

MEMO

State of Idaho
Department of Water Resources
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Date: December 23, 2019

To: Water Right File: 65-23482

From: Jes Erling; Field Examiner

Subject: Notification to applicant (Megan & Steve Wells) regarding possible amendment of water right permit 65-23482 to increase the stockwater/commercial rate via a change in nature of use or alternatively, submit a new permit to increase the diversion capacity of the well.

This memorandum summarizes a phone conversation with the applicant regarding the possible amendment of water right 65-23482. Due to less acres being irrigated than applied for on the permit, the applicant was informed that they are able to increase the stockwater/commercial rate on the permit (0.10 cfs) by an additional 0.02 cfs, for a total stockwater/commercial rate 0.12 cfs. The applicant was notified that this amendment may cost \$100.

Alternatively, the applicant was notified that they could apply for a permit to increase the current capacity of the well. In doing so, the applicant would need to increase the capacity of the well by installing a higher horsepower submersible pump to increase the rate of flow from the well.

Applicant Response:

After speaking to the applicant and explaining the two options mentioned above, the applicant does not want to submit an amendment to increase stockwater/commercial rate by 0.02 cfs. Also, the applicant does not want to submit an application for permit to increase the well capacity. The applicant said "let's leave it as is".

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: **65-23482**Exam Date: **10/2/2019**2. Current Owner: Name: **STEVE WELLS AND MEGAN WELLS / NORTHWEST FARM CREDIT SERVICES FLCA**Owner of Record Correct? ☒ Y ☐ NAddress of Record Correct? ☒ Y ☐ N

If No: Address: The physical address for the point of diversion is 2475 Bishop Rd, Emmett, ID 83617.
Parcel information lists the physical address as the same.

Note that water right permit #65-23482 is located within the geographic boundary of Water District #65 but is NOT included in the District (measurement order for surface water only) and is NOT administered by WD65 (EXC).

3. Beneficial Use Fees have been paid: ☒ Y ☐ N Receipt No:**4. SOURCE****TRIBUTARY**

GROUND WATER

Method of Determination: ArcGIS, Field Examination, and Well Drillers Report.Change in Source: ☐ Y ☒ N**B. OVERLAP REVIEW**1. Other water rights with the same place of use: ☐ NO Overlap

Water Right No.	Source	Purpose of Use	Basis
65-53A (Reed Ditch Co)	Payette River	Irrigation	Decreed/Active
65-53X (Reed Ditch Co)	Payette River	Irrigation	Decreed/Active

Comments: A review of the property in ArcGIS and a POU comparison shows two water rights that overlap the place of use in the NENE Lot1. These are irrigation rights delivered by the Reed Ditch Company and overlap the permit's place of use. The applicant owns shares with the Reed Ditch Co. and has a small pump to deliver water to the fields from the canal (see pictures). This surface water diversion is the primary source of irrigation for the permit's place of use. **The well is used for supplemental water when needed.** There are several other rights in this section that overlap the place of use but none of them are directly tied to this property.

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

Water Right No.	Source	Purpose of Use	Basis

Comments: There are no water rights with the same point of diversion as permit 65-22383. The well utilized under this permit is Well ID# 430861.

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

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
GROUND WATER	1		NE	NE	3	06N	03W	B.M.	GEM

Method of Determination: ArcGIS, GPS and Field Examination. The point of diversion legal description is correct and matches the actual on-the-ground point of diversion (GPS of well).

Change in POD? X N Amendment Required? X N

2. PLACE OF USE: Use: Irrigation

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06N	03W	3	4.0																4.0
		Lot #	L1																
Total Acres =																			4.0

Use: Stockwater

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06N	03W	3	X																
		Lot #	L1																
Total Acres =																			

Use: Commercial

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
06N	03W	3	X																
		Lot #	L1																
Total Acres =																			

Method of Determination: Tax Parcels, ArcGIS, and Field Examination

Change in POU? X N Amendment Required? X N

 X Delivery System Diagram Attached (required). Indicate all major components and distances between components.

 N/A Indicate weir size/pipe as applicable.

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

 X 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
D0059178	None	N/A	N/A	Unknown	5 HP

*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
None						

2. Measurements: A field examination was conducted on 10/02/2019 to verify number and type of stock, irrigation system configuration, place of use, and point of diversion as well as commercial uses. The well is located next to the pump house in the main field however, there was no above-ground pipe available for measurement and the irrigation system (hand lines) has been winterized. A theoretical diversion rate was based on the pump horsepower (5 HP) confirmed by owner and the irrigation sprinkler system which was verified in the field. This is a simple irrigation system consisting only of hand lines all with the same sprinkler heads, a 5 HP submersible pump in the well, and a small pressure tank inside the pump house. See pictures for pipe configuration at the well.

E. FLOW CALCULATIONS

_____Additional Computation Sheets Attached

Measured Method:

A field examination was conducted however, no measurement was possible due to pipe configuration. The field exam and the Idaho Department of Agriculture's "Animal Water Intake in Gallons per Day" specification sheet was used for stockwater rates and volumes. This calf rearing operation raise calves up to 600-800 pounds before being shipped out (used 9 gpd/hd). The irrigation rate was determined based on administrative processing memorandum #17 which allows up to 0.03 cfs per acre for 5 acres or less. A theoretical rate based on HP was used to see if the pump could produce the rate stated in Memo #17. The commercial rate was determined based on the size and number of sprinklers with the corresponding rate (3.13 gpm) per the sprinkler system discharge specification sheet. Note cooling and dust abatement use the same sprinklers as for irrigation (they are not cooling misters). The applicant confirmed this. The commercial volume was determined by using the formula: (gpm/operation x 60min/hr x 24 hours per day x day's operation occurred) / 325,851.

Irrigation Rate:

Groundwater Theoretical Rate: $8.8 \times 5.0 \text{ HP} \times 0.70 = 30.8 / ((63 \text{ ft} + (80 \times 2.31))) = \mathbf{0.12 \text{ cfs}}$

Administrative Processing Memorandum #17 = $0.03 \text{ cfs} \times 4.0 \text{ acres} = \mathbf{0.12 \text{ cfs}}$

Permit = 0.14 cfs

I am recommending a rate of **0.12 cfs** for irrigation use.

Stockwater Rate:

$= 3,500 \text{ head} \times 9 \text{ gpd/hd} = 31,500 \text{ gpd} / 2.0 \text{ hrs/day} = 15,750 \text{ gph} / 60 \text{ min} = 262.5 \text{ gpm} \times 0.00223 \text{ cfs} = \mathbf{0.58 \text{ cfs}}$

Permit = 0.10 cfs

I am limited to the permitted rate of rate of **0.10 cfs** for stockwater use.

Commercial Rate:

Operation #1 (Cooling Sprinklers) = $1/8" @ 45 \text{ psi} = 3.13 \text{ gpm} \times 8 \text{ sprinklers} = 25.0 \text{ gpm} \times 0.00223 \text{ cfs} = \mathbf{0.06 \text{ cfs}}$

Operation #2 (Pressure Washing) = $3.5 \text{ gpm} \times 0.00223 \text{ cfs} = \mathbf{0.01 \text{ cfs}}$

Operation #3 (Dust Control Sprinklers) = $1/8" @ 45 \text{ psi} = 3.13 \text{ gpm} \times 5 \text{ sprinklers} = 15.7 \text{ gpm} \times 0.00223 \text{ cfs} = \mathbf{0.04 \text{ cfs}}$

Total = 0.11 cfs

Permit = 0.10 cfs

I am limited to the permitted rate of rate of **0.10 cfs** for commercial use.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{4.0 \text{ ac} \times 4.5 \text{ af/ac} = 18.0 \text{ AF}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{0.12 \text{ cfs} \times 259 (3/1-11/15) \times 1.9835 = 62.0 \text{ AF}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{18.0 \text{ AF}}$$

2. Volume Calculations for Other Uses: **Stockwater / Commercial****Stockwater Volume (9.0 gpd/hd):**

$$= 3,500 \text{ head} \times 9 \text{ gpd/hd} = 31,500 \text{ gpd} \times 185 \text{ days (March 1 - Sept 1)} = 5,827,500 \text{ gal} / 325,851 = \underline{18.0 \text{ AF}}$$

Commercial Volume (Cooling sprinkler use based on May 1 - Sept 1 = 123 days. All other commercial uses based on a Season of Use from 3/1-9/1 = 185 days, same as stockwater).

$$\text{Operation \#1 (Cooling Sprinklers)} = 25.0 \text{ gpm} \times 60 \times 24 \times 123 \text{ days} = 4,428,000 \text{ gal} / 325,851 = \underline{13.6 \text{ AF}}$$

$$\text{Operation \#2 (Pressure Washing)} = 3.5 \text{ gpm} \times 60 \times 24 \times 185 \text{ days} = 932,400 \text{ gal} / 325,851 = \underline{2.9 \text{ AF}}$$

$$\text{Operation \#3 (Dust Control Sprinklers)} = 15.7 \text{ gpm} \times 60 \times 24 \times 185 \text{ days} = 4,182,480 \text{ gal} / 325,851 = \underline{12.8 \text{ AF}}$$

$$= \underline{29.0 \text{ AF}}$$

$$\underline{\text{TOTAL} = 47.0 \text{ AF}}$$

*** NOTE:** The system capacity of the well is $0.12 \text{ cfs} \times 185 \text{ days} \times 1.9835 = 44.0 \text{ AF}$ total volume. The total volume for the commercial use and the stockwater exceed the total capacity of the well. This can be explained by the number of days the cooling sprinklers are on. I used the maximum number of days. In order to allow some flexibility of this right for this operation, I am recommending that the stockwater and commercial uses be limited to 44 af and when combined, the entire system is limited to 44 af. That will allow the permit holder to adjust cattle numbers and commercial use to allow for the full beneficial use of this right.

G. PURPOSE OF USE

Irrigation X Y N # Stock 3,500 head Domestic # of Homes

Other: COMMERCIAL (Calf ranch operation includes dust control, steam cleaning, and cooling misters)

Change in Purpose of Use? Y X N

Method of Determination: Proof of Beneficial Use, ArcGIS, and Field Examination.

If Yes: From Use To Use Amount CFS AFA

H. NARRATIVE/REMARKS/COMMENTS

A field examination was conducted on site and a review of the property was conducted in ArcGIS. There are no overlapping water rights at the point of diversion however, there are two overlapping water rights at the place of use. These two overlapping irrigation rights consist of shares through the Reed Ditch Company. The applicant owns these irrigation shares with the Reed Ditch Company. The applicant has a pump/motor to deliver water to the main larger field from the Reed canal (see attached pictures). This surface water diversion from the Reed ditch is the primary source for irrigation. The well is used for supplemental water when needed. There are several other overlapping rights at the place of use (domestic and stockwater) as well as two other canal companies but are not tied to the property.

After conducting a field examination, it was determined that only 4.0 acres are actively being irrigated and not the 7.0 acres applied for on the permit. A review of the property to the north of the house shows no active irrigation except for the small field in the NW corner of the property. No flow measurement was possible due to piping configuration and the irrigation system (hand lines) had been winterized. I relied on place of use shape dimensions confirmed during the field examination and utilized ArcGIS to calculate the total irrigation place of use of 4.0 acres. Note there are two place of use for irrigation (3.5 acres and 0.5 acres).

The well location was verified during the field examination with GPS and the well drillers report. The well utilized under this permit is Well ID# 430861. The well D-Tag was confirmed (D0059178). The well is a 6 inch OD well with a standard 5 HP submersible pump and a piping system to deliver water. The piping system is located inside the adjacent pump house. Note there is an existing domestic well at the home site that is used only for the home and irrigation of the immediate yard.

The well piping configuration consists of 3 levers in the pump house that allow water to fill 38 strategically placed stock ball troughs (Richie CT4-2000) scattered throughout the calf ranch operation. All lines for troughs are buried under-ground. A fourth lever allows for a two (2) inch OD hose hook up (black coupler in the picture). The owner said the irrigation hose attaches to the main irrigation riser which then delivers supplemental water when needed to hand lines for irrigation. The owner confirmed there are 7 rows of hand lines each with 13 sprinklers per row plus 4 additional hand lines to irrigate the area north of the house for a total of 95 sprinklers (measured 1/8 inch opening @ 45 psi = 3.13 gpm). Note the well cannot run all sprinklers on its own and is used to supplement the Reed ditch water.

Stockwater use is for 3,500 heifers in a calf rearing operation. Owners confirmed that they raise calves to 600-800 pounds then ship them out. Based on this, I used 9 gallons per day per calf to calculate a rate and volume (based on 185 days). Commercial use is for a calf ranch operation and includes dust control, cooling sprinklers, and pressure washing. Note that cooling and dust control are the same sprinklers used for irrigation (not misters) and were limited to 123 days (hotter months). Each commercial use and subsequent rates and volumes are listed in Sections E and F.

Conditions at licensing:121 (change to 103)004 (remove) - not surface water065 (change to 943)105 (change to 943)082 (remove)26A (remove)X02 (remove)R65 (keep)WB7 (add) - 0.03 cfs/ac and volume of 44.0 af129 (add) - Reed Ditch Company(add) "Commercial use is for a calf rearing operation".

Have conditions of permit approval been met? X Yes No

I. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/01 to 11/15	0.12 CFS	
STOCKWATER	01/01 to 12/31	0.10 CFS	44.0 AF
COMMERCIAL	01/01 to 12/31	0.10 CFS	44.0 AF
<u>Totals:</u>		0.12 CFS	44.0 AF

* The irrigation use is supplemental and used on the shoulders of the irrigation season when commercial and stockwater are not yet in use. Irrigation volume is covered by condition WB7. Please note: It has been the practice of the Department to use the combined total of the volume for dairy type uses. This commercial and stockwater use is very similar to a dairy use, so I recommend that the stockwater and commercial use both be licensed for a volume of 44 af with a total volume of 44 af.

2. Recommended Amendments

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

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

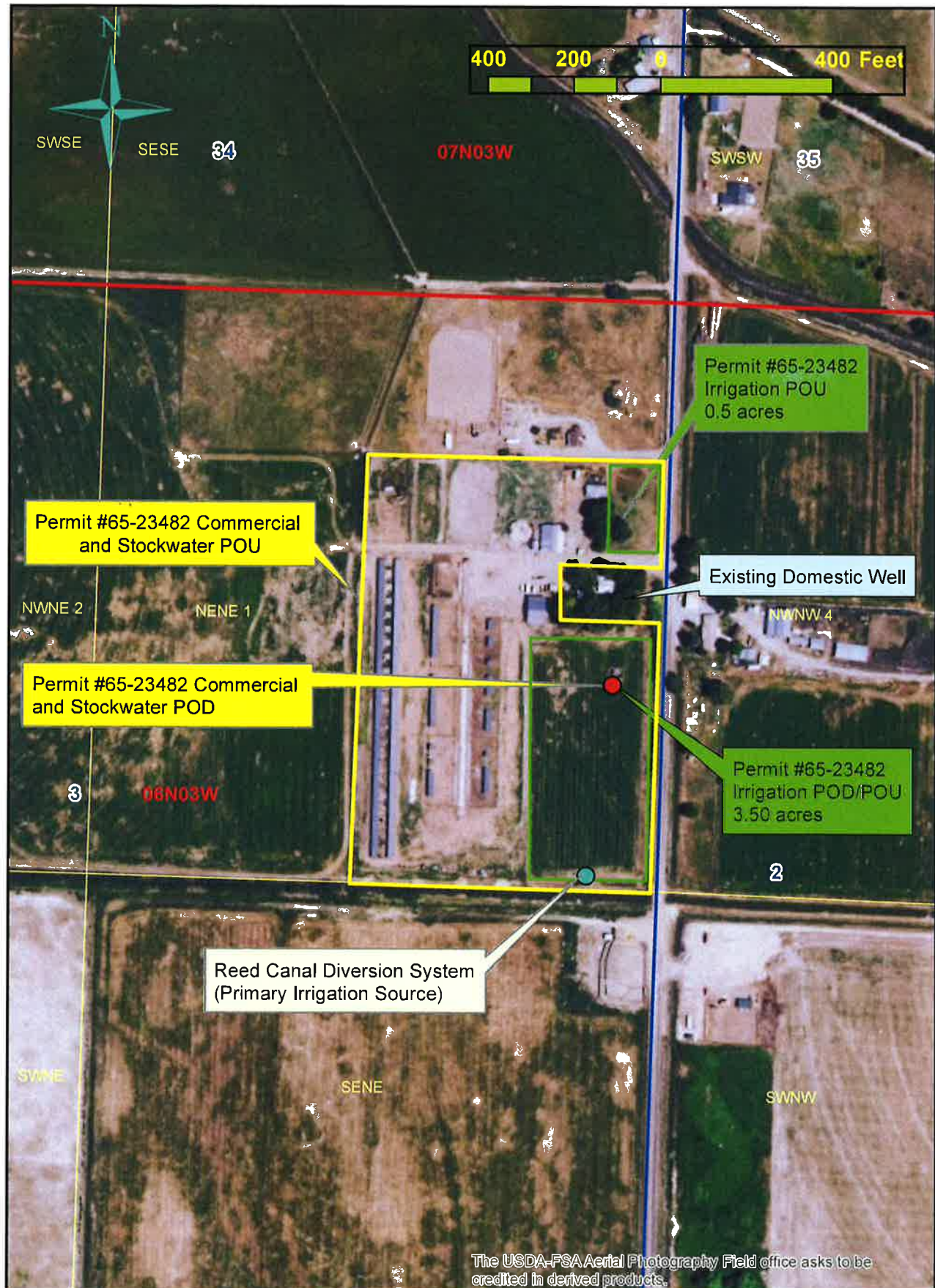
Other: < >

J. AUTHENTICATION - Jes Erling: Water Resource Agent, Sr.

Field Examiner's Name *[Signature]* Date 10-30-19

Reviewer *Daniel A. Miller* Date 10-30-19

Water Right Permit 65-23482





Looking at well located immediately on the west side of pump house. Well and pump house fenced off.



Well ID tag confirmed (D0059178)



Looking at pipe configuration. 3 levers for stock and 1 lever (black coupler) for a 2 inch irrigation hose.



Looking at power box to submersible pump (in the well) and pressure tank inside pump house.



Looking northwest from Bishop Road at the 3.5 acre field and calf operation further to the west.



Looking west at south end of 3.5 acre field and the location of the surface water irrigation pump from the Reed Ditch canal (primary irrigation source).



Looking at surface water canal (Reed Ditch). Water user has shares with the Reed Ditch Co.



Looking at one (1) of 28 stockwater troughs placed throughout the property (Ritchie ThriftyKing CT4-2000).