

# **Washington Parish Hazards Analysis:**

## **Extremely Hazardous Substances**

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A hazards analysis of chemical risks in the Washington Parish was completed by identifying the presence of hazardous materials at fixed facilities within the Parish, and chemicals transported by motor carriers, pipelines, and rail lines in the Parish. The focus of the hazards analysis was on extremely hazardous substances (EHS) which present an immediate threat to the health and safety of the community by an unintended release of hazardous chemicals from a fixed location at a facility or from a release associated with a transportation incident.

The study was completed by the Institute for Environmental Studies, Louisiana State University. The Washington Parish Office of Emergency Preparedness, The City of Bogalusa Risk Assessment Committee, and the Washington Parish Local Emergency Planning Committee provided additional information on chemicals transported and at fixed sites in the Parish. Many facilities in the Parish provided critical information on the location of hazardous chemicals, the size of containers, potential failures of their processes, and transportation routes.

### **Data Sources for Hazardous Analysis**

The identification of extremely hazardous substances (EHS) was made from information submitted by facilities within Washington Parish. These records (Tier2 reports) were made available for this study by the Louisiana State Police, Transportation and Environmental Safety Division, Right to Know Office, and the Washington Parish Office of Emergency Management. Tier2 records are submitted annually to the State Police and Parishes by users of hazardous materials. The facility submitting the Tier2 record identifies chemicals that are EHS.

### **Extremely Hazardous Substances**

Chemicals may be potentially hazardous because of their toxicity or physical or chemical properties such as flammability and reactivity. Comprehensive planning for hazardous materials emergencies should encompass all hazards capable of causing loss of life, injury or damage to health, or damage to property or the environment.

Chemicals with high acute lethality have the potential for causing death in unprotected populations after relatively short exposure periods at low doses. On the basis of toxicity criteria, EPA identified a list of chemicals with high acute toxicity from the more than 60,000 chemicals in commerce. Because airborne releases of acutely lethal substances, while infrequent, can be catastrophic, a hazards analysis should make the EHS chemicals the primary focus of analysis. The identification of EHS chemicals in the community thus becomes the initial step in the hazards

analysis process. Extreme Hazardous Substances (EHS) have been categorized by EPA as presenting a severe health hazard to humans exposed during a chemical accident or other emergency, if the “exposure is less than or equal to 0.5 milligrams per liter of air for exposure time of 8 hours or less.”

EHS generally refer to chemicals that are highly toxic. This means that relatively small quantities may cause significant health effects upon inhalation, ingestion, or direct contact. Conversely, a low toxicity substance generally requires larger amounts to be inhaled, ingested, or contacted for an equally significant adverse health effect (*Handbook of Chemical Hazards Analysis Procedures*, p. 6-2). A toxic substance is thus one that has the ability to cause damage to living tissue, impairment of the central nervous system, severe illness, or death when ingested, inhaled, or absorbed by the skin (*Technical Guidance for Hazards Analysis*, p. A-8).

### **Accidental Release Dispersion Models**

Vulnerability zones were determined in this study using several sources of data including ALOHA (Area Locations of Hazardous Atmospheres), and *U.S. Department of Transportation Emergency Response Guidebook (1996)*. The ALOHA model was developed by the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration (NOAA) for use in emergency planning and response associated with hazardous materials. The ALOHA model is a tool for estimating the movement and dispersion of gases. The air model estimates pollutant concentrations downwind from the source of a spill, taking into consideration the toxicological and physical characteristics of the spilled material. ALOHA also considers the physical characteristics of the spill site, the atmospheric conditions, and the circumstances of the release. Like many computer applications, it can solve problems rapidly and provides results in a graphic, easy to use format.

The *1996 North American Emergency Response Guidebook (NAERG96)* was developed in a joint effort between the U.S. Department of Transportation, Canada, and Mexico for use by fire fighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving dangerous goods. Vulnerability zones identified in the study as DOT were drawn from the “Table of Initial Isolation and Protective Action Distances” included in Appendix D of this publication. The “Table” suggests distances useful to protect people from vapors resulting from spills involving dangerous goods which are considered poisonous/toxic by inhalation. Distances show areas likely to be affected during the first 30 minutes after materials are spilled and could increase in time.

The Initial Isolation Zone defines an area surrounding the incident in which persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of material. The Protective Action Zone defines an area DOWNWIND from the incident in which persons may become incapacitated and unable to take protective action and or incur serious or irreversible health effects. The “Table” provides specific guidance for small and large spills occurring day or night. Since an incident involves complex interdependent variables, care must be made in using the data from these tables as the only source of information on possible areas that could be

affected from an accidental release of a hazardous substance. Appendix D provides an example of the “Table of Initial Isolation and Protective Action Distances.”

Although EHS are extremely toxic, the potential hazards presented by a spill will vary depending on the maximum amount present within an area, the physical and chemical properties of the substance spilled and the conditions under which the substance is handled (ig., elevated temperatures and pressures). Some substances are high volatile and thus likely to become airborne, while others are non powered solids that are unlikely to become airborne and pose risks to employees, the community, or the environment.

To ensure that the results of the analysis could be compared all daytime scenarios were run at 3:00 p.m., using a temperature of 82 degrees, wind speed of 10 miles per hour, and stability class of “D.” Nighttime temperatures of 75 degrees, a wind speed of 5 miles per hour and stability class of “F.” The Level of Concern (LOC) used in the model are noted in Appendix A “Chemical Information.”

### **Facility Risks Associated with Extremely Hazardous Substances**

Nine facilities were identified with inventories of extremely hazardous substances (EHS) within Washington Parish. These facilities include Gaylord Chemical Corporation, Scianna Party Ice Service, the City of Bogalusa, the City of Frankinton, Mid-American Dairymen, Inc., Riverside Medical Center, S. and M. Fertilizers, Washington Parish Prison, and Circle T Feeds. **Table #1** “Extremely Hazardous Substances: Washington Parish” includes a list of facilities with EHS in the Parish, the EHS container size, and the largest risk zone presented by a release of extremely hazardous substances at facilities. The population at risk from a daytime release of the EHS is also noted in this table.

Extremely hazardous chemicals in the Parish include Ammonia, Chlorine, Nitrogen Tetroxide, Nitric Acid, Sulfuric Acid, Hydrogen Sulfide, Methyl Mercaptan, and Formaldehyde. Ammonia, Chlorine, and Nitrogen Tetroxide present the greatest risk of chemical exposure from extremely hazardous substances from fixed sites or transportation incidents in the Parish.

Ammonia is included in inventories at four locations in the Parish including Circle T. Fertilizers, Mid-American Dairyman Inc., S. and M. Fertilizer, and Scianna Party Ice Service. Scianna Party Ice has the smallest container (150 lbs. Cylinders) which are used as a refrigerant in their facility. An accidental release would affect an area of 150 yards around the facility during the day and 350 yards at night. Table 1 shows that the risk zones were determined using the ALOHA dispersion model. **Figure 1**, “Scianna Party Ice Ammonia Risk Zone,” shows the 150 yard risk zone for Ammonia at this facility.

S. and M. Fertilizer has 30,000 and 20,000 gallon tanks of Ammonia located in two rural areas the Parish. In an accidental release, the 30,000 and the 20,000 tanks could affect an area from one and one-half miles to approximately three miles, depending on the size of the whole in the tank and the time of day of the release. Circle T Fertilizer has an Ammonia facility with a

20,000 tank along State Highway 10 in a rural part of the Parish. A one and one-half mile to two mile vulnerability zone was calculated for this site. Figure #2, “Ammonia Risk Zones: Franklinton,” shows the risk zones presented by Ammonia tanks in the Franklinton area.

The fourth Ammonia site in the Parish is at Mid-American Dairymen Incorporated located in Franklinton. Dairyman with a one ton cylinder could affect an area of 750 yards around the plant. Since Ammonia is used as a refrigerant throughout the facility, an accident could also occur from a break in the line of the refrigeration system and affect an area 400 yards around the site.

Chlorine is stored in two types of containers in the Parish. One ton and 150 pound cylinders are used in public water and sewerage treatment facilities in the Parish. A release of Chlorine from a one ton cylinder could affect a 1,200 yard area around a site. A release at any of the sites in the City of Bogalusa (water towers or the sewerage treatment facility) could have a significant impact on the local population since the water towers where the Chlorine tanks are present, are located in densely populated areas of Bogalusa. Even the City sewerage treatment plant is located in a populated area. Figure #3, “Chlorine Risk Zones: The City of Bogalusa,” shows the location of the Chlorine cylinders and the 2,300 risk zone. This risk zone was determined using ALOHA (0.25 inch hole in the container in daylight hours).

The City of Franklinton also uses Chlorine. Smaller containers (150 pounds) of Chlorine are used in their process thus reducing the risk zone from a radius of 1,200 yards. Figure #4, “Chlorine Risk Zones: The City of Franklinton,” shows the location of the Chlorine risk zones in Franklinton.

Nitrogen Tetroxide which is present at Gaylord Chemical Corporation. Nitrogen Tetroxide has a risk zone from 1,600 yards to 1.3 miles depending on the time of day the incident. The risk zone was determined based on a release from a one ton cylinder at the facility in daylight hours. It should be noted that the dispersion model used Nitrogen Dioxide as the substance released from the container. As Nitrogen Tetroxide is released from the container, it is mixed with air and turned into Nitrogen Dioxide. **Figure #5**, “Nitrogen Tetroxide Risk Zone,” identifies the risk zone for Nitrogen Tetroxide in the City of Bogalusa. The population in the risk zone is quite large since Gaylord Chemical Inc. is located in the center of the City of Bogalusa.

**Table #1**  
**Extremely Hazardous Substances - Washington Parish**

Company:	EHS Chemicals:	State	Container / Size	Risk Zone
<b>American Fabrics Co.</b> 209 Industrial Parkway Bogalusa, LA 70427 Thomas Staples	No EHS chemicals identified as inventories at the facility. After the incident at Gaylord, American Fabrics reviewed their inventories in an attempt to reduce EHS chemicals. As a result of this effort, no EHS chemicals are at the location in a pure form. Several chemicals present a fire hazard including Xylene Solution. Biphenyl emits toxic fumes in a fire.			
<b>City of Bogalusa</b> Bogalusa, LA 70429 Bogalusa Fire Dept. Chief Howard Creel 24 Hour (504) 732-6218	<b>Chlorine</b>	Gas	Tank 1 ton	<b>Day:</b> 1,200 Yds. <b>Night:</b> 1.2 Miles (0.25 inch opening) (ALOHA) <b>Population in Risk Zone:</b> 12,698 (day time)
<b>City of Franklinton</b> City of Franklinton  (504)	<b>Chlorine</b>	Gas	Cylinder 150 lbs.	<b>Day:</b> 242 Yds. (.25" whole) <b>Night:</b> 479 Yds. (.25 " whole) <b>Population in Risk Zone:</b>
<b>Circle T Fertilizer</b> 1610 Washington St. Franklinton, LA 70438 Contact: Elton Thomas Phone: (504)	<b>Ammonia</b> (Anhydrous)	Gas	Tank 20,000 gal  1 Ton Cylinder	<b>Day:</b> 1.5 Miles (2" whole) <b>Night:</b> 2.2 Miles (2' whole) (ALOHA Model) <b>Day:</b> 1,235 Yds. (1" whole) <b>Night</b> 1,475 Yds. (1 " whole) <b>Population in Risk Zone:</b>
<b>Dairymen Incorporated</b> 21155 Hwy. 16 Franklinton, LA Contact: Travis Mulina Phone: (504) 839-4481	<b>Ammonia</b> (Anhydrous)	Gas	Tank 1 Ton Cylinder	<b>Day:</b> 750 Yards <b>Night:</b> 750 Yards (0.25 inch opening) (ALOHA) <b>Population in Risk Zone:</b>
	<b>Ammonia (Anhydrous)</b>		Tank 1 Ton Cylinder	<b>Day:</b> 1,235 Yds. <b>Night:</b> 1,475 Yds. (1" opening)
	<b>Ammonia (Anhydrous)</b>		Process Line 2 inch pipes	<b>Day:</b> 200 Yards <b>Night:</b> 400 Yards

**Table 1**

<b>Company:</b>	<b>EHS Chemicals:</b>	<b>State</b>	<b>Container / Size</b>	<b>Risk Zone</b>
<b>Gaylord Chemical Corp.</b> Phone: (504) 732-6310 Contact: John Ferguson 24 Hour Phone 732-8662	<b>Nitrogen Tetroxide</b> (Nitrogen Dioxide)		Liquid - Gas	<b>Day:</b> 1,600 Yds. (ALOHA)
			Tank	<b>Night:</b> 1.3 Miles (DOT)
			1 ton cylinder	(0.25 inch opening)
			<b>Population in 1,600 Yd. Risk Zone: 5,474</b>	
	<b>Hydrogen Sulfide</b> (Crude DMS) (Mixture within Crude DMS at 1%. The model was run as a pure substance for 1% of the maximum volume of the containers)		Poison Gas	<b>Day:</b> 147 Yards
			Flammable Gas	
	<b>Methyl Mercaptan</b> (Crude DMS) (Mixture within Crude DMS at 5%. The model was run as a pure substance for 5% of the maximum volume of the containers.)		Poison Gas	<b>Day:</b> 102 Yards
			Flammable Gas	
	<b>Sulfur</b> (molten)			<b>Day:</b> 300 yds.
	<b>Sulfuric Acid</b>	Liquid	Tank	<b>Day:</b> .4 miles
				<b>Night:</b> 1.8 miles DOT Guidebook
<b>Gaylord Container Corp.</b> Willis Avenue Bogalusa, LA <b>Phone:</b> (504) 732-8475 <b>Contact:</b> Alban Bush	<b>Sulfuric acid</b>	Liquid	Tank	<b>Day:</b> .4 miles
			19,000 gal.	<b>Night:</b> 1.8 miles
			1,000 gal 500 gal.	(DOT Guidebook)
<b>Riverside Medical Center</b> S. Main Street Franklinton, La Phone: (504) 839-4431 Contact: Johnny Walker	<b>Formaldehyde</b>	Liquid		<b>No evacuation data available</b>
			<b>Nitric Acid</b>	Liquid
<b>S and M Fertilizer</b> 1152 Dobsn St. Franklinton, La Contact: Jackson Brumfield Phone: (504) 839-4749	<b>Ammonia</b>	Gas	Tank	<b>Day:</b> 1.5 Miles (2" whole)
			30,000 gal	<b>Night:</b> 3.1 Miles (2" whole) (ALOHA Model)
			20,000 gal	<b>Day:</b> 1.5 Miles (2" whole)
	<b>Population in Risk Zone:</b>			<b>Night:</b> 2.2 Miles (2" whole) (ALOHA Model)
			1 Ton Cylinder	<b>Day:</b> 1,235 Yds. (1 " Whole) <b>Night:</b> 1,475 Yds. (1 " whole) (Aloha Model)

**Table 1**

<b>Company:</b>	<b>EHS Chemicals:</b>	<b>State</b>	<b>Container / Size</b>	<b>Risk Zone</b>
<b>Scianna Party Ice Service</b> 2932 Columbia St., Bogalusa, LA 70427 John S. Scianna (504) 732-3831	<b>Ammonia</b> (Anhydrous)	Liquid/Gas	Cylinder 150 lbs.	<b>Day:</b> 150 Yds <b>Night:</b> 350 Yds. (ALOHA Model)
<b>Population in 150 Yard Risk Zone: 379</b>				
<b>Washington Correctional Inst.</b> 27268 Hwy. 21, Angie, LA Contact: Billy Breland Phone: (504) 986-3182	<b>Chlorine</b>	Gas	Tank 1 ton	<b>Day:</b> 1,200 Yards (ALOHA) <b>Night:</b> 1.9 Miles (U.S. DOT) (0.25 inch whole)
<b>Population In 1,200 Yard Risk Zone:</b>				

**Transportation Risks associated with hazardous chemicals**

**Motor Carriers**

The risks associated with a spill of hazardous chemicals in Washington Parish was determined from data collected in two roadside surveys conducted in the Parish and information on shipments of hazardous chemicals provided by facilities with EHS inventories.

Two roadside surveys were conducted in the Washington Parish. The first was conducted on November 1, 1996 in the City of Bogalusa. The second was held on February 3, 1997 in the City of Franklinton. Both surveys were conducted between the hours of 7:00 a.m. and 5:00 p.m.

The Bogalusa survey was conducted at the intersection of State Highways 21 and 6. A total of 1,030 trucks were identified during the ten hour period of the survey. An average of 103 trucks per hour were counted during the survey. Seventy-nine trucks were marked as carrying hazardous materials (7.3%). None of the trucks with hazardous materials markings carried EHS.

The Franklinton survey was conducted at the intersection of State Highways 10,25, and 16. A total of 447 trucks were identified during the survey. Twenty-six vehicles were marked carrying hazardous materials. None of the truck carried EHS.

The hazardous chemicals observed during both surveys carried chemicals that are a high fire hazard. The chemicals include gasoline and propane. A zone of approximately 350 yards around the incident site is evacuated as a precaution to protect persons in the area. The 350 yard evacuation zone was determined based on recommendations by the City of Bogalusa Fire Chief.

**Table #2**, “Transportation of Hazardous Chemicals” provides a summary of the chemicals identified in the road side surveys in the Cities of Bogalusa and Franklinton. The number of vehicles observed in the survey are noted by chemical. **Table #3**, “Transportation Risk Zones,” provides a summary of the risk zones for each hazardous substance transported in the Parish. The vulnerability zone resulting from an accidental release is also provided in Table #3. The volume of the container, recommended evacuation area in case of a spill, and population affected by a spill are noted. The evacuation areas for these chemicals was based on recommended evacuation zones from the U.S. Department of Transportation *Emergency Response Guidebook* (1996) and the U.S. Environmental Protection Agency’s chemical dispersion model ALOHA (1996 version).

EHS chemicals in **Table #3** which were not observed in the road side survey are included in this report based on shipping information provided by local facilities. The chemicals are frequently transported to facilities in the parish. Routes used for transport of these chemicals were identified by facilities with the EHS inventories.

**Figure #6**, “Transportation Routes: Washington Parish,” shows the location of the roadside surveys and the major state highways within the Parish which transport hazardous materials. All State Highways in the Parish carry hazardous materials.

Three extremely hazardous substances (EHS) pose the greatest risk to the residents of Washington Parish in a transportation incident involving hazardous materials. The EHS include Ammonia, Chlorine, and Nitrogen Tetroxide. An accidental release of these hazardous materials would have the greatest impact on the health and safety of local residents. The risk zones for EHS was determined using ALOHA dispersion model. Other hazardous chemicals noted in this report would expose local residents to risks associated with fire hazards; the risk zone was thus much less than the risk zones determined for EHS.

**Figure #7**, “Transportation Risk Zone - 350 Yards,” shows the area within the Parish along the major transportation routes that are at risk from chemical spills. The 350 yard risk zone is a suggested evacuation area for many of the hazardous chemicals identified in this report. The 350 Yard risk zone would be suitable for incidents involving trucks carrying 150 lb. cylinders of Ammonia, tankers carrying Gasoline, Propane, and as a precautionary measure with spills involving tank trucks carrying Green Liquor and Black Liquor.

Most businesses within the Parish are located along the major state highways and motor carrier transportation routes. Most businesses within the Parish are thus vulnerable to chemical incidents involving motor carriers transporting hazardous cargo. These businesses should have an emergency response plan and have standard operating procedures for protecting employees and visitors at their site.

## Nitrogen Tetroxide

**Figure #8**, “Transportation Risk Zone - Nitrogen Tetroxide,” shows the area in the Parish vulnerable to transportation incidents involving Nitrogen Tetroxide. Gaylord Chemicals Corporation noted that shipments one Ton cylinders of Nitrogen Tetroxide occur on a regular basis in daylight hours. The shipments come into the Parish from Interstate 59 in Mississippi along Highway 10 to Gaylord Chemical.

## Chlorine

**Figure #9**, “Transportation Risk Zone - Chlorine,” shows that a major portion of the City of Bogalusa falls within 1,200 yards of state highways which transport chlorine cylinders. Facilities reporting Chlorine stated that these shipments occur during daylight hours and arrive to the facility using major state highways. The Parish is thus in a position to identify areas vulnerable to an accidental release from a transportation incident.

The transportation of Chlorine within the City of Bogalusa may have one of the largest risk zones of any EHS transported in the Parish. The 1,200 yard buffer was created from the major state highways leading to the City of Bogalusa. **Figure #9**, “Transportation Risk Zone - Chlorine with tank locations,” shows the location of the chlorine tanks, state highways used to transport chlorine, and the 1,200 yard risk zone. Note that most of the City is located within the risk zone and that area hospitals, schools, and nursing homes are also in the vulnerability area. The Hazards Analysis Committee should encourage local schools, hospitals, and nursing homes to have an emergency response plan that includes chemical spills. Closing windows, shutting down air conditioning and heating units would be effective steps to take in the event of a spill. Having patients and students stay inside the building would be a critical measure to ensure individual safety. Family members should understand that in an incident, they could be exposing themselves to the chemical by going to the school, hospital, or nursing home.

## Ammonia

Deliveries of 150 lbs. cylinders of Ammonia to Scianna Party Ice Service are made on trucks that have more than one cylinder. It is thus more difficult to predict the chemicals transported by the carrier and the routes used in the delivery process. An incident from a truck transporting 150 pound cylinders could involve several chemicals and more than one cylinder of a chemical.

Ammonia is more commonly transported in the Parish in one ton cylinders for agricultural use. Trucks pulling one or two cylinders depart from the large storage sites in rural locations of the parish. Their destination could be to numerous agricultural sites in the Parish and transported on any road. The entire Parish is thus vulnerable to a transportation incident involving these containers. **Figure #10**, “Transportation Risk Zone - Ammonia,” shows state highways in the Parish that are vulnerable to spills involving Ammonia transported in one ton cylinders. These

routes include most of the residents and businesses in the Parish and sites such as hospitals, schools, and churches with large concentrations of people.

### **Vulnerability Zone Considerations**

Since most businesses within the Parish are located along state highways and motor carrier transportation routes, they are vulnerable to chemical spills involving motor carriers transporting hazardous cargo. These businesses should know what to do in the event of an incident and have an emergency response plan including standard operating procedures for protecting employees and visitors at their site.

The information used in analyzing motor carrier transportation risks in the Parish is limited to data provided by the facilities and observations from the road side survey. It is quite possible that additional hazardous chemicals including EHS are transported through the Parish along Highways 10 from Interstate 55 and 59. In addition, Highway 10 may be used by motor carriers who are interested finding the shortest distance between deliveries regardless of the increase exposure to smaller communities along the route. In addition, carriers may attempt to avoid state weigh stations by using State Highways 10 or 25. The Parish may thus be exposed to chemical risks not identified in this analysis. For emergency planning purposes, the Parish may wish to use the larger risk zones associated with Ammonia or Chlorine to ensure that residents are protected from transportation incidents involving hazardous materials.

As the State of Louisiana plans for future improvements in the state's highway system, parishes should examine the potential increase in motor carriers transporting hazardous materials in their area. Highway 10 has been identified as a major east west corridor in the state. Improvements to Highway 10 or other state highways in the Parish could mean increase traffic of shipments of hazardous materials.

Bogalusa and Franklinton have high volume of truck traffic along state highways. The intersection of state highways in these communities bring significant numbers of trucks into the downtown areas of these communities. Although most of the truck transport wood chips, logs, or gravel, shipments of hazardous material are vulnerable to a greater chance of traffic accidents involving motor carriers. The two sites for the road side surveys require some motor carriers to execute turns. Drivers, although careful, take care to execute the turn in a busy intersection. These local communities may examine the possibility of routing trucks to allow the carriers to complete the turns in the safest possible manner. In addition, the carriers may be able to avoid high volume intersections in densely populated downtown areas.

### **Pipelines**

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Four pipeline companies have lines in Washington Parish as noted in **Figure 11**, "Washington Parish Pipelines." The feeder lines for the Florida Gas and Transmission Company run from the western side of the Parish eastward through the center of the Parish around the

western side of the City of Bogalusa and along the northern edge of the City into Mississippi. The Florida Gas and Transmission lines are 30 inches and 36 inches in diameter.

Koch Industries is the second natural gas provider in the area. Their line runs north / south in the Parish and approaches the City of Bogalusa from the south, following the western side of the City turning east along the northern boundary of the City. This line then goes north into Mississippi. The Koch lines are 8 inches and 10 inches in diameter.

Dixie Pipeline Company runs a Propane line through the western portion of the Parish. This line is in a predominantly rural portion of the Parish.

**Pipeline Carriers:**

Florida Gas Transmission Company, Emergency Contact Number **1-713-654-7836**  
Contact: Greg Carroll           Lafayette, LA  
(318) 261-8196                    FAX 235-1879

Koch Gateway Pipeline Company, Emergency Contact Number **1-800-850-0051**  
Contact: Robert Wade        Holden, LA  
(504) 777-4300                    FAX 748-1489

Dixie Pipeline Company,        Emergency Contact Number 1-404- 257-4639  
Contact:        Buddy Johnson  
3544 Old Baker Road,        Zachary, LA 70739 Phone: (504) 654-4112

**Table #2**  
**Transportation Hazardous Chemicals**  
**Intersections 10 & 21, 10 - 16 & 25**  
**Cities of Bogalusa and Franklinton**

<b>Chemical</b>	<b># of Vehicles Evacuation Intersections of 10 &amp; 21</b>	<b>Population Intersections of 19, 16, &amp; 25</b>	<b># of Vehicles Hazard Intersections of 19, 16, &amp; 25</b>	<b>Container Size</b>
<b>Propane</b> UN # 1075	6		8	6,500 Gallon Tank
<b>Ammonium Nitrate</b> Fertilizer UN # 2067	3		8	
<b>Green Liquor</b> UN # 1760	21		0	6,500 Gallons
<b>Black Liquor</b> UN # 1719	28		0	6,500 Gallons
<b>Gasoline</b> UN # 1203	13		10	6,500 Gallons

**Table #3  
Transportation Hazardous Chemicals  
Hazard and Risk Zone**

<b>Chemical</b>	<b>Hazard</b>	<b>Container</b>	<b>Risk Zone</b>	<b>Population in Risk Zone</b>
<b>Propane</b> UN # 1075	Fire	6,500 Gallons	350 Yds.	
<b>Ammonium Nitrate</b> Fertilizer UN # 2067			330 Yds.	
<b>Green Liquor</b> UN # 1760		6,500 Gallons	None Required	
		A safety zone of 100 yards should be made allow for an orderly cleanup.		
<b>Black Liquor</b> UN # 1719		6,500 Gallons	None Required	
		(A safety zone of 100 yards should be made to allow for an orderly cleanup.)		
<b>White Liquor</b>		6,500 Gallons	None Required	
		(A Safety zone of 100 yards should be made to allow for an orderly cleanup.)		
<b>Gasoline</b> UN # 1203	Fire	6,500 Gallons	350 Yds.	
		(In case of a fire, evacuate an area of ½ mile.)		
<b>*Chlorine</b>	<b>EHS</b>	1 Ton Cylinders	1,200 Yds.	
	<b>EHS</b>	150 Lbs. Cylinders	242 Yds.	
<b>*Nitrogen Tetroxide</b> <b>Nitrogen Dioxide</b>	<b>EHS</b>	1 Ton Cylinders	1,600 Yds.	
		Facility: Gaylord Chemical		
		(In a release, Nitrogen Tetroxide turns into Nitrogen Dioxide. However, the entire volume of the spill vaporizes at a smaller rate. This means that the actual “risk zone” will be smaller that the projected 1,600 Yds.)		
<b>*Ammonia</b>	<b>EHS</b>	150 lbs. Cylinders	350 Yds.	
		7,500 Gallons		
		Tank Cars		



**Table 4**  
**Commodity Summary**  
**Roadside Survey**  
**Franklinton, LA**

<b>Load Type</b>	<b>Number of Trucks</b>	<b>Percent</b>
Wood Chips	90	20
Gravel	141	32
Logs	59	13
Milk	44	10
Hazardous Materials	26	6
Other	87	19

## **Railroad**

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No EHS were identified as being transported by rail within the City of Bogalusa. Contact with the Illinois Central Railroad revealed that chemicals with a high fire hazard are shipped from the Parish. The rail road is a connecting line from the Parish to a major Illinois Central line in Mississippi.

**Table 5**

**Chemicals Transported Rail Car**

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<b>DMS</b>	157,000 lbs.	Evacuation not required
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## **Population Characteristics**

The United States Department of Commerce from the 1990 Census states that the population for the City of Bogalusa is 14,280. Figure #13, "Bogalusa Population," shows that the heaviest populated areas in the City are located in the northern portion of the City and in the southeastern parts. Figure #27, "Bogalusa Population - Income" shows that the northeastern section of the City has the highest income (\$40,243 - \$51,793). The section of the City with the lowest average income is in the center and the northern parts of the City (\$5,590 - 17,140).

Figure # 14, "Population Characteristics - Percent Black" shows that the areas of the City with the highest percentage of black residents lies in the northern central and in the southeastern parts of the City. Figure # 15, "Population Characteristics - Percent White," shows that the greatest percentage of whites living outside the northern central and southeastern sections of the City.

## REFERENCES

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## APPENDIX A

### Chemical Information

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**Chemical Name:**    **Anhydrous Ammonia**  
**LOC:**               **0.035 g/m**  
**IDLH:**              **300 PPM**  
**NFPA\_F:**          **1**  
**NFPA\_H:**          **3**

**Hazard:** Anhydrous ammonia is a clear colorless gas with a characteristic odor. It is used as a fertilizer, refrigerant, and in the manufacture of other chemicals. It is shipped as a liquid under pressure. Contact with the liquid can cause frostbite. Although ammonia is lighter than air, the vapors from a leak initially hug the ground.

#### **Recommendations:**

- Call emergency response personnel on the shipping papers first.
- Isolate spill or leak area immediately for at least 6600 feet in all directions.
- Keep unauthorized personnel away
- Stay upwind.
- Wear positive pressure self-contained breathing apparatus (SCBA).

#### **In a Fire**

- If a tank truck is involved in a fire, ISOLATE for one mile in all directions - consider evacuation up to one mile.
- Damaged cylinders should be handled only by specialists.

**Chemical Name:**    **Ammonium Nitrate Fertilizers, (Type B)**  
**LOC:**  
**IDLH:**  
**NFPA Fire:**                    **0**  
**NFPA Health:**                **1**  
**NFPA Reactive:**              **3**

**Hazard:** This material is a variable colored solid. Prolonged exposure of the material to heat or fire may result in an explosion. Toxic fumes (oxides of nitrogen) may evolve if this substance is

involved in a fire. Since it is an oxidizer, It enhances a fire and may ignite other combustible materials such as materials like wood, paper, oil, etc. Mixtures with fuels may explode. Runoff to sewer may create fire or explosion hazard.

### **Recommendations:**

- Wear appropriate chemical protective gloves, boots and goggles.
- Keep sparks, flames, and other sources of ignition away.

### **In case of Fire**

- Keep material out of water sources and sewers.
- Flood with water. Cool all containers affected with flooding quantities of water. Apply water from a distance.

**Chemical Name:** Chlorine  
**LOC:** 0.0073 g/m  
**EHS** **IDLH:** 10 PPM  
**NFPA Fire:**  
**NFPA Health:**

### **Hazard: Extremely hazardous substance and toxic by inhalation. May be fatal if inhaled.**

Chlorine is a greenish yellow gas with a pungent suffocating odor. It reacts explosively or forms explosive compounds, with many common chemicals. Although it is shipped as a liquid, it vaporizes into a gas upon release. Vapors are heavier than air and tend to settle in low areas. Chlorine is a strong oxidizer and makes a fire burn. As a fire hazard, it may ignite other combustible materials such as wood, paper, oil, etc.

### **Recommendations:**

- Evacuate the area endangered by the gas including areas within 1,200 yards of the release.
- Ensure that emergency responders have had appropriate training to take actions with this substance.
- Stay upwind and away from low areas.
- Wear positive pressure breathing apparatus and full protective clothing.
- If water is used to contain a release, the knockdown water is corrosive or toxic and should be disked for containment.

**Chemical Name: Gasoline**

**Hazard:** Gasoline is a clear colorless to amber colored volatile liquid. It is lighter than water and insoluble in water. The vapors are heavier than air. This is not an extremely hazardous substance (EHS).

**Recommendations:**

- Keep sparks, flames, and other sources of ignition away. Keep material out of water sources.

**In a Fire**

- Do not extinguish fire unless flow can be stopped or safely confined. Solid streams of water may spread fire. Cool all affected containers with flooding quantities of water. Apply water from as far away as possible. Use foam, dry chemical, or carbon dioxide.

**Chemical Name:      **Green Liquor (Corrosive Liquid)**  
**Black Liquor (Vanillin Black Liquor) (Alkaline Liquid)****

**Hazard:** A corrosive liquid that can cause visible destruction or irreversible alterations in human skin tissue at the site of contact. It has a severe corrosion rate on steel. It may be combustible though it may require some effort to ignite. It may or may not be water soluble.

**Recommendations:**

- Keep upwind. Avoid bodily contact with the material.
- Keep material out of water sources and sewers. Build dikes to contain flow as necessary.
- In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes.
- The U.S. Dept. of Transportation suggests that a radius of 800 yards is recommended for a risk zone.

**In a Fire**

- Extinguish fire using agent suitable for type of surrounding fire (the material itself does not burn or burns with difficulty). Use dry chemical, dry sand, or carbon dioxide. Do not use water on material itself. Apply water from as far a distance as possible.

**Chemical Name:**      **Hydrogen Sulfide**  
(Crude DMS)

**LOC:** 0.0042  
**IDLH:** 100 PPM  
**NFPA Fire:** 4  
**NFPA Health:** 3  
**NFPA Reactive:** 3

**Hazard:** Hydrogen Sulfide is a colorless gas having the odor of rotten eggs. It is very flammable. It is shipped as a liquefied gas under its own vapor pressure. The gas is heavier than air and a flame can flash back to the source of the leak very easily. Under fire conditions cylinders and tank cars may violently rupture and rocket.

**Recommendations:**

Stop the flow of gas. Use water to keep fire exposed containers cool.  
Isolate hazard area and deny entry.  
Stay upwind.  
Call emergency response telephone number on shipping paper and emergency response personnel.

**In a Fire**

Do not extinguish a leaking gas fire unless the leak can be stopped  
Damaged containers should be handled only by specialists.  
Stay away from the ends of the tanks.

**Chemical Name:** **Methyl Mercaptan**  
(Crude DMS)  
LOC: 0.079  
IDLH: 150 PPM

**Hazard:** Methyl Mercaptan is a colorless gas with a very strong disagreeable odor of rotten cabbage. It is shipped as a liquefied gas under its vapor pressure. Combustion produces irritating sulfur dioxide and is very dangerous when exposed to heat, flame, or oxidizers.

**Recommendations:**

Keep unnecessary people away.  
Isolate the hazard area and deny entry.  
Stay upwind.  
Evacuate area endangered by gas. Isolate for ½ mile.

**In a Fire**

Let burn unless leak can be stopped immediately.  
Stay away from the ends of the tank.  
Contact emergency response telephone number on shipping paper.

**Chemical Name:** Nitric Acid  
**LOC:** 0.026000  
**EHS IDLH:** 25 PPM (NIOSH, 1994)  
**NFPA Fire:** 0  
**NFPA Health:** 3  
**NFPA Reactive:** 0

**Hazard:** Nitric Acid is a colorless to yellow or red liquid sometimes fuming reddish brown vapors with a suffocating odor. It is reactive and accelerates the burning of combustible materials and may even cause ignition of combustible materials by contact.

**Recommendations:**

Contact causes burns to skin and eyes. If inhaled, may be harmful.  
Wear appropriate equipment to prevent any possibility of skin contact.  
Workers should wash immediately when skin becomes contaminated  
Keep material out of water sources and sewers. Build dikes to contain.  
Neutralize spilled material with crushed limestone, soda ash, or lime.  
Vapor knockdown water is corrosive or toxic.

**In a Fire**

Extinguish fire using agent suitable for type of surrounding fire (the material itself does not burn or burns with difficulty).  
Use water in flooding quantities as fog.  
Apply water from as far a distance as possible.

**Chemical Name:** Nitrogen Tetroxide  
**LOC:** 0.0094  
**IDLH:** 10 PPM  
**NFPA Fire:** 0  
**NFPA Health:** 3  
**NFPA Reactive:** 0

**Hazard:** Upon release from the cylinder, Nitrogen Tetroxide turns into Nitrogen Dioxide. It is toxic by inhalation. Inhalation may be fatal. Avoid breathing vapors. It is non-

combustible but will accelerate the burning of other combustible materials. POISONOUS GASES ARE PRODUCED IN FIRE AND WHEN HEATED.

**Recommendations:**

- Evacuate the area endangered by the gas including areas within 1,600 yards of the release.
- Wear positive pressure self-contained breathing apparatus. Avoid bodily contact with the material.
- Keep sparks, flames, and other sources of ignition away. Keep material out of water sources and sewers.
- Vapor knockdown water is corrosive or toxic and should be disked for containment.

**Chemical Name: Propane**

**Hazard:** Propane is a colorless gas with a faint petroleum like odor shipped as a liquid under its vapor pressure. It is easily ignited. Its vapor is heavier than air and a flame can flash back to the source of the leak very easily. In a fire the container may rupture (explode) and rocket.

**Recommendations:**

- Keep upwind and wear appropriate chemical protective gloves and goggles.
- If the tank is not ignited - keep sparks, flames and other sources of ignition away.
- Keep material out of water sources and sewers.
- Exposure to the liquid will cause frostbite.
- For emergency planning risk zone use a radius of 350 yards

**In a Fire**

- Do not extinguish fire unless flow can be stopped. Cool all affected areas with water. Apply water from as far a distance as possible.

**Chemical Name: Natural Gas**  
**NFPA Fire:** 4  
**NFPA Health:** 3  
**NFPA Reactive:** 1

**Hazard:** A colorless, odorless and tasteless gas that has an extreme fire hazard (NFPA) Vapors from liquefied gas are lighter than air and will disperse. This gas contains Methane (94%), Ethane (3%), Propane (3%). Natural gas is colorless, odorless and tasteless, non-toxic and a simple asphyxiant. Natural gas does not pose a high health risk to the local community but can act as an

asphyxiant in high concentration areas by displacing or partially displacing the air required to support life. Initially evacuate a one-half mile area, turn off the gas, and remove sources of ignition. Ventilate enclosed areas to reduce explosion hazard.

### Recommendations:

- Initially evacuate the immediate area endangered by the gas including areas within one-half mile of the release. In a large release, the gas pipeline companies will make recommendations on larger evacuation areas. The recommended evacuation area is due to the fire hazard presented by the gas. Natural Gas non-toxic and will dissipate in air if ignition does not occur. A release in an open area presents no health hazard since the gas will disperse.
- Stop the flow of gas.
- Keep sparks, flames, and other sources of ignition away. Keep material out of water sources and sewers.

### In case of Fire

- Allow the fire to burn out. Extinguishing the flame before shutting off the supply can cause the formation of explosive mixtures.
- Keep the surrounding area cool with water spray and prevent further ignition of combustible material.
- Explosive reactions can occur between Natural Gas and oxidizing agents such as Chlorine. Products of combustion are Carbon Monoxide, Carbon Dioxide and other toxic materials.

<b><u>Chemical Name:</u></b>	<b>Sulfuric Acid</b>
	<b>LOC:</b> 0.0080
	<b>IDLH:</b> 15 mg/m3 (NIOSH, 1994)
<b>EHS</b>	<b>NFPA Fire:</b> 0
	<b>NFPA Health:</b> 3
	<b>NFPA Reactive:</b> 2

**Hazard:** Sulfuric acid is a colorless oily liquid used to make fertilizers and other chemicals. It is soluble in water with release of heat. It is corrosive to metals and tissue. It will char wood and most other organic matter on contact, but is unlikely to cause a fire.

### Recommendations:

- It is highly reactive and capable of igniting finely divided combustible materials on contact. When heated, it emits highly toxic fumes. Avoid heat; water and organic materials. Sulfuric acid is explosive or incompatible with an enormous array of substances.

- Wear positive pressure breathing apparatus and special protective clothing.
- Keep material out of water sources and sewers. Build dikes to contain.
- Corrosive to all body tissues. Inhalation of vapor may cause serious lung damage.

**In Case of Fire:**

- Fight fire from a safe distance or from protected location. Use care as water applied directly to this acid results in evolution of heat and causes spattering. Cool containers that are exposed to flames with streams of water until fire is out.

<b><u>Chemical Name:</u></b>	<b>Sulfuric (Molten)</b>
	<b>LOC:</b> 0.0080
	<b>IDLH:</b> 15 mg/m <sup>3</sup> (NIOSH, 1994)
<b>EHS</b>	<b>NFPA Fire:</b> 1
	<b>NFPA Health:</b> 2
	<b>NFPA Reactive:</b> 2

**Hazard:** Molten sulfur is elemental sulfur shipped at an elevated temperature (290 degrees F.) to keep the sulfur in a liquid state for easy loading and unloading. Once released molten sulfur will cool rapidly and solidify. In its molten state, direct contact may result in thermal burns to the affected area. It may evolve sulfur dioxide gas if ignited.

**Recommendations:**

- Wear goggles and self-contained breathing apparatus.
- Keep material out of water sources and sewers. Build dikes to contain.
- Will burn skin and eyes. Harmful if swallowed.

**In Case of Fire:**

- Poisonous gas is produced in fire. Produces toxic sulfur dioxide gas.
- Burns with a pale blue flame that may be difficult to see in daylight.
- Apply water from as far a distance as possible.

## **APPENDIX B**

### **Fire Hazards: Washington Parish**

**A. Diesel Fuel and Gasoline**

**B. Liquefied Petroleum**

**C. Dimethyl Sulfide and Crude DMS**

## **APPENDIX C**

### **Population Characteristics**

**City of Bogalusa, City of Franklinton, and Washington Parish**

**Number of Urban and Rural Residents**

**School Enrollment**

**Educational Attainment**

**Residence in 1985**

**Disability of Population**

**Number of Children**

**Veteran Status**

**Language Spoken at home**

**Ancestry**

**Income**

**Poverty Status**

**APPENDIX D**

**“Table of Initial Isolation and Protective Action Distances”**