

Executive Summary
Hydrogen Sulfide Exposure
El Paso Lower Valley Community/Juárez North Wastewater Treatment Plant
El Paso, El Paso County, Texas/Juárez, Chihuahua, Mexico
October 5, 2005

Since at least 2001, residents of the El Paso Lower Valley Neighborhood have complained to various agencies and government officials about very strong odors of sewage and human waste in their neighborhood. The neighborhood is located near the intersection of the Border Freeway with South Yarbrough Drive, within a few hundred yards of the United States - Mexico border. Residents have reported various health concerns such as allergies, upper respiratory problems, shortness of breath, asthma, headaches, and difficulty concentrating. Other concerns included diminished quality of life and reduced property values.

In June 2004, United States (US) Representative Sylvestre Reyes petitioned the Agency for Toxic Substances and Disease Registry (ATSDR) to evaluate whether working or living near the Juárez North Wastewater Treatment Plant (JNWWTP), a likely source for the odors, might affect people's health. Through a cooperative agreement with ATSDR, the Texas Department of State Health Services (DSHS) initiated a health consultation to evaluate these concerns. This health consultation reports the methods, findings, and conclusions of DSHS's evaluation of hydrogen sulfide (H₂S) levels associated with the JNWWTP. As part of the consultation process, DSHS gathered information about the community including historical environmental information from the Texas Commission on Environmental Quality (TCEQ), the International Boundary Water Council (IBWC), and the US Environmental Protection Agency (EPA). DSHS obtained available environmental sampling data from TCEQ, to evaluate current H₂S exposure levels.

H₂S is a colorless, flammable, poisonous gas with a characteristic odor of rotten eggs. Some individuals can smell H₂S at concentrations as low as 0.5 parts per billion by volume (ppbv), but the majority of the general population detects H₂S odors at levels between 2 and 30 ppbv. Natural sources of H₂S include crude petroleum, natural gas, volcanic gases, hot springs, and decaying organic matter. It also is released from human and animal waste and can be found in sewage treatment facilities, sediments of fish aquaculture, and in livestock barns or manure areas. Industrial sources of H₂S include petroleum refineries, natural gas plants, petrochemical plants, coke oven plants, pulp and paper mills, food processing plants, and tanneries.

Results of the health consultation suggested that the levels of H₂S measured in the Lower Valley Neighborhood are above odor detection level for normal healthy adults. The most likely source of the H₂S levels when the wind is out of the west-northwest is the Juarez North Wastewater Treatment Plant. The source of odors when the winds are out of the southeast is unknown; however, two possible sources, the El Paso Wastewater Treatment Plant and the Juarez South Wastewater Treatment Plant. These plants lie on the east and west side of the Rio Grande River respectively, and are approximately 5 miles from the CAMS-36 air monitoring station.

Exposure to levels of H₂S measured in the El Paso Lower Valley Neighborhood has the potential to result in adverse health effects such as cough, diminished lung function, wheezing, stuffy or runny nose, eye irritation, nausea, headache, and sleeping difficulty for particularly sensitive individuals; therefore, we conclude that this site poses a public health hazard for sensitive individuals.