

DOE/EA - 1251

Environmental Assessment of Bayou Choctaw Pipeline Extension to Placid Refinery

Iberville and West Baton Rouge Parishes, Louisiana



U.S. Department of Energy

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**U.S. Department of Energy
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Finding of No Significant Impact and Floodplain Statement of Findings for Bayou Choctaw Pipeline Extension to Placid Refinery, Iberville and West Baton Rouge Parishes, Louisiana

The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1251, of a proposal by Shell Pipe Line Corporation (Shell) to construct and operate a 100,000 barrel-per-day, 24-inch crude oil pipeline in Louisiana. The pipeline would connect with DOE's Bayou Choctaw Pipeline in Iberville Parish and extend 16 miles to Placid Refinery near Port Allen, West Baton Rouge Parish. Shell would own and operate the pipeline as a common carrier. DOE would earn revenues from the use of the Bayou Choctaw Pipeline which DOE has leased to Shell. In order for the project to occur, DOE must amend the lease to provide an adequate operating period for Shell to recapture its capital investment.

Because the pipeline right-of-way (ROW) unavoidably would cross waterways and wetlands, a Section 404 construction permit would be required from the U.S. Army Corps of Engineers (USACE). The ROW that Shell selected with the assistance of the State would use existing pipeline and utility corridors for all but 2 miles. A crossing of the Intracoastal Waterway would be directionally drilled. Lesser waterways would be either drilled or open-cut trenched. Crossings of railroads and highways would be either slick-bored or directionally drilled. These and other terms and conditions of the permit and best practices would serve to avoid or minimize impacts and would result in a project with minimal adverse environmental effects.

Alternatives

New pipeline construction is the only practicable alternative to connect the Bayou Choctaw Pipeline to the Baton Rouge market. Numerous alternate routes were investigated to varying degrees, but none was identified that would be environmentally preferred or more cost-effective. Under the no action alternative, DOE would not change the lease, and consequently, no new pipeline would be constructed; the Bayou Choctaw Pipeline would remain unconnected to the Baton Rouge market.

Environmental Impacts

The principal impact of the proposed project would be the clearing of up to 86 acres of bottomland hardwoods (forested swamp), up to 30 acres of which would be permanently lost in order to maintain the permanent ROW. A new addition to the regional pipeline infrastructure

could produce cumulative environmental effects of land conversion to transportation use. Making maximum use of existing pipeline and utility corridors would minimize these. Thus, most of the 69.8 acres of soils identified as prime farmland that would be crossed by the pipeline have already been disturbed and converted to transportation use.

Impacts to air and water would be direct, short-term, and minor if not immeasurable. Some locales might experience deteriorated road surfaces, traffic congestion, and noise for brief periods. These impacts would not fall disproportionately on minorities or the economically disadvantaged.

There are no endangered or threatened species or critical habitat that would be adversely affected by the proposed project. There are no known cultural, historical, or archaeological sites that would be affected. The proposed action would not fall within, or otherwise directly affect the Louisiana Coastal Zone. The project could have a temporary positive effect on the local economy by providing 150 jobs for 2 to 4 months and revenue for local contractors and local suppliers.

Under the no action alternative, DOE would forego an opportunity to enhance both its pipeline distribution capability and the commercialization of its underutilized distribution facilities. The regional pattern of commercial pipeline and marine oil shipments would be the status quo, and Placid Refinery throughput would continue unaffected.

Floodplain Statement of Findings

The pipeline would traverse 7.7 miles within the 100-year floodplain. This is unavoidable given the location of the DOE Bayou Choctaw facility in a floodplain. A notice of floodplain and wetlands involvement and invitation to review the draft EA was published in the **Federal Register** (63 FR 27931, May 21, 1998). Comments were received from the U.S. Fish and Wildlife Service pertaining to the likely absence of Federally listed threatened or endangered species and critical habitat within the project area and the need to consult with cognizant Federal and State agencies on compensatory wetlands mitigation of the loss of bottomland hardwoods.

Construction and operation of the pipeline would conform to applicable procedures and standards and would not adversely affect the natural beneficial values served by the 100-year

floodplain. The terms and conditions of the USACE Section 404 permit would avoid or minimize the alteration of hydrologic flows by the placement of excavated material. Overall, impacts on floodplain values would be negligible, given the temporary state of construction and the requirement to restore the site to preconstruction elevations. After construction, the buried pipeline would cause no interference with floodplain functions and values.

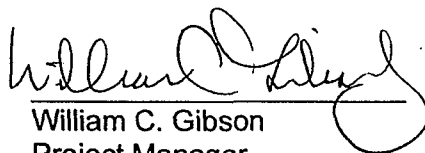
Mitigation

After consultation with a Federal and State interagency review team, Shell prepared an approved compensatory wetlands mitigation plan dated August 12, 1998, which would be attached by USACE as a condition of the Section 404 permit.

Determination

Based on the information and analyses in the EA, DOE has determined that the terms and conditions of the USACE Section 404 construction permit would render the impacts of the proposed pipeline project not significant; by that means, a DOE decision to amend Shell's lease of DOE's Bayou Choctaw Pipeline, thereby enabling Shell's pipeline project, is not a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (42 U.S.C.4321, et seq.). Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this Finding of No Significant Impact.

Issued in New Orleans, Louisiana, on September 1, 1998.



William C. Gibson
Project Manager
Strategic Petroleum Reserve

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1.0 PURPOSE AND NEED FOR ACTION

The Strategic Petroleum Reserve (SPR) was established in 1976 to store up to one billion barrels of crude oil to reduce the United States' vulnerability to energy supply disruptions. The SPR's facilities currently include four storage facilities in Texas and Louisiana with a total capacity of 680 million barrels of crude oil. In developing the SPR, the Department of Energy (DOE) constructed 255 miles of crude oil pipelines and one marine terminal to connect its facilities to the commercial infrastructure.

With oil fill of the Reserve suspended in 1994 and drawdown required only in the event of a national energy emergency, DOE embarked on a program to commercialize its underutilized distribution facilities. DOE sought government-industry arrangements for shared use that would more effectively use SPR assets to serve the nation's oil distribution needs, reduce the operational cost of the SPR, and provide a source of revenue for the Government.

In 1997, DOE competitively awarded a lease of its Bayou Choctaw Pipeline in Louisiana to Shell Pipe Line Corporation (Shell). The Bayou Choctaw Pipeline connects the SPR Bayou Choctaw Facility in Iberville Parish to the St. James Marine Terminal on the Mississippi River in St. James Parish. The lease is a one-year lease with 19 annual renewal options.

The lessee anticipated making business agreements with others that would result in connection to one or more third-party pipelines, thereby providing them with a commercial pipeline capability to Baton Rouge refiners. However, this approach was not successful, and the lessee now is considering constructing a pipeline from the Bayou Choctaw facility to the Baton Rouge market. Because of the capital investment required, the lessee has requested DOE to convert the current lease from annual renewal to a long-term, 10-year lease to ensure a sufficient operating period in which to recapture its investment. The new connecting pipeline is dependent on the DOE decision. Therefore, this Environmental Assessment (EA) assesses the potential environmental impacts of DOE's decision whether or not to grant lessee's request to restructure the lease to enable them to construct the pipeline.

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2.0 PROPOSED ACTION AND ALTERNATIVES

Shell proposes to construct a 100,000-barrel-per-day crude oil pipeline that would link the Bayou Choctaw Pipeline, which they lease from DOE, to Placid Refinery, which is near Port Allen in West Baton Rouge Parish. This would enable Shell to develop their common-carrier pipeline transportation business from the St. James Marine Terminal, which they also lease from DOE. New pipeline construction is the only practicable action that would link the St. James Terminal to the Baton Rouge market, as an attempt to reach an agreement to connect the Bayou Choctaw Pipeline via a third-party pipeline was unsuccessful. Shell's proposal depends on DOE amending Shell's pipeline lease.

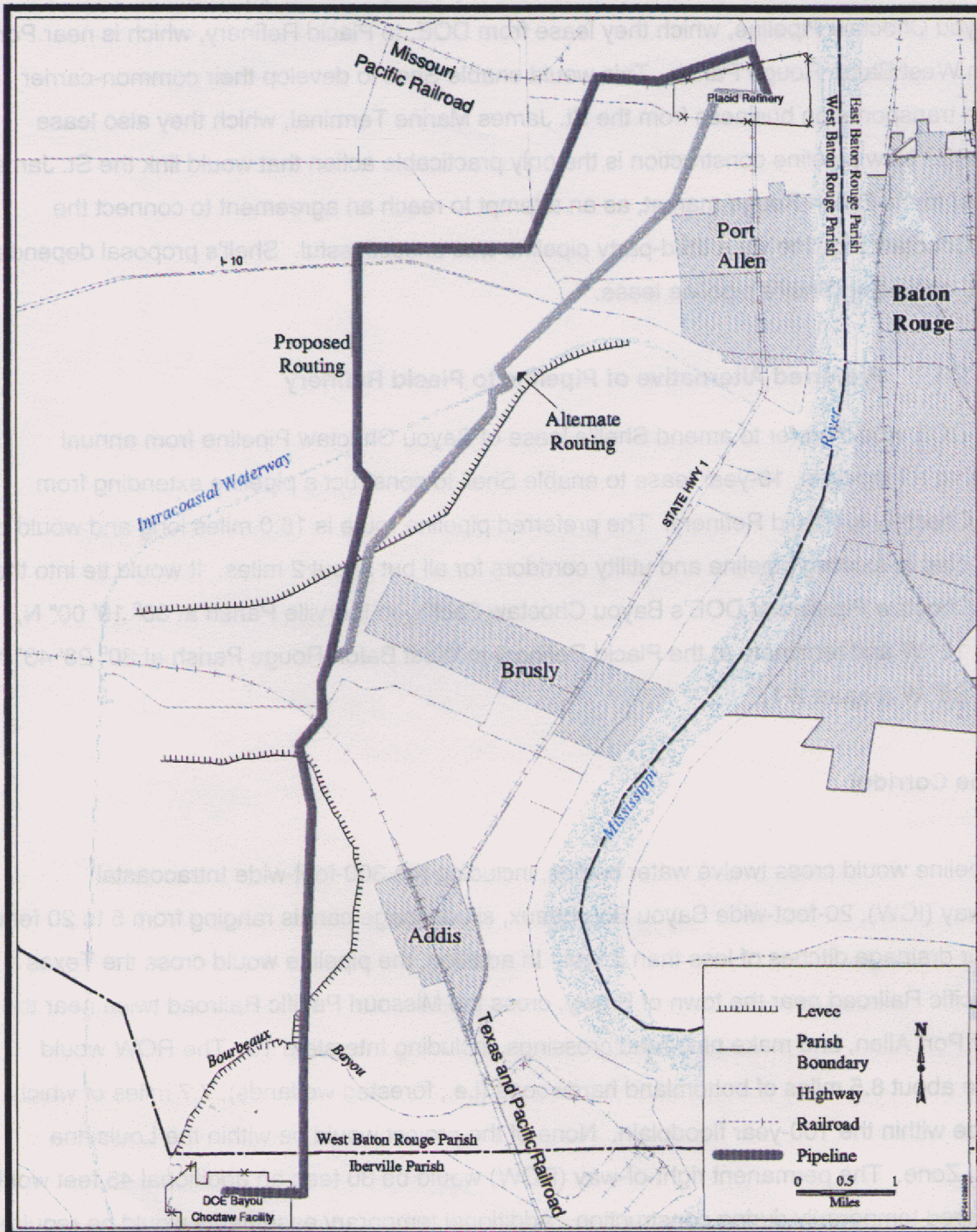
2.1 Preferred Alternative of Pipeline to Placid Refinery

DOE would prefer to amend Shell's lease of Bayou Choctaw Pipeline from annual renewal to a long-term, 10-year lease to enable Shell to construct a pipeline extending from Bayou Choctaw to Placid Refinery. The preferred pipeline route is 16.0 miles long and would be constructed in existing pipeline and utility corridors for all but about 2 miles. It would tie into the Bayou Choctaw Pipeline at DOE's Bayou Choctaw Facility in Iberville Parish at 30° 19' 00" N, 91° 18' 18" W and terminate at the Placid Refinery in West Baton Rouge Parish at 30° 28' 43" N, 91° 12' 35" W (Figure 2-1).

Pipeline Corridor

The pipeline would cross twelve water bodies, including the 300-foot-wide Intracoastal Waterway (ICW), 20-foot-wide Bayou Bourbeaux, six drainage canals ranging from 5 to 20 feet, and four drainage ditches of less than 5 feet. In addition, the pipeline would cross the Texas and Pacific Railroad near the town of Brusly, cross the Missouri Pacific Railroad twice near the town of Port Allen, and make nine road crossings, including Interstate 10. The ROW would traverse about 8.5 miles of bottomland hardwoods (i.e., forested wetlands), 7.7 miles of which would be within the 100-year floodplain. None of the project would be within the Louisiana Coastal Zone. The permanent right-of-way (ROW) would be 30 feet; an additional 45 feet would be required temporarily during construction. Additional temporary easements would be required at specific work sites as described below in the section on crossings.

Figure 2-1 Overview of Proposed Pipeline Route



Beginning at the Bayou Choctaw Facility, the pipeline would proceed east along DOE's ROW for about 0.9 mile where it would turn north into a corridor of pipeline ROWs belonging to Dow Chemical, Cypress Gas, and Bridgeline Gas. The pipeline would follow this corridor-north for approximately 9.6 miles, crossing under Bayou Bourbeaux, the Texas and Pacific Railroad, the ICW, the Choctaw Basin Drainage Canals, and Interstate 10. Just north of Interstate 10, the pipeline would turn east for about 1.7 miles. Thence, the pipeline would proceed northeast for about 1.9 miles, cross under the Missouri Pacific Railroad and parallel it east for about 1.5 miles, turn south-by-southeast for 0.4 mile, crossing under the railroad a second time and Louisiana Highway 1 and terminating within the Placid Refinery.

Pipeline Specifications

Design, construction, and operation of the new pipeline as well as its ultimate abandonment would be in accordance with all Federal, State, and local requirements. Primarily the following pipeline safety regulations and codes would guide detailed design and construction:

- 49 CFR Part 195, "Transportation of Hazardous Liquids by Pipeline";
- American Petroleum Institute (API) Specification 5L, "Specification for Line Pipe"; and
- American Society of Mechanical Engineers/American National Standards Institute (ASME/ANSI) Standard B31.4, "Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia, and Alcohols".

Segments of the pipeline involving navigable waters of the United States (U.S.) as addressed in the Rivers and Harbors Act, Sec. 10, and waters of the U.S. addressed in the Clean Water Act, Sec. 404, which require a permit from the U.S. Army Corps of Engineers (USACE), would be designed and constructed in accordance with those permit requirements.

The pipeline would be constructed of 24-inch electric-resistance-welded (ERW) steel line pipe that would be welded, radiographically inspected, weld joints coated, buried, and hydrostatically pressure tested. The minimum depth of cover would be 3 feet in uplands and wetlands and 5 feet at road and waterway crossings unless otherwise specified in permits. Pipe wall thickness would be 0.312 inch normally and 0.5 inch at road and waterway crossings. The

pipeline would be externally coated with fusion-bonded epoxy and would have impressed-current cathodic protection.

The maximum allowable operating pressure would be 740 psig. Crude oil could be pumped either from the terminal at St. James or from DOE's Bayou Choctaw Facility. No additional pump stations would be required. A mainline block (isolating) valve would be installed at each end of the pipeline and on either side of the ICW crossing. All block valves would be above ground and fenced.

General Construction

Where the ground is dry enough to support heavy equipment, the pipeline would be constructed by the traditional land-lay method. In wet areas, the push-site method would be used. Construction would begin as soon as late-1998 and be completed by early 1999.

With land lay, a ditch would be excavated with conventional backhoes and ditching machines. The trench would be nominally 7 feet deep and about 27 feet wide at the surface sloping to 7 feet wide at the base. The spoil would be temporarily stockpiled adjacent to the ditch on the 45-foot construction ROW for later use as backfill. The pipeline would be assembled along the adjacent ROW and lowered into the ditch by large sideboom tractors. Backfill, cleanup, and restoration of contours to natural grade are accomplished with bulldozers and other earthmoving equipment.

The push-site method would be used in wetland areas to minimize the disturbance from equipment transport through sensitive habitats. With the push-site technique, a trench, or push ditch, would be excavated with conventional backhoes, marsh backhoes, or draglines, as appropriate, using board roads or mats to provide support and to minimize the disturbance to the wetlands. Clearing 86 acres of bottomland hardwoods would be necessary along the ROW. Shell would purchase the necessary compensatory mitigation from an approved mitigation area as specified in its wetlands permit.

All pipeline assembly equipment and activities would be confined to push sites, which are designated staging and work areas that are typically 250 feet by 350 feet and are located where they can be accessed by existing roads or navigable waterway. Construction equipment

and material would be transported to and from each push site by truck or barge. As the pipeline is assembled, it would be floated into the push ditch, which would be naturally flooded, and would be pushed and guided into place by marsh equipment in sections up to several miles long. Once in place, the pipeline would be sunk by filling with water. The ditch would then be back-filled and returned to grade.

Crossings

The ICW is 300 feet wide at its intersection with the pipeline. The navigation channel is maintained at 125 feet wide by 12 feet deep. The crossing would be directionally drilled from a 150-foot by 175-foot drill site on the south side. The borehole would be at sufficient depth to provide a minimum cover of 8 feet under the theoretical channel section and would exit on the north side in a 200-foot by 350-foot work area that would also serve as a push site for constructing through wetlands to the north.

The size of the combined drill/push site is determined by the need for an unobstructed work area to fabricate and hydrotest a pipe segment the same length as the crossing. The pipe would then be pulled back into the borehole and across the ICW by equipment at the drill site on the south side. All equipment and material for the crossing and for the pipe push north would be barged to and from the drill site and the drill/push site.

Bayou Bourbeaux and lesser waterways would be either drilled or open-cut trenched, which would require 150-foot by 150-foot extra workspace on each side of the crossing. No special bank stabilization requirements have been identified. If required, they would be either riprap bulkhead or concrete mattresses. Any requirements for crossing levees would be specified by the levee-governing authority in the permit.

To avoid disrupting traffic, railroads and highways would be either slick-bored or directionally drilled. Casings would be installed under railroads if required. Soft-surface roads, such as shell or sand, would be open-cut trenched. For each crossing, extra workspaces of 150 feet by 150 feet would be required.

Operation and Maintenance

The 30-foot permanent ROW would be kept clear with periodic mowing or by hand. The temporary 45-foot construction ROW would be allowed to return to its natural state.

Pipeline integrity would continually be checked by inventory reconciliation. Aerial inspections of the entire pipeline route would be made twice monthly. From the ground, regular inspections would be made of the mainline block valves and the external corrosion (cathodic) protection system. Periodic electronic surveys inside the pipeline would be made to evaluate the strength of the pipe based on actual remaining wall thickness.

Pipe and other system components would be repaired or replaced as needed to maintain the system in safe operating condition over its useful life. The useful life of the pipeline would not be constrained by the lease but would be indefinite, analogous to DOE's facilities that are maintained so that they are presumed always to have 20 years of useful life remaining. Ultimate abandonment would be in accordance with regulations and likely would include purging the line of oil, packing it with an inert atmosphere, such as nitrogen, and sealing it.

2.2 No Action Alternative

If DOE were to decide not to amend Shell's lease of Bayou Choctaw Pipeline, no new pipeline construction would occur. Bayou Choctaw Pipeline would continue to be connected only to DOE's Bayou Choctaw Facility and the St. James Terminal. DOE would forego an opportunity to enhance both its pipeline distribution capability and the commercialization of its underutilized distribution facilities. Placid Refinery would continue to meet its crude oil transportation needs at its present throughput under its current business arrangements.

2.3 Alternate Route to Placid Refinery Considered but Eliminated

There are several pipeline and utility corridors in the vicinity that were initially considered in laying out a route. One alternate route that was evaluated in detail deviates to the northeast from the preferred route at a point between the Texas and Pacific Railroad and the ICW (Figure 2-1). Although it apparently is more direct, this alternate route was deemed undesirable because extensive residential and commercial development had recently occurred across its path that would make construction substantially more difficult and costly. No other alternate route was identified that would be either environmentally preferred or more cost effective.

3.0 AFFECTED ENVIRONMENT

Iberville and West Baton Rouge Parishes are located in Southeast Louisiana within the Deltaic Plain ecosystem in the coastal floodplain province. The dominant features are the Mississippi River and numerous freshwater bayous and drainage canals. The topography is flat and the drainage is sluggish. The predominantly clayey soils remain wet through most of the year (October through June).

The climate is temperate with an average summer temperature of 81° F (27°C) and an average winter temperature of 54°F (12°C). July and August are the warmest months; January and February are the coldest months. The greatest rainfall occurs during the summer months primarily as local thunderstorms or occasional tropical storms. Winter precipitation generally results from frontal activity and may occur at any time of day. The mean annual precipitation is approximately 60 inches (152 cm).

3.1 Air Quality

The U. S. Environmental Protection Agency (EPA) maintains National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, lead, and particulate matter. EPA classifies areas that exceed NAAQS for one or more of the six criteria pollutants as nonattainment areas. Based on 40 CFR Part 81, "Designation of Areas for Air Quality Planning Purposes," Iberville and West Baton Rouge parishes are in serious nonattainment for ozone. Collectively with East Baton Rouge Parish, these three parishes are called the Baton Rouge Nonattainment Area. The nearest urban area, Port Allen, however, has consistently been in attainment for ozone.

3.2 Geology and Soils

The aquifers that supply abundant fresh groundwater to most of Louisiana are contained within Quaternary or Tertiary sand and gravel deposits of the Gulf Coast geosyncline and the Mississippi embayment. Deposition in alluvial, deltaic and near-shore marine environments produced sedimentary wedges of varying lithology, thickness, and extent. The aquifers located under Iberville and West Baton Rouge Parishes dip towards the coast and lie between 30 and 500 feet below the surface. These aquifers and their confining layers are not uniformly distributed and their groundwater quality is variable. Under the ROW, there are nine major

aquifer systems that are used for public, industrial, agricultural, and domestic purposes. Within the 75-ft ROW, there are seven water wells that serve West Baton Rouge and Iberville Parishes that are supplied by the Alluvial and Southeast Louisiana systems (Table 3-1).

Table 3-1 Water Wells Located Within the 75-ft ROW

Parish	Well #	Owned By	Use
WBR	5133Z	Matzinger Petroleum	Rig Supply
WBR	73	Missouri Pacific Railroad	Industrial
WBR	98	WBR Gas And Water	Public Supply
WBR	101	US Geologic Survey	Observation
WBR	5244Z	Exxon Company	Confining Unit Monitor
WBR	5626	Leblanc, Leo Jr.	Irrigation
Iberville	5516Z	Tomlinson, Morris	Heat Pump

Source: Louisiana DOTD – Water Well Registration System

The pipeline would cross five soil-mapping units: Sharkey clay, Commerce silty clay loam, Commerce silt loam, Convent silt loam, and Tunica clay. Soil types were identified from Soil Surveys for Iberville and West Baton Rouge Parishes, and areas within the ROW were calculated for each.

The seasonal high water table fluctuates between depths of 1.5 and 4 feet in winter and spring in the loams and in Tunica clay. For the Sharkey clay, the winter high water table varies between the surface and a depth of 2 feet. Water and air move at a moderate to moderately slow rate through the loams and very slowly through the clays.

All five soil types are naturally high in fertility and meet the criteria for prime farmland if they have been cleared and drained to support agriculture. Within the project area, however, Sharkey clay, which constitutes 49 percent of the ROW, is entirely forested wetlands. The remaining 51 percent of the ROW, 69.8 acres, is classified as prime farmland. Most of the prime farmland is north of Interstate-10 and is interspersed among residential, commercial, and industrial development. South of Interstate-10, lesser amounts are encountered near Addis and Brusly. Total acreage of the individual soil types within the ROW is shown in Table 3-2.

Table 3-2 Soils of the Pipeline Right-of-Way

Soil Designation/Type	Iberville	West Baton Rouge	Total
Prime Farmland			
Commerce Silty Clay Loam	3.4 acres	32.4 acres	35.8 acres
Commerce Silt Loam	—	24.6 acres	24.6 acres
Convent Silt Loam	—	7.2 acres	7.2 acres
Tunica Clay	2.2 acres	—	2.2 acres
Total	5.6 acres	64.2 acres	69.8 acres
Non-Prime Farmland			
Sharkey Clay	5.5 acres	60.8 acres	66.3 acres
Total	5.5 acres	60.8 acres	66.3 acres

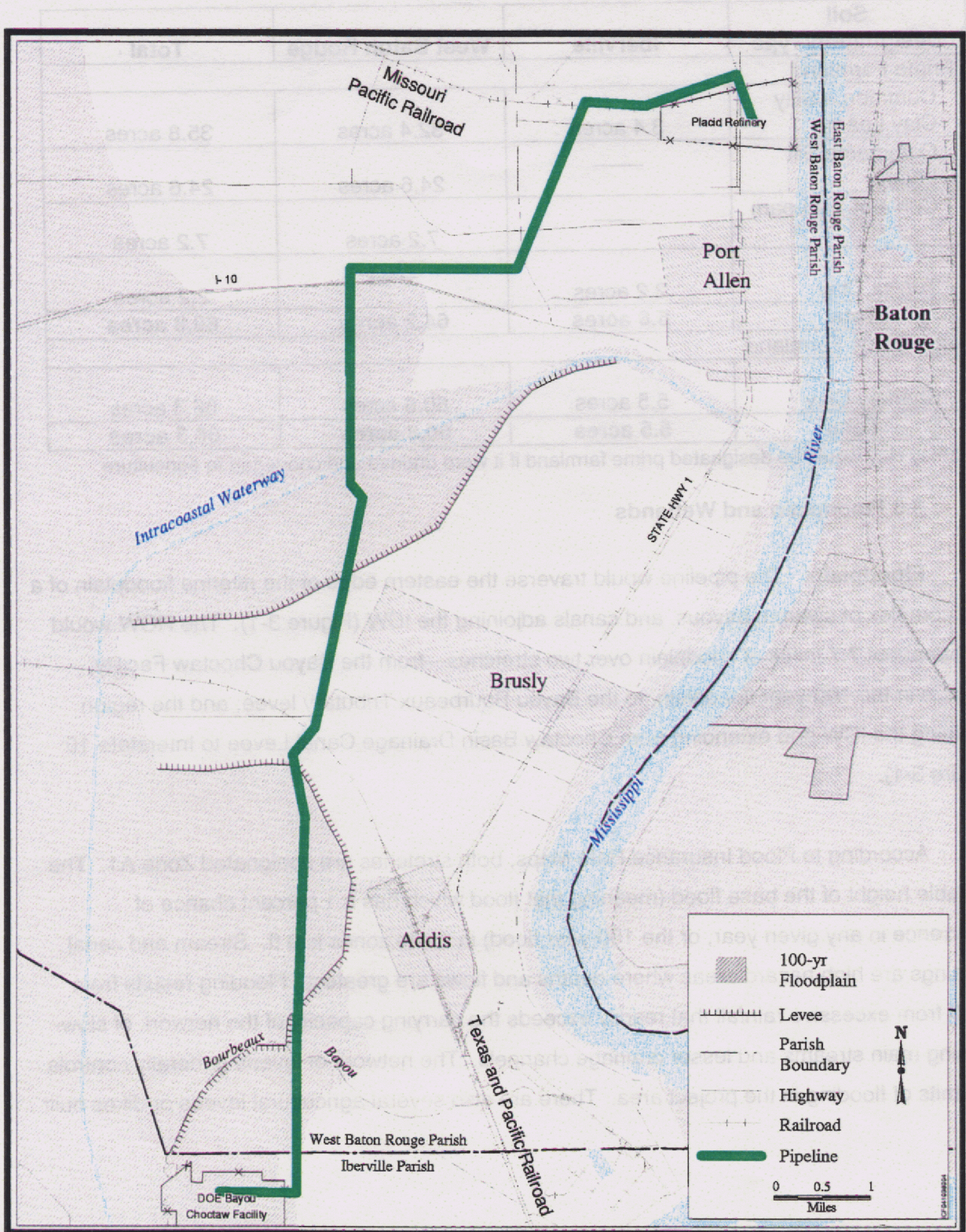
Sharkey clay would be designated prime farmland if it were drained and converted to agriculture

3.3 Floodplain and Wetlands

Floodplain. The pipeline would traverse the eastern edge of the riverine floodplain of a vast complex of swamp, bayous, and canals adjoining the ICW (Figure 3-1). The ROW would involve about 7.7 miles of floodplain over two stretches—from the Bayou Choctaw Facility, which is in the 100-year floodplain, to the Bayou Bourbeaux Tributary levee; and the region adjoining the ICW and extending from Choctaw Basin Drainage Canal Levee to Interstate 10 (Figure 3-1).

According to Flood Insurance Rate Maps, both stretches are designated Zone A1. The probable height of the base flood (meaning that flood which has a 1 percent chance of occurrence in any given year, or the 100-year flood) in these zones is 9 ft. Stream and canal crossings are high hazard areas where depths and flows are greatest. Flooding results from runoff from excessive rainfall that readily exceeds the carrying capacity of the network of slow-draining main streams and lesser drainage channels. The network of levees generally controls the limits of flooding in the project area. There are also several agricultural levees or dikes built

Figure 3-1 Floodplains near the proposed pipeline



to protect sugarcane fields from low-frequency floods, but they are too low to influence the effect of 100-year floods.

Within the floodplain, two small sewage disposal ponds are located approximately 0.25 mile from the Bayou Choctaw facility in Iberville Parish. In addition, a larger sewage disposal pond for the town of Brusly is located approximately 0.25 mile from the pipeline intersection with the Choctaw Basin Drainage channel.

Wetlands. Four stretches of ROW totaling 8.5 miles and incorporating 75 acres would intersect bottomland hardwoods, a swamp forest ecosystem (Figure 3-2). An additional 11 acres of bottomland hardwoods would be cleared for work sites. Ground reconnaissance was conducted along the pipeline corridor and in the general vicinity on March 18 and 19, 1998. Wetlands were delineated using both hydric soils and plant species as indicators. The lateral extent of the wetlands from the proposed ROW was not delineated.

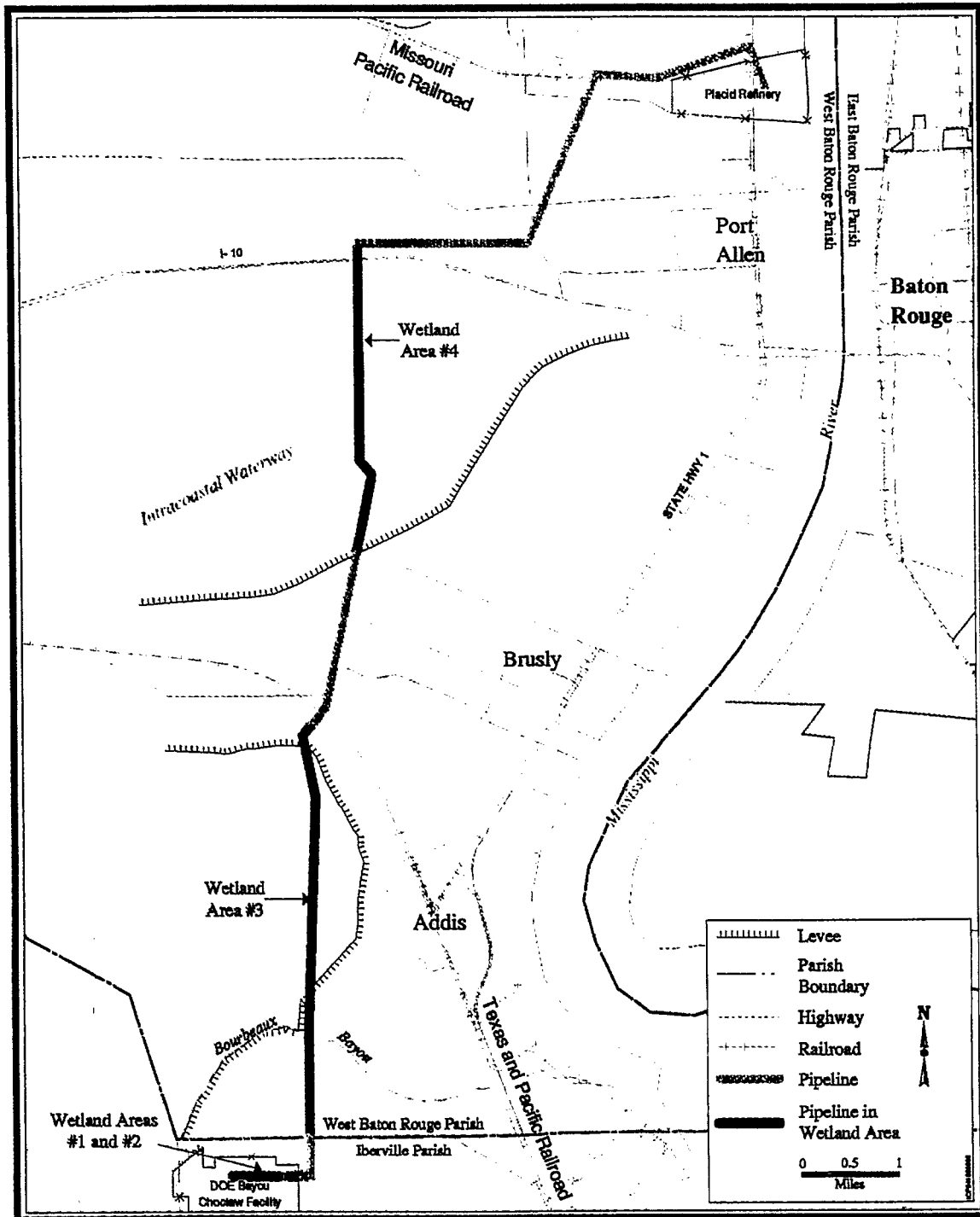
From south to north, Wetland Area One is located within the DOE Bayou Choctaw Facility in an area that is already highly disturbed. The ROW would include approximately three acres of this wetland that is dominated by islands of willows interspersed in a matrix of open water.

Wetland Area Two is located on the edge of DOE's Bayou Choctaw Facility immediately east of Wetland Area One. Red maple, willow, and water oak are dominant. Approximately two acres would be within the ROW.

Wetland Area Three would be encountered just north of the West Baton Rouge Parish line and extend nearly to the Texas and Pacific Railroad. It is dominated by red maple, sweetgum, sugarberry, cottonwood, and hickory. During the site visit, a few bald cypresses were observed. Palmetto and dogwood dominate the understory. Approximately 35 acres would be involved.

Wetland Area Four is located between the Choctaw Basin Drainage Canal and Interstate 10 and would comprise approximately 35 acres of the ROW. This area was impacted by Hurricane Andrew in 1992 and was selectively harvested for marketable size timber in 1992 and

Figure 3-2 Wetlands near the proposed pipeline



as recently as 1997. Old growth trees have been removed and younger, smaller trees remain. Water oak, red maple, sweetgum, and sugarberry dominate the overstory in what remains of the forested wetland. Palmetto and dogwood dominate the understory.

3.4 Biological Resources

3.4.1 Vegetation

Land elevation (ridges or swales) and the amount and duration of wet conditions determine presence or location of species within the forested wetland ecosystem. Seasonally, the forested wetlands in this region are wet from October through June and dry July through September. The optimal season for construction would be during the dry months. Signs of flooding, inundation, and soil saturation were observed during the March 1998 site visit.

Common tree species of the upper canopy layer of the forested wetland ecosystem observed included: bitternut hickory, cypress, red maple, Nuttall oak, overcup oak, box elder, water hickory, green ash, pumpkin ash, hackberry (sugarberry), sweet gum, sweet pecan, live oak, tupelo gum, cherry bark oak, American elm, honey locust, water oak, and southern magnolia. In disturbed areas, the upper canopy can support pioneer species like willow oak, sycamore, and cottonwood. Chinese tallow trees (exotic) were observed along the forest edge.

Common tree species of the forested wetland ecosystem understory that were observed include: blue beech (ironwood), deciduous holly, swamp dogwood, southern bayberry (wax myrtle), black cherry, sumac, privet, and red mulberry.

Common shrub layer species of the forested wetland ecosystem include: elderberry, buttonbush, silverling, red bay, royal fern, trumpet vine, magnolia, palmetto, and yaupon as dominant species. Pennywort, sedges, grasses, and three square are common inhabitants of the forested wetland grassy edge community bordering the disturbed ROW areas.

The southern and the northern ends of the ROW are dominated by agricultural (almost exclusively sugarcane) and pastureland with forested wetlands and industrial acreage interspersed. The habitat of the intermittent forested wetlands has been disturbed by human activity and drained for agricultural and pasture land.

The southern quarter of the ROW consists of primarily agricultural and pastureland with forested wetlands intermixed. This area has been previously severely disturbed by the construction of an oil-drilling site; conversion of forested wetlands to agricultural land and pastureland, and residential development.

In 1992, Hurricane Andrew crossed the forested wetlands between Bayou Bourbeaux and the Texas and Pacific Railroad crossing and caused severe tree damage still evident today. Subsequent timber harvesting occurred in 1992 and again as recently as 1997. As a result, the hardwood wetland forests in this area have been thinned of large trees and continuous stands of mature old growth trees have been reduced. The hardwoods in this area are of mixed age and size.

The forested wetlands between the Texas and Pacific Railroad crossing and the Choctaw Basin Drainage Channel are diverse with trees of mixed age and size.

The forested wetlands observed between Choctaw Drainage basin and the ICW have recently been timbered, which significantly impacted this ecosystem. This area could require approximately 50 years to recover to mature bottomland hardwood forested wetlands.

Hurricane Andrew also impacted the forested wetlands observed between the ICW and Interstate 10. Forested wetlands in this area contain numerous thickets and oaks (acorns) that provide wildlife habitat and forage. During the site visit, fox squirrels, great blue herons, yellow-crowned night herons, wood ducks, owls, and crayfish burrows were observed in this area.

3.4.2 Terrestrial Wildlife

Mammal species observed during the March 1998 site visit included white-tailed deer, armadillo, fox squirrel, raccoon, rabbit, and gray squirrel. Other species that are common to the area include mink, nutria, river otter, and coyote. Sightings of two adult male Louisiana black bears within the project area have been reported in each of the last five years.

Louisiana is part of the Mississippi Flyway for migratory bird species. The Mississippi Flyway is one of the largest and most important migratory routes between North and South America. The forested wetlands along the proposed pipeline offer corridors for local movement

of indigenous species and temporary habitat for seasonal migrations of waterfowl, paciformes (small songbirds), and hawks.

Bird species observed on the visit included great blue heron, great egret, snowy egret, cattle egret, Louisiana heron, owls, red-tailed hawk, cardinal, boat-tailed grackle, mockingbird, killdeer, mourning dove, sedge wren, red-winged blackbird, yellow-crowned night heron, wood duck, and black vulture. A pair of bald eagles nests approximately one mile west of the pipeline.

Reptiles observed include snapping turtles, green ribbon snake, and cottonmouth. The only amphibian species observed during the site survey was a skink.

3.4.3 Aquatic Life

In the freshwater bayous like Bayou Bourbeaux and Bayou Choctaw, the flushing of water introduces a constant influx of nutrients that nourish algae populations. These algae (phytoplankton) provide a food source for insects, birds, and small mammals. Zooplankton populations (copepods, cladocerans, rotifers, ostracods, and amphipods) also prey upon the phytoplankton populations that in turn are preyed upon by freshwater clams, crayfish, insects, and birds.

Common invertebrates known to inhabit the forested wetlands in the vicinity of the proposed pipeline include wintering male blue crabs, freshwater clams, river crayfish, and red swamp crayfish.

This nutrient rich ecosystem supports a large and varied population of freshwater finfish. Some common fish species in the area near the proposed pipeline routing include: black crappie, blue catfish, bluegill, channel catfish, freshwater drum, gizzard shad, largemouth bass, redear sunfish, spotted sunfish, striped mullet, warmouth, white crappie, yellow bass, bowfin, buffaloes, carp, flathead catfish, green sunfish, longear sunfish, spotted bass, white bass, striped bass, blue sucker, and possibly river redhorse. Commercially valuable species known to inhabit the area near the proposed pipeline include catfish, buffalo, drum, bowfin, striped mullet, gar, turtles, frogs, and striped bass.

3.4.4 Rare, Threatened, and Endangered Species

Federally listed rare, threatened, and endangered species that are recorded as occurring in Iberville or West Baton Rouge Parish include the Louisiana black bear, bald eagle, and in the Mississippi River only, the pallid sturgeon. A bald eagle nesting pair has been observed 1 mile from the ROW¹. One was observed during the March 1998 ROW inspection. The Louisiana black bear, which is a Federally- and State-listed threatened species, has been reported in the bottomland hardwoods in the vicinity of the pipeline. However, during the March 1998 ROW inspection, no denning habitat was found along the ROW and no bears were observed.

Biological communities in the vicinity that receive special concern from the State include cypress-tupelo swamp, bottomland hardwood forest, and waterbird-nesting colony.

3.4.5 Other Biological Resources

The proposed pipeline would be located within a few miles of a couple of natural resource management areas. Wildlife management areas located in the vicinity of the proposed pipeline routing include: the Atchafalaya National Wildlife Refuge (15,222 acres); Lake Fausse Point State Park (6,127 acres); and the Sherburne Wildlife Management Area.

3.5 Socioeconomics

3.5.1 Population and Economic Activities

Population in rural Iberville Parish has been fairly stable the past 20 years. In 1990, it had declined by nearly 3.5 percent from 1980 to 31,049. It is expected to increase slightly to 32,050 by the year 2000, still less than in 1980 (Louisiana State University estimate). Table 3-3 shows estimated population for each urban area within the Parish.

¹ Louisiana Department of Wildlife & Fisheries, Habitat Section; 2000 Quail Drive, Room 433 P.O. Box 98000; Baton Rouge, LA 70898-9000

Table 3-3 Iberville Parish City Population

City	(1995 Estimate)
Grosse Tete	661
Maringouin	1,169
Plaquemine	7,359
Rosedale (1993)	730
St. Gabriel (1990)	3,771
White Castle (1994)	2,207

Preliminary 1996 data from the Louisiana Department of Labor (LDL) show 10.7 percent unemployment in Iberville Parish with a total civilian labor force at 12,810. The largest numbers of employees are in manufacturing, services, and construction industrial sectors. The petrochemical industry, which dominates the Parish economy, tire manufacturing, and sugar manufacturing combined provide over 32 percent of the jobs.

West Baton Rouge Parish, which is even more rural, increased in population by 1.7 percent from 1980 to 1990 to 19,419. It is expected to increase by 3.6 percent to 21,120 by 2000. Urban populations are given in Table 3-4.

Table 3-4 West Baton Rouge Parish City Population

City	(1995 Estimate)
Addis	1,288
Brusly	1,954
Port Allen	6,379

The Parish's economy is based on manufacturing, chemical manufacturing, petroleum refining, shipping, food products, service industries, and governmental agencies. Unemployment in 1996 was 6.1 percent of a labor force of 9,900. Manufacturing, construction, services, and transportation combined provide over 73 percent of the jobs.

3.5.2 Emergency Response Capabilities

Shell currently maintains an emergency response plan entitled "Facility Response Plan, Volume I" that provides a detailed overview of operations in the event of an emergency. The document describes the overall emergency response process, the roles and responsibilities of individuals in an emergency, and guidelines and procedures for specific scenarios. Further information is provided concerning training techniques for various responses, equipment testing

and inspection, and overview of prevention programs.

When a hazardous material incident occurs in Louisiana, state law requires that the responsible party notify the state’s 24-hour emergency hotline. The West Baton Rouge Office of Emergency Preparedness in conjunction with the Local Emergency Planning Commission (LEPC) has responsibility under an LEPC Plan for coordinating activities responding to an emergency. Police services are provided in the areas of the proposed pipeline ROW by three separate police or sheriff’s departments. Fire protection for West Baton Rouge Parish is provided by five fire departments, two of which are designated volunteer departments. The nearest hospitals are located approximately five miles from the Parish line in Baton Rouge.

3.5.3. Demography for Environmental Justice Concerns

African-Americans account for nearly two thirds of the residents within 8 km (5 miles) of the proposed pipeline and African-Americans and Whites account for more than 98 percent of the population (Table 3-5 and Figure 3-3).

Table 3-5 Racial Composition within Five Miles of Proposed Project

Race	Population	Percentage
Whites	43,665	33%
African-Americans	85,651	64.4%
Native Americans	138	0.1%
Asians	1,650	1.2%
Hispanics	1,316	1.0%
Others	355	0.3%
TOTAL	132,775	

A total of 132,775 people live within the 5 miles of the pipeline, the majority of whom live in the city of Baton Rouge. Of this total, 48,463 (36.5 percent) persons have incomes below the poverty level (Figure 3-4). Of these, 9,983 (20.6 percent) have incomes that are less than 50 percent of the poverty level income. An additional 3,910 (8.1 percent) have incomes between 50 percent and 74 percent of the poverty level income. There are 3,770 (7.8 percent) individuals that have incomes between 75 percent and 99 percent of the poverty level income.

Figure 3-3 Racial Composition within 8 km (5 miles) of Proposed Pipeline

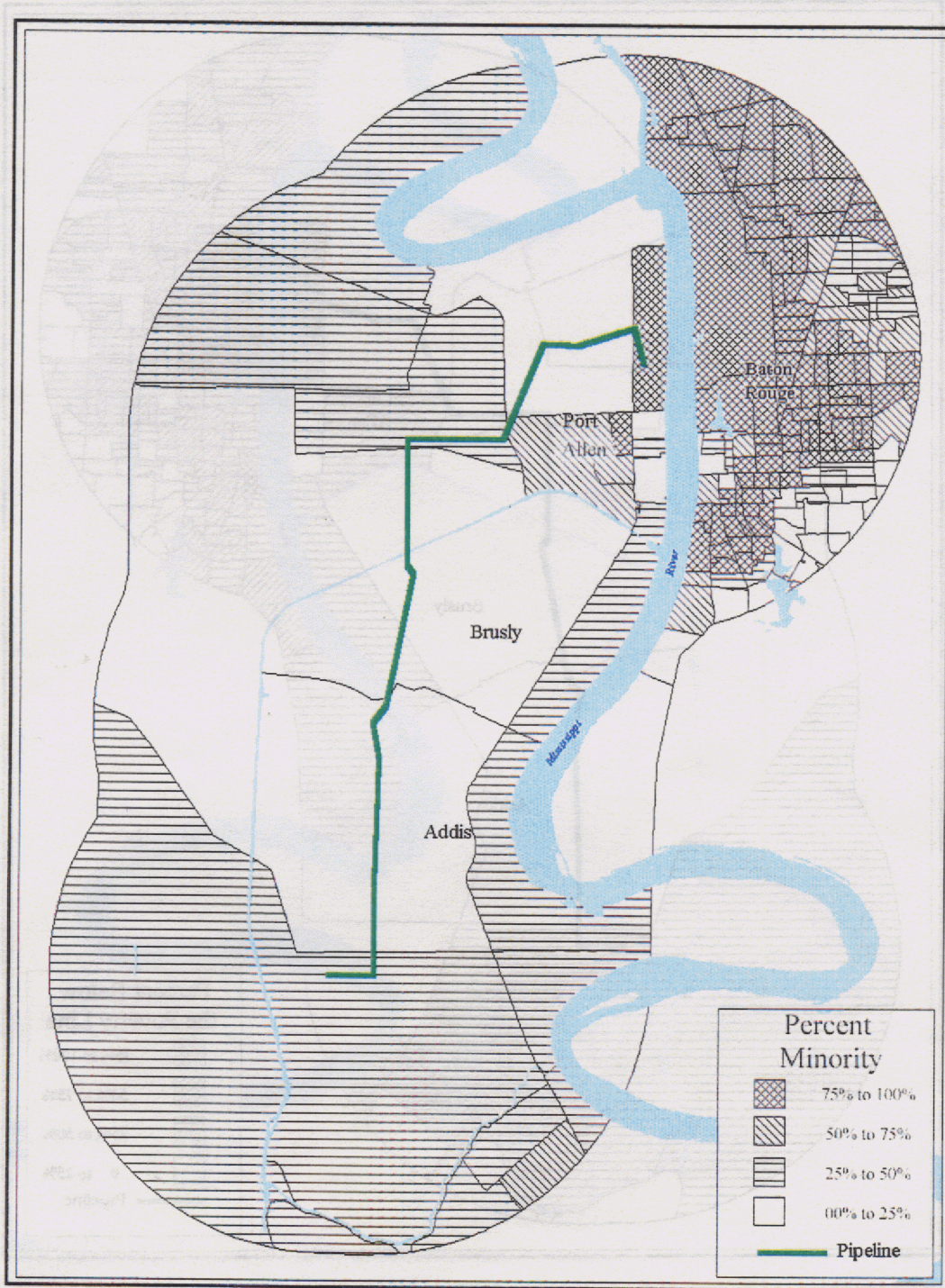
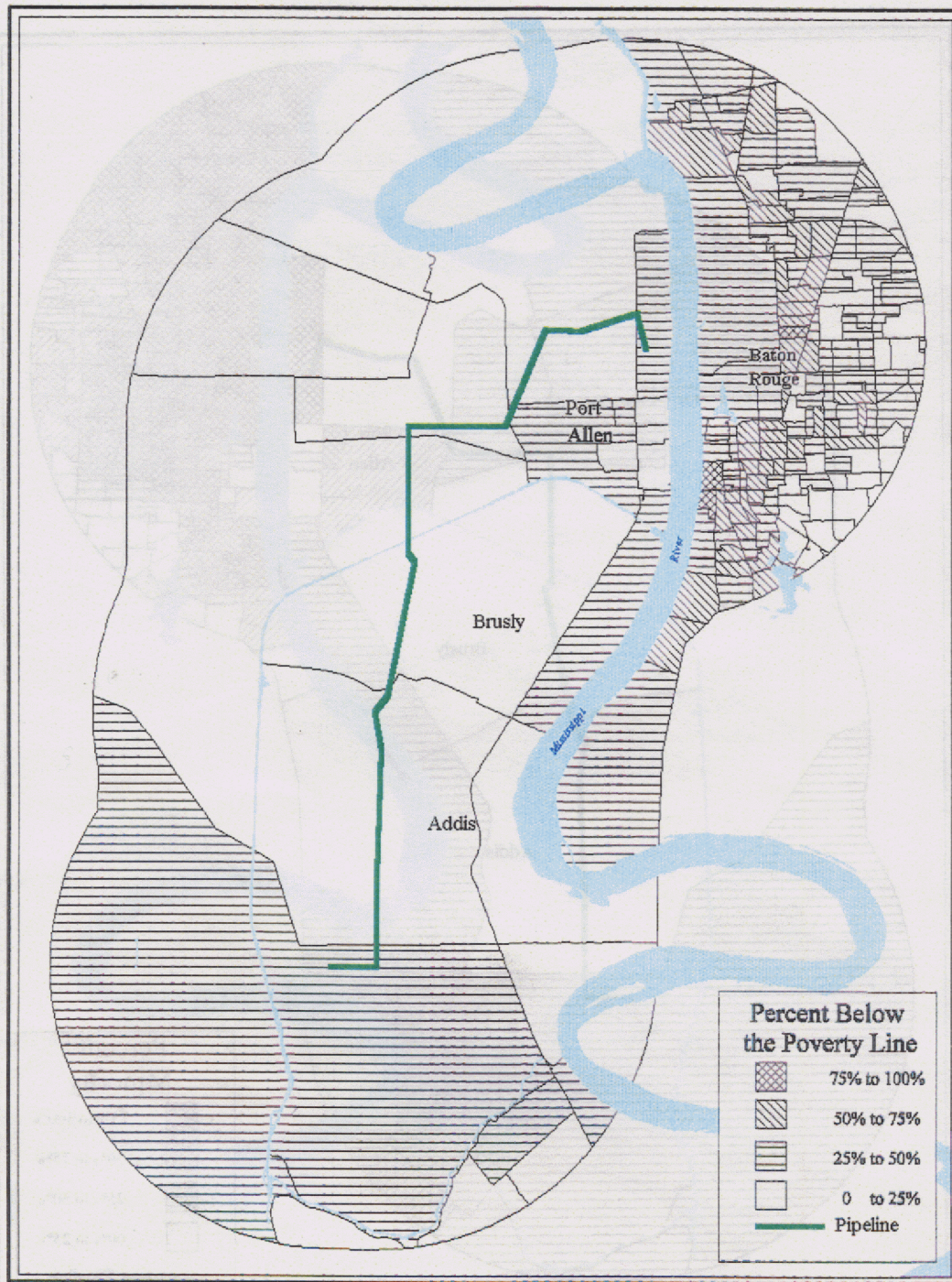


Figure 3-4 Income Level Distribution within 8 km (5 miles) Proposed Pipeline



3.6 Ambient Noise

Ambient noise is closely related to land use. The proposed construction area south of I-10 is predominantly rural. Residential neighborhoods closest to the pipeline corridor would be in Addis where daytime noise is about 50 to 60 dBA with a slightly lower L_{dn} . Elsewhere, closest residences would be located in isolated trailer parks where daytime ambient noise is estimated to be 40 to 50 dBA with a slightly lower L_{dn} .

North of I-10, the project area is mixed commercial-industrial with scattered residences. The highest ambient noise levels would be found along the pipeline segment paralleling I-10, where a truck traveling at 65 mph produces 88 dBA at 50 feet.

3.7 Archaeological, Cultural, and Historical Resources

There are no known archaeological, historical, or cultural resources that would potentially be affected by the project. Pipeline excavation would be limited to a depth of about 7 feet except where it is drilled under a water body, road, or railroad. Given the disturbed state of almost all of the construction ROW, involvement with any potential unidentified resource is unlikely. The Louisiana State Historical Preservation Officer issued a "Letter of No Objection" to the proposed activity in which he stated that should any archaeological material be unearthed during the construction activity, work in the area must be halted and the Louisiana Office of Cultural Development be notified (Appendix A).

3.8 Transportation Systems

The major east-west highway through the vicinity is Interstate 10, which passes through Port Allen in northern West Baton Rouge Parish and connects with Baton Rouge and New Orleans to the east and Lafayette, Lake Charles, and Houston to the west. The major north-south artery through the project vicinity is State Highway 1, which follows the west bank of the Mississippi River from near New Orleans to the south, connects with I-10 in Port Allen to the north, thence through Placid Refinery and beyond. It is the only primary road serving the small river communities of Addis and Brusly.

South of the ICW, pipeline construction equipment, material, and work crews would be transported to the construction work areas and push sites by way of the few secondary and soft-

surface roads accessible from Highway 1. Push- and drill sites of the ICW crossing would be accessed by barge on the ICW. North of the ICW, work sites between I-10 and Placid would be more readily accessible via more and better roads. There are no known bridges that are under construction, rehabilitation, or are otherwise weight-restricted that would adversely affect construction activities.

The Port of Greater Baton Rouge, which is the farthest inland deepwater port on the Mississippi River, serves Iberville and West Baton Rouge. Located 290 miles from the Gulf of Mexico, the port handles forest products, pipe, steel, petroleum, chemicals, coal, grains, and other products.

The Port Allen Locks of the ICW are adjacent to the Port of Greater Baton Rouge. For the segment of the ICW in the vicinity of the proposed project, called the Morgan City-to-Port Allen Route, the U.S. Coast Guard records vessel traffic at the check-in point (westbound) and check-out point (eastbound) of the Port Allen Locks. The volume recorded at the Port Allen Locks should be representative of the ICW at the pipeline crossing, which in 1996 was 10,393 tugs total, eastbound and westbound, with and without barge tows, or more than 28 per day.

4.0 ENVIRONMENTAL IMPACTS

Shell would construct and operate the pipeline in accordance with its Environment, Health, and Safety Program, which provides applicable safety policies, and procedures that are designed to reduce the probability of occurrence and to mitigate the possible consequences. Shell would conduct an initial project orientation and subsequent daily briefings to ensure that all workers are aware of potential hazards and are familiar with safety protocols and procedures.

4.1 Impacts of No Action

Under the No Action alternative, no new pipeline construction would occur. Bayou Choctaw Pipeline would be connected only to DOE's Bayou Choctaw Facility and the St. James Terminal and would continue to be an underutilized asset. DOE would forego an opportunity to enhance both its pipeline distribution capability and the commercialization of its underutilized facilities. In the short term, the regional pattern of commercial pipeline and marine oil shipments would be the status quo, and Placid Refinery throughput would continue unaffected. In the long term, however, the No Action alternative could increase future reliance on waterborne shipping on the Lower Mississippi River, thereby increasing the risk of oil spills.

4.2 Construction Impacts

Construction would last about three months. With the exception of impacts to bottomland hardwoods (forested swamp), its effects would be direct, short-term, and immeasurable or minor.

The cumulative effects of fragmented bottomland hardwoods resulting from land conversion to transportation is a growing concern in Louisiana. Clearing a ROW of forest canopy and understory can adversely affect forest-interior-dependent neotropical migrant songbirds. The loss of thick cover can impair the movement of large terrestrial mammals that depend on it to avoid detection by humans and other enemies. Clearing vegetation increases vulnerability to invasion by opportunistic pioneer and exotic species of plants, small mammals, and reptiles, which often results in reduced diversity of species and degraded habitat. The edge effect from clearing vegetation benefits mostly species that are not in need of protection, such as rabbits and deer. Making maximum use of existing pipeline and utility corridors would minimize these impacts.

4.2.1 Air Quality

Air impacts of construction consist of emissions from trucks and the barge tow during delivery of line pipe and construction equipment to the work sites, the construction equipment as it progresses along the ROW, and fugitive dust stirred up by the vehicles and the work over the entire project area. Estimated emissions of carbon monoxide, hydrocarbons, nitrogen oxides, sulfur oxides, and particulate matter (Table 4-1) are based on EPA's "Compilation of Air Emission Factors AP-42", 4th edition, and Shell's equipment work plan. The equipment was assumed to use diesel fuel except welding, X-ray, and pickup trucks, which were assumed to use gasoline. Over the three-month construction period, the work would produce 18.3 tons of NO_x and VOCs. This is significantly below the regulatory threshold of 50 tons of NO_x and VOCs per year for ozone nonattainment areas.

Fugitive dust emissions are based on the AP-42 emissions factor of 1.2 tons/acre/month of activity and assuming 90 percent dust control by wetting the soil. Thus:

$$\begin{aligned} \text{Emissions} &= \text{emission factor} \times \text{acres cleared} \times \text{months of activity} \times \text{dust control factor} \\ &= 1.2 \times 86 \text{ acres} \times 3 \text{ months} \times 0.1 \\ &= \mathbf{31 \text{ tons of dust}} \end{aligned}$$

4.2.2 Water Quality and Soils

Trenching the pipe ditch would excavate 269,870 cubic yards of material, 6000 cubic yards of which would come from small water bodies. The spoil would be stockpiled in the 45-ft temporary ROW and used as backfill upon completion of pipeline construction. The surface would then be returned to pre-existing contours as soon as practicable. During excavation and stockpiling, water quality (and aquatic biota) may be adversely impacted from resuspension of sediments, erosion from runoff, and sedimentation. These effects would be local, short-term, and would be mitigated by implementation of Shell's Storm Water Pollution Prevention Plan. The Brusly Sewage Disposal Pond would be unaffected.

Up to 69.8 acres of soils identified as prime farmland would be disrupted. However, almost this entire amount is previously disturbed soil within existing pipeline corridors that has already been converted from agricultural use to transportation use.

Table 4-1: Estimates of Emissions from Construction Activities (over 3 month period)

Equipment	Equip- ment Number	Total Equip- ment Hours ¹	CO Unit Factor (lb/hr)	CO Emission (lb)	HC Unit Factor (lb/hr)	HC Emission (lb)	NOx Unit Factor (lb/hr)	NOx Emission (lb)	SOx Unit Factor (lb/hr)	SOx Emission (lb)	Particulate Unit Factor (lb/hr)	Particulate Emission (lb)
Bulldozer	6	3000	1.79	5382	0.19	576	4.17	12498	0.35	1044	0.17	495
Backhoes	6	3000	0.57	1716	0.25	750	1.89	5670	0.18	546	0.17	516
Welding Truck	12	6000	0.67	4044	0.13	780	0.16	984	-	-	-	-
X-ray Truck	4	2000	0.67	1348	0.13	260	0.16	328	-	-	-	-
Pipe Hauling Truck	6	3000	1.79	5382	0.19	576	4.17	12498	0.45	1362	0.26	768
Rolligon	6	3000	3.59	10770	0.19	564	1.27	3807	0.09	270	0.14	408
Boring Machine	1	500	5.50	2752	0.33	167	0.11	55	0.01	4	0.01	5
Drill Machine	1	500	5.50	2752	0.33	167	0.11	55	0.01	4	0.01	5
Pickup	10	500	0.45	223	0.08	41	0.05	24	-	-	-	-
Tug Barge (cruise)	1	8	14.27	114	3.06	24	72.82	583	-	-	-	-
Total				34483		3906		36501		3231		2197

¹ The total number of equipment hours is based on the equipment used over a three-month period. It was assumed that a month was 20.8 workdays and each day was 8 hours. In the case of the barge with tug, one trip at cruise speed with a 2,500 horsepower engine was assumed.

4.2.3 Rare, Threatened, and Endangered Species

The project would contribute to further fragmentation of the area's bottomland hardwoods, as noted previously in Section 4.2. The loss of cover in the ROW could affect the Louisiana black bear's freedom of movement. However, in consideration of the absence of suitable habitat for denning and other factors relating to the present quality of the forest, LDWF determined that there are no State-listed species of concern inhabiting the proposed pipeline ROW. Similarly, after consultation with USFWS, DOE has determined that this project would not adversely affect Federally listed threatened or endangered species or their critical habitat because none presently occurs within the proposed project area (Appendix A).

4.2.4 Floodplains and Wetlands

Floodplain involvement by the project is unavoidable given the location of a terminus at DOE's Bayou Choctaw facility, which is within the 100-year floodplain. Temporary stockpiling of spoil adjacent to the trench could have a minor effect on hydrologic flow in the event of a base flood during construction. After burial and restoration of surface contours, however, the pipeline would be unaffected by flooding and would not influence flood height or flow velocities or otherwise increase the threat of loss of life or property or affect any other natural and beneficial value of floodplains. The presence of the pipeline would not encourage additional development in the floodplain, either directly or indirectly but would accommodate the maintenance of existing uses in the floodplain.

The USFWS commented that the bottomland hardwoods that would be affected by the project is habitat of national importance and is becoming scarce on both a national and regional basis (Appendix A). Of the 86 acres that would be cleared, about 30 acres would be kept clear in perpetuity for the permanent ROW; the remaining 56 acres of temporary ROW and work space would be allowed to grow back. Shell would provide compensatory mitigation for the unavoidable loss. The scope, location, and design of the mitigation project would be specified in the USACE permit.

4.2.5 Other Environmental Resources

Socioeconomics. The project would provide about 150 jobs for two to four months or a total of 441 man-months. Skilled labor in the relevant trades is locally abundant and available, and most jobs would probably be filled with local workers. As is evident in Figures 3-2 and 3-3, the impacts of the project, particularly air, noise, and transportation impacts, would not fall disproportionately on minority or low income communities. Furthermore, there is a reduced risk to shipping when the oil is moved by pipeline.

Noise. The major noise sources would be the drill and boring machines. Each of these is conservatively estimated to produce 98 dBA² at 50 feet. It is assumed that each would produce maximum noise levels only 50 percent of the time and at any time during the construction day, only one would be at its highest noise level.

Day noise levels in excess of 10 dBA above ambient may interfere with human activities. This implies an impact radius of two miles for trailer parks. For Addis, located approximately 0.5 mile from the ROW, construction noise may be noticeable but not necessarily annoying. Since the construction zone would progress at about 0.5 mile per day, any noise impact would last for no more than a day or two.

Transportation. Hauling line pipe and construction equipment to specified work sites would contribute to congestion and potential deterioration of secondary roads in a few locations for a brief period of up to two weeks. Barging line pipe and heavy construction equipment would add only minimally to the 28-tug-per-day shipping volume, would not pose a navigation hazard, and would not measurably affect congestion in the ICW.

Directional drilling of crossings would avoid disruptions to shipping on the ICW and highway and rail traffic. There would be temporary disruptions to local traffic during crossing of secondary soft-surface roads by open-cut trenching. This would be mitigated by maintaining half the road open while trenching the other half.

² This is the 'A' weighted sound level. It is used to simulate noise as heard by the human ear. It accomplishes this by artificially lowering the sound produced at lower and higher end frequencies, where the human ear is less sensitive to sound reception.

4.3. Operations Impacts

The potential impacts from operation of the pipeline include the possibility of an oil spill and air emissions.

4.3.1 Risk of Spill/Release

Estimates for spills per mile of pipeline have historically depended upon data assembled by DOT in the early 1970's that used both DOT and Department of the Interior spill data. The spill estimates from the original DOT data indicate a spill rate of 0.011 spills per year. Because of substantial improvements in design and construction, as well as implementation of improved management practices, pipeline spill rates have decreased considerably over the past two decades. It is now estimated that the probability of spills is less than 1.1% or one spill every 91 years. The actual volume of crude oil that would be spilled in the event of an emergency would be calculated by Shell Pipe Line Corporation's engineers and would be included in their Emergency Response Plan.

In the event of a catastrophic occurrence or unforeseen natural disaster, Shell would activate its Emergency Response Plan and, in coordination with State and Local Emergency Response Coordinators, address the emergency.

Oil spills may also contaminate the ground and surface water used to supply drinking water to local populations, however, as the soils surrounding the pipeline are predominately clay, the likelihood of actual contamination is negligible. The isolation of the upper water table in which the pipeline lies from the potable water aquifers further minimize any possibility of contamination.

The specifications for design, construction, and operations as described in Chapter Two serve to further reduce the risk of spill.

Despite these mitigation efforts possible releases from pipelines could occur due to erosion, corrosion, over pressurization, or failure of valves or joints.

The major impacts associated with an oil spill along the proposed ROW could include damage to natural resources or private property and loss of recreational opportunities (i.e., fishing, hunting, boating, and swimming).

Oil spills could impact participation in recreational activities by polluting water bodies and wetland areas. Spills might reduce the number of fish and wildlife in affected areas. Oil spills that affect sensitive areas such as wetlands could have negative impacts on fish and shellfish populations temporarily.

4.3.2 Emissions

A minor amount of fugitive hydrocarbons would be emitted from the above-ground seals for each of the four mainline block valves. The emissions would vary directly as a function of crude oil throughput.

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5.0 SUMMARY OF ENVIRONMENTAL IMPACTS AND CONCLUSIONS

The principal impact of the proposed project would be the clearing of 86 acres of bottomland hardwoods, 30 acres of which would be permanently lost in order to maintain the permanent ROW. Shell would provide compensatory mitigation for the unavoidable loss. The amount, location, and mitigation project design would be determined after consultation with USACE and specified in the USACE permit

There would be no effect on floodplain functions and values other than the potential for temporarily stockpiled spoil to alter or impede hydrologic flow in the event of a 100-year flood during construction.

There are no endangered or threatened species that would be adversely affected by the proposed project.

Although the project would disturb 69.8 acres of soils that are classified as prime farmland, most were previously disturbed in existing pipeline corridors and would not represent a change in land use.

The only substantive potential impact of pipeline operation would be the probability of an oil spill, which is estimated to be 1 percent or less per year. It is unlikely that an accidental spill would contaminate potable groundwater.

The project would provide 150 jobs for 2 to 4 months, mostly for local residents and would make a small, positive contribution to the economy of Iberville and West Baton Rouge Parishes.

There would be minor, direct, and short-term impacts to air, water, noise, local road traffic and road surfaces. These would not fall disproportionately on minorities or the economically disadvantaged.

There are no known cultural, historical, or archaeological sites that would be affected and the action is consistent with the current land use of the area. The proposed action would not fall within, or otherwise directly affect the Louisiana Coastal Zone.

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Appendix A - Consultations and Communications

The Department of Energy (DOE) coordinated this NEPA process, including public notification, with the Section 404 permit process of the U.S. Army Corps of Engineers (USACE), New Orleans District. USACE issued a public notice of Shell's permit application and DOE's NEPA compliance process on April 15, 1998, to a combined USACE-DOE list of stakeholders and interested parties. DOE published a notice of floodplain and wetlands involvement in the **Federal Register** on May 21, 1998 (63 FR 27931). Consultations and information gathering were conducted with the cognizant Federal, State, and local agencies given below. No Native American tribes were consulted since the proposed action would not affect a reservation. A draft of the Environmental Assessment (EA) was made available to these agencies and to the public July 9, 1998.

Letters received included a lack of objection from the Louisiana State Historic Preservation Officer, a response to DOE's notice of floodplain and wetlands involvement from the U.S. Fish and Wildlife Service (USFWS), a notice of water quality certification from the Louisiana Department of Environmental Quality, a letter of no objection from the Louisiana Department of Wildlife and Fisheries, and comments on the draft EA from USFWS, the Coastal Management Division of the Louisiana Department of Natural Resources, and the Strategic Petroleum Reserve Environmental Advisory Committee (EAC). Copies of these letters are provided below.

The EAC commented that pipelines are a lower-risk mode of transportation than waterborne shipping. This has been added to the discussion of impacts of the No Action alternative in Section 4.1. In addition, information provided by the EAC on the occurrence of black bears in the project area has been incorporated in revisions to Sections 3.4.2, 3.4.4, 4.2, and 4.2.3. Finally, in response to an EAC comment, this Appendix A has been substantially revised.

Federal Agencies

U. S. Army Corps of Engineers, New Orleans District
Surveillance and Enforcement Branch
New Orleans, LA

Spoke with Nathan Watts on 2/11/98 concerning permit issues and existing pipeline corridors.

U. S. Coast Guard
Marine Safety Office
Morgan City, LA

Spoke with RD3 John D. Copeland on 4/12/98 regarding Intracoastal Waterway traffic.

U.S. Fish and Wildlife Service
Ecological Services Field Office
Lafayette, LA

Spoke with Russell C. Watson on 6/11/98 concerning threatened and endangered species and habitat.

U.S. Geological Survey
Mapping Services Department
Washington, DC

Spoke with Dave Govani on 2/19/98 concerning land use and mapping information.

State Agencies

LA Department of Natural Resources
Pipeline Safety Division
Baton Rouge, LA

Spoke with Don Hebert, on 2/12/98 concerning pipeline regulatory matters.

LA Department of Transportation and Development
Planning Division
Baton Rouge, LA

Spoke with Buffy Brinkley on 3/13/98 regarding water well data. Spoke with Patrick Wollerson on 3/23/98 concerning traffic volumes.

LA Department of Agriculture and Forestry
Office of Soil and Water Conservation
Baton Rouge, LA

Spoke with Butch Stegall on 3/17/98 concerning water quality issues.

LA Department of Environmental Quality

Office of Water Resources

Baton Rouge, LA

Spoke with Keith Casanova on 3/30/98 concerning ground water issues and existing pipeline corridors.

LA Department of Wildlife and Fisheries

Natural Heritage Program

Baton Rouge, LA

Spoke with Karl Mapes on 3/11/98 to request information on State-listed threatened and endangered species and species of concern.

Local Agencies

West Baton Rouge Public Library

Port Allen, LA

Spoke with Anna Marchiafava to obtain existing pipeline corridor environmental information.

Local Emergency Planning Commission

Charlotte Edwards, Director of Emergency Planning

West Baton Rouge, LA

Spoke with Charlotte Edwards on 4/2/98 concerning emergency response issues.



KATHLEEN BARINEAUX BLANCO
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF CULTURAL DEVELOPMENT
DIVISION OF ARCHAEOLOGY

PHILLIP J. JONES
SECRETARY
GERRI HOBBY
ASSISTANT SECRETARY

January 27, 1998

Dr. Alan L. Smith
Global Environments, Inc.
10777 NW Freeway, Suite 580
Houston, Texas 77092

Re: Proposed Bayou Choctaw to Placid Oil Pipeline
Shell Pipeline Corp.
Iberville and West Baton Rouge Parishes, Louisiana

Dear Dr. Smith:

Reference is made to your letter dated January 15, 1998, regarding the above. A review of our files indicates that there is one archaeological site, 16WBR5, located near the pipeline route. Based on the information provided, it is our opinion that the proposed pipeline will have no effect on site 16WBR5 or on any other significant cultural resources, and as such, we have no objections to the project. However, should any archaeological material be uncovered during ground disturbing activity, we request that work in that area be halted and this office notified.

Should you have any questions or need any further assistance, please contact Mr. Mike Mahady in the Division of Archaeology at (504) 342-8170.

Sincerely,


Gerri Hobdy
State Historic Preservation Officer

GH:MM:s



United States Department of the Interior

FISH AND WILDLIFE SERVICE

825 Kaliste Saloom Road
Brandywine Bldg. II, Suite 102
Lafayette, Louisiana 70508

June 10, 1998

Mr. Hal Delaplane
Strategic Petroleum Reserve (FE-42)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Mr. Delaplane:

The U.S. Fish and Wildlife Service has reviewed the "Notice of Floodplain and Wetlands Involvement of Bayou Choctaw Pipeline Extension to Placid Refinery, Iberville and West Baton Rouge Parishes, Louisiana" (Federal Register 63:98, May 21, 1998). The following comments are provided as technical assistance, and do not reflect the views and comments of the Department of the Interior.

No Federally listed threatened or endangered species, or their critical habitat, presently occur within the proposed project area. Likewise, no units of the National Wildlife Refuge System are located in that area. No further consultation will, therefore, be required unless the scope or location of the project is changed, or project construction has not been initiated within one year. In either case, follow-up consultation should be initiated via a telephone call to this office prior to making expenditures for construction.

According to the Federal Register Notice, The Department of Energy is coordinating its NEPA compliance process with U.S. Army Corps of Engineers' (Corps) Section 404 permit process. Enclosed is a copy of our May 19, 1998, letter to the Corps regarding the Public Notice for the proposed project. We recommend that the forthcoming draft Environmental Assessment for this project address the Service's recommendation to fully compensate the unavoidable, 86-acre, project-related loss of forested wetlands concurrently with project implementation.

We would appreciate being afforded the opportunity to comment on the draft Environmental Assessment for this project when it is released for public review. If questions arise, please contact me at (318) 262-6630.

Sincerely,

Russell C. Watson
Acting Field Supervisor

Enclosure

cc FWS, Atlanta Georgia (AES-HC)
FWS, Washington, DC (BFA-ERT)
DOI, OEPC, Washington, DC



United States Department of the Interior

FISH AND WILDLIFE SERVICE

825 Kaliste Saloom Road
Brandywine Bldg. II Suite 102
Lafayette, Louisiana 70508

May 19, 1998

Colonel William L. Conner
District Engineer
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Conner:

The U.S. Fish and Wildlife Service has reviewed Public Notice EK-19-980-1642, dated April 15, 1998. Shell Pipe Line Corporation has requested a Department of the Army permit to install 16 miles of 24-inch crude oil pipeline. Work would involve constructing push ditches, stockpiling the spoil adjacent to the ditch, constructing drill sites and boring locations, and constructing board roads to access work sites. The proposed work would extend from the Bayou Choctaw Strategic Petroleum Reserve Facility in Iberville Parish, to the Placid Oil Refinery in Port Allen, West Baton Rouge Parish, Louisiana. This report is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973, as amended.

According to the Public Notice, all water crossings would be directionally drilled; those crossings include the Gulf Intracoastal Waterway and Bayou Bourbeaux. Each directional drill site would require construction of a 150-foot by 175-foot work area. Highway crossings and railroad crossings would be bored, and each would require two, 150-foot by 200-foot work areas. Push sites required for canals, bayous, and ditches would be 200-feet by 350-feet. Approximately 268,870 cubic yards of material would be excavated.

In assessing project impacts, the Service considers both the value of the affected habitats to fish and wildlife and their relative scarcity. The forested swamps and bottomland hardwood wetlands that would be affected by the proposed project are becoming scarce on both a national and regional basis. The project-area wetlands provide substantial habitat values, and support aquatic resources of national importance. Those resources include various resident and migratory bird species regarded by the Service as Federal trust resources, including resident and migratory wood ducks, other migratory waterfowl, woodcock, wading birds, raptors, and songbirds. River otter, mink, nutria, swamp rabbit, white-tailed deer, red fox, fox squirrel, opossum, raccoon, and a variety of reptiles and amphibians are also likely to utilize the project-area wetland habitats.


Those wetlands provide plant detritus to downstream waters, thereby contributing to the production of commercially and recreationally important finfishes and shellfishes. In addition to their habitat value, those wetlands also provide floodwater storage, and perform water quality functions, such as reduction of excessive dissolved nutrient levels and removal of suspended sediments.

Implementation of the proposed project would destroy approximately 86 acres of valuable forested wetlands. To ensure that fish and wildlife resource conservation receives equal consideration with developmental project purposes, the Service recommends that the issued permit be modified to include the following condition:

The permittee shall provide compensatory mitigation for unavoidable, project-associated habitat losses of forested wetlands and marshes. That mitigation project shall be selected and designed in consultation with the Corps of Engineers, the Fish and Wildlife Service, and other interested natural resource agencies, and shall be implemented concurrently with project construction.

The above findings and recommendation constitute the report of the Department of Interior. If you need further assistance please contact George Hart (318-262-6662, extension 223) of this office.

Sincerely,



Russell C. Watson
Acting Field Supervisor

cc: EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA



United States Department of the Interior

FISH AND WILDLIFE SERVICE

825 Kaliste Saloom Road
Brandywine Bldg. II, Suite 102
Lafayette, Louisiana 70508

July 14, 1998

Mr. Hal Delaplane
Strategic Petroleum Reserve (FE-42)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, D.C. 20585

Dear Mr. Delaplane:

The U.S. Fish and Wildlife Service has reviewed the draft "Environmental Assessment of Bayou Choctaw Pipeline Extension to Placid Refinery, Iberville and West Baton Rouge Parishes, Louisiana" (EA). The following comments are provided in accordance with the Endangered Species Act of 1973 (87 Stat. 884, 16 U.S.C. 1531, et seq., and the National Environmental Policy Act (83 Stat. 852, 42 U.S.C. 4321, et seq.). The Service previously provided technical assistance on this matter via our June 10, 1998, letter in response to the Floodplain and Wetlands Notice for the project that was published in the May 21, 1998, edition of the Federal Register (our reference ER98/0349).

General Comments

The draft EA is generally well-written, and adequately characterizes the potential project-related impacts to fish and wildlife resources within our Federal trusteeship. The issues raised in our previous correspondence regarding the project are addressed in the draft document.

The Service concurs with the Department of Energy's determination (in Section 4.2.3.) that the proposed project will not affect Federally listed threatened or endangered species, or their critical habitat. No further consultation will, therefore, be required unless the scope or location of the project is changed, or project construction has not been initiated within one year. In either case, follow-up consultation should be initiated via a telephone call to this office prior to making expenditures for construction.

Specific Comments

Page 15, Section 3.4.1. - This section should be revised to correct various terms, capitalization, and usage (e.g., ridges and *swales*, Nuttal oak, American elm, *privet*, "...and magnolia, and palmetto and yaupon...". Similarly, reference to the "red river horse" in the last line on page 17 should be corrected to "river redhorse."

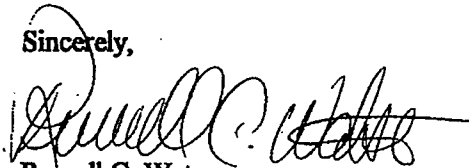
Page 18, Section 3.4.4. - The osprey should be deleted from the first sentence; that species is not Federally listed as threatened or endangered, although it may be listed as a species of concern by the State of Louisiana.

Page 33, Appendix A - During June 1998, the undersigned was contacted on 2 occasions to discuss the proposed project. During the initial conversation (with a DOE contractor?), the discussion focused on National Wildlife Refuges and Federally listed threatened and endangered species. During the second discussion, Mr. Delaplane and I primarily discussed the need to fully mitigate project impacts to 86 acres of bottomland hardwood wetland habitat. We recommend that the Federal Agencies section be revised to include this office, as follows:

U.S. Fish and Wildlife Service
Ecological Services Field Office
Lafayette, LA

We appreciate the opportunity to comment on the draft EA. If questions arise, please contact me at (318) 262-6662, extension 231.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell C. Watson", with a long horizontal flourish extending to the right.

Russell C. Watson
Acting Field Supervisor



M.J. "MIKE" FOSTER, JR.
GOVERNOR

JACK C. CALDWELL
SECRETARY

DEPARTMENT OF NATURAL RESOURCES

August 13, 1998

Hal Delaplane
Strategic Petroleum Reserve (FE-42)
U. S. Department of Energy
1000 Independence Avenue, SW,
Washington, DC 20285

RE: **C980368, Coastal Zone Consistency**
United States Department of Energy
Direct Federal Action
Construction of a 16-mile, 24-inch common carrier crude oil
pipeline as a pipeline extension of the Bayou Choctaw pipeline
to Placid Refinery,
Iberville and West Baton Rouge Parishes, Louisiana

Dear Mr. Delaplane:

The above referenced project has been reviewed for consistency with the Louisiana Coastal Resources Program in accordance with Section 307 (c) of the Coastal Zone Management Act of 1972, as amended. It has been determined that the captioned project falls outside the Coastal Zone and has no significant effects on the Coastal Zone. The project, therefore, requires no formal consistency review and this Department has no objection.

It should be noted that another project in the same area may be deemed to impact the Coastal Zone and require consistency review. For this reason we request that your agency continue to submit applications to this Department for any other projects in the area. If you have any questions concerning this determination please contact Brian Marcks of the Consistency Section at (504) 342-7591 or 1-800-267-4019.

Sincerely,

Terry W. Howey
Administrator

TWH/GD/bgm
cc: Fred Dunham, LDWF

COASTAL MANAGEMENT DIVISION P.O. BOX 44487 BATON ROUGE, LOUISIANA 70804-4487
TELEPHONE (504) 342-7591 FAX (504) 342-9439
AN EQUAL OPPORTUNITY EMPLOYER



State of Louisiana
Department of Environmental Quality



M.J. "MIKE" FOSTER, JR.
GOVERNOR

J. DALE GIVENS
SECRETARY

AUG 14 1998

U. S. Department of Energy
Strategic Petroleum Reserve (FE-42)
1000 Independence Avenue, SW
Washington, DC 20285

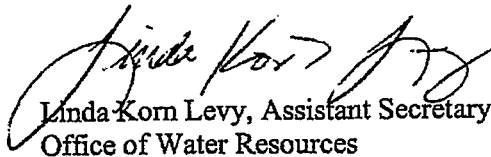
Attention: Mr. Hal Delaplane

RE: Proposal to amend the lease of the Bayou Choctaw Pipeline to Equilon Enterprises, LLC, which would directly result in the construction of a 16 mile 24" common-carrier crude oil pipeline, in Iberville and West Baton Rouge Parishes.

We have reviewed the Environmental Assessment that you submitted for the above referenced proposal, and have the following comments to offer at this time. Members of my staff have reviewed the proposed pipeline route in the field and along with the other state and federal agencies involved agreed on a route that was environmentally acceptable. On July 31, 1998 this office issued a Water Quality Certification for the above referenced project to Shell Pipeline Corporation (Equilon Enterprises, LLC).

Thank you for the opportunity to review this proposal.

Sincerely,


Linda Korn Levy, Assistant Secretary
Office of Water Resources

LKL:JWL

c: Corps of Engineers, New Orleans - EK-19-980-1642



OFFICE OF WATER RESOURCES P O. BOX 82215 BATON ROUGE, LOUISIANA 70884-2215
AN EQUAL OPPORTUNITY EMPLOYER



State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife and Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(504)765-2800

M.J. "Mike" Foster, Jr.
Governor

August 14, 1998

Mr. Hal Delaplane
Strategic Petroleum Reserve (FE-42)
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20285

Re: Environmental Assessment of Bayou
Choctaw Pipeline Extension to Placid
Refinery, Iberville and West Baton
Rouge Parishes, Louisiana [Doe/EA-
1254]

Dear Mr. Delaplane:

Personnel of our technical staff have reviewed the revised project plans provided for the above referenced action and have no objection provided that the Equilon Pipeline Company LLC, former Shell Pipeline Company, mitigates the impacts to fish and wildlife resources. This agency is currently reviewing a proposed mitigation plan.

We very much appreciate the opportunity to review and comment on this revision during the early planning stages.

Sincerely,

A handwritten signature in cursive script, appearing to read "Johnnie W. Tarver".

Johnnie W. Tarver
Assistant Secretary

JWT:fod

An Equal Opportunity Employer

**Strategic Petroleum Reserve
Environmental Advisory Committee**

24 Wellington Court
Missouri City, Texas 77459-1905

(281) 499-5138

August 14, 1998

Mr. Hal Delaplaine
U. S. Department of Energy
Forrestal Building, FE-421
1000 Independence Avenue, SW
Washington, D. C. 20585

Dear Mr. Delaplaine:

Subject: Review of Environmental Assessment: Bayou Choctaw Pipeline Extension to Placid Refinery, Iberville and West Baton Rouge Parishes, Louisiana

The Environmental Advisory Committee members discussed their individual reviews of the subject document at the quarterly meeting, held July 31, 1998 at the Big Hill SPR site. The committee members generally agree with the statements and conclusions presented in the document.

We do believe that it would be of value to address, or more fully comment on, the following areas:

- There is a reduction of risk involved with shipping on the Mississippi River when cargoes can be shipped via pipeline, i.e., from St. James Terminal to the Placid Refinery, eliminating that distance on the river.
- Several of the persons identified as contacts or "consultants" should be better identified and more fully disclose their qualifications (for example, their position or title should be listed after their name).
- The Louisiana black bear, listed as threatened on both the federal and state species lists, is known to inhabit the hardwood bottomlands where the pipeline route is proposed. Two adult males have been documented in that area in each of the last five years.

The Committee, as always, appreciates the opportunity to share its comments and opinions with you and your staff.

Sincerely,


S. J. Bellassai
Chairman

cc: William C, Gibson, Jr., SPR, New Orleans
David Brine, SPR, New Orleans

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Appendix B - Floodplains/Wetlands Assessment

Project Description

The Department of Energy (DOE) is considering whether to amend the terms of its Bayou Choctaw crude oil pipeline to Shell Pipe Line Corporation (Shell) from a 20-year agreement with annual renewal options to a firm term arrangement. The purpose would be to enable Shell to construct a new 24-inch crude oil pipeline that would connect the Bayou Choctaw Pipeline, Iberville Parish, Louisiana, to the Placid Refinery near Port Allen, West Baton Rouge Parish, Louisiana. The pipeline would be 16 miles long and follow existing utility and pipeline corridors for all but 2 miles.

The preferred route would traverse approximately 7.2 miles of designated floodplain, and 8.5 miles of wetlands. The environments characterizing the floodplain associated with the proposed action include bottomland hardwoods, industrial land, and agricultural lands.

Executive Order (EO) 11988 (Floodplain Management), signed on May 24, 1977, requires that Federal agencies avoid the use of floodplain resources as sites for Federal actions unless no practicable alternative exists. In cases where no alternative exists, the agency must minimize the impacts to these resources to the greatest extent practicable. The EO, and subsequent implementation guidelines and regulations promulgated by the U.S. Water Resources Council and DOE, (43 Federal Register (FR) 6030, February 10, 1978 and 44 FR 12594, March 7, 1979, respectively) state that an agency can assess floodplain impacts of proposed actions in an environmental assessment prepared pursuant to NEPA. To fulfill these requirements, DOE consulted Flood Insurance Rate Maps (FIRMS) and local regulatory agencies to determine whether the proposed pipeline construction was located in floodplains. The location of floodplain areas associated with the proposed action are shown in figure 3-1.

Floodplain and Wetlands Effects

The effects of the proposed action on the floodplain would be direct, minor, and short-term. During construction, stockpiling of trenched soils would occur that would be used for backfilling around the pipeline. The surface would be disturbed only during the construction period and incrementally as the pipe was being laid. After construction the surface would be restored to its pre-construction state. Construction activities would disturb wildlife habitat within

the 75-ft construction ROW until construction was completed. The 45-ft temporary ROW needed to accommodate the construction phase would be allowed to return to its natural state. The permanent 30-ft ROW would be maintained by Shell with periodic mowing. Because the pipeline would be buried there will be no interference with natural moderation of floods, water quality, groundwater recharge, or agricultural production. Similarly, there would be no increase in the threat to life or property from flooding as a result of the buried pipeline.

Overall effects on wetlands would be minor due to the proposed mitigation plan and limited to the time period it takes for the constructed wetlands to become viable. Construction activities would temporarily destroy vegetation and force indigenous wildlife to utilize other locally available habitat.

Spill/release mitigation efforts would include externally coating the proposed pipeline with fusion bonded epoxy installed with an impressed current cathodic protection system, and designating a maximum allowable operating pressure of 740 psig. A mainline block valve would be installed on each side of the ICW, immediately outside the spoil banks. Other mainline blocks would be installed at the Bayou Choctaw facility and near Placid. All of the valve facilities would be located above ground within a fenced area. Despite these mitigation efforts possible releases from pipelines could occur due to erosion, corrosion, over pressurization, or failure of valves or joints. Although the likelihood of a release/spill is low, impacts could occur as a result of an oil spill associated with the operation of the Shell pipeline.

Alternatives

A cross-connection from the Bayou Choctaw Pipeline to an existing pipeline was considered but an attempt to reach a business arrangement with the owners was unsuccessful.

For new construction, there is no alternative route that would avoid the floodplain altogether, given the location of the DOE Bayou Choctaw facility in the floodplain and the need to cross the ICW to get to Placid Refinery. One alternative route was considered which deviates to the northeast from the preferred route between the Texas and Pacific Railroad and Interstate 10. While the alternate route is shorter overall, it would have a larger traverse over wetlands and the floodplain than the preferred route. North of Interstate 10, the alternate route would traverse an area that has recently undergone substantial commercial and residential development which would increase the difficulty and cost of construction.

Any other alternative route that would minimize floodplain involvement would not be economic and would be more environmentally disruptive; it would be longer, would utilize less existing pipeline and utility corridor, and would engage more residential and commercial development with the attendant construction difficulties. Further, there is no benefit to be gained from selecting a pipeline route solely to minimize floodplain involvement because a buried pipeline does not interfere with natural moderation of floods, water quality maintenance, groundwater recharge, of agricultural production, nor does it increase the threat to health, life, or property.

If the proposed pipeline extension were not built, Placid Refinery would continue to operate at the same throughput and with the same transportation arrangements but would lose an opportunity to benefit from increased competition in transportation and flexibility of supply. Shell would lose an opportunity to enhance the regional commercial crude oil pipeline infrastructure and increase its common-carrier business, and DOE would forego the opportunity to enhance its pipeline distribution capability and increase royalties from its Bayou Choctaw pipeline.

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Available to DOE and DOE Contractors from the Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831; prices available from (423) 576-8401.

Available to the public from the U.S. Department of Commerce, Technology Administration, National Technical Information Service, Springfield, VA 22161, (703) 487-4650.