

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 15-7281

Exam Date: 8/21/2014

1. Current Owner: BOYD MARK STONE
882 BRUNDAGE
CHUBBUCK ID 83202
(208)237-8605
2. Accompanied by: Owner
Phone No:
Address:
Relationship to Permit Holder:

3. SOURCE

SPRING

TRIBUTARY

MALAD RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 15-7283 (Domestic)
2. Other water rights with the same point of diversion: 15-7283 (Domestic)

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

SPRING NW1/4NW1/4SE1/4 Sec. 12, Twp 14S, Rge 35E, B.M.
ONEIDA County

Method of Determination: GPS and aerial photography

2.

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
14S	35E	12	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	1.8
																			1.8

Total Acres: 1.8

PLACE OF USE: IRRIGATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
14S	35E	12	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
					X											X			

PLACE OF USE: IRRIGATION FROM STORAGE

Twp Rge Sec			NE				NW				SW				SE				Totals
14S	35E	12	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
																1.8			1.8

Total Acres: 1.8

Method of Determination: Aerial Photography and site visit.

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.

<u>Well or Diversion</u> <u>ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge</u> <u>Size</u>
N/A					

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

<u>Measurement</u> <u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Portable Flowmeter	FSC	Fuji	S10A1-00Y	A0L5539T		April/2015

2. Measurements: A 17 min measurement of the flow rate was conducted. Maximum instantaneous flow rate as 7.9 GPM or .02 cfs. Owner stated that the storage in the pond is kept at the same level year round and therefore the diversion from storage outflow is equal to the spring inflow. Measurement was taken at the diversion from storage point.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: Flowmeter

Measured flow = .02 cfs

F. VOLUME CALCULATIONS**1. Volume Calculations for Irrigation:**

$$V_{I.R.} = 1.8 \text{ (Acres Irrigated)} \times 3.5 \text{ (Irrigation Requirement)} = 6.3 \text{ AF}$$

$$V_{D.R.} = .02 \text{ [Diversion Rate (cfs)]} \times 214 \text{ (Days in Irrigation season)} \times 1.9835 = 8.5 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 6.3 \text{ AF}$$

2. Volume Calculations for Other Uses:

$$\text{Fill volume} = 0.20 \text{ acres} \times \text{average depth of 4 ft} = 0.76 \text{ AF}$$

$$\text{Total Evaporation from pond} = *0.73 \text{ AF/ year}$$

$$\text{Total Seepage lost} = *0.5 \text{ AF/year}$$

$$\text{Total volume required for storage in the pond} = 0.76 \text{ AF} + 0.73 \text{ AF} + 0.5 \text{ AF} = 2 \text{ AF/ year}$$

*See attached documents.

G. NARRATIVE/REMARKS/COMMENTS

System is a gravity fed pipe diverting from a storage on-stream pond. Water is distributed using a series of 1 inch pipes that flood irrigate pasture and trees. Water right shares POD with stockwater use right 15-7283.

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>
IRRIGATION	04/01 to 10/31	0.020 CFS	6.30 AF
IRRIGATION STORAGE	01/01 to 12/31		2.00 AF
IRRIGATION FROM STORAGE	04/01 to 10/31		2.00 AF
<u>Totals:</u>		0.020 CFS	7.5 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 ☐ Other

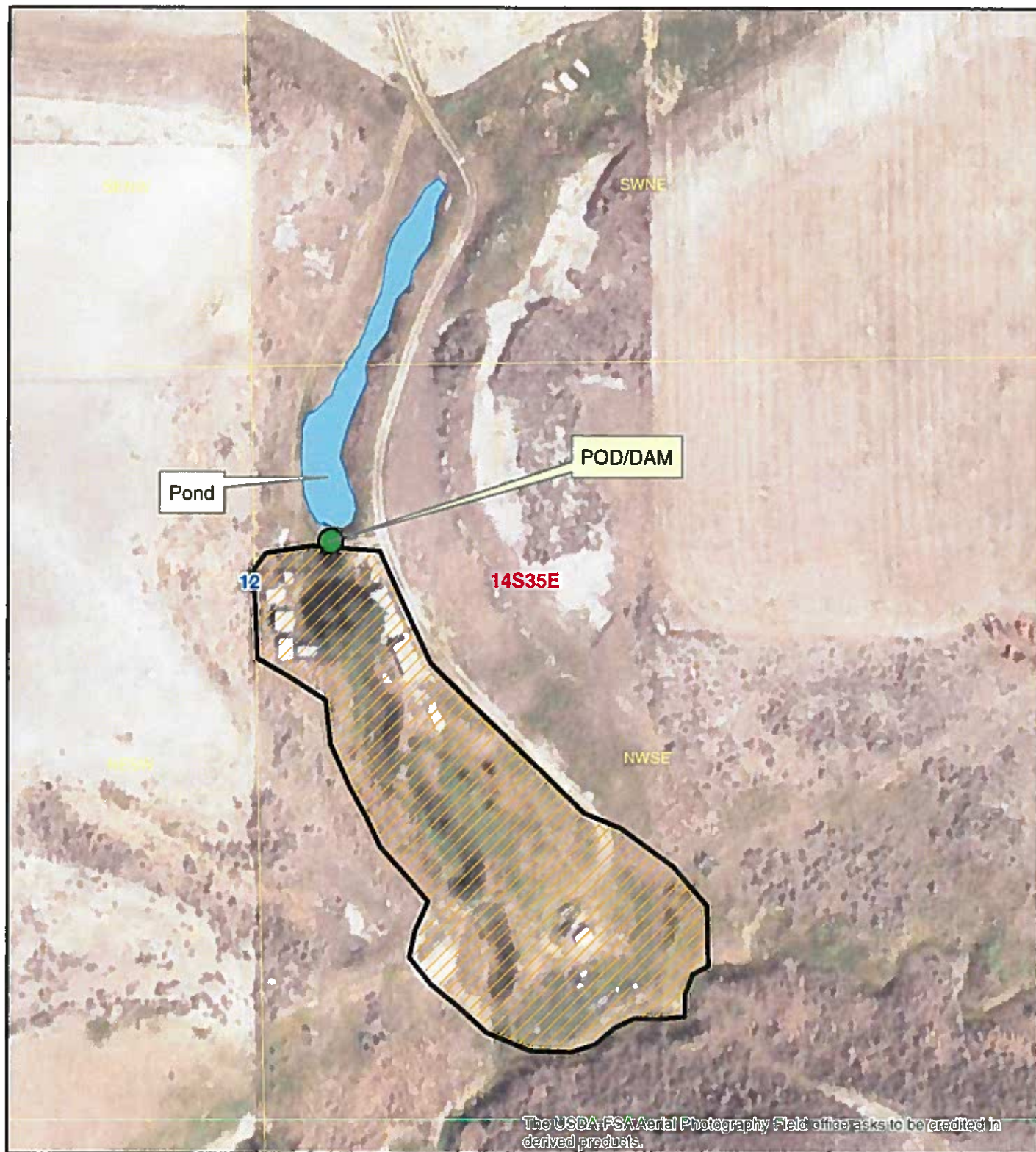
6.3 af
+ .7 af
+ .5 af
7.5 af

I. AUTHENTICATION

Field Examiner's Name Scott Bergendorf Date 1/20/2016

Reviewer James Cefalo Date Jan 25, 2016

Water Right License 15-7281



0 95 190 380 Feet

-  POU
-  Township/Range
-  Sections
- QQ



Idaho Department of Water Resources
Prepared by Scott Bergendorf
2013 Aerial photography

Onieda County
IDWR Basin 15

PRECIPITATION DEFICIT CALCULATIONS FOR PONDS - Malad City ET data - shallow pond

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL EVAP IN AF
mm/Day *	0	0	0.48	1.58	2.04	3.17	3.84	3.59	2.39	0.97	0	0	
mm/Month	0	0	14.88	47.4	63.2	95.1	119	111.3	71.7	30.07	0	0	
ft/Month	0	0	0.049	0.156	0.21	0.312	0.39	0.365	0.24	0.099	0	0	
Surface Area in Acres	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
acre-feet	0	0	0.02	0.062	0.08	0.125	0.16	0.146	0.09	0.039	0	0	0.73

* Based on precipitation deficits provided by University of Idaho, <http://data.kimberly.uidaho.edu/ETIdaho/>

POND SIZE:	WIDTH X LENGTH	SQ FT	ACRES
	95 X 187	17765	0.1909

mm to ft	0.0032808
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JAN	FEB	MAR	APR
31	28	31	30
MAY	JUN	JUL	AUG
31	30	31	31
SEPT	OCT	NOV	DEC
30	31	31	31

Crop type =	Pond
CIR in AF/ACRE	0.46

If applicable, acres need to dry up for evaporation
1.58

Pond size in acres	0.1909
Average depth in ft	4
AF needed to Fill	0.8

Average depth=max depth x .04

TOTAL AF FOR POND	1.5
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Data entry in green

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	15-7281
REVIEWER	Scott Bergendorf
DATE	1/21/2016

User Input
Calculated value
Formula Explanations

INPUTS

Pond Surface Area (AC.)	0.1909	AC.
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Pond Surface Area (SQ. FT.)	8316	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	435	GPD
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Total Seepage Loss (AFA)	0.5	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.

15-7281	'VELOCITY	'FLOW RATE	8/21/2014 14:29	1.674	7.806
8/21/2014 14:22	1.639	7.642	8/21/2014 14:30	1.678	7.825
8/21/2014 14:22	1.678	7.826	8/21/2014 14:30	1.675	7.81
8/21/2014 14:22	1.673	7.803	8/21/2014 14:30	1.675	7.811
8/21/2014 14:22	1.672	7.796	8/21/2014 14:30	1.676	7.817
8/21/2014 14:22	1.679	7.83	8/21/2014 14:30	1.673	7.799
8/21/2014 14:23	1.67	7.786	8/21/2014 14:30	1.665	7.763
8/21/2014 14:23	1.674	7.804	8/21/2014 14:31	1.667	7.771
8/21/2014 14:23	1.665	7.766	8/21/2014 14:31	1.671	7.792
8/21/2014 14:23	1.673	7.802	8/21/2014 14:31	1.676	7.814
8/21/2014 14:23	1.672	7.795	8/21/2014 14:31	1.677	7.819
8/21/2014 14:23	1.671	7.791	8/21/2014 14:31	1.68	7.833
8/21/2014 14:24	1.676	7.814	8/21/2014 14:31	1.673	7.799
8/21/2014 14:24	1.677	7.821	8/21/2014 14:32	1.666	7.77
8/21/2014 14:24	1.68	7.832	8/21/2014 14:32	1.673	7.8
8/21/2014 14:24	1.682	7.842	8/21/2014 14:32	1.668	7.777
8/21/2014 14:24	1.681	7.838	8/21/2014 14:32	1.67	7.788
8/21/2014 14:24	1.68	7.836	8/21/2014 14:32	1.68	7.834
8/21/2014 14:25	1.662	7.749	8/21/2014 14:32	1.669	7.785
8/21/2014 14:25	1.675	7.809	8/21/2014 14:33	1.673	7.803
8/21/2014 14:25	1.672	7.796	8/21/2014 14:33	1.675	7.81
8/21/2014 14:25	1.67	7.789	8/21/2014 14:33	1.675	7.812
8/21/2014 14:25	1.67	7.787	8/21/2014 14:33	1.676	7.814
8/21/2014 14:25	1.675	7.81	8/21/2014 14:33	1.666	7.768
8/21/2014 14:26	1.677	7.821	8/21/2014 14:33	1.663	7.755
8/21/2014 14:26	1.68	7.836	8/21/2014 14:34	1.681	7.838
8/21/2014 14:26	1.681	7.839	8/21/2014 14:34	1.677	7.821
8/21/2014 14:26	1.674	7.805	8/21/2014 14:34	1.689	7.874
8/21/2014 14:26	1.674	7.804	8/21/2014 14:34	1.689	7.877
8/21/2014 14:26	1.67	7.788	8/21/2014 14:34	1.648	7.685
8/21/2014 14:27	1.675	7.809	8/21/2014 14:34	1.635	7.626
8/21/2014 14:27	1.672	7.795	8/21/2014 14:35	1.636	7.627
8/21/2014 14:27	1.677	7.819	8/21/2014 14:35	1.63	7.603
8/21/2014 14:27	1.673	7.801	8/21/2014 14:35	1.63	7.602
8/21/2014 14:27	1.673	7.802	8/21/2014 14:35	1.635	7.625
8/21/2014 14:27	1.669	7.781	8/21/2014 14:35	1.628	7.592
8/21/2014 14:28	1.668	7.78	8/21/2014 14:35	1.628	7.592
8/21/2014 14:28	1.673	7.8	8/21/2014 14:36	1.652	7.701
8/21/2014 14:28	1.671	7.791	8/21/2014 14:36	1.675	7.809
8/21/2014 14:28	1.673	7.802	8/21/2014 14:36	1.682	7.843
8/21/2014 14:28	1.673	7.802	8/21/2014 14:36	1.648	7.687
8/21/2014 14:28	1.677	7.82	8/21/2014 14:36	1.645	7.669
8/21/2014 14:29	1.675	7.812	8/21/2014 14:36	1.647	7.681
8/21/2014 14:29	1.671	7.793	8/21/2014 14:37	1.642	7.659
8/21/2014 14:29	1.669	7.78	8/21/2014 14:37	1.647	7.682
8/21/2014 14:29	1.67	7.788	8/21/2014 14:37	1.658	7.733
8/21/2014 14:29	1.677	7.82	8/21/2014 14:37	1.642	7.657

8/21/2014 14:37	1.655	7.716
8/21/2014 14:37	1.647	7.68
8/21/2014 14:38	1.644	7.664
8/21/2014 14:38	1.646	7.677
8/21/2014 14:38	1.644	7.668
8/21/2014 14:38	1.649	7.69
8/21/2014 14:38	1.647	7.678
8/21/2014 14:38	1.643	7.664
8/21/2014 14:39	1.675	7.81
8/21/2014 14:39	1.691	7.883
8/21/2014 14:39	1.697	7.912

ft/s

gal/min





Storage

