

Hazardous Materials Spill

General

One of the greatest threats to those who reside in the Commonwealth is the constant production, storage, use, and transportation of hazardous materials. The release of these materials from a facility is less dangerous than the release of them while being transported. Hazardous materials include flammable liquids, solids, and gases, combustible liquids, explosives, blasting agents, radioactive materials, oxidizing materials, corrosive materials, poisons, refrigerated liquids, hazardous waste/substances, and other regulated material. The City of Philadelphia and the Delaware Valley Region, approximately 152 miles southeast of Juniata County, make up one of the leading industrial trade complexes in the nation. With the numerous forms of transportation in Juniata County, hazardous materials such as chemicals and fuels are frequently transported through the County. The carriers of hazardous materials, however, must have response plans in place in the event of an accident.

Any facility in Pennsylvania that uses, manufactures, or stores hazardous materials must comply with Title III of the Superfund Amendments and Reauthorization Act (SARA). This is also known as the Emergency Planning and Community Right-to-Know Act (EPCRA). They must also comply with the reporting requirements, as amended, in Pennsylvania's Hazardous Materials Emergency Planning and Response Act (1990-165). Information about the chemicals that are being manufactured or processed in facilities can be found in the U.S. Environmental Agency's (USEPA's) Toxic Release Inventory (TRI) database.

History

The National Response Center lists 16 hazardous material instances occurring in Juniata County between June 1990 and November 2005. The Commonwealth experienced 1,000 spills in 2003 alone, most of them on highways. These spills cost the Commonwealth approximately \$2.5 million/year.

Vulnerability

A hazardous materials spill can be the result of human carelessness, an intentional act, or a natural hazard. Human carelessness occurs predominantly during the manufacturing, transporting, or storing of the material. An intentional act would be either a terrorist act, criminal act, or act of vandalism. A hazardous materials spill can be a secondary effect of a natural hazard (e.g., flooding, earthquake, or severe weather). Juniata County contains U.S. Route 22/322 and a small portion of U.S. Route 11/15. According to the Pennsylvania Department of Transportation (PennDOT) as many as 18,000 vehicles utilized U.S. Route 22/322 per day in Juniata County in 2005. That same year, as many as 14,000 vehicles traveled on U.S. Route 11/15 per day along the eastern border of Susquehanna Township, Juniata County. Large volumes of truck traffic on these major transportation routes make Juniata County susceptible to hazardous material spills.

Crucial factors in a hazardous materials spill include location, weather conditions, and response. The location of a spill is critical for several reasons. The material could spill in a highly populated area, leak into a waterway, or be spilled in some other area that would cause other secondary effects. Those who are closest to the spill are at the greatest risk, but some hazardous materials can travel great distances. Weather conditions play a large role, with mild breezes carrying hazardous gases and fumes long distances. Air temperature is also a determining factor of how far the material will travel by air. Contaminated waterways and even rainfall can have an impact on the scope of the spill. Finally, the response to the incident can determine the extent of the damage. If the closest response team is miles from the incident, the material may have time to spread into the ground and waterways or in the air. However, all these factors depend on the type of material released.

Probability

The probability of a hazardous material spill occurring in Juniata County is high. The volumes of traffic on U.S. Route 22/322 and U.S. Route 11/15 increases the frequency of accidents and the probability of an accident resulting in the release of a hazardous material. Additionally, carelessness, human and technological error, and criminal behavior will continue to result in hazardous materials spills. While larger spills of reportable quantities will occur less frequently, smaller releases of materials will continue to occur on an annual basis.

Maximum Threat

The maximum threat of a hazardous materials spill in Juniata County is likely to occur along U.S. Route 22/322, which travels through Delaware Township, Fermanage Township, Turbett Township, and Walker Township; and U.S. Route 11/15, which travels through Susquehanna Township.

Secondary Effects

If a spill occurs, its impact can be measured on environmental, economic, and societal factors. If the materials spilled are flammable, both urban and rural fires can occur. The greatest secondary effect is likely associated with transportation accidents that follow from spills on major transportation routes.