11.18 Presedimentation reduces the turbidity of a raw river water from 1500 mg/l suspended solids to 200 mg/l. How many pounds of dry solids are removed per million gallons? If the settled sludge has a concentration of 8% solids and a specific gravity of 1.03, calculate the sludge volume produced per million gallons of river water processed.

11.18   Dry solids = (1500 - 200)8.34 = 10,800 lb/mil gal

$$\text{Volume} = \frac{10,800}{(0.08)(1.03)} = 131,000 \text{ gal/mil gal (Refer to Eq. 13.3)}$$

11.31 A small community has used an unchlorinated well-water supply containing approximately 0.3 mg/l of iron and manganese for several years without any apparent iron and manganese problems. A health official suggested that the town install chlorination equipment to disinfect the water and provide a chlorine residual in the distribution system. After initiating chlorination, consumers complained about water staining washed clothes and bathroom fixtures. Explain what is occurring due to chlorination.

11.31   Chlorine is oxidizing the iron and manganese forming precipitates that settle out in the distribution system. Periodically these are flushed out of mains and storage tanks to cause "rusty" water that results in staining. Apparently prior to chlorination most of the iron and manganese remained in solution and colloidal suspension and passed through the system unnoticed.

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