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**ATSDR** Agency for Toxic Substances & Disease Registry Public Health Assessments & Health Consultations

## PUBLIC HEALTH ASSESSMENT

LINCOLN CREOSOTE  
BOSSIER CITY, BOSSIER PARISH, LOUISIANA

### SUMMARY

The Lincoln Creosote site is an inactive, abandoned wood treatment facility in Bossier City, Bossier Parish, Louisiana ([Figure 1](#)). Currently, the Lincoln Creosote site does not pose a health concern.

Soil removal and other remediation activities on and off the site removed contaminants to levels that do not represent a health threat. In the past, completed exposure pathways occurred because of contact with contaminated soil, sediments, and air on site. Past exposure to off-site soil and sediment pathways also represented completed exposure pathways because of contamination in drainage ditches and residential yards. Potential exposure pathways included exposure to contaminants in surface waters, ground water, off-site air, and biota (crawfish/fish). The exposed population included industrial workers, residents including children who gardened or played in the contaminated soils and sediment, and trespassers on the Lincoln Creosote Site.

The Louisiana Department of Health and Hospitals/Office of Public Health/Section of Environmental Epidemiology and Toxicology (SEET) conducted public meetings on December 5, 1991, and October 3, 1994, and a Public Availability Outreach Session on April 26-29, 1996. Citizens voiced concerns about the health effects of exposure to creosote, flooding of the site, the safety of drinking water and food grown in local gardens, respiratory illnesses, and the presence of skin rashes, and cancer in their community. Cancer incidence data from the Louisiana Tumor Registry for the census block groups around the site indicated age-specific cancer incidence rates for the block groups are lower than those rates for the entire Northwest Region for the time period including the years 1988-1995.

The site is categorized as a "no public health hazard" because remediation on and off the site removed the likelihood of exposures to contaminants at levels of health concern. However, in the past, the site did pose a public health hazard to on-site workers who had contact with the soil for many years. During the public availability session in 1996, SEET was informed by residents that before the site was fenced off, it was used as a recreational area. It is likely that some children and adults who frequented the site had exposures to site contaminants.

The data and information developed in the Lincoln Creosote Public Health Assessment have been evaluated by the Health Activities Recommendation Panel for appropriate follow-up public health actions. The following health actions were recommended. Community

education and community involvement were needed to describe the health effects of exposure to site related contaminants and to explain the findings of the public health assessment to the public. Health professional education was recommended so that local physicians would be aware of symptoms related to exposure to site contaminants.

## BACKGROUND

### A. Site Description and History

The 20-acre Lincoln Creosote site operated as a wood treating facility from 1935-1969, and it is located in Bossier City, Bossier Parish, Louisiana (Figure 1). The site is situated in an area historically known as "Cloverdale Farms". It is bordered on the north by Montgomery Drive, on the west by residential and commercial developments, and on the south and east by the KansasCity Southern Railroad. A utility corridor used as an underground pipeline, owned by City Services, traverses the site along an east-west axis.

The active wood preserving facility operated under different names: Lincoln Creosote Co., Inc. from December 14, 1935, to August 1, 1950; Joslyn Manufacturing and Supply Co., August 1, 1950 to December 1, 1969; and Koppers Company, December 1, 1969, to January 5, 1971. During the active operation of the facility, wood products such as railroad ties and utility poles were pressure-treated using creosote, copper-chromium arsenate (CCA), and pentachlorophenol (PCP) as preservatives. At that time, there were numerous buildings on the premises.

In 1971, previous owners remediated the site by private means so that the property could be developed for other uses. The site reclamation included removal of equipment, buildings, tanks, residual wood products, and railroad tracks within the site boundaries. Buildings and scrap metal were removed, a sludge pit was cleaned out, and clean clay fill material was brought in.

From 1971 through 1985, the site was inactive except for the construction of a small commercial building and light warehouse ("mini-storage") on the northwest corner of the site. A parking lot north of the small commercial building and the entire mini-warehouse area were paved with concrete. Most of the remediated site today, however, remains an open, grassy field surrounded by a chain link fence topped with barbed wire.

In 1985-1986, the Louisiana Department of Environmental Quality (LDEQ) analyzed soils sampled from the North Park Apartments, Cloverdale Plaza, and along Benton Road. The results of this preliminary off-site investigation showed hazardous materials remained at the Lincoln Creosote site in concentrated levels that warranted immediate actions to protect the public from direct exposure to the waste.

In 1989, a remedial investigation completed by the Joslyn Corporation showed significantly elevated concentrations of numerous creosote-related semi-volatile compounds, PCP, and metals in on-site soils. Before remediation, heavy rainfall and subsequent flooding at the Lincoln Creosote Site may have facilitated the movement of chemical contaminants from the site into adjacent off-site areas and ditches. The Joslyn Corporation erected a fence in 1989 to prevent public access to the site.

In 1990, trenches were excavated to delineate the extent of visually contaminated soil. Results indicated that approximately 12,500 cubic yards of contaminated soil were present at

the site. The visually contaminated soils were confined to an approximate thickness of 1.6 feet in depth from the surface.

4 captures

An Administrative Order was issued by LDEQ in April 1991, requiring that the potentially responsible parties (PRPs) develop a remedial action plan for the site. In August 1991, a private citizen sampled his/her residential yard on Bardot Lane and polycyclic aromatic hydrocarbons (PAHs) were detected. As a result, in October of 1991, LDEQ collected six soil samples on Bardot Lane from residential yards near the site and confirmed the presence of PAHs and metal contamination.

LDEQ through the contractor of one of the potentially responsible parties (PRPs), ERM-Southwest conducted an on-site removal action during 1992 and 1993. After removing 100,884 tons of contaminated soils from the Lincoln Creosote Site, LDEQ finalized the removal action in December 1993. Confirmatory sampling was done to verify the clean up. Approximately 74,450 cubic yards of clean backfill had been placed in excavated areas of the site. While still assessing a possible hazard in the ditches surrounding the site, the Louisiana Department of Health and Hospitals/Office of Public Health/Section of Environmental Epidemiology and Toxicology (LDHH/OPH/SEET) requested that the state erect signs in the drainage ditch warning residents to keep out of the ditch in 1992.

During 1993, the Joslyn Corporation, one of the PRPs conducted off-site soil sampling to complement the work of EPA and LDEQ. The PRPs through their contractors collected 491 samples from 165 locations in residential areas. These samples were analyzed for PAHs, PCP, and metals. In addition, 4 sediment samples were collected from drainage ditches down-gradient of the Lincoln Creosote Site.

Because of the off-site investigations, the former drainage way between Bardot Lane and Northside Drive was identified as a possible area for removal of soils. The excavation encompassed areas extending in either direction from the centerline of the former drainage ditch. The removal action was designed to address the approximate area from the intersection of Bardot Lane and Broadway Drive to 200 feet north-northeast of Northside Drive.

The United States [Environmental Protection Agency \(EPA\)](#) proposed the Lincoln Creosote site for the [National Priority Listing](#) on January 18, 1994. Off-site soil and ditch sampling was conducted by EPA in February 1994 and June 1994. Soil samples were collected on the grounds of the North Park Apartment complex in June 1994. In February 1995, residential yards were sampled.

After these sampling episodes, EPA set a soil clean-up standard for PAHs at 3 ppm of benzo (a)pyrene (B(a)P) equivalents. Off-site locations impacted by the site which had a total B(a)P equivalents of 3.0 ppm or greater were to be remediated.

SEET requested that the ditch adjacent to the site and across from the North Park Apartments on Montgomery Lane be excavated because a sample from the ditch had a total B (a)P above the clean up level of 3 ppm and because in the past this ditch served as a play area for the children living in North Park Apartments. North Park Apartment residents have reported crawfishing in the ditch before the warning sign to stay out of the ditch was installed. EPA cleaned the ditch by removing the first 2 feet of soil. Confirmatory samples were taken to evaluate the clean-up effort. Of the two samples taken, one was above the clean-up level and the other was below.

In February 1994, the ditch directly behind the apartment complex was sampled and contaminants were not detected. This ditch has been used as a play area for the children in the area. During the visit for the April 1996 public availability session, SEET representatives noticed a few small clumps of creosote material in the ditch. In June of 1996, the City scraped the first few inches of soil from the ditch. The ditch had small amounts of creosote material remaining and EPA excavated this soil. No confirmatory sampling was completed to evaluate contaminant levels in the back ditch after it was excavated. SEET requested additional sampling be done in both ditches to determine if the remedial efforts were adequate.

On April 8, 1997, LDEQ along with SEET representatives visited the site to perform additional sampling of the two ditches in question. Three sampling locations in the exposed sediments of each ditch were chosen approximately 50 feet apart. One sample from 0-6 inches and another from 6-12 inches were taken from each sampling location.

In the ditch directly behind the North Park Apartment Complex, sampling results showed PAHs at non-detectable levels. The ditch running along Montgomery Lane had levels of 3 ppm for one sample and below 3 ppm for the remaining two. Further sampling revealed a PAH level of 15 ppm in the sample closest to the drainage outlet of the ditch. The sample prompted a request by SEET for remedial action.

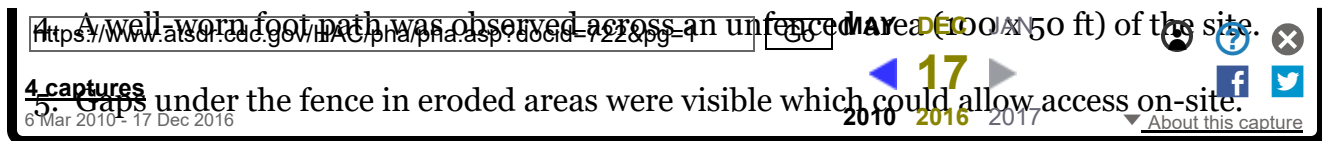
In October 1997, one of the PRPs, the Joslyn Corporation, placed a geotextile membrane along the bottom of this ditch for 1200 feet, then placed 4-6 inches of crushed rock atop this liner, eliminating any direct contact with sediments underneath. This remedy will be monitored by the City of Bossier.

## B. Site Visit

On October 28, 1991, staff from SEET visited and observed the site from outside the fence line. During that evening, a meeting was conducted at Bossier Community Center to determine what concerns the community had regarding the site. A small commercial building and a storage area paved with concrete on the northwest corner of the site were noted. The area was overgrown with vegetation and most of it was enclosed by a six-foot fence except for a 100 x 50 foot area east of the site. A portion of the fence on the north side of the site was broken and at some points around the site it was not properly installed, permitting free access. No evidence of contamination was visible from the fence line except 10-12 black barrels partially buried on the north side of the site. Children's toys were observed outside the site near the fence line area. Drainage ditches within the vicinity of the site were observed which were 4-5 foot deep and dry at the time of inspection.

On March 19, 1992, SEET staff, accompanied by local public health personnel and local area residents, performed another site visit to investigate community concerns. The following observations were noted:

1. North of the site, creosote was found off-site on the surface soil of the ditch embankment across from North Park Apartments.
2. Children with toys were observed playing in the drainage ditches surrounding the site. Toys were scattered throughout the ditches.
3. Water from the site was observed draining directly into the ditches.



After remediation, SEET staff and a representative from the Louisiana Department of Environmental Quality (LDEQ) conducted another site visit on February 7, 1994. At that time, the fence surrounding the site was intact and signs were visible warning the public to keep out. The site was covered with fresh dirt and grass and no one was seen trespassing on-site.

On October 3, 1994, SEET staff again visited the site before a public meeting held that evening. Signs erected by OPH were observed and the site was covered with overgrown vegetation. No one was observed trespassing and no children were observed playing in the posted ditch adjacent to the site. Differing from the first evaluation, at the public meeting in the evening, no one claimed to be eating crawfish from the ditches or allowing their children to play in the ditch.

The Office of Public Health, with the assistance of Southeastern Louisiana University (SLU) researchers, sponsored a Public Availability Outreach session from April 26-29, 1996 [1]. This session focused on collecting community concerns from residents living around the site. Each session consisted of informal, open conversation focused on the concerns the residents would like to share. The only specific questions asked were for demographic purposes, such as age of the resident, how many children in the household, and how long the resident lived at the present location. No questions regarding specific symptoms or health complaints were asked (Refer to [Appendix D](#)).

An extensive site visit was also conducted during the public availability session. The site team walked the fence line and ditches adjacent to the site. The ditch along Montgomery Road in front of the North Park Apartments and the ditch behind these apartments were also walked. A few well traveled paths were found along the outside of the site fence. A large break in the fence was found, but no recent activity was apparent near the break. No signs of recent activity were found in the Montgomery Road ditch. However, children were seen playing in the back ditch behind the North Park Apartments and toys and play areas such as a mud slide were also seen.

A tour of the residential area around the site was included in the visit. Day care facilities near the site were visited to see how close their property was to the site. One day care facility had property abutting the site. The information on demographics, health concerns, and exposure activities are discussed in the next section of this public health assessment.

On February 11, 1999, staff from SEET once again visited the site Lincoln Creosote site before the Public Meeting held to release the [Public Comment](#) Version of this document. As the remedial project had been completed for some time, the land remained restored and revegetated. The on-site area fencing remained intact, and the signs erected in the ditch remained also.

## C. Demographics, Land Use, and Natural Resource Use

### Demographics

The Lincoln Creosote site is located within the corporate limits of Bossier City, which had a population of 52,721 in 1990. For Bossier Parish, the total 1990 population was 86,088. The racial breakdown of the Parish is predominantly white (78%). Blacks comprise 20% of



the parish population and other races comprise 2%. According to the 1990 census, the median household income for Bossier Parish totaled \$26,058. The community surrounding the site lives in low to middle income housing.

Approximately 8,583 persons live within a one-mile radius of the site. The closest residents include approximately 149 residents from North Park Apartments located across the street from the site and 243 residents from Cloverdale Apartments located across the railroad tracks south of the site.

During the Public Availability Outreach session in April 1996, researchers from SLU and SEET visited residents on the 4 streets closest to the site (Bardot, Broadway, Leslie, and Northside) and also visited two apartment complexes (North Park and Cloverdale) adjacent to the site. This area included 195 homes and 317 apartments for a total of 512 housing units. The estimated population within this area is 1,306 individuals. The ethnicity of the residents consisted of approximately 63% Caucasian, 36% African American, 0.5% Asian and 0.5% Latino.

Institutions, schools, churches, a nursing home, hospital, and several residential apartment complexes are located within a one-mile radius of the site. Several schools are located in the vicinity of the site. Green Acres Jr. High School is located within 4,000 feet northeast of the site and has an average yearly enrollment of 560 students. Plantation Park Elementary is located within 1/4 mile north of the site and has an average yearly enrollment of 706 students. Other schools in the vicinity of the site include Apollo Elementary School with 839 students enrolled; Airline High School with 1201 students enrolled; Rusheon Junior High with 665 students enrolled; and Butler Elementary School with 163 students enrolled.

### Land Use and Natural Resource Use

The land surrounding the site is both residential and commercial. There is some pasture land where cattle graze about 1/4 mile from the site. Crawfish and small fish live in the municipal drainage ditches surrounding the Lincoln Creosote Site.

## **D. Health Outcome Data**

### Louisiana Tumor Registry

The Louisiana Tumor Registry is a population-based cancer incidence registry which covers all hospitals, radiation centers, and pathology laboratories throughout the state. The population estimates used are from the U.S. Bureau of the Census. Information for this region has been collected and maintained since 1988. (See Public Health Implications Section for results).

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