

**TABLE 1 - MINIMUM PIPE QUALITY FOR VARIOUS SEPERATION
DISTANCES TO WELLS, BEDROCK, AND GROUND WATER**

		Pipe Material	Minimum <u>3/</u> Pressure Rating (psi)	Applicable Specifications	
<u>GRAVITY FLOW SYSTEM</u>					
		Plastic (PVC)	--	ASTM's: D 3033; D 3034; F 679; F 794	
		Plastic (PE)	--	ASTM F894	
		Steel	--	ASTM's: A 53; A 134; A135; or A 139	
<u>PRESSURE FLOW SYSTEM</u>					
<u>Distance from:</u>					
	<u>Well (ft)</u>	<u>Bedrock or Ground Water (ft)</u>			
	25-50	>0.5	PVC All Other	200 200	ASTM D2241 or D1785 <u>1/</u>
	50 - 100	0.5 - 3	PVC All Other	125	ASTM, D2241 <u>1/</u>
		>3	PVC All Other	80	Spec. 430-DD <u>2/</u> <u>1/</u>
	>100	0.5 - 3	PVC All Other	80	Spec. 430-DD <u>2/</u> <u>1/</u>
		> 3	PVC All Other	--	ASTM D 3033 or D3034 (Max. SDR=35) Sewer pipe <u>1/</u>

1/ Applicable ASTM or AWWA standard for specific material

2/ Section IV of Technical Guide

3/ Pressure ratings for pipe and joints must meet the listed pressure or 2 times the maximum operating pressure, which ever is less. For gravity systems, the pipe joints must meet the requirements of the applicable specification and the specifications referenced therein.

TABLE 2 - GRAVITY SYSTEMS

Type of Waste <u>1/</u>	Minimum Head (ft) <u>2/</u>	Minimum and Maximum Slope %	Maximum Length <u>3/</u>	Minimum and Maximum Pipe Diameter
Dairy	5	1 - 15	200 (ft)	18 - 30 inches
Dairy, Gravity Gutter	1	1 - 20	200 (ft)	12 - 24 inches
Dairy Replacement and Beef	8	1 - 6	150 (ft)	24 - 30 inches
Veal	1	0.5 - 12	200 (ft)	6 - 24 inches
Swine	2	0.5 - 7	200 (ft)	6 - 24 inches
Milking Center Waste Water	1	0.5 - 10	500 (ft) <u>4/</u>	4 - 6 inches

1/ Maximum amount of bedding is 2 to 3 pounds per day per head of chopped or short hay, or straw, or sawdust, or similar material

2/ Head equals the elevation difference from the hopper inlet to the highest elevation waste is stored.

3/ Maximum length for continuous closed conduits.

4/ After settling tank for milking parlors. Maximum length from parlor to settling tank is 100 feet, on a continuous grade.

TABLE 3 - PUMP SYSTEMS

Type of System	Maximum Working Head Feet	Maximum Distance Feet	Pipe Size
Ram Pump <u>1/</u>	25	200	12 - 15 inches
Agitator Pumps <u>2/</u>	50	400	4 - 6 inches
Waste Water Pumps <u>3/</u>	50	800	1 1/2 - 4 inches
Vacuum	30 <u>4/</u>	200	4 - 6 inches

1/ Mechanical or hydraulic driver plugger type pump

2/ Centrifugal or vacuum type slurry pumps

3/ Electric, submersible pumps

4/ No more than 12 feet can be on the suction side of the pump