

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 37-08884

Exam Date: 10/1/2015 & 4/19/2016

1. Current Owner:

C H RANDOLPH LYON and/or EVELYN H LYON
1102 ELM TREE RD
LAKE FOREST IL 60045 (208)234-4353

2. Accompanied by: Benny Walker (IDWR) on 10/1/2015 and Allen Merritt & Jim Bitzenburg (both IDWR) on 4/19/2016

3. SOURCE: INDEPENDENCE GULCH CREEK

TRIBUTARY: ELKHORN GULCH CREEK

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 SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:

INDEPENDENCE GULCH CREEK NE¼NE¼ Sec. 21, Twp 04N, Rge 18E, B.M. BLAINE County

Method of Determination: Site visit and aerial photography

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	
04N	18E	21	X																

PLACE OF USE: RECREATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	18E	21	X																

Method of Determination: Site visit and aerial photography

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.

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

Photo of Diversion and System Attached

D. FLOW MEASUREMENTS

A small steel v-notch weir was forced into the alluvial deposits and sealed in order to catch the entire flow. A measurement of 3.25 inches of head was made on the weir flow. This converts to 0.27 feet which equals a flow rate of 0.097cfs or 0.1 cfs when rounded (*United States Bureau of Reclamation Water Measurement Handbook*, Table A7-4, attached).

E. FLOW CALCULATIONS X Additional Computation Sheets Attached**Measured Method:**

A flow rate of 0.1 cfs was calculated based on a v-notch weir measurement of 3.25" which converts to 0.27' yielding a flow of 0.097 cfs (0.1 cfs). See *United States Bureau of Reclamation Water Measurement Handbook*, Table A7-4. The rate of 0.1 cfs is recommended for the flow rate.

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

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

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

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

2. Volume Calculations for Other Uses: The pond volume is calculated by multiplying the surface area, 0.09 acres (as measured from ArcMap), by the average depth of 4 feet. The actual pond volume is then 0.36 AF. Since the pond is lined with a plastic liner, seepage losses are minimal. Evaporation losses are calculated by using the **University of Idaho Evaporation and Consumptive Irrigation Water Requirements for Idaho** website and going to the closest station, Hailey. This pond falls under the Open Water, Shallow Systems category, which shows a yearly precipitation deficit of 385 millimeters, or 1.26 feet. The annual losses to evaporation are calculated as: 1.26 feet x 0.09 acres = 0.11 AF. The sum of the evaporation and pond volume is: 0.11 AF + 0.36 AF = 0.47 or 0.5 AF, recommended volume.

G. NARRATIVE/REMARKS/COMMENTS

Two field exams were conducted in the licensing process for permit 37-8884. The first exam was completed on October 1, 2015, by Corey Skinner with Benny Walker of IDWR accompanying. Photos were taken on the first exam, but no measurement was made because of the low stream flow at the time. The second field exam was completed on April 19, 2016 by Corey Skinner with IDWR co-workers Allen Merritt and Jim Bitzenburg in attendance. A flow measurement was made at that time using a small v-notch weir. The measurement yielded a flow rate of 0.097 cfs, which was rounded to 0.1 cfs. See **Flow Measurements and Flow Calculations**, above.

During the field exams, it was noted that the pond was lined with an impermeable liner so no seepage was calculated into the pond volume. The actual volume of the pond is 0.36 AF, with an average depth of 4' and a surface area of 0.09 acres. The evaporation losses for the pond were calculated at 0.11 AF, so the total volume recommended for licensing is rounded to 0.5 AFA. See **Volume Calculations**, above.

Water is diverted from Independence Creek via a small ditch which flows approximately 100 feet to the pond. There is no check system in the creek, so when the stream flow drops low enough, flow into the ditch ceases. The pond is lined with an impermeable plastic liner to stop seepage and a spillway is in place to route excess water back to Independence Creek.

Some changes were made to the permit in the licensing process, including a reduction in the flow rate to reflect the lower measured flow, and reducing the place of use to the NENE of Section 21, T04N, R18E to show the actual place of use. Measuring device conditions were dropped as a result of the January 25, 2000 order signed by Glen Saxton.

Another item which was addressed in the licensing process was an apparent issue with data entry concerning the names of the applicants. It appears that the names were data-entered as C. H. Randolph and/or Evelyn H. Lyon, when the names of the applicants were actually C. H. Randolph Lyon and/or Evelyn H. Lyon.

Additionally, the source name and tributary name were changed to conform to IDWR Data Entry Standards. The right was permitted as **Independence Creek** tributary to **Elkhorn Creek**, but IDWR Data Entry Standards dictate that water flowing in a gulch is to be listed as a creek containing the same name as the gulch, so, in this case, the proper names should be **Independence Gulch Creek** tributary to **Elkhorn Gulch Creek**.

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>
DIVERSION TO STORAGE	01/01 to 12/31	0.10 CFS	
RECREATION STORAGE	01/01 to 12/31		0.5 AF
RECREATION	01/01 to 12/31	0.10 CFS	
	<u>Totals:</u>	0.100 CFS	0.5 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 ☐ None

I. AUTHENTICATION

Field Examiner's Name  Date 12-5-16

Reviewer _____ Date _____

37-8884 Point of Diversion & Place of Use Map

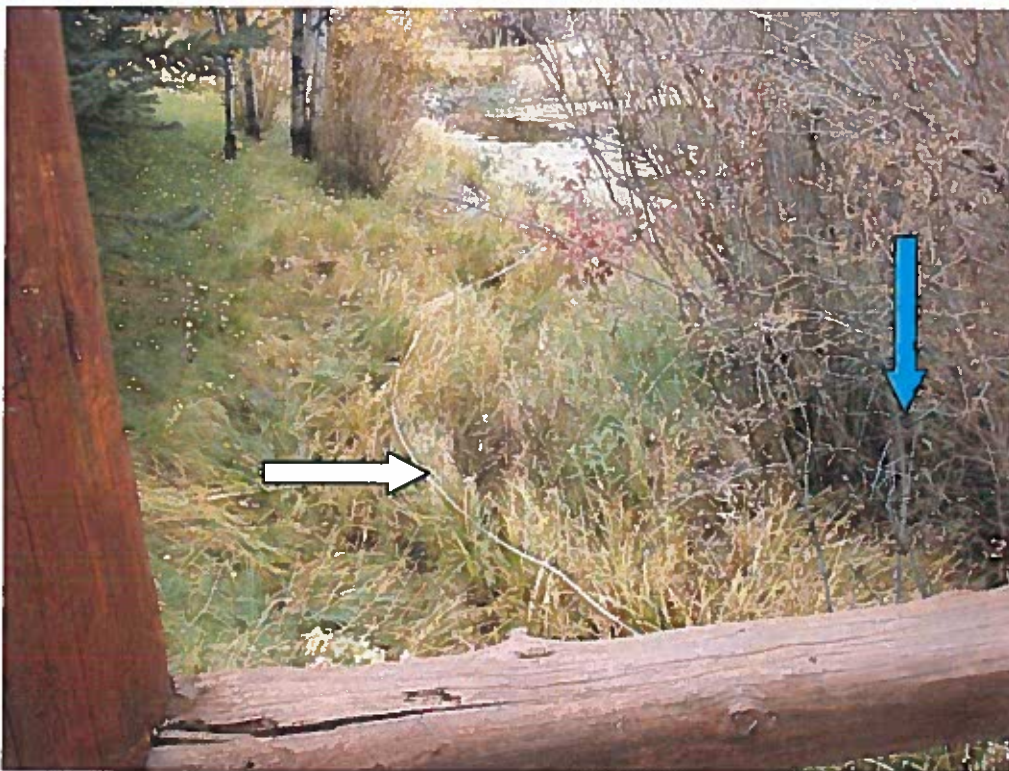
ESRI Imagery





View of property from hill above. Arrow shows approximate location of POD.

Upstream view of heavily vegetated diversion ditch (white arrow). Measuring tape shows ditch path. The blue arrow indicates Independence Creek stream channel. The pond is visible in the background.





View of pond looking downstream

View of pond bank. Folder is placed on pond lining material.



Table A7-4. Discharge of 90° V-notch weirs, in ft³/sec, computed from the formula $Q = 2.49h_1^{2.48}$.

Head <i>H</i> , ft	Discharge <i>Q</i> , ft ³ /sec	Head <i>H</i> , ft	Discharge <i>Q</i> , ft ³ /sec	Head <i>H</i> , ft	Discharge <i>Q</i> , ft ³ /sec	Head <i>H</i> , ft	Discharge <i>Q</i> , ft ³ /sec
0.20	0.046	0.65	0.856	1.10	3.15	1.55	7.38
.21	.052	.66	.889	1.11	3.23	1.56	7.50
.22	.058	.67	.922	1.12	3.30	1.57	7.62
.23	.065	.68	.957	1.13	3.37	1.58	7.74
.24	.072	.69	.992	1.14	3.45	1.59	7.86
.25	.080	.70	1.03	1.15	3.52	1.60	7.99
.26	.088	.71	1.06	1.16	3.60	1.61	8.11
.27	.097	.72	1.10	1.17	3.68	1.62	8.24
.28	.106	.73	1.14	1.18	3.75	1.63	8.36
.29	.116	.74	1.18	1.19	3.83	1.64	8.49
.30	.126	.75	1.22	1.20	3.91	1.65	8.62
.31	.136	.76	1.26	1.21	3.99	1.66	8.75
.32	.148	.77	1.30	1.22	4.08	1.67	8.88
.33	.159	.78	1.34	1.23	4.16	1.68	9.02
.34	.172	.79	1.39	1.24	4.25	1.69	9.15
.35	.184	.80	1.43	1.25	4.33	1.70	9.28
.36	.198	.81	1.48	1.26	4.42	1.71	9.42
.37	.212	.82	1.52	1.27	4.50	1.72	9.56
.38	.226	.83	1.57	1.28	4.59	1.73	9.70
.39	.241	.84	1.62	1.29	4.68	1.74	9.83
.40	.257	.85	1.66	1.30	4.77	1.75	9.98
.41	.273	.86	1.71	1.31	4.86	1.76	10.1
.42	.290	.87	1.76	1.32	4.96	1.77	10.3
.43	.307	.88	1.81	1.33	5.05	1.78	10.4
.44	.325	.89	1.87	1.34	5.15	1.79	10.6
.45	.344	.90	1.92	1.35	5.24	1.80	10.7
.46	.363	.91	1.97	1.36	5.34	1.81	10.8
.47	.383	.92	2.02	1.37	5.44	1.82	11.0
.48	.403	.93	2.08	1.38	5.53	1.83	11.1
.49	.425	.94	2.14	1.39	5.63	1.84	11.3
.50	.446	.95	2.19	1.40	5.74	1.85	11.4
.51	.469	.96	2.25	1.41	5.84	1.86	11.6
.52	.492	.97	2.31	1.42	5.94	1.87	11.8
.53	.516	.98	2.37	1.43	6.05	1.88	11.9
.54	.540	.99	2.43	1.44	6.15	1.89	12.1
.55	.565	1.00	2.49	1.45	6.26	1.90	12.2
.56	.591	1.01	2.55	1.46	6.36	1.91	12.4
.57	.618	1.02	2.62	1.47	6.47	1.92	12.6
.58	.645	1.03	2.68	1.48	6.58	1.93	12.7
.59	.673	1.04	2.74	1.49	6.69	1.94	12.9
.60	.701	1.05	2.81	1.50	6.81	1.95	13.0
.61	.731	1.06	2.88	1.51	6.92	1.96	13.2
.62	.761	1.07	2.94	1.52	7.03	1.97	13.4
.63	.792	1.08	3.01	1.53	7.15	1.98	13.5
.64	.823	1.09	3.08	1.54	7.27	1.99	13.7

ET_{Idaho} 2012 -- Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho

Please send suggestions for improving this site to robison@kimberly.uidaho.edu Copyright 2012, University of Idaho.

Hailey Ranger Stn (NWS -- 103942)

Statistics based on thirty year normal spans 1932 to 1981 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	Annual
Mean ^j	mm/day												mm		
Monthly ^c	-1.35	-0.84	0.18	1.42	2.24	2.83	3.96	3.33	2.18	1.00	-0.56	-1.78	385	0	385
15-Day Moving Average ^d	-1.44	-0.83	0.12	1.56	2.28	2.95	4.06	3.32	2.21	1.02	-0.77	-1.76			
7-Day Moving Average ^e	-1.38	-0.83	0.16	1.50	2.30	2.86	4.03	3.32	2.22	1.04	-0.62	-1.79			
3-Day Moving Average ^f	-1.37	-0.84	0.18	1.44	2.26	2.84	3.97	3.33	2.20	1.01	-0.57	-1.78			
Standard Deviation ^k	mm/day												mm		
Monthly ^c	1.74	1.07	1.18	0.87	1.57	1.04	0.79	1.36	0.90	1.00	1.07	2.60	127	0	127
15-Day Moving Average ^d	2.02	1.40	1.21	1.17	1.46	1.38	0.62	1.35	1.15	1.00	1.59	2.62			
7-Day Moving Average ^e	2.82	2.01	1.57	1.65	1.78	1.94	0.89	1.60	1.42	1.38	2.04	3.56			
3-Day Moving Average ^f	3.81	2.79	2.15	2.42	2.32	2.54	1.38	2.10	1.94	1.94	2.75	4.62			
20% Exceedance ^l	mm/day												mm		
Monthly ^c	-0.39	0.17	0.91	2.11	3.29	3.75	4.46	3.84	2.78	1.67	0.31	-0.48	470	0	470
15-Day Moving Average ^d	0.35	0.57	1.40	2.98	4.01	4.26	4.64	4.27	3.30	2.18	0.72	0.36			
7-Day Moving Average ^e	0.62	0.95	1.63	3.31	4.24	4.67	4.77	4.46	3.52	2.52	1.13	0.54			
3-Day Moving Average ^f	0.76	1.09	2.06	3.66	4.64	5.12	5.13	4.70	3.72	2.70	1.22	0.64			
	mm/day												mm		

= 1.26 AF