

MEMORANDUM

Date: March 16, 2004
To: Transfer 70981
From: kwilson
Re: Dairy Calculations

DAIRIES: WATER USE WORKSHEET - REQUIRED DAIRY DATA

Number of Milking Cattle = 800
Number of Dry Cattle = 240
Number of replacement cattle: 0-2 Months (40); 3-4 Months (40); 5-8 Months (40); 9-12 Months (40); 13-15 Months (40); 16-24 MONTHS (40)
Enter 1 for manual cow washing, 2 automatic, or 3 if sprinklers are used to flush holding pens and wash cows (1)
Number of milkings per day = 3
Avg. lbs. milk produced per day per animal = 70 lbs.
Are there separate pumps for commercial and stockwater uses? (N)
If only one pump, how many total hours per day does it run? (4.0)
Is a plate cooler used? (Y)
Is plate cooler water later recycled for other uses? (Y)
Are corral misters used in holding pen? (N)
Enter total volume in gpd for miscellaneous water uses not individually calculated below (Ex - Restrooms, Washing machine) = 500 gpd

CALCULATIONS

Diversion rate (CFS):

Stockwater

Milking cattle (based on milk production) = (****)
Dry cattle @17.0 gpd/hd = (****)
Replacement cattle = (****)
Total = 0.35 cfs

Commercial

Total = 0.35 cfs
Total diversion rate = 0.35 cfs

Diversion volume (afa):

Stockwater

Milking cattle = 25.8 afa
Dry cattle = 3.6 afa
Replacement cattle = 1.6 afa
Total = 31.0 afa

Commercial

Washing of bulk tank and related equipment = 0.6 afa
Backflush = 1.3 afa
Parlor/milkhouse/holding pen cleanup = 3.0 afa
Cattle washing based upon method of washing = 1.3 afa
Plate cooler = 0.0 afa
Corral Misterns = 0.0 afa
Miscellaneous uses = 0.6 afa
Total = 6.9 afa

Total Diversion Volume = 37.9 afa

Consumptive use Volume (afa) (assuming 100% consumptive):

Stock water = 31.0 afa
Commercial = 6.9 afa
Total consumptive use = 37.9 afa