

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-12519
Exam Date: 07/17/2019

1. Current Owner:
P&L DOORNENBAL DAIRY LLP 13146 GALLOWAY RD CALDWELL ID 83607-7662
2. Accompanied by: Pete Doornenbal
Phone No: (208) 577-7535
Address: 13146 Galloway Road Caldwell, ID 83607
Relationship to permit Holder: Owner

3. **SOURCE:**
GROUND WATER

Method of Determination: Visual Observation of the Wells on Site

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
63-21476	Ground water	Domestic & Stockwater	

Comments: Water Right 63-21476 overlaps this place of use for domestic and stockwater purposes. The combined diverted annual volume for this water right is 13,000 gal/day. There is also an overlapping use from the Black Canyon Irrigation District, however the dairy operations do not use canal water for their operations.

2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
63-21476	Groundwater	Domestic & Stockwater	

Comments: Water Right 63-21476 is diverted from the same points of diversion listed in this permit.

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER SE¼ SE¼, Sec. 23, Twp 05N, Rge 03W, B.M. CANYON County
GROUND WATER SE¼ SE¼, Sec. 23, Twp 05N, Rge 03W, B.M. CANYON County
GROUND WATER SE¼ SE¼, Sec. 23, Twp 05N, Rge 03W, B.M. CANYON County

Method of Determination: Visual Observation of wells on site and located wells using a GPS unit to collect coordinates of locations.

PLACE OF USE: STOCKWATER

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	03W	23																X	

PLACE OF USE: COMMERCIAL

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	03W	23																X	

PLACE OF USE: DOMESTIC

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	03W	23																X	

Method of Determination: Visually observed the uses listed in the permit.

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.

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

☒ Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Well #1	Grundfos	7.5	MS 4000	Grundfos	Model B
Well #2	Franklin	5.0		N/A	N/A
Well #3	Franklin	2.0	FPS 4400	Franklin	25FA2SA-PE

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: See attached beneficial use memo for theoretical calculations and pump curves

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: See attached beneficial use field exam for calculations. Based on the calculations for the system described in the field exam, a diversion rate of 0.36 cubic feet per second (cfs) is recommended for the uses listed in this permit and for the uses listed in water right 63-21476. Included in the total diversion is a domestic diversion of 0.04 cfs..

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

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

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

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

2. Volume Calculations for Other Uses:

See attached beneficial use field exam for volume calculations. Based on the volume calculations, the dairy operations total use is estimated at 52.66 acre-ft-annually (AFA) and includes the following uses 2 domestic, commercial, stockwater, and seasonal cooling the dairy cows. Water right 63-21476 allows 14.6 AFA for one domestic use and stockwater use, and reduces the needed amount of water by that amount resulting in 39.3 AFA for this permit. This permit also requested a second domestic use in the amount of 1.2 AFA. Based the water rights for this dairy operation, observed uses of water, and volume calculations 39.3 AFA is recommended for this permit.

G. NARRATIVE/REMARKS/COMMENTS

See attached beneficial use memo for narrative

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>
STOCKWATER	01/01 to 12/31	0.36 CFS	39.3 AF
COMMERCIAL	01/01 to 12/31	0.36 CFS	39.3 AF
DOMESTIC	01/01 to 12/31	0.04 CFS	1.2 AF

Totals: 0.36 CFS 40.5 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 Randy Broesch - Engineer, Staff

Field Examiner's Name Randall A. Broesch P.E. Date 18-Oct-2019

Reviewer Dan A. Mott Date 10-18-19

Beneficial Use Field Exam

A field exam was conducted on July 17, 2019 by Randall A. Broesch P.E. and Dan Nelson from the Idaho Department of Water Resources Allocation Section. Pete Doornenbal (Owner of the dairy & Applicant for the water right) was in attendance to describe the dairy operations and answer questions regarding water usage at the dairy. Groundwater is diverted from 3 wells providing water to 2 domestic households on site and for the remaining dairy operation. All three pumps are tied into a common distribution pipe network to serve all the water uses within the place of use. Operations of the dairy were discussed with Mr. Doornenbal and recorded on the "Daily Fresh Water Requirement for Dairy Facility" Sheet to calculate the daily volume diversion. The sheet is provided in Figure 2 below. A flow measurement was not possible because of the small pipe diameters of the distribution system. Sufficient well and pump information was provided by Mr. Doornenbal to calculate a theoretical diversion rate for each well. While on site Mr. Nelson conducted a flow rate verification test on a 1-1/2" hose in the milking parlor that produced 23 gallons per minute (gpm) when in use. Also, Mr. Nelson conducted a second flow verification test for the plate chiller which yielded a flow rate of 4.2 gpm.

The dairy operations included misters to keep the cows cool during the summer months. Mr. Doornenbal stated the misters were spaced 5 feet (ft) apart throughout the cooling system. Mr. Nelson and I measured and confirmed the spacing between misters were 5ft.

The information gathered during the beneficial use exam is summarized in Figure 2 and shows the daily volume put to use under this permit for the dairy operation.

The wells were located on site and the information for each well was gathered and are provided in this report. Pictures of the wells and of the facility are provided below. Two homes were confirmed to be on the distribution system as described in the statement of beneficial use provided by Mr. Doornenbal to IDWR.



Figure 1. POU (Outline in Orange) POD (Green Markers)

Doornenbal Dairy Water Use Schematic

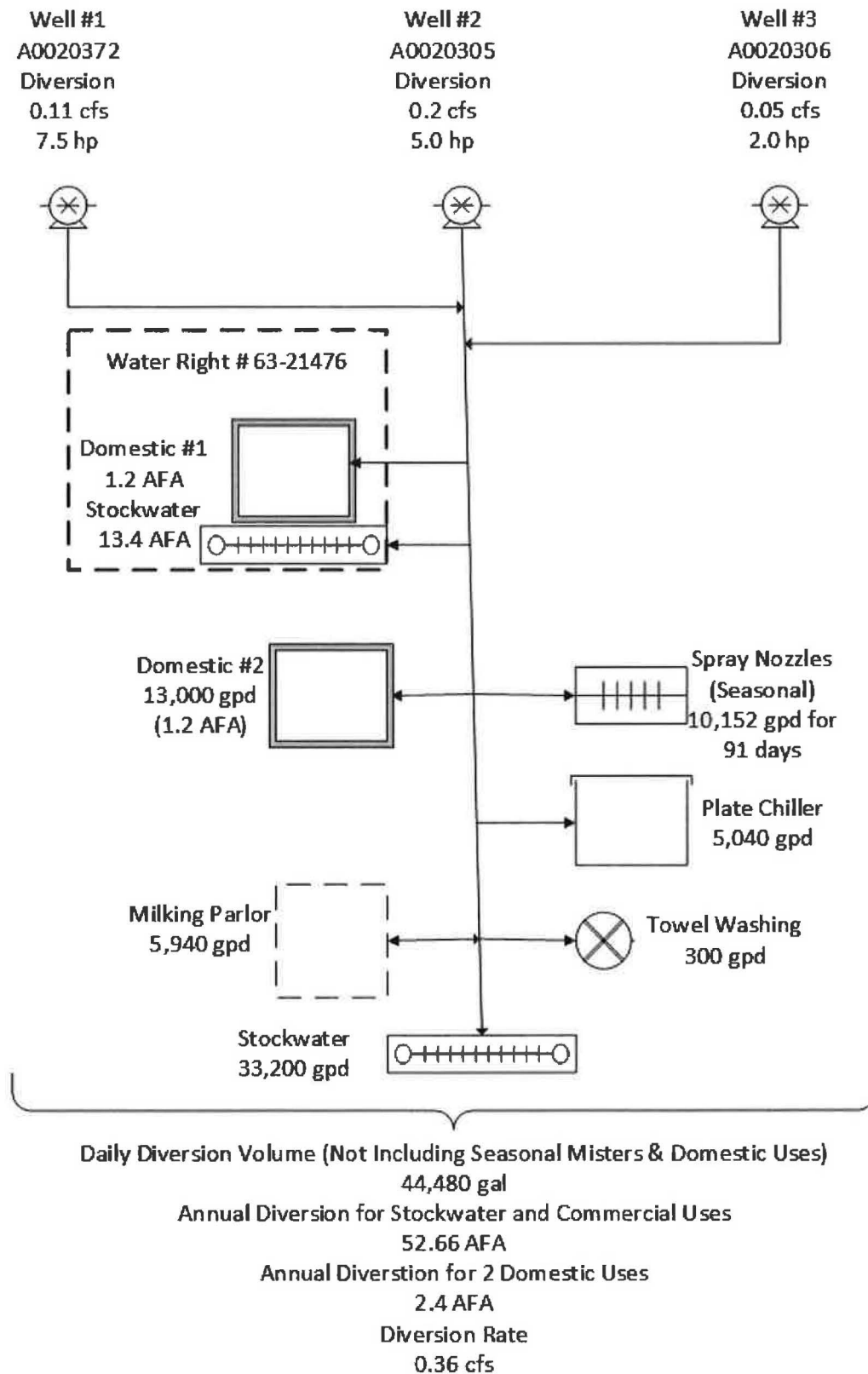


Figure 2 System Layout of Doornenbal Dairy Water Right 63-12519

DAILY FRESH WATER REQUIREMENT FOR DAIRY FACILITY

FOR: Doornenbal Dairy Water Right 63-12519
 BY: DANIEL A NELSON/Randall A. Broesch P.E.
 DATE: 10/1/2019

Stockwater Requirements

Animal Type	Number	Use/day	Total GPD	Total GPY	GPM if Diverted in 2 Hrs.
MILKING COWS	900.00	35.00	31,500.00	11,497,500.00	263
DRY COWS	100.00	17.00	1,700.00	620,500.00	14
HEIFERS	0.00	0.00	0.00	0.00	0
TOTAL GALLONS			33,200.00	12,118,000.00	277

Stockwater Annual Volume Needed in AF = 37.2 AF

COMMERCIAL VOLUME REQUIREMENT

Wash Pen Requirements

GPM Per Nozzle	Number of Nozzels	Total Gpm	Time Per Use (in minutes)	Number of Uses	Total GPD	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
BULK TANK	250.00	3.00	750.00	273,750.00
COW PREP	0.00	0.00	0.00	0.00
PIPELINES	350.00	3.00	1,050.00	383,250.00
PARLOR CLEANUP	1,380.00	3.00	4,140.00	1,511,100.00
WASHPEN CLEANUP	0.00	0.00	0.00	0.00
Total Milking Parlor Use			5,940.00	2,168,100.00

HOSPITAL BARN USE

Item	Gals/ Operation	Times/Day	Total GPD	Total GPY
BULK TANK	0.00	0.00	0.00	0.00
COW PREP	0.00	0.00	0.00	0.00
PIPELINES	0.00	0.00	0.00	0.00
PARLOR CLEANUP	0.00	0.00	0.00	0.00
WASHPEN CLEANUP	0.00	0.00	0.00	0.00
Total Milking Parlor Use				0.00

MISCELLANEOUS USES

Item	Gal/ Operation	Times/Day	Total GPD	GALS/YEAR
TOWEL WASHING	50.00	6.00	300.00	109,500.00
EMPLOYEE SHOWERS	0.00	0.00	0.00	0.00
& RESTROOMS	0.00	0.00	0.00	0.00
MAINTENANCE SHOP	0.00	0.00	0.00	0.00
Plate Cooler	5,040.00	1.00	5,040.00	1,839,600.00
Misters (Seasonal Use: 91 days/year)	10,152.00	1.00	10,152.00	923,832.00
TOTAL MISCELLANEOUS USES			15,492.00	2,872,932.00

Commercial Annual Volume Required in AF = 15.5

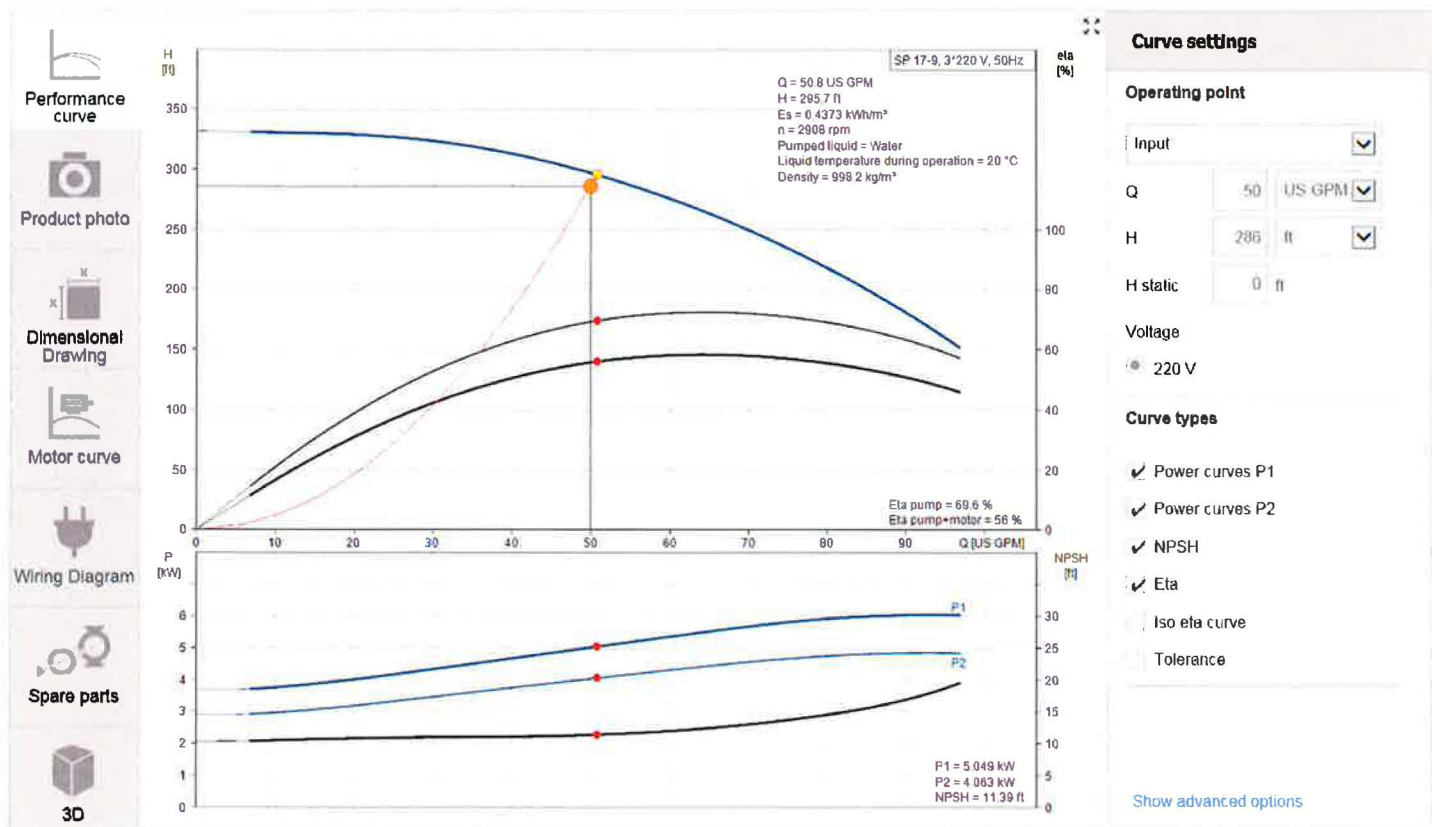
Stockwater Volume Requirement in AF =	37.19
Commercial Annual Volume Requirement in AF =	15.47
TOTAL VOLUME REQUIRED =	52.66
Overlapping Stockwater Right 63-21476=	-13.4
Commercial and Stockwater Volume for 63-12519=	39.26
Domestic #2 for 63-12519=	1.2
Volume Recommendation for 63-12519=	40.46

Figure 3 Daily Fresh Water Requirement for Dairy Facility (Provided in Appendix)

Pump Information

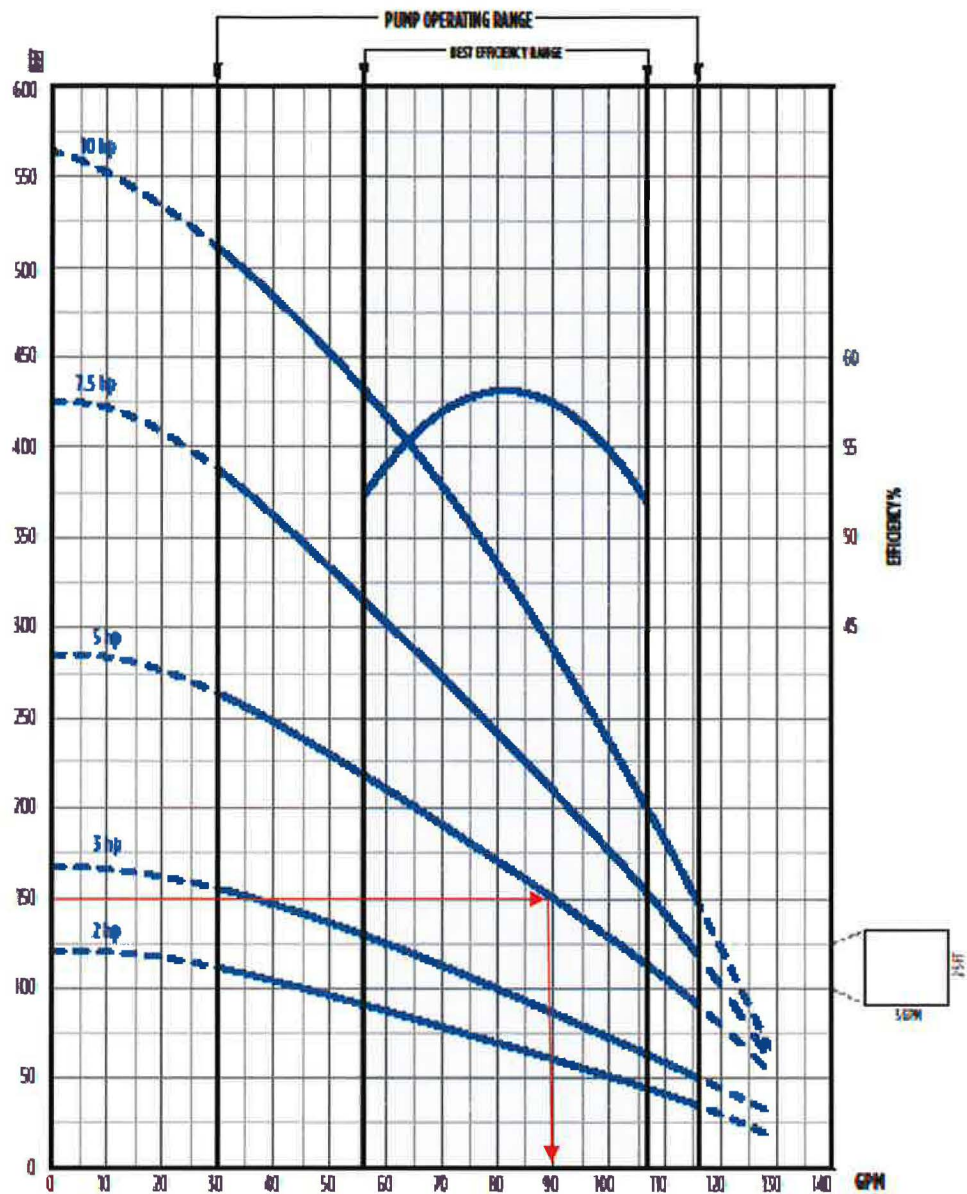
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Well #1 Pump Curve for an MS 4000 Pump Motor, Model B, with a 7.5 hp motor

Operating Flow was estimated at 50 gpm using estimated flow through a 2" galvanized pipe flowing at approximately 5 ft/s.



Franklin Pump Curve for Well #2 (4" 5 hp pump w/ 90 gpm capacity)

PERFORMANCE

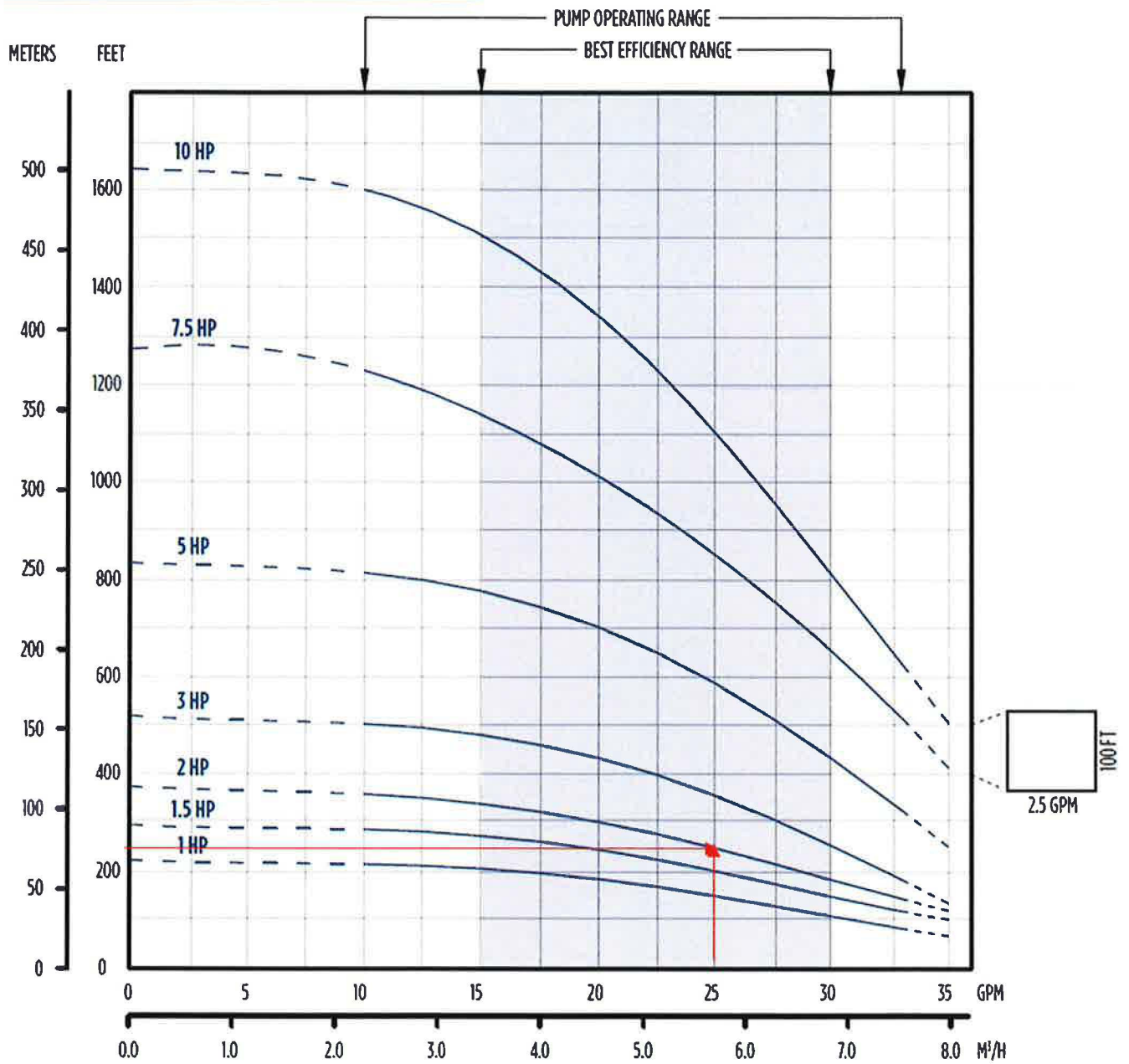


Figure 4 franklin Pump Curve for Well #3 (2 hp pump with 25 gpm capacity)



Picture 1 Milking Parlor



Picture 2 Pre-Wash Parlor (Usage Abandon for Chemical Wash Instead)



Picture 3 Well #1 Located in the Building and Well #2 Located between Building and Storage Shed



Picture 4 Building Housing Well #3