Executive Summary and Background

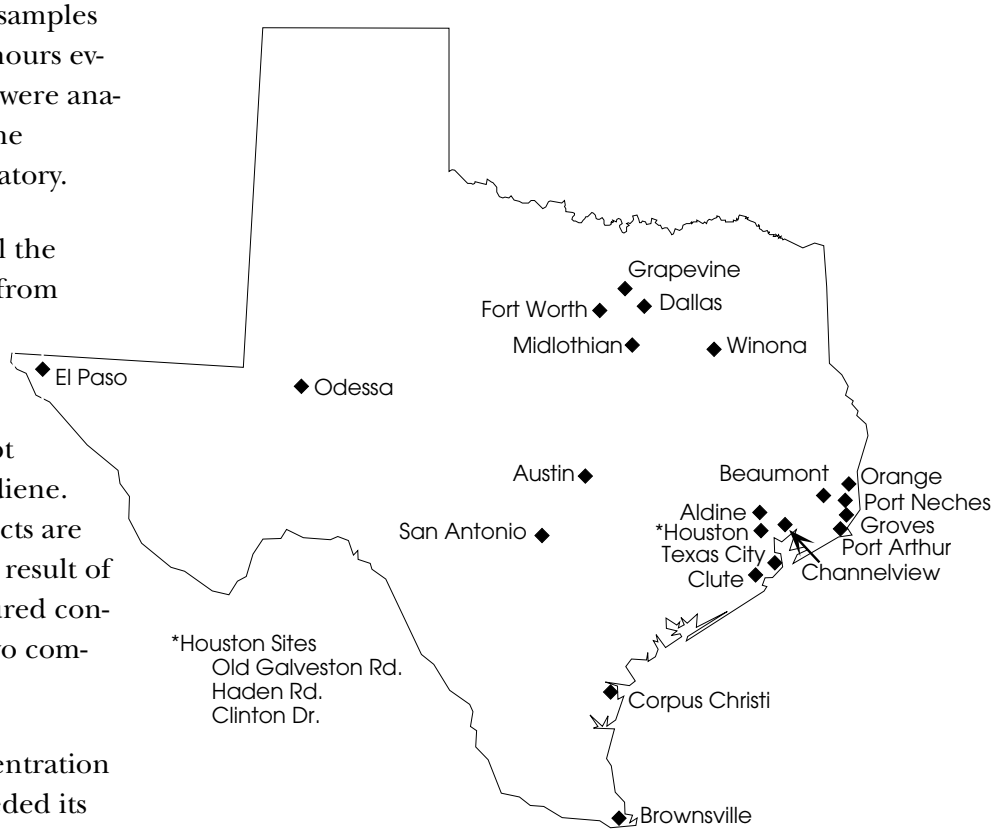
The Community Air Toxics Monitoring Network is designed to collect information on volatile organic compounds (VOCs) found in ambient air. Monitored compounds were selected based upon their expected frequency of occurrence, potential to cause health effects, potential to form ozone, and known applicability to the canister collection technique. This report focuses on evaluation of the measured concentrations of the compounds from a human health effects standpoint.

The data in this report were collected by the Texas Natural Resource Conservation Commission (TNRCC) during 1995 at 23 monitoring sites in 15 counties (Map 1). Air samples were collected for 24 hours every sixth day. Samples were analyzed for 69 VOCs at the TNRCC's Austin laboratory.

Concentrations of all the compounds collected from January to December 1995 were below their TNRCC health-based screening levels, except benzene and 1,3-butadiene. No adverse health effects are expected to occur as a result of exposure to the measured concentrations of these two compounds.

The measured concentration of 1,3-butadiene exceeded its 24-hour health-based screening level of 20 parts per billion by volume (ppbv) once in Port Arthur. The 24-hour measured concentrations of 1,3-butadiene were less than levels that would result in acute health effects. Annual average concentrations of 1,3-butadiene at all sites were below the health-based screening level. No adverse health effects are expected to occur as a result of exposure to the measured concentrations of 1,3-butadiene.

Benzene was the only compound measured above both its annual and 24-hour health-based screening levels. Measured concentrations of benzene exceeded the 24-hour



Map 1. Location of TNRCC Community Air Toxics Monitoring Network Sites

screening level of 4 ppbv at seven sites: El Paso, two exceedances; Midlothian, two; Houston (Haden Road), four; Port Arthur, six; Corpus Christi, two; and Groves and Brownsville, one exceedance each. The maximum 24-hour concentrations of benzene were below levels that would result in acute health effects. However, they contribute to long-term exposure to members of the community. Long-term exposure is evaluated by examination of annual average concentrations.

In 1995, the average benzene concentrations measured exceeded the annual benzene health-based screening level of 1 ppbv at eight of the 23 monitoring sites: in Houston, Haden Road, 2.70 ppbv, Clinton Drive, 1.49, and Old Galveston Road, 1.03; in El Paso, 1.58; in Groves, 1.08; in Port Arthur, 1.68; in Corpus Christi, 1.06; and in Channelview, 1.05. Long-term exposure to concentrations of benzene significantly higher than the annual screening level can increase the risk of leukemia. The monitored concentrations do not present a meaningful increase in long-term benzene exposure above the annual screening level; however, the TNRCC considers it important that benzene levels do not significantly increase.

In general, concentrations of the compounds monitored were below levels of concern from a health effects standpoint. Levels of benzene, while above health-based screening levels at several of the sites monitored, are typical of levels present in ambient air in most urban areas throughout the country and do not significantly increase the risk of adverse health effects associated with benzene exposure. Sites where higher concentrations have been measured are targeted for additional agency efforts to better define and reduce potential public exposures.

Background

The Community Air Toxics Monitoring Network was established in 1992 by a mandate of the state legislature. The legislative directive came in response to stricter pollution limits required by the 1990 Federal Clean Air Act Amendments and growing public concern over air quality. The network is designed to collect information on VOCs in ambient air in or near populated areas.

This is the third report discussing the data collected since 1992. The first 12 months of data collected by the network is discussed in *Community Air Toxics Monitoring Program Report, October 1992 – September 1993*, AS-27, which was published by the TNRCC in May 1994. The second 15 months of data is included in *Community Air Toxics Monitoring Network Report, October 1993 – December 1994*, AS-97, which was published by the TNRCC in December 1995. This

report presents monitoring data collected from January to December 1995.

Summaries of data for all compounds monitored are in the Data Summary Tables in Appendix A. Monitor start dates (Table 1) are in Appendix B.

Monitoring Sites

The data discussed in this report were collected by the TNRCC from January through December 1995 at 23 monitoring sites in 15 counties. The sites are located in Austin, Brownsville, Clute, Corpus Christi, El Paso, Midlothian, Odessa, San Antonio, Texas City, and Winona; there are five sites in Harris County, five in Jefferson and Orange counties, and three in Dallas and Tarrant counties. Monitoring sites were selected based upon such factors as the magnitude of chemical emissions within an area, degree of public interest, wind direction, population density, and traffic patterns in the vicinity. The TNRCC then had to identify sites available for location of the monitoring equipment. Site Maps 2 to 24 and site information are in the next chapter. ◆