

Louisiana Hazardous Substances Emergency Events Surveillance Mississippi River Industrial Corridor Factsheet

What is the Mississippi River Industrial Corridor (MRIC)?

The Mississippi River Industrial Corridor (MRIC) includes the parishes: Ascension, East Baton Rouge, Jefferson, Iberville, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John the Baptist, and West Baton Rouge. Prior to Hurricanes Katrina and Rita in 2005, approximately 37% of the population of Louisiana was living within these 11 parishes (nearly 1.7 million people¹). Population density ranges from 36.0 persons per square mile in Plaquemines to 2,735.7 persons per square mile in Orleans¹.

What is the Louisiana Hazardous Substances Emergency Events Surveillance (Louisiana HSEES) System?

The Louisiana Hazardous Substances Emergency Events Surveillance (Louisiana HSEES) System is an active, public health surveillance system that collects information on the acute release of hazardous substances throughout the state of Louisiana. The Louisiana HSEES system is funded through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). The goal of the Louisiana HSEES System is to reduce acute releases of hazardous substances and to decrease injuries and fatalities that occur during these releases. An event in the HSEES System is defined as:

- An uncontrolled or illegal release of one or more hazardous substances;
- Substance releases that must be removed, cleaned up, or neutralized according to federal, state, or local law;
- Threatened releases of qualifying amounts that lead to public health action (for example, evacuation);
- Extremely hazardous chemical releases, regardless of the reportable quantity are also included

A victim is defined as an individual who experiences at least one documented adverse health effect within 24 hours after the event. Also

included are all victims involved in an event who die, even if death occurs more than 24 hours after an event occurs.

Data in Louisiana have been collected since January 1, 2001. Data are derived from both mandatory and voluntary reporting; the level of participation from industries and citizens can skew the number of incidents reported in either direction

Total Events

From 2001-2004, there were 1,877 events in the Mississippi River Industrial Corridor (MRC) which met HSEES criteria, representing 67% of all events entered into the Louisiana HSEES system². Five of these events were threatened releases and one event involved substances that were both threatened to be released and actually released. Approximately 88% (n=1,656) of events occurred at fixed-facilities, and approximately 12% (n=221) occurred in transportation events. Events occurred most frequently in June (n=241; 13%) and between 6:00 am and 11:59 am (n=624, 33%). Fixed-facility events occurred most often on Wednesday (n=270; 16%) while transportation events occurred most often on Friday (n=49; 22%).

Events by Industry

Events occurred most frequently in manufacturing³ (80%; n=1,494) and transportation (10%; n=184) industries. Of the manufacturing events, 95% (n=1,426) were fixed-facility events. Within manufacturing, chemicals and allied products manufacturing accounted for 47% (n=669) of the events.

Victims

Of the 1,877 events occurring in the MRIC, there were 44 events involving 234 victims. Sixty-four percent (n=149) of victims were members of the general public, and 36% (n=83) were employees. One career firefighter and one police officer were

² Parish was unknown for 10 events statewide.

³ Manufacturing includes Standard Industrial Classification Codes 100-392. Transportation includes Standard Industrial Classification Codes 400-432.

¹ U.S. Census Bureau. Based on estimated 2004 population.

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injured in two separate acute hazardous substances events. Two of the three fatalities in the state during this period occurred in the MRIC. Both fatalities involved employees; one occurred during a transportation event and the other during a fixed-facility event.

Victims and Adverse Health Effects

The most frequent adverse health effects experienced by victims were respiratory irritation (29%; n=92), gastrointestinal problems (26%; n=80), headache (13%; n=41), dizziness or other central nervous system effects (11%; n=33), eye irritation (10%, n=32), and chemical burns (3%, n=11). The most common injury in fixed-facility events was respiratory system problems (47%; n=67) and in transportation events, it was gastrointestinal problems (24%; n=42).

Victims by Industry

Twenty-three (52%) of the events with victims in the MRIC occurred in the manufacturing industry and involved 112 victims, representing 48% of victims in the MRIC. Thirteen (30%) of the events involving victims occurred in the transportation industry, and 107 victims were injured during these events, representing 46% of victims in the MRIC. Victims in transportation events are more likely associated with trauma and not the chemical release.

Substances

More than one chemical substance may be released during one event. A total of 3,121 substances were threatened or released in the MRIC. Approximately 84% (n=2607) of releases involved releases to the air, and 15% (n=466) were spills.

Sulfur dioxide was the most frequently released substance (Table 1).

Table 1. Substances Most Frequently Involved in MRIC Events

Rank	Chemical Standard Name	No. of Releases*
1	Sulfur dioxide	450 (14.4%)
2	Nitrogen oxides (NOX)	195 (6.2%)
3	Nitric oxide	162 (5.2%)
4	Benzene	157 (5.0%)
5	Hydrogen Sulfide	138 (4.4%)

*Note: Parish was unknown for 10 events statewide.

Substances by Chemical Category

The substances threatened or actually released in an event are classified into one of 16 chemical categories. Substances in the chemical categories “Other inorganic substances” (37%, n=687), “Multiple substance category” (18%, n=330), and “Volatile organic compounds” (15%, n=285) were the three most frequently released chemical categories. Only 1% each of events in the “Other inorganic substances”, “multiple substance category” and “Volatile organic compounds” involved victims. In contrast, only 3% (n=60) of events were classified into the chlorine substance category; however, 8% (n=5) of those events involved victims.

Public Health Actions

An order to evacuate was given in 22 events, and 6 (27%) of these events involved victims. Chlorine (n=5) and sulfur dioxide (n=5) were the substances most frequently involved in events in which an order to evacuate was given.

An order to shelter-in-place was given in 37 events. Six (16%) of these events involved victims, and 5 events involved multiple victims. Ammonia (n=6) and sulfur dioxide (n=6) were most frequently involved in events where an order to shelter-in-place was given.

There were a total of 33 closures of either roads or waterways as a result of a threatened or actual release.

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What safety precautions can residents take to prepare for and to prevent an event?

- Attend community meetings sponsored by government, industry, and non-profit organizations in your area to learn about planning for chemical emergencies.
- Learn how directions are given during emergencies in your community. For example, are emergency notices broadcast on a specific radio station in your community?
- If you have children in school or family members in a nursing home, be familiar with the emergency response plan of the facility.
- If a school policy is not in place for responding to hazardous substance releases, work with school officials to develop a response plan in the event of an order to shelter-in-place or evacuate.
- Teach children not to play around industrial sites and not to enter industrial facilities without permission and adult supervision since hazardous substances may be present.
- Do not use abandoned drums or containers one may encounter for target practice. If you encounter an abandoned drum or container which may have been used to store hazardous substances, report these items to the Louisiana State Police Hazardous Materials Hotline at 877-925-6595 or 225-925-6596. Do not attempt to open the container.
- Keep a battery operated radio ready in your home in case of an emergency.
- When possible, maintain sufficient supplies of required medications and health information in easily accessible locations in the event of an emergency.
- Ensure that younger and elderly household members are familiar with precautions to take during all types of emergencies.
- Develop a family emergency response plan outlining a set meeting location away from home where families can meet during an evacuation.
- Decide ahead of time if you will bring your pet with you in the event of an evacuation. Remember an evacuation may last for longer than 24 hours. Be prepared to take any pets with you that require daily care and have a place to safely board them.

- Know multiple evacuation routes out of your area.

What safety precautions can industries take to prevent releases and to prepare their communities for a chemical emergency?

- When possible, share information with your community. Ensure that neighbors of industrial facilities are familiar with actions that may need to be taken during an emergency involving hazardous substances.
- Identify sensitive populations located in close proximity to the facility such as hospitals, schools, daycares, and nursing homes and work with these organizations to develop emergency response plans.
- Share as much information as possible with local emergency responders and your Local Emergency Planning Committee (LEPC). Consider participating in drills and emergency response scenarios with emergency responders from within the community. Consider including representatives from local health care facilities, schools, daycares, and nursing homes in drills.
- Provide frequent and up-to-date training for company emergency responders. Train emergency responders within the company in the National Incident Management System (NIMS) and Incident Command.
- Create an environment in which employees feel safe to report minor injuries and “near miss” incidents without being penalized. Develop prevention activities based on these events involving minor injuries and “near misses” so that more severe injuries do not occur in the future.
- Develop appropriate safety control measures and structured equipment checklists.

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I. Further Information

❖ General

- **Louisiana Office of Homeland Security and Emergency Preparedness**
Website: <http://www.loeop.state.la.us>
- **Chemical Emergencies.** Centers for Disease Control (CDC), Emergency Preparedness and Response.
Website: <http://www.bt.cdc.gov/chemical>
- **Louisiana Emergency Alert System,** Louisiana Public Broadcasting.
Website: <http://www.lpb.org/aboutlpb/technology/laeas/index.html>
- **The Emergency Alert System (EAS) Fact Sheet,** Federal Communications Commission.
Website: <http://www.fcc.gov/eb/easfact.html>

❖ Shelter In Place

- **Protective Actions Fact Sheet Shelter In Place,** Louisiana Homeland Security and Emergency Preparedness.
Website: <http://www.loeop.state.la.us/factsheets/protecta.htm>
- **Facts About Sheltering in Place,** Centers for Disease Control (CDC).
Website: <http://www.bt.cdc.gov/planning/shelteringfacts.asp>

❖ Evacuation

- **Chemical Agents: Facts About Evacuation.** Centers for Disease Control (CDC).
Website: <http://www.bt.cdc.gov/planning/evacuationfacts.asp>
- **Safety Precautions When Returning Home,** Louisiana Homeland Security and Emergency Preparedness.
Website: <http://www.loeop.state.la.us/factsheets/returninghome.htm>



This public document was published at a total cost of _____ copies of this public document were published in this first printing at a cost of _____. The total cost of all printing of this document including reprint is _____. This document was published by the Louisiana Department of Health and Hospitals, Office of Public Health, Section of Environmental Epidemiology and Toxicology (LDHH/OPH/SEET), 325 Loyola Avenue, Room 210, New Orleans, LA 70112 to report program results within the Mississippi River industrial corridor under authority of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This material was printed according to standards for printing by State agencies established pursuant to R.S. 43:31.

This report is supported by funds from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) trust fund and the Office of Terrorism Preparedness and Emergency Response of the Centers for Disease Control and Prevention (CDC), provided to the LDHH/OPH/SEET under a cooperative agreement by the Agency For Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of ATSDR.