

[illegible]

Method of Determination:

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.

<u>Well or Diversion ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge Size</u>
A0011817	subm.	3			1 ½ inch pipe
A0011818	subm.	5			1 ½ inch pipe

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

D. FLOW MEASUREMENTS

1.

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Portaflow	Sonic	FUJI		240332		March 2009

2. Measurements:

A measurement was taken on the outgoing line to the barn and corral stock troughs. The owner indicated all dairy water passes through this line at an estimated 30 GPM and the FUJI measured the highest instantaneous flow at 28 GPM. The East Well (A0011817) is strictly a back-up well and a measurement was unobtainable at the time of the exam. Note, the line to the homes is buried and its exact location unknown therefore a measurement was not taken at the time of the exam.

E. FLOW CALCULATIONS☒ Additional Computation Sheets Attached

Measured Method:

Polysonic flow meter: Instantaneous flow for dairy operation= 28 GPM

West Well (Primary): 28 GPM = 0.062 CFS

East Well (Back-up): No measurement but discharge should be similar.

Total discharge: 0.062 CFS

HP Equation: $\frac{5 \times 8.8 \times .7}{90 + (40 \times 2.31)} = 0.17 \text{ CFS}$

Theoretical yield is higher than measured flow but would exceed the rate (0.12 cfs) that the permit is limited to. The dairy spreadsheet calculated 0.06 cfs for stockwater and this is also what the FUJI measured in the barn. As a result the stock and commercial components are recommended for a rate of 0.06 cfs.

Domestic use is based on the IDWR standard from the Maximum Instantaneous Water Requirements for Domestic Use Chart for 5 homes = 0.11 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

The irrigation is associated with the domestic use therefore it is recommended that a condition be added limiting the domestic irrigation to ½ acre per home and no more than 1 ½ acres of irrigation total. (see domestic use)

2. Volume Calculations for Other Uses:

System capacity volume = $0.17 \times 1.9835 \times 365 = 123.07$ AF

Calculations for **stock** consumption based on 300 milking cows. (Proof filed on 600-300 for D & S decree = 300 cows)

Total **stock** volume calculated from *Attached Dairy Spreadsheet* = 10.4 AFA

Total Stock Volume: 10.4 AFA

Total **commercial** volume calculated from *Attached Dairy Spreadsheet* = 24.9 AFA

Total Commercial Volume: 24.9 AFA

The **Domestic** volume is based on the IDWR standard of 0.6 AFA in-house use per home.

5 homes x 0.6 AF = 3 AFA

Approximately 1 ½ acres of common lawn are currently associated with the original 5 homes

1.5 acre x 4 AF = 6 AFA

3 AF + 6 AF = 9 AFA

Total Domestic Volume: 9 AFA

G. NARRATIVE/REMARKS/COMMENTS

Nunes Brothers Dairy has requested permit 36-8552 be licensed in order for them to move forward with a transfer that will move in additional water to cover an increase in herd size at their existing facility. The current dairy is approximately the same size as the original facility verified by comparing 1992 and 2009 aerial imagery. Other than two additional corrals, a few troughs, one lagoon and a home there has been no major physical expansion of the original facility. Note, a 15,000 gallon recycling tank was added to the system recently and the sprinkler system removed so the dairy is actually running more efficiently and using less water than at the time proof was filed.

The current system includes two wells. The permit only lists one pod therefore an amendment is necessary to add the second well at the time of licensing. Note, the West Well (A0011818) is the primary well and the East Well (A0011817) is the back-up well and will only be used in case of emergency. The two wells are plumbed together and then redistributed through a common system of buried pipes to the dairy barn, corrals and six homes.

Proof of beneficial use was filed in 1993 and is consistent with the 600 milking cows the owner quoted at the time of exam. However the Application for Permit and the dairy spreadsheet sent in by Brockway Engineering indicates 500 milking and 200 range cows. As Mr. Nunes is the original owner and was present at the time of the exam and when proof was filed the recommendation for stockwater is based on his claim of 600 milking cows with no range cows. However, during overlap analysis an old D&S decree (36-10658) in the name of Nunes Brothers Dairy for 300 cows and 1 home was discovered. As a result, it is recommended that the permit's stockwater volume be licensed as reflected by the decree. (minus the 300 cows) This analysis is based on conversation (via telephone on 1/14/2010) with Mr. Nunes that his herd produces on average 75 lbs. of milk per cow per day. Therefore the recommended stockwater volume is based on the attached IDWR dairy spreadsheet value of **10.4 AF**.

The commercial volume is based on the owner's statement (via telephone conversation on 12/2/2009) that the dairy milked three times daily and that the sprinklers ran an estimated 95 minutes per day which is similar to the Brockway analysis. Consequently the recommendation for the commercial volume is based on the IDWR dairy spreadsheet value of **24.9 AF** and will not be affected by the decree. To allow for flexibility in the operation a combined total of **35.3 AF (10.4 AF + 24.9AF)** for the stockwater and commercial use is recommended.

In addition the priority date was set before the moratorium and for this reason the domestic component is unclear. As a result the domestic volume is based on the IDWR standard of 0.6 AFA in-house use for 4 homes (minus the 1 home from the decree) and limits the domestic irrigation of the 1 acre of lawn (minus the .5 acre from the decree) to 4 AFA per acre. The adjusted domestic recommendation will be (4 homes x 0.6 AF) + (1.0 acre x 4 AF) = **6.4 AFA**. Since the irrigation is associated with the domestic use a condition will be added limiting domestic irrigation to ½ acre per home and no more than 1 acre irrigation total. There was also a sixth home added to the facility in 1999 after proof was filed which is not reflected in this analysis.

In conclusion, it is recommended that a combined condition will limit 36-10658 and 36-8552 to the totals of 0.2 cfs, 56.3 AFA and 1.5 acres of irrigation on the new license.

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

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
COMMERCIAL	01/01 to 12/31	0.060 CFS	24.9 AF
DOMESTIC	01/01 to 12/31	0.100 CFS	6.4 AF
STOCKWATER	01/01 to 12/31	0.060 CFS	10.4 AF
<u>Totals:</u>		0.120 CFS	41.7 AF

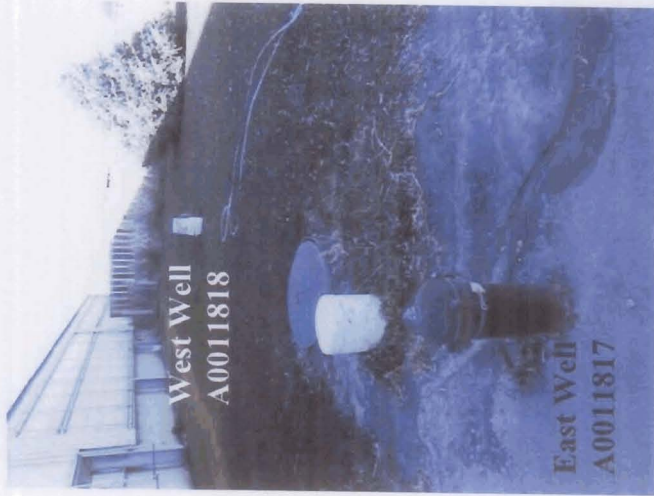
2. Recommended Amendments

☐ Change P.D. as reflected above ☒ Add P.D. as reflected above ☐ None

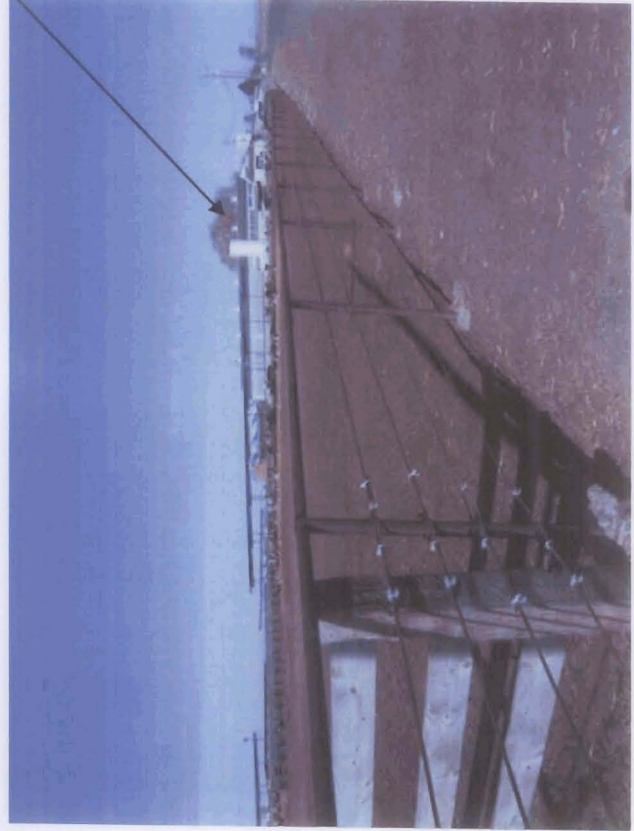
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

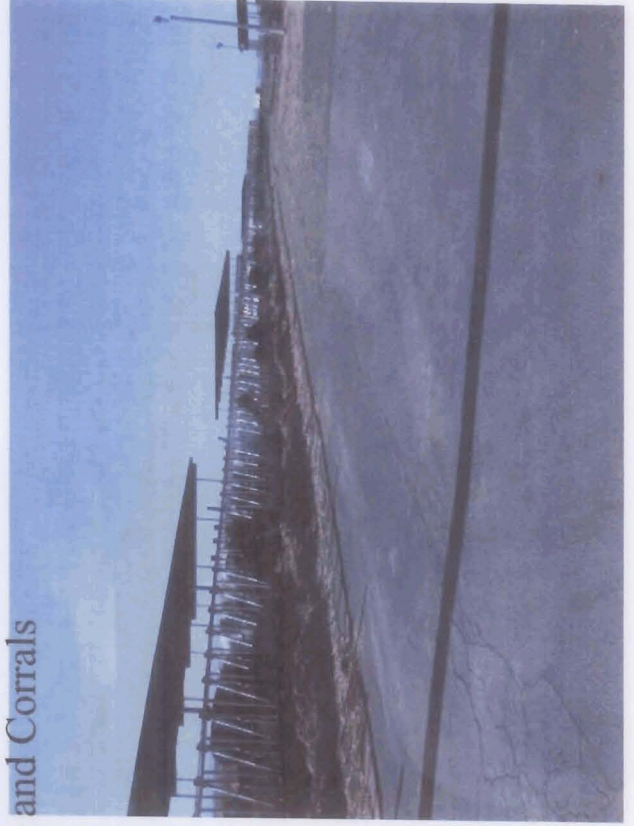
Field Examiner's Name Jana Reeder Date 1/15/2010
Reviewer [Signature] Date 1/15/2010



Original Barn



and Corrals





1992
Aerial
Photo

