination: Dam and Pond visible on GIS Imagery. GPS provided by permit holder.

Per email from permit holder dated 02/04/14, there are 2 separate diversions- one for the reservoir and one for the troughs.

Change in POD? X Y X N Amendment Required? X Y X N

2a. **PLACE OF USE:** Use: Diversion to Storage, Wildlife Storage, Wildlife 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	
07S	02W	13			X											X			
		Lot #																	

Permit was originally issued for Both wildlife and stockwater storage. The reservoir is within an exclusion fence where stock cannot reach it. No stockwater storage use confirmed in email from BLM dated 02/13/14.

2b. **PLACE OF USE:** Use: Stockwater, Wildlife

TWP	RGE	Sec	NE				NW				SW				SE				Total s
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
07S	02W	13			X											X			
		Lot #																	

Method of Determination: Pond visible on imagery. Troughs visible on imagery in SWNE
POUs very close to QQ line.

Change in POU? X Y N Amendment Required? X Y N Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

 Aerial Photo Attached (required for irrigation of 10+ acres). Photo of Diversion and System Attached

4. Well or Diversion Identification 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: < > **E. FLOW CALCULATIONS** Additional Computation Sheets Attached

Measured Method:

0.14 cfs is equal to the recommended per Application Processing Memo #3 for 501-600 head of stock.

No evidence of extra cfs being diverted specifically for wildlife.

Permit allowed = 0.14 cfs

License recommend for 0.14 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\hspace{2cm}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{\hspace{2cm}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{\hspace{2cm}}$$

2. Volume Calculations for Other Uses:

Stock:

$$586 \times 0.0134 = 7.9 \text{ afa}$$

Recommendation per Application Processing Memo #3 : 501 – 600 head = 8.1 afa

Pond: See Pond Spreadsheet

- License recommend for 7.9 afa for stockwater/wildlife use, 0.6 afa for storage

G. PURPOSE OF USE

Irrigation N # Stock 586 cattle Domestic # of Homes

Other: Wildlife

Change in Purpose of Use? Y X N

Method of Determination: Information provided by permit holder.

If Yes: From Use To Use Amount CFS AFA

H. NARRATIVE/REMARKS/COMMENTS

White Horse Pond Project #09074 White Horse Reservoir #1
 Lockable Device Condition – Watermaster Exemption
 Measuring Device Condition – Watermaster Exemption
 Water District 57C

Have conditions of permit approval been met? X Yes No

This right is for diversion to 1 pond (White Horse Res. #1) and 2 troughs. See email communications.

I. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Stockwater	01/01 to 12/31	1.4 CFS	7.9 AFA
Wildlife	01/01 to 12/31	1.4 CFS	7.9 AFA
Wildlife Storage	01/01 to 12/31	0.0 CFS	0.6 AFA
Wildlife From Storage	01/01 to 12/31	0.0 CFS	0.6 AFA
<u>Totals:</u>		1.4 CFS	8.5 AFA

2. Recommended Amendments

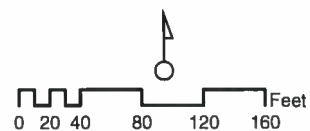
 X Change P.D. as reflected above Add P.D. as reflected above None X Change P.U. as reflected above Add P.U. as reflected above None

Other:

J. AUTHENTICATION

Field Examiner's Name Danielle Brown-Tamm Date 02/13/14Reviewer Date

57-7684



D. Favreau

02/07/14

SWNE

POD White Horse #1

White Horse #1

Troughs

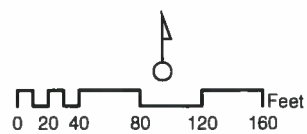
07S02W
13

POD Troughs (Headbox)

White Horse Creek

NWSE

57-7684



D. Favreau

02/07/14

SWNE

POD White Horse #1

White Horse #1

Troughs

07S02W

13

POD Troughs (Headbox)

White Horse Creek

NWSE

TOTAL STORAGE

FILE NUMBER	57-7687 Res. 1
REVIEWER	Dan Nelson
DATE	11/26/2013

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

Surface Area (in Acres)	0.1	"Surface Area" is automatically carried over from the "Seepage Loss Sheet"
Average Pond Depth (in feet)	3.5	"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 you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above.
Pond Capacity (in acre feet)	0.35	

Volume Needed Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (in acre feet)	0	The "Volume Needed Above Initial Fill" is the acre-feet of water required to meet <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). PLEASE 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 (in acre feet)	0.00	The "Estimated Seepage Loss" is automatically carried over from the Seepage Loss Sheet
Estimated Evaporation Loss (in acre feet)	0.27	The "Estimated Evaporation Loss" is automatically carried over from the Evaporation Loss Sheet
Total Volume Required (in acre feet)	0.6	"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 (in cfs)	1.00	The "Flow Rate" into the Pond depicts the actual flow either measured or estimated into the pond.
Highest Daily Evaporation Rate From Evaporation Tab. (in mm/day)	5.05	This number is automatically selected by picking the highest recorded number in the "Precipitation Deficit Table".
Maximum Required Daily Maintenance Volume (in acre feet per day)	0.00	"Maximum Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year, and 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 (in 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	0	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. This number should be between 1 and 365 days for a project to be successful.
Days Required to Fill the Pond at 13,000 gallons per day	9	The "Days Required to Fill the Pond at 13,000 gallons per day" is calculated converting the "Pond Capacity" and the "Maximum Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Maximum Daily Maintenance Volume" in gallons to determine the number of days to fill pond. This number should be between 1 and 365 if this pond is to be described as a domestic use.

User Input
Calculated value
Formula Explanations

Evaporation Loss Calculation

FILE NUMBER	57-7687 Res. 1
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DATE	11/26/2013

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

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

P = Precipitation

ET= Evapotranspiration

P_d = Precipitation deficit

P_d = ET-P

User Input

Calculated value

Formula Explanations

USING THIS SPREADSHEET

To ascertain the evaporation from a pond, you will need to go to the Kimberley Research Center website. The link is found below. This web site provides the Precipitation Deficit for the area where the pond is located. The Precipitation Deficit is the total amount of free pan 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, and the entire state is pretty much covered. 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.

Found at: <http://www.kimberly.uidaho.edu/ETIdaho/online.php>

Precipitation Deficit

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

Month	mm/day ¹	Days per month	mm/Month
Jan	0.00	31	0.00
Feb	0.59	28	16.52
March	1.62	31	50.22
April	2.87	30	86.10
May	3.50	31	108.50
June	4.28	30	128.40
July	5.05	31	156.55
August	4.18	31	129.58
September	2.82	30	84.60
October	1.81	31	56.11
November	0.48	30	14.40
December	0.00	31	0.00

PLEASE NOTE: We cannot use the season average, because there are several areas in Northern Idaho with a negative Precipitation Deficit. Therefore, we must enter each monthly deficit, and enter in a zero (0) for each negative month. The reason for this is that precipitation can only offset evaporation to the extent of the evaporation.

Please enter the daily average Precipitation Deficit as shown in the example below.

Although it has sometimes been useful to consider wintertime evaporation to be zero, Allen and Robison (2007, p. 169) noted, "Evaporation during nongrowing (wintertime) periods varies widely"

¹Negative monthly mean values should be entered in the above table as "0".

Total mm/year = 830.98

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

(830.98 ÷ 304.8) X 0.10 = 0.3 AFA

Surface Area of Pond is automatically Carried over from the Seepage Loss Sheet.

SEEPAGE CALCULATIONS

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

FILE NUMBER	57-7687 Res. 1
REVIEWER	Dan Nelson
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User Input
Calculated value
Formula Explanations

INPUTS

SQ. FT. Calculator Pond Surface area in acres
0.1

POND SURFACE AREA (SQ. FT.)	4356
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SUGGESTED SEEPAGE RATE (FT/DAY)	0.0000
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Use the table below to find the "SUGGESTED SEEPAGE RATES".

FORMULA: (Surface Area X Seepage Rate) / 7.48 = Gallons Per Day loss

CONVERT TO GPD	0	GPD
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TOTAL SEEPAGE LOSS (AFA)	0.0	AFA
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SUGGESTED SEEPAGE RATES FOR DIFFERENT SOIL TYPES:
GW, GP, GM, GC, SW, SP and SM (silty sand, sand silt mixtures and gravel mixtures) = 0.20 ft per day
OL and ML (inorganic silts - very fine sands, silty, or clayey fine sands) = 0.016 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 with shallow 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 <X:\Spatial\Soils\USCS\PondSoils.lyr>. Use "0" if the ponds intersect the water table.

ET_{Idaho} 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.

Grand View (NWS -- 103760)

Statistics based on thirty year normal spans 1940 to 2008 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
Mean ^j	mm/day												mm	
Monthly ^c	0.08	0.59	1.62	2.87	3.50	4.28	5.05	4.18	2.82	1.81	0.48	0.02	819	0
15-Day Moving Average ^d	0.09	0.52	1.63	2.91	3.54	4.28	5.09	4.16	2.73	1.88	0.44	0.05		
7-Day Moving Average ^e	0.10	0.58	1.61	2.86	3.51	4.28	5.07	4.17	2.79	1.83	0.44	0.05		
3-Day Moving Average ^f	0.09	0.60	1.63	2.87	3.49	4.29	5.06	4.18	2.81	1.81	0.47	0.03		
Standard Deviation ^k	mm/day												mm	
Monthly ^c	0.56	0.53	1.07	0.69	1.35	0.80	0.78	0.75	0.73	0.83	0.50	0.73	95	0
15-Day Moving Average ^d	0.56	0.71	1.02	0.83	1.21	1.03	0.68	0.69	1.02	0.74	0.66	0.64		
7-Day Moving Average ^e	0.80	0.91	1.20	1.22	1.64	1.36	0.88	0.89	1.25	1.04	0.87	0.82		
3-Day Moving Average ^f	1.15	1.22	1.57	1.68	2.17	1.79	1.21	1.19	1.60	1.34	1.18	1.13		
20% Exceedance ^l	mm/day												mm	
Monthly ^c	0.15	0.95	2.18	3.54	4.34	4.96	5.61	4.61	3.32	2.29	0.88	0.40	860	0
15-Day Moving Average ^d	0.54	1.34	2.73	4.04	4.85	5.38	5.87	4.95	3.77	2.80	1.17	0.60		
7-Day Moving Average ^e	0.78	1.84	3.29	4.71	5.61	5.95	6.16	5.22	4.19	3.05	1.67	0.88		
3-Day Moving Average ^f	0.98	2.17	3.95	5.24	6.18	6.56	6.61	5.66	4.70	3.57	1.95	1.09		

White Horse Reservoir and Spring (09074)

Water Right # 57-07684

T. 7 s., R. 2 w., Sec. 13

1 Collection Headbox

2 Water Troughs

2 Reservoirs

Reservoirs and Spring (Headbox) Excluded

No Measuring Device

No Head Gate

White Horse Reservoirs and Spring (09074)
Water Right # 57-07684
T. 7 s., R. 2 w., Sec. 13

White Horse Reservoir 1
539405.217 N 4740535.808 E Meters

White Horse Trough 1
539462.103 N 4740548.773 E Meters

White Horse Trough 2
539476.919 N 4740540.306 E Meters

White Horse Spring Headbox
539396.486 N 4740520.992 E Meters

White Horse Reservoir 2
539440.407 N 4740464.9 E Meters

Reservoirs and Spring Exclosure

