ENVIRONMENTAL ASSESSMENT

FOR THE

STRATEGIC PETROLEUM RESERVE

WEST HACKBERRY FACILITY

RAW WATER INTAKE PIPELINE REPLACEMENT

Cameron and Calcasieu Parishes, Louisiana

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U.S. Department of Energy

DOE/EA-1497

August 31, 2004

FINDING OF NO SIGNIFICANT IMPACT
RAW WATER INTAKE PIPELINE REPLACEMENT
STRATEGIC PETROLEUM RESERVE
WEST HACKBERRY FACILITY

AGENCY: Department of Energy (DOE)
ACTION: Finding of No Significant Impact (FONSI)

SUMMARY:
DOE has prepared an Environmental Assessment (EA), DOE/EA-1497, for the proposed replacement of the existing [redacted] raw water intake pipeline (RWIPL). This action is necessary to allow for continued, optimum operations at the West Hackberry facility (main site/facility). The EA described the proposed action (including action alternatives) and three alternatives to the proposed action. The EA evaluated only the potential environmental consequences of the proposed action (one action alternative), and Alternative 3, which consisted of the No Build Action that is required by 10 CFR 1021.321(c).

Based on the analysis in DOE/EA-1497, DOE has determined that the proposed action does not constitute a major Federal action significantly affecting humans or the natural environment within the meaning of the National Environmental Policy Act of 1969 (NEPA), 42 USC 4321 *et seq*. Therefore, an Environmental Impact Statement (EIS) is not required, and DOE is issuing this Finding of No Significant Impact (FONSI). To further minimize impacts to environmental media, the DOE will also implement a Mitigation Action Plan (MAP) for this action. The MAP is included as Appendix F of this EA, which is appended to this FONSI.

A Floodplains and Wetlands Assessment is included in Section 4.0 of this EA. As required by 10 CFR 1022.15, a Floodplain Statement of Findings is included as Appendix C of this EA, which is appended to this FONSI.

DESCRIPTION OF THE PROPOSED ACTION:
The Energy Policy and Conservation Act of 1975 (EPCA), as amended, authorizes the creation of the Strategic Petroleum Reserve (SPR) to store crude oil to reduce the United States' vulnerability to energy supply disruptions. Crude oil is stored in geologic formations, or salt domes, located under these facilities. The purpose of this proposed project is to construct a new RWIPL at the main site to replace the existing RWIPL which services this facility.

The existing [redacted] pipeline is currently utilized for the transportation of raw water from the Raw Water Intake Structure (RWIS) at the Gulf Intracoastal Waterway (GIWW), located in Calcasieu Parish, southward [redacted] to an extraction point at the main facility. The raw water transported to the site is used to displace stored oil. Approximately [redacted] of this existing pipeline traverses Black Lake while [redacted] of the pipeline traverses a freshwater impoundment, land adjacent to and including the RWIS and land adjacent to

and including the main site. The existing RWIPL was installed in 1978 and is beginning to show signs of long-term use, wear and corrosion.

ALTERNATIVES:
The proposed action (including action alternatives) and alternatives to the proposed action were evaluated to determine which actions were reasonable and feasible with respect to the proposed RWIPL project from an environmental and engineering perspective. Several actions and action alternatives were not chosen for further evaluation of potential environmental impacts in this EA because they did not meet the reasonable/feasible criteria from an environmental or engineering prospective. Actions and action alternatives not further evaluated included Proposed Action, Action Alternative 2 (directional drilling construction method), Alternative 1 (lining the existing RWIPL), and Alternative 2 (constructing a new Raw Water Intake Structure in Black Lake).

Based on analysis of the reasonableness and feasibility of the proposed action (including action alternatives), and the alternatives to the proposed action for this project, the only two options that advanced for further study included the Proposed Action (Placement of the Proposed RWIPL), Action Alternative 1 (purchase a new easement for the proposed RWIPL, standard open trench construction) and Alternative 3, the No Build Action. Based on the following findings, no significant adverse impacts to the environment are expected to result from the proposed action.

ENVIRONMENTAL IMPACTS:
Based on the following findings, no significant adverse long-term impacts are expected to result from the proposed action. Short-term/temporary impacts that may be adverse are limited to the duration of the pipeline construction activities and may affect air quality, noise, habitat, water resources, soils, surface geology, and permitting. A Mitigation Action Plan (MAP), in accordance with 10 CFR 1021.331, is included as Appendix F in this EA. This MAP details the DOE's mitigation commitment and corresponding actions to ensure that minimization of the short-term/temporary impacts associated with the RWIPL installation project occurs.

FLOODPLAIN STATEMENT OF FINDINGS:
This EA document incorporates a Floodplain Statement of Findings (Appendix C) prepared in accordance with 10 CFR 1022, Compliance with Floodplain and Wetlands Environmental Review Requirements. The draft Floodplain Statement of Findings was made available with the draft EA during the public review and comment period (July 16 through July 31, 2004). For the installation of the RWIPL, excavation and trenching would be required prior to the placement of the buried pipeline 1.5 m (5 ft) beneath the ground surface in all areas of the project. Once installed, the pipeline trench would be backfilled and regraded to pre-construction conditions (with a tolerance of approximately $\pm$ 6 inches). Soil disturbances would be temporary and kept to the minimum necessary for the trenching effort. Best Management Practices (BMPs), such as the installation of silt fences, hay bale berms/dikes, and/or revegetation, will be used by the construction

contractor in landward areas to minimize soil disturbances during the RWIPL installation process.

Aside from trenching material temporarily side-cast during construction, no surface fill in the floodplain would occur unless necessary to return the affected area to pre-construction conditions (with a tolerance of approximately $\pm$ 6 inches). No volume of water would be displaced by the completed project; no base flood elevations would be changed by the implementation of the proposed RWIPL project. Once constructed, this RWIPL project would not affect flow, capacity or the present hydraulics/hydrology (water movement) in the project area. While the proposed action would have short-term/direct construction impacts in the floodplain, the project would not exhibit long-term, indirect impacts in the floodplain or impacts on lives or property located within or near the floodplain. Once installed, the proposed RWIPL project would have no adverse impacts to the surrounding floodplain and would not raise any floodplain management issues.

MITIGATION:
General mitigation practices are part of DOE's construction standard specifications. Specific mitigation practices are determined by the type of construction project being considered and its anticipated environmental impacts. Customarily, environmental impacts are reduced with the employment of mitigation measures. SPR adopted mitigation measures in the MAP to ensure their implementation. The MAP is a living document and will be updated as appropriate to identify any modifications to the mitigation measures employed.

PRE-DECISIONAL DRAFT REVIEW AND COMMENT:
On May 3, 2004, DOE sent out 51 notification letters pertaining to DOE's intent to prepare an EA and invited Federal, State and Parish agencies, Elected Officials, Special Interest Parties and Adjacent Property Owners to express their interest in the proposed project and in review of the draft EA. On July 9, 2004, respondents to the May 3rd letter and several Federal, State and Parish agencies were notified by letter of the availability of the draft EA. Notice of the availability of the draft EA for review was also published in the Lake Charles newspaper, *American Press,* on July 16, 2004. Copies of the draft EA were provided upon request and made available on the DOE website at www.spr.doe.gov/esh and at the following four Public Libraries:

Hackberry Library
983 Main Street
Hackberry, LA 70645

Cameron Parish Library
498 Marshall
Cameron, LA 70631

Calcasieu Parish Public Library
301 W. Claude Street
Lake Charles, LA 70605

East Baton Rouge Parish Library
7711 Goodwood Boulevard
Baton Rouge, LA 70806

The review and comment period began on July 9, 2004 and ended on July 31, 2004. Comments received on the draft EA were documented as part of the Administrative Record for this project. Based on comments received on the draft EA, this EA document was modified as appropriate.

DETERMINATION:

Based on the analysis in DOE/EA-1497, DOE has determined that the construction and operation of the raw water intake pipeline at the SPR West Hackberry facility does not constitute a major Federal action that would significantly affect the quality of humans or the natural environment within the meaning of NEPA. Therefore, the preparation of an EIS will not be required, and DOE is issuing this FONSI.

Issued in New Orleans, this 3rd day of September, 2004.

William C. Gibson, Jr.
Project Manager
Strategic Petroleum Reserve

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

INTRODUCTION

This Environmental Assessment (EA) discusses the social, economic, and environmental impacts of the United States Department of Energy (DOE), Strategic Petroleum Reserve (SPR), West Hackberry facility, Raw Water Intake Pipeline (RWIPL) replacement project located in Cameron and Calcasieu Parishes, Louisiana. The West Hackberry facility is located approximately [redacted] of Hackberry, Cameron Parish, Louisiana. This EA was prepared in accordance with current DOE guidelines and regulations [10 Code of Federal Regulations (CFR) 1021] and Council on Environmental Quality National Environmental Policy Act (NEPA) regulations (40 CFR 1500 - 1508).

1.0 PURPOSE AND NEED

The Energy Policy and Conservation Act of 1975 (EPCA), as amended, authorizes the creation of the SPR to store crude oil to reduce the United States' vulnerability to energy supply disruptions. Currently, the SPR contains approximately [redacted] of oil in four storage facilities in Texas and Louisiana, one of which consists of the West Hackberry facility (main site/facility). Crude oil is stored in geologic formations, or salt domes, located under these facilities. The purpose of this proposed project is to construct a new RWIPL at the main site to replace the existing RWIPL which services this facility.

The existing [redacted] pipeline is currently utilized for the transportation of raw water from the Raw Water Intake Structure (RWIS) at the Gulf Intracoastal Waterway (GIWW), located in Calcasieu Parish, [redacted] to an extraction point at the main facility. The raw water transported to the site is used to displace stored oil. Approximately [redacted] of this existing pipeline traverses Black Lake while [redacted] of the pipeline traverses a freshwater impoundment, land adjacent to and including the RWIS and land adjacent to and including the main site. The existing RWIPL was installed in 1978 and is beginning to show signs of long-term use, wear and corrosion. This RWIPL currently needs to be replaced to allow for continued, optimum operations at the main facility.

The proposed RWIPL would be placed adjacent to the existing RWIPL easement. Figure 1, Proposed 48" Raw Water Pipeline United States Geological Survey (USGS) Map, depicted on the following page, illustrates the location of the proposed RWIPL with respect to the RWIS, GIWW, Black Lake and the main facility.

SENSITIVE UNCLASSIFIED INFORMATION

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Marker Page

Figure 1, 48 inch RWIPL USGS Map

1.1 Description of the Proposed Action

The proposed action and three alternatives, including a No Build alternative, were evaluated along the existing RWIPL alignment to accommodate the placement of the proposed RWIPL. Construction feasibility, reasonableness and potential environmental impacts were considered during the evaluation of the four actions (and action alternatives) for the proposed RWIPL activities. Reasonable actions were identified as those actions which were considered to be supported by common sense and sound technical principles. Feasible actions were those actions which were considered to be capable of being accomplished, practicable and non-excessive in terms of cost.

..

The evaluation process considered the following design specifications, which were determined to be important to the feasibility of the overall project. The proposed RWIPL replacement project must therefore:

- Comply with the existing design basis and criteria,
- Maintain continuity of operation of the facility during construction,
- Provide the required service life,
- Be cost effective,
- Improve the operation and maintenance of the pipeline, and
- Maintain minimal environmental impact while meeting the performance requirements.

Sizing of the pipe, piping construction materials, construction method (e.g., open-cut trench, directional drilling, etc.) and the acquisition of new Right-of-Way (ROW) were additionally evaluated in the preliminary alternative identification, selection and screening process.

The analysis of design details for the RWIPL replacement project identified that a new [redacted] pipeline would need to be constructed to serve as the main site's primary source of raw water while the existing [redacted] pipeline would eventually be removed from service, but not decommissioned. The proposed RWIPL would be located within a pipeline easement adjacent to the existing RWIPL easement. The installation of the proposed pipeline would require a temporary construction easement with a width of approximately [redacted] along the [redacted] pipeline corridor. Upon completion, a [redacted] wide permanent pipeline easement located adjacent to the existing pipeline easement would encompass the proposed [redacted] pipeline. Construction would be staged at the existing RWIS located on the GIWW and at the main site. The proposed pipeline would be buried 1.5 m (5 ft) below the bottom surface elevation of Black Lake and the freshwater impoundment as well as 1.5 m (5 ft) below landward areas near the RWIS and the main site.

After assessing a range of options, the following three alternatives, including the No Build alternative, and the proposed action were further analyzed as potential actions/alternatives for the RWIPL project. The alternatives, which were not further

advanced in the evaluation process, were eliminated due to considerations of cost, design feasibility, environmental impacts, implementation considerations/logistics and maintenance issues.

1.2 Proposed Actions and Action Alternatives

Proposed Action: Placement of the Proposed RWIPL

The Proposed Action considers a range of action alternatives for the physical placement of the proposed RWIPL during the construction phase of this project.

Action Alternative 1: Purchase a New Easement for the Proposed RWIPL, standard open trench construction

Action Alternative 1 consists of conducting standard open trench/open cut construction activities along the entire pipeline corridor for the purpose of installing the proposed RWIPL. This alternative would allow for the continued use of the existing RWIPL during the construction phase of this pipeline replacement project. A [redacted] temporary construction easement would be required for standard construction practices (e.g., open trench construction). A trench would be excavated, the pipeline would be installed, and the trench would be backfilled with sediment that had been sidecast during the trench excavation activities. The project area would then be re-graded by dragging a section of pipe across the backfilled area, or similar smoothing method. Excavated material/spoil not utilized as backfill material would be used for beneficial use, disposed to a specified location, and/or disposed in a specified manner approved by the US Army Corps of Engineers (USACE) permitting process or other resource agencies for this project. If necessary, additional fill material will be utilized to return the project area to pre-construction conditions (with a tolerance of approximately $\pm$ 6 inches). The permanent RWIPL easement would be [redacted]. The proposed action would be located adjacent to the existing RWIPL easement.

Two other construction options were initially evaluated. These action alternatives included replacement of the RWIPL in the current easement and placement of the new RWIPL in the existing multi-pipeline easement currently containing a [redacted] crude oil line to [redacted]. Due to ROW limitations, neither option was further evaluated as a construction alternative.

Action Alternative 2: Purchase a New Easement for the Proposed RWIPL, directional drilling construction

Action Alternative 2 consists of directional drilling activities beneath the freshwater impoundment area for the purpose of placing the proposed RWIPL. Directional drilling consists of the installation of underground utilities (e.g., pipelines, cables, etc.) with minimal disruption to the land surface. Originally, directional drilling was used to install utilities under roads and rivers. This alternative would allow for the continued use of the

existing RWIPL during the construction phase of this pipeline replacement project. The directional drilling construction method reduces the amount of excavation required for the RWIPL construction, but would considerably increase the project costs. This alternative would require a [redacted] temporary construction easement. Construction staging areas may be additionally required for the implementation of the project. The construction contractor would make every effort to locate these staging areas in uplands to avoid wetland and tidally influenced areas. The location and acreage of these construction staging areas would be determined prior to construction. No temporary easement would be required through the freshwater impoundment area since the purpose of directional drilling is to minimize/eliminate surface land disturbances. The permanent RWIPL easement would be [redacted]. The RWIPL would be installed using open trench construction through Black Lake and in landward areas near the RWIS and the main facility.

Alternative 1: Lining the Existing RWIPL

Alternative 1 consists of the installation of a lining within the existing RWIPL which would halt the pipeline corrosion and extend the existing RWIPL's life. Although there are a variety of installation techniques, any technique would require the installation of access flanges (openings in the pipeline), which would involve landward and underwater construction activities. Installation of the RWIPL liner would not allow for the continued use of the existing RWIPL during the construction phase of this project. This alternative would not require the acquisition of a new ROW easement.

Alternative 2: Construction of a RWIS in Black Lake and Within the Existing Main Site Property

Alternative 2 consists of constructing a new RWIS in Black Lake near the main site or within the existing main site property. The RWIS is the structure responsible for supplying the water to the RWIPL. This proposed action allows for the continued use of the existing RWIPL during the construction phase of this project. This alternative eliminates construction across Black Lake and private property but would require dredging into Black Lake for the placement of a new RWIS or dredging into the nearby Alkali Ditch to construct a new RWIS.

Alternative 3: No Build Action

Alternative 3 represents the No Build action. This action would involve the continued use of the existing RWIPL in the current condition.

1.3 Description of Principal Environmental Issues and Results

The proposed actions and action alternatives, except for Alternative 3, would each have immediate short-term and/or temporary impacts to the environment in and around the Black Lake area during the construction phase of the proposed RWIPL project. Short-

term impacts may include disturbances to various habitat types. Generally, habitats in this area would be expected to regenerate to approximate pre-construction status in less than three years after construction or use (USFWS, 1980). Such activities would include pipeline installation across marsh prairie and pasture using ditch installation with backfill and revegetation where applicable (USFWS, 1980). Pipeline installation across water bottoms is also included in the short-term impact category of activities (USFWS, 1980).

The proposed action and action alternatives are located within a relatively small, 61 m (200 ft) wide temporary construction corridor that is adjacent to the current RWIPL. Any environmental effects resulting from the proposed action would be similar with respect to each of the four actions described.

Of the alternatives evaluated, Alternative 2 would have the most potential for direct environmental impacts since raw water would be taken directly from Black Lake or the Alkali Ditch during "drawdown" activities (displacement of the stored oil by the water). The water level in Black lake would be substantially lowered during drawdown and allow for an increase in saltwater intrusion to this brackish lake. Saltwater intrusion into Black Lake would change the water quality (salinity) and aquatic habitat.

The following engineering/environmental matrix outlines the major issues used in the analysis of the proposed actions and alternatives. This matrix was utilized to determine the reasonability and feasibility of each action. Reasonable actions were identified as those actions which were considered to be supported by common sense and sound technical principles. Feasible actions were those actions which were considered to be capable of being accomplished, and practicable and non-excessive in terms of cost.

Table 1.3
Engineering/Environmental Action Analysis Matrix

Potential Impacts Categories (Temporary or Permanent)	RWIPL Existing Conditions	Proposed Project Placement of Proposed RWIPL		Alternative 1 Lining the Existing RWIPL ******	Alternative 2 Construction of RWIS in Black Lake	Alternative 3 No Build Action ******
		Action Alternative 1	Action Alternative 2			
Air (Permanent)	Below NAAQS* levels	Below NAAQS* levels	Below NAAQS* levels	Below NAAQS* levels	Below NAAQS* levels	Below NAAQS* levels
Noise (Permanent)	Ambient dB** levels	Ambient dB** levels	Ambient dB** levels	Ambient dB** levels	Ambient dB** levels	Ambient dB** levels
Residential (Permanent)	None	None	None	None	None	None
Wetlands (acres)	0	216	Minimal	Minimal	45	0
Floodplains (% of RWIPL in the 100-year floodplain)***	≈100%	≈100%	≈100%	≈100%	≈100%	≈100%
Potential Threatened and Endangered Species	None	None	None	None	None	None
Land Use/ROW (Permanent)****						
RWIS to Main Site Property Line (acres)	222	222	222	222	45	0
Land (acres)	6	6	6	6	0	0
Fresh Water Impoundment (acres)	52.5	52.5	52.5	52.5	0	0
Black Lake (acres)	163.5	163.5	163.5	163.5	45	0
Land Use/ROW (Temporary)*****						
RWIS to Main Site Property Line (acres)	N/A	981	772	---	85	0
Land (acres)	N/A	120	120	0	0	0
Fresh Water Impoundment (acres)	N/A	209	0	0	0	0
Black Lake (acres)	N/A	652	652	0	85	0

Potential Impacts Categories (Temporary or Permanent)	RWIPL Existing Conditions	Proposed Project Placement of Proposed RWIPL		Alternative 1 Lining the Existing RWIPL ******	Alternative 2 Construction of RWIS in Black Lake	Alternative 3 No Build Action ******
		Action Alternative 1	Action Alternative 2			
Excavation (cubic yards)*******						
RWIS	N/A	2,950	2,950	0	9,240	0
Freshwater Impoundment	N/A	25,720	0	0	0	0
Black Lake*****	N/A	82,820	82,820	0	83,333	0
Main Site	N/A	1,580	1,580	0	13,800	0
Spoil (cubic yards)						
RWIS	N/A	295	295	0	3,080	0
Freshwater Impoundment	N/A	2,572	0	0	0	0
Black Lake*****	N/A	8,282	8,282	0	83,333	0
Main Site	N/A	158	158	0	1,380	0
Construction Cost (Dollars)	N/A	17,773,376	29,563,000	---	23,300,000	0
Reasonable	N/A	Yes	Yes	No	Yes	No
Feasible	N/A	Yes	No	No	No	Yes

Notes: * NAAQS: National Ambient Air Quality Standards
** Decibel (dB): The basic unit for measuring sound pressure levels [Federal Highway Administration (FHWA), 1996]
*** Floodplain information was obtained from the Federal Emergency Management Agency and is illustrated in Figure 3. The entire project area is located in the 100-year floodplain except for the area of the main site and an area near the GIWW.
**** Land Use/ROW acreage does not include acreage within the existing main facility property line, which includes a portion of Black Lake.
***** Includes the main facility property in Black Lake.
****** Lining the proposed RWIPL or conducting maintenance/repairs on the existing RWIPL may require limited construction activities along the pipeline corridor.
******* Excavation calculations (SPR, 2003)
N/A Not Applicable.
--- Not further evaluated due to technical issues (Section 1.4).

1.4 Description of Proposed Actions and Alternatives

The proposed action and alternatives were evaluated to determine which actions were reasonable and feasible with respect to the proposed RWIPL project from an environmental and engineering perspective. Several actions and action alternatives were not chosen for further evaluation in this EA because they did not meet the reasonable/feasible criteria from an environmental or engineering prospective.

Proposed Action - Action Alternative 2 (directional drilling) was not designated as the recommended action based on the high construction costs associated with the directional drilling method of construction and due to the technique not being technologically feasible at this time.

Alternative 1 (lining existing RWIPL) was not warranted for selection as the recommended action due to the fact that the pipeline liners: 1) would not increase the existing pipeline's pressure rating, 2) would reduce the raw water delivery rate below the required rate, and 3) would reduce the pipeline pressure at the destination pump suction.

Alternative 2 (new RWIS in Black Lake) was not designated as the recommended action since a previous proposal to install a RWIS in Black Lake raised environmental concerns from resource agencies with regard to brown shrimp production and saltwater intrusion into area marshes (USFWS, 1980). Furthermore, the project costs arising from the activities (i.e., design and construction) to develop a new RWIS would be considerably more expensive than a RWIPL replacement project. The environmental concerns and the project costs preclude this action as a viable option.

Alternative 3 (No Build Action) would have no immediate impacts to the environment but would, over time, jeopardize the operational activities of the main facility. Raw water is crucial to operations of this facility and any interruption to these operations would minimize the functional capability of the site. The existing RWIPL would eventually require repairs, or a series of on-going repairs to keep the pipeline operational. Repetitive maintenance and/or repair activities would, over time, directly impact the Black Lake area to a level similar or equal to the installation of a new RWIPL. While the installation of a new RWIPL would be scheduled to avoid, for example, months of the year sensitive to shrimp lifecycles and shrimping operations, a catastrophic failure or break in the pipeline would necessitate an immediate repair, regardless of the time of the year. The No Build Action would not serve the long-term needs of the main facility. At some point in the near future, the existing RWIPL would no longer be able to adequately service the main facility as mandated by the operational criteria established for this site, at which point replacement would be necessary.

Based on the analysis of the proposed action and alternatives for this project, the only two options, which advanced for further study included the Proposed Action (Placement of the Proposed RWIPL), Action Alternative 1 (Purchase a New Easement for the Proposed RWIPL, standard open trench construction) and Alternative 3, No Build Action.

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The general area of the existing RWIPL and proposed RWIPL actions and associated action alternatives are detailed in this section of the EA.

2.1 Built Environment

Along the Louisiana Gulf Coast, the DOE controls approximately 93 hectares (ha) [230 acres (ac)] of land over the West Hackberry salt dome. Atop this dome, the DOE has constructed and currently operates and maintains oil storage wells, buildings, and metering equipment. Crude oil is conveyed to the main facility for storage via two separate pipelines; a [redacted] pipeline from [redacted], and a [redacted] pipeline from Lake Charles, Louisiana (SPR, 2003). The RWIPL is integral to the operations of the main facility and is used to transport raw water from the GIWW [redacted], to the main site. Additionally, a brine disposal system and six associated injection wells are located approximately [redacted] from the site.

2.1.1 Land Use/Zoning Issues

Land use and zoning requirements were investigated for Cameron and Calcasieu Parishes. Cameron Parish maintains and implements zoning regulations for urbanized areas; no zoning designation occurs in the area of Black Lake. Additionally, there are no zoning requirements/designations in the unincorporated areas of Calcasieu Parish.

2.1.2 Waste Management

All wastes at the main facility are characterized and disposed in accordance with Federal and State hazardous waste regulations. The State of Louisiana has been delegated enforcement responsibility for regulations under the Resource Conservation and Recovery Act (RCRA). RCRA regulates hazardous wastes from the instant the waste is generated until the waste is ultimately destroyed. This "cradle to grave" authority includes hazardous waste generators, transporters, and disposal facilities. The main facility is categorized as a Conditionally Exempt Small Quantity Generator (CESQG) of hazardous waste. CESQGs may not generate more than 100 kilograms (kg) [200 pounds (lbs)] of hazardous wastes per month. CESQG must not store more than 1,000 kg (2,200 lbs) of hazardous waste on-site.

A cursory, visual site reconnaissance survey was conducted on April 6, 2004 for evidence of hazardous material issues along the existing RWIPL and the proposed RWIPL project corridor. No obvious indications of hazardous material impacts were observed in any areas visible along the RWIPL corridor on the day of the site visit.

2.2 Air Quality

As authorized by the Clean Air Act, the EPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), and particulate matter smaller than 10 microns (PM_{10}). Primary NAAQS specify ambient concentrations of these pollutants that are protective of the public health. Secondary NAAQS specify ambient concentrations of these pollutants that are protective of property. Attainment means that the ambient air concentrations of these six pollutants are lower than the NAAQS. Areas that exceed the NAAQS, for one or more of the six criteria pollutants, are designated by the EPA as non-attainment areas for that pollutant or pollutants.

The RWIPL project is located in EPA Air Quality Control Region 106, Southern Louisiana/Southeast Texas Interstate. This region includes all of Cameron and Calcasieu Parishes and is an attainment area for all six criteria pollutants.

2.3 Noise Assessment

Sources of noise associated with the existing RWIPL would be limited to man-made, operating structures or equipment including the RWIS and activities at the main facility. Noise sources in and around Black Lake would primarily include boat and barge noise.

Since the RWIPL project is located along the GIWW, on undeveloped land (freshwater impoundment), through Black Lake and on the main site in which there are not residences or other nearby structures, noise abatement criteria (i.e., berms, noise barriers, etc.) would not be required.

2.4 Environmental Justice

The EPA defines Environmental Justice (EJ) as the "fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies" (EPA, 2004). Executive Order 12898 requires “Federal actions to address environmental justice in minority populations and low-income populations,” provides that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

A minority population is identified when such a population in the affected area exceeds 50 percent. A minority population is also identified when the minority population percentage of the affected area is greater than the minority percentage in the general population or other appropriate unit of geographic analysis (Census Bureau, 2004). In identifying minority communities, agencies may consider a community as either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native Americans),

where either type of group experiences common conditions of environmental exposure or effect. A minority is defined as individuals who are members of the population groups American Indian or Alaskan Native, Asian or Pacific Islander, Black (not of Hispanic origin) or Hispanic (Council on Environmental Quality, 2004). A low-income population is defined as one with a median income for a family of four, equal to or below the 2003 national poverty level of $18,660 (Census Bureau, 2004).

A disproportionate environmental impact occurs when the risk for a minority population or low-income population from exposure to an environmental hazard significantly exceeds the risk rate to the general population and, where available, to another appropriate comparison group. Many methodologies can be used to evaluate EJ concerns for an area. The population density, percent minority population, and percent of economically depressed households (low income data) are the more important analytical factors. When evaluated independently, these factors often provide greater insight to potential environmental justice concerns and can be used alone to rank sites (EPA, 1994).

The potential effects of the proposed RWIPL project have been evaluated in accordance with the requirements of Executive Order 12898. The EJ impact evaluation was based on a review of the proposed RWIPL project and available census information (e.g., population, employment and income data). For those individual census block groups potentially greater than 50% minority populations, various environmental impact issues would consider the proposed project's affect on existing minority populations and/or low-income communities. Following an analysis of demographic and income information (Appendix A), no further socioeconomic or environmental justice analyses were conducted since minority/low income populations were not identified at the census tract/block group level in the area of the proposed RWIPL project. The minority population in these areas did not approach or exceed 50 percent.

2.5 Natural Resources

The main facility is located in the Gulf Coast Prairies and Marshes ecological region identified by the Louisiana Department of Wildlife and Fisheries. This ecological region is characterized by nearly level slowly drained plains which are dissected by streams and rivers flowing into the Gulf of Mexico. The region includes barrier islands along the coast, salt grass marshes surrounding bays and estuaries, remnant tallgrass prairies, oak parklands/mottes scattered along the coast, and tall woodlands in the river bottomlands. Soils are acidic sands and sandy loams, with clays occurring primarily in the river bottoms [Texas Parks and Wildlife Department (TPWD), 2004].

2.5.1 Habitat Assessment

The proposed RWIPL project would traverse three varieties of aquatic and/or terrestrial habitat. The habitats present along the RWIPL corridor include: 1) inland open water, 2) freshwater marsh, and 3) spoil bank. The inland open water aquatic habitat of Black Lake is the dominant environment along the [redacted] corridor.

Inland Open Water/Black Lake

Black Lake can generally be characterized as a tidal marsh lake that consists of a shallow, open water area greater than 1,214 ha (20 ac) in size, is generally less than 1.8 m (6 ft) deep, and is surrounded by expanses of marsh. Detrital (decomposing) material and dissolved nutrients washed into Black Lake from upland areas and the Gulf of Mexico support populations of aquatic invertebrates (e.g., animals without back bones), fish and other organisms. Salinity, or salt content of the lake, rarely increases above two parts per thousand (ppt), with a year-round average of approximately 0.5-1.0 ppt. Vegetation present in and around Black Lake is primarily determined by salinity and includes: Wiregrass (*Spartina patens*), Sawgrass (*Cladium jamaicense*), Roseau cane (*Phragmities australis),* Cattail (*Typha* spp.) and Bullrush (*Schoenplectus californicus*).

The Chenier Plain is located in western Louisiana and is composed of linear oak dominated ridges that parallel the coast. The Deltaic Plain is associated with eastern Louisiana and the barrier islands built by the Mississippi River (USGS, 2004). One of the major differences between the oligohaline (brackish) marsh (0.5-5.0 ppt) of the Chenier Plain and the Deltaic plain is that Cattail and Roseau cane are commonly found in the Chenier Plain marsh zone while they are rare in the Deltaic Plain (Visser *et al*, 2000).

Water birds and waterfowl make use of these shallow, open water areas. Biological activity is generally concentrated at the marsh edge as plant production is highest in this area. Detrital material is flushed from the marsh accumulating along the marsh edge in deep deposits. Deposit feeders and larger invertebrates are attracted to this abundance of grazing material.

Generally, inland open waters are somewhat turbid which is caused by wind-driven water, currents, and sometimes boat traffic. The water column is however relatively homogenous (the same throughout) and well-mixed. Higher turbidity limits light penetration which can limit the growth of submergent vegetation.

Freshwater Marsh

The freshwater marsh located along the RWIPL corridor consists of an impounded area between Black Lake and the spoil bank area adjacent to the RWIS. The freshwater marsh is heterogeneous (e.g., mixed use composition/habitat) with local species composition governed by the frequency and duration of flooding, micro-topography, substrate (soil material), and salinity. This marsh type is typically dominated by Maidencane (*Panicum hemitomon*), Bull-tongue (*Sagittaria lancifolia*), Marsh cordgrass (*Spartina* spp.) and Cattail. Salinity is consistently below 0.5 ppt.

Spoil Bank

The spoil bank from the construction of the GIWW rises above the surrounding marsh elevation. The spoil bank is characterized as a ruderal habitat (grows on disturbed/waste ground) similar to a scrub/shrub community that includes true shrubs, young trees, and shrubs or trees that are stunted due to environmental conditions. Such limiting environmental conditions may include salinity levels in the soil and poor nutrient levels in the spoil bank (Louisiana Department of Natural Resources, 2004). The higher elevations of the spoil bank are dominated by Chinese tallow (*Sapium sebiferum*), Hackberry (*Celtis laevigata*), Wax myrtle (*Myrica cerifera*), False-willow (*Baccharis* spp.), and upland grasses.

2.5.2 Wildlife Assessment

Wildlife observed or expected to be found in the Black Lake area include the following aquatic and terrestrial species.

Aquatic Fauna

The shallow estuarine waters of Black Lake provide nursery and feeding habitat for commercially important fishes and shellfishes such as: Gulf menhaden (*Brevoortia patronus*), Southern flounder (*Paralichthys lethostigma*), Spotted seatrout (*Cynoscion nebulosus*), Sand seatrout (*Cynoscion arenarius*), Spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), Red drum (*Sciaenops ocellatus*), Black drum (*Pogonias cromis*), Brown shrimp (*Farfantepenaeus aztecus*), White shrimp (*Litopenaeus setiferus*) and Blue crabs (*Callinectes sapidus*). Black Lake is considered a production and harvest area for Brown shrimp.

Mammals

Numerous species of mammals inhabit the region surrounding the West Hackberry facility. Terrestrial habitat is limited along the pipeline route with most of the habitat being aquatic, but common mammals in this area include: Muskrat (*Ondatra zibethicus*), Nutria (*Myocastor coypus*), Mink (*Mustela vison*), Bobcat *(Lynx rufus)*, Raccoon (*Procyon lotor*), Swamp rabbit (*Sylvilagus aquaticus*), Cottontail rabbit (*Sylvilagus floridanus*), Skunk (*Mephitis mephitis)*, Opossum (*Didelphis virginiana*), Nine-banded armadillo (*Dasypus novemcinctus*), Cotton rat (*Sigmodon hispidus*), House mice (*Mus musculus*), House rat (*Rattus rattus*), and the Norway rat (*Rattus norvegicus*). White-tail deer (*Odocoileu*s *virginianus*) prefer the bottomland forest, but are found in marshes where they seek higher ground during periods of high water. The coyote (*Canis latrans*) is the main mammalian predator in the Gulf Coast Prairie region feeding primarily on rodents.

Amphibians and Reptiles

The typical reptiles and amphibians found in the vicinity of the proposed RWIPL corridor include: water snakes (*Natrix* spp.), various turtle species (*Graptemys* spp., *Malaclemys* spp., *Pseudemys* spp. and *Terrapene* spp.), the Western cottonmouth (*Agkistrodon piscivorus leucostoma*), and several species of toads and frogs (*Bufo* spp., *Hyla* spp. and *Rana* spp.). The American Alligator (*Alligator mississippienis*) is also abundant in this coastal habitat.

Birds

The marshlands of the Gulf Coast Prairie provide an array of habitats suitable for use by a wide diversity of resident and migratory species of birds. Common winter residents of the marsh and lake shores include: Common snipe (*Gallinago gallinago*), Marsh hawk (*Circus cyaneus*), Gull-billed tern (*Sterna nilotica*), Tree swallow (*Tachycineta bicolor*), Short-billed marsh wren (*Cistothorus platensis*), and the Greater and Lesser Yellowlegs (*Tringa* spp.). The coastal marshes are especially important as a wintering area for many species of waterfowl. All common migratory ducks are winter residents. Several species of geese also utilize the area as wintering grounds.

Common permanent residents of the marsh include numerous wading birds such as: Willet (*Catoptrophorus semipalmatus*), Great blue heron (*Ardea herodias*), Louisiana heron *(Egretta tricolor)*, Black-crowned heron (*Nycticorax nycticorax*), Yellow-crowned night heron (*Nycticorax violaceus*), Great egret (*Casmerodius albus*), Snowy egret (*Egretta thula*), Least bittern (*Ixobrychus exilis*) and American bittern (*Botaurus lentiginosus*). Other permanent residents of the marsh include passerine species such as the Red-winged blackbird (*Agelaius phoeniceus*), Short-billed marsh wren and Sea-side sparrow (*Ammodramus maritimus*).

Colonial wading birds and seabirds known to inhabit the region around Black Lake include: Olivaceous cormorant (*Phalacrocorax olivaceus*), Louisiana heron (*Egretta tricolor*), Little blue heron (*Egretta caerulea*), Cattle egret (*Bubulcus ibis*), Snowy egret, Great egret, Great blue heron and Roseate spoonbill (*Ajaia ajaja*). The 1990 census of wading bird and seabird colonies in Louisiana (Martin and Lester, 1990) identified one nesting site for the above-referenced wading bird species northeast of Black Lake, just south of the Calcasieu/Cameron Parish line. The census noted that the last observation of activity at this site was in 1976. Subsequent survey observations in 1978, 1983 and 1990 reported no nesting activity at this location. The lack of nesting activity may be due to the construction of a freshwater impoundment in the vicinity that could have contributed to the disruption of the nesting site.

2.6 Threatened and Endangered Species

An “endangered” species is one that is in danger of extinction throughout all or a significant portion of its range (habitat). A “threatened” species is one that is likely to

become endangered in the foreseeable future [U.S. Fish & Wildlife Service (USFWS), 2004]. There are 10 species of wildlife in Calcasieu and/or Cameron Parish that have been listed as Federal and/or State endangered or threatened. Of the 10 listed species, five are marine turtles: Loggerhead (*Caretta caretta*), Kemp's Ridley (*Lepidochelys kempi*), Leatherback (*Dermochelys coriacea*), Hawksbill (*Eretmochelys imbricata*) and Green (*Chelonia mydas*). These turtles are reported to occur in the Gulf of Mexico along the Louisiana coast line; no record of sea turtles occurring in Black Lake is known. These five species of marine turtles are known to visit the offshore waters of barrier islands and coastal beaches. The presence of any of the five listed species of sea turtles in Black Lake during construction activities of the RWIPL is considered remote. Black Lake does not provide nesting sites and quality habitat for these five listed sea turtles.

Of the remaining five species, the West Indian Manatee, Piping Plover and Brown Pelican are considered Federally endangered species while the Bald Eagle and Gulf Sturgeon are listed as threatened species.

The West Indian Manatee (*Trichehus manatus*) is an aquatic mammalian herbivore (plant eater). Manatees exhibit both opportunism and independence in their distribution and movement. Manatees are able to undertake extensive north-south migrations with seasonal distributions determined by water temperature. Shallow grass beds with ready access to deep channels are preferred feeding areas. Manatees feed opportunistically on a wide variety of submerged, floating and emergent vegetation. As aquatic herbivores, manatees exhibit two feeding methods in coastal seagrass beds: 1) rooting, where virtually the entire plant is consumed, and 2) grazing, where exposed grass blades are eaten without disturbing the roots or sediments. The occurrence of the West Indian Manatee during the RWIPL construction activities is considered low. A historical sighting in Cameron Parish, in 1929, is noted in the Louisiana Heritage Program database. This record represents the only known occurrence of the species in the region of the proposed RWIPL project.

The Piping Plover (*Charadrius melodus*), Brown Pelican (*Pelecanus occidentalis*) and Bald Eagle (*Haliaeetus leucocehphalus*) are avian (bird) species. The Piping Plover is a small migratory shorebird that prefers undisturbed, unspoiled, clean sandy beaches on seashores and inland lakes as nesting habitat. The Louisiana coast line is part of the Piping Plovers wintering range. Wintering occurrence of the Piping Plover along the Gulf Coast has been observed from December through April. The Piping Plover is not anticipated to reside on any of the limited shorelines present in the proposed RWIPL corridor or on the spoil banks at the RWIS.

The Brown Pelican is a local resident to the Gulf Coast region and a common sight in Black Lake and along the GIWW. The Brown Pelican is not known to nest in the vicinity of the proposed RWIPL corridor and would generally be able to avoid the temporary disturbance generated by construction activities. The Brown Pelican feeds primarily in shallow estuarine waters and it seldom ventures more than twenty miles out to sea. The Bald Eagle, while known to nest along the Gulf Coast of Louisiana, has no

known essential nesting sites identified in the vicinity of the RWIS. Foraging habitat is usually associated with bodies of water with nearby terrestrial habitat. The potential occurrence of the Bald Eagle in the vicinity of proposed RWIPL construction activities would be considered infrequent and transient.

The Gulf Sturgeon (*Acipenser oxyrinchus desotoi*) is an anadromous fish (e.g., migrates up rivers to spawn) inhabiting coastal rivers from Louisiana to Florida during the warmer months and passes the winter in estuaries, bays and the Gulf of Mexico. Historically, the Gulf Sturgeon occurred from the Mississippi River to Tampa Bay. The sturgeon's present range extends from Lake Pontchartrain and the Pearl River system in Louisiana and Mississippi, respectively, east to the Suwannee River in Florida. Sporadic occurrences have been recorded as far west as the Rio Grande River between Texas and Mexico, and as far east and south as Florida Bay. While the proposed RWIPL corridor is within the historical range of the Gulf Sturgeon, the sturgeon's occurrence in Black Lake during the construction period is considered remote. No critical habitat for the Gulf Sturgeon has been identified in either Cameron or Calcasieu Parish.

2.7 Water Resources

The existing RWIPL is used to draw water from the GIWW for use to displace crude oil in the subsurface storage caverns of the West Hackberry salt dome. Impacts on the surrounding surface water and groundwater from the main facility operations have been monitored monthly since 1987. The SPR has operated the main facility and associated RWIPL since 1978 with minimal impact to the water resources in the vicinity of the site. During a full site drawdown, approximately 37.85 billion liters (L) [10 billion gallons (gal)] of raw water would be pumped from the GIWW into the caverns over an approximate 170 day period. A full site drawdown has not taken place to date at the main facility.

Black Lake

The majority of the existing RWIPL, oriented in generally a [redacted] direction, traverses Black Lake (see Figure 1). This pipeline is buried at least five feet below ground on landward areas as well as five feet below the bottom elevation of Black Lake. Black Lake, over 1,214 ha (3,000 ac) in size, can generally be characterized as a brackish marsh lake that primarily consists of a shallow, open water generally less than 1.8 m (6 ft) deep, and is surrounded by expanses of marsh. Water birds and waterfowl make use of these shallow, open water areas. Biological activity is generally concentrated at the marsh edge as plant production is highest in this area.

Black Lake is of economic importance to the local fishing community since the lake is considered an important habitat for several commercially gathered fish and shellfish. Black Lake is also a production and harvest area for Brown shrimp. Commercial shrimping and fishing activities occur in Black Lake; recreational fishing is common but not the primarily means of fishing in this lake.

2.8 Parks and Wildlife Management Areas

There are no Federal or State parks located within the vicinity of the proposed project (State of Louisiana, 2004). The Sabine National Wildlife Refuge is located 11.3 km (7 mi) south of Hackberry, Louisiana and approximately 4.8 km (3 mi) south of Black Lake. The 50,587 ha (125,000 ac) refuge consists of a wide range of habitats including freshwater impoundments, bayous, ponds, lakes, wooded islands, and man-made canals and levees. Over 250 species of birds visit the refuge during the year, with December being the peak month for waterfowl populations (USFWS, 1998). Reptiles such as the American alligator, red-eared slider turtle (*Trachemys scripta elegans)*, mud turtle (*Kinosternon subrubrum)* and garter snake (*Thamnophis sirtalis)* may be found at the refuge. The Sabine National Wildlife Refuge (NWR) also supports habitat for otter (*Lutra candensis*), mink, muskrat, mink, raccoon and opossum. The month of May marks the time for peak brown shrimp migration, whereas October is the month for peak white shrimp migration (USFWS, 1998).

2.9 Wild and Scenic Rivers

In 1968, Congress created the National Wild and Scenic Rivers System in an effort to preserve some of the nation's premier rivers. There are no Wild or Scenic Rivers located within the project area.

2.10 Cultural Resources

There are no known archeological or historical listings on the *National Register for Historic Places* for historical buildings/structures or other areas in Cameron and Calcasieu Parishes that are located within the vicinity of the proposed project (*National Register for Historic Places*, 2004). In compliance with Section 106 of the National Historic Preservation Act of 1966, a search of the *National Register* and monthly supplements was made in 1977 for Cameron Parish and Calcasieu Parish. This search revealed no national historical sites in these areas (*SPRPMO Environmental Impact Statement for the West Hackberry site (PB-262-508),* 1977). There are no Louisiana State Historic Markers listed for Cameron Parish (Enlou, 2004). Calcasieu Parish lists three Louisiana State Historic Markers (Enlou, 2004), which are located over 32 km (20 mi) north of the RWIPL project area.

2.11 Land Resources

The proposed RWIPL would be buried under both landward and submerged soils. The proposed RWIPL would cross landward soils from the RWIS to the northern boundary of the freshwater impoundment. After traversing inundated soils or submerged soils through the freshwater impoundment, the RWIPL would traverse submerged soils through Black Lake. The RWIPL would cross landward soils again from the south shore of Black Lake to the main facility. Generally, the proposed RWIPL would be buried five

feet below the ground surface as well as five feet below the bottom elevation of Black Lake.

2.11.1 Soils

Soil series represent soils with similar color, texture, structure, and mineral/chemical composition within their profile (soil layers). Soil series located along the RWIPL project corridor include the following: Allemands, Clovelly, Crowley, Ged, Gentilly, Judice, Morey and Vidrine. Soils in the project area include organic, mineral, loam and sandy to clayey soils. Soils range from somewhat poorly drained to very poorly drained (Appendix B) [U.S. Department of Agriculture (USDA), 1988 and 1995].

2.11.2 Geology

The main facility is located in the Holocene Age Coastal Marshes Geologic Region. Coastal marsh deposits are chiefly mud and organic matter. These low-lying coastal marshes also contain naturally occurring salt domes. The salt domes were created when a shallow sea, that was the early Gulf of Mexico, evaporated and produced thick salt deposits. These salt deposits now intrude into the overlying strata (layer) of coastal deposits.

3.0 ENVIRONMENTAL IMPACTS

Based on the analysis of the proposed action and alternatives for this project, the only two options which advanced for further study included the Proposed Action (Placement of the Proposed RWIPL), Action Alternative 1 (Purchase a New Easement for the proposed RWIPL, standard open trench construction) and Alternative 3, No Build Action. Proposed Action, Action Alternative 1 and Alternative 3 were further assessed for potential impacts to the human and natural environment.

3.1 Air Quality

Proposed Action, Action Alternative 1: This RWIPL project would have no impact to the climate of the region; the Gulf breezes actually aid in dispersing air pollutants in the general vicinity of the project area. The impact on air quality as a result of this proposed RWIPL project would be minimal in this region of Louisiana. The only air quality impacts associated with this project would include temporary increases in air pollutants caused by the heavy equipment used during construction of the proposed RWIPL. The operation and maintenance of equipment, primarily diesel engines, would result in emissions of NO_x, CO, PM_{10} and some trace amounts of volatile organic compounds. None of these pollutants are anticipated to be emitted by marine vessels or other construction equipment (i.e., bulldozers, cranes, etc.) in quantities larger than other similar marine vessels (i.e. shrimp boats, tug boats/barges) which utilize Black Lake or the GIWW on a daily basis. Such emissions would be temporary during the construction phase of the RWIPL. Diesel equipment must comply with EPA low emission standards for non-road diesel engines (EPA, 2004). These standards are being implemented in phases from 1996-2008; engine size determines the year in which compliance with the lower emissions standards are implemented. Compliance with such standards serve to decrease emissions from construction equipment. Once installed, the RWIPL would not result in an increase of any airborne pollutants within or near the project area. Since the RWIPL conveys fresh water from the GIWW, in the event of a RWIPL breach or rupture, no release of emissions to the air would occur.

The proposed project area is located within the Air Quality Control Region 106 Southern Louisiana-Southeast Texas Interstate, an attainment area for all criteria air pollutants (40 CFR 93.15). Emissions of criteria pollutants are not required to be evaluated in attainment areas and conformity with the CAA determination requirements do not therefore apply to the proposed action (DOE, 2000).

Alternative 3, No Build Action: The existing RWIPL would have no immediate impact to the ambient air quality. The No Build Action anticipates no near-term construction activity (e.g., construction activities occurring in the near future). Temporary air quality impacts due to heavy equipment used during repair activities of the existing RWIPL are anticipated given the age of the existing RWIPL. Air quality impacts for maintenance or repairs would be similar to those described for Proposed Action, Action Alternative 1.

3.2 Noise Assessment

Proposed Action, Action Alternative 1: This RWIPL project would not permanently impact the noise levels in the general area of the project. Temporary noise impacts would occur during the construction phase. Noise levels associated with the construction of the RWIPL project would be variable in frequency and duration. Heavy machinery, the major source of noise in construction, is constantly accelerating and decelerating and/or moving in unpredictable patterns. This variation at the noise source leads to fluctuating noise levels. Noise levels would be elevated above "normal" in areas where installation work is being conducted. Given the rural nature of the construction corridor, both on land and in Black Lake, elevated noise levels would be minimal. Construction of the RWIPL would occur during daylight hours when occasional loud noises are more tolerable to passers-by. Passers-by and wildlife may incur brief periods of nuisance noise; however, these levels are not expected to disrupt commercial or recreational activities or stress the wildlife that exists within the RWIPL project area. Wildlife would move away from the area of construction to avoid noise and/or noise sources. Construction workers would wear hearing protection as deemed appropriate by the construction contractor. Following construction activities, wildlife would be expected to return to the area once the noise sources have been eliminated. Additionally, provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems. Once installed, the RWIPL would not result in an increase in noise levels within or near the project area. The RWIPL would not permanently impact noise levels in the Black Lake area.

Alternative 3, No Build Action: The existing RWIPL would have no near-term impact to the noise levels in the general project area. The No Build Action requires no immediate construction activity. Maintenance and/or repairs to the pipeline are inevitable and noise generated during such activities would be expected to be similar to those described for Proposed Action, Action Alternative 1.

3.3 Socioeconomic Environment

Proposed Action, Action Alternative 1: During construction, the proposed RWIPL project would temporarily increase employment and income in the local economy with construction-related expenditures (i.e., supplies/materials, restaurants, hotels, etc.). The RWIPL project would not impose a permanent change in the workforce in the Hackberry area. As the socioeconomic data indicates (Appendix A), this project would have no disproportionately high or adverse impacts on any minority or low-income populations in the general area of the proposed project. No individuals or businesses would be displaced or relocated as a result of this project.

Alternative 3, No Build Action: The existing RWIPL would have no impact to the socioeconomic environment. No changes in the workforce or impacts on any minority or

low-income populations in the general area of the pipeline project would occur as a result of the No Build Action.

3.4 Natural Environment

Proposed Action, Action Alternative 1: This RWIPL project would have temporary impacts on terrestrial and aquatic habitats as a result of construction activities. Most RWIPL linework would be installed near or adjacent to existing pipeline rights-of-way. The open-cut trenching method of pipeline installation would disturb the lake and marshland bottom sediment, potentially impact benthic species/vegetation, and temporarily increase turbidity which may thereby reduce planktonic (micro-organism) productivity. Bottom sediments would be side cast in a continuous band along the RWIPL corridor through Black Lake with the exception of strategically placed gaps to facilitate boat traffic. Following placement of the RWIPL, sediment would be returned to the pipeline trench and the bottom elevation of the lake would be restored to pre-construction grade (with a tolerance of approximately $\pm$ 6 inches) along the project corridor. Phytoplankton and zooplankton productivity would gradually increase after construction is completed and settling occurs. Animals would generally be able to avoid any construction areas and should return to the area soon after construction is complete. Revegetation of the shore and lake bottom would occur naturally with the timing contingent on the post-construction ambient water quality conditions, temperatures and time of year.

A temporary impact along the RWIPL project corridor would occur on the lakeshore and spoil bank areas where excavated soils would be side-cast in order to install the RWIPL. Most terrestrial species would move from the area to surrounding similar habitat. All side-cast material would be returned to the trench and the area of the RWIPL would be returned to pre-construction grade (with a tolerance of approximately $\pm$ 6 inches). Displaced animal species would return after construction activities have ceased, the pipeline area has been restored to pre-construction conditions, and the natural succession of revegetation begins to occur. The use of herbicides, defoliants, or cutting or burning activities is not expected to be necessary to clear the landward RWIPL ROW.

The USACE permit for the installation of the original RWIPL was issued on February 8, 1979. This permit contained the special condition that construction work on the Black Lake portion of the pipeline would be conducted between December 15 and April 15 to minimize potential interference with shrimping operations in the lake. Similar scheduling provisions would be made during the installation of the proposed RWIPL.

Alternative 3, No Build Action: The existing RWIPL would have no near-term impact to the natural environment. Future repairs to the existing pipeline are however inevitable. Impacts to landward and lake areas from future maintenance and repairs would be similar to those detailed for the installation of the new RWIPL.

3.5 Threatened and Endangered Species

Proposed Action, Action Alternative 1: In correspondence dated May 24, 2004, from the USFWS, the USFWS stated that their records indicate that no Federally listed threatened or endangered species presently occur within the proposed project area. Thus, no impact to threatened or endangered species is anticipated by the implementation of this RWIPL project.

Alternative 3, No Build Action: The existing RWIPL would have no impact to threatened or endangered species.

3.6 Water Resources

Proposed Action, Action Alternative 1: The volume of water pumped from the GIWW to the main facility would not change due to the installation of the proposed RWIPL project. The proposed RWIPL would not result in an increased demand for water resources in this area. Black Lake would be impacted during RWIPL construction activities. The open-cut trenching method of pipeline installation would disturb the lake and marshland bottom sediment, potentially impact benthic species/vegetation, and temporarily increase turbidity. Bottom sediments would be side cast in a continuous band along the RWIPL corridor through Black Lake with the exception of strategically placed gaps to facilitate boat traffic. Additional information regarding the marking of these gaps to facilitate boat traffic is provided in Mitigation Action Plan (MAP). Following placement of the RWIPL, sediment would be returned to the pipeline trench and the bottom elevation of the lake would be restored to pre-construction grade (with a tolerance of approximately $\pm$ 6 inches) along the project area. Turbidity would gradually decrease after construction is completed and settling occurs. Such activities would be temporary and would not be expected to permanently alter any physical, chemical or biological parameters of the lake.

Alternative 3, No Build Action: The existing RWIPL would not require a change in the volume of water pumped from the GIWW to the West Hackberry facility and therefore would have no impact to local water resources. The existing RWIPL would have no near-term impact any physical, chemical or biological parameters of Black Lake or the GIWW. Maintenance and/or repair of the existing RWIPL would result in impacts similar to those described for the installation of a new RWIPL.

3.7 Parks and Wildlife Management Areas

Proposed Action, Action Alternative 1: There are no Federal or State parks within the area of the proposed RWIPL project. This project would have no impact on the nearby Sabine National Wildlife Refuge. The proposed RWIPL project is not expected to impact any additional parks, recreational areas or natural/ecological refuge areas.

Alternative 3, No Build Action: The continued use of the existing RWIPL would have no impact to Federal or State parks or refuges.

3.8 Wild and Scenic Rivers

Proposed Action, Action Alternative 1: This RWIPL project would not impact any designated Wild or Scenic Rivers. The proposed RWIPL (surface and subsurface components) would not obscure or obstruct any scenic areas or views.

Alternative 3, No Build Action: The continued use of the existing RWIPL would have no impact on Wild and Scenic Rivers or scenic areas or views.

3.9 Cultural Resources

Proposed Action, Action Alternative 1: This RWIPL project would have no impact to sites listed in the *National Register of Historic Places* or sites designated by Louisiana State Historical Markers. Given the spoil banks and lake associated with this project, no known archeological resources are anticipated in the general project area. Should archaeological resources be encountered during construction, such activities would cease and the DOE and/or Louisiana State Historic Preservation Officer, as applicable, would be notified to determine the appropriate course of action.

Alternative 3, No Build Action: The continued use of the existing RWIPL would have no impact to cultural resources in the area of the pipeline.

3.10 Land Resources

Proposed Action, Action Alternative 1: Soil erosion due to excavation, removal of existing materials, and/or grading in landward areas may generate an increase in siltation and sedimentation during the construction of the proposed RWIPL. BMPs such as silt fencing, hay bale berms/dikes or sand bag berms would be utilized to minimize soil erosion, sedimentation, dust and other construction-related disturbances. Erosion due to construction activities would be minimized by limiting the duration of time that the disturbed ground surfaces are exposed to the energy of rainfall and run-off water. To the extent practicable, run-off would be diverted from areas subject to erosion, and exposed ground surfaces would be protected by appropriate methods and/or BMPs. Revegetation of landward areas is also being evaluated as a mitigation activity.

The permanent [redacted] ROW proposed for the RWIPL would result in land that would be committed for use for the RWIPL. This commitment would limit future land uses which may include placing additional pipelines in the proposed RWIPL easement. The installation of the proposed RWIPL in a [redacted] wide permanent easement coupled with the existing RWIPL permanent easement would also limit further development at the main facility since these easement areas are dedicated to the buried pipelines. The dual RWIPL easements through Black Lake, the freshwater impoundment and the spoil bank near the RWIS would be similarly committed for future development/work in these areas.

Alternative 3, No Build Action: The continued use of the existing RWIPL would have no impact to the land use within the ROW other than that which has already been committed and preserved as the easement for the RWIPL project. Maintenance and/or repairs are permissible within this dedicated easement.

3.10.1 Soils

Proposed Action, Action Alternative 1: This RWIPL project would temporarily impact landward and submerged soils during the construction/installation of the pipeline. This disturbance would be temporary until the trench area containing the pipeline would be backfilled and re-leveled to pre-construction grade (with a tolerance of approximately $\pm$ 6 inches). If necessary, additional fill material will be utilized to return the project area to pre-construction conditions. Excavated material/spoil not utilized as backfill material would be used for beneficial use, disposed to a specified location, and/or disposed in a specified manner approved by the US Army Corps of Engineers (USACE) permitting process or other resource agencies for this project.

Alternative 3, No Build Action: The continued use of the existing RWIPL would require no additional construction; thus, no soils would be impacted by this alternative. Any subsequent maintenance and/or repairs to the RWIPL would result in temporary impacts similar to those required for the installation of the proposed RWIPL.

3.10.2 Geology

Proposed Action, Action Alternative 1: This proposed RWIPL project would have minimal impact to the local, near surface geology of the project area. Limited mixing of surface soils during the trenching and backfilling construction activities would occur. Construction activities for the proposed RWIPL would require burying the RWIPL roughly 1.5 m (5 ft) below the ground surface or 1.5 m (5 ft) below the bottom surface elevation of Black Lake.

Alternative 3, No Build Action: The continued use of the existing RWIPL would have no impact to the local, near surface geology of the project area.

3.11 Waste Management

Neither the operation of the existing RWIPL would generate any hazardous materials/ wastes nor would the proposed RWIPL. Any hazardous materials generated during construction in staging areas or on barges would be contained and disposed as required by the main facility. The construction contractor would use BMPs to incorporate waste minimization practices into daily operations of the construction activities. Waste minimization can be accomplished either through source reduction or recycling of hazardous wastes that are generated or subsequently treated, disposed of or stored (EPA,

2004). The construction contractor will have an approved waste management plan in place prior to commencement of construction activities for this project.

Alternative 3, No Build Action: The continued use of the existing RWIPL would have no impact to hazardous materials/wastes or be impacted by wastes generated at the main site.

3.12 Compliance with Other Regulations

3.12.1 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 was implemented between the United States and Great Britain (for Canada) for the protection of all migratory birds and their parts (including eggs, nests and feathers.) Amendments were later made to include treaties with Mexico and other countries. Each of the conventions protects selected species of birds that are common to both countries (i.e., they occur in both countries at some point during their annual life cycle). Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not.

The December 1997 Christmas Bird Count (CBC) for the Sabine NWR included 180 different avian species, including many of the shorebirds and wading birds previously listed in this document. There are however no known roosting sites or colonies of such birds in the vicinity of the project ROW. Depending on the RWIPL construction timing, (December through April, to avoid impacts to shrimp and/or shrimping activities) individual nests of shorebirds or wading birds could potentially be encountered along the shoreline or spoil bank in the project area. While these disturbances are not expected to permanently impact shorebirds or wading birds, temporary impacts could occur.

The USACE permit for the installation of the original RWIPL was issued on February 8, 1979. This permit contained the special condition that construction work on the Black Lake portion of the pipeline would be conducted between December 15 and April 15 to minimize potential interference with shrimping operations in the lake. Similar scheduling provisions would be made during the installation of the proposed RWIPL; impacts to individual nests were not an issue raised with respect to the past permit issued in this area.

Proposed Action, Action Alternative 1: Since no roosting areas or colonies are located in the vicinity of the RWIPL, and since nesting habitat along the project ROW would be limited, any impact to birds protected under the Migratory Bird Treaty Act could be possible but unlikely to occur.

Alternative 3, No Build Action: The existing RWIPL would have no impact to migratory birds or their nesting sites. Maintenance and/or repair activities along the Black Lake

shoreline area of the RWIPL ROW could have similar impacts to those described for the RWIPL installation project, but to a lesser degree.

3.12.2 Essential Fish Habitat

The Magnuson-Stevens Fisheries Conservation and Management Act (Magnuson-Stevens Act) is the Federal law that governs United States marine fisheries management. In 1996, Congress amended the Act and mandated the identification of Essential Fish Habitat (EFH) for managed species as well as measures to conserve and enhance the habitat necessary for fish to carry out their life cycles. Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity" (16 U.S.C. 1802 (10)).

Proposed Action, Action Alternative 1: The proposed RWIPL would temporarily impact the waters and substrate of Black Lake during construction activities. Excavation, installation and backfilling of the RWIPL would result in a disturbance of the substrate and a temporary increase in suspended solids within the proposed project area. While these disturbances are not expected to permanently impact EFH, temporary impacts could occur. The USACE permit for the installation of the original RWIPL (issued on February 8, 1979) contained the special condition that construction work on the Black Lake portion of the pipeline would be conducted between December 15 and April 15 to minimize potential interference with shrimping operations in the lake. Similar scheduling provisions would be made during the installation of the proposed RWIPL.

In correspondence dated July 26, 2004, from the National Marine Fisheries Service (NMFS), the NMFS stated that EA document adequately analyzes potential impacts to resources of concern, including EFH and associated marine fisheries resources. NMFS also stated that proposed impacts to those resources would be minor and that NMFS does not object to the proposed installation of the RWIPL.

Alternative 3, No Build Action: The existing RWIPL would have no effect on EFH. Repair and/or maintenance activities could result in an impact similarly described for the installation of a new RWIPL, but to a lesser degree.

3.12.3 Prime or Unique Farmland

Recognizing the substantial decrease in the amount of open farmland, Congress put forth the Farmland Protection Policy Act (FPPA). Federal programs which contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses would be minimized. Prime farmlands soils, as defined by the USDA, are lands that have the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion (7 U.S.C. 4201(c)(1)(A)). Unique farmland soils, as defined by the USDA, are lands other than prime farmland that is used for the production of specific high-value food and fiber crops . . . such as, citrus,

tree nuts, olives, cranberries, fruits, and vegetables (7 U.S.C. 4201(c)(1)(B)) (USGS, 2004). The proposed RWIPL project would traverse limited areas of three NRCS designated prime farmland soils; Crowley-Vidrine silt loam, Judice silty clay loam and Morey loam.

Proposed Action, Action Alternative 1: This RWIPL project would cross Crowley-Vidrine silt loam in Cameron Parish, and Judice silty clay loam and Morey loam in Calcasieu Parish, which are all considered prime farmland soils except where the current use is urban or built-up land. Crowley-Vidrine silt loam soils would be subject to minimal impacts during the construction phase since the proposed RWIPL would be traversing a previously disturbed area (main facility).

Additional RWIPL ROW developed for urban use at the main facility is exempt from the requirements of the Farmland Protection Policy Act and requires no coordination with the NRCS. The additional ROW through the Judice silty clay loam and Morey loam soils has been preliminarily scored using NRCS Form AD 1006. The preliminary assessment of the RWIPL project with respect to these soils scored too low to require further prime farmland coordination with the NRCS.

Alternative 3, No Build Action: The continued use of the existing RWIPL would require no construction; thus, no prime or unique farmland would be impacted by this pipeline. Maintenance and/or repair of the existing RWIPL would generally be confined to the RWIPL ROW.

3.12.4 Permitting

Proposed Action, Action Alternative 1: Construction/installation activities for the RWIPL would occur within the Coastal Zone of the State of Louisiana. In order to conduct the RWIPL project activities, a Federal Consistency Determination (FCD) would be required. Eight copies of the USACE ENG 4345 application form and the required drawings must be submitted to the Coastal Zone Management (CZM) Division, who would then forward the application to the USACE and other cooperating agencies.

Construction of the proposed RWIPL would involve activities that are deemed dredge and fill under Section 404 of the Clean Water Act and the placement of structures of in navigable waters under Section 10 of the River and Harbors Act of 1899. The development and submission of a Section 10/404 permit application would be necessary to conduct the activities planned along the RWIPL corridor and would be included as part of the FCD application. U.S. Coast Guard (USCG) coordination/permitting would also be required prior to initiating the RWIPL project (USCG, 2004).

Alternative 3, No Build Action: The existing RWIPL would generally require no USACE or USCG permitting. Any future repairs and/or maintenance on the existing RWIPL could require USACE and/or USCG coordination.

3.13 Construction Related Activities

Proposed Action, Action Alternative 1: Numerous pipelines traverse the bottom of Black Lake, are buried beneath Black Lake or are buried on the shorelines surrounding the lake. Additionally, various pipelines traverse Black Lake on elevated wooden "racks." Pre-construction activities would include compiling an inventory of all pipelines (e.g., oil, gas, brine, water, etc.) which cross the area of the proposed RWIPL and coordinating with each pipeline owner on the proposed RWIPL construction design, staging and scheduling to avoid impacts to other pipelines in the area.

Construction activities would have minimal effects on boat traffic within the RWIPL project corridor as the construction contractor will be required to maintain strategically placed gaps to facilitate boat traffic through Black Lake and the freshwater impoundment. Additional information regarding the marking of these gaps to facilitate boat traffic is provided in MAP. All trench excavations would be backfilled and returned to pre-construction elevations (with a tolerance of approximately $\pm$ 6 inches) to ensure navigability in the area. As part of the construction requirements, the construction contractor would maintain buoys, signs and/or flags, as necessary, in order to direct boat traffic toward these pass-throughs. Access would be maintained to Black Lake during the construction phase of the RWIPL project. Night work is not expected during the construction phase of this project.

Alternative 3, No Build Action: The continued use of the existing RWIPL would require no near-term construction activities. Any repairs or maintenance to the RWIPL may require limited areas of excavation along the pipeline corridor or the placement of cofferdams to facilitate repair work.

3.14 Short-Term/Long-Term Impacts

Short-term, temporary construction impacts to the environment would be out-weighed and out-numbered by the long-term benefits of providing continuous operations at one of the four SPR locations in the U.S. to maximize protection against oil supply disruptions. The SPR is an important element of our Nation's energy security.

Proposed Action, Action Alternative 1: Trenching activities associated with the proposed RWIPL installation would disturb, on a short-term basis, limited areas of upland and/or wetland vegetation within the pipeline ROW. Once the RWIPL has been installed and the trenching areas are regraded, herbaceous vegetation should begin to recover within a growing season; full recovery would be expected within two to three growing seasons. Shrub-like vegetation, if impacted, may take longer to recover. Vegetation impacts would be minimized by returning the area to grade immediately after the localized project activity is completed. Revegetation of landward areas is also being evaluated as a mitigation activity. No long-term impacts of the proposed RWIPL project have been identified. The proposed project would not have any effects on public safety or health.

Alternative 3, No Build Action: No short-term/long-term impacts to the environment resulting from the current condition of the existing RWIPL would occur. Maintenance and/or repairs to the existing RWIPL would involve multiple, repetitive events involving trenching, backfilling and regrading; cofferdams may be required for maintenance/repair activities in Black Lake. During each repair/maintenance activity soils, vegetation, water quality, etc., would be temporarily impacted. Impacts may be similar to those conducted during the installation of the proposed RWIPL. The existing RWIPL would have no short-term impacts to the human or natural environment so long as the pipeline continues to function optimally. Given the age of the existing pipeline, maintenance and repairs would be required at some future point in time. Table 3.14 details short-term and long-term impacts associated with the installation of the proposed RWIPL.

Table 3.14
Short-term and Long-term Impacts Resulting from the Implementation of the Proposed RWIPL Project

EA Section No.	Impact Category	Short-term Impact	Long-term Impact
3.1	Climate and Air Quality	Yes	No
3.2	Noise Assessment	Yes	No
3.3	Socioeconomic Environment	Yes	No
3.4	Natural Environment	Yes	No
3.5	Threatened and Endangered Species	No	No
3.6	Water Resources	Yes	No
3.7	Parks and Wildlife Management Areas	No	No
3.8	Wild and Scenic Rivers	No	No
3.9	Cultural Resources	No	No
3.10.1	Soils	Yes	No
3.10.2	Geology	Yes	No
3.11	Hazardous Materials Issues	No	No
3.12.1	Migratory Bird Treaty Act	Yes	No
3.12.2	Essential Fish Habitat	Yes	No
3.12.3	Prime or Unique Farmland	No	No
3.12.4	Permitting	Yes	No
5.1	Emergency Preparedness	No	No

3.15 Direct, Indirect/Secondary and Cumulative Impacts

Direct effects are caused by an action and occur at the same time and place as the action. Indirect, or secondary, effects are reasonably foreseeable effects caused by the action that occur later in time or farther away in distance. Though the proposed RWIPL project would directly effect wetlands within the project corridor during construction activities, no adverse indirect effects have been identified. Any wetland impacts would recover over time and would not be subjected to increased impacts or deterioration following the implementation of the proposed project.

The excavation across Black Lake, the freshwater impoundment and excavation along the spoil bank to reach the RWIS is not anticipated to produce any indirect/secondary or cumulative environmental effects. Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts evaluate the effects that result from the proposed RWIPL action and the effects of other actions taken during, for example, the construction phase of the project in the same general area.

Excavations through Black Lake and the freshwater impoundment would produce direct/primary impacts which are expected to disturb the lake and marshland bottom sediment. Temporary direct impacts would affect benthic species and increase turbidity and could also impact species protected under the MBTA. EFH could be compromised by the temporary construction activities of the RWIPL project though scheduling provisions would be made to consider shrimp life cycles and shrimping activities in the area. Once the RWIPL construction/installation activities are completed, revegetation of the shore and emergent area of the lake bottom would occur naturally with no additional impacts expected. The return of the flora and fauna to pre-construction levels is anticipated but would be dependent on the post-construction ambient water quality conditions and temperatures.

The proposed RWIPL would be installed near other existing pipeline rights-of-way. No beneficial uses of land would be eliminated by the proposed RWIPL construction activities though development activities in the area of the pipeline easement would be limited. Land committed to the pipeline ROW would not generally be available for other uses.

There are no resources such as land resources, water resources, natural resources/ materials, or commercial/recreational areas that would be permanently adversely constrained as a result of the implementation of the proposed RWIPL project. The proposed RWIPL is not expected to contribute to an environmental impact in the general area of Black Lake above those impacts imposed by the existing RWIPL or other similar subsurface pipelines located in this area. Table 3.15 details direct, indirect/secondary and cumulative impacts associated with the installation of the proposed RWIPL.

Table 3.15
Direct, Indirect/Secondary and Cumulative Impacts Resulting from the Implementation of the Proposed RWIPL Project

EA Section No.	Impact Category	Direct Impact	Indirect/Secondary Impacts	Cumulative Impacts
3.1	Climate and Air Quality	Yes	No	No
3.2	Noise Assessment	Yes	No	No
3.3	Socioeconomic Environment	Yes	No	No
3.4	Natural Environment	Yes	No	No
3.5	Threatened and Endangered Species	No	No	No
3.6	Water Resources	Yes	No	No
3.7	Parks and Wildlife Management Areas	No	No	No
3.8	Wild and Scenic Rivers	No	No	No
3.9	Cultural Resources	No	No	No
3.10.1	Soils	Yes	No	No
3.10.2	Geology	Yes	No	No
3.11	Hazardous Materials Issues	No	No	No
3.12.1	Migratory Bird Treaty Act	Yes	No	No
3.12.2	Essential Fish Habitat	Yes	No	No
3.12.3	Prime or Unique Farmland	No	No	No
3.12.4	Permitting	Yes	No	No
5.1	Emergency Preparedness	No	No	No

4.0 FLOODPLAIN AND WETLAND ASSESSMENT

4.1 Project Description

This Floodplain and Wetland Assessment (FWA) discusses the potential environmental impacts of the DOE, SPR, main facility, RWIPL replacement project located in Cameron and Calcasieu Parishes, Louisiana. This FWA has been prepared in accordance with the requirements of 10 CFR 1022, NEPA, Executive Order 11988 – Floodplain Management, Executive Order 11990 – Protection of Wetlands, and other applicable DOE regulations and guidance documents.

The main facility is located approximately [redacted] of Hackberry, Cameron Parish, Louisiana. An existing [redacted] pipeline is currently utilized for the transportation of raw water from the RWIS at the GIWW, located in Calcasieu Parish, southward [redacted] to an extraction point at the main facility. The raw water transported to the main site is used to displace stored oil. Approximately [redacted] of this existing pipeline traverses Black Lake while [redacted] of the pipeline traverses a freshwater impoundment, land adjacent to and including the RWIS and land adjacent to and including the main site. The existing RWIPL was installed in 1978 and is beginning to show signs of long-term use, wear and corrosion. The existing RWIPL currently needs to be replaced to allow for continued, optimum operations at the main facility. The purpose of this proposed action includes the construction of a new RWIPL, adjacent to the existing RWIPL easement, to accommodate the on-going water requirements of this facility (see Figure 1, Proposed 48 inch RWIPL USGS Map). The analysis of design details for the RWIPL replacement project identified that a new [redacted] pipeline would need to be constructed to serve as the site's primary source of raw water while the existing [redacted] pipeline would eventually be removed from service, but not decommissioned.

The existing and proposed RWIPL project occurs within areas designated as floodplains. Floodplains, or flood hazard areas, were identified using the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel numbers 2251940075F and 2200370525B (FEMA, 1988 and 1991). Figure 2, Floodplain Map, illustrates the general location of the proposed RWIPL within the designated floodplain. According to the latest FIRMs, the proposed RWIPL project would occur almost entirely within flood hazard areas designated to be inundated by a 100-year flood (Zone A). The only Zone A exceptions would include a small area of the spoil bank located immediately adjacent to the GIWW and the area of the main facility (Zone X). Zone X represents areas determined to be outside the 500-year floodplain.

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Figure 2, Floodplain Map

4.2 Floodplains and Wetlands Impacts

4.2.1 Floodplains Impacts

The proposed RWIPL is located almost entirely in areas designated to be inundated by the 100-year flood. The construction activities associated with the installation of the proposed pipeline would require a temporary construction easement with a width of approximately [redacted] along the [redacted] pipeline corridor. Upon completion, a [redacted] permanent pipeline easement located adjacent to the existing pipeline easement would encompass the proposed [redacted] pipeline. Construction would be staged at the existing RWIS located on the GIWW and at the main site. The proposed pipeline would be buried 1.5 m (5 ft) below the ground surface in landward areas (including the freshwater impoundment) as well as 1.5 m (5 ft) below the bottom elevation of Black Lake.

Excavation and trenching would be required prior to the placement of the buried pipeline. The proposed RWIPL would be buried 1.5 m (5 ft) beneath the ground surface in landward areas of the project. Once installed, the pipeline trench would be backfilled and regraded to pre-construction conditions (with a tolerance of approximately $\pm$ 6 inches). Soil disturbances would be temporary and kept to the minimum necessary for the trenching effort. Through Black Lake, the pipeline would be buried 1.5 m (5 ft) below the bottom surface elevation of the lake. The pipeline trench within Black Lake would be backfilled re-leveled to pre-construction grade (with a tolerance of approximately $\pm$ 6 inches).

Aside from trenching material temporarily side-cast during construction, it is not anticipated that additional surface fill in the floodplain would occur unless necessary to return the project area to pre-construction grade (with a tolerance of approximately $\pm$ 6 inches). No volume of water would be displaced by the completed project; no base flood elevations would be changed by the implementation of the proposed RWIPL project. Trenching material side-cast during this RWIPL project could temporarily affect flow, capacity or the present hydraulics/hydrology (water movement) in the project area. Once installed, the proposed RWIPL project would have no adverse impacts to the surrounding floodplain and would not raise any floodplain management issues.

Table 4.2.1 details the types of impacts which could be expected in the floodplain area which encompasses the RWIPL corridor. The actions described in this table include potential impacts on the existing and proposed RWIPL, taking no action at all (No Build Alternative and maintenance/repair activities associated with the No Build Action. No positive impacts would be associated with the implementation of the RWIPL on the floodplain. Negative and direct impacts would include short-term disturbances to landward soils within the floodplain during construction. No indirect or long-term impacts to the floodplain would result from the implementation of this RWIPL project. No impacts to local individuals would result from the installation of the proposed project. Property impacts may include the purchase of property or easements for the

implementation of the proposed project. The temporary and permanent effects for each impact category are also reflected in Table 4.2.1.

Table 4.2.1
Floodplain Impacts

Actions	Floodplain Impact Categories											
	Positive		Negative		Direct		Indirect		Short-term		Long-term	
	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm
Existing RWIPL	No	No	No	No	No	No	No	No	No	No	No	No
Proposed RWIPL	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No
No Build Action (Existing RWIPL)	No	No	No	No	No	No	No	No	No	No	No	No
No Build Action (Maintenance/Repairs of Existing RWIPL)	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No

Note: Temp. is the abbreviation of temporary; Perm. is the abbreviation of permanent.

Natural and beneficial floodplain values in the Gulf Coast area of the RWIPL include reducing the number and severity of flood events, accommodating stormwater runoff, minimizing non-point source water pollution and improving water quality. By allowing floodwater to slow down, sediments settle out, thus maintaining water quality. Vegetation in and around floodplains filter impurities and uses excess nutrients which also aid in improving water quality.

4.2.2 Waters of the United States, Including Wetland Alternatives

Areas that would be considered jurisdictional waters of the U.S., including wetlands, have been identified along the project corridor (see Table 1.3, Engineering/ Environmental Action Analysis Matrix). Open water areas would generally be regulated by Section 10 of the Rivers and Harbors Act of 1899 while wetland areas would be regulated by Section 404 of the Clean Water Act. In 2001, a jurisdictional determination was issued by the USACE for waters of the U.S., including wetlands, at the main facility. Such wetland activities at the main facility and along the existing RWIPL have been previously coordinated with the USACE, New Orleans District office.

Acreage calculations of potential impacts to waters of the United States, including wetlands, would be identified during the wetland delineation activity for the final action/alternative selected for this project. Similarly, mitigation would be determined during the wetland permitting phase of this project. Compensatory mitigation plans could include replanting wetland and upland vegetation impacted directly by the RWIPL installation process as well as allowing plants to revegetate naturally. Impacted wetland areas may be enhanced with indigenous vegetation.

Wetland determination activities utilizing the USFWS National Wetland Inventory (NWI) Map, Black Lake quadrangle, is presented in Figure 3, National Wetlands Inventory Map. Based on the NWI map, the RWIPL project area would traverse six habitat types. Five of these habitats consist of wetland habitats and one type represents an upland habitat. Figure 3 shows the location of the project in relation to these wetland/upland habitat areas.

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Figure 3, National Wetlands Inventory Map

The first type of wetland habitat identified on the NWI map consists of the Estuarine, Subtidal, Unconsolidated Bottom Mesohaline (E1UBL5) wetland area. These wetlands are described as deepwater tidal habitats and adjacent tidal wetlands with low energy and variable salinity, influenced and often semi-enclosed by land, with a continuously submerged substrate, at least 25% cover of particles smaller than stones [less than 6-7 cm (2.4-2.8 in)], and a vegetative cover less than 30% that is permanently flooded with tidal water. Salinity ranges from 5.0-18.0 ppt.

The second type of wetland habitat consists of the Estuarine, Subtidal, Unconsolidated Bottom Diked/Impounded Oligohaline (E1UBLh6) wetland area. These wetlands are described as deepwater tidal habitats and adjacent tidal wetlands with low energy and variable salinity, influenced and often semi-enclosed by land, with a continuously submerged substrate, at least 25% cover of particles smaller than stones [less than 6-7 cm (2.4-2.8 in)], and a vegetative cover less than 30% that is permanently flooded with tidal water. This wetland is diked or impounded and would have a salinity range of 0.5-5.0 ppt.

The third type of wetland consists of the Estuarine, Subtidal, Unconsolidated Bottom Excavated Mesohaline (E1UBLx5) wetland area. These wetlands are described as deepwater tidal habitats and adjacent tidal wetlands with low energy and variable salinity, influenced and often semi-enclosed by land, with a continuously submerged substrate, at least 25% cover of particles smaller than stones [less than 6-7 cm (2.4-2.8 in)], and a vegetative cover less than 30% that is permanently flooded with tidal water. This wetland lies within a basin or channel excavated by man and would have a salinity range from 5.0-18.0 ppt.

The fourth type of wetland consists of the Estuarine Intertidal Emergent Persistent Irregularly Flooded Diked/Impounded Oligohaline (E2EM1Ph6) wetland area. The Estuarine System describes deepwater tidal habitats and adjacent tidal wetlands with low energy and variable salinity, influenced and often semi-enclosed by land, which includes the area from extreme low water to extreme high water and associated splash zone, characterized by erect, rooted, herbaceous hydrophytes (water-loving plants), excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants (e.g., grow year after year) that normally remain standing until at least the beginning of the next growing season. The wetland area is diked or impounded and would have a salinity range of 0.5-5.0 ppt.

The fifth type of wetland consists of Estuarine Intertidal Emergent Persistent Irregularly Flooded Mesohaline (E2EM1P5) wetland area. These wetlands are described as deepwater tidal habitats and adjacent tidal wetlands with low energy and variable salinity, influenced and often semi-enclosed by land, which includes the area from extreme low water to extreme high water and associated splash zone, characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by

perennial plants that normally remain standing until at least the beginning of the next growing season. This wetland type also experiences tidal water that floods the land surface less often than daily. Salinity ranges from 5.0-18.0 ppt in these wetland areas.

The sixth type of habitat is an upland habitat consisting of Uplands Artificial Substrate (UR). An upland is classified as an area not defined as wetland or deepwater habitat. Artificial substrates are described as consisting of a rock bottom, unconsolidated bottom, rocky shore and/or unconsolidated shore that were placed by man using natural or synthetic materials (USFWS, 2004).

Table 4.2.2 details the types of impacts which could be expected on the wetland areas which encompasses the RWIPL corridor. The actions described in this table include potential impacts on the existing and proposed RWIPL, taking no action at all (No Build Action), and maintenance/repair activities on the No Build Action. No positive impacts would be associated with the implementation of the RWIPL on wetlands. Negative and direct impacts would include short-term disturbances to wetland areas during the pipeline construction/installation process. No indirect or long-term impacts to the wetlands would result from the implementation of this RWIPL project. Temporary and permanent effects for each impact category are also reflected in Table 4.2.2. Once the RWIPL construction/installation activities are completed, revegetation of the shore and emergent area of the lake bottom would occur naturally with no additional impacts expected. Wetland plants, wetland hydrology (water condition) and hydric soil conditions would be expected to return within two to three growing seasons in impacted areas. Revegetation of these areas with indigenous plant species is being considered as a mitigation activity to ensure the recovery and subsequent survival of the wetlands located along the pipeline easement. The quality, function and values of the wetlands are expected to recover following disturbances associated with the RWIPL project. Any wetland permitting activities may require monitoring of the wetland areas for a period of time (one to three years) to ensure the recovery of the wetlands within the RWIPL easement.

Table 4.2.2
Wetland Impacts

Actions	Wetland Impact Categories											
	Positive		Negative		Direct		Indirect		Short-term		Long-term	
	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm
Existing RWIPL	No	No	No	No	No	No	No	No	No	No	No	No
Proposed RWIPL	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No
No Action on Existing RWIPL	No	No	No	No	No	No	No	No	No	No	No	No
Maintenance/Repairs on Existing RWIPL	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No

Natural and beneficial wetland functions/values in the Gulf Coast area work hand-in-hand with floodplains in that wetlands aid in controlling floods. Wetlands slow water flow and allow materials and sediments to drop to the wetland bottom. Wetlands provide flood waters more time to recede which also serves to improve water quality. Also,

wetlands provide a habitat for many species of animals. Along the Gulf Coast, wetlands also support the local economy through shrimping, fishing, hunting and recreational activities.

4.3 Floodplains and Wetlands Alternatives

The proposed action and three alternatives, including a No Action or No Build Alternative, were evaluated along the existing RWIPL alignment to accommodate the placement of the proposed RWIPL. Construction feasibility, reasonableness and potential environmental impacts were considered during the evaluation of the four actions (and associated action alternatives). Reasonable actions were identified as those actions which were considered to be supported by common sense and sound technical principles. Feasible actions were those actions which were considered to be capable of being accomplished, practicable and non-excessive in terms of cost. The following actions and action alternatives were evaluated.

- Proposed Action : Placement of the Proposed RWIPL
    - Action Alternative 1: Purchase a New Easement for the Proposed RWIPL, standard open trench construction
    - Action Alternative 2: Purchase a New Easement for the Proposed RWIPL, directional drilling construction
- Alternative 1: Lining the Existing RWIPL
- Alternative 2: Construction of a RWIS in Black Lake and Within the Existing Main Site Property
- Alternative 3: No Build Action

Based on the analysis of the proposed action and alternatives for this project, the only two options which advanced for further study included the Proposed Action (Placement of the Proposed RWIPL), Action Alternative 1 (Purchase a New Easement for the Proposed RWIPL, standard open trench construction) and Alternative 3, No Build Action.

4.3.1 Floodplains Alternatives

Proposed Action, Alternative 1: The proposed RWIPL project would have no long-term/indirect impacts to the surrounding floodplain and would not raise any floodplain management issues. The pipeline would be buried 1.5 m (5 ft) beneath the bottom surface elevation of Black Lake as well as in the landward areas of the project. This completed RWIPL project would not affect flow, capacity or the present hydraulics/hydrology (water movement) of the project area. While the proposed action would have short-term/direct impacts in the floodplain, the project would not exhibit

long-term, indirect impacts in the floodplain or on lives or property located within or near the floodplain.

Alternative 3, No Build Action: The existing RWIPL would have no effect to the floodplain in the project area. Maintenance and/or repair projects would exhibit temporary direct impacts to the floodplain similar to those associated with the construction of a new RWIPL, but to a lesser degree.

4.3.2 Waters of the United States, Including Wetlands Alternatives

Proposed Action, Alternative 1: Waters of the U.S., including wetlands, are regulated by the USACE. This RWIPL project would affect waters of the U.S. and would require coordination and permitting from the USACE, and other resource agencies, as part of the FCD program required by the CZM Division of the Louisiana Department of Natural Resources.

In correspondence from the USACE dated June 1, 2004, the USACE stated that their office did not anticipate any adverse impacts to any USACE projects. The USACE has also determined that a portion of the proposed project is in a wetland and subject to USACE jurisdiction and that a USACE permit under Section 404 of the Clean Water Act would be required prior to the deposition or redistribution of dredged or fill material into this wetland. Additionally, the GIWW, Black Lake and tidal portions of the associated wetlands are subject to USACE jurisdiction under Section 10 of the Rivers and Harbors Act of 1899. A USACE Section 10 permit would therefore be required prior to any work in these waterways or tidal wetlands. Furthermore, off-site locations of activities such as borrow, disposals, haul- and detour-roads and work mobilization site developments may be subject to USACE regulatory requirements (if placed in jurisdictional areas) and may have an impact on a USACE project.

Spoil from trenching activities or the clearing of the landward ROW areas for the proposed RWIPL project would be restored to pre-construction grade (with a tolerance of approximately $\pm$ 6 inches) following the pipeline installation activities. Affected wetlands would be expected to recover from construction impacts within two to three growing seasons. A mitigation plan would be included with the FCD application for unavoidable impacts to wetland areas resulting from the RWIPL construction/installation activities. Mitigation would include provisions for returning the ground surface and vegetation to pre-construction conditions.

Alternative 3, No Build Action: Utilizing the existing RWIPL would require no construction activities. No waters of the U.S., including wetlands, would therefore be impacted under this scenario. Any future maintenance or repairs on the existing RWIPL may however require USACE coordination and/or permit actions.

The Floodplain Statement of Findings (FSOF) is presented in Appendix C. This FSOF was prepared in accordance with 10 CFR 1022.14 and applicable DOE guidance. In accordance with 10 CFR 1022.15, the FSOF must be made available for review. Comments on the draft FSOF were received and incorporated into this final FSOF for this agency action, as appropriate.

5.0 ACCIDENT ANALYSIS

5.1 Emergency Preparedness

The main facility maintains an Emergency Response Plan (ERP) that provides a detailed overview of the resources available to respond to emergency oil discharges. The ERP identifies and describes the qualified individuals for the facility, activation of the emergency response team, activation of the discharge response contractors and communications with emergency responders and Federal and State officials. Additionally, the ERP contains accident scenarios with appropriate accident mitigation, consequence assessment, spill cleanup and waste handling and disposal, as well as environmental restoration and recovery.

In the event of a spill, spills are reported to the DOE New Orleans management offices and appropriate regulatory agencies. Spills at the main facility primarily consist of occasional releases of oil and brine, generally associated with some form of maintenance or transport operation.

Spills are contained quickly and recovered. If a spill produces discernible environmental impacts, the area is assessed in a systematic fashion and remedial actions are developed, implemented, and documented. If soils are found to be contaminated by oil or hazardous substances, corrective actions with appropriate disposal or direct bioremediation are employed in accordance with the appropriate response plan. In the case of brine releases, the affected grounds are routinely flushed with fresh water and then vacuumed, with the salty flush water being appropriately disposed.

Spill exposure to rainfall is a concern in spill remediation operations. Routine spill response includes expedited efforts to limit or preclude the spreading of contamination by rainfall. Any spills or releases during construction of the proposed RWIPL would be minimized and quickly recovered. Containment booms would be deployed around the spill to prevent the spread of, for example, equipment oil in Black Lake. Spill response and reporting during construction would be handled using the same procedures used at the main facility. The construction contractor would be the first responder to a spill during construction, would be required to submit a spill prevention plan for approval prior to the start of construction and would be required to utilize BMPs to minimize any potential hazardous material release during construction activities. The BMPs would include the minimization of wastes and impacts to air, water, and land. Since only water would pass through the proposed RWIPL, any leaks or spills from this pipeline would not be considered an emergency scenario at the main facility. The main facility emergency response team would be available to support the construction contractor during a spill if necessary.

Proposed Action, Action Alternative 1 and proposed Alternative 3, No Build Action: Since the existing and proposed RWIPL conveys water and not petroleum products, emergency preparedness procedures would not apply except in the event of a failure of the RWIPL. In this case, site personnel would act appropriately to address the failure or secure the pipeline (40 CFR 1502.22).

6.0 PUBLIC INVOLVEMENT

The public involvement program for the proposed RWIPL project consisted of written notification of the proposed project to potentially interested parties. On May 3, 2004, the DOE mailed a total of 51 letters to individuals, organizations, and Federal, State, and local governmental entities and regulatory/resource agencies which may have an interest in the RWIPL project. These 51 parties also included civic associations/organizations and property owners located immediately adjacent to Black Lake or the proposed RWIPL project area. A list of the potentially interested parties notified of this proposed RWIPL project is presented in Appendix D. Written responses were provided on a case-by-case basis to interested parties requesting additional information on the RWIPL project. Interested, potentially affected parties and government agencies were also provided with an opportunity to review and comment on the draft EA and the Preliminary Floodplain Statement of Findings. On July 9, 2004, respondents to the May 3rd letter and several Federal, State and Parish agencies were notified by letter of the availability of the draft EA including the FSOF. Notice of the availability of the draft EA and FSOF for review was also published in the Lake Charles newspaper, *American Press*, on July 16, 2004. The review and comment period began on July 9, 2004 and ended on July 31, 2004. Copies of the draft EA and FSOF were provided upon request and made available on the DOE website at www.spr.doe.gov/esh and at the following four Public Libraries:

1) Hackberry Library
983 Main Street
Hackberry, LA 70645

2) Cameron Parish Library
498 Marshall
Cameron, LA 70631

3) Calcasieu Parish Public Library
301 W. Claude Street
Lake Charles, LA 70605

4) East Baton Rouge Parish Library
7711 Goodwood Boulevard
Baton Rouge, LA 70806

The draft EA and FSOF was additionally presented to the SPR Project Management Office (SPRPMO) Environmental Advisory Committee (EAC) on July 12, 2004, in which the EAC was provided an opportunity to comment. Written comments received by the DOE were evaluated, responded to and/or incorporated into the EA document for the proposed RWIPL project. These comments and the applicable DOE response have been provided in Appendix E. All comments received on the draft EA were documented as part of the Administrative Record for this project. As part of DOE's response to comments received from the Louisiana Department of Wildlife and Fisheries, a MAP has been prepared and is appended to this EA document (Appendix F).

7.0 CONCLUSIONS

The West Hackberry facility has been operating the existing RWIPL since 1978 with few impacts to the environment. The implementation of a new RWIPL must be installed for the continued use of the SPR main facility as designed. Implementation of the proposed RWIPL and use of the main facility would:

- ensure the maximum usage of the main site as a designated United States crude oil storage facility, and
- reduce the United States' vulnerability to energy supply disruptions.

A total of four actions (Proposed Action with construction alternatives and three Alternatives) were evaluated to determine which actions were reasonable and feasible with respect to the proposed RWIPL project from an environmental and engineering perspective. Reasonable actions were identified as those actions which were considered to be supported by common sense and sound technical principles. Feasible actions were those actions which were considered to be capable of being accomplished, practicable and non-excessive with respect to costs.

Of the four actions, the Proposed Action and Alternative 3 were advanced for continued evaluation of potential impacts to the human and natural environment. These two actions included Proposed Action (Placement of the Proposed RWIPL), Action Alternative 1 (Purchase a New Easement for the Proposed RWIPL, standard open trench construction) and Alternative 3, No Build Action.

This Environmental Assessment identified temporary/direct environmental changes that could potentially affect air quality (e.g., construction equipment emissions), water quality (e.g., turbidity during construction), EFH, avian species covered under the MBTA and waters of the United States, including wetlands, during the construction phase of the project. As the EA indicates, there would not be a net increase in long-term, permanent/direct, indirect/secondary or cumulative impacts to the environment as a result of the construction and installation of the proposed RWIPL project.

APPENDIX A:
SOCIOECONOMIC ENVIRONMENT

1.0 Socioeconomic Environment

1.1 Population Statistics

Population data at the census tract and census block group level for the year 2000 from the U.S. Department of Commerce Census Bureau (Census Bureau) was used in the socioeconomic analysis for this project. A census tract is a small, relatively permanent geographic entity within a parish. A block is the smallest geographic unit for which the Census Bureau tabulates data. Many blocks correspond to individual city blocks bounded by streets, but blocks, especially in rural areas, may include many square miles and may have some boundaries that are not streets. A block group is a cluster of blocks within a census tract (Census Bureau, 2004).

Utilizing block group data provides a more accurate description of the population characteristics within the project area rather than utilizing the census tract data alone. All of the data presented in Table 1.1 was tabulated from the 2000 census for Census Tract 9702, Block Group 2, Cameron Parish, Louisiana, as well as adjacent Census Tract 32, Calcasieu Parish, Louisiana. The proposed RWIPL is located within this block group and tract in Cameron and Calcasieu, respectively. Due to the rural nature of Census Tract 32, in Calcasieu Parish, this census tract was not further subdivided into a block or block group (Census Bureau, 2004). Approximately 87% of the RWIPL project corridor is located in Cameron Parish while approximately 13% of the project is located in Calcasieu Parish.

Table 1.1:
Racial and Ethnic Composition of the Population in the Year 2000
Census Tract 9702, Block Group 2, Cameron Parish, Louisiana
Census Tract 32, Calcasieu Parish, Louisiana

Parish	Total Population	Minority Population		White	African-American	Asian	American Indian/ Alaskan Native	Other Races	Two or More Races
		Number	Percent						
Cameron	1,699	42	2.5%	1,657	8	12	5	9	8
Calcasieu	2,292	85	3.7%	2,207	36	11	4	10	24

The census tracts/block groups are small enough units in the general project area to provide an accurate representation of the community composition surrounding the proposed RWIPL project. As shown in Table 1.1.1-A, the population in the general project area primarily consists of white, non-minority individuals.

1.1.1 Employment and Income Data

Employment statistics, from the Census Bureau, within the census tracts/block group were available for the year 2000. The residents in these census tracts/block groups were employed in a variety of industries; however, most of the workforce was concentrated in a relatively few number of professions. Over one-half of the population was employed in the retail, education and health services, or construction industries in Census Tract 9702, Block Group 2 in Cameron Parish. Industries were more variable in type in Census Tract 32 in Calcasieu Parish. Table 1.1.1-A contains the percent employment by industry in Census Tract 9702, Block Group 2, in Cameron Parish and Census Tract 32 in Calcasieu Parish.

Table 1.1.1-A:
Employment by Industry
Census Tract 9702, Block Group 2, Cameron Parish, Louisiana
Census Tract 32, Calcasieu Parish, Louisiana

Industry	Percent of Population Employed; Cameron Parish	Percent of Population Employed; Calcasieu Parish
Retail Trade	22.8	15.0
Education, Health and Social Services	15.7	11.4
Construction	12.9	13.3
Agriculture, Forestry, Fishing, Hunting and Mining	12.6	2.0
Manufacturing	9.8	13.9
Transportation, Warehousing and Utilities	7.0	5.9
Arts, Entertainment, Recreation, Accommodation and Food Services	6.2	10.8
All other industries	13.0	27.5

Income data was available at the census tract level only for the year 2000 census; income was not reported on the block group level by the census. As reported by the Census Bureau, in 1999, the median household income was $32,575 in Census Tract 9702, Cameron Parish, and was $39,417 in Census Tract 32, Calcasieu Parish. In comparison, these levels are slightly higher than the respective median household income for Cameron Parish ($32,232) and Calcasieu Parish ($35,372) as well as the State of Louisiana ($32,566) for the same period. Income data is presented in Table 1.1.1-B for the area inclusive of the RWIPL project corridor.

Table 1.1.1-B:
Income by Population
Census Tract 9702, Block Group 2, Cameron Parish, Louisiana
Census Tract 32, Calcasieu Parish, Louisiana

Income Statistics	Louisiana	Cameron Parish	Census Tract 9702	Census Tract 9702, Block Group 2	Calcasieu Parish	Census Tract 32
Total Population	4,468,976	9,991	4,553	1,699	183,577	2,292
Minority population (number)	1,612,815	634	412	42	48,470	85
Minority population (percent)	36%	6.3%	9.0%	2.5%	26.4%	3.7%
Below poverty level (number)	851,113	1,220	600	No Data	28,270	203
Below poverty level (percent)	19.6%	12.3%	13.4%	No Data	15.4%	8.9%
Median household income	$32,566	$32,232	$32,575	No Data	$35,372	$39,417

Additionally, the year 2000 percentage of families below the poverty level is lower within Census Tract 9702 and Census Tract 32 than for the State of Louisiana. For example, the percent of families with incomes below the poverty level in Census Tract 9702 was 10.1% in 1999. The percent of families below the poverty level in all of Cameron Parish was 9.1% for the same period. Families below the poverty level comprised 15.8% of the population in the State of Louisiana.

APPENDIX B:
SOIL

1.0 Soils

This RWIPL project would cross eight different soil types. Table 1.0 lists the individual soil types and hydric soil status as indicated by the Natural Resources Conservation Service (NRCS) and the National Technical Committee for Hydric Soils (NTCHS). Hydric soils consist of soils that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic (water-loving) vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. Also, soils in which the hydrology has been artificially modified are hydric if the soil, in an unaltered state, was hydric. Some soil series, designated as hydric, have phases that are not hydric depending on water table, flooding, and ponding characteristics (USDA, 2004).

Table 1.0
Soils Types Traversed by the RWIPL Project

Soil Type	Description	Hydric Status
Allemands muck (AE)	Level, very poorly drained, organic soil found in freshwater marshes	Hydric
Clovelly muck (CO)	Level, very poorly drained, very fluid, organic soil found in brackish marshes	Hydric
Crowley-Vidrine silt loam (Cw)	Level, gently sloping, somewhat poorly drained soils found on broad ridges on the Gulf Coast Prairies	Possible Hydric Inclusions
Ged mucky clay (GB)	Level, poorly drained, mineral soil found in freshwater marshes	Hydric
Gentilly muck (GC)	Level, very poorly drained very fluid, mineral soil found in brackish marshes	Hydric
Judice silty clay loam (Ju)	Level, poorly drained soil found on broad, slightly concave areas on the Gulf Coast Prairies	Hydric
Morey loam (Mr)	Level, poorly drained soil found on broad flats on the Gulf Coast Prairies	Possible Hydric Inclusions
Udifluvents, 1 to 20 percent slopes (UA)	Sandy to clayey soil material that has been excavated from other places during construction and maintenance of navigable waterways	Possible Hydric Inclusions

APPENDIX C:
FLOODPLAINS STATEMENT OF FINDING

1.0 Project Description

This Floodplain Statement of Findings summarizes the potential impacts of the proposed Raw Water Intake Pipeline (RWIPL) replacement project on floodplains within the project area that were analyzed in the Floodplains Assessment in accordance with 10 CFR 1022.13 and steps to be taken to minimize potential harm to or within the associated floodplain area. The United States Department of Energy (DOE), Strategic Petroleum Reserve (SPR), West Hackberry facility (main facility/site), RWIPL replacement project is located in Cameron and Calcasieu Parishes, Louisiana.

2.0 Purpose and Need

The Energy Policy and Conservation Act of 1975 (EPCA) authorizes the creation of the SPR to store crude oil to reduce the United States' vulnerability to energy supply disruptions. Currently, the SPR contains approximately [redacted] of oil in four storage facilities, one of which consists of the main facility. The purpose of this proposed project is to construct a new RWIPL at the main site to replace the existing RWIPL which services this facility.

The existing [redacted] pipeline is currently utilized for the transportation of raw water from the Raw Water Intake Structure (RWIS) at the Gulf Intracoastal Waterway (GIWW), located in Calcasieu Parish, southward [redacted] to an extraction point at the main facility. The raw water transported to the site is used to displace stored oil. The existing RWIPL was installed in 1978 and is beginning to show signs of long-term use, wear and corrosion, and needs to be replaced to allow for continued, optimum operations at the main facility. The existing pipeline would eventually be removed from service, but not decommissioned.

3.0 Alternatives Considered

The proposed action and three alternatives, including a No Build Action, were evaluated along the existing RWIPL alignment for the placement of the proposed RWIPL. Construction feasibility, reasonableness and potential environmental impacts were considered during the evaluation of the following four actions and associated action alternatives evaluated.

- Proposed Action : Placement of the Proposed RWIPL

  - Action Alternative 1: Purchase a New Easement for the Proposed RWIPL, standard open trench construction
  - Action Alternative 2: Purchase a New Easement for the Proposed RWIPL, directional drilling construction

- Alternative 1: Lining the Existing RWIPL

- Alternative 2: Construction of a RWIS in Black Lake and Within the Existing Main Site Property

- Alternative 3: No Build Action

The proposed RWIPL would be located within a pipeline easement adjacent to the existing RWIPL easement. A temporary construction easement [approximately [redacted] would be required along the [redacted] pipeline corridor during installation. A [redacted] permanent pipeline easement adjacent to the existing pipeline easement would encompass the proposed [redacted] pipeline. Construction would be staged at the existing RWIS located on the GIWW and at the main site. The proposed pipeline would be buried 1.5 m (5 ft) below the bottom surface elevation of Black Lake, the freshwater impoundment and landward areas (see Figure 1).

After analysis of the proposed action and alternatives for this project, only the Proposed Action, Action Alternative 1 and the Alternative 3, No Build Action advanced for further study. Both Proposed Action, Action Alternative 1 and Alternative 3, conform to the applicable floodplain guidelines implemented by Calcasieu and Cameron Parishes, the Louisiana Department of Transportation and Development, the Federal Emergency Management Agency (FEMA) National Flood Insurance Program, and Executive Order 11988 - Floodplain Management.

4.0 Potential Impacts and Minimization Efforts

The existing pipeline occurs within areas designated as floodplains. Floodplains, or flood hazard areas, were identified using the FEMA Flood Insurance Rate Map (FIRM) panel numbers 2251940075F and 2200370525B (FEMA, 1988 and 1991). Figure 2 illustrates the general location of the proposed RWIPL within the designated floodplain. According to the latest FIRMs, the proposed action would occur almost entirely within Zone A flood hazard areas (i.e., inundated by a 100-year flood). Exceptions are an area of the spoil bank adjacent to the GIWW and the main facility which are Zone X (i.e., outside the 500-year floodplain). Potential impacts and impact minimization efforts are discussed below.

Proposed Action, Alternative 1: Excavation and trenching would be required prior to the placement of the buried pipeline 1.5 m (5 ft) beneath the ground surface in all areas of the project. Once installed, the pipeline trench would be backfilled and regraded to pre-construction conditions (with a tolerance of approximately $\pm$ 6 inches). Soil disturbances would be temporary and kept to the minimum necessary for the trenching effort. BMPs will be used by the construction contractor to minimize soil disturbances during the RWIPL installation process.

Aside from trenching material temporarily side-cast during construction, no surface fill in the floodplain would occur unless necessary to return the project area to pre-construction conditions. No volume of water would be displaced by the completed project; no base

flood elevations would be changed by the implementation of the proposed RWIPL project. Once constructed, this RWIPL project would not affect flow, capacity or the present hydraulics/hydrology (water movement) in the project area. While the proposed action would have short-term/direct construction impacts in the floodplain, the project would not exhibit long-term, indirect impacts in the floodplain or impacts on lives or property located within or near the floodplain. Once installed, the proposed RWIPL project would have no adverse impacts to the surrounding floodplain and would not raise any floodplain management issues.

Alternative 3, No Build Action: The existing RWIPL would have no effect to the floodplain in the project area. Maintenance and/or repair projects would exhibit temporary direct impacts to the floodplain similar to those associated with the construction of a new RWIPL, but to a lesser degree.

APPENDIX D: INTERESTED PARTIES/AGENCIES

Federal Agencies

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Federal Emergency Management Agency
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Mr. Ronnie Ventola
Chief, Regulatory Branch
U.S. Army Corps of Engineers
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State Agencies:

Mr. Robert Collins
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Mr. Ed Preau
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Mr. Brent Clement
President, Calcasieu Parish Police Jury
Calcasieu Parish Government
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Elected Officials:

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Governor
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Societies/Organizations/Associations:

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APPENDIX E: AGENCY LETTERS/CORRESPONDENCE

The DOE received twelve letters and four emails from resource agencies during the preparation of the RWIPL EA project. In the letters and emails received, five resource agencies requested copies of the exhibits included in the draft EA document and four agencies requested to review the draft EA. Three agencies also supplied preliminary review information on the project such as permitting requirements, comments on the absence of threatened and endangered species in the project area, and information concerning potential impacts to jurisdictional wetlands. After review of the draft EA, four agencies responded that they had no comment on the project. One agency provided comments on the draft EA. DOE addressed these comments in a comment/response report included in Appendix E, and a MAP was prepared to indicate the DOE's environmental mitigation commitments and actions on the RWIPL project.

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
1	Page 29, 3.4 Natural Environment, 1st Paragraph; Page 36, 3.13 Construction Related Activities; Page 42, 4.2.1 Floodplains Impacts; and Page 49, 4.3.2 Waters of the United States, including Wetlands Alternatives. Placement of bottom sediments in a continuous band along the RWIPL corridor through Black Lake will not allow for navigation to continue occurring along an East-West route. We strongly recommend that 50 foot gap be placed every 500 feet with markers clearly indicated where the gaps are. Such markers should meet U.S. Coast Guard requirements for day and night usage and should be suitable for the normal climatic and sea conditions occurring in the Black Lake area.	As specifications for all aspects of the RWIPL have not yet been detailed, it is uncertain at this time whether material would be sidecast on one or both sides of the pipeline trench. It is anticipated that bottom sediments would be side cast in a continuous band along landward areas. However, in the freshwater impoundment and Black Lake, strategically placed gaps will be created in the band of sidecast material along the RWIPL corridor to facilitate boat traffic as construction proceeds across Black Lake. These gaps will be created approximately every 500-feet through Black Lake and the freshwater impoundment. In accordance with 33 CFR 62.21(c)(4), once construction is scheduled, a notice shall be published in the Local Notice to Mariners to apprise local boat traffic of the potential temporary obstruction posed by the sidecast material. The sidecast material and the gaps will be marked using aids to navigation in accordance with U.S. Coast Guard requirements (33 CFR 66). These aids to navigation will be suitable for day and night navigation and will be of appropriate durability for the normal, seasonal climatic conditions and sea conditions occurring within the Black Lake area. In addition to compliance with 33 CFR 66, markers utilized in Black Lake would include lateral marks such as buoys to convey the location of crossovers through the RWIPL corridor as well as informational marks such as signs to convey similar information to recreational boaters. Informational marks will also comply with requirements set forth at 33 CFR 62.33. Finally, boat traffic would be accommodated by the construction contractor.	3.4 3.13 4.2.1 4.3.2	29 36 42 49

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
2	It is not clear if the dredged material is being placed on one or both sides of the proposed pipeline trench. Clarification is also needed if a floatation canal needs to be dredged for the construction equipment laying the pipeline. Typically laying such a large pipeline in open water requires equipment that draft is greater than the depth of Black Lake. Is dredging required for construction equipment to access the proposed pipeline right-of-way in Black Lake?	Although specifications for all aspects of the RWIPL have not yet been detailed and it is uncertain at this time whether material would be sidecast on one or both sides of the pipeline trench, it is anticipated that bottom sediments would be side cast in a continuous band with dredged material placed on one side of the trench. It is anticipated that the construction contractor will cut the single pipeline trench through the required areas of Black Lake using floating or low bearing pressure equipment designed for this application . Examples of such equipment include a marsh buggy or other similar equipment. Although the exact type of equipment to be utilized cannot be committed to at this time, it is DOE's intention to avoid impacts to Black Lake and the freshwater impoundment to the extent possible. As such, currently, DOE intends that the single pipeline trench will serve the needs of the entire pipeline placement project including accommodation of construction barges/equipment without additional dredging, i.e. dredging that is incidental to the actual placement of the RWIPL. Once detailed design has been completed, the equipment to be utilized will be specified to the extent possible in the Section 10/404 permitting phase of this project. As such, it is anticipated that, should any additional dredging be necessary to accommodate construction barges/equipment, these activities will be aptly described in the Department of the Army permit application in accordance with 33 CFR 325.1(d)(2) and the Federal Consistency Determination Review Request. The particulars of all actions involving dredging including any additional or incidental dredging associated with accommodation of construction barges/equipment will comply with the requirements of 33 CFR 325.1(d)(3). DOE prepares specifications for construction of the pipeline, but the actual method of construction will be determined at a later date by the construction contractor. Construction activities, however, will occur within the pipeline construction easement and at specific staging areas, which will be described in the permit application A pre-application consultation will likely be conducted with the Army Corps of Engineers in accordance with 33 CFR 325.1(b) to facilitate preparation of the application and address the viability of the proposed construction activities.	Same as No. 1	

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
3	A) How will bottom sediments be returned to the pipeline trench? B) How will verification occur to ensure that the bottom elevation of the lake will be restored to pre-project grade along the project corridor?	A) The same or similar excavation equipment used to excavate the pipeline trench will be utilized to backfill the trench with the excavated/dredged material. The construction contractor will then smooth the backfilled area by means of a length of pipe attached to the bucket of a backhoe, or similar method. The pipe, when dragged across the trench, effectively smooths the area, which will aid in restoring the affected area within the RWIPL corridor within a tolerance of approximately ± 6 inches of the pre-construction elevation. B) DOE understands that restoration of the elevation of the RWIPL corridor is important to maintaining the topography and water elevations with respect to the growth of emergent vegetation in the freshwater impoundment and at the edges of Black Lake. It is DOE's intention to restore the elevation of the affected area in accordance with the preferences expressed by the Louisiana Department of Wildlife and Fisheries (LDWF), within a tolerance of approximately ± 6 inches of the baseline elevation. To accomplish this, land surveying will be conducted prior to construction activities to establish the topographic baseline within the project area and to establish monitoring points within the project corridor for performance of followup surveys during the backfill and smoothing process as well as during any administratively proscribed monitoring period. Land surveying activities conducted will be performed using established points located approximately every 250 feet apart.	Same as No. 1	

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
3 Cont.	C) What measures will be taken if the lake bottom grade is not returned to pre-project grade?	C) DOE is committed to restoration within the specifications and preferences of the LDWF as expressed. To achieve this, DOE may also utilize sonar to investigate the condition of the bottom elevation of Black Lake and the freshwater impoundment. Sonar measurements to ensure the absence of mounding would be performed after backfilling and smoothing. Though not typically conducted, if required, the bottom elevation of sensitive areas could be measured via sonar before and after construction activities as well as prior to 'shallowing up' an area and demobilization. These surveys to document the post-construction elevations will provide the information required to determine if additional work (smoothing or providing fill material) is required to restore the bottom elevation within the stated tolerance.	Same as No. 1	

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
4	Page 38, 3.15 Direct, Indirect/Secondary and Cumulative Impacts. A) Impacts to the freshwater marsh within the impoundment can and will be significantly impacted from higher salinities entering the marsh during construction with the open trench method. At times Black Lake can have significant higher salinities than the impoundment and therefore any water connection can cause salinity burns to fresh marsh both on and off the construction right-of-way. B) This agency strongly recommends the use of horizontal directional drilling (HDD) method to avoid the impacts to the freshwater marsh within the impoundment.	A) Temporary dikes and/or cofferdams would be utilized by the construction contractor during construction activities to minimize the amount of water transferred between Black Lake and the fresh water impoundment, i.e. any saltwater intrusion into the freshwater impoundment from Black Lake. Such temporary dikes or dams would be constructed of earth, excavated materials or sheet piling depending on the specifications employed by the construction contractor. DOE understands that any change in salinity within the freshwater impoundment could be detrimental to the aquatic plant and animal communities in this area and is contemplating performance of salinity monitoring to determine if any potential seepage is occurring. B) The directional drilling construction method, through the freshwater impoundment would reduce the amount of excavation required for the RWIPL construction, but would considerably increase the project costs; $29,563,000 for directional drilling versus $17,773,376 for standard open trench construction. As well, this alternative would require a 61 m (200 ft) wide temporary construction easement plus additional construction staging areas. Moreover, directional drilling of this pipe size (48-inch) at this length (over 1 mile) is not technologically achievable without periodic breaks in the pipeline, which would necessitate further surface land disturbances and potentially more staging areas. When these are considered in light of the potential for toxics from drilling muds to seep into the waters of both Black Lake and the freshwater impoundment are considered, the use of the directional drilling construction method is a more risky, less attractive construction alternative.	3.15	38

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
5	A) The return of flora and fauna, especially marsh vegetation, is dependent on other factors than just ambient water quality conditions and temperatures. One of the most important factors for emergent marsh areas is the restoration of pre-project elevation of the soil. Since the elevation is very important to the marsh flora, this should be a key element is designing this project and any mitigation. It is not uncommon that extra soil would be placed in the construction right-of-way to restore marsh to pre-project condition. B) Another important factor is the amount of stress placed on the marsh vegetation from construction activities including increased salinities during and after construction. Salinities can and vary significantly with the habitat types in the Black Lake area as noted on page 46 & 47 of the document. Neither of these two factors is adequately addressed within this document. C) The use of horizontal directional drilling would avoid all of these factors and the impacts to very sensitive wetlands as found within the fresh water impoundment.	A) It is DOE's intention to minimize the impacts on sensitive areas to be affected. DOE is committed to restoration of the bottom elevation of affected areas within LDWF's specifications and performing revegetation of emergent vegetation using indigenous species in the fresh water impoundment and shallow areas of Black Lake, Further, DOE is committed to monitoring the progress of the restoration in accordance with administratively proscribed monitoring periods. The potential for additional of soil within the RWIPL corridor is recognized and such will be performed if necessary to restore the bottom elevation to pre-construction condition with a tolerance of approximately ± 6 inches. The draft EA discusses restoring disturbed areas to the original grade (pre-project elevation) in the following sections: Natural Environment, 3.4, Page 23; Water Resources, 3.6, Page 24; Soils, 3.10.1, Page 26; Short-term/Long-term Impacts, 3.14, Page 30; Floodplain Impacts, 4.2.1, Page 37; Waters of the U.S., Including Wetland Alternatives, 4.3.2, Page 45; and Potential Impacts and Minimization Efforts, 4.0. B) Temporary dikes and/or cofferdams would be utilized by the construction contractor during the construction phase of this project to minimize the amount of water transferred between Black Lake and the fresh water impoundment. Additional details will be developed during the detailed design phase and during any pre-application agency consultations A description of the structure to be utilized to prevent saltwater intrusion into the freshwater impoundment including engineering specifications will be provided in the permit application for this project. DOE understands that any change in salinity within the freshwater impoundment could be detrimental to the aquatic plant and animal communities in this area and is contemplating performance of salinity monitoring to determine if any potential seepage is occurring. C) Refer to response to comment No. 4, B. It is DOE's intention to minimize the impacts to sensitive wetlands. This shall be achieved through identification of sensitive areas to be affected and utilization of best management practices, monitoring, and restoration.	Same as No. 4	

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
6	A) How will the marsh soils be returned to the pipeline trench?	A) Refer to the response to comment No. 3, A. Also, for landward vegetated areas, topsoil would be excavated and stockpiled separately. This material would be used as the top dressing of the pipeline area following the backfill of the trench area. The excavated topsoil would be replaced and suitably stabilized to minimize erosion. Such areas would be seeded so that revegetation of the pipeline area would occur. Seed for both landward and other areas to be revegetated will be purchased from reputable suppliers, such as Beauregard Nursery or Oberlin Nursery, which obtain seed from indigenous plant sources.	Same as No. 5	
6 Cont.	B) How will verification occur to ensure that the soil elevation in the marsh will be restored to pre-project grade along the project corridor? C) What measures will be taken if the marsh elevation is not returned to pre-project grade?	B) Refer to the response to comments Nos. 3. A., B., C. C) The goal of this project is to return of the pipeline easement to pre-construction conditions. Regrading (including placement of additional fill) would occur until such project goals are met.	Same as No. 5	

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
7	Page 43, 4.2.2 Waters of the United States, including wetland alternatives. The conceptual mitigation plan needs to be improved significantly.	LDWF's comment is noted and revisions to the Mitigation Action Plan for potential wetland impacts and other impacts provided in the Environmental Assessment document for this project will be made when detailed design has been completed. Additionally, this more detailed plan for the mitigation of any unavoidable wetland impacts will be submitted to the USACE and LDNR during the Section 10/ 404 permitting phase of this project. At this later date, the acreage of unavoidable wetland impacts would be assessed and the specific criteria for seeding and planting wetland vegetation will have been developed and will be detailed in the plan. Upon submittal of the plan to agencies during the permitting process, any revisions regarding administratively proscribed monitoring periods will be made as necessary and appropriate.	4.2.2	43

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
8	Tables 3.14, 3.15, & 4.2.2 do not reflect the full possible impacts from this proposal and should be revised to indicate the above comments.	As specifications for all aspects of the RWIPL have not yet been detailed, the EA represents the major impacts that are currently foreseeable. Tables 3.14, 3.15 and 4.2.2 reflect the positive/negative, direct/indirect, short-term/long-term, and temporary/permanent impacts as well as the cumulative impacts of the proposed project on the natural environment that are currently foreseeable. RWIPL construction techniques identified at this time are addressed in the draft EA document and will be supplemented as indicated in this comment/response report. As well, regrading has been addressed in the EA document and will be modified to reflect the method of regarding preferred by LDWF. It is DOE's intention to minimize the impacts on sensitive areas to be affected. To this end, a Mitigation Action Plan for potential wetland impacts and other impacts are provided in the Environmental Assessment document for this project and will be revised as necessary upon completion of the detailed design. These mitigation measures for unavoidable impacts to waters of the United States, including wetlands, will be fully developed prior to the Section 10/404 permitting for this project which will involve permit application review by both Federal and State resource agencies. Interagency meetings and/or consultations will be conducted during the Section 10/404 permit application phase of this project to assure that the mitigation action plan is appropriate and to keep resource agencies apprised of construction methods and of the development of permit application design drawings, plans, or plats relative to the project area.	Table 3.14 Table 3.15 Table 4.2.2	

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
9	Page 51, 5.1 Emergency Preparedness. A) Since the proposed route goes through an existing oil & gas field, what are the specific Best Management Practices (BMPs) to be used?	A) For the RWIPL project, coordination with other pipeline owners has not yet been completed though numerous petroleum pipelines and telephone/fiber optic lines have been identified to date. In general, pipeline crossings will be undisturbed (no lifting, cutting, etc., of existing pipelines). The proposed RWIPL pipeline will be placed under the existing lines by jetting or other appropriate techniques. The DOE is currently inventorying the pipelines traversing the project area and has been in touch with various potentially affected pipeline owners. The DOE will cooperate with the pipeline owners to avoid impacts to their respective pipelines/operations during the RWIPL construction and installation activities. Upon completion of the detailed design package, the DOE Safety and Health professional or the Management and Operating (M&O) contractor will perform a Preliminary Hazard Review (PHR). The PHR describes to the construction contractor what types of hazards are anticipated or could be faced based upon past experience, knowledge and a risk assessment of the project area. The PHR also specifies what written safety programs the construction contractor must have in place prior to performing the work. Coordination between the DOE, M&O contractor and any construction contractors/ subcontractor will result in a task-specific Safety Plan.	5.1	51

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
9 cont.	B) Is additional work area outside of the construction right-of-way needed in existing oil & gas field? Is additional dredging needed around these oil and gas facilities, pipelines, and flowlines? The existing pipelines and flowlines represent potential additional risk of having a spill occur during construction. C) What measures will be incorporated to prevent such and handle spills should they occur?	On landward areas of the project, the construction contractor would maintain silt fencing or other temporary barrier measures to prevent/minimize sediment and/or other substances from entering any adjacent water bodies or wetland areas. Through Black Lake, the construction contractor would have floating booms, absorptive materials or other effective means for the containment of any accidental releases of oil products from, for example, construction equipment. The construction contractor will have a spill response plan in place and a contingency plan that will be approved by the DOE ES&H prior to construction. B) Though construction staging areas near the Raw Water Intake Structure may be required, additional work areas outside the construction right-of-way will not be required in an existing oil or gas field. Dredging outside the project areas/right-of-way will not be required. C) The construction contractor will have contingency measures in the project Safety Plan for the containment of accidental petroleum releases into Black Lake, the freshwater impoundment or landward areas associated with the project.	5.1	51

NO.	LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES COMMENTS	DOE RESPONSE	Section No.	Page
10	Page A-2, 4.0 Potential Impacts and Minimization Effort. In addition to the above comments concerning impacts to the wetlands, what are the specific BMPs to be used?	The Best Management Practices (BMPs) referenced in Potential Impacts and Minimization Efforts, 4.0, Page A-2, refer to the BMPs previously described in Land Resources, 3.10, Page 31. Soil erosion due to excavation, removal of existing materials, and/or grading in landward areas may generate an increase in siltation and sedimentation during the construction of the proposed RWIPL. BMPs such as silt fencing, hay bale berms/dikes or sand bag berms would be utilized to minimize soil erosion, sedimentation and other construction-related disturbances. These BMPS would be temporary in nature and would be removed once landward areas are re-vegetated or once erosion controls were no longer deemed appropriate by the construction contractor. Erosion due to construction activities would be minimized by limiting the duration of time that the disturbed ground surfaces are exposed to the energy of rainfall and run-off water. To the extent practicable, run-off would be diverted from areas subject to erosion, and exposed ground surfaces would be protected by revegetation as soon as practicable following the pipeline installation activities.	4.0	A-2

APPENDIX F:
MITIGATION ACTION PLAN

1.0 Introduction

This Environmental Assessment (EA) discusses the social, economic, and environmental impacts of the United States Department of Energy (DOE), Strategic Petroleum Reserve (SPR), West Hackberry (WH) facility, Raw Water Intake Pipeline (RWIPL) replacement project located in Cameron and Calcasieu Parishes, Louisiana. This EA has been prepared in accordance with current DOE guidelines and regulations [10 Code of Federal Regulations (CFR) 1021] and Council on Environmental Quality National Environmental Policy Act (NEPA) regulations (40 CFR 1500 - 1508).

The Energy Policy and Conservation Act of 1975 (EPCA), as amended, authorizes the creation of the SPR to store crude oil to reduce the United States' vulnerability to energy supply disruptions. Currently, the SPR contains approximately [redacted] of oil in four storage facilities in Texas and Louisiana, one of which consists of the WH facility (main site/facility). The purpose of this proposed project is to construct a new RWIPL at the main site to replace the existing RWIPL which services this facility.

The existing [redacted] pipeline is currently utilized for the transportation of raw water from the Raw Water Intake Structure (RWIS) at the Gulf Intracoastal Waterway (GIWW), located in Calcasieu Parish, [redacted] to an extraction point at the main facility. The raw water transported to the site is used to displace stored oil. Approximately [redacted] of this existing pipeline traverses Black Lake while [redacted] of the pipeline traverses a freshwater impoundment, land adjacent to and including the RWIS and land adjacent to and including the main site. The existing RWIPL was installed in 1978 and is beginning to show signs of long-term use, wear and corrosion. This RWIPL currently needs to be replaced to allow for continued, optimum operations at the main facility.

The proposed RWIPL will be placed adjacent to the existing RWIPL easement. The RWIPL will require a temporary construction easement with a width of approximately [redacted] along the [redacted] pipeline corridor. The proposed pipeline will be buried [redacted] below the bottom surface elevation of Black Lake and the freshwater impoundment as well as [redacted] below landward areas near the RWIS and the main site.

Standard open trench construction will be used along the entire pipeline corridor. A trench will be excavated, the pipeline will be installed, and the trench will be backfilled with materials that were sidecast during the excavation of the trench or additional fill

material as necessary to return the project area to pre-construction grade (with a tolerance of approximately ± 6 inches).

2.0 Function and Organization of the Mitigation Action Plan

The DOE requirements for preparing a Mitigation Action Plan (MAP) are specified in 10 CFR 1021 (Section 331(b), National Environmental Policy Act (NEPA) Implementing Procedures). These regulations state that DOE shall also prepare a MAP for commitments to mitigations that are essential to render the impacts of the proposed action not significant. The MAP shall address all commitments to such necessary mitigations and explain how mitigation will be planned and implemented. The MAP shall be prepared before the Finding of No Significant Impact (FONSI) is issued and shall be referenced therein. The MAP is commensurate with the information available regarding the action covered by the FONSI, to comply with 10 CFR 1021.331(c), and may be revised as more detailed information becomes available.

3.0 Mitigation Action Plans Monitoring and Reporting System

Section 5.d.(11)(f) of DOE Order 451.1B, NEPA Compliance Program, requires DOE to provide the Office of NEPA Policy and Compliance (EH) the MAP and corresponding annual mitigation report. The annual reporting will be part of the annual NEPA Planning Summary to EH by January 1 of each year. The annual NEPA Planning Summary reflects the status of ongoing NEPA compliance activities. Revisions to the MAP, if needed, will be described in the annual report. Status of mitigation activities will also be published in the Annual Site Environmental Report (ASER) by October 1 of each year. DOE will make the ASER available to the public. The status of the mitigation activities will also be available to the public as part of the ASER.

The DOE will designate a monitor to verify mitigation results and to determine if the mitigation action achieved the intended purpose/goals or that revisions to the MAP is required and to report documented results. These requirements will be included in the construction contractor's scope of work. DOE will use existing organizational and administrative controls to gather the information necessary to monitor the implementation, status and success of mitigation actions. These activities include existing, applicable reporting systems, inspection requirements for site personnel and/or contractors and subcontractors, and verification measures that comply with existing SPR quality assurance/quality control policies and procedures. The status of the mitigation actions and revisions to the MAP will be documented and reported to DOE to meet the annual reporting requirements to EH and incorporation into the ASER. Once mitigation actions are complete and verified, this information will be included in the Annual NEPA Planning Summary and the Annual Site Environmental Report.

DOE and/or the construction contractor will secure necessary permits required by applicable Federal, State, and local environmental laws, orders, and regulations. The construction contractor will comply with all mitigation conditions set forth in this MAP

as well as with all mitigation conditions set in the permits issued for the RWIPL construction project. Since all permit conditions are unknown at this time, such specific conditions are not addressed in this MAP. Refinements to this MAP are expected as the environmental permitting for this project moves forward. Additional monitoring of DOE's activities to ensure the protection of natural resources will occur independently through agency permitting and oversight. Agency oversight and permitting will include Federal agencies such as the USACE and/or the US Coast Guard as well as State agencies such as the Louisiana Department of Natural Resources (e.g., for Federal Consistency Determination and Review) regarding adherence to administratively specified mitigation measures, such as permit stipulations, Biological Opinion conditions (if applicable), etc. The DOE will also cooperate with these agencies regarding reporting/monitoring requirements to the USACE and other agencies as required in the permitting conditions for this project.

4.0 Mitigation Commitments and Action Plans

General mitigation practices are part of DOE's standard construction specifications. Applicable mitigation measures and specific actions required to ensure mitigation effectiveness are listed for the new RWIPL and are included in Table F-4.0 (on the following page). These mitigation practices have been determined by the type of construction project and the specified environmental impacts associated with the proposed project. Environmental impacts should be reduced with the employment of these mitigation measures. The MAP is an active document and will be modified as appropriate to reflect any adjustments in the implementation of the proposed action. This MAP will be updated periodically to reflect the completion of construction/mitigation tasks.

Table F - 4.0: Mitigation Commitments and Actions

Mitigation Commitment	Action
Air Quality	
Reduce air pollutants associated with heavy equipment used during the RWIPL construction.	▪ Diesel equipment will comply with the Environmental Protection Agency (EPA) low emission standards for non-road diesel engines, or similar controls.
Noise Assessment	
Reduce noise associated with heavy equipment used during the RWIPL construction.	▪ Implement work-hour controls. ▪ Maintain mufflers on construction equipment.
Natural Environment	
Minimize impacts to the natural environment of Black Lake and associated landward areas.	▪ Although the exact type of equipment to be utilized cannot be committed to at this time, it is DOE's intention to avoid impacts to Black Lake, the freshwater impoundment, and landward areas to the extent possible. As such, currently, DOE intends that the single pipeline trench will serve the needs of the entire pipeline placement project including accommodation of construction barges/equipment without additional dredging, i.e. dredging that is incidental to the actual placement of the RWIPL. Once detailed design has been completed, the equipment to be utilized will be specified to the extent possible in the Section 10/404 permitting phase of this project. As such, it is anticipated that, should any additional dredging be necessary to accommodate construction barges/equipment, these activities will be aptly described in the Department of the Army permit application in accordance with 33 CFR 325.1(d)(2) and the Federal Consistency Determination Review Request. The particulars of all actions involving dredging including any additional or incidental dredging associated with accommodation of construction barges/equipment will comply with the requirements of 33 CFR 325.1(d)(3). • Construction activities will occur within the pipeline construction easement and at specific staging areas, which will be described in the permit application A pre-application consultation will likely be conducted with the Army Corps of Engineers in accordance with 33 CFR 325.1(b) to facilitate preparation of the application and address the viability of the proposed construction activities • DOE understands that restoration of the elevation of the RWIPL corridor is important to maintaining the topography and water elevations with respect to the growth of emergent vegetation in the freshwater impoundment and at the edges of Black Lake. It is DOE's intention to restore the elevation of the affected area in accordance with the preferences expressed by the Louisiana Department of Wildlife and Fisheries (LDWF), with a tolerance of approximately ± 6 inches of the baseline elevation. To accomplish this,

Mitigation Commitment	Action
	land surveying will be conducted prior to construction activities to establish the topographic baseline within the project area and to establish monitoring points within the project corridor for performance of follow up surveys during the backfill and smoothing process as well as during any administratively proscribed monitoring period. Land surveying activities conducted will be performed using established points located approximately every 250 feet apart. DOE may also utilize sonar to investigate the condition of the bottom elevation of Black Lake and the freshwater impoundment. Sonar measurements to ensure the absence of mounding would be performed after backfilling and smoothing. Though not typically conducted, if required, the bottom elevation of sensitive areas could be measured via sonar before and after construction activities as well as prior to 'shallowing up' an area and demobilization. These surveys to document the post-construction elevations will provide the information required to determine if additional work (smoothing or providing fill material) is required to restore the bottom elevation within the stated tolerance. ▪ To achieve LDWF's expectation regarding restoration of the project area, the construction contractor will promptly restore the RWIPL area to the pre-excavation conditions/grade (with a tolerance of approximately $\pm$ 6 inches). For Black Lake, bottom sediments will be side cast in a continuous band as construction proceeds across the lake except for strategically placed gaps to facilitate boat traffic through Black Lake and the freshwater impoundment. Spreading these sediments within the construction easement by dragging a section of pipe across the backfilled area, or similar method, will smooth the bottom surface of the lake. For vegetated areas, topsoil will be excavated and stockpiled separately. This material will be used as the top dressing of the pipeline area following the backfill of the trench area. Once excavated topsoil is replaced, the topsoil will be suitably stabilized by means of silt fencing, hay bales, etc., to minimize erosion and enhance revegetation efforts as detailed below. ▪ Disturbed land areas will be revegetated with indigenous species procured from reputable sources such as Beauregard Nursery or Oberlin Nursery, which obtain seed from indigenous plant sources. Any additional administratively required mitigation measures for unavoidable impacts to waters of the United States, including wetlands, will be more fully addressed in the USACE permitting process for this project, which will involve permit application review by both Federal and State resource agencies.
Minimize interference with shrimping operations in the construction area.	▪ Conduct construction between December and April, or during a specified timeframe approved by USACE in the Department of the Army permitting phase of this project (Section 10 of the Rivers and Harbors Act, Section 404 of the Clean Water Act) and/or by the Louisiana Department of Natural Resources as part of the Federal Consistency Determination review process.

Water Resources	
Minimize turbidity of water from construction.	▪ Return excavation to pre-construction grade (with a tolerance of approximately ± 6 inches) as soon as possible after construction. ▪ Revegetation, which should also assist in minimizing turbidity, is also being considered for the shallow edges of Black Lake and the freshwater impoundment.
Minimize the flow of water between the fresh water impoundment and Black Lake during and after construction.	▪ The construction contractor will utilize temporary dikes and/or cofferdams during construction activities to minimize the amount of water transferred between Black Lake and the fresh water impoundment. Such temporary dikes will be constructed of earth, excavated materials or sheet piling depending on the specifications employed by the construction contractor. Additional details will be developed during the detailed design phase and during any pre-application agency consultations A description of the structure to be utilized to prevent saltwater intrusion into the freshwater impoundment including engineering specifications will be provided in the permit application for this project. All temporary structures will be removed at the completion of construction with essentially pre-construction conditions established. ▪ DOE understands that any change in salinity within the freshwater impoundment could be detrimental to the aquatic plant and animal communities in this area and is also contemplating performance of salinity monitoring to determine if any potential seepage is occurring
Access through Black Lake during construction.	▪ Though specifications for all aspects of the RWIPL have not yet been detailed, it is intended that bottom sediments will be side cast in a continuous band as construction proceeds across Black Lake with strategically placed gaps (approximately every 500-feet), along the RWIPL corridor through the lake. The sidecast material and the gaps will be marked using aids to navigation in accordance with U.S. Coast Guard requirements (33 CFR 66). These aids to navigation will be suitable for day and night navigation and will be of appropriate durability for the normal, seasonal climatic conditions and sea conditions occurring within the Black Lake area. In addition to compliance with 33 CFR 66, markers utilized in Black Lake would include lateral marks such as buoys to convey the location of crossovers through the RWIPL corridor as well as informational marks such as signs to convey similar information to recreational boaters. Informational marks will also comply with requirements set forth at 33 CFR 62.33. ▪ Additionally, the construction contractor will accommodate boat traffic in the area. ▪ In accordance with 33 CFR 62.21(c)(4), once construction is scheduled, a notice shall be published in the Local Notice to Mariners to apprise local boat traffic of the potential temporary obstruction posed by the sidecast material.

Soils and Geology	
Minimize impacts to soils within the RWIPL corridor.	▪ Excavated material will be used for backfill unless additional fill material is necessary to restore the project area to pre-construction grade (with a tolerance of approximately ± 6 inches). Any excavated material in excess of that which is required for backfilling the pipeline trench will be removed from the pipeline area and utilized for beneficial use in accordance with preferences previously expressed by the LDNR. For vegetated areas, topsoil will be excavated and stockpiled separately. This material will be used as the top dressing of the pipeline area following the backfill of the trench area. Once excavated topsoil is replaced, it will be suitably stabilized by means of silt fencing, hay bales, etc., to minimize erosion and enhance revegetation efforts. ▪ Soil erosion due to excavation, removal of existing materials, and/or grading in landward areas may generate an increase in siltation and sedimentation during the construction of the proposed RWIPL. BMPs such as silt fencing, hay bale berms/dikes or sand bag berms will be utilized to minimize soil erosion, sedimentation and other construction-related disturbances. These BMPs will be temporary in nature and will be removed once landward areas are revegetated or once erosion controls were no longer deemed appropriate by the construction contractor. Areas would be seeded so that more rapid revegetation of the pipeline area would occur. Seed for both landward and other areas to be revegetated will be purchased from reputable suppliers, such as Beauregard Nursery or Oberlin Nursery, which obtain seed from indigenous plant sources. ▪ Erosion due to construction activities will be minimized by limiting the duration of time that the disturbed ground surfaces are exposed to the energy of rainfall and run-off water. To the extent practicable, run-off will be diverted from landward areas subject to erosion, and exposed ground surfaces will be protected by re-vegetation as soon as practicable following the pipeline installation activities.
Waste Management	
Minimize hazardous wastes during construction.	▪ Construction contractor will use BMPs to incorporate waste minimization practices into daily operations: ➢ On landward areas of the project, the construction contractor will maintain silt fencing or other temporary barrier measures to prevent/minimize sediment and/or other substances from entering any adjacent water bodies or wetland areas. ➢ Through Black Lake, the construction contractor will maintain floating booms, absorptive materials or other effective means for the containment of any accidental releases of oil products from construction or other equipment. The SPR site has a fully staffed and trained Emergency Response Team that could be called on in the event of an accidental release. ▪ An approved waste management plan must be in place prior to commencement of construction activities for this project. ▪ Also, upon completion of the detailed design package, the DOE Safety and Health professional or the Management and Operating (M&O) contractor will perform a Preliminary Hazard Review (PHR). The PHR describes to the construction contractor what types of hazards are anticipated or could be faced based upon past experience, knowledge and a risk assessment of

	the project area. The PHR also specifies what written safety programs and spill response plans the construction contractor must have in place prior to performing the work. Coordination between the DOE, M&O contractor and any construction contractors/ subcontractor will result in a task-specific Safety Plan and Spill Response/Contingency Plan.
Migratory Bird Treaty Act	
Minimize impacts to birds covered under the MBTA.	▪ The proposed schedule for construction, December to April, was utilized during the installation of the original RWIPL in 1978. A similar specified schedule will be implemented to comply with the MBTA.
Essential Fish Habitat	
Minimize impacts to Black Lake substrate.	▪ As specifications for all aspects of the RWIPL have not yet been detailed, it is uncertain at this time whether material would be sidecast on one or both sides of the pipeline trench. It is anticipated that bottom sediments would be side cast in a continuous band along landward areas. However, in the freshwater impoundment and Black Lake, strategically placed gaps will be created in the band of sidecast material along the RWIPL corridor to facilitate boat traffic as construction proceeds across Black Lake. These gaps will be created approximately every 500-feet through Black Lake and the freshwater impoundment. ▪ Although the exact type of equipment to be utilized cannot be committed to at this time, it is DOE's intention to avoid impacts to Black Lake to the extent possible. As such, currently, DOE intends that the single pipeline trench will serve the needs of the entire pipeline placement project including accommodation of construction barges/equipment without additional dredging, i.e. dredging that is incidental to the actual placement of the RWIPL. Once detailed design has been completed, the equipment to be utilized will be specified to the extent possible in the Section 10/404 permitting phase of this project. As such, it is anticipated that, should any additional dredging be necessary to accommodate construction barges/equipment, these activities will be aptly described in the Department of the Army permit application in accordance with 33 CFR 325.1(d)(2) and the Federal Consistency Determination Review Request. The particulars of all actions involving dredging including any additional or incidental dredging associated with accommodation of construction barges/equipment will comply with the requirements of 33 CFR 325.1(d)(3). • Construction activities will occur within the pipeline construction easement and at specific staging areas, which will be described in the permit application A pre-application consultation will likely be conducted with the Army Corps of Engineers in accordance with 33 CFR 325.1(b) to facilitate preparation of the application and address the viability of the proposed construction activities • DOE understands that restoration of the elevation of the RWIPL corridor is important to maintaining the topography and water elevations with respect to the growth of emergent vegetation in the freshwater impoundment and at the edges of Black Lake. It is DOE's intention to restore the elevation of the affected area in accordance with the preferences expressed by the Louisiana Department of Wildlife and Fisheries (LDWF), with a tolerance of approximately ± 6 inches of the baseline elevation. To accomplish this, land surveying will be conducted prior to construction activities to establish

	the topographic baseline within the project area and to establish monitoring points within the project corridor for performance of follow up surveys during the backfill and smoothing process as well as during any administratively proscribed monitoring period. Land surveying activities conducted will be performed using established points located approximately every 250 feet apart. DOE may also utilize sonar to investigate the condition of the bottom elevation of Black Lake and the freshwater impoundment. Sonar measurements to ensure the absence of mounding would be performed after backfilling and smoothing. Though not typically conducted, if required, the bottom elevation of sensitive areas could be measured via sonar before and after construction activities as well as prior to 'shallowing up' an area and demobilization. These surveys to document the post-construction elevations will provide the information required to determine if additional work (smoothing or providing fill material) is required to restore the bottom elevation within the stated tolerance. ▪ To achieve LDWF's expectation regarding restoration of the project area, the construction contractor will promptly restore the RWIPL area to the pre-excavation conditions/grade (with a tolerance of approximately $\pm$ 6 inches). Spreading these sediments within the construction easement by dragging a section of pipe across the backfilled area, or similar method, will smooth the bottom surface of the lake. The shallow edges of Black Lake will be revegetated with indigenous species procured from reputable sources such as Beauregard Nursery or Oberlin Nursery, which obtain seed from indigenous plant sources. Any additional administratively required mitigation measures for unavoidable impacts to waters of the United States, including wetlands, will be more fully addressed in the USACE permitting process for this project, which will involve permit application review by both Federal and State resource agencies.
Permitting	
Minimize impacts to coastal resources, wetlands or waters of the United States.	• Impacts to resources regulated by the USACE and the Coastal Zone Management Division of the Louisiana Department of Natural Resources are unavoidable. Impacts were identified in the EA and will be mitigated using BMPs and voluntary mitigation activities such as restoration and revegetation of disturbed areas. DOE understands that restoration of the elevation of the RWIPL corridor is important to maintaining the topography and water elevations with respect to the growth of emergent vegetation in the freshwater impoundment and at the edges of Black Lake. It is DOE's intention to restore the elevation of the affected area in accordance with the preferences expressed by the Louisiana Department of Wildlife and Fisheries (LDWF), with a tolerance of approximately $\pm$ 6 inches of the baseline elevation. To accomplish this, land surveying will be conducted prior to construction activities to establish the topographic baseline within the project area and to establish monitoring points within the project corridor for performance of follow up surveys during the backfill and smoothing process as well as during any administratively proscribed monitoring period. Land surveying activities conducted will be performed using established points located approximately every 250 feet apart. DOE may also utilize sonar to investigate the condition of the bottom elevation of Black Lake and the freshwater impoundment. Sonar measurements to ensure the absence of mounding would be performed after backfilling and smoothing. Though not typically conducted, if required, the bottom

	elevation of sensitive areas could be measured via sonar before and after construction activities as well as prior to 'shallowing up' an area and demobilization. These surveys to document the post-construction elevations will provide the information required to determine if additional work (smoothing or providing fill material) is required to restore the bottom elevation within the stated tolerance. ▪ To achieve LDWF's expectation regarding restoration of the project area, the construction contractor will promptly restore the RWIPL area to the pre-excavation conditions/grade (with a tolerance of approximately ± 6 inches). Spreading these sediments within the construction easement by dragging a section of pipe across the backfilled area, or similar method, will smooth the bottom surface of the lake. ▪ The shallow edges of Black Lake and the freshwater impoundment will be revegetated with indigenous species procured from reputable sources such as Beauregard Nursery or Oberlin Nursery, which obtain seed from indigenous plant sources. Any additional administratively required mitigation measures for unavoidable impacts to waters of the United States, including wetlands, will be more fully addressed in the USACE permitting process for this project, which will involve permit application review by both Federal and State resource agencies. ▪ The DOE will also implement administratively required mitigation activities imposed during the Federal Consistency Determination Review and/or the Department of Army permitting process.

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APPENDIX H: ACRONYMS

ac	Acre
AIRS	Aerometric Information Retrieval System
ASER	Annual site Environmental Report
BMP	Best Management Practices
°C	Celsius
CAA	Clean Air Act
CBC	Christmas Bird Count
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
cm	Centimeter
CO	Carbon Monoxide
CZM	Coastal Zone Management
dB	Decibels
dBA	A-weighted decibel levels
DOE	United States Department of Energy
EA	Environmental Assessment
EAC	Environmental Advisory Committee
EFH	Essential Fish Habitat
EH	Office of NEPA Policy and Compliance
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
EPCA	Energy Policy and Conservation Act of 1975
ERP	Emergency Response Plan
E1UBL5	Estuarine Subtidal Unconsolidated Bottom Subtidal Mesohaline
E1UBLh6	Estuarine Subtidal Unconsolidated Bottom Subtidal Diked/Impounded Oligohaline
E1UBLx5	Estuarine Subtidal Unconsolidated Bottom Subtidal Excavated Mesohaline
E2EM1Ph6	Estuarine Intertidal Emergent Persistent Irregularly Flooded Diked/Impounded Oligohaline
E2EM1P5	Estuarine Intertidal Emergent Persistent Irregularly Flooded Mesohaline
°F	Fahrenheit
FCD	Federal Consistency Determination
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FSOF	Floodplain Statement of Finding
ft	Feet
FWA	Floodplains and Wetlands Assessment
gal	Gallons
GIWW	Gulf Intracoastal Waterway
ha	Hectares

in	Inch
kg	Kilogram
km	Kilometer
L	Liter
LDNR	Louisiana Department of Natural Resources
Leq	Average sound level
lbs	Pounds
m	Meter
MAP	Mitigation Action Plan
mi	Mile
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NTCHS	National Technical Committee for Hydric Soils
NO_2	Nitrogen Dioxide
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWR	National Wildlife Refuge
O_3	Ozone
Pb	Lead
PM_{10}	Particulate Mater smaller than 10 microns
PPT	Parts Per Thousand
RCRA	Resource Conservation Recovery Act
ROW	Right-of-Way
RWIPL	Raw Water Intake Pipeline
RWIS	Raw Water Intake Structure
SPR	Strategic Petroleum Reserve
SPRPMO	Strategic Petroleum Reserve Project Management Office
SO_2	Sulfur Dioxide
TxDOT	Texas Department of Transportation
UR	Uplands Artificial Substrate
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USCG	United States Coast Guard
USDS	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Zone A	Special Flood Hazard Area inundated by the 100-year flood with no base flood elevations determined
Zone X	Areas determined to be outside the 500-year floodplain

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