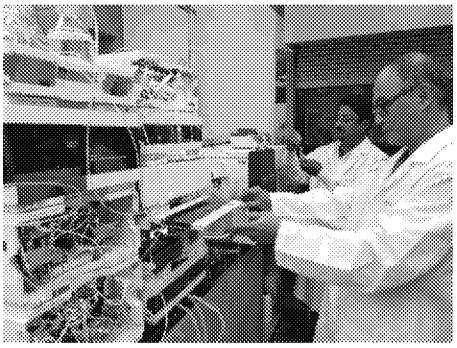
Response Highlights: Corpus Christi Drinking Water Incident, Corpus Christi, TX



Background: On December 15, 2016, EPA was notified of a December 14th public "Do Not Use the Water" advisory issued by the City of Corpus Christi. The advisory warned Corpus Christi's 320,000 residents to not drink or use tap water following a back-flow incident at an asphalt terminal operated by Ergon Asphalts & Emulsions on the property of Valero Energy Corporation. Also on December 15, the City of Corpus Christi provided a news release that identified the chemical of concern as asphalt emulsifier, Indulin AA-86, and that City officials estimated the amount of the product involved in the back-flow incident from 3 to 24 gallons.

Action: EPA activated a Cross-Divisional team to assist the state and local community. Personnel from the Water Division, Management Division, Superfund Division and Agency for Toxic Substances and Disease Registry (ATSDR) quickly assembled to provide much needed support to determine the extent and scope of contamination of the drinking water supply, and begin the process of investigating the release to identify the parties involved and collect information for future use. The Emergency Response team began coordination of efforts with local and State agencies and Responsible Parties to coordinate remediation efforts, and sample collection and analysis. EPA facilitated a meeting with State officials and Industry experts to acquire a laboratory method for the Indulin AA-86 for review by the Houston Laboratory Team to facilitate the development of the analytical method used to test the drinking water system. A EPA drinking water expert co-located with State personnel at the Texas Commission on Environmental Quality (TCEQ) Austin office. The drinking water program worked to develop a defensible protective strategy to ensure that the drinking water was safe for residence once it was turned back on. ATSDR partnered with the Texas Poison Control to monitor potential exposures and complaints from residents that used the drinking water system. The Superfund Enforcement Team worked extra hours over several days, in coordination with the Emergency Response Team, to begin the investigation process to identify responsible parties and gather information to understand all aspects of the incident. Careful coordination with the Texas Attorney General's Office, TCEQ, and the companies Ergon and Valero was critical in being able to quickly resolve issues and achieve clarity regarding the who, what, when, where and why of the drinking water contamination incident.

Initial samples from Corpus Christi's drinking water system were collected by the TCEQ and sent for analysis to the Department of State Health Services (DSHS) laboratory in Austin. Upon learning the chemical nature of the asphalt emulsifier, DSHS determined that they had neither the expertise or equipment to analyze for Indulin AA-86. Therefore, the Team was tasked with the emergency capability development of an analytical method(s) for Indulin AA-86 in drinking water, and for developing the capacity to analyze numerous and recurring daily samples from the City's drinking water system, as well as, citizen health complaint derived samples on demand.

Houston Laboratory Team (Lab Team) developed two new, time critical, analytical chemistry methods, utilizing a liquid chromatography/mass spectrograph (LCMS) and a gas chromatography/mass spectrograph (GCMS), to detect Indulin AA-86 that was suspected of contaminating Corpus Christi's drinking water distribution system. Additionally, the Team provided 'around the clock' analysis services for over 200 drinking water samples collected during the incident, from confirmatory sampling sites as well as complaint verification sampling.

The Lab Team expeditiously and successfully, within 24 hours, developed not one, but two methods to detect Indulin AA-86 in drinking water, one utilizing a LCMS technique and one utilizing a GCMS technique, with method detection levels of 0.05 mg/l for LCMS and 0.28 mg/l for GCMS. The Lab Team was able to develop the two analytical methods, calibrate instrumentation, establish detection levels, analyze initial samples, and begin providing analysis results, all within 72 hours of notification of the incident. This herculean effort, and all negative test results, enabled TCEQ to lift the Corpus Christi drinking water advisory on December 18.

The entire EPA Team of highly qualified and dedicated professionals worked long hours, well past normal work hours and on weekends, to accomplish this emergency mission. None of the over 200 drinking water samples collected from across the City of Corpus Christi water supply system tested positive for the presence of Indulin AA-86 in drinking water at method detection levels. The Team was able to deliver data summary tables to the public expeditiously to demonstrate that the drinking water was safe for public consumption.

Cooperating Agencies:

Texas Commission on Environmental Quality
Texas Department of Health
Agency for Toxic Substances and Disease Registry
City of Corpus Christi
Nueces County