

**French Limited
Crosby, Texas
Region 6
TXD980514814**

Site Exposure Potential

The French Limited site is at the intersection of State Highway 90 and Gulf Pump Road in northeast Harris County, Texas (Figure 1). The nine-hectare site contains a three-hectare unlined lagoon that was formed during sand mining operations in the 1960s. Between 1966 and 1972, 76,500 m³ of industrial wastes were received at the site from local industry. Most of the wastes were deposited in the lagoon, and the remaining wastes stored in several large tanks, then burned in open pits. In 1973, French Limited was ordered to cease all operations and to remove all of the site structures, tankage, and process equipment (EPA 1987).

The site has been flooded by the San Jacinto River at least four times in the recent past. During one of these floods, the dike surrounding the waste lagoon was overtopped and breached, and contaminated sludges were discharged into the adjacent slough. An immediate removal action pumped most of the discharged sludge back into the lagoon and an overflow structure was installed to prevent future overtopping of the dike (EPA 1987).

The site is 1.5 km east of the San Jacinto River. The entire site, which is three meters above mean sea level, lies within the 100-year floodplain of the San Jacinto River. The area surrounding the site is largely undeveloped with numerous active and abandoned sand pits and low-lying swampy areas. The predominant surface water flow path is west-southwest towards the San Jacinto River. Jackson Bayou, a small tributary of the San Jacinto River, is 1 km northwest of the site. The San Jacinto River empties into Galveston Bay 27 km downstream. The Gulf of Mexico is 80 km from the site (USFWS 1982; EPA 1987).

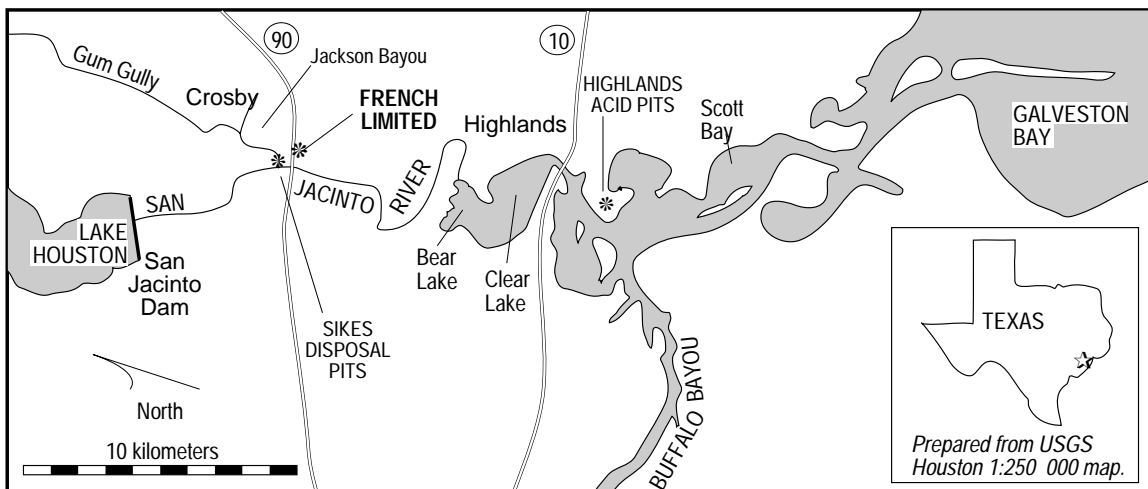


Figure 1. The French Limited site in Crosby, Texas.

Two other NPL sites, Sikes Disposal Pits and Highlands Acid Pits, are in the San Jacinto River watershed near the French Limited site. Sikes Disposal Pits is between the French Limited site and the San Jacinto River.

Possible contaminant migration pathways to NOAA trust resources include surface water runoff, groundwater flow, and periodic flooding to the San Jacinto River.

Site-Related Contamination

The contaminants of concern to NOAA include PCBs, pesticides, trace metals, and semi-volatile and volatile organic compounds (Table 1). PCBs were measured in moderate to high concentrations in soil, sludge, and sediments, ranging from 18 to 616 mg/kg.

Table 1. Maximum concentrations of selected contaminants at the French Limited site (EPA 1983; 1987); AWQC for the protection of saltwater aquatic life (EPA 1986); sediment and sludge concentrations in mg/kg and water concentrations in µg/l.

Contaminant	On-Site Soil Chronic	Waste Pit Sludge	Off-site Sediment	On-site Sediment	Waste Pit Water	On-site Groundwater	Acute	AWQC
ORGANIC COMPOUNDS								
<u>Volatiles</u>								
benzene	ND	270	0.05	0.27	1500	2,500	5,100*	700*
chloroform	ND	230	ND	ND	390	18,000	N/D	N/D
1,2-dichloroethane	ND	348	ND	ND	190	21,200	113,000*	N/D
1,2-dichloropropane	ND	100	ND	ND	ND	ND	10,300*	3,040*
ethylbenzene	ND	380	ND	0.2	580	370	430*	N/D
tetrachloroethene	ND	120	ND	ND	60	1,640	10,200*	450*
toluene	ND	420	ND	0.04	ND	ND	6,300*	5,000*
<u>Semi-Volatiles</u>								
acenaphthylene	280	2,000	ND	17	240	ND	N/D	N/D
acenaphthene	68	4,100	ND	27	260	ND	970*	710*
anthracene	16	4,400	0.07	9.4	220	ND	N/D	N/D
fluoranthene	140	3,000	0.09	21	630	ND	40*	16*
fluorene	140	5,400	ND	59	570	ND	N/D	N/D
naphthalene	480	8,700	0.02	160	720	196	2,350*	N/D
phenanthrene	360	8,300	ND	91	1,300	ND	N/D	N/D
pentachlorophenol	ND	740	ND	ND	ND	ND	13	7.9*
pyrene	110	2,500	0.1	18	740	ND	N/D	N/D
<u>Pesticides/PCBs</u>								
PCBs	237	616	18	33	ND	ND	10	0.03
4,4'-DDT	ND	23.3	ND	ND	ND	ND	0.13	0.001
beta endosulfan	ND	70.1	ND	ND	ND	ND	0.034	0.0087
INORGANIC SUBSTANCES								
<u>Trace Metals</u>								
arsenic	ND	9.9	ND	ND	ND	ND	69	36
cadmium	ND	7.7	ND	ND	ND	ND	43	9.3
chromium	220	486	13	ND	13	13	1,100	50
copper	96	254	6	ND	6.0	30	2.9	2.9
lead	136	120	21.5	ND	20	6	140	5.6
mercury	1.6	7.0	0.26	ND	ND	0.3	2.1	0.025
nickel	12	592	10	ND	ND	ND	75	8.3
silver	0.1	7.75	0.02	ND	ND	ND	2.3	N/D
zinc	122	8,350	68	ND	13	50	95	86
ND: Not detected; N/D: Not determined; *LOEL								

4,4-DDT and beta-endosulfan were measured in on-site sludge at maximum concentrations of 23.3 mg/kg and 70.1 mg/kg, respectively. Trace metals were detected in soil, sediment, and sludge, with chromium, copper, nickel, and zinc having the highest concentration levels. The concentrations of copper and lead in lagoon surface water, and mercury, copper, and lead in groundwater exceeded AWQC. Three organic compounds, benzene, fluoranthene, and ethylbenzene, measured in on-site surface water exceeded their respective LOEL (EPA 1983; 1986; 1987).

NOAA Trust Habitats and Species in Site Vicinity

The San Jacinto River is a continuously flowing, low-gradient, river system with a drainage basin of 7,500 km². The stretch of the river near the site is a natural river channel three to six meters deep and 60 to 90 meters wide (Ferguson 1988). The San Jacinto Dam is 5 km above the site (Guillen 1988). The dam releases only limited fresh water; as a result, the San Jacinto River is tidal and brackish up to the base of the dam. No information was available regarding the aquatic habitats of Jackson Bayou.

NOAA trust resources use the lower San Jacinto River 10 km below the site as nursery and spawning habitat (Table 2) (USFWS 1982). NOAA resource use of the immediate vicinity of the site is probably restricted to periods of drought, when the salinity rises because of less freshwater input to the system. The presence of euryhaline silversides and anadromous striped bass in the San Jacinto River above the site at the base of the Lake Houston Dam was documented in a recent fish kill resulting from poor flow regulation and reduced dissolved oxygen (Spencer 1988). Blue crab are also known to inhabit the San Jacinto River up to the dam (Guillen 1989).

Surface waters in the general vicinity of the French Limited site area are used for recreational fishing. PCBs have been found in fillets of fish collected in the nearby waters beneath the U.S. Highway 90 bridge and near the mouth of Jackson Bayou northwest of the site (EPA 1987).

Table 2. Selected NOAA trust resource use of the lower stretch of the San Jacinto River (USFWS 1982).

Species	Spawning	Nursery	Adult	Recreational Fishery
INVERTEBRATES				
blue crab		X		X
brown shrimp		X		
white shrimp		X		
FISH				
Atlantic croaker		X		X
black drum		X		X
gars	X	X		
killifish	X	X	X	
mullet		X		X
red drum		X		
sand seatrout		X		X
sheepshead		X		X
silverside		X	X	
southern flounder		X		
spotted seatrout		X		X

Response Category: Federal Enforcement Lead

Current Stage of Site Action: Record of Decision signed March 23, 1988

EPA Site Manager

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NOAA Coastal Resource Coordinator

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References

EPA. 1983. Hazardous Waste Land Treatment. Washington, D.C.: Office of Water Regulations and Standards, Criteria and Standards Division. SW-874.

EPA. 1986. Quality Criteria for Water. Washington, D.C.: Office of Water Regulations and Standards, Criteria and Standards Division. EPA 440/5-86-001.

EPA. 1987. Endangerment Assessment for French Limited Site, Barrett/Crosby, Texas. Dallas: U.S. Environmental Protection Agency, Region 6.

Ferguson, D., U.S. Geological Survey, Houston, Texas, personal communication, December 21, 1988.

Guillen, G., Texas Water Commission, Deer Park, Texas, personal communication, December 16, 1988.

Spencer, S., biologist, Texas Parks and Wildlife Commission, Seabrook, Texas, personal communication, November 15, 1988.

USFWS. 1982. Gulf coast ecological inventory: Houston, Texas. Washington, D.C.: U.S. Fish and Wildlife Service.