

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED

Dec 20, 2023

DEPARTMENT OF
WATER RESOURCES

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 63-334011. Owner Layne Thornton and/or Lori ThorntonPhone No. 208-922-5779Current address 3224 Swan Falls Rd, Kuna, ID 83634-17322. Examiner's name Scott KingEXAM DATE 6/21/20193. Accompanied by Lavar Thornton

Email _____

Address 2800 Forrey Rd, Kuna, ID 83634Relationship to permit holder Father and business partnerPhone No. 208 631-47434. Source Ground Water

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use 63-32112, 63-33399, , 63-33397, BKID, City of Kuna Municipal.2. Other water rights with the same source and point of diversion 63-2986, 63-31951, 63-31953, 63-32112, 63-33399 and 63-33074**C. DIVERSION AND DELIVERY SYSTEM**

1. Point(s) of Diversion:

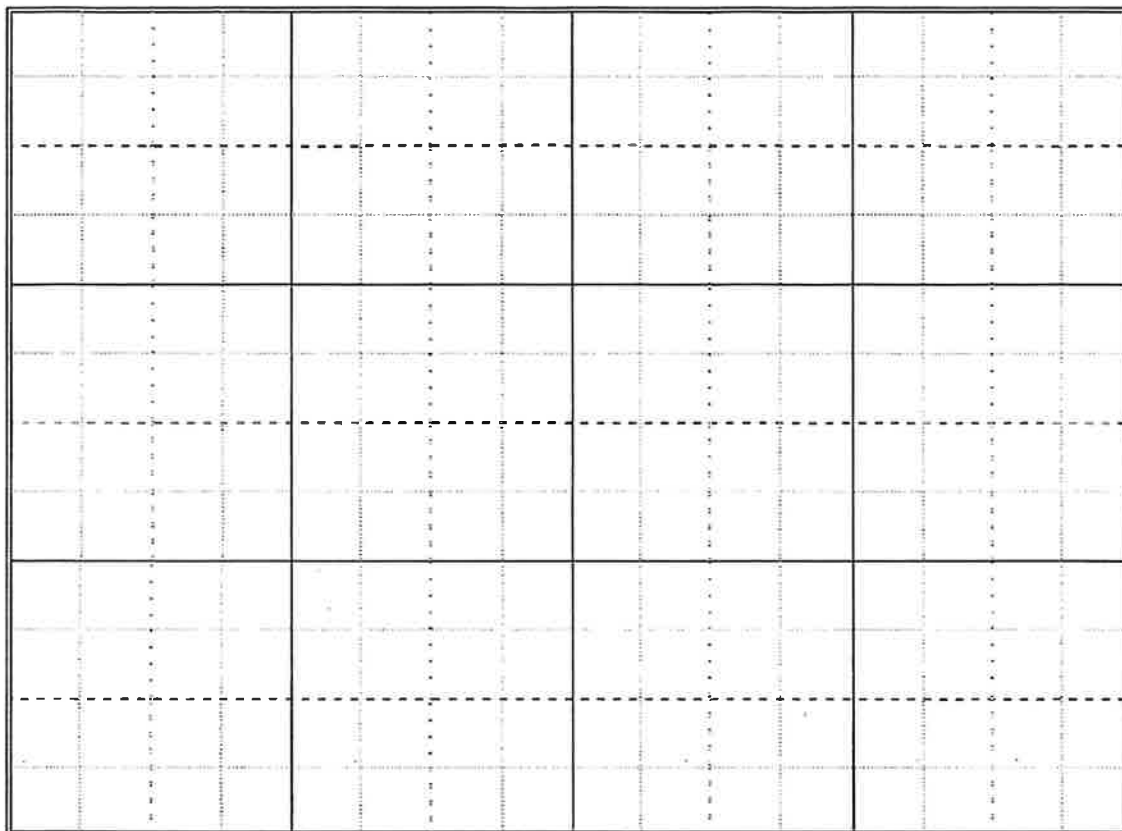
Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
1			SW	SW	34	2N	1E	ADA	GPS and on-site inspection
2	1		NE	NE	3	1N	1E	ADA	GPS and on-site inspection
3			SE	NE	3	1N	1E	ADA	GPS and on-site inspection
4			NE	SE	3	1N	1E	ADA	GPS and on-site inspection

2. Place(s) of Use:

Method of determination On-site inspection, 2015 & 2017 NAIP imagery

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
2N	1E	34									24	12	31	39					106
																			106

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☐ see attached.



Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (required)
☒ 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
1	US Electric	75	3493108	Johnston	JT3184, 8-inch
2	GE	200	GMJ728117	Layne & Bowler	45856
3	US Electric	200	E05-AA68-M A1	Unknown	10-inch

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

D. FLOW MEASUREMENTS

4 || US Electric || 150 hp || 1281477 || Johnston || 1638

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
GE TransPort PT878	Ultrasonic	GE	PT878	7140	variable	April 5, 2019

2. **Measurements:** _____

Well 1 measured at 1.56 cfs during licensing of 63-7982. Well 4 measured at 5.0 cfs during licensing of 63-7474. Well 2 measured at 3.09 cfs, and well 3 measured at 3.81 cfs during this field exam.

E. NARRATIVE/REMARKS/COMMENTS

Four wells serve an interconnected system irrigating 530 acres.

Water rights 63-2986, 63-31951, 63-31953 combined authorize 5.62 cfs for the irrigation of 296 acres. Permit 63-33074 adds 126 acres, bringing the total to 422 acres. Permit 63-33074 also provides additional diversion rate and annual volume to the acres authorized by the decreed water rights.

The Section 34 SWSW point of diversion also serves water rights 63-32112, 63-33399. All four points of diversion serve permit 63-33401. Water rights 63-32112 and 63-33399 together authorize 1.28 cfs for irrigation of 106 acres. Permit 63-33401 provides additional diversion rate for the 106 acres.

Right 63-33397 authorizes the diversion of 0.3 cfs from North Indian Creek for irrigation of 25 acres within the 106-acre place of use. The authorized point of diversion from North Indian Creek is not owned by Thornton. North Indian Creek rarely flows now and this examiner suspects the primary supply to North Indian Creek during the irrigation season was wastewater from upstream gravity-flood irrigation practices. Conversions from flood to sprinkler irrigation have eliminated the supply during the irrigation season.

Boise-Kuna Irrigation District assesses the property for 12.4 acres. BKID stated to SPF in 2010 that the property is located on high ground and cannot receive surface water shares. The permit owner is unaware of BKID water being used on this property. The 1976 licensing exam for 63-7982 (parent right of 63-32112) does not indicate use of BKID water. Examiner recommends removing condition requiring use of surface water as it is unavailable.

All rights combined are recommended to authorize 10.56 cfs for irrigation of 528 acres.

Alfalfa seed is the primary crop this year. Alfalfa seed has a low irrigation water demand. The owner has not needed to turn on well #4 and requested that prior measurements be used as to not incur power company demand charges for a well that will not be used this year. Prior flow measurement was 5.0 cfs with a 125-hp motor and open discharge. The system now has 150-hp motor and pressure discharges. Flow capacity was calculated with a theoretical equation based on 150-hp motor, pump efficiency, 185-ft pumping water level, and 65 psi discharge pressure.

The owner has installed flowmeters on Well 1 and on the pipeline crossing Kuna-Mora Road conveying water from Wells 2, 3, & 4 to the permitted place of use.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☐ Yes ☒ No If no, what must be done to meet the permit requirements?

Condition 8 requires the right holder to make full beneficial use of all surface water rights. North Indian Creek no longer provides a remotely reliable source of supply. Boise-Kuna Irrigation District water is unavailable and it is unknown if or when it was last used on this property.

The right holder has installed the required measuring devices and is collecting depth-to-water measurements.

F. FLOW CALCULATIONS☒ Additional computation sheets attached

Measured Method:

Well 1 measured at 1.56 cfs with a McCrometer propeller meter for 63-7982.

Well 2 measured at 3.08 cfs with an ultrasonic meter.

Well 3 measured at 3.81 cfs with an ultrasonic meter.

Well 4 measured at 5 cfs cfs but had a theoretical capacity of 4.16 cfs with 125 hp motor and open discharge. It currently has 150 hp motor and pressure discharges. $150 \times 8.8 \times 0.7 / (185 + 65 \times 2.31) = 2.76$ cfs**G. VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 106 \times 4.5 = 477$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 0.84 \times 260 \times 1.9835 = 433$$

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

2. Volume Calculations for Other Uses:

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Irrigation	3/1	11/15	0.84	433
Totals:			0.84	433*

*When combined with 63-32112 and 63-33399, total annual volume limited to 477 af.

2. Recommended Amendments

- ☐ Change P.D. as reflected on page 1 ☐ Add P.D. as reflected on page 1 ☒ None
☐ Change P.U. as reflected on page 1 ☐ Add P.U. as reflected on page 1 ☐ Other

I. AUTHENTICATION

Field Examiner's Signature

*Scott M. King*Date *July 1, 2019*

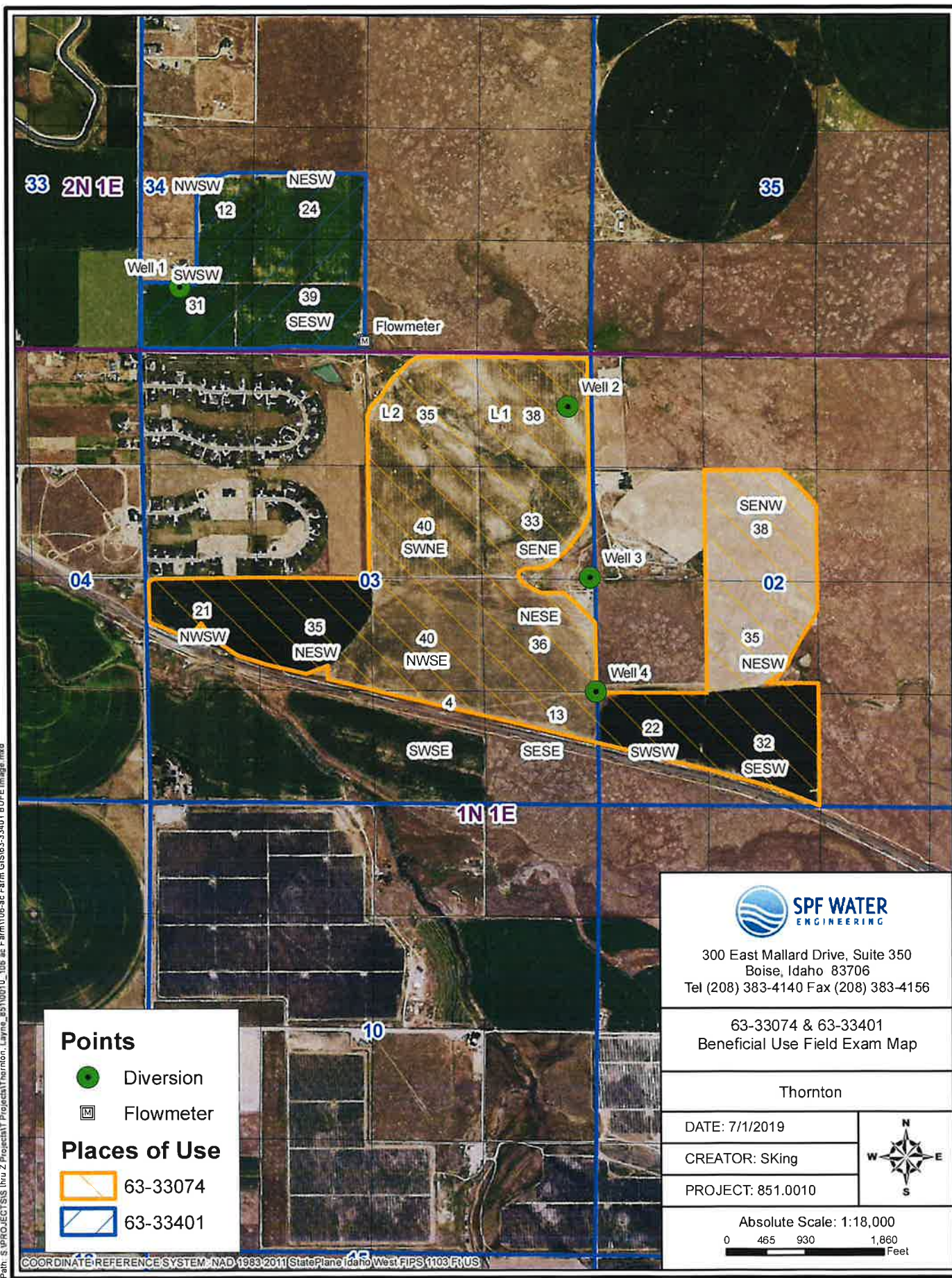
Reviewer

Date



Attachment A
Field Exam Map

Path: S:\PROJECTS\Irru Z\Project\T\Thornton_Layne_851\0010_106 ac Farm\106-ac Farm GIS\63-33401 BUFE image.mxd



Attachment B
Flow Rate and Volume Calculations

Permit: 63-33074 & 63-33401
 Owner: Thornton
 Site Name: Well 2 (aka Miller North)
 POD Location: 1N 1E 3 NeNE (lt 1)
 Tag No: D0057946
 Meter: GE TransPort PT878
 Type: Portable Ultrasonic Time Flight Liquid Flow Meter
 Serial Number: 7140
 Calibration Date: April 5, 2019
 Operator: Scott King

Date/Time	Volume (gal/m)	(+)Total (gal)	(-)Total (gal)	Error #
6/21/2018 12:14	1377	26399	0	0
6/21/2018 12:15	1382	27785	0	0
6/21/2018 12:16	1386	29194	0	0
6/21/2018 12:17	1379	30519	0	0
6/21/2018 12:18	1385	31927	0	0
6/21/2018 12:19	1383	33331	0	0
6/21/2018 12:20	1386	34719	0	0
6/21/2018 12:21	1386	36067	0	0
6/21/2018 12:22	1388	37461	0	0
6/21/2018 12:23	1386	38875	0	0
6/21/2018 12:24	1378	40281	0	0

Time	10 minutes
Volume	13882 gallons
Rate	1386 gpm
Rate	3.09 cfs

Permit: 63-33074 & 63-33401
 Owner: Thornton
 Site Name: Well 3 (aka Miller Middle)
 POD Location: 1N 1E 3 SENE
 Tag No: D0064612
 Meter: GE TransPort PT878
 Type: Portable Ultrasonic Time Flight Liquid Flow Meter
 Serial Number: 7140
 Calibration Date: April 5, 2019
 Operator: Scott King

Date/Time	Volume (gal/m)	(+)Total (gal)	(-)Total (gal)	Error #
6/21/2018 11:10	1703	34134	0	0
6/21/2018 11:11	1703	35862	0	0
6/21/2018 11:12	1705	37578	0	0
6/21/2018 11:13	1709	39236	0	0
6/21/2018 11:14	1709	40949	0	0
6/21/2018 11:15	1698	42682	0	0
6/21/2018 11:16	1705	44418	0	0
6/21/2018 11:17	1700	46121	0	0
6/21/2018 11:18	1698	47776	0	0
6/21/2018 11:19	1702	49483	0	0
6/21/2018 11:20	1715	51223	0	0

Time	10 minutes
Volume	17089 gallons
Rate	1709 gpm
Rate	3.81 cfs

Well 1 measurement from 63-7982 backfile

DATE OF EXAM 7/6/76

ACREAGE
Found 109
Recommended 109

Irrigation Requirement 4.5 Ac Ft/Ac

USE
Irrigation Q = 1.86 c.f.s. V = 998.5 AF/Ann. from 4/1 to 10/31
Domestic Q = c.f.s. V = AF/Ann. from to
Livestock Q = c.f.s. V = AF/Ann. from to

Is water co-mingled? yes no X

Name source:
Twp N/S, Rge E/W, B.M., Sec , Sub 1/4 1/4 County

Exchange? yes no X

Name source exchanged with:
Twp N/S, Rge E/W, B.M., Sec , Sub 1/4 1/4 County

Point of injection:
Twp N/S, Rge E/W, B.M., Sec , Sub 1/4 1/4 County

Point of exchange:
Twp N/S, Rge E/W, B.M., Sec , Sub 1/4 1/4 County

Total Q measured 700 gpm/min = 1.56 cfs Method of measurement in-line-meter

Total Q recommended 1.56 cfs Meter No 75-B-139 Type McCracker Condition Operational

Total V recommended 998.5 AF/Ann.

Recommended Amendments:

P.D.
Place of Use
Other
None

MEASUREMENT CALCULATION:
McCracker in-line-meter # 75-B-139 on 8" discharge at
700 gpm = 1.56 cfs

SYSTEM DESCRIPTION:
6" Pump Model 15K190SCR4, 50HP, serial # 6915686 on Johnston pump Serial
JT 318 on 14" well with booster pump Century Motor 25 HP # 6-373050-01
Serial # 2N on Betty pump Serial # 7382080 Model # B6-JP-BL
on 12" well

REMARKS:

Examiner's Signature JP Jura Date 7/12/76

Checked by Date

Approved by Date

CONVERSATION MEMORANDUM

DATE 10-28

FILE 63-7474

NAME OF PARTY J. Evan Merrell, PE

EMPLOYEE Cindy Hodges.

RE: Mr. Merrell was farm manager when proof
was submitted in 1977. He performed measurements
on these 2 wells:

North well (#1, NENE)
North well - A concrete ditch runs west of the
well & turns south. In the south ditch, there
are flashboard slots into which a plywood
weir was placed for the measurement = 1.4 cfs

South well (#2, NESE)
South well - This well discharges into a
basin then down concrete ditch to the west.
A cross sectional area was measured, then
velocity was measured with a depth-integrated
float. These 2 measurements then used to compute
flow. Total $6.4 - 1.4 = 5.0$ cfs assumed

(see original proof, rec'd 10-28-1977)

Mr Merrell is satisfied with the accuracy of these
measurements at the time he took them. The
proof form is signed by him & is in the file.

MIN
FEB 01 1993

Attachment C

Exam Photos



Figure 1: Well 1 75-hp vertical turbine.



Figure 2: Flowmeter installed on Well 1.



Figure 3: Discharge pipe of Well 1 showing flowmeter location.

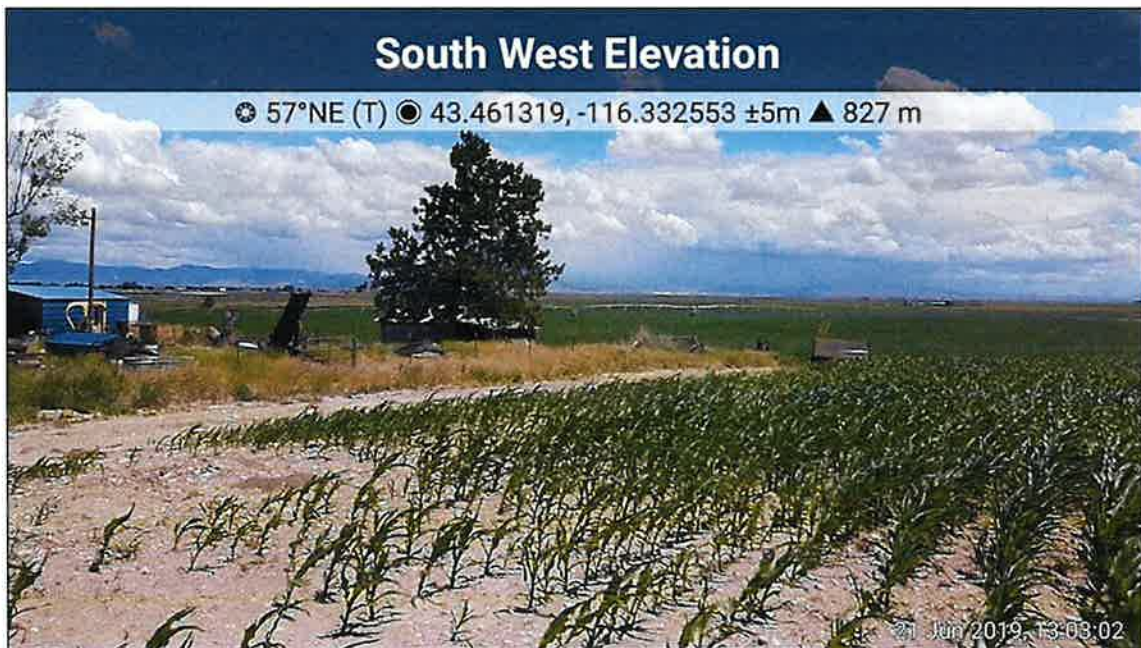


Figure 4: Place of use photo taken near well.



Figure 5: Flowmeter installed north of Kuna-Mora road on pipeline serving 63-33401 place of use.

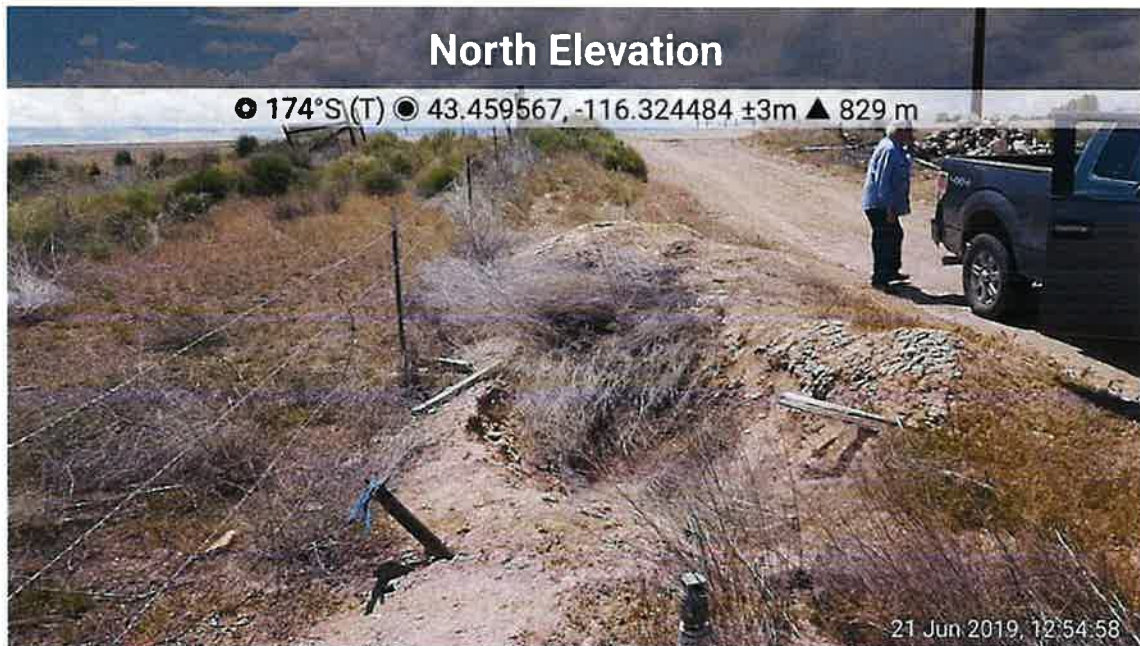


Figure 6: Figure 5 flowmeter installed in pit north of Kuna-Mora Road.



Figure 7: Well 2 equipped with 200 hp motor and vertical turbine pump.

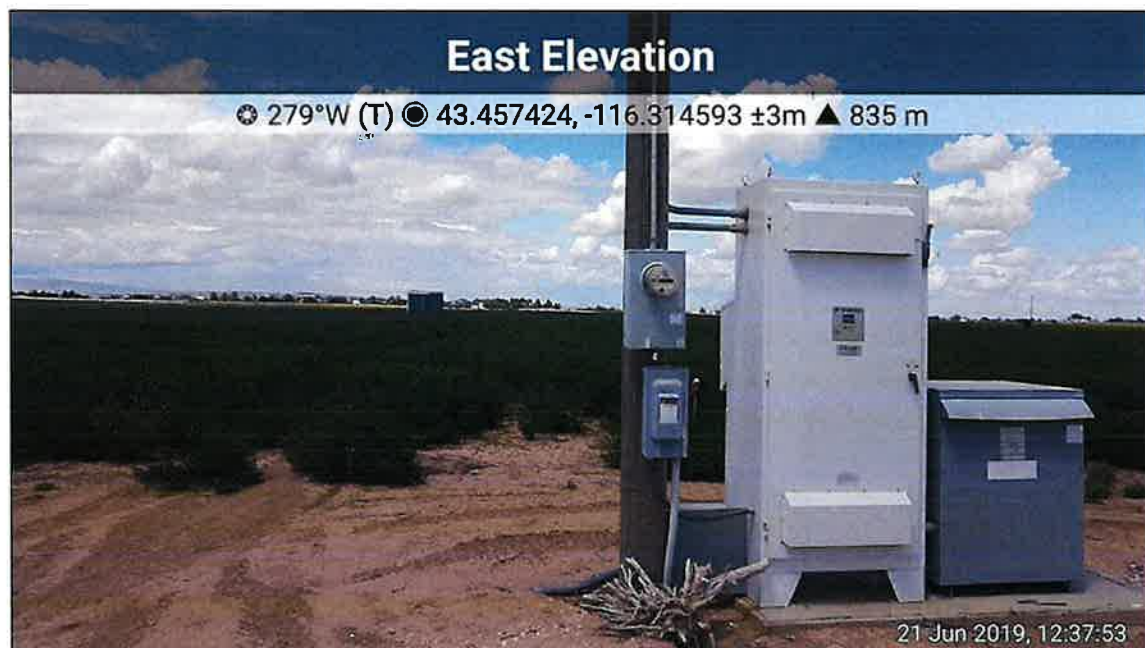


Figure 8: Variable speed drive controls for Well 2 with well house in background.



Figure 9: Well 3 equipped with 200-hp motor and vertical turbine pump.

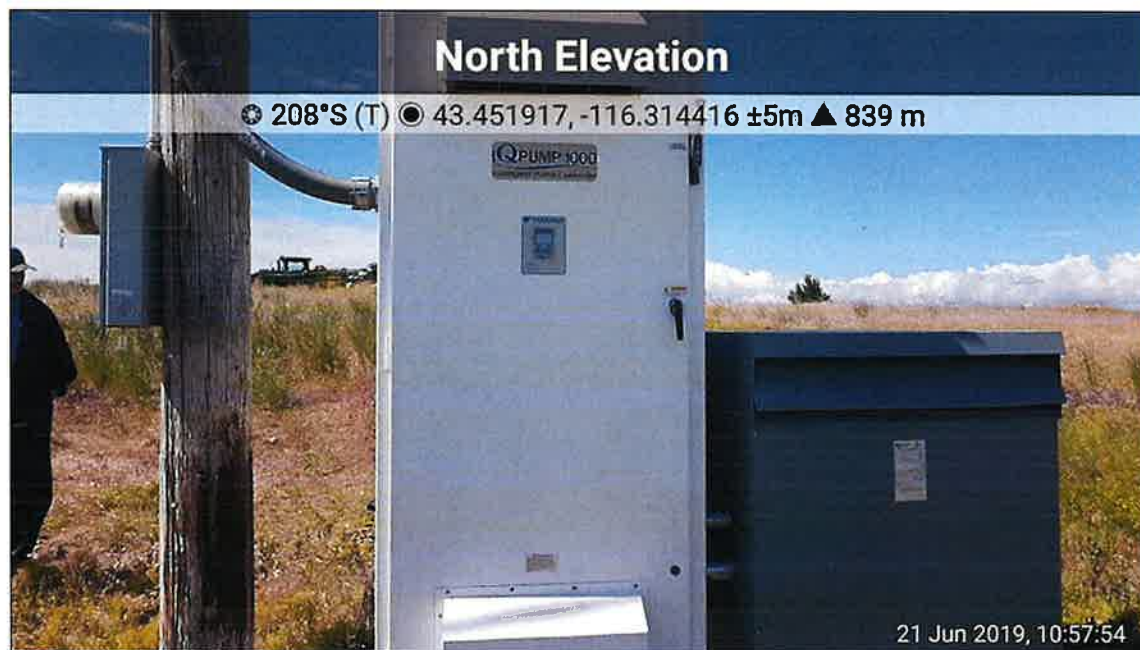


Figure 10: Well 3 variable speed drive controls.



Figure 11: Well 4 equipped with 150 hp motor and vertical turbine pump.

Attachment D
Flowmeter Readings
and
Aquifer Water Level Measurements

Kuna Mora Road Crossing Flowmeter Records

2014 1.1 57.77
 Jan 31 212.80 58.90
 Aug 5 199.50
 Kuna Mora Rd
 194.40 2015
 May 1 3870.1
 June 1 9213.6
 July 1 14973.8
 Aug 1 17931.8
 Sept 1 21501.0
 Oct 1 28935.6
 Nov 1 22393.0
 Dec 30 41717.3 307
 2016 April 30 54755.6
 May 31 63616.1
 June 30 63616.1
 July 31 70693.4
 Aug 30 72951.4
 2017 May 31 78919.2
 June 30 90500.5 319
 July 31 101563.6
 Sept 6

2017
 Oct 1 102662
 2018 May 30 Bottom Dead
 June
 July 30 107950.1
 2019 May 1 108629.5
 May 31 110077.0
 June 1 113887.2
 Aug 1 121498.4
 Sept 2 132850.5
 Oct 2 134211.3
 2020 April 30 136333.1 204
 June 1 143375.3 936
 June 30 144349.0
 Aug 1 146304.4
 Aug 31 146304.4
 Sept 30 149520.7
 2015
 May 1 000
 June 10650
 July 23486
 New meter
 1400.9

Cloverdale Rd Well Flowmeter Records

June 1 143375.3 436
 June 30 144349.0
 Aug 1 146304.4
 Aug 31 146304.4
 Sept 30 149550.7

 Cloverdale Rd.
 2015
 May 1 000
 June 10650
 July 23485
 New meter
 Aug 1 6202.9
 Sept 1 11933.7
 Oct 1 11933.7
 Nov 1 11933.7
 2016 April 30 32373.0 613
 May 31 52676.5
 June 30 68875.8
 July 30 68875.8
 Aug 30 79497.9
 2017 May 31 86000.4
 June 30 100494.3 647
 July 31 128809.5 673
 Sept. 1 154539.5

2017
 Oct 1, 168318.4
 2018 May 30 179243.1
 June 30 187503.4
 July 30 206477.7
 2019 May 1 207010.1
 May 31 207104.6
 July 1 218502.4
 Aug 1 243255.6 5
 Sept 2 267623.4
 Oct 2 269965.5
 2020 April 30 275575.5 646
 June 1 293084.4 689
 June 30 294623.0
 Aug 1 299390.6
 Aug 31 299390
 Sept 30 306753.1
 2021 May 1 307956.3

Water Level Measurement Records

204
~~1989 Dec 9~~ 6:00
~~1989 6:30~~ Setup
 well (2015)
 May 193
 June 195
 July 197.32
 Aug 198.63
 Aug 28 198.69 17405
 Oct 1 197.49
 Nov 1 195.15
 Dec 1 195.02
 Dec 31 194.94
 2016 Feb 2 194.22
 2016 Feb 29 193.45
 April 193.40
 May 1 195.48
 May 31 195.55

June 30 206.49 54 Hz
 July 31 213.58 56 Hz
 Aug 1 199.48
 Aug 30 199.10
 Sept 30 198.96
 Oct 31 196.51
 Nov 30 195.39
 Dec 31 194.88
 2017 Jan 30 194.80
 March 1 194.90
 March 31 194.20
 April 30 193.80
 June 1 204.52 54 Hz
 June 5 195.88
 June 30 209.77 57.77 Hz
 July 31 212.80 58.90 Hz
 August 5 199.60

2017 Well

Sept 1	199.28	
Sept 30	197.84	
Oct 30	196.67	194.37
Nov 30	195.90	
Dec 30	195.35	
Jan 30	195.23	2018
Feb 28	194.51	
March 31	194.38	
April 30	194.51	
May 31	196.07	
June 30	211.58	58.20 High
July 30	212.11	58.10 High
Sept 1	199.62	
Oct 1	199.80	
Nov 1	197.40	
Nov 30	196.41	
Dec 31	196.49	
2019 Jan 31	195.61	

(2019) Feb 28	195.85	
March 30	195.21	
May 1	196.28	
May 31	195.92	
June 30	211.20	57.28
Aug 1	214	59
Sept 2	209.25	56.64
Oct 2	199.30	
Nov 1	198.45	
Dec 2	197.61	
Dec 31	196.48	
2020 Feb 1	196.12	
Feb 28	196.10	
March 31	195.65	
April 30	209.10	56.45
June 1	211.44	
June 30	197.64	
July 31	213.99	58.2

Miller Pump
~~Kuma Moma R.O.~~

~~Oct 2 102 662, 4~~

2020 Aug 31	209.91	54.9
Sept 30	200.34	
Oct 30	198.55	
Dec 1	198.05	
20 Dec 30	197.40	
2021 Feb 1	197.01	
March 1	196.75	
March 31	196.96	
April 30	197.65	

Hersley, Jean

From: King, Scott <Scott.King@hdrinc.com>
Sent: Wednesday, December 20, 2023 2:56 PM
To: IDWR File
Cc: Veibell, Amanda; Shearer, Justin; Graves, Lori; Layne Thornton (laynedt@aol.com)
Subject: BUFE and Statement of Completion Re-Submittal for 63-33401
Attachments: BUFE 63-33401 RESUBMITTAL.pdf

CAUTION: This email originated outside the State of Idaho network. Verify links and attachments BEFORE you click or open, even if you recognize and/or trust the sender. Contact your agency service desk with any concerns.

IDWR - Attached to this email please find documents supporting the licensing of permit no. 63-33401.

Please let me know if you have any questions.

Thank you,
Scott

Scott N. King, PE
Project Manager

HDR
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D +1.208.872.9527
scott.king@hdrinc.com



RECEIVED

Dec 20, 2023

DEPARTMENT OF
WATER RESOURCES

December 20, 2023

IDWR State Office
PO Box 83720
Boise, ID 83720-0098

Subject: *Beneficial Use Field Exam and Statement of Completion Resubmittal
Permit 63-33401*

Dear Water Right Licensing,

Enclosed on behalf Layne and Lori Thornton is a re-submittal of Beneficial Use Field Exam report and statement of completion for the above-listed permit. The prior 2019 submission was identified as insufficient due to lack of a complete set of flowmeter readings and water level measurements. This report includes records from May 2015 through 2020, which meets the permit requirement of no less than 4 years of diversion measurement and aquifer level water monitoring data.

Please let us know if there are any questions.

Sincerely,

HDR Engineering, Inc.

Scott N. King, P.E.
Project Manager

Cc: Layne & Lori Thornton

Enclosers: BUFE report & Statement of Completion

Project: 10390661