

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-11812
Exam Date: 02/06/2019
& 06/15/2023

1. Current Owner:
STATE OF IDAHO DEPT OF FISH AND GAME
PO BOX 25 BOISE ID 83707-0025
2. Accompanied by: **Brett Amdor (IDFG)**
Relationship to permit Holder: **Employee at Wildlife Refuge**

3. SOURCE: *Sand Hollow Creek* UNNAMED DRAIN Tributary
SNAKE RIVER

Method of Determination: **ArcMap and Field Exam Observation**

B. OVERLAP REVIEW

1. Other water rights with the same place of use:

Water Right No.	Source	Purpose of Use	Basis
63-4261B	Unnamed Drain	Irrigation	Decreed

Comments: Water right 63-4261B, owned by IDFG may need a POU transfer.

2. Other water rights with the same point-of-diversion: **None**

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

UNNAMED DRAIN L4 (NE¼ SW¼ SW¼), Sec. 31, Twp 06N, Rge 05W, B.M. CANYON County

Method of Determination: **ArcMap and Field Exam Observation**

PLACE OF USE: WILDLIFE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06N	06W	25										X	X						

PLACE OF USE: WILDLIFE STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06N	06W	25										X	X						

Method of Determination: **ArcMap and Field Exam Observation**

3.

X 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
X 1:24,000 or greater.

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

X Photo of Diversion and System Attached

D. FLOW MEASUREMENTS

1.

Measurement Equipment
Constant Head Orifice

2. Measurements: **See attached IDFG flow measurement records.**

E. FLOW CALCULATIONS

X

Additional Computation Sheets Attached

Measured Method: Staff gauge measurements used in IDFG discharge formula.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: **None**

2. Volume Calculations for Other Uses:

Wildlife Storage South Pond: 12.5 acres with average depth of 1.5 feet = 18.75 AF

Wildlife Storage North Pond: 13.6 acres with average depth of 1.0 feet = 13.6 AF

ETIdaho Precipitation Deficit (Parma PN-AM—PMAI, Open water-shallow systems) = 2.65 AF

Combined Wildlife Storage volume = 35.0 AF

Wildlife: 2.0 cfs X 1.9835 X 365 days = 1448.0 AF

Total Volume = **1483.0 AF**

G. NARRATIVE/REMARKS/COMMENTS

On June 15, 2023 I conducted a field exam for permit 63-11812 owned by the Idaho Department of Fish and Game (IDFG). Permit 63-11812 was approved for a diversion rate of 2.0 cfs to divert surface water from an unnamed drain for Wildlife, Wildlife Storage (35.0 AF), and Diversion to Storage uses. Brett Amdor, IDFG employee, was present and showed me the developed system.

The POD consists of two Constant-Head Orifice (CHO) measurement devices and the POU is two wildlife ponds maintained by IDFG. The two CHO devices discharge water into a single channel that delivers water to the wildlife ponds. The IDFG provided CHO flow measurement records that spanned 736 days of water use. The records indicate that diversions exceed 2.0 cfs.

In this narrative I shall refer to the ponds as the “south pond” and the “north pond”. The ponds are a “flow-through” design, from south to north, that uses two headgates and one check structure to control pond levels. The first headgate fills the south pond and the second headgate connects both ponds allowing water to flow from the south pond to the north pond. The check structure in the north pond lets water out and return north to the nearby Snake River. Water can continuously flow through both ponds by keeping the two headgates and check structure open.

Mr. Amdor explained that the 12.5-acre south pond is maintained at a depth of 18 inches (18.75 AF of actual water). The 13.6-acre north pond is maintained at a depth of 12 inches (13.6 AF of actual water). Once a year, both ponds (combined total of 32.35 AF of actual water and 26.1 acres of combined surface area) are drained and refilled for maintenance activities. Evaporative loss data from the University of Idaho ET Idaho Parma Station (PN-AM—PMAI, open water-shallow systems) indicate an annual Precipitation Deficit of 631mm (2.06 ft) per acre of pond surface area. That equates to a total of up to 54.0 AF per year of combined evaporative losses for the two ponds. As mentioned in the first paragraph, permit 63-11812 was permitted for a storage volume of 35.0 AF. Permit 63-11812 will be licensed for 35.0 AF for Wildlife Storage (32.35 AF of actual water plus 2.65 AF of Precipitation Deficit).

Additional water, for Wildlife use, is also diverted and allowed to flow through the ponds throughout the year. The additional water flow, during winter months, minimizes ice build-up so waterfowl have access to open water. The additional water flow, during non-winter months, maintains wetland vegetation and supports wildlife habitat. A volume of 1,448.0 AF will be licensed for Wildlife use ($2.0 \text{ cfs} \times 365 \text{ days} = 1,448 \text{ AF}$).

Conditions on the permit have been complied with and I recommend licensing permit 63-11812 for the following:

- A diversion rate of 2.0 cfs.
- 35 AF for Wildlife Storage.
- 1448 AF for Wildlife.
- 1483 AF total volume

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
WILDLIFE	1/01 to 12/31	2.00 CFS	1,448.0 AF
WILDLIFE STORAGE	1/01 to 12/31		35.0 AF
DIVERSION TO STORAGE	1/01 to 12/31	2.00 CFS	

Totals: 2.00 CFS 1,483.0 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

Kent Aaga

Field Examiner's Name

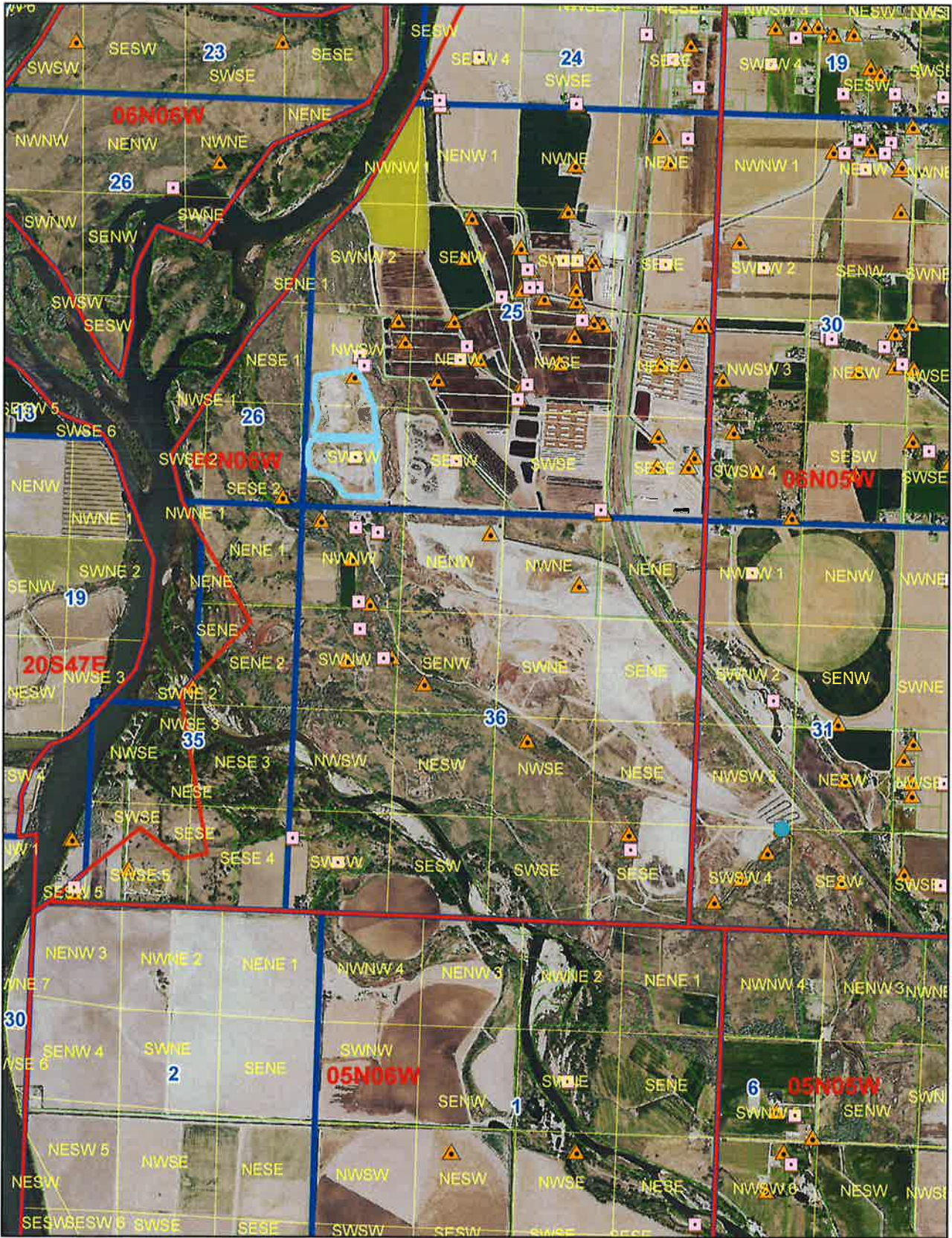
Date

10-17-2023

Reviewer

Date

12/28/2023

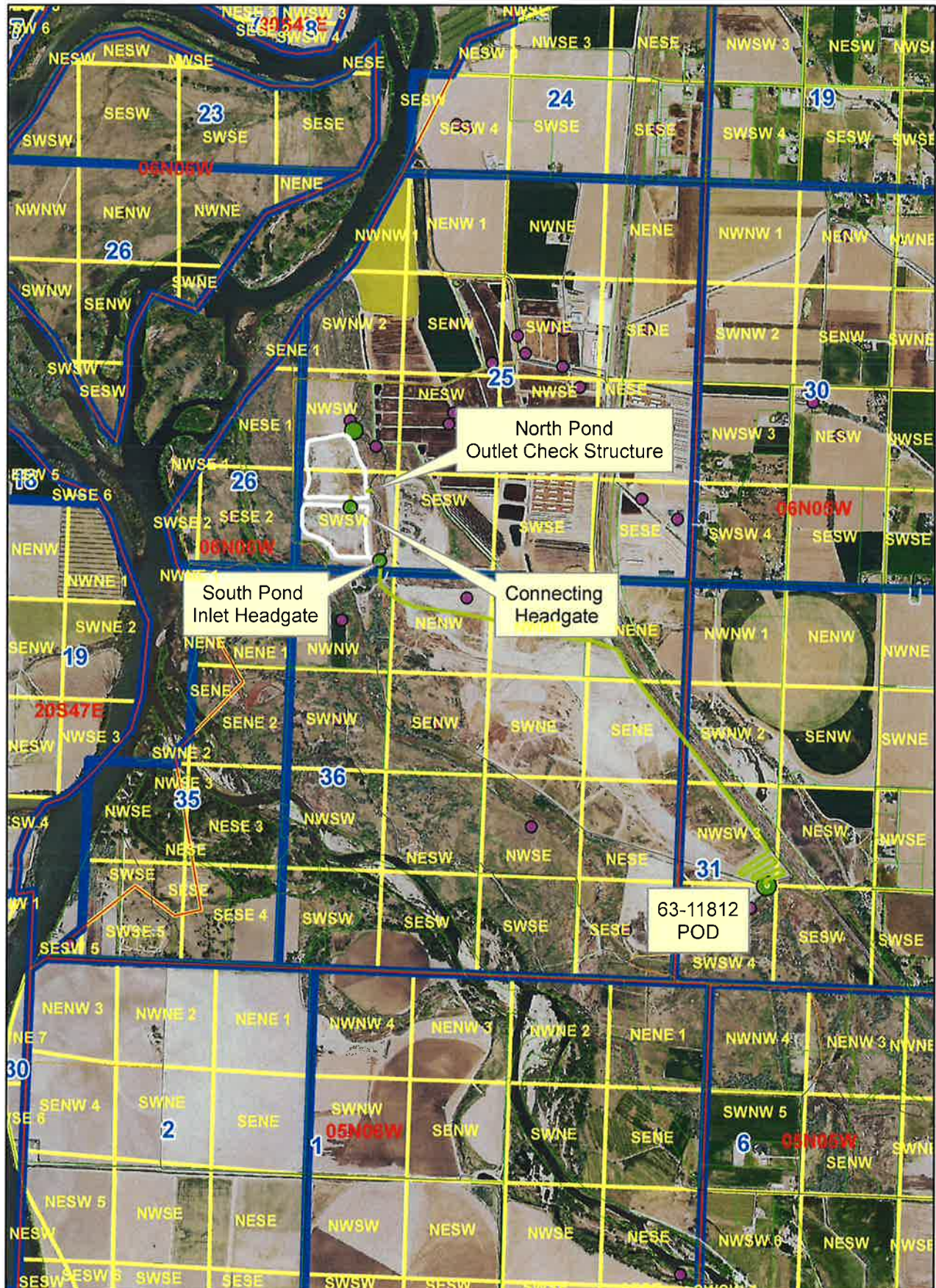


Legend

Township/Range

Sections

QQ





University of Idaho

Kimberly Research
and Extension Center

Water Resources Program

ETI_{daho} 2017

Evapotranspiration and Consumptive
Irrigation Water Requirements
for Idaho

Please send suggestions for improving this
site to robison at uidaho dot edu

2023-09-29 10:08

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Parma (PN-AM -- PMAI)

Statistics based on thirty year normal spans 1990 to 2016 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	-0.45	0.36	1.32	2.08	2.72	3.51	4.27	3.79	2.58	1.05	0.05	-0.62	631	0	631
15-Day Moving Average ^d	-0.50	0.33	1.29	2.13	2.73	3.50	4.28	3.75	2.60	1.05	0.08	-0.59			
7-Day Moving Average ^e	-0.48	0.34	1.29	2.11	2.75	3.51	4.28	3.76	2.60	1.05	0.05	-0.61			
3-Day Moving Average ^f	-0.45	0.35	1.30	2.10	2.72	3.50	4.27	3.79	2.58	1.05	0.05	-0.60			
Standard Deviation ^k	mm/day												mm		
Monthly ^c	0.70	0.48	1.09	0.61	1.68	0.83	0.78	0.67	0.51	0.87	0.43	1.00	107	0	107

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WCS Diversion #3					
Date	AM/PM	Outside	Inside	Difference	CFS
No Use					
7/6/2021	PM	2.75	2.63	0.12	2.43
10/5/2021	AM	3.05	2.55	0.50	4.97
10/8/2021	AM	3.15	2.3	0.85	6.47
11/19/2021	PM	3.20	3.00	0.20	3.14
12/3/2021	PM	3.05	2.75	0.30	3.85
12/20/2021	AM	3.05	2.85	0.20	3.14

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WCS Diversion #1					
Date	AM/PM	Outside	Inside	Difference	CFS
2/7/2022		3.14	2.70	0.44	4.66
4/7/2022		2.92	2.60	0.32	3.97
5/3/2022		3.00	3.00	0.00	0.00
5/18/2022		2.85	2.50	0.35	4.15
6/21/2022		3.20	3.00	0.20	3.14
11/4/2022		3.08	2.90	0.18	2.98

WCS Diversion #2					
Date	AM/PM	Outside	Inside	Difference	CFS
2/7/2022		3.14	2.70	0.44	4.66
4/7/2022		2.92	2.60	0.32	3.97
5/3/2022		3.00	2.80	0.20	3.14
5/18/2022		2.85	2.50	0.35	4.15
6/21/2022		3.20	3.00	0.20	3.14
11/4/2022		3.08	2.90	0.18	2.98

WCS Diversion #3					
Date	AM/PM	Outside	Inside	Difference	CFS
2/7/2022		3.14	3.14	0.00	0.00
4/7/2022		2.92	2.92	0.00	0.00
5/3/2022		3.00	3.00	0.00	0.00
5/18/2022		2.85	2.85	0.00	0.00
6/21/2022		3.20	3.20	0.00	0.00
11/4/2022		3.08	2.55	0.53	5.11

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WCS Diversion #1					
Date	AM/PM	Outside	Inside	Difference	CFS
1/6/2023	AM	3.12	2.30	0.82	6.36
1/10/2023	AM	3.15	2.90	0.25	3.51
1/31/2023	AM	0.00	0.00	0.00	0.00
3/7/2023	AM	2.50	2.50	0.00	0.00
3/8/2023		2.45	2.35	0.10	2.22
6/6/2023		2.45	2.35	0.10	2.22

WCS Diversion #2					
Date	AM/PM	Outside	Inside	Difference	CFS
1/6/2023	AM	3.12	2.30	0.82	6.36
1/10/2023	AM	3.15	2.90	0.25	3.51
1/31/2023	AM	0.00	0.00	0.00	0.00
3/7/2023	AM	2.50	2.50	0.00	0.00
3/8/2023		2.45	2.35	0.10	2.22
6/6/2023		2.45	2.35	0.10	2.22

WCS Diversion #3					
Date	AM/PM	Outside	Inside	Difference	CFS
1/6/2023	AM	3.12	2.80	0.32	3.97
1/31/2023	AM	0.00	0.00	0.00	0.00
3/7/2023	AM	2.50	2.35	0.15	2.72
3/8/2023		2.45	2.33	0.12	2.43
6/6/2023		2.45	2.45	0.00	

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Discharge of rectangular submerged orificed with bottom and side contractions suppressed. Computed with formula $Q=0.70 \times A \times (2 \times g \times dh)^{0.5}$

Difference in Head (dh), Feet (Measured From Staff Gauges)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	Gate Height (Square Outer Gate, in Feet)
	1.2	2.4	3.6	4.8	6	7.2	8.4	9.6	10.8	12	13.2	14.4	15.6	Gate Height (Square Outer Gate, in Inches)
	0.25	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3	3.25	Cross Sectional Area
0.2	0.63	1.26	1.88	2.51	3.14	3.77	4.40	5.02	5.65	6.28	6.91	7.54	8.16	
0.21	0.64	1.29	1.93	2.57	3.22	3.86	4.50	5.15	5.79	6.44	7.08	7.72	8.37	
0.22	0.66	1.32	1.98	2.63	3.29	3.95	4.61	5.27	5.93	6.59	7.25	7.90	8.56	
0.23	0.67	1.35	2.02	2.69	3.37	4.04	4.71	5.39	6.06	6.74	7.41	8.08	8.76	
0.24	0.69	1.38	2.06	2.75	3.44	4.13	4.82	5.50	6.19	6.88	7.57	8.26	8.94	
0.25	0.70	1.40	2.11	2.81	3.51	4.21	4.92	5.62	6.32	7.02	7.72	8.43	9.13	
0.26	0.72	1.43	2.15	2.86	3.58	4.30	5.01	5.73	6.44	7.16	7.88	8.59	9.31	
0.27	0.73	1.46	2.19	2.92	3.65	4.38	5.11	5.84	6.57	7.30	8.03	8.76	9.49	
0.28	0.74	1.49	2.23	2.97	3.72	4.46	5.20	5.94	6.69	7.43	8.17	8.92	9.66	
0.29	0.76	1.51	2.27	3.03	3.78	4.54	5.29	6.05	6.81	7.56	8.32	9.08	9.83	
0.3	0.77	1.54	2.31	3.08	3.85	4.62	5.38	6.15	6.92	7.69	8.46	9.23	10.00	
0.31	0.78	1.56	2.35	3.13	3.91	4.69	5.47	6.26	7.04	7.82	8.60	9.38	10.16	
0.32	0.79	1.59	2.38	3.18	3.97	4.77	5.56	6.36	7.15	7.94	8.74	9.53	10.33	
0.33	0.81	1.61	2.42	3.23	4.03	4.84	5.65	6.45	7.26	8.07	8.87	9.68	10.49	
0.34	0.82	1.64	2.46	3.28	4.09	4.91	5.73	6.55	7.37	8.19	9.01	9.83	10.65	
0.35	0.83	1.66	2.49	3.32	4.15	4.99	5.82	6.65	7.48	8.31	9.14	9.97	10.80	
0.36	0.84	1.69	2.53	3.37	4.21	5.06	5.90	6.74	7.58	8.43	9.27	10.11	10.95	
0.37	0.85	1.71	2.56	3.42	4.27	5.13	5.98	6.83	7.69	8.54	9.40	10.25	11.11	
0.38	0.87	1.73	2.60	3.46	4.33	5.19	6.06	6.93	7.79	8.66	9.52	10.39	11.25	
0.39	0.88	1.75	2.63	3.51	4.39	5.26	6.14	7.02	7.89	8.77	9.65	10.52	11.40	
0.4	0.89	1.78	2.66	3.55	4.44	5.33	6.22	7.11	7.99	8.88	9.77	10.66	11.55	
0.41	0.90	1.80	2.70	3.60	4.50	5.40	6.29	7.19	8.09	8.99	9.89	10.79	11.69	
0.42	0.91	1.82	2.73	3.64	4.55	5.46	6.37	7.28	8.19	9.10	10.01	10.92	11.83	
0.43	0.92	1.84	2.76	3.68	4.60	5.53	6.45	7.37	8.29	9.21	10.13	11.05	11.97	
0.44	0.93	1.86	2.79	3.73	4.66	5.59	6.52	7.45	8.38	9.32	10.25	11.18	12.11	
0.45	0.94	1.88	2.83	3.77	4.71	5.65	6.59	7.54	8.48	9.42	10.36	11.30	12.25	
0.46	0.95	1.90	2.86	3.81	4.76	5.71	6.67	7.62	8.57	9.52	10.48	11.43	12.38	
0.47	0.96	1.93	2.89	3.85	4.81	5.78	6.74	7.70	8.67	9.63	10.59	11.55	12.52	
0.48	0.97	1.95	2.92	3.89	4.86	5.84	6.81	7.78	8.76	9.73	10.70	11.68	12.65	
0.49	0.98	1.97	2.95	3.93	4.92	5.90	6.88	7.86	8.85	9.83	10.81	11.80	12.78	
0.5	0.99	1.99	2.98	3.97	4.97	5.96	6.95	7.94	8.94	9.93	10.92	11.92	12.91	

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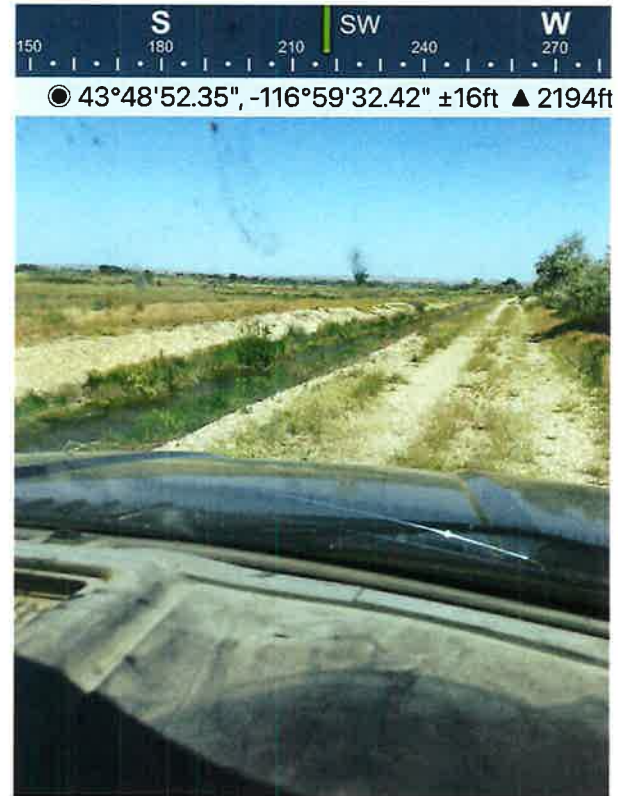
63-11812 POD



Field Exam 63-11812

63-11812

Conveyance channel to POU



63-11812

Inlet Headgate to South pond



63-11812 POU/North & South Pond

