

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: **65-22706**Exam Date: **02/07/2020**1. Current Owner: Name: **GREG M AND KATHERINE J DAVIS**Security Interest: **NORTHWEST FARM CREDIT SERVICES FLCA, PCA**Owner of Record Correct? ☒ Y ☐ NAddress of Record Correct? ☒ Y ☐ N

If No: Address:

Note: The physical address for the dairy and ground water wells was confirmed during the field examination to be at 4825 Adams Rd, New Plymouth, ID. The address listed on this permit is the Applicant's residence and is correct as stated.

Note: Water right permit 65-22706 is located within the geographic boundary of **Water District #65** but is **NOT** included in the District (measurement order applies to surface water only) therefore, 65-22706 is **NOT** administered by WD65 (EXC).

2. Beneficial Use Fees have been paid: ☒ Y ☐ N Receipt No: C0965063. **SOURCE****TRIBUTARY**

GROUND WATER

Method of Determination: ArcGIS, Field Examination, and 2 Well Drillers Reports.Change in Source: ☐ Y ☒ X ☐ N**B. OVERLAP REVIEW**1. Other water rights with the same place of use: ☐ NO Overlap

Water Right No.	Source	Purpose of Use	Basis
65-4362 (Davis)	Ground Water	Stockwater / Domestic	Decreed / Active
65-23627 (Davis)	Ground Water	Stockwater / Commercial	Permit / Active

Comments: A review of the property in ArcGIS and a place of use comparison shows one (1) water right and one (1) permit that directly overlap the place of use. Right 65-4362 overlaps the NENE and permit 65-23627 overlaps the entire place of use. Both are owned by the applicant and are directly tied to and used at the dairy facility (no combined limits). It appears that the home associated with 65-4362 was removed or torn down between 2013 and 2015. I am assuming the domestic use was converted to dairy use.

Additional water rights 65-12234 and 65-18432 overlap the place of use in the NWNE but are owned by the neighbor (Mr. Werner) and are not directly tied to this property.

Several other water rights overlap the place of use (65-2322-BOR, 65-2433-BOR, 65-2878-BCID, and 65-2900-BCID) but consist of drains and sloughs within the boundaries of the Black Canyon Irrigation District. **Note canal water from the BCID will be used on the same ground as the dairy wastewater land application water per permit application report by Dan Nelson.**

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

Water Right No.	Source	Purpose of Use	Basis
65-4362 (Davis)	Ground Water	Stockwater / Domestic	Decreed / Active
65-23627 (Davis)	Ground Water	Stockwater / Commercial	Permit / Active

Comments: A review of the property in ArcGIS and a point of diversion comparison shows one (1) water right and one (1) permit with the same points of diversion. Water right 65-4362 and permit 65-23627 are owned by the Applicant, used at the dairy, and share the same point of diversion as this permit. Right 65-4362 has no combined limits with either permit and is for domestic and stockwater use not to exceed 13,000 gallons/day for domestic use.

Note: water right 65-4362 has one point of diversion in the NENE. This permit and permit 65-23627 share 2 points of diversion (one of which is 65-4362) in the NENE allowing use from either of the 2 wells.

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

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
GROUND WATER			NE	NE	20	07N	04W	B.M.	PAYETTE
GROUND WATER			NE	NE	20	07N	04W	B.M.	PAYETTE

Method of Determination: ArcGIS, GPS and Field Examination. The point of diversions legal descriptions are correct and match the actual on-the-ground point of diversions (confirmed by GPS of 2 wells).

Change in POD? X N Amendment Required? X N**2. PLACE OF USE: 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	
07N	04W	20	X																
		Lot #																	
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	
07N	04W	20	X	X	X	X													
		Lot #																	
Total Acres =																			

Method of Determination: Tax Parcels, ArcGIS, and Field ExaminationChange in POU? X N Amendment Required? X NX 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
D0052669	Franklin Electric	10 HP	N/A	N/A	N/A
65-96-W-0334-200	Franklin Electric	7.5 HP			

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

There are two (2) existing wells utilized at the dairy that were marked with GPS. Both wells are used under this permit and permit 65-23627. Well (D0052669) is the newer well and has well ID# 420538. The other well is the original well associated with the original house that has since been removed and is used under right 65-4362 for domestic and stockwater use limited to 13,000 gallons per day for domestic use.

D. FLOW MEASUREMENTS

1. Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
None	N/A	N/A	N/A	N/A	N/A	N/A

2. Measurements: A field examination was conducted on 2/7/2020 to verify number and type of stock, commercial uses, well system configurations, place of use, and point of diversion locations. Both well locations are north of the dairy (see attached maps) however, there was no above-ground piping available to conduct a measurement. A theoretical diversion rate was calculated for each well based on horsepower for each well as confirmed by motor tags and the applicant (see attached dairy use spreadsheet).

E. FLOW CALCULATIONS

_____ Additional Computation Sheets Attached

Measured Method:

A field examination was conducted however, no measurement was possible due to system configuration. The field exam and the Idaho Department of Agriculture's "Animal Water Intake in Gallons per Day" specification sheet was used as a guide for stockwater rates and volumes. A theoretical diversion rate was calculated for each well based on horsepower to see if the wells could produce the rate requested (1.00 cfs). The stockwater and commercial rate needed at the dairy was determined based on results in the attached dairy use spreadsheet.

Groundwater Theoretical Rate:

Well (D0052669): $8.8 \times 10.0 \text{ HP} \times 0.70 = 61.6 / ((70 \text{ ft} + (74 \times 2.31)) = 0.26 \text{ cfs}$

Well (65-96-W-): $8.8 \times 7.5 \text{ HP} \times 0.70 = 46.2 / ((76 \text{ ft} + (70 \times 2.31)) = 0.19 \text{ cfs}$

TOTAL = 0.45 cfs

STOCKWATER RATE (1.92 cfs) - See Attached Dairy Use Spreadsheet:

Permit = 0.64 cfs

> I am limited to the well capacity and recommend a permitted rate of **0.45 cfs** for stockwater use.

COMMERCIAL RATE (0.38 cfs) - See Attached Dairy Use Spreadsheet:

Permit = 0.36 cfs

> I am limited to the permitted rate of **0.36 cfs** for commercial use.

I am recommending that the stockwater and commercial use both be licensed for 0.45 cfs and when combined, a total of **0.45 cfs**.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

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

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

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{\text{N/A}}$$

2. Volume Calculations for Other Uses: **Stockwater / Commercial**

Groundwater Theoretical Volume: $0.45 \text{ cfs} \times 1.9835 \times 365 = 325.79 \text{ AF}$

TOTAL = 326 AF

STOCKWATER VOLUME (116 AF) - See Attached Dairy Use Spreadsheet:

COMMERCIAL VOLUME (23 AF) - See Attached Dairy Use Spreadsheet:

TOTAL = 139 AF

Note: The volume capacity of the well is 326 AF. The total stockwater and commercial use needed is 139 AF. Water right 65-4362 has a stockwater volume of 5.4 AF and domestic volume of 1.2 AF. Both volumes need to be subtracted from the 139 AF.

139 AF Total Use

- 5.4 AF Stockwater Use (65-4362)

- 1.2 AF Domestic Use (65-4362)

= 132 AF TOTAL

G. PURPOSE OF USE

Irrigation ☐ Y ☒ X ☐ N # Stock 2,500 Dairy and 2,000 young stock Domestic # of Homes

Other: COMMERCIAL (Dairy operation)

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. This permit is for the expansion of an existing dairy located in Payette County. This permit has allowed the applicant to increase the size of the dairy from a domestic type use to a commercial dairy operation. The applicant is using two existing wells to serve the dairy which was confirmed by the owner. There are 2 wells serving the dairy, not 3 wells as indicated in the application for this permit. One of the existing wells (original well) is used under water right 65-4362 for domestic and stockwater use at the dairy and is limited to 13,000 gallons per day for domestic use which has been converted to dairy use. Right 65-4362 has a stockwater volume of 5.4 AF and a domestic volume of 1.2 AF which will need to be subtracted from the 139 AF under this permit for a total of 132 AF at licensing.

There is one water right and one permit with the same points of diversion as this permit. Water right 65-4362 and permit 65-23627 are owned by the Applicant, are directly tied to and used at the dairy facility, and overlap the place of use. The only other overlapping water rights are canal water from Black Canyon Irrigation District that will be used on the same ground as the dairy wastewater land application water.

Two wells are utilized for the source of water for this dairy. The 2 well locations were verified during the field examination with GPS and confirmed by applicant. Only one of the two wells (well ID# 420538) had a D-Tag that was confirmed as D0052669. D0052669 is the larger well (10 HP submersible pump) and has a VFD connected (inside the pump house) to deliver water more efficiently. The other well is the older, original well which has a 7.5 HP submersible pump. The piping system to deliver water for both wells is buried underground.

The dairy configuration consists of a currently used system of pumps and pressure controls associated with the dairy. All main lines are buried under-ground. Applicant confirmed that they have a total of 2,300 milking cows, 200 dry cows, and 2,000 heifers. No wash pen, hospital barn, or misters at this dairy. Additional commercial uses were truck washing and foot bath (see attached dairy use spreadsheet).

Conditions at licensing:

01M

103

X05 "Commercial use is for a dairy operation"

X35 "65-22706 and 65-4362 when combined shall be limited to 0.45 cfs"

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>
STOCKWATER	01/01 to 12/31	0.45 CFS	132 AF
COMMERCIAL	01/01 to 12/31	0.45 CFS	132 AF
<u>Totals:</u>		0.45 CFS	132 AF

Note: It has been the practice of the Department to use the combined total of the diversion rate and volume for dairy type uses. I am recommending that the stockwater and commercial use, when combined, both be licensed for a total of **0.45 cfs** and **132 AF**. That will allow the permit holder to adjust cow numbers and commercial use to allow for the full beneficial use of this right.

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

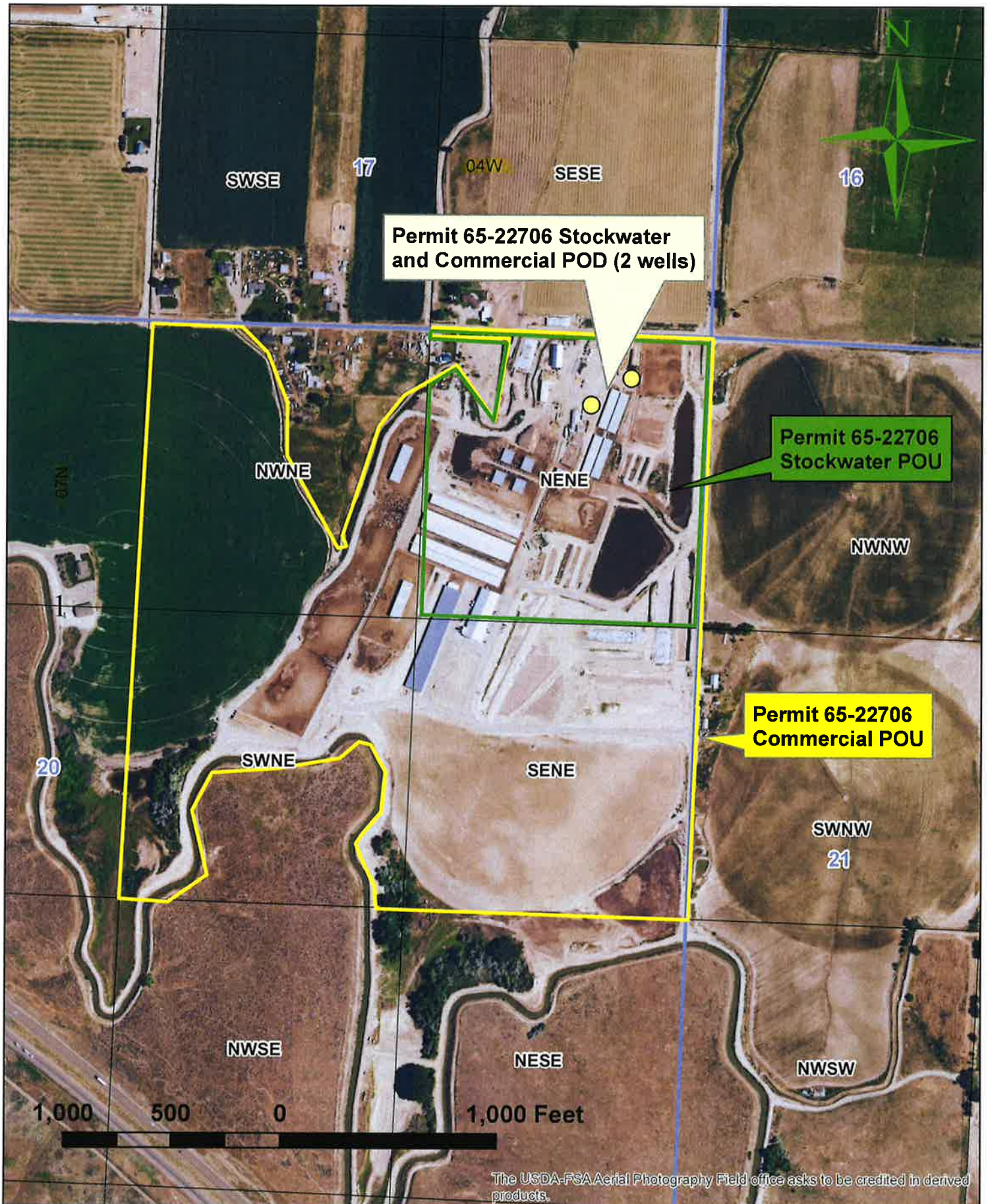
Other: There are only two wells at the dairy and only two points of diversion.

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

Field Examiner's Name *[Signature]* Date 2-26-20

Reviewer *[Signature]* Date 2-26-20

Water Right Permit 65-22706



DAILY FRESH WATER REQUIREMENT FOR DAIRY FACILITY

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Greg & Katherine Davis

FOR: 65-22706
BY: JES ERLING
DATE: 2/7/2020

Stockwater Requirements

Animal Type	Number	Use/day	Total GPD	Total GPY	GPM if Diverted in 2 Hrs.
MILKING COWS	2,300.00	35.00	80,500.00	29,382,500.00	671
DRY COWS	200.00	14.00	2,800.00	1,022,000.00	23
HEIFERS	2,000.00	10.00	20,000.00	7,300,000.00	167
TOTAL GALLONS			103,300.00	37,704,500.00	861

Stockwater Diversion Rate Needed in CFS =	1.92 CFS
Stockwater Annual Volume Needed in AF =	115.7 AF

COMMERCIAL VOLUME REQUIREMENT

Wash Pen Requirements

GPM Per Nozzle	Number of Nozzles	Total Gpm	Time Per Use (In minutes)	Total Gallons / Day	Number of Days	Total GPY
0.00	0.00	0	0.00	0.00	0.00	0.00

Milking Parlor Requirements

Item	Gals/ Operation	Times/Day	Total GPD	Total GPY	GPM if Diverted in 2 Hrs.
BULK TANK	1,050.00	1.00	1,050.00	383,250.00	9
COW PREP	0.00	0.00	0.00	0.00	0
PIPELINES	1,800.00	1.00	1,800.00	657,000.00	15
PARLOR CLEANUP	12.00	540.00	6,480.00	2,365,200.00	54
WASHPEN CLEANUP	23.00	300.00	6,900.00	2,518,500.00	58
Total Milking Parlor Use				5,923,950.00	135

HOSPITAL BARN USE

Item	Gals/ Operation	Times/Day	Total GPD	Total GPY	GPM if Diverted in 2 Hrs.
BULK TANK	0.00	0.00	0.00	0.00	0
COW PREP	0.00	0.00	0.00	0.00	0
PIPELINES	0.00	0.00	0.00	0.00	0
PARLOR CLEANUP	0.00	0.00	0.00	0.00	0
WASHPEN CLEANUP	0.00	0.00	0.00	0.00	0
Total Milking Parlor Use				0.00	0

MISCELLANEOUS USES

Item	Gal/ Operation	Times/Day	Total GPD	GALS/YEAR	Gpm if diverted in 2 hrs.
TOWEL WASHING	325.00	1.00	325.00	118,625.00	3
EMPLOYEE SHOWERS & RESTROOMS	0.00	0.00	0.00	0.00	0
MAINTENANCE SHOP	15.00	75.00	1,125.00	410,625.00	9
TRUCK WASH	0.00	0.00	0.00	0.00	0
FOOT BATH	950.00	1.00	950.00	346,750.00	8
	1,675.00	1.00	1,675.00	611,375.00	14
TOTAL MISCELLANEOUS USES			4,075.00	1,487,375.00	34

3 shifts of 25 people in 24 hrs

Commercial Diversion Rate Required if Diverted in 2 Hrs. in CFS =	0.38 CFS
Commercial Annual Volume Required in AF =	22.7 AF

Stockwater Volume Requirement in AF =	115.71
Commercial Annual Volume Requirement in AF =	22.74
TOTAL VOLUME REQUIRED =	138.46
Stockwater Diversion Rate Requirement in CFS =	1.92
Commercial Diversion Rate Requirement in CFS =	0.38
TOTAL DIVERSION RATE REQUIRED =	2.30

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Greg & Katherine I

Pump Name	Stock well	Dairy Well	East Well	West Well	Back up well	
PUMP HORSEPOWER	7.5	10	0	0	0	
BOOSTER HORSEPOWER	0	0	0	0	0	
PUMPING LEVEL	76	70	0	0	0	
DISCHARGE PRESSURE	70	75	0	0	0	
FRICTION	0	0	0	0	0	
RATE OF FLOW (cfs)	0.19	0.25	#DIV/0!	#DIV/0!	#DIV/0!	Totals
Rate of Flow (gpm)	87	114	#DIV/0!	#DIV/0!	#DIV/0!	0.45
						200.88

The above calculates the formula =

$$Q = \frac{(\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

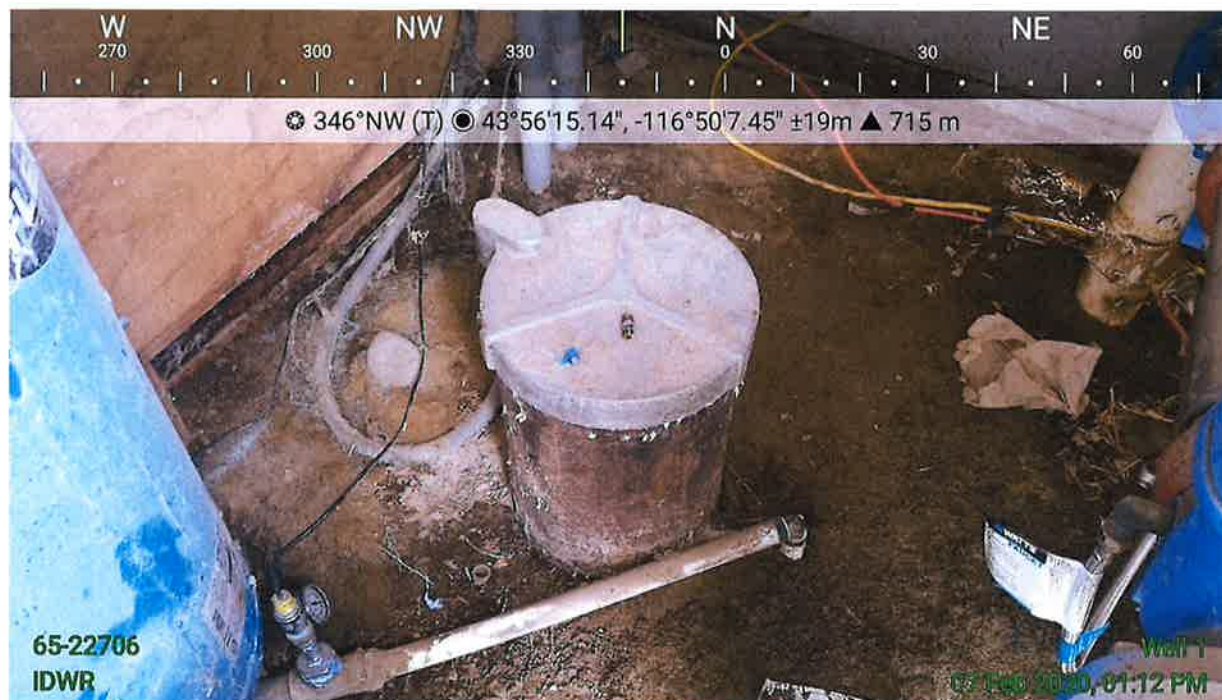
Assumptions %70 efficiency.

Acres Requirement For Dairy Transfer.

Water Right Diversion Rate =	0.00 CFS
Water Right Diversion Volume =	0 AF
Water Right Acres =	0 Acres
Historic Consumptive Volume =	0 AF

Dairy Diversion Rate Needed =	2.30 CFS
Dairy Volume Needed =	138.46 AF

Reduction of Irrigation Based On Water Right Diversion Rate =	#DIV/0!	Acres
Reduction of Irrigation Based On Water Right Diversion Volume =	#DIV/0!	Acres
Reduction of Irrigation Based on Historic Consumptive Use =	#DIV/0!	Acres



Looking at well (D0052669)



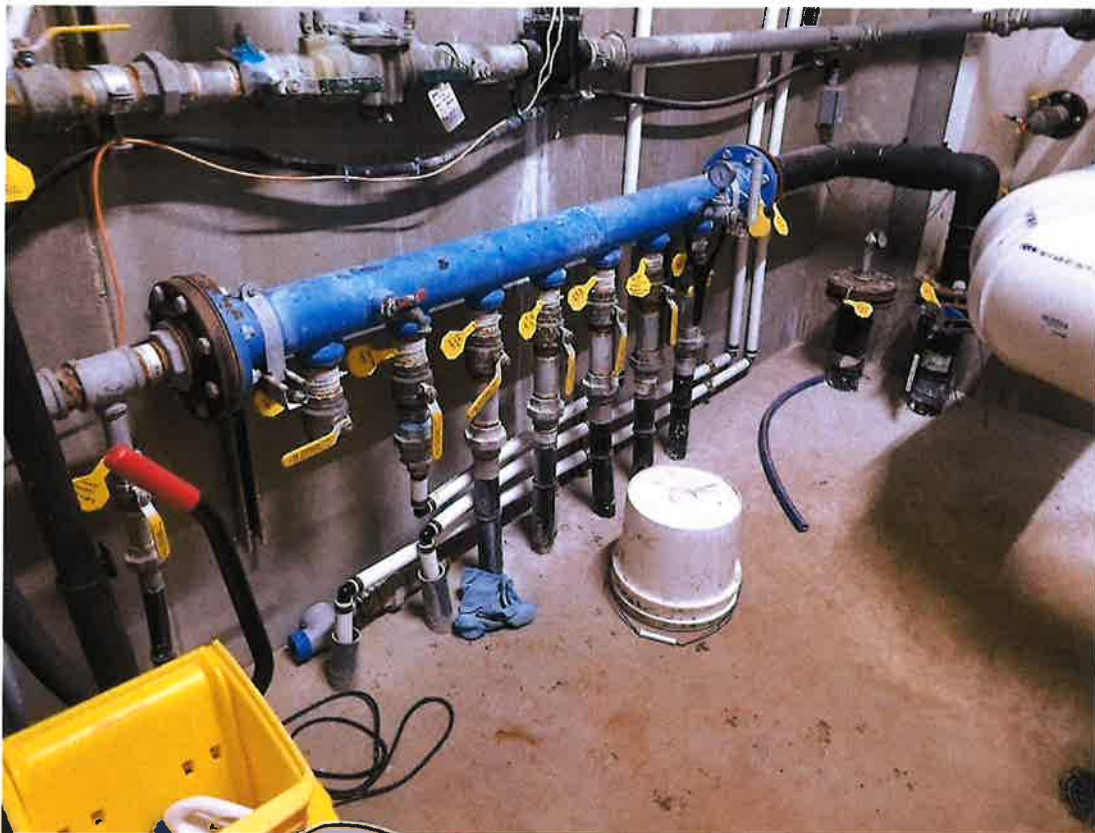
Looking at well (No "D" Tag) - Can't Read IDWR Metal Tag



Looking at well (No “D” Tag)



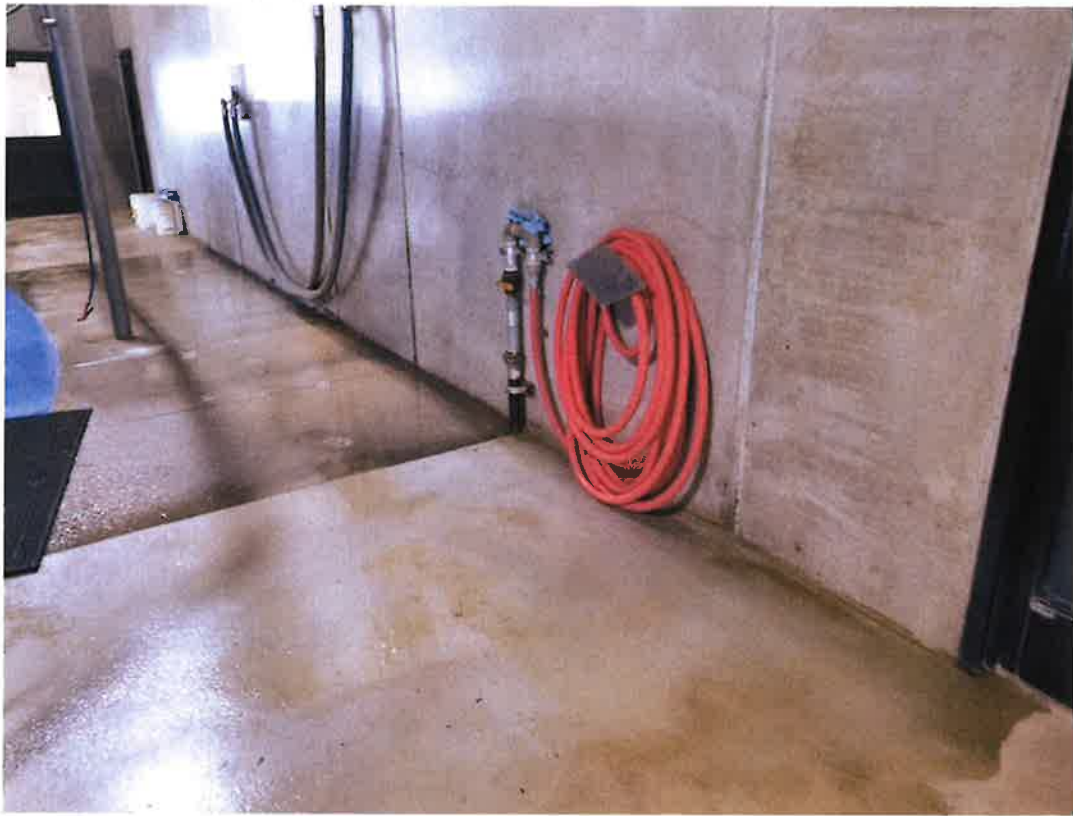
Looking at plate cooler (rarely used per Applicant).



Configuration of a currently used system of pumps and pressure controls associated with the dairy.



Configuration of a currently used system of pumps and pressure controls associated with the dairy.



Looking at one of three 2.0 inch hoses.



Looking at rotating milking parlor and drop hoses plus another 2.0 inch hose



Looking at Towel Washing Facility



Looking at one of four deck flush holes. Applicant says deck flush is not used and water from a 10,000 gallon holding tank is used.