COMMON GROUND III

WHY COOPERATION TO REDUCE ACCIDENTS AT LOUISIANA REFINERIES IS NEEDED NOW

Produced by LOUISIANA BUCKET BRIGADE

Oil Industry Accidents in 2010: The Big Picture

> *This disaster likely would not have happened had the companies involved been guided by an unrelenting commitment to safety first."*
>
> – Bob Graham, Co-Chair of White House Oil Spill Commission[1]

The BP Oil Disaster of 2010 exemplified the lack of oversight, poor commitment to safety and inadequate maintenance in the oil industry. This culture is one of accidents and spills on a daily basis.

As this map illustrates, Louisiana is inundated with oil and chemical spills. The dots represent reports submitted to the National Response Center, which is administered by the U.S. Coast Guard and is the federal point of contact for reporting hazardous material spills.[2] In 2010, there were almost 4,000 reports of petrochemical pollution in Louisiana.

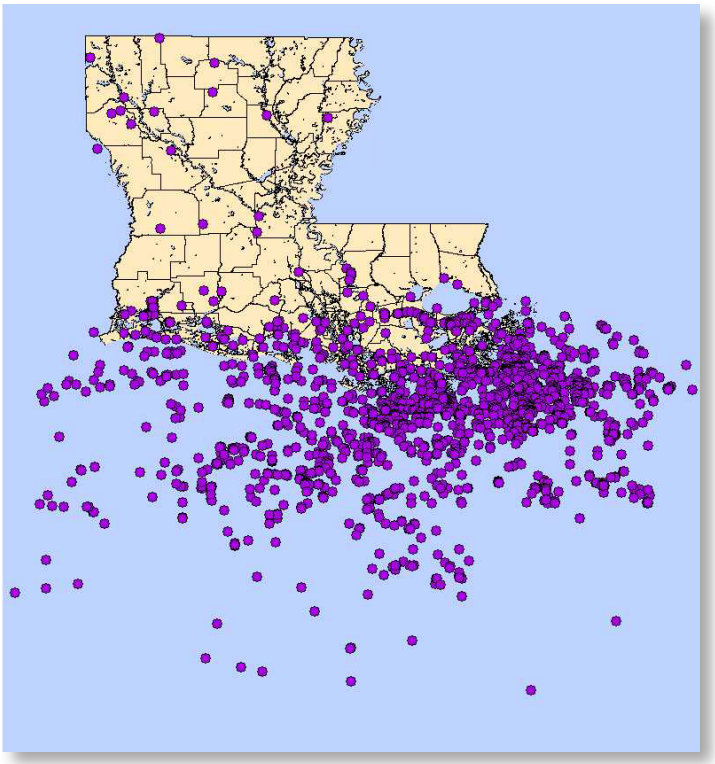


Figure 1: Petrochemical Accidents in Louisiana in 2010

The extent of oil industry pollution is daunting. *Common Ground* examines Louisiana refineries in particular because the situation is so extreme: Louisiana refineries have averaged more than one accident a day for the last six years. We chose this focus because more than 90 schools and 200,000 people reside within two miles of a refinery in Louisiana. Children, teachers, administrators and community members are affected by accidents and toxic emissions on a daily basis.

The purpose of this report is to raise awareness and offer solutions to the accident problems at Louisiana refineries. Prevention of these accidents provides an opportunity to create jobs and reduce chemical exposure in our state.

1 http://www.nytimes.com/2011/01/07/opinion/07fri1.html
2 NRC reports often do not contain specific details of an incident, the amount and type of material released, or identify a responsible party. Inadequate reporting and lack of follow-up investigations make it difficult to capture the true extent of pollution in Louisiana and the Gulf waters.

Refinery Accidents in 2010

There are 17 refineries in Louisiana, listed here in order of refining capacity. These accident numbers are drawn from refineries' own reports to the state for 2010.

REFINERY, CITY	REFINING CAPACITY (BARRELS PER DAY)	ACCIDENTS	POUNDS	GALLONS	CHILD POVERTY (WITHIN 2 MI OF REFINERY)
ExxonMobil Refining, Baton Rouge	504,500	103	81,816	7,691	45.3%
Marathon Petroleum, Garyville	436,000	36	81,120	2,200	37.9%
CITGO Petroleum, Lake Charles	429,500	41	1,774	1,790	6.6%
ConocoPhillips, Belle Chasse	247,000	15	193,853	24,906	24.3%
ConocoPhillips, Westlake	239,400	19	8,866	3,455	17.1%
Motiva Enterprises, Convent	235,000	10	7,235	214	33.2%
Motiva Enterprises, Norco	234,700	39	252,203	1,423	17%
Chalmette Refining, Chalmette	192,500	30	258,275	1,143	18.6%
Valero Refining, Norco	185,003	20	56,233	115,124	14.7%
Murphy Oil, Meraux	120,000	14	14,799	331	13.4%
Alon Refining, Krotz Springs	80,000	1	939	0	25.2%
Calcasieu Refining, Lake Charles	78,000	2	0	4,201	0%
Calumet Lubricants, Shreveport	57,000	4	1,024	31,920	48.2%
Placid Refining, Port Allen	57,000	14	17,853	294	39.2%
Shell Chemical, St. Rose	55,000	0	0	0	21%
Calumet Lubricants, Cotton Valley	13,020	2	0	28,140	44.5%
Calumet Lubricants, Princeton	8,300	4	0	1,937	15.5%
TOTAL	**3,109,926**	**354**	**975,990**	**224,769**	

Key Findings

Louisiana refineries averaged one accident per day in 2010. There was a total of 354 reported accidents which released more than 975,000 pounds and 225,000 gallons of pollution.

The number of accidents is greater than publicly reported due to the bias of self-reporting, incomplete written reports and estimating (rather than measuring) the amount of pollution released. Multiple refineries were cited for failure to comply with notification requirements by Louisiana Department of Environmental Quality (LDEQ) and the Environmental Protection Agency (EPA).

Refineries rely too heavily on contract workers. There are simply not enough full-time workers on staff. Deferred maintenance and inadequate safety management significantly contributed to accidents, according to refineries' own reports and testimony from the United Steelworkers.

Fires were a particular problem in 2010. There was an average of two refinery fires each month, putting communities' and workers' health and safety at serious risk.

ExxonMobil's two refineries continue to pose the most serious accident problems in the state. In 2010, the company's Louisiana refineries had 133 accidents releasing more than 340,000 pounds of pollution. During the same year, the company made $30.4 billion while continuing to externalize the costs of production.

Worst Accidents of 2010

Worker death and injuries

ExxonMobil, Baton Rouge. April 14. Three refinery workers were injured in a flash fire and admitted to the Baton Rouge General Hospital burn unit.

Chalmette Refining, Chalmette. October 6. A contract worker, Gregory Starkey, died while repairing a previously clamped pipe leaking hydrogen sulfide and flammable gas. The accident began on October 4.

Top 10 accidents by emissions

ConocoPhillips, Belle Chasse. September 6. Planned maintenance resulted in the release of sulfur dioxide. The refinery report states this release was allowed due to a negotiated consent decree with EPA. Total emissions: 73.2 tons (146,565 pounds).

Chalmette Refining, Chalmette. September 6. Power failure stemming from an electrical short caused heavy flaring and the release of sulfur dioxide, hydrogen sulfide and 19 tons of spent catalyst. Total emissions: 72.5 tons (144,929 pounds).

Valero Refining, Norco. March 9. Diesel fuel was spilled due to problems with piping between two storage tanks. The refinery report states the accident was "reasonably preventable." Total emissions: 112,890 gallons.

Motiva Enterprises, Norco. March 2. Upon restarting two units after an emergency shutdown, it was suspected that the flare pilot light was unlit causing heavy flaring and the release of highly reactive volatile organic compounds (VOCs), flammable gas and VOCs. Total emissions: 50 tons (100,016 pounds).

Chalmette Refining, Chalmette. October 8. An accident occurred while isolating a sour gas pipe line. This same line was involved in the previous accident that included a worker fatality. Flaring resulted in sulfur dioxide being released over more than three days. Total emissions: 39.2 tons (78,395 pounds).

Motiva Enterprises, Norco. March 1. An unexpected shutdown of a refinery unit led to flaring at Shell Chemical plant. Chemicals released include sulfur dioxide, carbon dioxide, VOCs and nitrogen oxides. Total emissions: 21.8 tons (43,712 pounds).

Valero Refining, Norco. February 27. Problems during startup of three units following shut down for maintenance resulted in four days of intermittent emissions, including sulfur dioxide. Total emissions: 17.3 tons (34,598 pounds).

Calumet Lubricants, Shreveport. January 21. A pipe on a tank ruptured, releasing a crude oil product (naphthenic vacuum tower bottoms). Total emissions: 31,500 gallons.

ConocoPhillips, Belle Chasse. September 24. During refinery maintenance activities, problems with two units resulted in excess flaring of sulfur dioxide for more than 19 hours. Total emissions: 13.1 tons (26,236 pounds).

Calumet Lubricants, Cotton Valley. January 10. A frozen pipe leading to a storage tank caused a leak of raffinate (a crude oil product containing polycyclic hydrocarbons and 0.5% benzene). Total emissions: 25,200 gallons.

Recommendations

REFINERIES

Hire more full-time union workers. The trend toward contract workers is dangerous, as these workers are often less familiar with the facilities and receive far less training. What's more, their pay and benefits are far short of the standards established by unions. It just makes sense – accident prevention requires hiring more people. How do you improve preparation for storms and hurricanes? You staff a well-trained storm preparedness team. How do you make sure units run smoothly? You hire enough qualified operators to catch problems before they start.

Instead, many refineries are whittling down their full-time positions, increasing stress for workers who already have too much to do on the job. For example, the most common cause of accidents in 2010 was faulty piping or tubing. Solving this problem means that more workers are needed to identify the pipes and tubes and then replace them. Refineries protest these common sense solutions only because it will chip away at their profits. Studies show that environmental regulations create jobs.[1] It's time to think of the wallets of Louisiana workers, not the oil companies.

Acknowledge the accident problem and work with us to solve it. Accept invitations to collaborate on accident prevention.

Comply with the Occupational Safety and Health Administration's (OSHA) Process Safety Management standard. This standard is designed as a guide for industry to safely manage the transportation, processing and use of highly hazardous chemicals and prevent accidents. Following these standards protects workers' and communities' health and safety.

Improve accuracy and timeliness of reporting, including the use of a root cause analysis for all accidents and employing continuous emissions monitoring technology to calculate (not estimate) emissions.

Improve preparedness for rain, wind, lightning, tropical storms and hurricanes. Tropical Storm Lee in 2011 showed that refinery accidents during storms are commonplace. Storms are a predictable risk in southern Louisiana and the industry's use of "act of God" excuses only exposes poor planning and little concern for safety.

GOVERNMENT

To the EPA: increase involvement and enforcement in Louisiana. The LDEQ has consistently shown that it is not responsive or protective of Louisiana residents or the environment. There are numerous examples:

> An August 2011 inspection of Calumet Refining found violations of the Clean Air Act and the plant manager "agreed to send the document stating Calumet was not in full compliance prior to 2008."[3] These problems have been ongoing for years and LDEQ should have discovered them. Instead, the EPA had to step in.
>
> The ongoing, unmet concerns of residents around the state – including Baton Rouge and Shreveport.
>
> The state Legislative Auditor's investigation of LDEQ in 2002 with as yet unresolved issues.
>
> The LDEQ's average $15 fee per ton of pollution, far below the Clean Air Act's recommendation of $41.18 per ton.

1 http://www.ombwatch.org/node/11781; http://www.epi.org/publication/a_life_saver_not_a_job_killer/
2 http://www.labucketbrigade.org/article.php?id=753
3 De Leon, Minerva, Environmental Protection Agency, Region 6 Multimedia Section Report, August, 2011 p. 21.

The lack of refinery enforcement: Much of it has taken place under the leadership and pressure of the federal government.

Incorporate community and worker input in inspections, investigations and negotiations with the oil industry. Workers and refinery neighbors have a lot of valuable information about what is really happening at refineries.

Enforce regulations, which will create jobs. This report provides evidence of negligence that, with proper enforcement, could create more jobs in the areas of increased equipment inspection, investigation of past accidents and preventative maintenance.

Penalties and fines generated by polluters should be reinvested in the communities most affected by the pollution. Communities should have participation in how those fines are spent to assure that they are not just public relations projects for the oil companies and result in measurable improvements to their quality of life, health and safety.

Local emergency planning commissions need to include workers and residents on emergency preparedness and response to petrochemical accidents. Training community residents how to sample and document pollution as well as protect themselves during chemical emergencies will not only save lives but also provide relevant job skills.

COMMUNITY

Document accidents as they happen on our *iWitness Pollution Map*.

TEXT: 504 27 27 OIL (504) 272-7645
E-MAIL: report@labucketbrigade.org
WEB: map.labucketbrigade.org

Call LDEQ at 1-888-763-5424. Though they are unlikely to respond satisfactorily, it is important to create a record of the problem.

Refinery Worker Perspective

When you look at petrochemical companies, you have to wonder what they are doing right. Profits are at record highs, but at what expense? This industry has seen several key cutbacks, such as lack of maintenance, staffing levels and inspections, just to mention a few. The workers and community are the real losers. Look at what happened at BP in Texas City [where 15 workers died and 140 were injured]. What needs to be judged is the safety and environmental culture of the company. These are not isolated incidents. There are many more accidents waiting to happen.

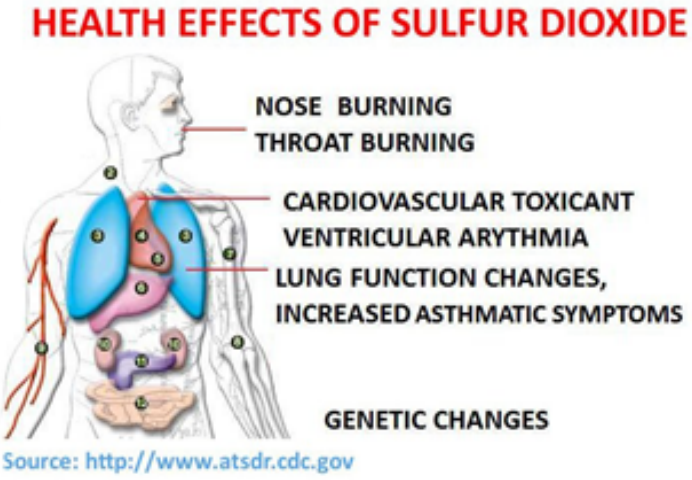
As a worker in the Louisiana petrochemical business, in the last three years, I've witnessed a reduction in the number of workers at production units. Adequate staffing levels are a key component in ensuring a safe facility. There has been a reduction in the number of company maintenance workers by replacing them with contractors. These cuts put not only the workers at risk, but also the community.

[USW has found that] the refining business is killing 25 workers a year. This is an average of two per month. This industry needs to be held accountable for their behavior. Many of these accidents are preventable and the companies admit that in their reporting to the state.

– Testimony provided from a Louisiana-based United Steelworkers member

Refinery Accidents & Public Health

Over the last 6 years, refinery accidents resulted in an average of 3.7 million pounds of toxic air emissions per year in Louisiana. These chemicals pose serious health risks to workers in the facilities as well as nearby community members. The table below highlights some of the most toxic and most frequently released chemicals at Louisiana refineries during accidents.



Chemical	Amount Released in 2010 (pounds)	Health Effects[1]
Sulfur Dioxide	656,820	Known trigger of asthma attacks and other respiratory illnesses
Volatile Organic Compounds (including highly reactive VOCs)	112,767	Known carcinogens; may damage important organ systems; respiratory irritants
Benzene	245	Known carcinogen; most significant toxic air pollutant by which to measure cancer risk

1 EPA; ATSDR; American Lung Association

Causes of Accident Emissions

The largest cause of accident emissions in 2010 was piping or tubing, which accounted for 12% of air emissions and 68% of ground or water emissions.

Figure 2: Causes of Accident Emissions to the Air in 2010

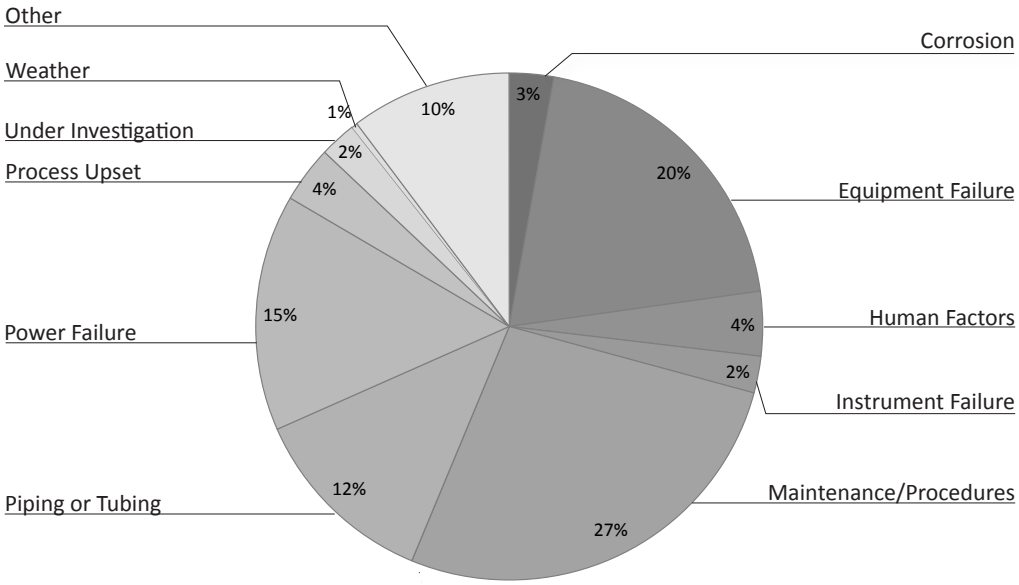
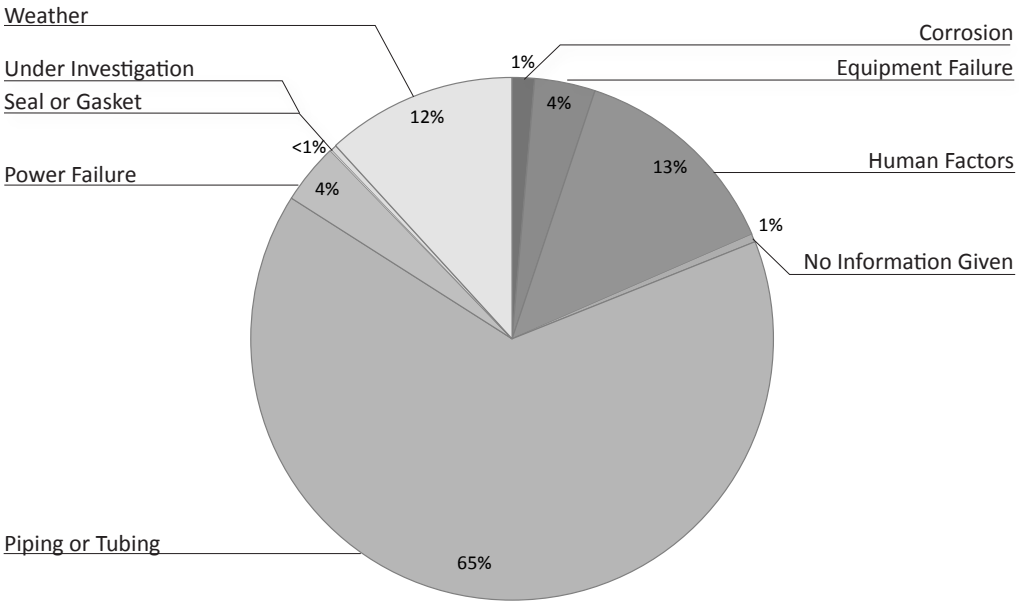


Figure 3: Causes of Accident Emissions to the Ground or Water in 2010

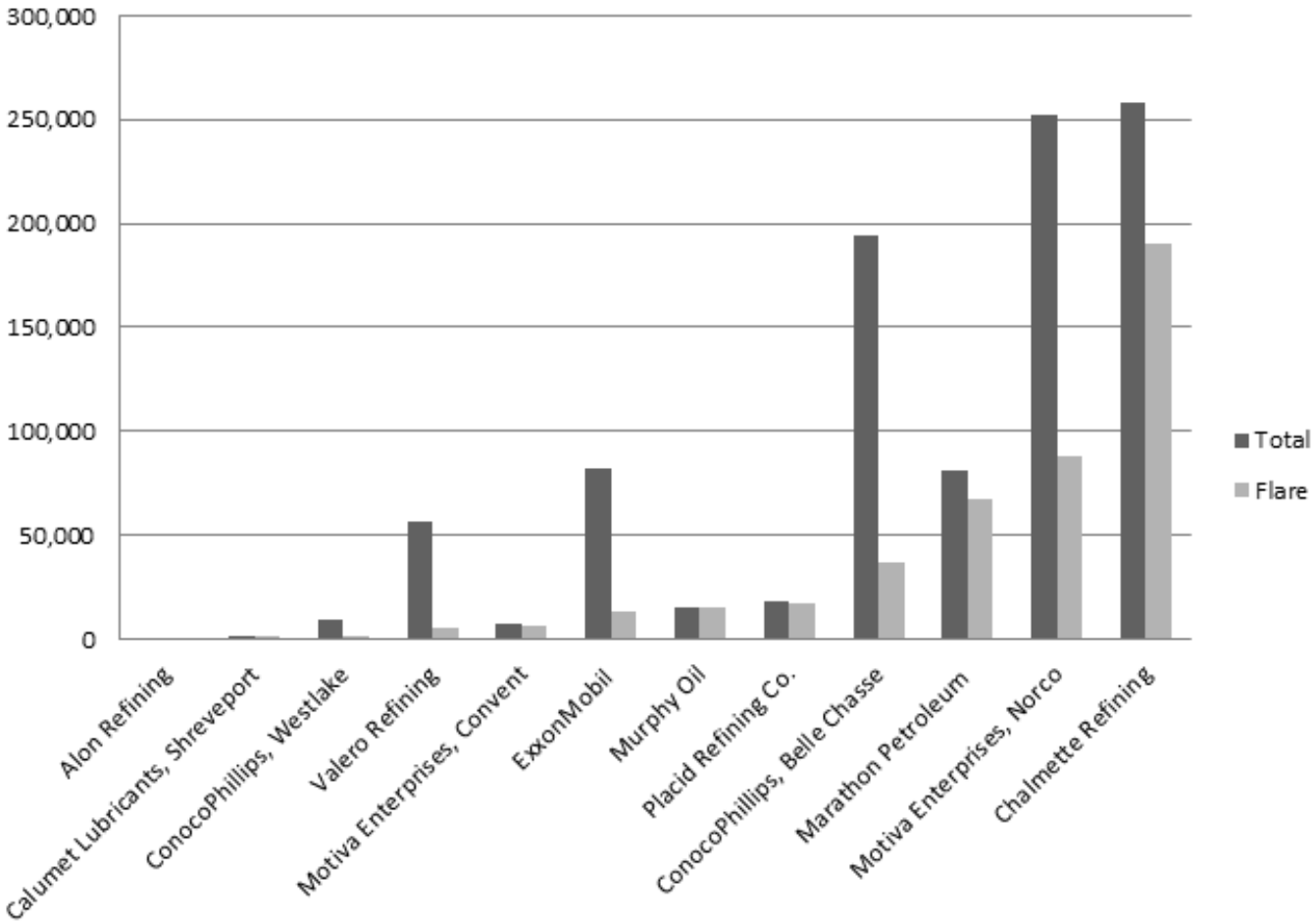


Flaring

The flare is an important piece of equipment at a refinery. It relieves pressure and provides a mechanism for releasing chemicals, like a relief valve. When accidents happen, the flare is supposed to incinerate the chemicals. A large flame, sometimes with black smoke, is often the most frequent and visible symbol of accidents for fenceline communities.

Nearly one-fourth of all refinery accidents in 2010 (82 out of 354) involved flaring and 45% of total accident emissions to the air were sent to the flare. Refineries can significantly reduce the amount of flare emissions by implementing strong preventative maintenance programs and updated technology, such as flare gas recovery systems on all flares.

Figure 4: Total Accident Emissions to the Air and Accidents Emissions Sent to the Flare in 2010



Community Voices: Shreveport

Velma White is the president of Residents for Air Neutralization – a group of concerned citizens in Shreveport working to reduce pollution and improve quality of life.

My daughter started getting sick at a very young age. Around the same time, there were explosions at the refinery and I said let me find out what they're doing at that plant, what chemicals they are using and what was going on in my community. I started researching and talking to experts who helped me connect some of the chemicals to my daughter's health problems. Now I believe this refinery is what caused the heartache that my daughter was going through.

I started talking to the plant manager about what we were dealing with. He tried to brush me off. But I knew that there was something wrong and I decided that I was going to find out and not let it go.

We deal with sickness all the time. My husband started getting sick. I hear people in my neighborhood talk about health problems – neighbors with asthma and oxygen signs on their door. This refinery is not good for us in this community. It has taken our livelihood away from us. I've lived next to the refinery for 35 years. People ask me, why don't you relocate? But it isn't that easy. You invest all that you've got in your home.

I can honestly say that when Calumet bought the refinery in 2001, it got really terrible in this community. We've had quite a bit of explosions and flaring. It's been one thing after another. You call the refinery to complain and they make it seem like you are just imagining the things that are happening.

I look around at my family and I can't give up. I can't get tired. I have to keep myself motivated to keep fighting and help this community. What I'd like is to just live and be able to do things outside – sit outside and barbecue. Kids would be able to play in the yard and not come back inside with trouble breathing. My dream is to live in a community where we don't have to worry about the environment and I could concentrate on everyday life. Where we would not have to be afraid to let our kids go out and play. We wouldn't have to fight so hard anymore to get a good quality of life.

Analysis

Small accidents can lead to big problems

Analysis of refinery accident reports in Louisiana for 2010 found that while the number of refinery reports has decreased, accidents still occur with alarming frequency – an average of one per day.

In 2010, refineries had frequent fires, flares, chemical releases and other problems from inadequate maintenance. These ongoing, seemingly small problems are warning signs that should alert refinery managers to enact comprehensive solutions. Instead, these problems are downplayed amidst an oil industry culture that values profit over safety.

In 2009, during the first year of the National Emphasis Program for petroleum refineries, OSHA found 1,489 process safety management violations at 14 refineries, prompting OSHA's enforcement director to conclude that "The state of process safety management is frankly just horrible."[1]

On the one hand, refinery management seems to acknowledge the problem. In 2010, accident reports submitted by five different Louisiana refineries – including four reports from Motiva Enterprises in Norco – suggested additional process safety training as part of their remedial actions.

But the reality appears to be different. According to refinery workers, management consistently invests inadequate time and money in process safety training.[2] Greater industry investment in training could help reduce accidents.

Example One: Motiva Enterprises, Norco
During 2010, Motiva's refinery in Norco reported seven accidents involving the same DU-5 unit, resulting in a total of 18,500 pounds of emissions. The largest accident happened in January, when a fire resulted in the shutdown of three refinery units, one worker injury and more than 17,000 pounds of toxic air emissions, including sulfur dioxide.

LDEQ's report states that the "facility failed to perform operating procedures to prevent or reduce air pollution" as required by state regulations.[3] In their final follow-up report, Motiva listed this accident as preventable with no further explanation.

After January, there were five more accidents at the DU-5 unit. These accidents illustrate a serious pattern.

Fires, explosions and hazardous conditions are common

Refineries reported 25 separate accidents involving fires in 2010, including five at both Marathon Petroleum in Garyville and ExxonMobil in Baton Rouge.

> *Since … 1992, no other industry sector has had as many fatal or catastrophic incidents related to the release of highly hazardous chemicals as the petroleum refining industry."*
>
> **– U.S. Department of Occupational Health and Safety Administration, 2009[4]**

1 http://www.pahouse.com/policycommittee/documents/2011/hdpc42111.pdf
2 United Steelworkers. "Still Out of Control." http://bcove.me/rbia7v45
3 LDEQ report #121003; LAC 33:III:905 A
4 Petroleum Refinery Process Safety Management National Emphasis Program. http://www.osha.gov/OshDoc/Directive_pdf/CPL_03-00-010.pdf

Example One: ExxonMobil, Baton Rouge
On April 14, a flash fire occurred at ExxonMobil's refinery in Baton Rouge sending two contract workers and one ExxonMobil employee to the burn unit at Baton Rouge General Hospital. The fire occurred while workers performed maintenance on a gas compressor. No information was given regarding the root cause of the fire. This was the second of five fires at the facility in 2010.

Example Two: Calumet Lubricants, Shreveport
Workers aren't the only ones at risk during fires. On February 5, the Belco Tail Gas Sulfur Recovery Unit at Calumet Lubricants in Shreveport exploded and, according to the State Police Hazmat and EPA documents, caused $75,000 worth of residential damage from the shockwave.[1] Because the initial report stated no reportable quantities were exceeded, no follow-up report with a root cause analysis was submitted to LDEQ.

> *"There was an explosion at Calumet in February. Houses got knocked out of their foundation; TVs and china in people's houses broke. The refinery went around the community and put some windows back in people's houses. But they were giving people pennies and acting like it was a small event."*
>
> **– Velma White, Shreveport resident**

Inadequate maintenance and corrosion of piping are a problem

Maintenance problems are a trend at Louisiana's 17 refineries - particularly pipe maintenance and corrosion. Chalmette Refining's pattern of poor pipe maintenance was underscored by the October 2010 death of Chalmette contract worker Gregory Starkey, which happened while he was repairing a previously clamped pipe that had begun leaking sour gas. In 2010, five different refineries, including Chalmette, submitted accident reports listing remedial actions that included temporarily clamping leaking pipes. Often no additional information was given detailing when or if the pipe was permanently repaired. Additionally, nearly 50% of accidents in 2010 were caused by corrosion involved piping.

Since 2005, there have been more than 470 refinery accidents caused by corrosion, faulty pipes and tubes. This has resulted in 3.7 million pounds and 2.3 million gallons of pollution.

Example One: Murphy Oil, Meraux
On November 22, Murphy Oil's refinery in Meraux experienced a shutdown of their #2 Sulfur Recovery Unit. The root cause was related to insulation not being properly fitted on piping. Murphy Oil's report states that "some insulation was not in place and some steam tracing was not in contact with the process piping."[2] This accident released 15 gallons of hydrogen sulfide and almost 1,400 pounds of sulfur

1 State Police report #10-12345; De Leon, Minerva, Environmental Protection Agency, Region 6 Multimedia Section Report, August 2011
2 Letter from Murphy Oil to LDEQ #127860; Certain processes require insulation and tracing to prevent a chemical product from solidifying or freezing similar to the protection homeowners take to prevent their water pipes from freezing in the winter.

dioxide. It was classified as preventable by Murphy Oil.

Example Two: Motiva Enterprises, Norco
On June 15, Motiva's refinery in Norco reported a leaking pipe due to external corrosion. More than 250 gallons of naphtha (crude oil) spilled into the Mississippi River, upriver from New Orleans' drinking water intake. Motiva classified the release as preventable, citing the discovery of "inadequate coating [to prevent external corrosion] on the blistered section of the piping."[1]

OSHA fines ExxonMobil, Baton Rouge

On September 13, 2011, OSHA cited ExxonMobil's refinery in Baton Rouge for exposing its workers to serious safety and health hazards that were "causing or likely to cause death or serious" injury.[2] OSHA identified more than 20 violations including failing to adequately investigate previous accidents, repair or inspect equipment and identify safety hazards.

Example Three: Underground piping
Of particular concern are failures in underground piping. Delayed discovery of these accidents – often days or even months later – makes it is difficult to assess the duration and magnitude of the release. Accident reports show that leaks from underground pipelines at ExxonMobil's refinery in Baton Rouge are an ongoing problem. In 2010 alone there were eight accidents related to leaks in underground pipelines.

A similar problem occurred at Murphy Oil's refinery in Meraux when a crude oil leak from a buried pipeline near the Mississippi River was discovered. The accident was first reported on September 27 and more than a year later is still part of an ongoing remediation project involving Murphy Oil and the U.S. Army Corps of Engineers. As of September 2011, neither LDEQ reports nor Murphy Oil correspondence identifies the duration or amount of oil released during the course of the leak.

Incomplete and missing notification

"My family and I live in Arabi and have been affected by the release of a powdery substance…following the release of the substance my husband and I came down with hoarseness and congestion. I am quite concerned with the long terms effects it will have on us and our two 5 year old children."
- iWitness Pollution Map report on September 6, 2010

Example One: Chalmette Refining, Chalmette
Over Labor Day weekend in 2010, a power failure occurred at Chalmette Refining in St. Bernard Parish triggering the release of more than 106,000 pounds of sulfur dioxide, 243 pounds of hydrogen sulfide and 38,000 pounds of spent catalyst, which was dumped onto residential property in the surrounding communities up to five miles away. The power failure was caused by an electrical short which triggered the subsequent shutdown of multiple refinery units.

While initial notifications of the flaring releases were made in a timely manner, Chalmette Refining failed to officially report the offsite impact until more than two hours after it was discovered in the community. In response to this accident, State Police recommended that Chalmette Refining be cited for Incomplete Notification of a Release (LAC 10111.G).[3]

This wasn't Chalmette Refining's only reporting problem. LDEQ reports also cited the refinery for failure to submit follow-up notification for two other accidents in 2010 that resulted in 22,500

1 LDEQ #124186
2 http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=20658
3 State Police Hazmat #10-05131

Community Voices: North Baton Rouge

Seabell Thomas is the president of Community Empowerment for Change. CEC's mission is to improve the quality of life of communities in East Baton Rouge Parish by fighting environmental racism and improving environmental health, protection and policy.

I've lived across from ExxonMobil's refinery since 1966. I know that it's not an advantage to anybody to be living next to refineries that are releasing emissions that are affecting your community. I first learned about the effects of chemicals on the body by working with Vietnam veterans exposed to dioxin while serving in the military.

I saw the same problems with chemical exposure in my neighborhood. My son was sick and in the hospital a lot when he was young and during that time there were a lot of explosions and flaring at the refinery and chemical plants. We tried to figure out what was causing his asthma attacks and the doctor said that it was coming from the environment. I have neighbors with chronic health problems, asthma attacks and trouble breathing. I also see the rapid rate of death in our community from cancer.

Everybody sees that we have a problem, but nobody can afford to get out and relocate. It's hard enough to just survive day-to-day and deal with unemployment, illness and violence. It seems like we are always the last to find out about what's affecting our community. We need access to information. In my experience, refineries may be willing to sit down and talk to you, but they are not willing to do the work to stop the emissions that come out of their plant.

I would like to see air monitoring systems in the community and schools to show the refineries what they are doing to the people in fenceline communities. I hope that next year is a better year. We just have to keep fighting.

pounds of emissions; and in 2004, local residents sued Chalmette Refining for incomplete reporting under EPCRA.[1]

Example Two: Calumet Lubricants, Shreveport
In August 2011, EPA conducted an inspection of Calumet Lubricants' refinery. While reviewing reports from 2006-2011, EPA found serious problems with the refinery's accident reporting, including failure to provide information about the causes of the majority of its accidents as well as discrepancies in reports to the state, EPA and within Calumet's internal documents.

EPA noted that in one accident, "An excessive emissions letter from Calumet to LDEQ indicates [air monitor] readings at 70,000 parts per million (ppm) hydrogen sulfide, however the incident report #129867 indicates that the facility conducted air monitoring and nothing was noted … A reading of 70,000 ppm would be noteworthy, being above the lower explosive limit of H2S (4%) at 7%."[2]

Example Three: Calumet Lubricants, Cotton Valley
In May 2010, LDEQ received a complaint from an anonymous citizen who observed a strong "blue-purple water color" in French Creek in Webster Parish. An LDEQ investigation traced the discharge to Calumet Lubricants' refinery in Cotton Valley. The facility was using water dye in their wastewater treatment ponds which resulted in a "change in the downstream true and apparent water color causing a decrease in the dissolved oxygen concentrations."[3]

Dissolved oxygen concentrations can be harmful to plants and aquatic life and is the cause cited by LDEQ in the Temple-Inland paper mill release in August 2011 that resulted in a massive fish kill on the Pearl River.[4] This accident highlights ongoing concerns regarding refineries' underreporting as well as the vital role community members play in reporting and documenting chemical accidents.

Chemical Plants & Associated Refineries

There are more than 150 chemical plants in the state, the majority located along the 90-mile stretch of the Mississippi River between New Orleans and Baton Rouge. These facilities use many of the same hazardous chemicals as the state's refineries and are often located in the same communities. ExxonMobil's refinery in Baton Rouge shares infrastructure and equipment with ExxonMobil Chemical next door as does Motiva's refinery with Shell Chemical's plant in Norco. This proximity essentially creates one large facility in both these communities. 2010 accident reports show that both chemical plants have frequent accidents and air emissions.

Shell Chemical, Norco
6,600 pounds

Shell Chemical's facilty in Norco reported 19 accidents in 2010. Shell Chemical shares equipment with Motiva Enterprises refinery with the two facilities often routing chemicals to each other's flares during accidents. Motiva's refinery reported accidents which caused flaring at Shell Chemical 10 times, while accidents at Shell Chemical caused flaring at Motiva seven times.

ExxonMobil Chemical, Baton Rouge
6.4 million pounds, 280 gallons

In January 2010, ExxonMobil discovered a pipe leak caused by corrosion. Further investigation determined that the pipe had been leaking for more than three months, resulting in more than 5 million pounds of toxic air emissions as the chemicals in the pipe – including flammable gas, propylene and volatile organic compounds – spilled into the air. The LDEQ report for this accident states that it was classified as preventable.

1 St. Bernard Citizens for Environmental Quality and Louisiana Bucket Brigade v. Chalmette Refining, LLC. February 12, 2004.
2 De Leon, Minerva, Environmental Protection Agency, Region 6 Multimedia Section Report, August 2011.
3 LDEQ #123270
4 http://wwwprd.doa.louisiana.gov/LaNews/PublicPages/Dsp_PressRelease_Display.cfm?PressReleaseID=2923&Rec_ID=0

Lack of Preparedness for Bad Weather

Lack of preparation for rain and bad weather – from hurricanes to even small rain events – has been the most significant cause of refinery accident emissions since 2005. Refinery accident reports from 2005-2010 show that more than 25% of air pollution and 56% of water and ground pollution was caused by storms and hurricanes, making lack of preparedness for weather the single largest cause of accident emissions.

The quiet storm season in Louisiana during 2010 likely contributed to decreased emissions via accidents. Yet, refineries still had accidents related to weather. Refineries have been criticized in the past for using weather as an excuse for poor operations.

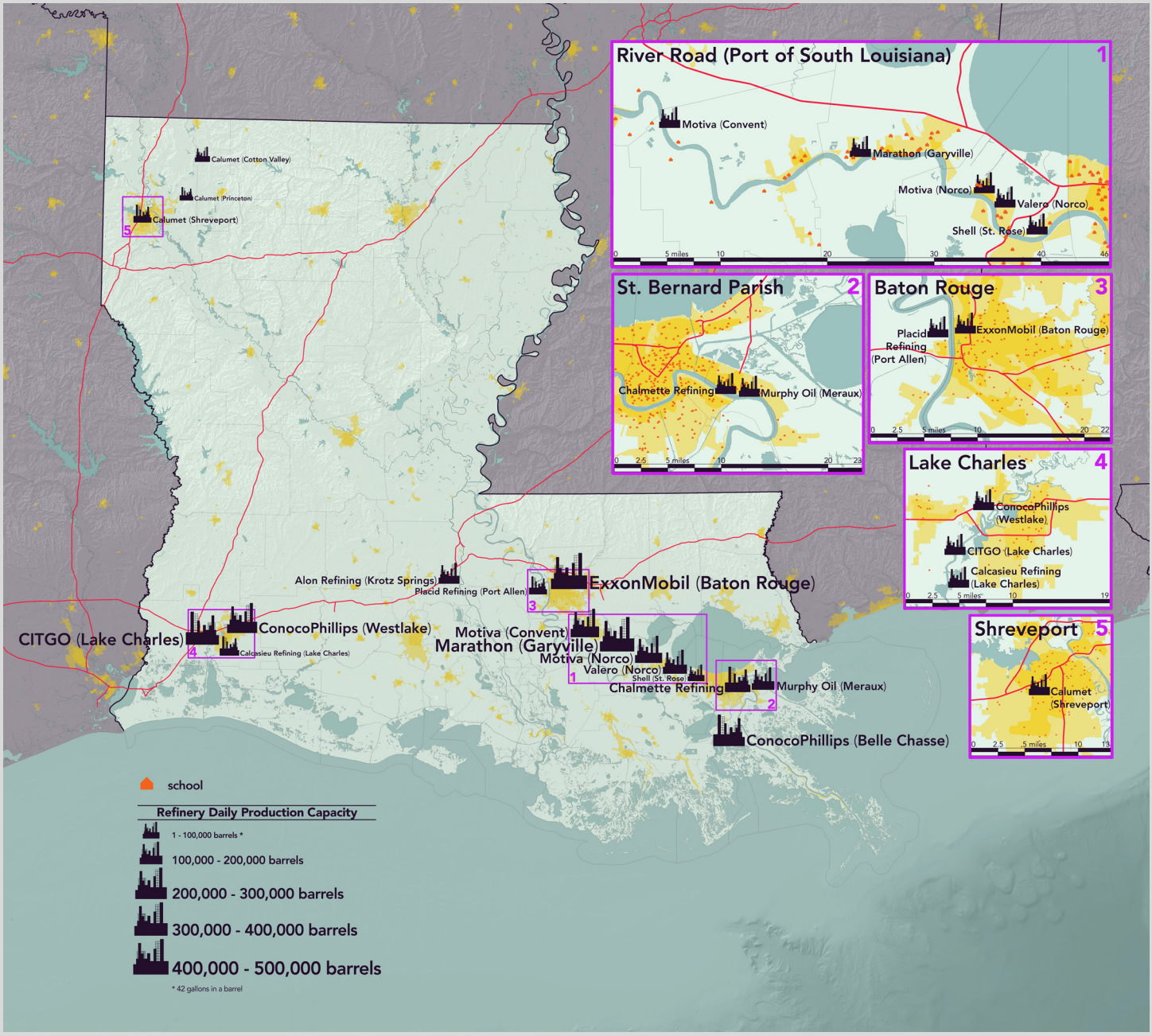
1 LDEQ #121839

The lack of specificity in the following report from Motiva Enterprises raises the question of weather as a genuine cause of accidents or a convenient excuse for ongoing refinery problems.

Example One: Motiva Enterprises, Norco

On March 2, Motiva's refinery in Norco experienced an emergency shutdown of two units. During the subsequent re-starting of these units, a pilot light was unlit resulting in heavy flaring which released 100,016 pounds of emissions, including highly reactive volatile organic compounds (HRVOCs), flammable gas and VOCs. Motiva's follow-up report states that "Motiva was not able to determine the cause, but … severe weather conditions may have contributed to the loss of pilot flame."[1]

Appendix


River Road (Port of South Louisiana)
1
Motiva (Convent)
Marathon (Garyville)
Motiva (Norco)
Valero (Norco)
Shell (St. Rose)
St. Bernard Parish
2
Chalmette Refining
Murphy Oil (Meraux)
Baton Rouge
3
Placid Refining (Port Allen)
ExxonMobil (Baton Rouge)
Lake Charles
4
ConocoPhillips (Westlake)
CITGO (Lake Charles)
Calcasieu Refining (Lake Charles)
Shreveport
5
Calumet (Shreveport)
Calumet (Cotton Valley)
Calumet (Princeton)
Alon Refining (Krotz Springs)
Placid Refining (Port Allen)
ExxonMobil (Baton Rouge)
CITGO (Lake Charles)
ConocoPhillips (Westlake)
Calcasieu Refining (Lake Charles)
Motiva (Convent)
Marathon (Garyville)
Motiva (Norco)
Valero (Norco)
Shell (St. Rose)
Chalmette Refining
Murphy Oil (Meraux)
ConocoPhillips (Belle Chasse)
school
Refinery Daily Production Capacity
1 - 100,000 barrels *
100,000 - 200,000 barrels
200,000 - 300,000 barrels
300,000 - 400,000 barrels
400,000 - 500,000 barrels
* 42 gallons in a barrel

Research Methodology

The most powerful aspect of this report is that the numbers come directly from the oil refineries' own letters to the state.

At the heart of the Refinery Efficiency Initiative is the Louisiana Bucket Brigade's review of what the industry calls "upset" or "unauthorized discharge" reports – notification of a chemical accident sent to the Louisiana Department of Environmental Quality (LDEQ). Industry calls them upsets, incidents or unplanned events. We call them accidents. These reports are made in compliance with the Emergency Planning and Community Right to Know Act (EPRCA).

By law, the refineries' letters are publicly available. We submit public records requests to LDEQ and then compile the information into this report and on our Refinery Accident Database, available at www.labucketbrigade.org.

The causal factors in this report are those used by the EPA in its 1999 Episodic Release Initiative. Our accident total differs from the refineries and even the LDEQ because we include all accidents, even those below reportable quantities.

Below Reportable Quantities

Chemicals that are subject to reporting requirements under federal law have a threshold that mandates a report. These thresholds are called reportable quantities and are generally set according to the hazard level of the chemical. For example, hydrogen sulfide and hydrofluoric acid have a reportable quantity of 100 pounds. The reportable quantity for sulfur dioxide is 500 pounds. Refineries are not required to file reports if the total is below reportable quantities, or if the chemical is not required to be reported under federal law (EPCRA or CERCLA).

To communities, workers and those concerned with health and safety, accidents of any size are important and worth reporting. In April 2010, an accident at ExxonMobil's refinery in Baton Rouge caused a flash fire and sent three workers to Baton Rouge General Hospital. The refinery's notification stated that no reportable quantities were exceeded. This classification renders this accident insignificant in the eyes of refinery management, yet obviously led to serious health implications.

About the Refinery Efficiency Initiative

Common Ground III is the third publication of the Refinery Efficiency Initiative, a program to reduce chemical exposure by preventing accidents at Louisiana refineries. This initiative is a collaboration of the Louisiana Bucket Brigade, the Environmental Working Group, the United Steelworkers and fenceline community groups, including Community Empowerment for Change (Baton Rouge), Residents for Air Neutralization (Shreveport) and St. Bernard Citizens for Environmental Quality (Chalmette). Louisiana refineries have been asked to collaborate since 2009, but have thus far refused the invitation.

Environmental Protection Agency, Region 6, Multimedia Section

From: Minerva De Leon, Inspector
Multimedia Enforcement Section
To: H. Troy Stuckey, Ph.D., Chief
Multimedia Enforcement Section

A Risk Management Prevention Program (RMP) 40 CFR Part 68 Compliance Inspection was conducted on August 15-18, 2011, at the following location:

FACILITY NAME: Calumet Specialty Products Partners, L.P., Shreveport, Louisiana 71109

Highlights

False reporting: Calumet monitors detect high levels of hazardous chemical but the refinery reports that nothing was detected

"On March 14th, 2011, Calumet reported to the LDEQ that it released 9297 pounds of SO2 through the #3 flare due to mechanical problems in the #3 SRU. An excessive emissions letter from Calumet to LDEQ indicates Draeger readings at 70,000 parts per million (ppm) H2S, however the incident report 129867 indicates that the facility conducted air monitoring and nothing was noted. … A reading of 70,000 ppm would be noteworthy, being above the lower explosive limit of H2S (4%) at 7%. (Attachment 14) (p. 21)

Calumet admits problems

"A closing conference was held, on August 18, 2011, at approximately 7:00 PM. The above mentioned areas of concern were communicated to Calumet representative [plant manager Tom Germany]. Mr. Germany said he hoped this was the worst EPA would see them and they are striving for improvement, and that the EPA inspection would be a good report card for how they are doing. He agreed to send the document stating Calumet was not in full compliance prior to 2008 (Attachment 5). … He went on to say he knows what good looks like and recognizes that Calumet is not there yet. (p. 21)

Description of Inspection

"On August 15-18th, 2011, an unannounced full Risk Management Program (RMP) and General Duty inspection was conducted by the United States Environmental Protection Agency Region 6 Multimedia Enforcement Section (EPA) at Calumet Specialty Products Partners LP (Calumet) … The Inspection was conducted under the authority granted by Section 114 of the Clean Air Act (CAA). … A union representative was invited to participate in the inspection." (p. 3)

Endangering the community

"The lack of an early warning system for H2S is critical, especially in a rich environmental justice area and the proximity of the receptors to an accident. 2,107 people live within a half mile of the facility. Of these 40.2% are below the poverty level and 82.5% are minority. This compared to 19.6% below poverty level and 37.5% minority in the state of Louisiana." (p. 20)

Worker endangerment

"Hydrogen sulfide (H2S) monitors had been removed from the processes, before April 2010, according to internal audit, due to malfunction, and remain absent. … This requires personnel to be present to detect a H2S or SO2 [sulfur dioxide] release. … There have been incidents due to exposures to H2S and SO2." (p. 14)

"Incident 1249 describes Manual Tyler and Gary Bragg cleaning a strainer when both started getting light headed and dizzy, so they decided to go and get a full gas monitor. As soon as they came over the dyke wall, the monitor picked up high readings above LEL of H2S. Again, this practice means personnel have to be present for a release to be detected. (p. 20)

"The facility stated that the Shreveport Fire Department provides rescue service at the facility … Calumet's Emergency Operating Procedure does include a medical treatment section. This states that medical treatment will be the responsibility of the Shreveport Fire Department EMS (Attachment 13).

The facility is still required to document proper first-air and emergency medical treatment necessary to treat accidental human exposures to the specific hazardous substances at the site." (p. 19)

Deferred equipment inspection and maintenance

Thirty-four equipment inspections were overdue at the time of the EPA inspection, including the Crude/Vac/Depropanizer 4 which had not been inspected since 1998. (p. 17)

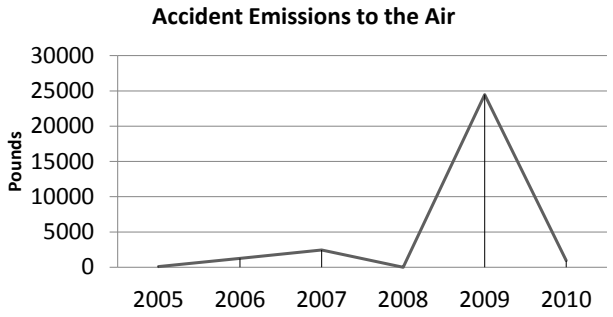
Incomplete/inaccurate reporting

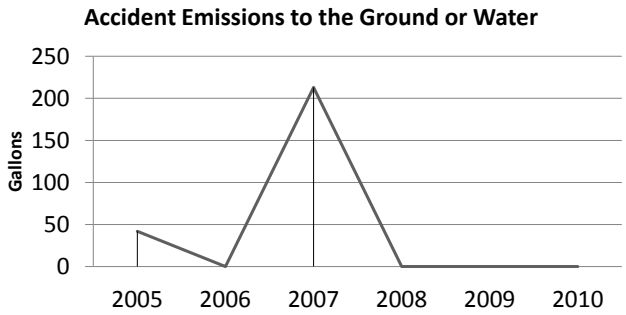
"The EPA Inspectors obtained a list of all incidents at the facility in the last five years (1/1/2006 to 8/16/2011). Of these 594 a selection of 161 incidents was made, and their reports were requested for review. … All the fields were not filled out in all selected reports. In the 161 incident reports selected by EPA for review 133 had no or inadequate information, and the contributing factors which contributed to the incident were left out of many reports (Attachment 2). (pp. 12-13)

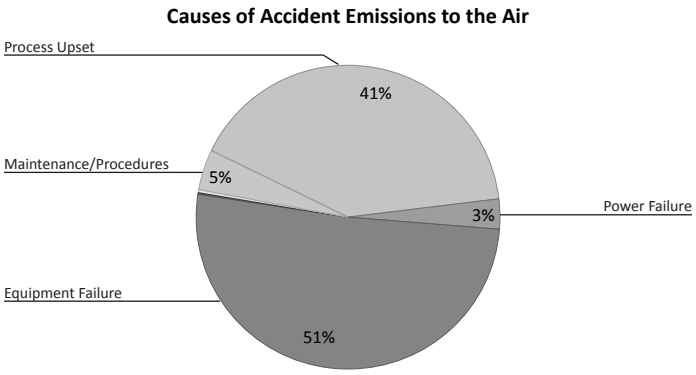
Twelve accidents since 2008 were not investigated within 48 hours; on average the facility waited 477 hours (20 days) after the accident to submit a report to the state. In one accident on 10/21/2010, the facility waited for 1,176 hours (50 days) to pass before they submitted a report to the state. (p. 18)

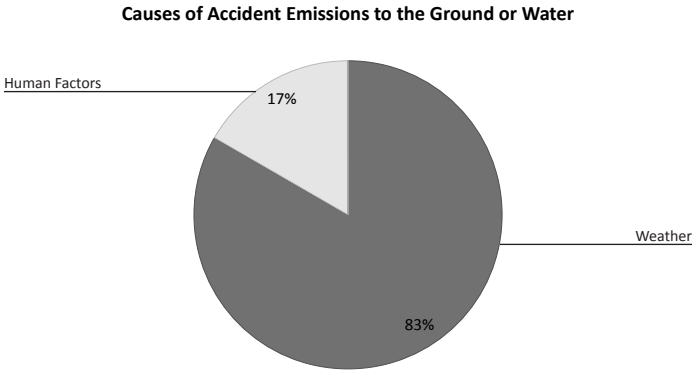
"Incident reports did not include factors that contributed to the incident. In the 161 incident reports selected by EPA for review 133 had no or inadequate information under the factors contributed to the incident." (p. 18)

ALON REFINING
KROTZ SPRINGS









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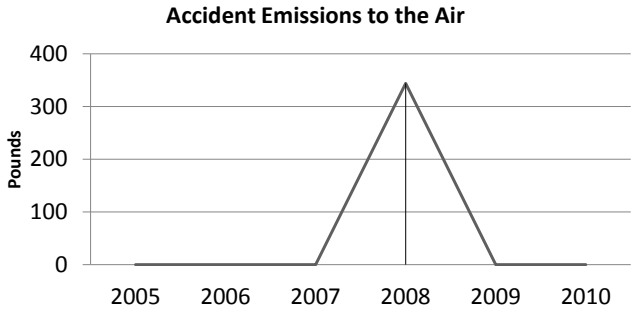
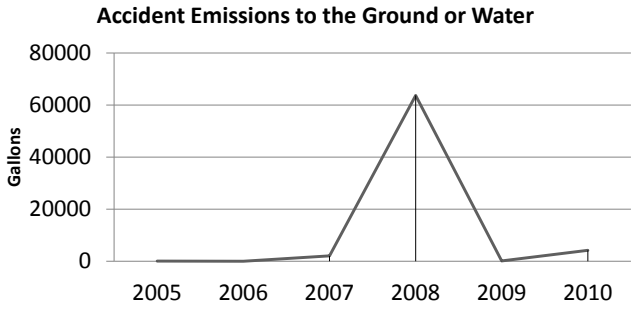
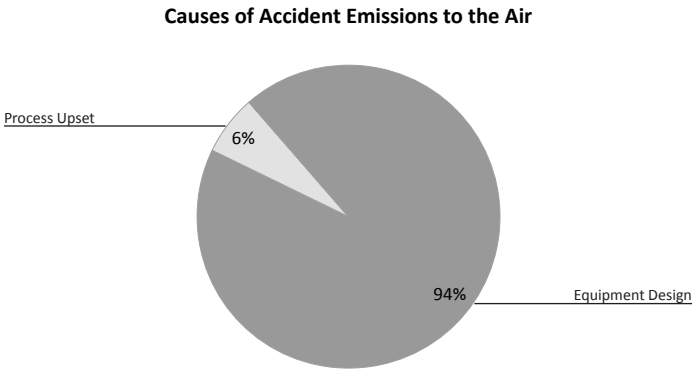
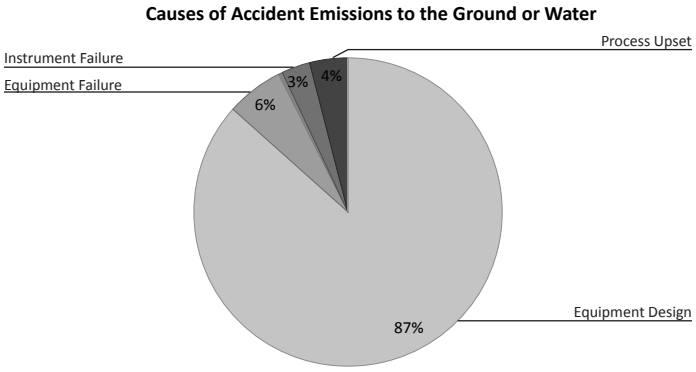
LAKE CHARLES



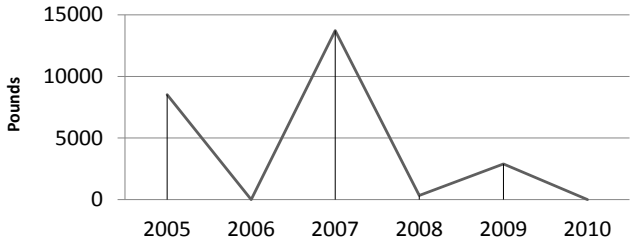




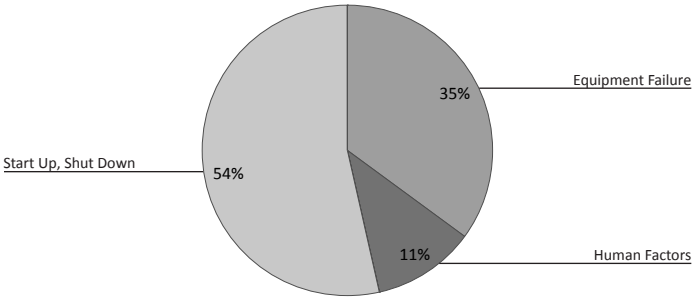


CALUMET LUBRICANTS
PRINCETON

Accident Emissions to the Air



Causes of Accident Emissions to the Air



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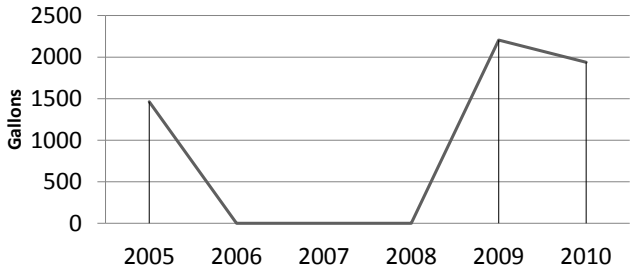
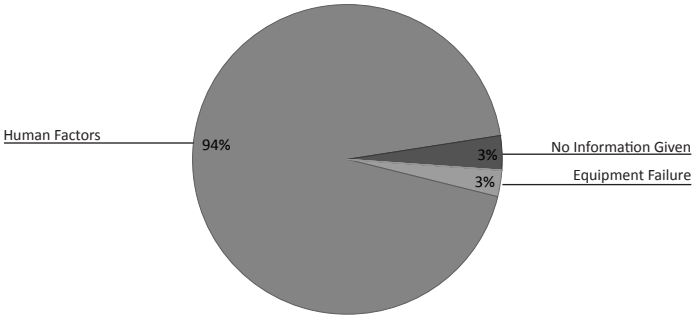
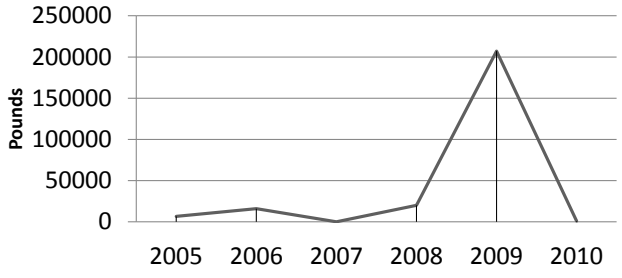


Causes of Accident Emissions to the Ground or Water

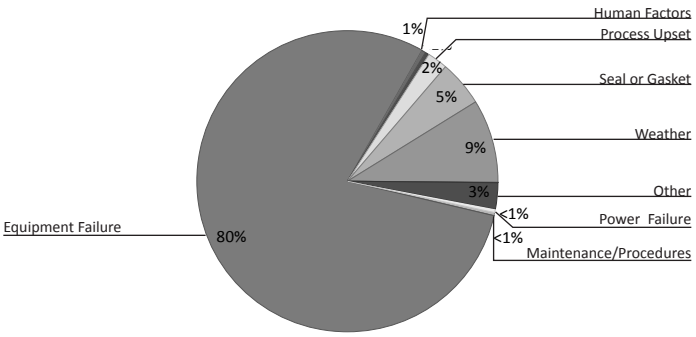


CALUMET LUBRICANTS
SHREVEPORT

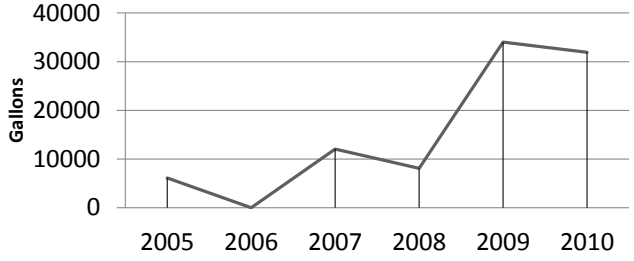
Accident Emissions to the Air



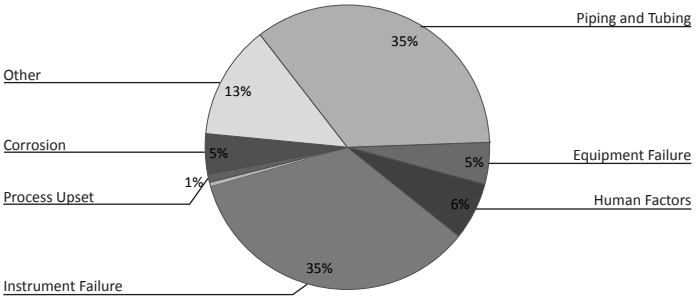
Causes of Accident Emissions to the Air



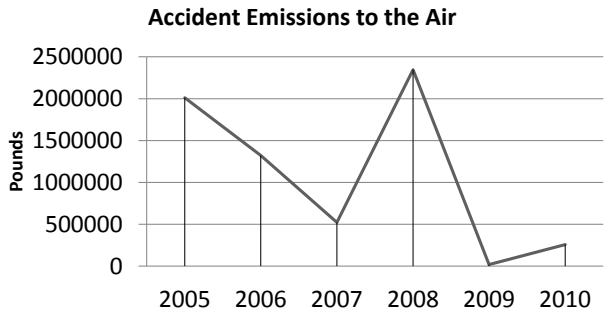
Accident Emissions to the Ground or Water

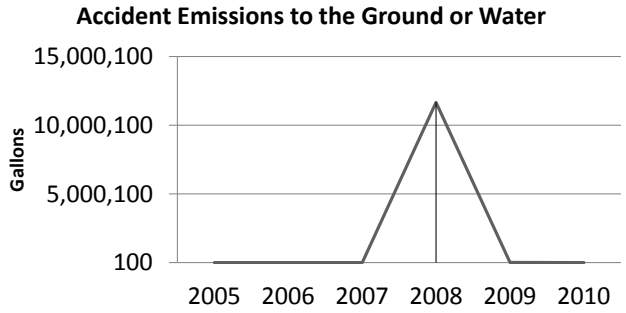


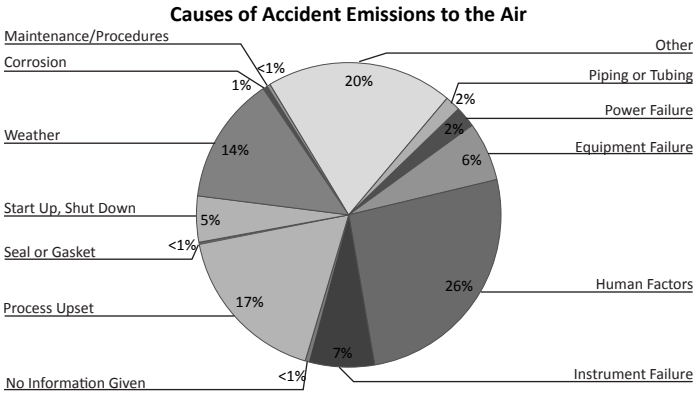
Causes of Accident Emissions to the Ground or Water

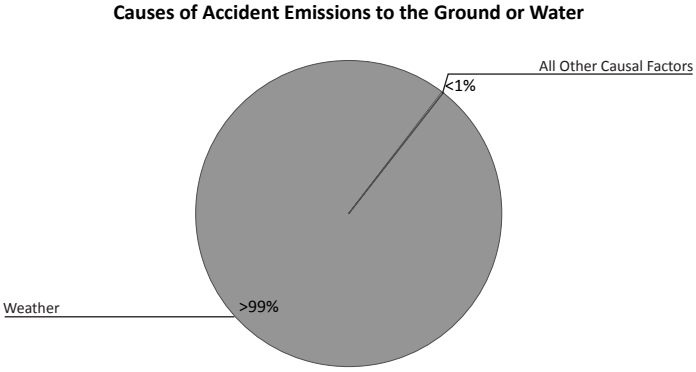


CHALMETTE REFINING
CHALMETTE









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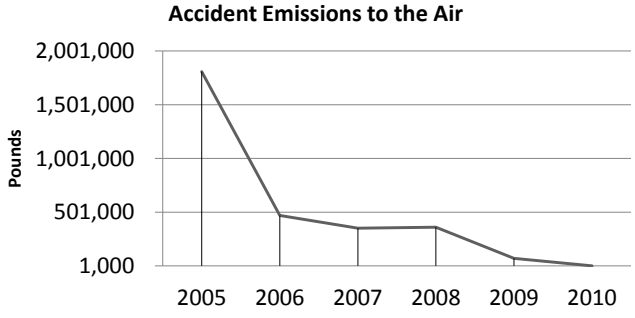
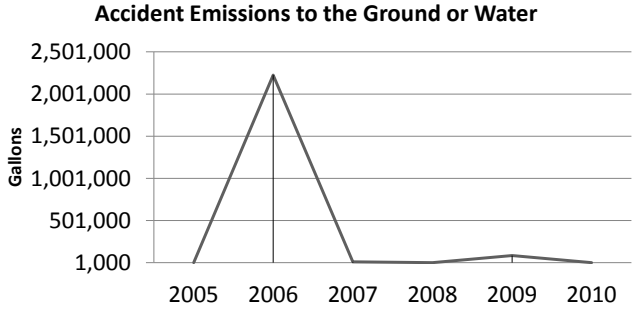
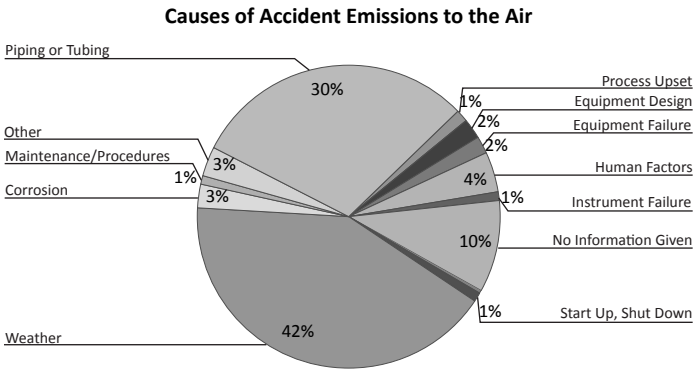
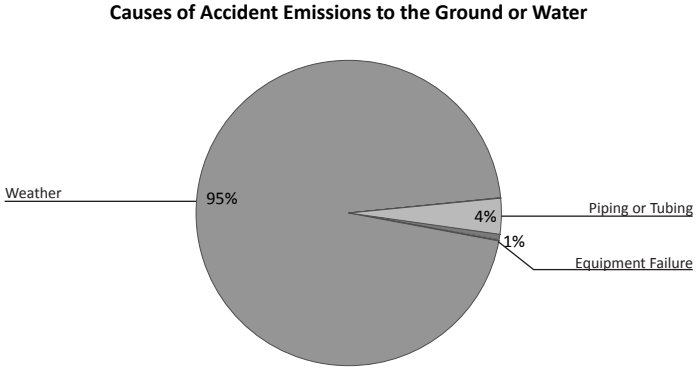
LAKE CHARLES









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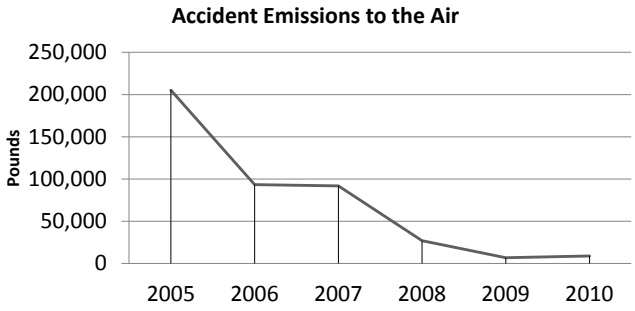
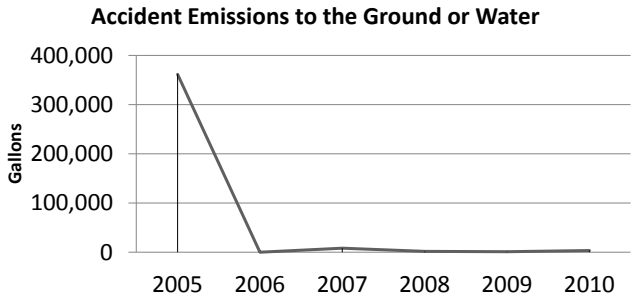
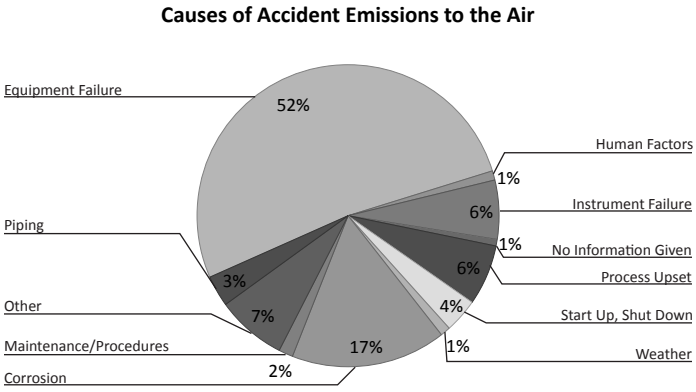
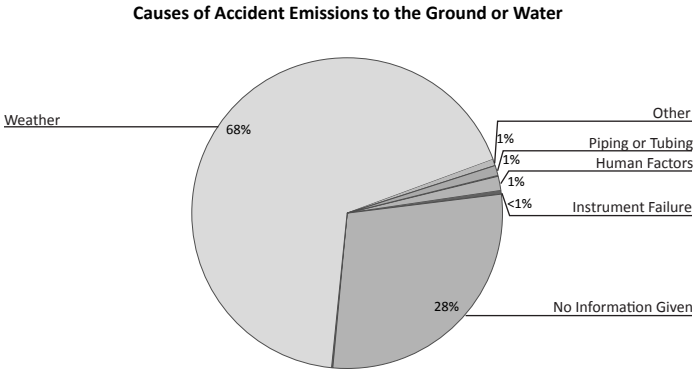
LAKE CHARLES









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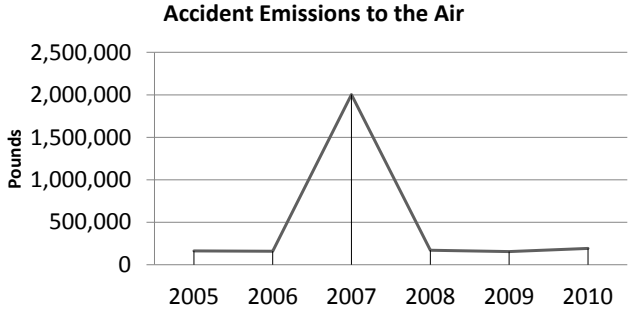
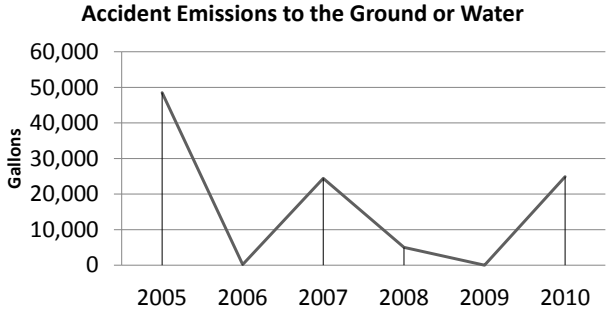
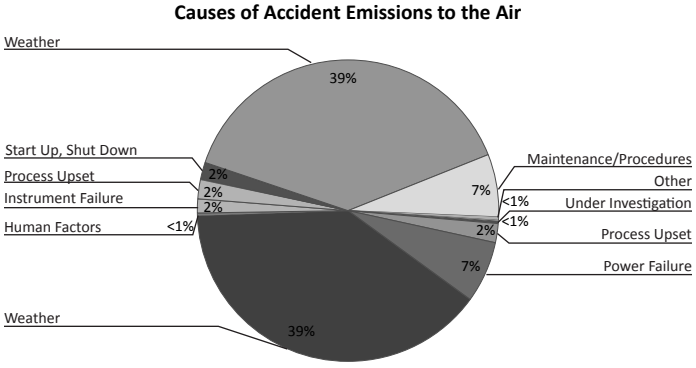
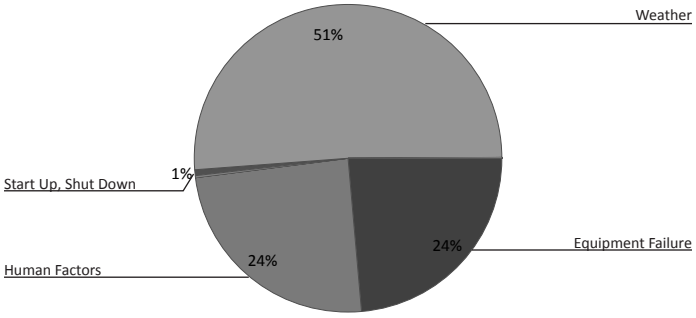
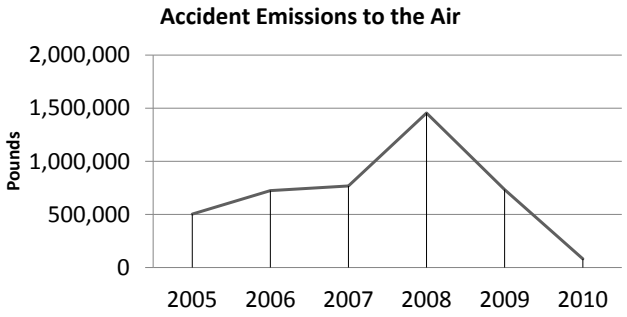


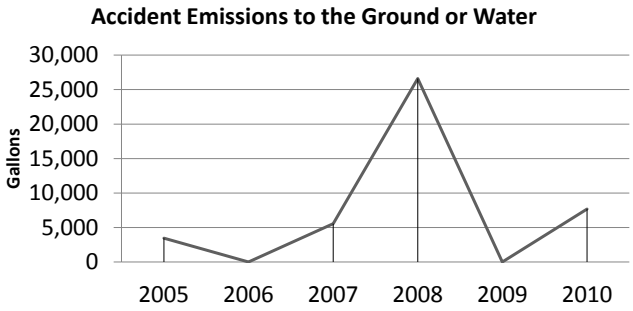


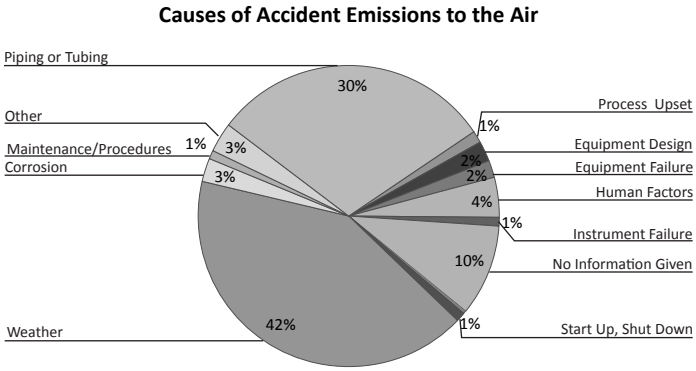


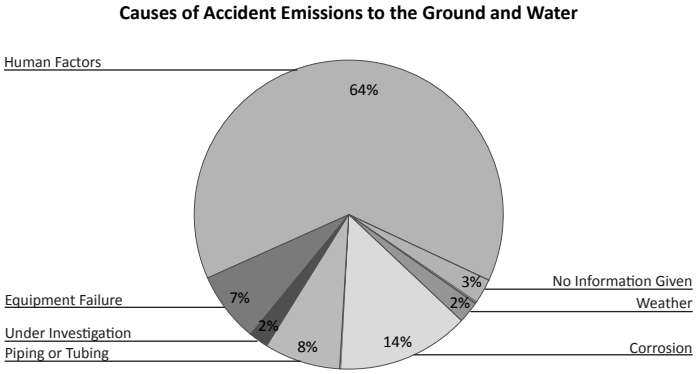


EXXONMOBIL
BATON ROUGE

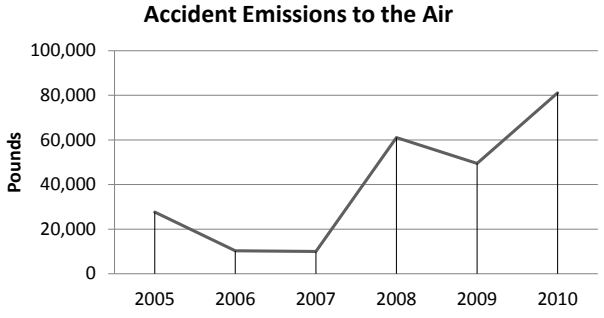


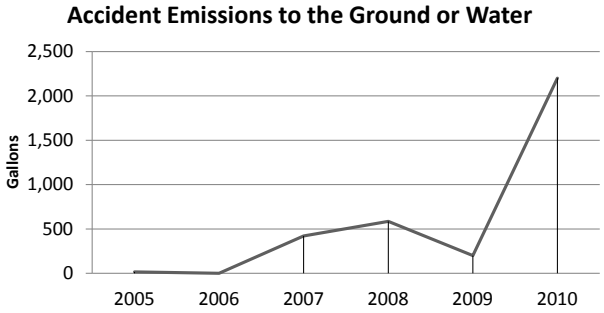


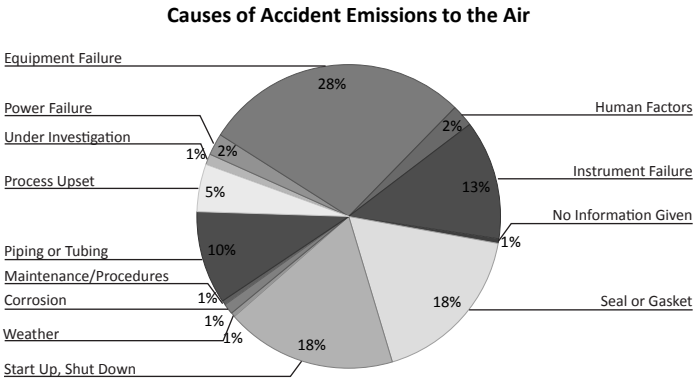


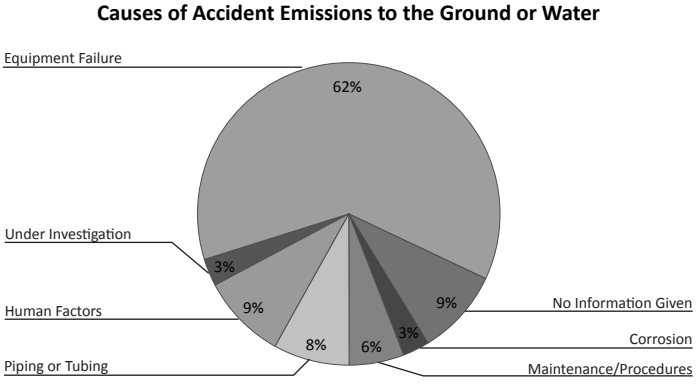


MARATHON OIL
GARYVILLE



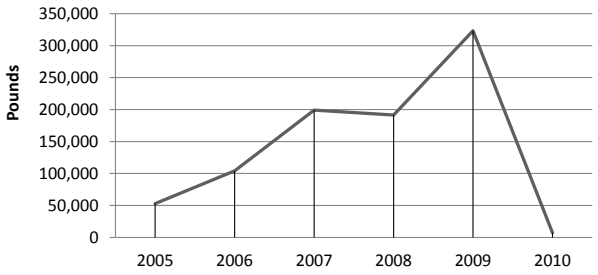




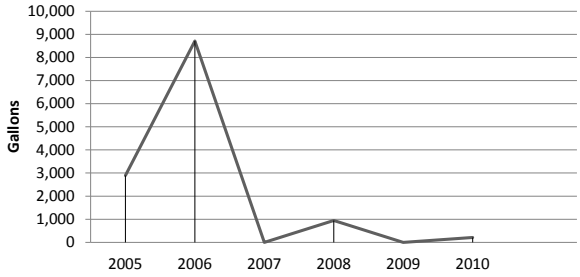


MOTIVA ENTERPRISES
CONVENT

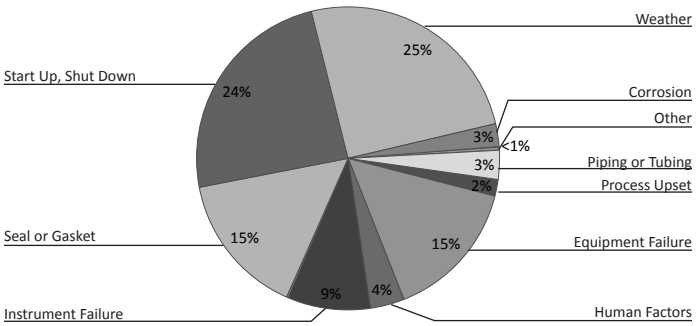
Accident Emissions to the Air



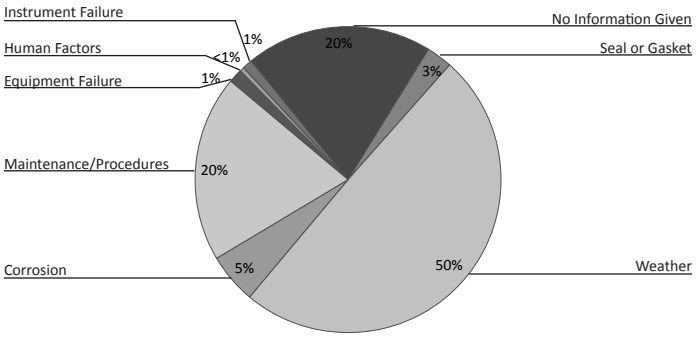
Accident Emissions to the Ground or Water



Causes of Accident Emissions to the Air

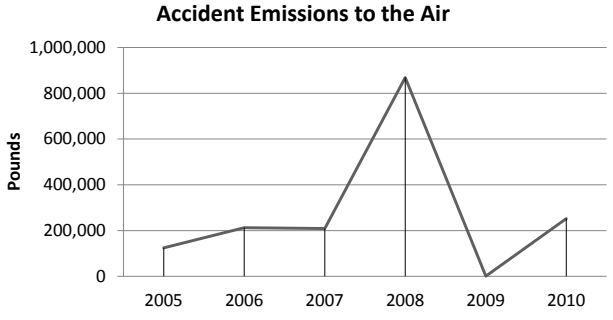


Causes of Accident Emissions to the Ground or Water

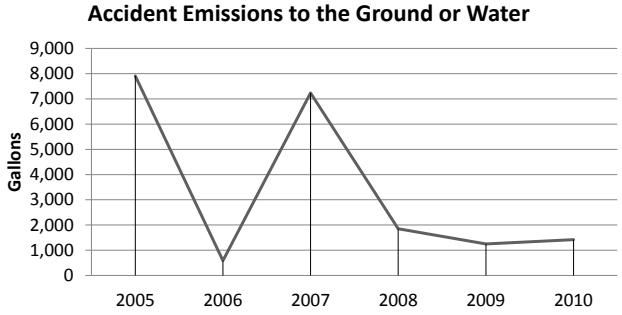


MOTIVA ENTERPRISES
NORCO

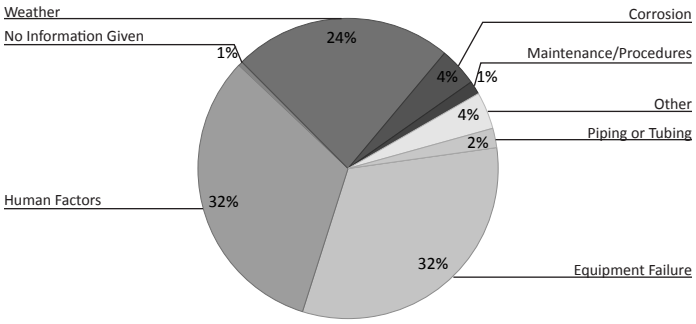
Accident Emissions to the Air



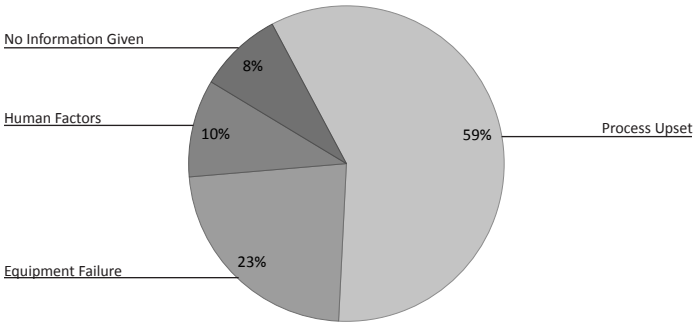
Accident Emissions to the Ground or Water



Causes of Accident Emissions to the Air

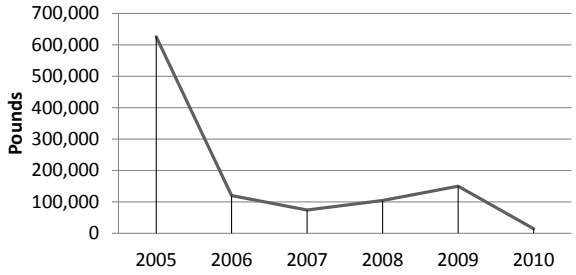


Causes of Accident Emissions to the Ground or Water

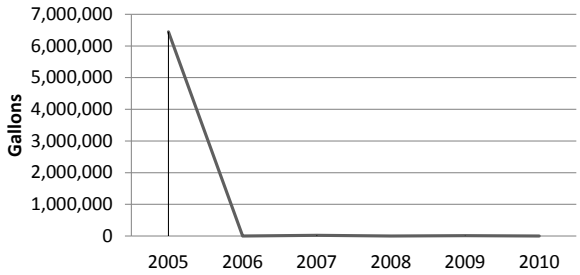


MURPHY OIL
MERAUX

Accident Emissions to the Air



Accident Emissions to the Ground or Water



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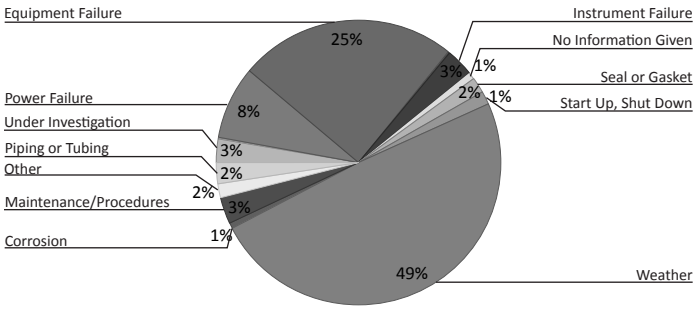
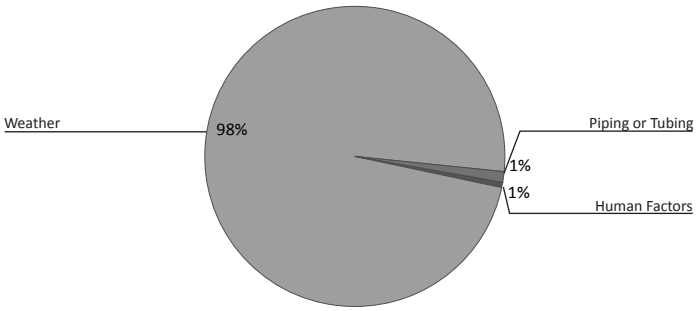
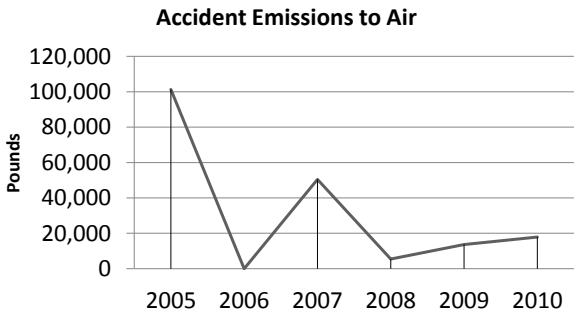


Causes of Accident Emissions to the Ground or Water

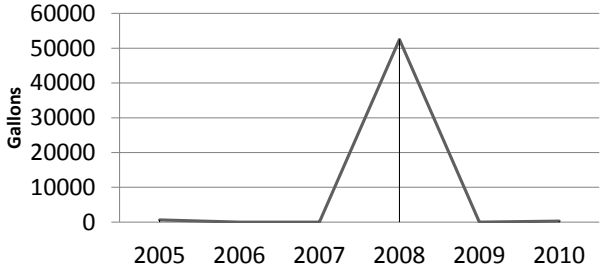


PLACID REFINING
PORT ALLEN

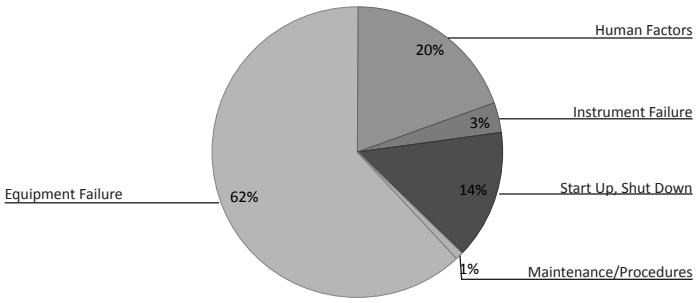
Accident Emissions to Air



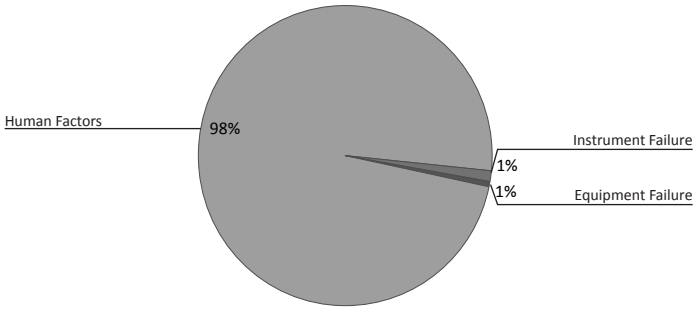
Accident Emissions to Ground or Water



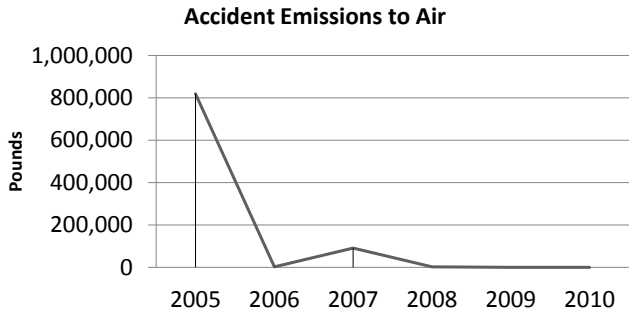
Causes of Accident Emissions to the Air

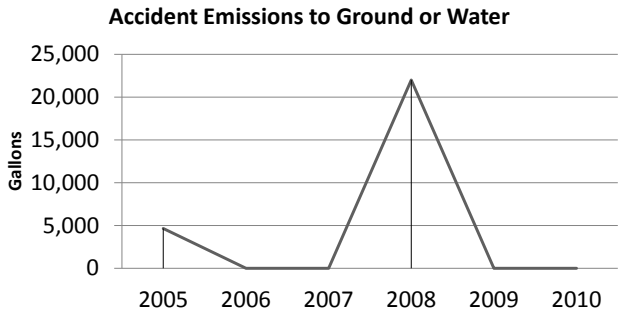


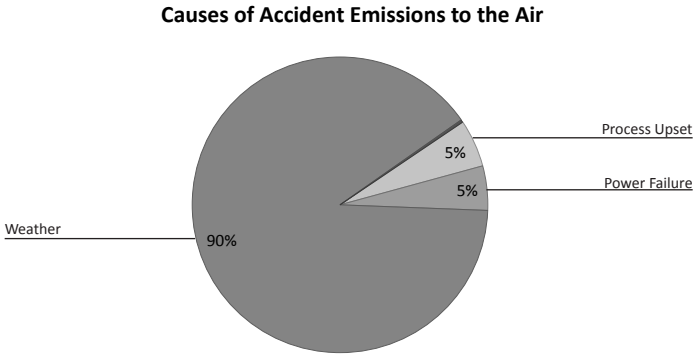
Causes of Accident Emissions to the Ground or Water

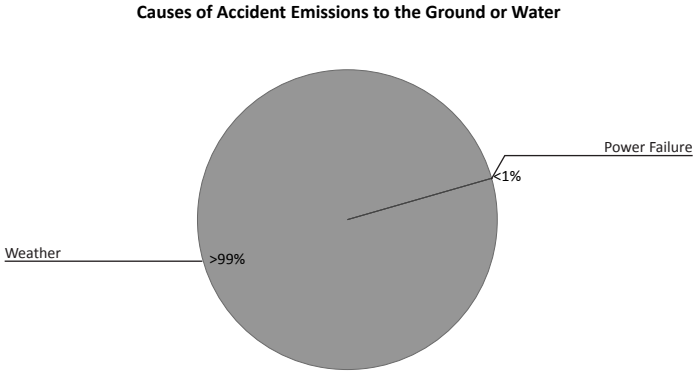


SHELL CHEMICAL
ST. ROSE









VALERO REFINING
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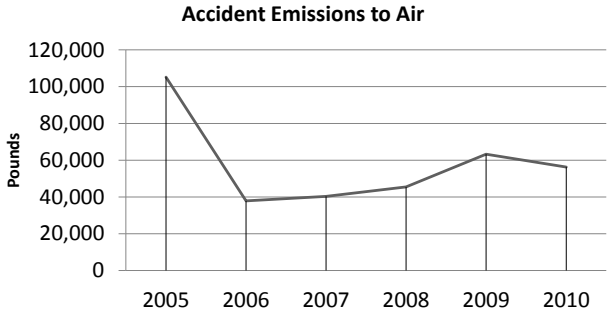

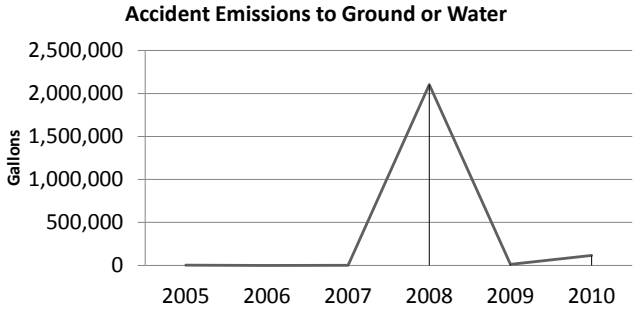

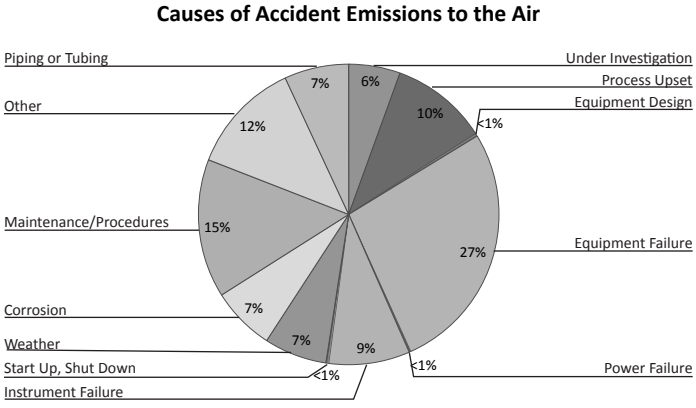

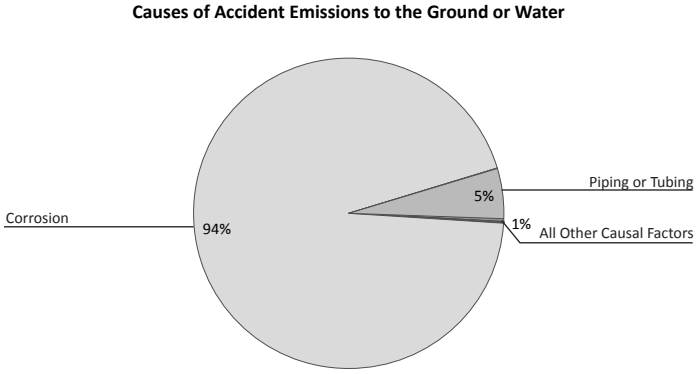

Acknowledgments

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