

Table 8.6
Typical Surface Water Standards

water use	minimum dissolved oxygen (mg/l)	maximum dissolved solids	maximum coliforms per 100 ml
domestic use (food preparation)	6	*	none
water contact recreation	4 to 5	*	1000 total ave. 200 fecal ave. not more than 10% exceeding 400 fecal (2000 total)
fisheries	4 to 6	*	5000 ave.
industrial supply	3 to 5	750 to 1500 mg/l	-
agricultural irrigation	3 to 5	750 to 1500 mg/l	-
shellfish harvesting	4 to 6	*	70 total ave. not more than 10% exceeding 230

* No floating solids or settling solids that form deposits.

codes established by state boards of health frequently specify a design loading of 400 gpcd (laterals and mains) and 250 gpcd (mains, trunks, and outfalls). Both of these include the effect of *infiltration*. Infiltration due to cracks and poor joints is limited by municipal codes to 500 gallons per day per mile of pipe per inch of diameter. Modern piping materials and joints should be able to reduce this quantity to 100 gpd/inch-mile. Infiltration may also be roughly estimated at 3%–5% of the peak hourly domestic rate, 10% of the average rate.

8 COLLECTION SYSTEMS

A. STORM DRAINS AND INLETS

Curb inlets to storm drains should be placed no more than 600 feet apart, and a limit of 300 feet is advisable. Inlets are required at all low points where pondage could occur. A common practice is to install 3 inlets in a sag vertical curve—one at the lowest point and one on each side with an elevation of 0.2 feet above the center inlet. Openings may be of the covered grate type or the curb inlet type.

Table 8.7
Typical Secondary Effluent Standards

quality	average over	discharge maximum
BOD (5-day)	30 days	30 mg/l
	7 days	45 mg/l
	30 days	15% of incoming BOD
suspended solids	30 days	30 mg/l
	7 days	45 mg/l
	30 days	15% of incoming SS
coliforms**	30 days	200 per 100 ml
	7 days	400 per 100 ml
	at all times	within 6 to 9

** Geometric mean is used, not arithmetic

Table 8.8
Variations in Wastewater Flow
(based on the average daily flow)

description	when/where	variation
daily peak	10–12 a.m. (residential)	225%
	constant during day (commercial)	150%
	12 noon at the outfall	150%
daily minimum	4–5 a.m.	40%
seasonal peak	late summer	125%
seasonal minimum	winter's end	90%
seasonal average	May, June	100%
maximum peaks	in laterals	300%
	treatment plant influent	200%