

The people who live in places impacted by human-made decisions have the power to speak out against environmental injustice.

Even though the case studies from this unit can be implemented on their own, it is recommended that at least one activity from Unit 1 and/or Unit 2 be completed prior to beginning one of these case studies.

Note: Each case study consists of a variety of resources - videos, newspaper articles, scholarly journal articles, scientific papers, etc. You do not need to use all of the resources included to complete the case study. There is a recommended reading assignment included that selects one or two sources from the list provided. The primary sources included in this curriculum are presented in their entirety, which may make some of them lengthy. At the teacher's discretion, you may choose to read only a section of a selected resource to allow for whatever time constraints are present in the context of your classroom.

Each case study seeks to answer the following essential questions:

- Who is affected and how? Are they affected differently than other people?
- What is occurring in the environment that is causing this? What data do we need to understand?
- Who is in control of this situation? Who is making decisions and how?
- What power do the people most affected have? What actions were taken to address this problem?
- What are other actions we could take to solve problems like this? Are there solutions that would more equitably address this problem?
- How can I put what I've learned into action in my own life? What problems can I solve in my community?





The following case study are selected from LEAN's way of separating the state into regions.

Case Study Community	Region
Alsen/ St. Irma Lee	Region 6 (Pointe Coupee, East Baton Rouge, West Baton Rouge, Iberville, Ascension, St. James, St. John the Baptist, St. Charles, Jefferson, Orleans, St. Bernard, Plaquemines)
Colfax (The Rock)	Region 3 (Vernon, Natchitoches, Winn, Grant, Rapides, Cladwell, La Salle, Avoyelles, Catahoula, Franklin, Concordia)
Grand Bois	Region 5 (Evangeline, St. Landy, Acadia, Lafayette, Vermillion, St. Martin, Iberia, St. Mary, Assumption, Terrebonne, Lafourche)
Homer	Region 1 (Caddo, Bossier, Webster, Claiborne, De Soto, Bienville, Red River, Sabine)
Mossville	Region 4 (Beauregard, Allen, Jefferson Davis, Calcasieu, Cameron)
St. Joseph	Region 2 (Lincoln, Union, Jackson, Ouachita, Morehouse, Richland, West Carroll, East Carroll, Madison, Tensas)
Mandeville	Region 7 (East Feliciana, Livingston, St. Helena, St. Tammany, Tangipahoa, Washington, West Feliciana)



Alsen/St. Irma Lee



LEAN Region 6

Louisiana's River Parishes, also called the Mississippi River Industrial Corridor, include:

- Ascension Parish
- East Baton Rouge Parish
- Iberville Parish
- Jefferson Parish
- Orleans Parish
- Plaquemine Parish
- Pointe Coupee Parish
- St. Bernard Parish
- St. Charles Parish
- St. James Parish
- St. John the Baptist Parish
- West Baton Rouge Parish

About Alsen/St. Irma Lee:

A small rural community where some residents still have horses has become neighbors with over a dozen industrial facilities including the infamous hazardous waste facility formerly owned by Rollins. This site is now one of three EPA Superfund sites in Alsen along with many other facilities that handle hazardous material near this residential community. Separated from Alsen by the Ronaldson Field Landfill, St. Irma Lee is a very small community surrounded by industrial facilities. Some residences are within approximately 300 feet of the large waste pile of Ronaldson Field.

Significant local opposition was voiced during the original siting of this landfill in 1996 and there has been a documented history of complaints for the following two decades. Impacts on the community increased significantly as a result of the debris received by the Ronaldson Field landfill following the historic flooding of 2016. Residents once again expressed opposition to the operation of this facility within their community at the most recent permit renewal hearing for Ronaldson Field, still pending. Some residents in both Alsen and St. Irma Lee have expressed interest in being relocated.

Standards:

English Social Studies Science



Resource	Description
Excerpt from <i>Environmental Justice in Rural</i> <i>Communities</i> <u>Source</u>	This is an excerpt of an essay written by Florence Robinson as part of a journal article for the West Virginia Law Review. In this text, Mrs. Robinson gives a first-hand account of the changes that occurred in Alsen when it became considered an industrial zone in the 1950s through the 1990s.
Excerpt from Environmental Concerns - and Anger - Grow in Month After Thousand-Year Flood Strikes Louisiana <u>Source</u>	This is an excerpt of an article featured on DeSmog. This excerpt focuses on how the landfills near Alsen were chosen to receive debris and waste after the 2016 Baton Rouge floods, and the potential hazards posed.
'ATSDR Public Health Assessment Source	Public health assessment conducted by the Agency for Toxic Substances and Disease Registry. Includes detailed information about the Scenic Hwy, and Brooklawn dump sites, as well as demographic information about the area.
PETRO-PROCESSORS OF LOUISIANA, INC. SCOTLANDVILLE, LA Cleanup Activities <u>Source</u>	This is from the Environmental Protection Agency's Superfund website. It details previous cleanup efforts, as well as what is being currently done.
Baton Rouge councilwoman says landfill causing cancer, but health experts say evidence lacking <u>Source</u>	News article from The Baton Rouge Advocate.
Tale of a Cleanup Gone Bad <u>Source</u>	News article from The Times-Picayune.
Pollution concerns about this Louisiana swamp were raised decades ago. A new plan could help. <u>Source</u>	News article from The Baton Rouge Advocate.



Resource	Description
Florence Robinson Interview	Video interview of Florence Robinson conducted by LEAN.

Extended Reading Activity:

Read *Excerpt from Environmental Justice in Rural Communities* and *Tale of a Cleanup Gone Bad* as a class or independently. Then discuss and answer the essential questions for this unit. Answers will vary, however, students should be able to grasp the basic power dynamics of the situation.

(Expansion) This can be transformed into a larger activity by reading the previously listed test as well as *Excerpt from Environmental Concerns - and Anger - Grow in Month After Thousand-Year Flood Strikes Louisiana, Baton Rouge councilwoman saya landfill causing cancer, but health experts say evidence lacking, and Pollution concerns about this Louisiana swamp were raised decades ago. A new plan could help* and discuss and answer the essential questions.





Essential Questions

L.	Who is affected and how?
•	Are they affected differently from other people?
•	What is occurring in the environment that is causing this?
•	What data do we need to understand?
•	Who is in control of this situation?
•	Who is making decisions and how?



Essential Questions (cont.)

7. What power do the people most affected have? What actions were taken to address this problem? 8. What are other actions we could take to solve problems like this? 9. Are there solutions that would more equitably address this problem? 10. How can I put what I've learned into action in my own life? 11. What problems can I solve in my community? 12.



Excerpt from Environmental Justice in Rural Communities:

Alsen is a very old community. Before the Civil War, Mount Pleasant plantation sprawled along the river just north of what is now Alsen. There was also a riverboat landing on the Profit Island Chute, called Springfield Landing, and a road (Springfield Road), which led through the swamp and up to the bluff of what is now U.S. 61 (Scenic Highway). The original cemetery for Alsen was near the old Springfield Landing.

Following the Civil War, newly freed slaves from the plantation and other nearby areas settled in Alsen. ... The people of Alsen were very close to the land. They grew vegetables and fruits in their gardens and hunted and fished in the nearby bountiful Devil's Swamp. Devil's Swamp was once a very productive ecosystem with great biodiversity. Its waters produced a wide variety of fish and shellfish-from the bottom feeders (catfish and crawfish) to the pelagic varieties (bass). Wild game was plentiful, including ducks, geese, wild turkeys, deer, squirrels, 'coons, 'possums, alligators, turtles, doves, muskrats, and others. Many varieties of waterfowl nestled in the swamp, such as egrets, herons, hawks, eagles. In addition, songbird species were plentiful at all seasons. ... Predator species were also present including bobcats, foxes, martins, black bears, and Florida Panthers (the latter two species were spotted in the swamp as late as the mid-1970s). Its forests contained stately old cypress trees, oaks, gums, magnolias, dogwoods, and tupelo and were filled with perennials such as muscadine and blackberries. Wildflowers such as trumpet vine, honeysuckle, trillium, and butterweeds were abundant.

The bountifulness of the swamp spilled over into the community. In the spring of the year, children would line the deep ditches on either side of the main road through Alsen, armed with nothing more than a length of string and a piece of old meat for catching crawfish. These children could take home dinner for a whole family. ... Life in Alsen was idyllic. Many of the houses were in the shadows of a pecan grove. Stately oaks stood throughout the community, each dripping with Spanish Moss. People lived on family plots, some of which had been held for generations. Children played up and down the streets from yard to yard. Residents looked out for all the children.

About two miles north of the main road of Alsen, a Mr. Davis moved his family down from Mississippi and purchased just under twenty acres of land. They lived on a dirt road called Samuels Road. which was eventually paved and became U.S. Highway 61. Across the street from them a "borrow pit" was dug, and the dirt was used to build the overpass for the highway. This borrow pit eventually became the community "swimming hole."

Then, in 1964, Tim Alexander came to town, and Alsen has never been the same. He and a local landowner opened the borrow pit for the dumping of toxic chemicals by industries (Dow, Ethyl, Co Polymer, Uniroyal, Allied Chemical, American Hoechst, Exxon Chemical, Rubicon Chemical, Shell Chemical, and U.S.S. Chemical).



The family that lived 800 feet across the highway was never consulted or warned about the dangers of the pit, and the children continued to swim in the pit as they had done previously. ...

This pit, called Petro Processors Incorporated, became a nuisance almost immediately. In April of 1965, an official of the East Baton Rouge Parish Health Unit contacted the Louisiana State Board of Health "regarding the possibility of a health problem" at the PPI site. Despite this warning, however, the health of the people of Alsen was ignored for almost twenty-eight years until a fence was built around the pit in 1991. However, the Petro Pit continued to be a nuisance. Regular burning occurred at the pit. The industries reported that fires were set only when the wind blew out of the Southeast so that the smoke would blow over the swamp. ...

The original site filled up very quickly and overflowed into the nearby bayou. In 1968, it was "closed," and a second site was opened one and one-half miles away. This site, the Brooklawn Site, consisted of a bluff area, lagoons, and a cypress bayou. According to my neighbor, Brother Pate, "Cypress Bayou had some of the best bass fishing in the country." Not only was the bass fishing ruined, but the cypress trees were killed as well. One Alsen resident claims that when Petro was opened on Brooklawn, a fence was placed across the road, preventing residents from visiting the grave sites of the original cemetery. This cemetery can no longer be found-the grave sites presumably buried beneath toxic waste.

... both pits continued to overflow into the Bayou Baton Rouge, which meanders for nine miles through Devil's Swamp before finally emptying into the Mississippi River. In 1969, the dike surrounding the Brooklawn site broke and sent hundreds of thousands of gallons of contaminants across Devil's Swamp and into the Mississippi River. Over 100 head of cattle feeding in the swamp on the Ewell farm died within a few days. In 1987, at the urging of Agency for Toxic Substances and Disease Registry (ATSDR), the Louisiana Department of Health and Hospitals half-heartedly posted Devil's Swamp Lake, a popular fishing spot, with "No Fishing" and "No Swimming" signs. However, the signs were facing the shore, and many fishermen approached the lake by boat from the river. Further, the signs were submerged during high water. Neither have the signs been maintained and, by 1991, the land-based signs were practically covered with vegetation.

PPI stopped receiving chemical wastes in 1980, and in 1983, it was placed on the NPL (National Priorities List of Superfund). In 1983, TERA Corporation, an engineering firm, concluded that because of the high clay content of the underlying and surrounding soils of the Petro Scenic site, the waste could be safely secured on-site.1 Today, the wastes have migrated off-site a considerable distance beneath a four-lane divided highway and onto someone else's property.



While the Superfund sites developed, other industries moved into the community. They included: five chemical plants, a calcined coke plant, a secondary lead smelter, a tank car company, a rail switching yard, a paint and solvents company, a brickyard, a manufacturing company, a pipe company, a commercial hazardous waste company that has both an incinerator and landfills, and numerous waste pits. Additionally, we are impacted by a chemical plant two and one-half miles north of Alsen, and heavily impacted by a paper mill five miles north of us. Both facilities dump into the river or the swamp.

Most of these facilities moved in during the fifties and sixties when African Americans in Louisiana were denied voting access. Therefore, we were never consulted, considered, or given the opportunity for input on the nature of our neighborhood because of our race. After a few industries were located here, the area was considered an industrial zone, thus opening the door for the others to locate here. Our community received all of the adverse impact of industry and none of its benefits. ...

Works Cited

Wiygul, R. B., Harrington, S. C., & Robinson, F. T. (1994, January). Environmental Justice in Rural Communities. West Virginia Law Review, 96(2), 405-448.



Excerpt from Environmental Concerns – and Anger – Grow in Month After Thousand-Year Flood Strikes Louisiana

In the aftermath of the 1000-year flood that hit southern Louisiana in August, environmental and public health concerns are mounting as the waters recede. Residents want to know why many areas that never flooded before were left in ruin this time, raising questions about the role water management played in potentially exacerbating the flood. The smell of mold lingers on streets where the contents from flooded homes and businesses are stacked in piles along the curbside, as well as in neighborhoods next to landfills where storm debris is taken. ...

DRC Emergency Services, the contractor charged with removing debris in Baton Rouge, expects it could take until the end of October to complete. The company has quadrupled its estimate of flood debris to 1.3 million cubic yards, according to the Baton Rouge Advocate.

When it comes to debris removal, we are doing the same stuff wrong we did after Hurricane Katrina in 2005, Subra told me. "We are still not providing the workers with the proper protection," she said. "Respirators are needed to protect them from particulates."

After Katrina, officials were supposed to develop contingency plans to direct the disposal of hurricane debris, so it wouldn't end up next to residential areas again. But that is exactly what is happening: After August's flood, LDEQ permitted a temporary landfill next to Monticello — a predominantly African-American neighborhood in east Baton Rouge, where Katrina debris was dumped 11 years earlier.

The Ronaldson Field landfill in Alsen, another African-American neighborhood just north of Baton Rouge has also been permitted to take storm debris following the storm, much to the frustration of its residents. Alsen residents have been against the private landfill since it started operations over 20 years ago. People living next to the landfills "should be concerned," Subra said. "The particulates that you would inhale go deep into the lungs and could contain a whole host of bacteria. Asbestos is a huge issue, and sheetrock that starts to degrade lets off hydrogen sulfide, which endangers your lungs."

I contacted the U.S. Occupational Safety and Health Administration (OHSA) to find out about its role in protecting workers in a flood zone. Juan Rodriguez, responsible for public relations at the OHSA Dallas office, told me it has a team on the ground in Louisiana.

The team "provided information to workers, employers, and the public in general," Rodriguez wrote in an email,



though he didn't specify where exactly the team went or what it had done. ...

At a community meeting in Alsen on September 6, residents voiced their concerns about the Ronaldson Field landfill being allowed to receive mold-covered storm debris so close to their homes.

"We have had to deal with the landfill for over 20 years," Moses Evans, Jr. said at the meeting. He and the other Alsen residents expressed outrage that the LDEQ would let the Ronaldson Field landfill take the storm debris. Evans complained that residents had already been subjected to the landfill for much longer than the original seven years the community was told the landfill would be permitted to operate.

"This community is not fit for human beings to live already," Evans said. "And now the air and traffic is even worse."

He thinks the only solution for protecting residents is for them to receive a buy-out and relocate. Many at the meeting shared this sentiment with the panel of invited guests that included Mark Stafford, the vice president of DRC Emergency Services; Sid Brian, owner of Ronaldson Field landfill; Chuck Carr Brown, secretary of the Louisiana Department of Environmental Quality; and William Patrick, Sr., public works operations manager for the city-parish.

Brown tried to assure the community that LDEQ is making sure no hazardous materials make it to the landfill, which is was only permitted to take construction and demolition waste. "The only thing different for this particular emergency is that now the landfill can take furniture and carpet, too," he said.

Brown acknowledged that he couldn't guarantee that 100 percent of hazardous waste and other items aren't getting dumped at Ronaldson Field and reminded people that LDEQ sent out an advisory telling people to sort out hazardous waste when clearing out their homes.

The panelists insisted they were being diligent in making sure whatever household hazardous waste not separated out on curbs is pulled by workers hired as spotters. Such declarations were met with groans and laughter from the audience. People pointed out that isn't what they are seeing when they drive around Baton Rouge.

Works Cited

Dermansky, J. (2016, September 17). Environmental Concerns - and Anger - Grow in Month After Thousand-Year Flood Strikes Louisiana. Retrieved from DeSmog: https://www.desmog.com/2016/09/17/environmental-concerns-and-anger-grow-month -after-thousand-year-flood-strikes-louisiana/



PUBLIC HEALTH ASSESSMENT

PETRO-PROCESSORS OF LOUISIANA INCORPORATE BATON ROUGE, EAST BATON ROUGE PARISH, LOUISIANA

SUMMARY

The Petro-Processors of Louisiana, Inc. (PPI) site, located in East Baton Rouge Parish, Louisiana, operated two waste disposal facilities: the Brooklawn area and the Scenic Highway area. A variety of wastes generated by petrochemical processes were disposed of at both areas by the operators of the site, from 1964 to 1980. Both areas contain chlorinated aromatic hydrocarbons and chlorinated hydrocarbons. Contaminants have been detected in samples from soil, groundwater, surface water, and air at the Brooklawn area and in soil, groundwater, and air at the Scenic Highway area. Contaminants in water, sediments and fish have been detected off-site of the Brooklawn area, Scenic area, in Bayou Baton Rouge and in Devil's Swamp. In 1993, the Louisiana Department of Environmental Quality (LDEQ) and the Department of Health and Hospitals, Office of Public Health (LOPH), Section of Environmental Epidemiology (SEE)expanded a 1987 health advisory against swimming, sediment contact, and fish consumption to include Devil's Swamp and Bayou Baton Rouge.

The community has expressed concerns about potential health effects related to the site, migration of contamination off site, the potential for increased exposure during remediation, foul smells and respiratory distress, and the lack of an evacuation plan.

An evaluation of the health outcome data did not demonstrate a significant difference in cancer and stillbirth rates between the community of Alsen and East Baton Rouge Parish.

The site is considered a public health hazard because of risks to human health from past, present, and future exposure to hazardous substances. Exposure pathways of public health concern are: ingestion of contaminated fish, potential ingestion of contaminated groundwater and wildlife, dermal contact with contaminated sediments, inhalation of airborne volatile contaminants prior to and during remedial activities, and dermal and incidental ingestion of contaminated soils.

The LOPH and the Agency for Toxic Substances and Disease Registry's (ATSDR) Health Activities Recommendation Panel determined that community and health professional education is needed. In addition, LOPH recommends better site restrictions, additional groundwater characterization, air monitoring during excavation, additional fish sampling, and development of an emergency evacuation plan.



BACKGROUND

A. Site Description and History

Petro-Processors Inc. (PPI), operated two waste disposal facilities between 1964-1980, located north of Baton Rouge, Louisiana. These two waste disposal sites, known as the Scenic Highway area and the Brooklawn area (Appendix A, Figure 1), were used to store various industrial and petrochemical waste products. The two areas are located about one mile apart and cover a total of 62 acres. There are distinct topographic features which characterize both areas. Both areas are located adjacent to Bayou Baton Rouge and are partially within its flood plain. In addition, sections of both sites are elevated, in an upland terrace above the bayous flood plain. Initially, lower portions of the Brooklawn area was located within the eastern edge of the Mississippi River flood plain, about 5000 feet from the river channel. Current containment and remedial activities include; fencing the perimeter of the sites and 24 hour security supervision, incineration of contaminated water, clay capping of some contaminated lagoons , along with air and water monitoring.

The Brooklawn area:

Brooklawn area is located on Brooklawn Drive, about 1.9 miles west of the intersection of U.S. Highway 61 and Brooklawn Drive. Bayou Baton Rouge borders both the north and west sides of the area and flows into Devils Swamp. The Brooklawn area occupies approximately 55 acres and includes three identifiable areas of waste disposal and contamination: (1) the bluff area, (2) the batture area and (3) the Cypress Swamp area, (Appendix A, Figure 2). The batture area contains an upper lagoon and a lower lagoon which are located in the flood plain of the Mississippi River. In June 1983, the Cypress Swamp was flooded by the Mississippi River, and flood waters came within four inches of overtopping the lagoons in the batture area. In order to prevent overflow into Bayou Baton Rouge, the lower lagoon was pumped from February 1through 6, 1985 and the upper lagoon was pumped from February 27 through March 2, 1985. An old channel of the bayou runs through part of the area and may be a conduit for migration of wastes. Disposal activities at the Brooklawn area began in 1969 and continued until 1980. Initially, wastes were disposed into unlined pits in the bluff area. The upper lagoon was filled and capped with clay in late 1994. The lower lagoon is uncapped to date, and surface water is pumped and treated by incineration. The lower lagoon is scheduled to be capped in 1995.

The Scenic Highway area:

The Scenic Highway area is located on the west side of U.S. Highway 61, south of the bridge over Bayou Baton Rouge (Appendix A, Figure 1). It is approximately seven acres in size and began as a large unlined pit excavated prior to 1964 to supply soil for the construction of a nearby highway. The initial pit was 750 feet long, 450 feet wide and 20-24 feet deep. Waste was disposed of in this area from 1965 to 1969.



Highway 61 delineates the eastern area boundary, and Bayou Baton Rouge borders the northern and western boundaries. At one time, waters from the bayou were in direct contact with the highly eroded bluff walls along the western boundary. However, the bayou has been slightly diverted in this area and erosion has been reduced. In 1991, part of Bayou Baton Rouge was diverted to the west away from the eroding bluffs, which were later reinforced. The Scenic Highway area contains an estimated 3.5 million cubic feet of contaminated material, including chemical waste such as organic and volatile compounds and industrial waste such as empty drums, pipe, and plastics. The disposal pit was abandoned in 1968 and uncovered liquid waste was exposed at the surface until 1973. The pit was closed and covered with plastic and soil in 1974. In 1992, the Scenic Highway site was covered with a two-inch clay cap.

In response to community concerns, a health survey was conducted on November 17 and 18, 1980 in the Alsen community, southeast of the PPI Site. A team consisting of one physician, one nurse and two public health investigators went to the community center to collect information from people who came voluntarily for the health interviews. Approximately 140 people were interviewed; information was obtained for 107 households representing 367 residents or about 40% of the total population of Alsen. A letter detailing the results of the health survey was submitted to the Director of the Division of Disease Control, State of Louisiana, on November 24, 1980 (Appendix B).

In July of 1980, the U.S. Justice Department and state and local governments jointly filed suit against PPI and several waste generators that used the site for disposal. Since mid-1980, the responsible industries along with regulatory agencies have conducted several investigations at the site. On February 16, 1984, a Consent Decree for site closure was finalized with the participation of all parties and the court. The consent decree specified that the potential responsible parties (PRP), represented by NPC Services Inc., implement a remedial investigation, design a remedial plan and conduct long-term monitoring at the PPI site. It also mandated that NPC Services Inc. conduct an investigative study to verify the accuracy of the existing monitoring systems and to determine the nature, scope, extent, and likelihood of additional contamination at the site. This study, known as the Remedial Planning Activities Report (RPA), was approved in September of 1986. The Remedial Design and Construction Plan (RDCP), prepared by NPC Services, Inc., (NPC), was finalized and approved by the U.S. Environmental Protection Agency (EPA) and the LDEQ in June of 1987.

Remedial actions began in the summer of 1987. During remedial excavation activities, volatile contaminants were released into the air, particularly hexachlorobutadiene (HCBD) emissions exceeded allowable concentrations at the site. As a result, in December 1987, all waste handling activities were stopped.



A new remedy for the site was developed (Supplemental Remedial Action Plan (SRAP) which does not involve excavation of the materials, but rather the pumping and treatment of groundwater and liquid waste by incineration. A two-inch clay cap was also constructed over the upper lagoon of the Brooklawn site and over the Scenic Highway site.

Currently, there are 27 total on-site monitoring wells, 130 on-site recovery wells and 98 onsite French drains. Of the 27 total monitoring wells, 9 wells each are located at the Brooklawn, Scenic Highway and Vault locations. The recovery wells and French drains recover contaminated groundwater and liquid waste for on-site treatment. In addition, EPA is investigating the extent of contamination in Bayou Baton Rouge and Devil's Swamp.

The Agency for Toxic Substances and Disease Registry (ATSDR) released a Preliminary Public Health Assessment of this site on December 6, 1990. It concluded that the site represented a public health hazard. Potential exposures were found to be inhalation of volatilized contaminants, ingestion of contaminated fish and wildlife, ingestion of contaminated groundwater and dermal contact with surface water and sediments. The preliminary health assessment recommended investigation and monitoring of groundwater, investigation of surface water runoff, biota sampling and air sampling. It also recommended the implementation of measures to prevent site erosion and a demographic review of the surrounding area. A draft was presented for public comment from March 20, 1995 to May 18, 1995.

B. Site Visits

May 3, 1991 Site Visit

On May 3, 1991, health assessors and health educators from LOPH, Section of Environmental Epidemiology, and LDEQ, Inactive and Abandoned Sites Division, conducted a site visit. The site was observed from outside the fence line.

The Brooklawn disposal area is located just south of the Schuylkill metals plant. It is surrounded by a six-foot high chain linked fence that is topped with three strands of barbed wire. Two signs were posted, one identifying the site as hazardous and another sign indicating "No Trespassing." No evidence of contamination was visible from the fence line due to the clay cap. Twelve contaminated groundwater recovery wells were visible. In addition, the site contains nine groundwater monitoring wells, not visible from the fence line. A wastewater treatment plant, used to treat surface water and groundwater before discharge into the bayou, was located near the site. A recovery system consisting of a network of pipes and drains was observed on site and was designed to collect contaminated water. The cypress swamp area was drained and backfilled. At the time of the site visit it was covered with grass.



One unlined lagoon was left on site, the lower lagoon at the Brooklawn site. A road was under construction which runs parallel to Bayou Baton Rouge, downstream from the Brooklawn area, and into the upper portions of Devil's Swamp. The road was completed in 1991 to provide access for excavation of contaminated soil from the bottom of the bayou.

There are two industrial facilities directly across Brooklawn Drive from the Brooklawn area (Reynolds Aluminum and Schuylkill Metals) with approximately 200 employees. Just east of the site along Brooklawn Drive are the Kansas City Southern Railroad and the Kaiser Aluminum facilities. Southeast of the site along Scenic Highway is the Rollins Waste Disposal facility. There is an extensive industrial corridor extending to the south along the Mississippi River. The terrain in the area includes elevated bluffs and low lying areas adjacent to Bayou Baton Rouge. Itis believed that an old channel of Bayou Baton Rouge runs underneath part of the Brooklawn area.

The Scenic Highway area was a borrow pit at one time, created during the construction of U.S. Highway 61. The unlined pit was used to dispose of hazardous waste between 1965 to 1969. The site is surrounded by a six-foot high barbed wire fence with a locked gate. No evidence of contamination was visible from the fence line because the site is capped. There are houses within 200-300 yards of the site. Surrounding land use includes recreational activities (fishing and hunting) and grazing of livestock. The terrain at the site includes a high bluff and steep banks extending to Bayou Baton Rouge along the site's western edge.

June 15, 1994 Site Visit

On June 15, 1994, health assessors and staff from LOPH and LDEQ were given a tour of the site by NPC representatives to assess current site conditions. Since the site visit in 1991, the Brooklawn area has undergone extensive changes. A very large, empty disposal vault is located approximately 1/4 mile northeast of the Brooklawn area. This vault was originally constructed to dispose of the excavated wastes. It has since become obsolete due to the change in there mediation plans from excavation of contaminated material to hydraulic containment, while pumping and treating fluids from the ground. There have been 98 french drains and 130 recovery wells installed on-site and a total of 27 monitoring wells installed around the site. Nine each of these water monitoring wells are located at the Brooklawn, Scenic Highway, and the Vault sites. An on-site incinerator which will be used for burning organic material was being installed. The upper lagoon has since been filled and topped with a clay cap in late 1994.

At the Scenic Highway area, Bayou Baton Rouge was slightly diverted so that it is not directly adjacent to the western boundary of the disposal area. Also, the slope of the bayou's bank in this area has been graded and stabilized to reduce erosion.



C. Demographics, Land Use, and Natural Resources Use

The Petro-Processors site is located near the community of Alsen, (1990 population 4,178), in East Baton Rouge Parish, (1990 population 380,105). According to 1990 census data, sixty three percent of the parish population is Caucasian; thirty-seven percent are non-Caucasian. The average annual income for East Baton Rouge Parish is above the average for the state. The number of people in the parish that are considered below poverty level is 19.3%, compared to the yearly average for Louisiana of 18.6%. The largest community in the area of the site is the city of Scotlandville, which is located within three miles of the site. It's 1989 population was 15,113. The city of Baker is located approximately three miles east of the Scenic Highway area and is the second largest community in this vicinity, with a 1989 population of 12,896.

Information available for the Brooklawn area indicates that the population at risk for exposure to site contaminants include the approximately 200 employees who work for the two facilities (Schuylkill and Reynolds) located within 400 yards north of the site. The Louisiana Training Institute (LTI), several schools located in Baker and Alsen, churches and other industries are located within a two-mile radius of the PPI site. The LTI, is a facility for juvenile offenders which houses approximately 280 juveniles. It is located just off the Scenic Highway in Alsen. Also located near the site is the Juvenile Reception and Diagnostic Center, a placement center for the juvenile offenders, which houses approximately 200 juveniles. Southern University Agriculture Department is located off of Scenic Highway in the town of Alsen. During daylight hours, approximately 90 people are present at this facility. Two schools are located in Scotlandville and are within a three-mile radius of the Scenic Highway area. Crestworth Elementary School has an average yearly enrollment of 350 students and Crestworth Middle School which is adjacent to Crestworth Elementary has an average yearly enrollment of 650 students. Both of these schools are located within the Crestworth residential subdivision which has approximately 350 homes. In addition, the community of Alsen has one Head Start school with an average enrollment of 360 children. There are about 50 people in approximately 15 individual residences who live within a one-mile radius of the Scenic Highway area.

The coordinates of the Petro-Processors Inc., site is 30:34:00 north latitude and 91:10:30 west longitude. Demographic statistics for the site included block groups 0041 1, 0042032, and 0042034. These block groups include the site, the city of Alsen and surrounding areas. Figures 6 and 7 (Appendix A), demonstrates the area (boxed area) included in the demographic analysis. The following tables present the demographic information for this area.

Land use in the area includes agricultural and recreational activities such as hunting, fishing, vegetable gardening, animal grazing and farming.



At least 20 families within a one mile radius of the Scenic Highway and Brooklawn areas have vegetable gardens in their yards. Several acres of land adjacent to the Scenic Highway area are used for growing crops. Bayou Baton Rouge is located in this area and is used for recreational water activities including fishing. Several residential wells are in the area, one of which is within a half-mile of the Scenic Highway area. Groundwater use to include city water source, industrial and production wells.

Total	Block Groups	0041 1	0042032	0042034
Total Population	2812	447	1270	1095
American Indian	7	1	6	0
Asian	1	1	0	0
Black	2187	232	860	1095
Hispanic	25	1	23	1
White	611	213	398	0
Other	6	0	6	0
Tot. Pop > 18YR	1665	302	636	727
Tot Pop.< 18YR	1147	145	634	368
Total Residences	827	167	275	385

D. Health Outcome Data

Government agencies routinely collect data regarding the health of populations within the state. The most recent cancer incidence data from the Louisiana Tumor Registry (LSU Medical Center)was obtained for the years 1983-1990. Cancer incidence data was evaluated (Appendix C). Data for other health effects was also obtained from the Louisiana Office of Vital Statistics for the years 1982-1988.



A discussion of the evaluation of health outcome data can be found in the Public Health Implications section.

COMMUNITY HEALTH CONCERNS

Industrial workers and residents of the local communities which surround the PPI site have reported a variety of health concerns to LOPH, ATSDR, EPA, and the National Institute for Occupational Safety and Health (NIOSH).

On November 17 and 18, 1980, a health survey was conducted in the Alsen community, southeast of the PPI Site. A team consisting of one physician, one nurse and two public health investigators were in the community center collecting information from people who came voluntarily for a health interview. Approximately 140 people were interviewed; information was obtained for 107 households representing 367 residents or about 40% of the total population of Alsen. Some of the health complaints included burning eyes, frequent headaches, sinus problems, breathing difficulties, nausea and vomiting, skin rashes and dizziness (Appendix B).

NIOSH conducted a hazard investigation in March of 1988 in response to a request submitted by representatives of the Aluminum, Brick, and Glass Workers International Union. In January of 1991, EPA hosted an Open House meeting for the residents of the communities surrounding PPI. At this meeting the local citizens submitted a list of questions and concerns relating to the site (Appendix D). Health related concerns from this list are included in this section.

The LOPH organized and participated in three meetings (3/12/91, 4/17/91, and 5/29/91) with a group of 14 citizens and representatives designated as the Community Advisory Committee for PPI. The members of this Committee include citizens recognized as community leaders, workers from local industries, the State representative for the district, and concerned citizens from the community. The Community Advisory Committee voiced their concerns and assisted LOPH in organizing a Public Meeting to gather concerns from the whole community. The Public Meeting was held by LOPH on May 14, 1991 with 20 community members attending.

Through NIOSH's hazard investigation, EPA's Open House, the Community Advisory Committee, and the LOPH Public Meeting, the community has raised the following health related concerns:

- Will workers at the Reynolds Metals Company Calcite Coke Plant experience health effects during remediation?
- People hunt and fish in this area. Are fish and wildlife in the area contaminated?



- Are the allergies, skin rashes, headaches, sinus infections, respiratory problems, and nose bleeds individuals around the site experience due to the contaminants at the site?
- Do the residents on Springfield Road have a higher cancer rate than expected?
- Is the groundwater or surface water contaminated in the area surrounding the sites, and if they are, can they cause adverse health effects?
- Will the Public Health Assessment evaluate the synergistic effect of exposure sources from industrial sites in the area along with exposures from the Petro-Processors sites?
- Is there an evacuation plan for the local community in case of an emergency?
- Which chemicals have breached the site? How far and where have they migrated?
- Do the Threshold Limit Values during remediation consider residents who are exposed for 24 hours/day?

On February 8, 1994, the Coalition for Community Action, a citizens group near the site, held a meeting and stated a number of additional concerns.

- The community would like to see more warning signs placed around the contaminated swamp area.
- A method should be developed and implemented to inform and educate the public about the contaminated condition of the swamp.
- The state (LDEQ and LDHH) and federal agencies (EPA) should work together to provide information to the public. Public service announcements, mass mail campaigns, etc. should be considered to reach all segments of the population.
- All landowners of property in the swamp that is impacted by the contamination should be notified and properly informed.
- People are continuing to hunt and fish in the swamp. A method must be developed to stop the harvesting of contaminated species.

Health concerns are addressed in the Community Health Concerns Evaluation section.

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PETRO-PROCESSORS OF LOUISIANA, INC. SCOTLANDVILLE, LA Cleanup Activities

Background

The 77-acre Petro-Processors of Louisiana, Inc. site (PPI) is located in East Baton Rouge Parish, Louisiana. The site includes two sub-areas, the Scenic site and the Brooklawn site. The Brooklawn site includes the disposal area with the former lagoons and pits and a portion of Bayou Baton Rouge. The Scenic site was a borrow pit for the construction of the overpass at the intersection of U.S. Highway 61 and State Highway 964; it also includes the former disposal area and a portion of Bayou Baton Rouge.

PPI operated these sites as depositories for various petrochemical wastes during the 1960s and the 1970s. These operations contaminated surface soil, surface water, groundwater, air and airborne particulate matter with hazardous chemicals.

The site is located over the "400-foot sands," a major drinking water aquifer.

The nearest residence is about 3,000 feet from the site, and the nearest drinking water well is 3,000 feet upgradient of the site. The community is predominantly rural. About 435 people live within two miles of the Brooklawn site.

National Priorities Listing (NPL) History Proposed Date: 9/8/1983 Final Date: 9/21/1984

What Has Been Done to Clean Up the Site?

The site is being addressed through federal, state and Potentially Responsible parties (PRPs), a.k.a "Industry Defendants", actions. The site remedy follows the "Conceptual Closure Plan", agreed by the PRPs under a Consent Decree signed in the United States Middle District Court of Louisiana in 1983, as amended by a "Supplemental Remedial Action Plan" in 1989.

EPA has conducted several Five-Year Reviews of the site's remedy. These reviews ensure that the remedies put in place protect public health and the environment, and function as intended by site decision documents. The most recent review, completed in 2015, concluded that response actions at the site are in accordance with the remedy selected and that the remedy continues to be protective of human health and the environment in the short term.

These remedies are anticipated to be protective in the long term with the future implementation of enhanced attenuation at the source area and within the contaminant plume at the Scenic site.



The rerouting of Bayou Baton Rouge and engineered clay caps covering the Brooklawn and Scenic sites reduced the migration of contaminants and prevented air emissions from the source areas as well as exposure to nearby industries and residence. Continued research, assessment and modeling ensure that remedy implementation is successful. Risk assessment work ensures that the technologies implemented at the sites are protective of human health and the environment.

What Is the Current Site Status?

The long-term remedy at the Brooklawn site includes source reduction, protective fill and biota monitoring, monitored natural attenuation of contaminated groundwater, and administrative controls.

The long-term remedy at the Scenic site includes source control, natural recovery of sediments, monitored natural attenuation of contaminated groundwater and administrative controls.

Currently the disposal area of both former disposal sites has been backfilled, capped, graded, and seeded. Groundwater monitoring at both sire is ongoing.

Construction of the remedy finished in 2003. Enhanced attenuation activities at the Scenic site began with the injection of molasses to enhance biological activity in 2011.

Operation and maintenance activities are ongoing. Further modeling, monitoring, reinjection of molasses, treatment of groundwater at the distal end of the plume, and inspection activities continue to ensure protection of human health and the environment.

Works Cited

Environmental Protection Agency. (n.d.). PETRO-PROCESSORS OF LOUISIANA, INC. SCOTLANDVILLE, LA Cleanup Activities. Retrieved from EPA| Superfund Site: https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup& id=0600442





Baton Rouge councilwoman says landfill causing cancer, but health experts say evidence lacking

By Steve Hardy shardy@theadvocate.com December 15, 2018

For more than a year, residents near Baker have fought to shut down the local specialty landfill over concerns about odor, fire, and vermin.

But the councilwoman representing the area has taken it a step further, suggesting the site is causing cancer – a claim health officials say isn't supported by the facts.

Ronaldson Field was first permitted in 1997 and is seeking permission from the Louisiana Department of Environmental Quality to continue operations for ten more years. The landfill typically accepts construction debris and wood waste, though it was allowed to take in waterlogged furniture and carpets in the aftermath of the 2016 flood.

When residents were asked in October to submit public comments on a permit renewal, nearly all asked the DEQ to reject the proposal because the landfill smells bad or because of non-specific health concerns.

Local councilwoman Chauna Banks – who represents the Alsen and St. Irma Lee neighborhoods – has honed in on the alleged cancer risks.

"One hundred percent of the residents in St. Irma Lee have been diagnosed and died of some form of cancer," she told her Metro Council colleagues in an October meeting, reading off a PowerPoint presentation she prepared about Ronaldson Field.

When questioned about the assertion in a recent interview, Banks doubled down, saying that according to St. Irma Lee residents, everyone who has died in recent memory was killed by cancer.

For medical professionals, though, her claim beggars belief.

"(The landfill) is not going to cause cancer. You know what's going to cause cancer? Fatty food, smoking, genes, lifestyle choices, the state epidemiologist Raoult Ratard, of the Louisiana Department of Health.

Parish Coroner Beau Clark also said he has not drawn or seen any link between Ronaldson Field and instances of cancer.

Lauren Maniscalco, liaison for LSU's Tumor Registry, said the cancer rate in the census block around the landfill is not statistically significant when compared to the rest of Louisiana based on the available date on cancer tumors.



Told of the assertions by health officials, Banks said she's talked to residents about their medical concerns and that the DEQ needs to take them seriously and do more studies. She said she didn't feel like repeating what she's already said about cancer rates.

"We've done all the work. We've had all the meetings," Banks said.

Ronaldson Field is mostly full of plants and construction material that's already in people's houses, Ratard said. So while her tried to allay cancer fears, the doctor acknowledged that there are legitimate concerns for people who live near landfills.

"The odors are not going to kill you, but they are going to make you feel very unpleasant ... Day after day it's going to affect your quality of life," Ratard said.

Fermenting waste produces sulfides and methane gas, "not sufficient quantities to cause health effects ... but our nose is very sensitive to it," he continued.

Ronaldson Field officials did not return calls seeking comment. In the past, landfill representatives have said they fill a vital role which ensures continued development in the region. They've also said that flood debris would have lingered munch longer without their facility and pointed out that the landfill is in compliance with all the DEQ's regulations.

Though the city-parish dumped flood debris at Ronaldson Field in 2016, the local government does not currently have a contract with the facility, nor does it plan to use the site in the future, said environmental services director Richard Speer.

The city-parish has its own dump – the North Landfill – about four miles away off U.S. 61.

DEQ expects the rule on Ronaldson Field's permit renewal sometime next year.

"My folks are going through a lot comments right now. ... This one has attracted a lot of attention," said DEQ assistant secretary Elliott Vega. "There is some controversy."

DEQ denied another construction and debris landfill around Alsen about a year and a half ago, Vega said. The decision didn't get a lot of attention, but it does show the department is willing to say no to companies that can't prove that they're filling a need and adequately considering alternate sites, he continued.

Banks has contended that DEQ does an inadequate job monitoring Ronaldson Field and investigating neighbor's complaints about odors and other concerns. The department has defended its record.



The Louisiana Environmental Action network has joined with Alsen and St. Irma Lee residents in opposing the permit renewal. The group argues that the state should slow down because there is a higher instance of cancer in the area and they need to determine the source before charging ahead with development.

"The common rhetoric we often hear from state agencies is that there is not a problem, to which I would say we do not have enough information to say that there is no problem, and the data we do have suggests there is a problem," LEAN spokesman Michael Orr wrote in an email to The Advocate.

The local census block does have a cancer rate 13 percent higher than the state average. LSU's tumor registry found a rate of 552 instances of cancer per 100,000 residents between 2006 and 2014. However, the rate and small sample size mean the state doesn't believe the data indicate the area's cancer rate is significantly higher or the result of chance, Maniscalco said.

Even if there is a higher cancer rate, it's difficult to pin it on any particular facility, noted Clark, the coroner. Many petrochemical plants are also nearby, which could impact residents' health, he said.

Those other sites make Ronaldson Field a weak target, said communications consultant and former environmental journalist Gerard Braud.

He's sympathetic to neighborhoods which have long had to live among disruptive, foul-smelling facilities, but doesn't think their scattershot strategy will work.

"You can't just speculate and point your finger at a smokestack and say, 'That's the source of my ailments.' ... You can't just throw every fear at the wall like a bowl of spaghetti and see what sticks," Braud said.

Banks allowed that other facilities may contribute airborne carcinogens, but traffic problems, water run-off, negative impacts on economic development and other concerns are all directly attributable to Ronaldson Field, Banks said.

Meanwhile, DEQ has promised to respond to all the community's concerns, including the neighbors who just want to see their quality of life improve.

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Pollution concerns about this Louisiana swamp were raised decades ago. A new plan could help.

By Mark Schleifstein September 19, 2022

As far back as the 1960s, concerns were raised over pollution at Devil's Swamp, where families once crawfished and hunted north of Baton Rouge.

"When will we ever be able to lift the advisory against eating fish and other critters out of the swamp?" said Jerry Speirs, a New Orleans attorney whose family owned farmland adjacent to the swamp when the contamination was first reported. His late father-in-law, Dave Ewell, sought to draw attention to the issue in 1969.

But more than a half-century later, the area that is now a Superfund site has still not been cleaned up. New plans running on two separate tracks promise a 30-year cleanup, accompanied by possible projects to improve natural resources and provide infrastructure for future fishers and hunters. But none of the plans call for compensating affected families in a nearby majority-Black community.

Federal and state officials have begun a new review of the effects of toxic hazardous wastes that have contaminated Devil's Swamp to determine whether additional steps are required to mitigate damage to natural resources, including several threatened and endangered species, or to compensate the public for their loss.

Contaminated with a variety of toxic chemicals, including cancer-causing PCBs, since the 1960s, Devil's Swamp is a 12-square-mile cypress-tupelo freshwater swamp along the east bank of the Mississippi River just north of downtown Baton Rouge and adjacent to the Alsen community.

The new assessment is being overseen by the Louisiana Departments of Environmental Quality and Wildlife & Fisheries and the U.S. Fish & Wildlife Service, in their roles as public trustees for the area's natural resources. It will be conducted in parallel with a long-delayed effort to contain and reduce hazardous wastes at the 37-acre Devil's Swamp Lake Superfund Site, which sits within the assessment area and whose contamination is believed to have come from the same industrial sources. The Superfund cleanup, which is overseen by the federal Environmental Protection Agency, is not scheduled to begin until early 2024.

Environmental activists and local residents expressed support for the new effort, while also criticizing why it has taken so long.



"It's just mind blowing to me that here we are so many years later and they haven't really worked on cleaning the site up in a meaningful way," said the Sierra Club's Darryl Malek-Wiley.

"The adjacent environmental justice community members have historically depended on the flora and fauna and wildlife and plants of Devil's Swamp as a source of food," said Wilma Subra, a scientist who has worked with the Louisiana Environmental Action Network and provided technical advice to Alsen residents about the swamp contamination under a grant funded by EPA. "Sometimes, that's all the food they had."

During an October 2019 hearing by the EPA on the proposed Superfund cleanup, Baton Rouge Metropolitan Council Member Chauna Banks and state Sen. Regina Barrow joined several Alsen residents in asking why the \$4 million proposed for it couldn't be better used to buy out nearby residents.

In an interview Friday, Banks said she still believes buying out Alsen residents would be a better solution. But she also said it was hypocritical for DEQ to launch the new study at the same time it ignores complaints from community residents about pollution from other facilities in the area.

Catfish and crawfish

The new study beginning the natural resource damage assessment used data collected from the swamp since the early 1980s to determine there was enough evidence to show a link to a nearby Clean Harbors facility, said Gregory Langley, a spokesman for DEQ, which is leading the assessment.

Based on fish tissue sampling, the state began posting signs warning against fishing, consuming fish, or contact recreation, including swimming in the lake and surrounding area in 1986.

But the swamp has historically been a popular local food resource for nearby residents who fished for catfish and crawfish from its waters. And hunting stands are still found in trees.

Much of the Devil's Swamp Lake property has historically been owned by two private landowners, the Ewell and Cazadessus families, and Baton Rouge Disposal, according to EPA, while other parts of the swamp have other individual and corporate owners.

The swamp also is home to a variety of other species, including belted kingfishers, raccoons, minks and great blue herons, as well as formerly threatened bald eagles.



It may also be visited by threatened manatees, which could make their way north up the Mississippi from the Gulf of Mexico, and endangered pallid sturgeon, one assessment says.

The southern segment of the swamp being targeted by the new effort was found to be largely contaminated by PCBs and other chemicals released by Rollins Environmental Services, which operated a neighboring waste treatment, storage and disposal facility from the early 1970s until 1997. To the north, part of the swamp is home to two Superfund cleanups dubbed Petro Processors, where contamination problems date back as early as the 1950s, and involve a variety of other companies.

The history of ownership and operation of the Rollins property since then is complicated. Rollins acquired Laidlaw Environmental Services in 1997, and took on the Laidlaw name. Laidlaw then acquired Safety-Kleen Corp. in 1998, and renamed itself Safety-Kleen.

In 2002, Safety-Kleen sold the property to Baton Rouge Disposal LLC, which still owns it. Clean Harbors Baton Rouge LLC, however, operates the facility and is responsible for both the new natural resource damage assessment and the lake Superfund cleanup. As such, Clean Harbors is responsible for the costs of the new study and any projects it recommends, as well as for the Superfund site cleanup.

In a Sept. 1 letter to DEQ, Eric Jarrell, an attorney representing the company, said it agreed to participate in the new natural resource assessment, while preserving its rights to disagree with the findings.

Company officials did not respond to requests for comment.

Nearly \$4 million

PCBs, or polychlorinated biphenyl compounds, the main contaminant of concern in the swamp, were industrial chemicals historically found in oils used to insulate electric transformers until they were banned in 1979 because of their threat to human health and wildlife. A variety of other toxic chemicals, including hexachlorobenzene, hexachlorobutadiene and heavy metals, have been found in samples of sediment and water dating back to 1977.

The U-shaped lake within the swamp was excavated in 1973 and 1974 to provide material to reinforce a levee along the nearby Baton Rouge Barge Canal, also known as the Baton Rouge Barge Harbor.

The deeper lake area in the swamp ended up capturing greater quantities of the hazardous chemicals, resulting in its first being proposed as a Superfund site by EPA in 2004.



But EPA didn't add the site to the national list of Superfund projects until 2020, and according to the site's official EPA website, approval of the proposed plan to clean up its wastes won't occur until early 2024. EPA declined to comment on the delay, but the state DEQ says the company, EPA and the U.S. Department of Justice are in negotiations over the contents of a consent decree that will be the legal framework for the cleanup.

The Superfund project plan approved by EPA in 2020 calls for capping sediment containing PCBs in a drainage ditch running from the Clean Harbors property through the swamp and into the northern end of the lake. The cap would include a 6-inch-deep base layer of sediment with up to 6 inches of armoring on top, aimed at blocking migration of chemicals and combating against storm erosion. The armoring material is not identified.

The project would take up to 2 years to design and build, and would also include 30 years of monitoring. At the end of the 30 years, the assumption is that the contaminants found in the Superfund site area would be below levels raising human health concerns. In 2019, the project was estimated to cost \$3.8 million.

Another complication facing that project might be confirmed during the natural resource study.

Portions of the levee along the barge canal failed when the Mississippi River rose particularly high in 2020, and concerns had already been raised by the Army Corps of Engineers that changes in the way water flows between the contaminated parts of the swamp and the barge canal had added PCBs to the sediments on its bottom.

"The levee in question has been in decline since 2011, and was found to have completely failed in 2020," Langley said. The levee, largely on private property, is no longer considered a Corps project, as it was originally built in anticipation of the barge canal enticing major industry to the area, which never happened.

In a 2016 memo to EPA officials overseeing the Superfund site, Corps officials' sampling of shoal material in the canal in advance of scheduled maintenance dredging turned up levels of PCB ranging from 6 parts per billion near the river to 22 parts per billion in the area closest to the adjacent lake.

The Corps pointed out that it would be responsible for additional cost of properly disposing such sediment if it didn't meet federal contamination requirements, which could significantly increase the cost of keeping the barge channel dredged in the future. Until then, the dredged sediment was released into the Mississippi River.



"While these concentrations are 20-fold less than those believed to pose an ecological risk, we are concerned that repeated uncontrolled releases from Devil's Swamp Lake may result in accumulation of contaminants over time to levels that would require special handling of dredged material from the channel's upper reach during infrequent maintenance," the memo said.

Clean Harbors also is operating its treatment and storage facility adjacent to the swamp under rules spelled out in several consent agreements with EPA and the DEQ. The site includes four closed hazardous waste landfills. Those agreements are aimed at reducing additional releases from the Clean Harbors facility into the swamp, and govern monitoring of the movement of polluted water in underground aquifers off the site.

The site has several wells that are pumping millions of gallons of contaminated wastewater a year from several on-site locations, which must be treated before the cleaned water is released into the Mississippi River.

This story was updated on Tuesday, Sept. 20, to better explain ownership of the Devil's Swamp Lake and adjacent swamp properties.

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Alsen/St. Irma Lee: English Standards



Grade 8 Grade 9-10 CCSS-RI.1-8 CCSS-RI.1-9.10 Cite the relevant textual Cite relevant and thorough evidence that most strongly textual evidence to support supports an analysis of what analysis of what the text says explicitly as well as inferences the text drawn from the text. says explicitly as well as inferences drawn from the CC-RI.2-9.10 text. Determine a central idea of a CCSS-RI.2-8 text and analyze its Determine a central idea of a development over the course text and analyze its of the text. development over the course including how it emerges and is shaped and refined by of the text. including its relationship to specific details; provide an supporting ideas; provide an objective objective summary of the text. summary of the text. CCSS-RI.6-8 CCSS-RI.6-9.10 Determine an author's point of Determine an author's point of view or purpose in a text and view or purpose in a text and analyze how the author analyze how an author uses acknowledges and responds to rhetoric to advance that point conflicting evidence or of view or purpose. viewpoints. CCSS-RI.7-9.10 Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

Grade 11-12

CCS-RI.1-11.12

Cite strong, thorough, and relevant textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

CC-RI.2-11.12

Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.

CCSS-RI.6-11.12

Determine an author's point of view or purpose in a text in which the rhetoric is considered particularly effective, analyzing how style and content contribute to the student interpretation of power, persuasiveness, or beauty of the text.

CCSS-RI.7-11.12

Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

Alsen/St. Irma Lee: Social Studies Standards



Grade 8

8.4

Use geographic representations and historical data to analyze events and developments in U.S. history from 1877 to 2008, including environmental, cultural, economic, and political characteristics and changes.

8.8a

Analyze factors that contributed to and effects of the growth of the industrial economy, including capitalism and growth of free markets, mass production, agricultural advancements, the government's laissez-faire economic policy, and the rise of corporations.

8.12f

Explain how various factors affected Louisiana's economy during the early twentieth century, including booms in the tinder, oil, and gas industries.

Civics	United States History	World History	World Geography
C.5 Use geographic representations, demographic data, and geospatial representations to analyze civic issues and government processes. C.13f Explain ways in which competition, free enterprise, and government regulation influence what is produced and allocated in an economy, including national and global consequences.	US.4 Use geographic representations and demographic data to analyze environmental, cultural, economic and political characteristics and changes. US.11a Describe how the physical geography of the United States affected industrial growth and trade.	 WH.3 Use geographic representations and demographic data to analyze environmental, cultural, economic and political characteristics and changes. WH.20 Describe the causes of trade, commerce, and industrialization and how they affected governments and societies from 1300 to 2010 WH.22 Analyze trends of increasing economic interdependence and interconnectedness in world history from 1300 to 2010. WH.24 Analyze the effect that humans have had on the environment in terms of resources, migration patterns, and global environmental issues. 	 WG.6a Explain the spatial patterns of industrial production and development. WG.6e Explain how economic interdependence and globalization affect countries and their populations. WG.6f Analyze the historical and contemporary economic influence that Louisiana has on other parts of the United States and on the broader world. WG.8a Analyze effects of human settlement patterns and land use on the natural environment. WG.8c Analyze causes and effects of local, national, regional, and global environmental issues



Alsen/St. Irma Lee: Science Standards

Grade 8	Earth Science	Life Science	Environmental Science
8-MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.	HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.	HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.	HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.