

FILE NUMBER 36-00000
REVIEWER MSP
DATE December 15, 2006

DAIRIES: WATER USE WORKSHEET

THEORETICAL FLOW ESTIMATION WORKSHEET

REQUIRED DAIRY DATA

NUMBER OF MILKING CATTLE 5000
NUMBER OF DRY CATTLE 1000
NUMBER OF REPLACEMENT CATTLE: 0-2 MONTHS 250
3-4 MONTHS 250
5-8 MONTHS 250
9-12 MONTHS 250
13-15 MONTHS 2000
16-24 MONTHS 2000
ENTER 1 FOR MANUAL COW WASHING, 2 FOR AUTOMATIC COW WASHING,
OR 3 IF SPRINKLERS ARE USED TO FLUSH HOLDING PEN AND WASH COWS 3
IF SPRINKLERS ARE USED: NUMBER OF SPRINKLERS IN HOLDING PEN 20
NOZZLE DISCHARGE (USE 5.0 GPM IF UNKNOWN) 5.00
TOTAL OPERATION TIME OF SPRINKLERS (MIN/DAY) 600
NUMBER OF MILKINGS PER DAY 3
AVG. LBS. OF MILK PRODUCED PER DAY PER ANIMAL (IDAHO AVG IS 70 LBS.) 80
ARE THERE SEPARATE PUMPS FOR COMMERCIAL AND STOCKWATER USES? N
IF SO: HOW MANY HOURS PER DAY DOES THE STOCKWATER PUMP RUN?
HOW MANY HOURS PER DAY DOES THE COMMERCIAL PUMP RUN?
IF ONLY ONE PUMP, HOW MANY TOTAL HOURS PER DAY DOES IT RUN? 12.0
IS A PLATE COOLER USED? Y
IS PLATE COOLER WATER LATER RECYCLED FOR OTHER USES? (IF NO PLATE
COOLER, LEAVE BLANK) N
ARE CORRAL MISTERS USED IN HOLDING PEN? Y
IF USING CORRAL MISTERS: NUMBER OF MISTERS (IF UNKNOWN,
ASSUME 1 MISTER FOR EVERY 5 COWS) 1000
NOZZLE DISCHARGE (USE 5 GPH IF UNKNOWN) 5.00
SPRAY INTERVAL (EX - 2 MIN ON EVERY 5 MIN = 2/5) 2/5
OPERATION TIME OF MISTERS (HRS/DAY) 10
DAYS PER YEAR MISTERS ARE USED 60
ENTER A TOTAL VOLUME IN GPD FOR MISCELLANEOUS WATER USES NOT
INDIVIDUALLY CALCULATED BELOW (EX - RESTROOMS, WASHING MACHINES) 0

CALCULATIONS

DIVERSION RATE (CFS):

STOCKWATER
MILKING CATTLE (BASED ON MILK PRODUCTION) ****
DRY CATTLE @17.0 GPD/HD ****
REPLACEMENT CATTLE ****
TOTAL 1.17

COMMERCIAL
TOTAL 1.17

TOTAL DIVERSION RATE 1.17

DIVERSION VOLUME (AFA):

STOCKWATER
MILKING CATTLE 184.6
DRY CATTLE 15.1
REPLACEMENT CATTLE 46.9
TOTAL 246.6

COMMERCIAL
WASHING OF BULK TANK AND RELATED EQUIPMENT 0.6
BACKFLUSH 8.4
PARLOR/MILKHOUSE/HOLDING PEN CLEANUP 3.0
CATTLE WASHING BASED UPON METHOD OF WASHING 67.2
PLATE COOLER 44.8
CORRAL MISTERS 3.7
MISCELLANEOUS USES 0.0
TOTAL 127.7

TOTAL DIVERSION VOLUME 374.3

CONSUMPTIVE USE VOLUME (AFA)(assuming 100% consumptive):

STOCKWATER 246.6
COMMERCIAL 127.7
TOTAL CONSUMPTIVE USE 374.3

REQUIRED PUMP INFORMATION

	PUMP 1	PUMP 2	PUMP 3	PUMP 4	PUMP 5
PUMP HORSEPOWER (HP)	25.00		0.00	0.00	0.00
PUMP EFFICIENCY (%)	70		70	70	70
LIFT (FT)	230		0	0	0
DISCHARGE PRESSURE (PSI)	40		0	0	0
FRICTION LOSSES (FT)	3.0		0.0	0.0	0.0
HOURS PER DAY PUMP OPERATES	12.0		0.0	0.0	0.0

CALCULATIONS

THEORETICAL FLOW RATE (CFS) *	0.47	0.00	0.00	0.00	0.00
DIVERSION VOLUME (AFA) **	171.3	0.0	0.0	0.0	0.0

* IF PUMP EFFICIENCY IS UNKNOWN, 70% MAY BE ASSUMED.

** DIVERSION VOLUME IS THE ABSOLUTE MAXIMUM VOLUME BASED ON THE
THEORETICAL FLOW RATE ASSUMING PUMP RUNS EVERY DAY OF THE YEAR.

EVALUATION OF EQUIVALENT IRRIGATED ACREAGE

IRRIGATION RIGHT (BEFORE CHANGE)

DIVERSION RATE	4.80 CFS
ACRES OF IRRIGATION	240.0 ACRES
DIVERSION VOLUME	4.0 AC-FT/AC
CONSUMPTIVE USE VOLUME	3.0 AC-FT/AC
IRRIGATION IS BEING CONVERTED FOR WHICH PORTION OF THE DAIRY OPERATION - STOCKWATER (S), COMMERCIAL (C), OR BOTH (B)?	
	B

CALCULATIONS

IRRIGATION DIVERSION RATE PER ACRE	0.020 CFS/AC
REDUCTION OF IRRIGATION BASED ON DIVERSION RATE	58.5 ACRES
REDUCTION OF IRRIGATION BASED ON DIVERSION VOLUME	93.6 ACRES
REDUCTION OF IRRIGATION BASED ON CONSUMPTIVE USE	124.8 ACRES