

PSC Recovery Systems

March 7, 2008

Introduction

In early July 2006, the Georgia Division of Public Health (GDPH) was asked by the LaGrange Health District to assist in an investigation of potential adverse health effects and concerns about community exposure to an offensive odor generated by a local wastewater treatment facility. This investigation was conducted in cooperation with the Fulton and Fayette County Emergency Management Agencies; LaGrange and Fulton Health Districts; Georgia Department of Natural Resources, Georgia Environmental Protection Division (GEPD); U.S. Environmental Protection Agency (EPA); the Agency for Toxic Substances and Disease Registry (ATSDR), state and local elected officials, and residents. GDPH reviewed available air, soil, and wastewater sampling data for the site to determine to what extent people have been exposed to hazardous substances, whether that exposure is harmful, and the potential health effects.

Site Description and History

The PSC facility is located about 20 miles south of Atlanta, in Fairburn, Georgia. It is located in a well populated area in Fulton County just north of the Fayette County line.

PSC is a wastewater pre-treatment plant permitted to process non-hazardous waste. The facility was purchased in 1997 from a private company that bought the facility from Fulton County when the county built a new wastewater treatment plant in the 1980's. Grease from local restaurants is the largest waste stream that PSC processed; it and other waste streams were pre-treated to Fulton County standards and then discharged to the Fulton County wastewater treatment plant. PSC held an Industrial Wastewater Discharge Permit from Fulton County Public Works, and holds a Solid Waste Handling Permit from GEPD. PSC is permitted to hold and transfer containers of hazardous waste at an adjoining facility.

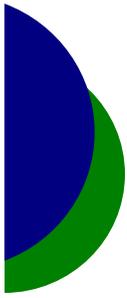
From June 21 through June 28, 2006, the plant processed 38 tanker trucks of wastewater from an insecticide manufacturing plant in Alabama. On or around June 29, PSC received four more trucks from the

plant. PSC detected an excessive odor while off-loading the first truck into one of the facility's holding tanks. Subsequent sample analyses showed the presence of the pesticide ethoprop and its breakdown product, n-propyl mercaptan, at levels that did not conform to the Waste Profile Sheet. PSC reloaded the truck and, along with the remaining tanker trucks, the rejected material was returned to the client.

PSC treated the holding tank which received the malodorous wastewater with a hypochlorite solution (e.g. bleach) to reduce the odor coming from the holding tank; however, the reaction between bleach and mercaptan was likely to be energetic and may have produced more off-gassing in the short term. PSC subsequently treated the equipment with potassium permanganate. Residual material from clean-up was reportedly removed on July 24, 2006. However, the odor lingered, and PSC continued clean up and treatment activities. The Fulton County Department of Health and Wellness declared a "critical health incident" and banned the source of the odor from the county.

Because of continuing complaints of odor and illness, on July 29, GEPD ordered the plant closed. However, the plant appealed the decision and remained in operation. GEPD obtained wastewater samples from PSC on August 15, 2006 and ethoprop was identified in one sample taken from the bottom of a storage tank. Subsequently, GEPD issued a Consent Order requiring PSC to submit a detailed plan to remove all residual ethoprop from the plant by September 13, 2006. In addition, the Consent Order imposed a fine and required PSC to no longer accept shipments containing mercaptan, as well as unfamiliar waste streams that may create an odor problem unless the waste is physically and chemically similar to other wastes treated by PSC in the past without incident.

On December 15, GEPD required PSC to submit a revised decontamination plan that includes draining, dismantling, and cleaning tanks and all areas contaminated with propyl mercaptan. In January 2007, PSC declared that there is no odor emanating from the facility and submitted rinse water samples to GEPD for



analyses. No new complaints of odors have been received by GDPH in 2007.

Environmental Sampling

On July 4, 2005, GEPD and EPA's contractor conducted air sampling for mercaptans with Sensidyne precision gas detection tubes specifically designed for mercaptan detection. Eighteen samples were taken from six on-and-off-site locations including downwind from the source location on the PSC property. The samples were taken over a ten-hour period of time. All sample results were non-detect, even though odor was reported on site, and a slight odor was reported at two of the off-site locations. The odor threshold for propyl mercaptan is 0.00075 parts per million (ppm), and is much lower than the detection limit of the instrumentation used to measure propyl mercaptan (0.5 ppm).

GEPD obtained six wastewater samples from the PSC facility on August 15, 2006. The samples were analyzed for volatile organic compounds, semi-volatile organic compounds, metals, and pesticides. Most of the constituents analyzed for were not detected in the samples; however, acetone was detected at 250 milligrams per kilogram (mg/kg) and methylene chloride (140 mg/kg) was detected in one wastewater sample. Ethoprop was identified at 150 mg/kg in a sample of sludgy material that had settled in the drainpipe of an empty storage tank.

In early September, GEPD analyzed two samples of wastewater collected on August 27 from railcars at the ethoprop manufacturing facility in Axis, Alabama. The material in these railcars was determined to be the wastewater delivered to PSC in late June. The railcar contents consisted of two distinct layers, an upper layer of an organic liquid (like oil) and a lower layer of an aqueous liquid (like water). The depth of each layer was measured, sampled and analyzed. Measurements of the organic layer showed high concentrations of ethoprop (240,000 mg/kg), propyl mercaptan (320,000 mg/kg), and dipropyl disulfide (a breakdown product of ethoprop at 97,000 mg/kg), and also chloroform and toluene. Measurements of the aqueous (liquid) portion of the sample showed concentrations of ethoprop (150 mg/kg) and propyl mercaptan (110 mg/kg) that are consistent with previously reported findings when PSC first sampled the shipment. These results may not

represent the exact chemical composition of the waste as it existed at the PSC facility.

In November 2006, twenty surface soil samples from various residential properties within a two-mile radius of PSC were analyzed for ethoprop. Ethoprop was not detected in any of the twenty samples (the instrumentation detection level was below the regulatory reporting level of 0.05 ppm).

Results

GDPH reviewed the site's history, community concerns, health outcome data, and available environmental sampling data. Based on this review, GDPH identified an exposure pathway that warranted consideration. Exposure to site-related contaminants at the PSC facility occurred through inhalation of contaminated air.

Conclusions

The release of propyl mercaptan at the PSC facility posed a public health hazard because it may have caused temporary adverse health effects during the time of release in some residents in communities near PSC. For some residents, these exposures may have had a negative impact on their health and quality of life. ATSDR recommends 0.5 parts per million as an Action Level for propyl mercaptan in air. This is a level below which no permanent health effects (i.e., physiological damage to organs) are expected to occur. During numerous sampling events both on-and-off site, no measurements exceeding this level were found. Symptoms may result from exposure to the odor of propyl mercaptan, but are expected to cease when the odor is eliminated. Therefore, since exposures were below the action level and we do not expect any continuing or long-term adverse health effects from this past exposure, the site currently poses **no apparent public health hazard**.

Ethoprop does not readily evaporate and we have no evidence to suggest that the ethoprop got into the air. Therefore, we believe that the ethoprop posed **no public health hazard** to area residents.

Recommendations

There are no recommendations at this time.