

## VII. RESULTS OF CHEMICAL ANALYSES

### A. Tenax Samples

As noted in Section VI, the PAH observed on the Tenax-GC cartridges are the most abundant and are generally gas-phase species. Naphthalene and the alkylnaphthalenes were the only PAH likely to be present mainly in the gas-phase which were on the recommended lists for monitoring. Not unexpectedly, GC/MS analysis of a Glendora Tenax sample in the full scanning mode (rather than the MID mode used for quantification) showed that, in addition to naphthalene and the methylnaphthalenes, several alkylbenzenes were also very abundant. Tenax cartridges with two flow rates (low-flow,  $\sim 1 \text{ L min}^{-1}$ ; high-flow,  $\sim 10 \text{ L min}^{-1}$ ) were utilized. This ensured that naphthalene could be quantified at the rural site (anticipated to have low ambient concentrations of PAH) and also allowed us to examine the less abundant PAH species. At Glendora each low-flow Tenax cartridge had a back-up cartridge to check for breakthrough. At all other sites back-up cartridges were generally used for four or five of the low-flow sampling periods. No significant ( $<10\%$ ) breakthrough of naphthalene was observed on any of these back-up cartridges, indicating that naphthalene was collected quantitatively on the low-flow Tenax cartridges.

As a check of the integrity of the Tenax samples during storage, control Tenax cartridges were spiked with deuterated naphthalene, biphenyl, 1-nitronaphthalene, phenanthrene and anthracene ( $\sim 10 \mu\text{g}$  each) in November 1986 and stored in the freezer. In April 1987 when the Glendora Tenax samples were analyzed, a control Tenax sample was removed from the freezer and analyzed along with the Glendora samples (see Section VI-A), with known amounts of the corresponding nondeuterated PAH being added prior to elution. The recovery of the deuterated standards was then calculated based upon the nondeuterated species added. This procedure was repeated with a second control Tenax in August 1987 when the Tenax from the six remaining sites were analyzed. No significant differences in the recoveries were observed for the two storage periods. The recoveries for the April and August analyses, respectively, were: naphthalene- $\text{d}_8$  (72%, 81%), biphenyl- $\text{d}_{10}$  (73%, 66%), 1-nitronaphthalene- $\text{d}_7$  (67%, not analyzed), phenanthrene- $\text{d}_{10}$  (83%, 82%), and anthracene- $\text{d}_{10}$  (83%, 80%).