

SECTION 7

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE  
INITIAL SITE ASSESSMENT

## **SECTION 7**

### **INITIAL HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW) ASSESSMENT**

#### **INTRACOASTAL WATERWAY LOCKS, LOUISIANA BAYOU SORREL LOCK REPLACEMENT**

##### **SUMMARY**

The U.S. Army Corps of Engineers, New Orleans District (USACE-NOD) is investigating the feasibility of replacing the Bayou Sorrel Navigation Lock, located near the community of Bayou Sorrel in Iberville Parish, Louisiana. The proposed site for a new lock, as well as the areas proposed for new connecting channels and dredged material disposal, were investigated for the presence of hazardous, toxic, and radioactive waste (HTRW). This assessment is based on analysis of existing literature, agency records, land use research, aerial photography, and site visits. The investigations did not identify any potential areas of concern for HTRW. The risk of encountering HTRW during construction of the proposed project is low and no further investigations are warranted.

##### **INTRODUCTION**

The purpose of this initial site assessment is to gather and evaluate data regarding the existence or potential of encountering HTRW in areas that would be directly affected by construction activities during replacement of the Bayou Sorrel Lock. This assessment relies on a land use history study and agency record investigations, conducted by a contractor to the USACE-NOD, as well as agency record searches, aerial photography interpretations, and site visits conducted by USACE-NOD personnel. Early identification of potential HTRW concerns minimizes the liability of the Federal government, minimizes the health and safety risks of field personnel, and can serve to document the existence of sites that are in need of remediation or further evaluation.

This initial site assessment is prepared under guidance of the USACE-NOD Engineering Regulation 1165-2-132, Water Resources Policies and Authorities for Hazardous, Toxic, and Radioactive Wastes for Civil Works Projects, June 2, 1992; Lower Mississippi River Valley Division Regulation 1165-2-9, Water Resources Policies and Authorities for Hazardous, Toxic, and Radioactive Wastes for Civil Works Projects, June 14, 1996; and the American Society for Testing and Materials Standard ASTM E-1527-97, Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process, as applicable.

## **PROJECT DESCRIPTION**

### **PROJECT PURPOSE AND NEED**

Some of the locks on the GIWW system west of the Mississippi River are becoming congested due to increasing commerce. The current study addresses the feasibility of increasing the capacity of Bayou Sorrel Lock. The study is being expedited because of the immediate need for modification or replacement of the lock for flood control purposes and the need for an increase in the capacity to pass navigation traffic by the year 2002.

### **PROJECT AUTHORITY**

The feasibility study is being conducted in response to resolutions adopted by the Committee on Public Works of the U.S. Senate on September 29, 1972 and the Committee on Public Works of the House of Representatives on October 12, 1972.

### **PROJECT DESCRIPTION**

The tentatively selected plan is to replace the existing Bayou Sorrel Lock with a new earthen-chamber lock to be located immediately to the north and west of the existing lock. The chamber of the new lock would be 1,200 feet long by 110 feet wide by 15 feet deep. The East Atchafalaya Basin Protection Levee would be realigned and tied-into the new lock. Channels would be dredged to connect the new lock with the East Access Channel to the west and with Lower Grand River to the East, and to realign the East Access Channel around the new lock and forebay channel. The forebay channel connecting to the East Access Channel would be dredged through Government-owned land and existing dredged material disposal areas for which the USACE-NOD has held disposal easements for many years. The tailbay channel connecting to Lower Grand River would be dredged through Government-owned land and through land that the Government has held channel easements on for many years. Dredged material disposal areas could include existing borrow pits, existing dredged material disposal areas, bottomland hardwood forest, and a small amount of cypress swamp.

## **ENVIRONMENTAL SETTING**

### **GEOGRAPHICAL SETTING**

The project location is in south central Louisiana, in the southern part of Iberville Parish. The closest incorporated communities are the City of Plaquemine located about 12 miles to the north of the Bayou Sorrel Lock and the Town of White Castle which is about 11 miles to the east of the lock. The Bayou Sorrel Lock is on the Morgan City to Port Allen Alternate Route of the Gulf Intracoastal Waterway (GIWW). The lock has both a navigation and flood control function,

protecting developed land from high stages of the Atchafalaya River and allowing navigation to pass through the East Atchafalaya Basin Protection Levee.

The land surrounding the Bayou Sorrel Lock is mostly undeveloped cypress swamp and bottomland hardwood forest. Residential settlements are located on the higher elevation land along Lower Grand River. The local economy is based on commercial fishing and the petroleum mining and processing industry. Commercial fishing for crawfish and finfish occurs mainly within the Atchafalaya Basin Floodway. Oil and natural gas fields are scattered throughout the area, and petroleum processing plants are located all along the Mississippi River, which passes about 10 miles to the east of the Bayou Sorrel Lock.

## GEOLOGICAL SETTING

The Bayou Sorrel area is composed of Holocene age floodplain deposits ranging in thickness from 180-330 feet. The upper 80-100 feet is a fine-grained top stratum of natural levee clays and silts, back-swamp clays, lacustrine clays and silts, and abandoned distributary clays, silts, and sands. The underlying substratum is generally fine, poorly graded sand with lenses and areas of coarse material, grading down to basal gravel. The substratum sands extend down to the Pleistocene surface.

Local relief in the area is generally less than 5 feet with the highest natural elevations on the natural levees bordering Lower Grand River and abandoned distributaries. The highest elevations in the area are the confined dredged material disposal areas to the west of the lock and the East Atchafalaya Basin Protection Levee.

## SOILS

Frequently-flooded Sharkey clay and Fausse soils are the two principal soil types found in the area outside of the Atchafalaya Basin Floodway. Sharkey clays are highly fertile, poorly drained, low permeability soils composed of clayey alluvium. Fausse soils are also composed of clayey alluvium and are very fertile, but they are very poorly drained and have very low permeability. Fausse soils flood more frequently than Sharkey clays and may be inundated throughout the year.

Convent and Fausse soils are found within the Atchafalaya Basin Floodway. Convent soils consist of loamy alluvium, and are characterized as somewhat poorly drained, moderately permeable, and fertile. Convent soils are found mainly along the natural levees of distributaries. The proportion of Convent soils and associated vegetation in the floodway is increasing due to the annual (or nearly annual) deposition of sediments from floodwaters. Thus, the proportion of Fausse soils and their associated vegetational communities are decreasing. Fausse soils within the floodway have the same characteristics of those found outside the floodway.

## CLIMATE

The climate of the area is subtropical marine. Summer temperatures are generally high while moderate temperatures prevail in the winter months. Cold periods are of short duration associated with rapid movement of cool high-pressure air masses from the northwest. The average annual temperature is about 68°F and the average rainfall is about 65 inches. Fog is most frequent in the winter months. Snow rarely occurs in the area. Hurricanes occasionally affect the area with high winds and rain. Hurricanes Andrew in 1995 was the last hurricane to adversely affect the area.

## HYDROLOGICAL ELEMENTS

The main channel of the Atchafalaya River flows about 8 miles to the west of the lock. The Atchafalaya River causes the land within the floodway in the vicinity of the Bayou Sorrel Lock to flood nearly every spring. Bayou Sorrel, located to the north of the lock, carries river flows from the main channel of the river to the East Access Channel which parallels the East Atchafalaya Basin Protection Levee. The East Access Channel merges with the Morgan City to Port Allen Alternate Route of the GIWW just to the south of the Bayou Sorrel Lock. Outside the Atchafalaya Basin Floodway, Lower Grand River is the most obvious water body. Lower Grand River drains much of the basin lying between the Atchafalaya and Mississippi River levees. It also forms part of the alternate route of the GIWW to the north of the Bayou Sorrel Lock. All drainage flows in the vicinity run generally to the south.

## VEGETATION AND WILDLIFE

Bottomland hardwood tree species observed growing on Sharkey soils in the study area include sugarberry (locally called hackberry), Drummond red maple, black willow, sycamore, live oak, water oak, and Nuttall oak. Other bottomland species commonly found growing in Sharkey soils include green ash, water hickory (bitter pecan), overcup oak, common persimmon, sweetgum, and honey locust. Vines, shrubs, forbs, and grasses include blackberry, dewberry, poison ivy, grass-leaf groundsel, bushy bluestem, morning glory, elderberry, ragweed, common cocklebur, peppervine, rattan, and butterweed. Throughout the project area, Fausse soils support bald cypress, water tupelo, red maple, and black willow. Other tree species found on Fausse soils include green and pumpkin ash, water and honey locust, water elm, and sweetgum. Understory vegetation includes buttonbush, swamp privet, blackberry, smartweed, poison ivy, grass leaf groundsel, smartweed, common cocklebur, and greenbrier.

Vegetation commonly found on the Convent soils includes black willow, sycamore, sugarberry, green ash, sweetgum, water hickory, Nuttall oak, overcup oak, and red maple. Understory vegetation includes poison ivy, blackberry, grass-leaf groundsel, smartweed, common cocklebur, and greenbrier.

Aquatic habitats in the study area include riverine habitat, lacustrine (lake) habitat, and seasonally-flooded woodlands. Numerous commercially and recreationally important fish species are produced in the floodway. Recreationally harvested finfish in the project area include largemouth bass (the most popular), white crappie, black crappie, yellow bass, warmouth, bluegill, redear sunfish, and blue catfish, channel catfish, and several other species of catfish. The most important commercial fishery in the floodway is for crawfish, which are trapped extensively. The commercial fishery for finfish in the floodway is also of significant economic importance to the local communities, with catfishes, buffalo fishes, and freshwater drum comprising most of the commercial landings.

## **ENVIRONMENTAL CONCERNS**

The general public and government agencies are concerned with potential environmental hazards that may pose a hazard to humans or the natural environment. Sources of potential HTRW should be identified to the extent practicable prior to construction of projects and the appropriate design changes, cleanup, or safety precautions taken. Unanticipated HTRW problems at a project site can lead to construction delays, safety risks for construction personnel and nearby residents, increased coordination with regulatory agencies, and increased project costs.

## **ASSESSMENT METHODOLOGY**

### **HTRW OBJECTIVE**

The objective of this assessment is to minimize, through early detection, the exposure from any waste site or contaminated material during the construction of the proposed project. The intent of this study is to provide a reasonable assessment of potential problem areas that can be considered by project management in decisions of property transfer and future testing requirements. This preliminary assessment focuses on information that would identify known sites adjacent to or within the proposed construction site and determine relative probabilities for potential contamination adjacent to or within the proposed construction site.

### **AERIAL PHOTOGRAPHIC ANALYSIS**

Infrared aerial photographs from 1995 were reviewed for signs that may indicate industrial or commercial activities in the vicinity of the lock. The land use history contractor for the study reviewed aerial photographs from ca. 1950, 1960, 1970, 1984, and 1993. Aerial photography can provide a series of chronological reference points to determine the appearance, alteration, and disappearance of structures or environmental features that may indicate potential HTRW sites.

## LAND USE HISTORY

A land use history of the Bayou Sorrel vicinity was conducted by Earth Search, Incorporated, under contract to the USACE-NOD. The final report is dated December 1996 and is included as Appendix A. The report contains information from historic cartography; aerial photography; real estate, insurance, and census records; and Federal, state, and local agencies. Historic land use data can be utilized to assess the potential for HTRW problems.

## AGENCY RECORDS

The land use history contractor contacted Federal, state, and local agencies to determine the nature and extent of records related to commercial and industrial development in the vicinity of the Bayou Sorrel Lock. In addition, the Louisiana Department of Environmental Quality's database was searched through the Internet for records of chemical spills or other potential problems.

## SITE VISITS

Several site visits were made to the area. The lock grounds were investigated, as well as the land through which new channels would be excavated. Areas being considered for dredged material disposal were also surveyed for visible signs of potential HTRW. Field trips were taken on November 20, 1997, March 4, 1998, and April 28, 1998. A helicopter overflight was made in March 1999. Investigations consisted of walking through the areas to be affected by the project and looking for any visible debris or other indications of potential HTRW such as evidence of past commercial or industrial activity including oil and gas extraction, stained soil, or stressed or dead vegetation. In addition, some areas were observed from boats. The field trips were a combined effort to investigate the area for potential HTRW and to document the existing fish and wildlife habitats to be affected by the proposed project.

The lockmaster of the Bayou Sorrel Lock was interviewed about his knowledge of potential HTRW, spills associated with lock operations, or any other form of contamination.

## ASSESSMENT RESULTS AND FINDINGS

### AERIAL PHOTOGRAPHIC ANALYSIS

The most significant developmental impacts in the vicinity of the Bayou Sorrel Lock have been first: the construction of the East Atchafalaya Basin Protection Levee, and second: construction of the lock itself. The East Atchafalaya Basin Protection Levee was in place prior to completion of the Bayou Sorrel Lock in 1952. By 1970, a petroleum well access canal had been excavated perpendicular to and along the west bank of the East Access Channel, approximately 4,700 feet south of the lock. On later photos, the canal appears to be silted-in,

probably from material deposited naturally during flood events. A second, short access slip was more recently constructed about 3,000 feet south of the first canal. This slip appears to still be open. Several confined dredged material disposal areas have been constructed along the west bank of the East Access Channel to hold material dredged annually from the bottom of the GIWW. These features are shown on Figure 1.

Residential areas have expanded from the center of the Bayou Sorrel community over the years covered by the photography. A small residential community was developed just across Lower Grand River from the lock during the 1980's. No evidence could be seen on the photos of any commercial-sized buildings or facilities in or near areas that would be affected by the lock replacement project.

## LAND USE HISTORY

The land use history performed by the contractor is general to the Iberville Parish and does not provide much detail for the Bayou Sorrel vicinity. The industry of Iberville Parish was historically based on farming. Since before the Civil War, sugarcane has been the primary crop grown in the parish, although for a period of time after the Civil War, rice was also important. Cattle production and soybean farming are also important within the parish. In the Bayou Sorrel vicinity, the land is unsuitable for crop production, but livestock grazing occurs on the mowed levees and other areas that are not subject to chronic flooding.

In the post-Civil War era, logging was an important industry. The rural residents of the Atchafalaya Basin Floodway sustained themselves by moss gathering and floating timber to local sawmills. This negligible cutting of the cypress swamps was overshadowed by the industrial logging that peaked in the 1890's when technological innovations enabled loggers to penetrate swamps after other forests had been depleted. Industrial cypress logging virtually ended by 1925 when areas like the Atchafalaya Basin were completely depleted of virgin cypress stands.

Another industry to develop in Iberville Parish during the early 20<sup>th</sup> Century was Spanish moss picking. Though it had always served as a means of sustenance for rural people, moss picking reached its peak in the 1920's. Moss was in high demand by the upholstery industry through the 1920's, but subsequently declined due to the introduction of alternative materials.

In the late 1920's a series of severe floods prompted rural residents to migrate out of the Atchafalaya Basin Floodway. The construction of the East and West Atchafalaya Basin Protection Levees between 1932 and 1951 further prompted people to leave the floodway for communities along the levees, such as the community of Bayou Sorrel, or to larger urban centers.

The 1940's saw the rise in the petroleum industry in Iberville Parish and the rest of southern Louisiana. Pipelines were laid across this general area by 1937, and by 1940, oil extraction had begun in the Atchafalaya Basin. Through the 1950's and 60's, oil fields were developed in the area. The Sullivan Lake Field, the nearest oil and gas field to Bayou Sorrel, was

opened in 1953. By 1964, Iberville Parish had 17 active producing oil and gas fields. During the 1970's, oil production in the area had slowed dramatically as prices fell and more productive fields were discovered offshore.

## AGENCY RECORDS

The land use history report contractors contacted numerous Federal, state, and local agencies concerning the potential for HTRW in the Bayou Sorrel vicinity. Unfortunately, some of the agencies did not respond in time for inclusion of their response in the final land use history report.

The zip code for the community of Bayou Sorrel is the same as for much of the industrialized portion of Iberville Parish along the Mississippi River, so numerous potential HTRW sites were identified in some of the agency lists as a result of searching by zip code. Two sites of interest were found about 2 miles north of the Bayou Sorrel Lock. One of the sites is the Bayou Sorrel Superfund site. The other is a hazardous waste injection well operated by Rollins Environmental Services. The locations of the sites are shown on Figure 1.

A search of the Right-To-Know Network's Internet Database was also performed. The Right-To-Know Network makes available various Environmental Protection Agency databases. A search was run for the Bayou Sorrel zip code and for Bayou Sorrel. This search also discovered the Bayou Sorrel Superfund site. No items of significance were found in this search. There were instances of crude oil and diesel spills documented for the Bayou Sorrel area, but nearly all of the listing were for small amounts, less than 1,000 lbs. The results of this database search are contained in Appendix B.

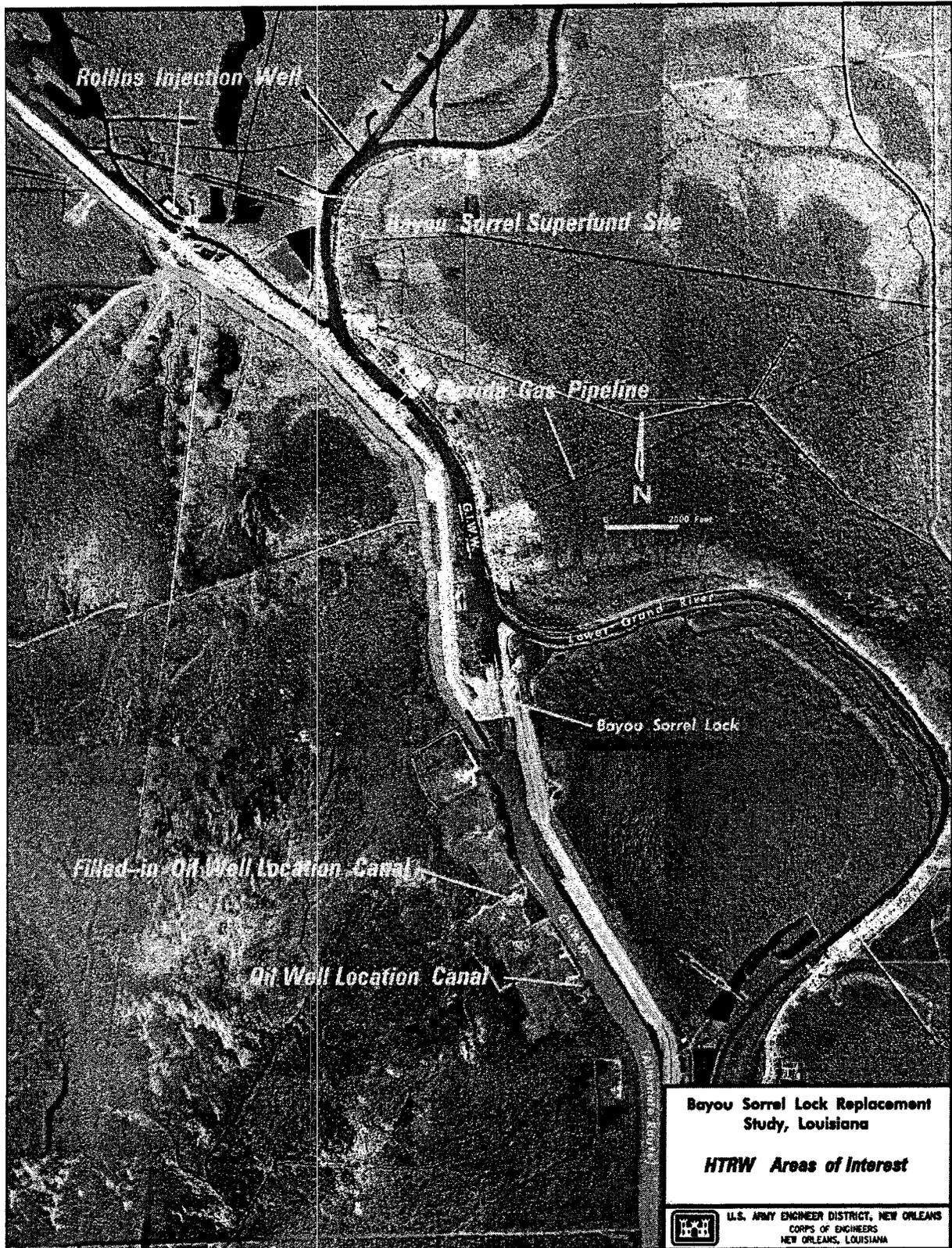
## SITE VISITS

Investigations for potential HTRW focused on disturbed areas such as roadsides, pipeline right-of-ways, borrow pits, dredged material disposal areas, and the lock site. Undisturbed forested land that would be impacted by project construction was also investigated. Several sites containing domestic trash were discovered and documented through photography. The photographs are attached as Appendix C. Some of the trash piles contained old, metal 55-gallons drums. However, the drums were so old and deteriorated from being out in the elements, that no evidence of their contents remained visible. Since they were mixed in with domestic trash, they were likely used for trash burning or some other domestic use. No industrial or commercial businesses were found in areas to be affected by the proposed lock, channels, or disposal areas.

The helicopter flight conducted in March 1999 did not disclose any potential sites of interest. Photos taken on that flight are included in Appendix C.

One pipeline was verified, as shown on Figure 1. This pipeline was also mentioned in the land use history report. The signs on the pipeline indicate that any problems should be addressed

FIGURE 1



to Florida Gas Transmission Company. The pipeline is 10 inches in diameter and carries natural gas. The land use history report found a potential spur from this pipeline shown on old navigation charts of the GIWW from the period 1958-1966. However, no evidence of a spur from the pipeline was found on the site visits.

A considerable amount of habitat mapping was done on the confined disposal areas and undisturbed forest on the west side of the East Access Channel and GIWW. The old oil well access canal was found to be completely silted-in with no evidence of it being the site of an oil well. Some of these confined disposal areas have been built up as much as 15 to 20 feet higher than the surrounding woodlands. No evidence of potential HTRW was found in the existing confined disposal areas.

The Bayou Sorrel Lock and associated grounds are owned and maintained by the USACE-NOD. The lockmaster was questioned about the potential for HTRW on the government-owned property. He stated that in his 20 years of work at the lock there has not been any disposal of contaminants on the lock grounds. All waste oils and fluids are taken off-site and given to commercial recyclers. There are no known waste pits or contaminated areas on the lock grounds. He further stated that there have not been any chemical spills from navigation traffic transiting the lock. Occasionally, a light sheen can be seen on the water around the lock, but no spills of any significant quantity of materials have occurred. The lock grounds are very well kept, and no visible sign of potential HTRW was seen during site visits. There are some used creosote timbers and pilings in piles in the vicinity of the lock. These items are mainly unusable scrap left over from lock guide-wall repairs. The lockmaster stated that they will eventually be hauled away by hired labor units. A large number of the pilings and timbers are stacked on the point of land just to the north of the lock that lies between the lock outflow channel and Lower Grand River.

### **ASSESSMENT DISCOVERY**

Agency records and historic land uses do not indicate any HTRW concerns in areas to be affected by the Bayou Sorrel Lock replacement plan. Aerial photography and the site visits also failed to identify any HTRW concerns. This assessment also applies to the land to be used for fish and wildlife mitigation in the vicinity of the Bayou Sorrel Lock.

### **RELATIVE RISK ASSESSMENT**

Based upon records reviews, aerial photograph analyses, land use history, and site visits, there is a low risk of encountering HTRW during construction of the proposed Bayou Sorrel Lock replacement project.

## PREPARERS

This assessment was prepared by Mr. Richard E. Boe, Biologist, USACE-NOD, Planning, Projects, and Programs Management Division.

The contract for the land use history report was managed by Dr. Edwin Lyon, Archeologist, USACE-NOD, Planning, Projects, and Programs Management Division.

Technical review of this assessment was provided by Mr. J. Christopher Brown, Biologist, USACE-NOD, Planning, Projects, and Programs Management Division.

## CONCLUSION AND RECOMMENDATION

### LIMITATIONS

Compilation of historic environmental data within the State of Louisiana has not been a continuing effort. Therefore, comprehensive databases have not been maintained which would provide a complete HTRW history.

### CONCLUSION AND RECOMMENDATION

Based on information gathered during preparation of this assessment, there is a low risk of encountering an HTRW problem during replacement of the Bayou Sorrel Lock. No further HTRW investigations are recommended. Should the construction methods change or the limits of construction change, HTRW risk will need to be reevaluated.

Report Prepared By: Richard E. Boe Date: 29 Sept 00

Report Reviewed By: J. Christopher Brown Date: 20 April 2001