

7. INTERPRETIVE MODELING

This chapter draws on material discussed in Chapters 3 through 6 to assess VOC emissions due to desorption along uniform reaches and drops. It is divided into three major sections. Section 7.1 includes assessment of variations in both single and multiple parameters associated with VOCs traveling through uniform sewer reaches. Section 7.2 includes a parameter variation analysis for desorption from drops. Section 7.3 involves application of predictive models to a series of hypothetical sewer systems characterized by a uniform reach followed by a sudden drop in wastewater elevation. Section 7.4 examines a scenario that might typify the relative losses of chloroform from a residence to the sewage treatment plant.

7.1 PARAMETER ANALYSES - UNIFORM REACHES

This section is intended to provide greater detail regarding effects of parameter variations for uniform reaches. A similar analysis is provided in Section 7.2 for drops.

Applications

CORAL and MATES were used to study effects of parameter variations on VOC emissions along reaches of uniform flow. The CORAL model was used to analyze variations on single parameters for the standard reach listed in Table 7-1. Removal of PERC along the standard reach was 4.5%

The MATES model was used to assess the impact of multiple parameter variations on VOC emissions. Conditions were similar to those listed in Table 7-1, with exceptions and parameter variations listed in Table 7-2. Henry's law constant was varied within a range of common values for VOCs of concern. However, the diffusion parameter, i was held constant at 0.6 for each