

6. Tracer Results

6.1 Introduction

A detailed discussion of each tracer test is given in the following sections. The significant features of this discussion are the trajectories of the tracer clouds and their associated dispersion.

Trajectories were constructed for each of the tracer releases from the observed wind observations in the area. Although most of the calculated trajectories exhibited the characteristics of the observed tracer concentrations, many of the details of these concentration patterns were not reproduced. This results from the complex wind field structure in the region downwind from Montezuma Hills. As a consequence, the trajectories shown on the accompanying test maps were drawn subjectively from a best-estimate consideration of the observed wind field and the observed tracer concentrations. In many cases, the apparent trajectory changed considerably during the test and attempts have been made to indicate these changes on the maps.

Dispersion characteristics are presented primarily in terms of the peak concentrations observed on each of the auto traverses when the tracer cloud was encountered. These peak concentrations have been plotted on a standard diffusion graph (e.g., Yanskey et al., 1966) as a function of downwind distance so that they can be compared with previous diffusion experience. The downwind distances have been obtained by measurement along the trajectories as indicated on the trajectory maps. To the extent that the trajectories may be somewhat inaccurate due to lack of wind field definition, the downwind distances may also be somewhat in error.

Peak concentrations are given in terms of $\chi u/Q$ where χ is the observed concentration at the site, Q is the release rate and u is the mean wind speed at the release site. An average wind speed over the period of the release was used to determine u .

6.2 Test 1 - August 31, 1976

The SF₆ tracer material was released from the Montezuma Hills site from 1200 to 1700 PDT. The test was conducted under clear skies near the end of a weather sequence which had produced relatively high surface temperatures in the Central Valley.

The wind flow at the Montezuma Hills site during the release period was typical of the afternoon onshore flow which characterizes the area during most of the summer. Table 6-1 shows the hourly wind values at