



DRAFT DOE/EA-2039

Environmental Assessment for the Brine Disposal Pipeline Replacement Project associated with the Strategic Petroleum Reserve, West Hackberry Facility, Cameron Parish, Louisiana

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List of Acronyms

ACHP: Advisory Council on Historic Preservation	NOAA: National Oceanic and Atmospheric Administration
ACS: American Community Survey	NOI: Notice of Intent
APE: Area of Potential Effect	NO _x : Nitrogen Oxide
ASTM: American Society for Testing and Materials	N ₂ O: Nitrous Oxide
BMP: Best Management Practices	NRCS: Natural Resources Conservation Service
CBRA: Coastal Barrier Resources Act	NRHP: National Register of Historic Places
CBRS: John H. Chafee Coastal Barrier Resources System	NTCHS: National Technical Committee for Hydric Soils
CEQ: Council on Environmental Quality	NWI: National Wetlands Inventory
CFR: Code of Federal Regulations	OCM: Louisiana Office of Coastal Management
CGP: Construction General Permit	PM ₁₀ : Particulate Matter less than 10 Microns
CO: Carbon Monoxide	ROW: Right-of-Way
CWA: Clean Water Act	SHPO: State Historic Preservation Officer
DHHS: Department of Health and Human Services	SPR: Strategic Petroleum Reserve
DOE: Department of Energy	SPRPMO: Strategic Petroleum Reserve Project Management Office
EA: Environmental Assessment	SW3P: Storm Water Pollution Prevention Plan
EFH: Essential Fish Habitat	U.S.: United States
EFHA: EFH Areas Protected from Fishing	USACE: U.S. Army Corps of Engineers
EIS: Environmental Impact Statement	USFWS: U.S. Fish and Wildlife Service
EO: Executive Order	WH: West Hackberry
EPCA: Energy Policy and Conservation Act	WQI: Water Quality Inventory
ESA: Endangered Species Act	
FEMA: Federal Emergency Management Agency	
FIRM: Flood Insurance Rate Map	
FONSI: Finding of No Significant Impact	
FPPA: Farmland Protection Policy Act	
FFPO: Fluor Federal Petroleum Operations	
HAPC: Habitat of Particular Concern	
HDD: Horizontal Directional Drilling	
HDPE: High Density Polyethylene	
LCRP: Louisiana Coastal Resources Program	
LDEQ: Louisiana Department of Environmental Quality	
LDWF: Louisiana Department of Wildlife and Fisheries	
LEP: Limited English Proficiency	
LPDES: Louisiana Pollution Discharge Elimination System	
m ³ : Cubic Meters	
MMB: Million Barrels	
MBTA: Migratory Bird Treaty Act	
MSAT: Mobile Source Air Toxics	
NEPA: National Environmental Policy Act	
NFIP: National Flood Insurance Program	
NHPA: National Historic Preservation Act	
NMFS: National Marine Fisheries Service	

1.0 EXECUTIVE SUMMARY

The National Environmental Policy Act of 1969 (NEPA) enabled Congress to recognize that technological, social, and economic forces have a profound influence on the quality of the human environment. Thus, implementation of the NEPA requires Federal agencies to consider the environmental consequences of their proposed actions before decisions are made on those actions. The Department of Energy (DOE) procedures per the Strategic Petroleum Reserve (SPR) Project Management Office (PMO) NEPA Implementation Plan (SPRPMO O 451.1B) were developed to follow the letter and spirit of NEPA and to comply fully with the Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508). All activities on SPR facilities must have, or have had, a NEPA review to determine NEPA applicability (10 CFR 1021). Compliance with Federal statutes such as NEPA and incorporation of these statutes into DOE project planning and overview is of paramount importance per the SPRPMO Environmental Policy Statement (SPRPMO P 451.1E).

This Environmental Assessment (EA) assesses the social, economic, and environmental impacts associated with the West Hackberry Brine Disposal Pipeline Replacement Project proposed by the DOE near Hackberry, Cameron Parish, Louisiana (see Appendix A, Exhibit 1 – Vicinity Map, Exhibit 2 – Site Location Map, Exhibit 3 – Topographic Map, 1998, and Exhibit 4 – Aerial Photograph, 2013).

The purpose of this EA is to provide agency decision-makers with sufficient information and analysis to select between the preparation of an Environmental Impact Statement (EIS) or the issuance of a Finding of No Significant Impact (FONSI) for the proposed action. The proposed action includes the replacement of approximately 2.1 miles of an existing brine disposal pipeline associated with the SPR West Hackberry (WH) facility located near Hackberry, Cameron Parish, Louisiana.

The objectives of this EA are to (1) describe the purpose and need for the proposed action; (2) describe the proposed action and the no action alternative; (3) describe baseline environmental conditions along the project area; and (4) analyze the potential direct, indirect, and cumulative impacts to the environment that would result from the implementation of the proposed action or the no action alternative. This EA also provides information regarding minimization or avoidance of adverse effects to the environment associated with the proposed action as well as mitigation actions, if necessary.

2.0 PURPOSE AND NEED

2.1 PURPOSE AND NEED FOR AGENCY ACTION

2.1.1 Project Purpose

The purpose of the proposed project is to replace an existing brine disposal pipeline which is functionally obsolete. The proposed project would involve the installation of approximately 2.1 miles of 24-inch pipeline, by open cut trenching and jack and bore techniques, to replace the existing brine disposal pipeline which would remain in place but would be removed from service. The proposed brine disposal pipeline would support the activities associated with the SPR WH facility located near Hackberry, in Cameron Parish, Louisiana.

2.1.2 Project Need

The need for the proposed project is to replace the existing, aging brine disposal pipeline with a new pipeline that meets current industry standards for brine transport. The brine disposal pipeline that would be replaced is located between the SPR WH facility and the associated brine injection wells, a distance of approximately 2.1 miles. The proposed pipeline would be installed using open cut methods except at road crossings where jack and bore techniques would be utilized as needed.

2.2 BACKGROUND

The creation of the SPR was mandated by Congress through the Energy Policy and Conservation Act (EPCA) on December 22, 1975. The objective of the SPR is to provide the United States (U.S.) with crude oil should a supply disruption occur. Oil is currently stored by the SPR in salt domes/caverns along the Louisiana and Texas Gulf Coast. There are two SPR crude oil facilities in Louisiana and two SPR crude oil facilities in Texas. The current storage design capacity at the four facilities is 716 million barrels (MMB). The proposed action would occur at the WH facility in Louisiana.

The WH facility is located in Cameron Parish approximately 35 kilometers (22 miles) southwest of Lake Charles, Louisiana. The storage site covers approximately 2.29 square kilometers (565 acres) atop the WH salt dome. The WH salt dome was selected as a SPR storage site due to the location of the existing brine caverns which could be readily converted to oil storage as well as the cavern's proximity to commercial marine and pipeline crude oil distribution facilities. Development of the site was initiated in 1977 and completed in 1988. The facility utilizes 22 underground solution-mined storage caverns with a combined storage capacity of 36.09 million cubic meters (m³) or 227 MMB of oil. The facility has the capability to drawdown and deliver oil at a rate of 1.3 MMB per day.

Brine, via the brine injection wells and pipeline system, can be injected into and/or pumped out of the WH salt dome when necessary to facilitate the movement of oil. The existing brine disposal pipeline, which connects the SPR WH facility to the brine injection wells, was constructed in 1978 and is near the end of the functional lifespan of the pipeline. The existing brine disposal pipeline would remain in place but would be removed from service. Existing pipelines would be removed from the ground upon decommissioning of the WH facility at a future date. The proposed brine disposal pipeline would allow for continued brine injection operations at the SPR WH facility.

2.3 SCOPE OF ENVIRONMENTAL ASSESSMENT

The scope of this EA evaluates the social, economic, and environmental impacts associated with the WH Brine Disposal Pipeline Replacement Project proposed by the DOE. This EA has been prepared in accordance with the NEPA, CEQ regulations (40 CFR §1502.13) and DOE NEPA Guidance: *Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements, Second Edition*. The public will be afforded the opportunity to comment on this EA as the project progresses.

2.4 PUBLIC INVOLVEMENT

The DOE provided written notification of its intention to prepare this NEPA analysis to Federal, State and local government resource agencies, listed in Section 6.0, on August 2, 2016 (Appendix C – Agency Information and Correspondence). In December 2016, the DOE will additionally provide written notification and the opportunity for interested parties to comment on the draft EA. Parties expressing their interest and/or comments on the EA will receive individual responses, when appropriate, or a comment/response summary of all comments will be prepared. The comment/response summary would document each received comment and provide a corresponding response for each comment.

Electronic access to the draft EA for review and comment shall be made available on or about December 15, 2016 on the following website: www.energy.gov/nepa/nepa-documents/environmental-assessments-ea. The draft EA will also be available for review during a 30 day comment period (on or about December 15, 2016 to January 14, 2017) at the following libraries:

- Cameron Parish Library-Hackberry Branch, 983 Main Street, Hackberry, LA 70645
- Cameron Main Library, 501 Marshall Street, Cameron, LA 70631
- Cameron Parish Library-Grand Lake Branch, 10200 Gulf Highway, Lake Charles, LA, 70607
- Sulphur Regional Library, 1160 Cypress Street, Sulphur, LA 70663
- Calcasieu Parish Central Library, 301 W. Claude Street, Lake Charles, LA 70605

Concerns or comments received by the close of the 30 day comment period will be considered in preparation of the final EA. The DOE notification letter and responses to comments, received during the comment period by resource agencies and other interested parties, will be presented in Appendix C – Agency Information and Correspondence in the final EA at a later date.

2.5 DESCRIPTION OF EXISTING FACILITY

A 36-inch brine disposal pipeline was installed in 1980 as a part of the site development activities and was used exclusively for the cavern leaching process. Once the WH facility became active, the 36-inch line was no longer needed and was deactivated. The 36-inch pipeline was removed from service in January 1996 but remained in place. The original 24-inch brine disposal pipeline was installed in 1978 and connected the WH facility with the associated brine injection wells approximately 2.1 miles south of the facility. In 1996, the original 24-inch brine disposal pipeline was replaced by the current 24-inch High Density Polyethylene (HDPE) lined carbon steel brine disposal pipeline. The Right-of-Way (ROW)/corridor for the existing brine disposal pipeline is 50 feet in width and is located beneath five roadways (Black Lake Road, Johnny Benoit Road, West Main Street/LA 390, Johnson Lane and Maggie Hebert Road), residential lawns, pasturelands, wetland areas and open water habitats associated with Browns Lake.

3.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

3.1 PROPOSED ACTION AND ACTION ALTERNATIVES

The proposed action would involve the installation of approximately 2.1 miles of 24-inch pipeline to replace the existing brine disposal pipeline which would remain in place but would be removed from service. The proposed pipeline would be installed using open cut trenching methods except at road crossings in which jack and bore techniques would be utilized as needed. The proposed brine disposal pipeline would connect the SPR WH facility with the brine injection wells located south of the facility.

The proposed project would be constructed within the proposed 50 foot ROW immediately adjacent to the existing 50 foot ROW to provide a 100 foot perpetual pipeline ROW. Additionally, a 25 foot temporary construction ROW along the entire length of the project corridor would be necessary to implement the proposed project as designed (see Appendix A, Exhibit 8 – Project Design Layout). The proposed brine disposal pipeline would be constructed within the general corridor of the existing brine disposal pipeline (immediately east or west of the existing pipeline) except near Johnson Lane. Moving southward from the WH facility, the existing pipeline ROW curves west between two residential structures immediately south of Johnson Lane. The proposed pipeline ROW would curve east near the end of Johnson Lane and realign with the existing pipeline corridor south of the two residential properties located south of Johnson Lane (see Appendix A, Exhibit 8 – Project Design Layout). The proposed pipeline would then follow the existing pipeline corridor to the brine injection wells. The proposed pipeline would be installed beneath four roadways (Black Lake Road, Johnny Benoit Road, West Main Street/LA 390 and Maggie Hebert Road), residential lawns, pasturelands, wetland areas and open water habitats associated with Browns Lake.

3.2 NO BUILD ALTERNATIVE

The No Build alternative would not facilitate upgrades to the existing aging brine disposal pipeline. Eventually, the use of the existing brine disposal pipeline would be discontinued and would need to be replaced. As the pipeline ages consistently along the 2.1 mile length, repair of selected areas of the existing pipeline is not an option. Without the brine disposal pipeline, the oil in the salt caverns could not be moved or circulated as needed.

3.3 ALTERNATIVES CONSIDERED BUT ELIMINATED

Several action alternatives were considered but later eliminated from analysis. The first action alternative evaluated but eliminated from consideration involved the removal of the existing brine disposal pipeline and the installation of the proposed brine disposal pipeline in the same location as the existing pipeline. This alternative was eliminated from further study as the existing brine disposal pipeline needs to remain in operation during the installation of the proposed brine disposal pipeline. This alternative would create a situation in which the SPR WH facility would have no brine disposal capabilities for an extended period of time. This situation would prevent the SPR WH facility from moving any petroleum products, as needed, during construction of the proposed pipeline.

The second action alternative evaluated but eliminated from consideration involved the installation of the proposed brine disposal pipeline along the existing pipeline alignment for the entire length of the project. This alternative was eliminated from further study as additional

ROW between two residential structures south of Johnson Lane was not available to construct the proposed brine disposal pipeline as originally configured.

The third action alternative evaluated but eliminated from consideration involved open cut pipeline installation methods along the entire length of the proposed brine disposal pipeline, including road crossings. This technique would result in road closures and detours within the proposed project area. The open cut method along the entire length of the proposed pipeline was eliminated from further consideration as there is no available detour route which would allow access to residential properties, and the Cameron Parish Solid Waste Collection Site, east of the pipeline alignment on Maggie Hebert Road.

The fourth action alternative evaluated but eliminated from consideration involved the use of Horizontal Directional Drilling (HDD) at road crossings and environmentally sensitive areas. HDD consists of a pipeline installation method using a wet drilling method (involving the use of water and bentonite, a non-toxic, non-hazardous natural clay material). The water and bentonite are mixed to form a drilling fluid which lubricates a drill bit as a horizontal hole is drilled beneath, for example, a roadway. The pipe is pushed through the hole without impacts to the surface of the soil aside from the HDD entrance and exit holes. Drilling spoils are removed from the drilling area at the entrance hole and stockpiled for replacement when the drilling activity is completed. Excess drilling spoil would be placed atop the construction area and graded so that pre-construction grades would be maintained. The HDD method was eliminated as an option for the placement of the new brine disposal pipeline as the pipe would require an internal concrete lining which could crack during the HDD installation process. In other words, due to the internal concrete lining, the pipe lacks the flexibility to be installed using the HDD method.

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

PHYSICAL RESOURCES

4.1 LAND USE

4.1.1 Existing Conditions

The alignment of the proposed action is located primarily within pastureland utilized for cattle and horses. The proposed brine disposal pipeline would be located beneath roadways, maintained lawns associated with private residential land, wooded areas within and adjacent to the Hackberry Recreation Area (Cameron Parish Park), Browns Lake and the SPR WH facility. Mixed residential and pastureland borders the project area generally to the east and west. The proposed project area is bordered to the north by the WH facility and is generally bordered to the south by Browns Lake. Additionally, the brine disposal pipeline replacement project is located approximately 0.6 mile north of the Sabine National Wildlife Refuge which is discussed in Section 4.15 – Parks and Managed Areas.

4.1.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on the land uses (pastureland, lawns, wooded areas, wetland areas, water areas, etc.) within or adjacent to the proposed project area.

4.1.3 Environmental Consequences – Build Alternative

The proposed action would be located within pastureland, residential areas, wooded/parkland, wetlands and open water areas. The installation of the proposed brine disposal pipeline represents a short-term disturbance to the properties through which the pipeline would be placed. Physical impacts would be temporary in the form of an open trench (open cut method) and side cast soils. Following installation of the pipeline, the trench would be backfilled. Excess drilling spoil would be placed atop the construction area and graded; pre-construction grades would be maintained following completion of the pipeline installation process. Wooded areas east and southeast of Johnson Lane would be impacted in that a limited number of mature trees would be cleared along the pipeline ROW for the installation of the proposed pipeline. Trees to be cleared would be located on private properties as well as within the boundary of the Hackberry Recreation Area.

Jack and bore techniques would be used to bore beneath four roadways. Wetland areas and Browns Lake would be open cut to facilitate the installation of the proposed brine disposal pipeline to the WH injection well site. The open cut trenching and pipeline installation in these areas would be conducted in rapid succession to minimize the time in which the open trench is exposed to the elements of wind action, rainfall, erosion, wave action, tidal action, etc. Side cast soils would be placed in the trench once the pipeline has been installed.

Due to the temporary nature of the proposed pipeline installation, the Build alternative would not result in anticipated long-term environmental consequences on the land use areas within or adjacent to the proposed pipeline ROW aside from the removal of mature trees within the ROW. Short-term impacts along the proposed pipeline ROW may include temporary disturbances to the

soil surface, including the potential erosion of disturbed surfaces and run-off. Erosion control measures would be implemented to eliminate or minimize sediment run-off into sensitive areas such as wetlands or Browns Lake. Pipeline installation activities may temporarily increase sediment disturbances in Browns Lake. The short duration of the pipeline installation process through Browns Lake and the use of specialized construction techniques in water environments would minimize total suspended solids/sediments in the water during the trenching activities and installation of the pipeline.

4.2 RELOCATIONS AND RIGHT-OF-WAY ACQUISITIONS

4.2.1 Existing Conditions

The implementation of the proposed action would be located within existing and proposed pipeline ROW areas. An additional 50 feet of permanent ROW would be required along the entire length of the proposed brine disposal pipeline and would be combined with the existing 50 foot pipeline ROW for a 100 foot perpetual pipeline ROW. The permanent ROW would be required to the east of the existing pipeline alignment along the SPR WH facility, then would switch to the west of the existing alignment south of the SPR WH facility (south of Black Lake Road). The proposed ROW would remain west of the existing alignment until immediately north of Johnson Lane. At this location, the existing alignment curves southwest and travels between two residential structures prior to turning southeast to return to the original due south alignment (see Appendix A, Exhibit 8 – Project Design Layout). Insufficient ROW between the two residential structures does not allow for the proposed alignment to follow the existing pipeline alignment immediately south of Johnson Lane.

The proposed alignment curves southeast, south, southwest, then due south to avoid the residential structures near Johnson Lane. Relocating the proposed brine disposal pipeline to avoid the residential structures places the proposed pipeline alignment within the Hackberry Recreation Area (Cameron Parish Park). South of the residential structures the proposed pipeline ROW is located immediately west of the existing alignment to the brine injection wells.

A proposed temporary construction ROW would include a 25 foot easement which follows the proposed permanent ROW along the entire length of the proposed pipeline alignment (see Appendix A, Exhibit 8 – Project Design Layout).

4.2.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on the proposed pipeline relocation or acquisition of permanent ROW throughout the project area.

4.2.3 Environmental Consequences – Build Alternative

Temporary use during construction and permanent ROW acquisition would result from the implementation of the proposed project; property owners would be compensated for such land acquisitions. No residential or business relocations or displacements would result from the implementation of the proposed project and the property acquired could still be utilized as, for example, pastureland after the installation of the proposed brine disposal pipeline.

The Build alternative would not have any environmental consequences on relocations/displacements within or adjacent to the proposed project ROW as no relocations/displacements are required for the proposed action. The acquisition of land for areas

of the new permanent pipeline ROW would be handled on a per property basis by the DOE's designated acquisition team; land owners would be compensated for acquired ROW.

4.3 SOILS/PRIME AND UNIQUE FARMLANDS

4.3.1 Existing Conditions

According to the Natural Resources Conservation Service (NRCS) *Web Soil Survey*, land in the vicinity of the proposed project area consists of nearly level soils and somewhat poorly drained to very poorly drained soils which are all considered hydric soils by the National Technical Committee for Hydric Soils (NTCHS). The NRCS has listed the majority of the soil map units within the proposed project area as prime farmland. More specifically, the soils in the project area are mapped as Crowley-Vidrine complex (0 to 1 percent slopes), Ged mucky clay, Gentilly Muck (0 to 0.5 percent slopes) frequently flooded, Edgerly loam (0 to 1 percent slopes), and Mowata-Vidrine complex (0 to 1 percent slopes). Appendix A, Exhibit 5 – Soils Map, depicts the following soils as mapped by the NRCS *Web Soil Survey* (the letters in parenthesis below represent the soil types on the Appendix A, Exhibit 5 – Soils Map). See Appendix D – Supporting Documentation for the Custom Soil Report from the NRCS *Web Soil Survey*. Soils within the proposed brine disposal pipeline project area include the following:

- Crowley-Vidrine complex, 0 to 1 percent slopes (Cw)
Crowley-Vidrine complex soils have an average slope of 0 to 1 percent. This soil is somewhat poorly drained with very high runoff and a high water storage capacity. Included in mapping with this soil type are Crowley and similar soils (55 percent), Vidrine and similar soils (35 percent) and minor components (10 percent).

The Crowley-Vidrine complex is listed as a hydric soil by the NTCHS and a prime farmland soil by the NRCS.

- Ged mucky clay (GB)
Ged mucky clay has an average slope of 0 to 1 percent. This soil is very poorly drained, has a high water storage capacity and is frequently flooded. Included in mapping with this soil type are Ged and similar soils (80 percent) and minor components (20 percent).

Ged mucky clay is listed as a hydric soil by the NTCHS but is not designated as a prime farmland soil by the NRCS.

- Gentilly muck, 0 to 0.5 percent slopes, very frequently flooded (GC)
Gentilly muck has an average slope of 0 to 0.5 percent. This soil is very poorly drained, has a high water storage capacity and is very frequently flooded. Included in mapping with this soil type are Gentilly and similar soils (80 percent) and minor components (20 percent).

Gentilly muck is listed as a hydric soil by the NTCHS but is not designated as a prime farmland soil by the NRCS.

- Edgerly loam, 0 to 1 percent slopes (Mr)
Edgerly loam has an average slope of 0.1 percent. This soil is poorly drained, has a high water storage capacity and is rarely flooded. Included in mapping with this soil type are Edgerly and similar soils (82 percent) and minor components (8 percent).

Ederly loam is listed as a hydric soil by the NTCHS and a prime farmland soil by the NRCS.

- Mowata-Vidrine complex, 0 to 1 percent slopes (Mt)
Mowata-Vidrine complex soils have an average slope of 0.1 percent. This soil is poorly drained, has a high water storage capacity and is rarely flooded. Included in mapping with this soil type are Mowata and similar soils (60 percent), Vidrine and similar soils (30 percent) and minor components (10 percent).

Mowata-Vidrine complex is listed as a hydric soil by the NTCHS and a prime farmland soil by the NRCS.

Table 1: Soil Descriptions in the Project Area, depicts the soil types, drainage class, average slopes, and hydric and prime farmland classifications.

Table 1: Soil Descriptions in the Project Area				
Soil Type	Drainage Class	Average Slope	Hydric	Prime Farmland
Crowley-Vidrine complex (Cw)	Somewhat Poorly Drained	0 to 1 percent	Yes	Yes
Ged mucky clay (GB)	Very Poorly Drained	0 to 1 percent	Yes	No
Gentilly muck (GC)	Very Poorly Drained	0 to 0.5 percent	Yes	No
Ederly loam (Mr)	Poorly Drained	0 to 1 percent	Yes	Yes
Mowata-Vidrine complex (Mt)	Poorly Drained	0 to 1 percent	Yes	Yes

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to non-agricultural uses. The FPPA stipulates that Federal programs be compatible with State, local and private efforts to protect farmland. Prime farmland soils have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. In general, prime farmland soils experience adequate and dependable precipitation, a favorable temperature and growing season, have acceptable acidity or alkalinity, and have few or no surface stones. Prime farmland soils are permeable to water and air. These soils are not excessively erodible or saturated with water for long periods of time. Three soil map units which are classified as prime farmland soils are located within the project area (see Table 1 and Appendix D – Supporting Documentation).

4.3.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on soils, including prime farmland soils, throughout the project area.

4.3.3 Environmental Consequences – Build Alternative

Potential adverse effects to soils may include accidental spills or contamination from equipment utilized for the proposed brine disposal pipeline installation activities. Contractors would have Best Management Practices (BMPs) in place to limit the potential for contamination of soils resulting from construction activities. The proposed project would involve jack and bore techniques and open trenching for the installation of the proposed pipeline; however, the area would be backfilled and returned to pre-construction grades after completion of the pipeline installation activities. The Build alternative would not have any long-term environmental

consequences on the composition of the soils, including prime farmland, throughout the project area.

4.4 GEOLOGY

4.4.1 Existing Conditions

The proposed project lies within the Gulf Coastal Plain geomorphic province and is immediately underlain by sediments deposited during the Holocene and late Pleistocene epochs of the Quaternary period. The WH brine disposal pipeline project area is located atop the Holocene age Chenier Plain. Cheniers are ridges of the coastal plains region of southwestern Louisiana. Cheniers were formed as a result of gulf beach ridges which were isolated inland by the changing deltaic flow processes of the Mississippi River. Near surface prairie soils were deposited in the late Pleistocene epoch atop older Pleistocene marine silts and sands. Holocene age coastal marsh deposits are present in the area of the WH site. The resultant soils at the WH site consist of silt and sandy silt, underlain by desiccated clay as well as sand and silt originating from the late Pleistocene prairie soil formation.

The Gulf Coast Geosyncline developed during the early Mesozoic period at which time Louann Salt was deposited. The Louann Salt serves as the salt layer of origin for the salt domes at the WH site. Salt dome complexes are located throughout southern Louisiana and are usually 1-3 miles in diameter. A salt dome consists of a mound or column of salt that extends upwards toward the layers near the soil surface but rarely reach the surface. Salt domes may rise hundreds or thousands of feet from the salt layer of origin; pressure causes the salt to rise. Some salt dome complexes may have a local effect on groundwater flow and/or water quality. Coastal subsidence has occurred around the WH salt domes which is reflected by the presence of Black Lake and other relatively shallow coastal lakes in southwestern Louisiana.

Oil, gas and salt are the only potentially economic mineral resources in the general project area. The proposed project would be constructed adjacent to the existing brine disposal pipeline alignment and would not impact mining or exploration activities.

4.4.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on the local geology throughout the project area.

4.4.3 Environmental Consequences – Build Alternative

The Build alternative would not have any anticipated environmental consequences on the local geology throughout the project area. Surface soils would be disturbed by trenching or jack and bore activities but would be replaced following completion of the construction activity.

4.5 WASTE MANAGEMENT/HAZARDOUS MATERIALS

4.5.1 Existing Conditions

A site assessment was conducted to identify potential waste management and hazardous materials sites located within the project area based on the following project activities (see Appendix B – Site Photographs and Appendix E – Regulatory Search Database Results and Historic Documents):

- Proposed open cut trenching and
- Proposed pipeline installation (using open cut trenching and jack and bore techniques).

The initial site assessment consisted of the following actions:

- Visual observations of the proposed project area and adjacent areas were conducted in the field for evidence of hazardous substances and/or contamination,
- Research of existing and previous land uses (see Appendix A, Exhibit 3 – Topographic Map, 1998; Exhibit 4 – Aerial Photograph, 2013; and Appendix E – Regulatory Search Database Results and Historic Documents) including potential hazardous material litigation, and
- Review of Federal and State regulatory databases/lists based on the American Society for Testing and Materials (ASTM) E1527-13 level or equivalent documentation (ASTM E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process).

A Regulatory Database Search commissioned to identify releases or threatened releases of petroleum products or other hazardous substances within the search radius specified in ASTM Standard E1527-13 was conducted within the proposed pipeline project area as part of this investigation (see Appendix E – Regulatory Search Database Results and Historic Documents). No evidence of contamination within the project area was identified in the Regulatory Database Search for this area; however, potential hazardous material records were identified adjacent to the project area. The proposed project is located in a mixed use rural area consisting of residential and pastureland areas as well as the SPR WH facility and similar properties generally near the northern project limits (see Appendix B – Site Photographs).

The Regulatory Database Search identified a total of 51 potential hazardous material records, including two listed as orphan sites, within the search radius specified in ASTM Standard E1527-13, for the brine disposal pipeline replacement project. Orphan records are records that are considered unmappable and/or lack sufficient data to provide location information; the orphan records were not identified in field investigations of the project area.

The records reviewed in the Regulatory Database Search did not indicate any potential hazardous waste issues/contamination at any identified facility immediately adjacent to the project area. A total of 49 locatable potential hazardous material records were identified within the standard ASTM search radius and are listed in the following table, Table 2: Regulatory Database Search Results.

Table 2: Regulatory Database Search Results		
Database Name (Acronym)	Records Identified	Search Radius (miles)
Resource Conservation & Recovery Act – Generator Facilities (RCRAGR06)	1	0.125
No Longer Reported Underground Storage Tanks (NLRUST)	1	0.250
Superfund Enterprise Management System Archived Site Inventory (SEMSARCH)	1	0.500
Approved Hurricane Debris Dump Site (ADS)	1	0.500
Recycling Facilities (RCY)	1	0.500
Waste Pits (WP)	44	0.500
Total	49	---

The Regulatory Database Search revealed 49 identifiable properties as potential hazardous material sites which included 44 waste pit sites, one recycling facility, one approved hurricane

debris dump site and three additional potential hazardous material sites (associated with the SPR WH facility). The waste pits consist of abandoned non-hazardous waste pits and facilities that have the potential to initiate an oil spill and are primarily associated with permitted oil and/or gas wells. The entrance road to the approved hurricane debris dump site and recycling facility is located approximately 0.35 mile southeast of the southern project limits; however, the actual facilities are located approximately 0.70 mile southeast of the southern project limits. The SPR WH facility consists of a conditionally exempt small quantity generator, maintains one underground storage tank (no longer reported) and was evaluated then determined that the facility would not qualify as a Superfund site. All potential hazardous materials sites identified within the ATSM search radius are listed above in Table 2: Regulatory Database Search Results and in Appendix E – Regulatory Search Database Results and Historic Documents. No indication of contamination adjacent to the proposed pipeline corridor was revealed through the Regulatory Database Search Results or field visits to the project area.

An Oil & Gas Detailed Report, investigating oil and gas wells in the general project area, was reviewed as part of this investigation as historic oil and gas production activities were located in the vicinity of the proposed project (see Appendix E – Regulatory Search Database Results and Historic Documents). A total of 138 permitted oil and/or gas well locations were identified within a 0.5 mile search radius of the project area. The 138 locations may include active oil wells, plugged oil wells, dry holes, permitted locations, canceled locations, injection/disposal wells and storage wells. No active oil and/or gas wells are located within the proposed brine disposal pipeline ROW; however, several permitted well locations are located adjacent to or in close proximity to the project area. None of the nearby wells would be impacted by the proposed project or result in a likely impact to the proposed brine disposal pipeline project.

Overhead electrical power lines were observed within the project area along the following roadways: Black Lake Road, Johnny Benoit Road, West Main Street/LA 390 and Johnson Lane. Pole-mounted transformers were observed adjacent to the project area along Johnny Benoit Road and Johnson Lane. No evidence of leaks or stains was observed on the transformers, poles or the ground beneath the transformers. Overhead electrical power lines, located west of the proposed pipeline corridor along the south side of West Main Street/LA 390, traverse pastureland southward and continue southward through a cleared electrical easement through the Hackberry Recreation Area prior to connecting to similar electrical lines along Maggie Hebert Road, east of the proposed pipeline corridor. The proposed brine disposal pipeline alignment would pass beneath the overhead electrical power lines within the Hackberry Recreation Area.

Surface markers for subsurface pipelines were observed in the field; additional pipeline and/or utility corridors/alignments would be investigated as part of the pre-construction phase of this project.

4.5.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on identified waste management or hazardous materials sites throughout the project area.

4.5.3 Environmental Consequences – Build Alternative

No standing structures are located within the project ROW; therefore, asbestos or lead-based paints are not anticipated to be impacted by the proposed project. Asbestos and lead-based paint inspections, specifications, notification, abatement and disposal would not be applicable for the proposed project. No evidence of contamination was observed on reviewed aerial photographs or topographic maps, the Regulatory Database Search, Oil and Gas Report or site investigations for the proposed project area. Additional pipeline and/or utility corridors (aerial or subsurface) would be investigated as part of the pre-construction phase of this project.

Excavation to a depth of approximately 7-12 feet would be required to install the proposed brine disposal pipeline. At this depth, there is a low risk of impact from potential waste management and/or hazardous material sites along the pipeline corridor. Due to the low risk of potential hazardous material concerns along the pipeline corridor or on adjacent properties, intrusive hazardous material investigations are not warranted for the proposed project area. The Build alternative would not have any anticipated environmental consequences on waste management or hazardous materials throughout the project area.

Construction contractors would take appropriate measures to prevent, minimize and control the spill of hazardous materials in staging areas once construction begins. The use of construction equipment within sensitive areas of the project corridor (i.e., the crossing of wetland areas and Browns Lake) would be minimized to the extent practicable. All construction materials used for this project would be removed as soon as possible upon completion of the pipeline installation work in any given area.

WATER RESOURCES

4.6 FLOODPLAIN ASSESSMENT AND DRAINAGE

4.6.1 Existing Conditions

According to the Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map, FIRM Panel Number 22023C0375H, dated 2012, all but six areas of the proposed brine disposal pipeline ROW are designated within the 1% Annual Chance Flood Hazard of the Gulf Intracoastal Waterway floodplain (see Appendix A, Exhibit 6 – Floodplain Map). Land within the 1% Annual Chance Flood Hazard refers to areas determined to be in special flood hazard areas inundated by the 100-year flood. Four areas are located in areas within the 0.2% Annual Chance Flood Hazard (500-year floodplain) and two areas are designated to be outside of the 500-year floodplain. Cameron Parish is a participant in the National Flood Insurance Program. Since the proposed project would occur within a floodplain, the 10 CFR 1022 requirement to prepare a Floodplain Statement of Findings is applicable (see Appendix D – Supporting Documentation).

Topography in the proposed project area is relatively flat, due to the close proximity to the Gulf of Mexico, but ranges from 5 to 15 feet above mean sea level. Generally, the northern project limits at the SPR WH facility are higher in elevation than the brine injection wells near the southern project limits. Stormwater and local runoff flow into roadside drainage ditches and a wetland area contiguous with Browns Lake; this wetland area is located immediately north of and parallel to Maggie Hebert Road. The wetland area flows generally eastward then southward

into Browns Lake which is located near the southern project limits. Low areas on the landscape within and adjacent to the proposed brine disposal pipeline ROW collect and hold stormwater and local runoff; several of these areas are utilized as stock tanks for cattle in pasturelands.

4.6.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on the floodplain or drainage areas throughout the project area.

4.6.3 Environmental Consequences – Build Alternative

The proposed brine disposal pipeline generally follows the alignment of the existing brine disposal pipeline. Avoidance of floodplains, with the exception of the No Build Alternative, is not possible as areas of the existing pipeline alignment are located within the 100-year floodplain of the Gulf Intracoastal Waterway. Construction in the floodplain would be limited to open trenching along the proposed alignment and jack and bore techniques beneath roadways. Side cast soils resulting from the trenching activities would be temporary. Construction areas would be returned to the pre-construction grade after the implementation of the proposed project; therefore, no impacts to local drainage or the storage capacity within the floodplain would occur. The Build alternative would not have any permanent environmental consequences on the floodplain or drainage function throughout the project area.

4.7 SURFACE WATER QUALITY

4.7.1 Existing Conditions

The principal waterbody associated with the proposed project is Browns Lake which is located in the Lower Calcasieu Watershed (Hydrologic Unit Code 08080206) and more specifically the Black Lake Bayou-Alkali Ditch Subwatershed (Hydrologic Unit Code 080802060406). The Lower Calcasieu Watershed is 1,140,025.6 acres in size while the Black Lake Bayou-Alkali Ditch Subwatershed is 27,236.7 acres in size. The proposed pipeline ROW would be placed adjacent to the existing pipeline ROW within Browns Lake and wetland areas associated with Browns Lake. Coastal waterbodies, such as Browns Lake and adjacent wetlands, are influenced by rainfall, tides, tropical storms and hurricanes. Several other lakes, canals, freshwater impoundments and waterbodies exist within the region but would not be affected by the proposed project.

The Louisiana Department of Environmental Quality (LDEQ) routinely collects data from surface water quality monitoring sites on the classified segments within each Louisiana watershed. As required under Sections 303(d) and 304(a) of the Federal Clean Water Act (CWA), this list identifies the waterbodies in or bordering Louisiana for which effluent limitations are not stringent enough to implement water quality standards, and for which the associated pollutants are suitable for measurement by maximum daily load. Pursuant to these Acts, the LDEQ has developed a Water Quality Inventory (WQI) and 303(d) List which classifies waterbody segments and whether these classified segments are impaired or threatened based on ambient water quality and how each segment compares to State water quality standards. Only classified waterbodies are subject to monitoring by the State for water quality; however, Browns Lake was not classified in the 2014 Louisiana WQI Integrated Report. Black Lake (subsegment LA030403_00) is the nearest classified waterbody to the project area. Recent data from the 2014 Louisiana WQI Integrated Report indicates that Black Lack is not an impaired or

threatened waterbody and the quality of the water fully supports swimming, boating and fishing (see Appendix D – Supporting Documentation).

Pursuant to Section 402 of the CWA, under LDEQ regulations for implementing the Louisiana Pollutant Discharge Elimination System (LPDES), this project could require a Construction General Permit (CGP), and the preparation of a Storm Water Pollution Prevention Plan (SW3P). Land-disturbing activities can produce downstream impacts to non-permitted outfalls, ditches, storm water management devices, and their eventual receiving waters as a result of the physical transport of erodible soils when exposed to rainfall. Small construction sites and activities producing potentially affected run-off have a separate regulation and permitting focus. The primary contaminant is suspended solids loading; however, other construction-related and construction-problematic contaminants are also addressed. The Federal program is used in those states without NPDES primacy and the State programs follow the current federal General Permit in language and scope. Temporary and long-term water quality impacts are not anticipated as a result of the proposed project as the LDEQ's recommended BMPs would be implemented to prevent any degradation to water quality as a result of this proposed project. BMPs consistent with the SPR Pollution Prevention Plan (Publication ASL5400.41), Version 10.0 (08-02-16), would address erosion control, sedimentation control, and post-construction total suspended solids.

Pollution from stormwater would be minimized through adherence to requirements detailed in the project contract and scope of work. Construction activities of the proposed project would include temporary erosion control measures to minimize impacts to water quality during construction. Such erosion control measures may include the use of silt fencing, protection barriers, hay bales, seeding or sodding of bare areas, or other suitable means of erosion/sediment containment. Where appropriate, temporary erosion control structures would be built before construction begins and maintained during construction. Vegetation, including trees, would be cleared only as needed and clearing activities may be phased to maintain soil integrity and minimize exposure of an erosive surface. When construction is completed, disturbed areas would be restored to pre-construction grade and reseeded as needed.

4.7.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on surface water quality throughout the project area.

4.7.3 Environmental Consequences – Build Alternative

According to the 2014 WQI Integrated Report, Browns Lake is not listed as an impaired or threatened water; therefore, no coordination with LDEQ regarding impaired waters would be necessary for the proposed project. A NOI and SW3P would be prepared prior to construction and BMPs would be in place to minimize impacts to water quality during construction. The Build alternative would not have any anticipated long-term environmental consequences on the watershed or surface water quality throughout the project area.

Potential adverse effects to surface water may include accidental spills or contamination from equipment utilized for the pipeline installation. Contractors would have BMPs in place to limit the potential for contamination of surface water resulting from construction activities.

Short-term impacts along the proposed ROW may include temporary disturbances to the soil surface, including the potential erosion of disturbed surfaces and run-off. Erosion control measures would be implemented to eliminate or minimize sediment run-off into sensitive areas such as wetlands or Browns Lake. Pipeline installation activities may temporarily increase sediment disturbances in Browns Lake. The short duration of the pipeline installation process through Browns Lake and the use of specialized construction techniques in water environments would minimize total suspended solids/sediments in the water during the trenching activities and installation of the pipeline.

4.8 WATERS OF THE U.S., INCLUDING WETLANDS

4.8.1 Existing Conditions

The approximate 2.1 mile proposed pipeline ROW from the SPR WH facility to the brine injection well site was investigated for waters of the U.S., including wetlands. Browns Lake, a waters of the U.S., is located immediately north of the brine injection wells near the southern project limits. Browns Lake and immediately adjacent wetland marsh/fringe areas were observed during field investigations of the project area (see Appendix B – Photographs). Browns Lake is not currently identified by the United States Army Corps of Engineers (USACE), New Orleans District, as a navigable water.

In the pastureland immediately north of Maggie Hebert Road and in the pastureland/wooded area north and east of Johnson Lane, the proposed pipeline ROW would cross wetland areas. Also, several well-trod, low areas within the pastureland were observed throughout the project area such as areas between West Main Street and Johnson Lane. These areas exhibit wetland characteristics (i.e., hydrophytic vegetation, soils and hydrology) though are not identified on National Wetland Inventory (NWI) maps (see Appendix A, Exhibit 7 – NWI Map). No wetlands were observed within the proposed pipeline ROW from West Main Street to the northern project limits at the SPR WH facility. Since the proposed project would occur within a jurisdictional waters of the U.S., including wetlands, the 10 CFR 1022 requirement to prepare a Wetlands Statement of Findings is applicable (see Appendix D – Supporting Documentation).

The DOE received a USACE, New Orleans District, permit for the original construction of well pads, access roadways and pipelines at the SPR WH facility under Permit No. LMNOD-SW (Cameron Parish Wetlands) 152 on March 16, 1978. A 36-inch brine disposal pipeline for the cavern leaching process was constructed as well as the original 24-inch brine disposal pipeline which connected the SPR WH facility to brine injection wells. Both pipelines were later removed from service, but remained in place. The DOE applied for and received a permit modification to LMNOD-SW (Cameron Parish Wetlands) 152 on July 6, 1995 for excavating and backfilling of 9 access pits, installation of approximately 9,000 feet of polyethylene liner inside an existing pipeline, installing 1,350 feet of 24-inch diameter pipeline, installing 1,500 feet of 24-inch diameter pipeline on pilings, excavation and installation of a private roadway conduit, and removal from service of 2,800 feet of existing 12-inch, 20-inch and 24-inch pipeline (the 24-inch pipeline was reduced to a 20-inch pipeline along the north side of Browns Lake).

4.8.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on waters of the U.S., including wetlands, throughout the project area.

4.8.3 Environmental Consequences – Build Alternative

Waters of the U.S., including wetlands, were observed within the proposed project ROW. Implementation of the brine disposal pipeline replacement project, as designed, would result in unavoidable impacts to waters/wetlands within the project limits. The DOE would submit a permit modification to Permit No. LMNOD-SW (Cameron Parish Wetlands) 152 to the USACE, New Orleans District, for the unavoidable permanent and temporary impacts to waters of the U.S., including wetlands. All permanent and temporary impacts would be calculated by utilizing the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps/data. The NWI is a geospatial database which depicts wetland and open water habitats and was developed by the USFWS to be used for management, research, policy development, education and planning activities.

The current engineering design proposes an open cut trench within Browns Lake and associated wetland areas in which the new brine disposal pipeline would be placed. Soils from waters of the U.S., including wetlands, would be temporarily placed alongside the trench (side cast soils). Construction equipment would be routed through uplands when practicable to minimize impacts to waters of the U.S., including wetlands. Side cast soils would be replaced once the installation of the proposed brine disposal pipeline is complete. All matting would be removed and the project area would be returned to pre-construction grade which would allow for unrestricted flow in open water areas and would allow for revegetation (naturally or with planted vegetation) in wetland areas resulting from temporary impacts.

The Build alternative would have anticipated environmental consequences on waters of the U.S., including wetlands, throughout the project area. The DOE would coordinate the wetland permitting process and any applicable mitigation for unavoidable impacts to waters of the U.S., including wetlands, with the USACE. No construction activities through waters of the U.S., including wetlands, would be conducted until a wetland permit is issued to the DOE by the USACE, New Orleans District. The DOE would comply with the wetland permit requirements as issued by the USACE.

4.9 GROUNDWATER

4.9.1 Existing Conditions

In southwestern Louisiana, groundwater is generally obtained from one of three aquifers: the Jasper Aquifer, the Evangeline Aquifer and the Chicot-Atchafalaya Aquifer (the Chicot Aquifer and Atchafalaya Aquifer are hydraulically continuous in the eastern extent of the aquifer range in southwestern Louisiana). The project area is underlain by the Chicot Aquifer which is part of the Coastal Lowlands Aquifer System. The Chicot Aquifer consists of a complex series of unconsolidated or poorly consolidated areas of discontinuous beds of sand, silt, and clay. In southwestern Louisiana, the aquifer consists of three separate hydrologic units referred to as the 200-foot sand, the 500-foot sand, and the 700-foot sand, based on the average depths at which these units are encountered. The 200-foot sand ranges from 50 to 100 feet in thickness and has the highest water quality of the three aquifer layers and is primarily used for domestic purposes. The 500-foot sand ranges from 170 feet to 200 feet in thickness and is the most heavily used layer of the Chicot Aquifer; this layer is used primarily as the source of industrial and public water supply. The 700-foot sand ranges from 85 to 150 feet in thickness and has been impacted by salt-water intrusion.

Recharge to the Chicot Aquifer system occurs from a variety of sources including direct infiltration of rainfall on outcrops found considerably north of the project area which could be susceptible to local surface contamination. Also, groundwater is found in interconnected sandy zones occurring both above and below the aquifer in the vicinity of the WH facility in places that have a tendency to promote vertical leakage. There are shallow waterbearing sands occurring over the WH salt dome and these shallow zones may be locally affected by surficial activities.

Seven soil borings were conducted along the proposed brine disposal pipeline alignment. Six borings were drilled to a depth of approximately 30 feet and one boring was drilled to a depth of approximately 100 feet. Groundwater, between approximately 3 to 12 feet of the soil surface, was noted on boring logs for five of the 30 foot borings; 2 boring logs did not reflect groundwater information. Based on the boring logs, the water table was estimated at 8-12 feet below grade; the groundwater level rose to 2.5-8 feet after 15 minutes of monitoring. Groundwater levels in this area of Cameron Parish fluctuates due to seasonal conditions. The installation of the proposed pipeline may or may not encounter shallow groundwater during construction activities. The construction contractor would implement BMPs as needed to protect surface water, groundwater and soils throughout the construction pipeline installation process.

4.9.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on groundwater throughout the project area.

4.9.3 Environmental Consequences – Build Alternative

Potential adverse effects to groundwater, if present, may include accidental spills or contamination from equipment utilized for the pipeline installation particularly jack and bore activities. Contractors would implement BMPs and additional environmental safeguards to limit the potential for contamination of soil and groundwater resulting from construction activities. The Build alternative would not have any anticipated environmental consequences on the groundwater resources throughout the project area as open cut trenching for the placement of the proposed pipeline is anticipated to be approximately 7 to 12 feet in depth from the soil surface in most locations; however, a maximum depth of approximately 15 feet may be necessary, for example, near existing pipeline crossings within the project limits.

NATURAL/ECOLOGICAL RESOURCES

4.10 VEGETATION AND WILDLIFE

4.10.1 Existing Conditions

Vegetation

According to the EPA's Level III Ecoregions of Louisiana, the project area is located within the Louisiana Gulf Coast Prairies and Marshes ecoregion. The area is also depicted as the Western Gulf Coastal Plain (34) which is subdivided into prairies, terraces, marshes and plains; the designation in the project area is the Texas-Louisiana Coastal Marsh (34g). The proposed pipeline project is located within existing and proposed ROW. Adjacent to the project area, the surrounding land use consists of primarily pastureland with a mixture of rural residential properties and industrial activities (see Appendix A, Exhibit 4 – Aerial Photograph, 2013). Grasses and herbaceous species dominate the project area within the pastureland. Low lying areas in pasturelands and other areas contain wetland vegetation. Additionally, wooded areas

with mature live oak trees and other trees were observed along the proposed brine disposal pipeline ROW. A list of plant species identified within or adjacent to the project area, including scientific name, common name and wetland indicator status, is presented in Appendix D – Supporting Documentation.

Wildlife

The proposed pipeline project is located primarily along an existing pipeline corridor within pastureland except for Browns Lake and associated wetland areas and a wooded area within the Hackberry Recreation Area. No barriers, displacement or fragmentation of wildlife habitat or movement would be introduced adjacent to the existing pipeline corridor within the pastureland, or Browns Lake and associated wetlands, as these areas would be returned to pre-construction grade and allowed to revegetate following installation of the proposed pipeline. Temporary effects to wildlife habitat in these areas include the decreased attractiveness of habitat adjacent to the project area in terms of temporary use or foraging.

One portion of the proposed pipeline would be located in a wooded area with numerous mature live oak trees within the Hackberry Recreation Area. The removal of such trees would be necessary to implement the proposed project as designed and the area would be permanently maintained to allow access to the proposed brine disposal pipeline. The proposed brine disposal pipeline would be installed near the western edge of an approximate 11.25 acre wooded area. This action would result in the fragmentation of habitat by creating two wooded areas (± 9.65 acres and ± 1.60 acres) which would be separated by a maintained pipeline corridor; however, this location is currently similarly fragmented by an existing roadway/trail and a pole-mounted electrical easement. An additional similar existing pipeline ROW exists south and east of Johnson Lane. Trees were cleared in this area to accommodate the development of the roadway/trail, pipeline easement and electrical easement. Clearing of the temporary ROW would be at the discretion of the contractor; the intent is to place the pipeline while minimizing disruptions to the wooded area within the ROW limits. The proposed pipeline ROW would permanently impact this wooded area due to the loss of mature trees as well as limited understory. The installation of the proposed pipeline ROW would however increase edge habitat (wooded areas and open areas) along this area of the proposed pipeline ROW.

Edge environments include two or more different types of vegetation or habitat areas. Edge environments offer wildlife species a variety of food, cover and other essential habitat requirements in close proximity which may be beneficial to species on small tracts of land. The combination of vegetation types located within the project area, including pastureland, maintained easement, mature live oaks and limited understory, create habitat for wildlife species typically found in rural settings, edge environments or near waterways. These species may include raccoons, rabbits, opossums, squirrels, mice, snakes, frogs, and a variety of birds.

4.10.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on vegetation or wildlife throughout the project area.

4.10.3 Environmental Consequences – Build Alternative

The proposed project area consists of a rural area primarily located along an existing pipeline corridor within pasturelands and small wooded areas. One area of the proposed brine disposal pipeline would increase fragmentation of an approximately 11.25 acre parcel of land; however, this area is currently fragmented by an existing roadway/trail, pipeline easement and electrical easement. Wildlife present in this area have adapted to the existing fragmentation of habitat and the additional division of habitat associated with the installation of the proposed pipeline is unlikely to permanently impact or cause displacement to wildlife species within the project area. Similar small tracts of wooded habitat are located in close proximity to the project area. The Build alternative is not anticipated to have permanent adverse environmental consequences on wildlife or the habitat within the project limits.

Permanent removal of a small area of mature live oak trees in the permanent/maintained pipeline ROW would occur; therefore, the Build alternative would have adverse environmental consequences on vegetation within the project area.

4.11 THREATENED AND ENDANGERED SPECIES

4.11.1 Existing Conditions

The Endangered Species Act (ESA) of 1973 was designed to protect critically imperiled species from extinction as a “consequence of economic growth and development untempered by adequate concern and conservation.” Through Federal action and by encouraging the establishment of State programs, the ESA provided for the conservation of ecosystems upon which threatened and endangered species of wildlife depend.

Wildlife in the project area may include those species typically found in rural, pastureland and/or wetland settings. These species may include raccoons, rabbits, opossums, nutria, squirrels, snakes, frogs, alligators and a variety of birds. The clearing of trees would occur along one area of the alignment but no additional displacement or fragmentation of habitat is expected to occur as the majority of the area within the proposed pipeline ROW consists of pastureland. The project area would be returned to pre-construction grade after the completion of the proposed project and the pipeline ROW would be allowed to revegetate (naturally or with planted vegetation).

Table 3: State and Federal Threatened and Endangered Species of Cameron Parish, describes the State and Federally listed species which are known to inhabit Cameron Parish, their habitat and whether such habitat is present within the project area.

Table 3: State and Federal Threatened and Endangered Species of Cameron Parish						
Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present	Impact/Effect
BIRDS						
Crested Caracara	<i>Caracara cheriway</i>	S1	DM†	Open areas such as prairies or rangeland with scattered trees	Yes	No Impact
Common Ground Dove	<i>Columbina passerine</i>	S1	---	Cultivated land including farms, orchards, old cane fields/clearings, roadsides and wood edges	Yes	No Impact
Brown Pelican (Nesting)	<i>Pelecanus occidentalis</i>	E	DM	Island near coastal areas	No	No Impact
Glossy Ibis	<i>Plegadis falcinellus</i>	S2	---	Prairies, fields and marshes	Yes	No Impact
Interior Least Tern	<i>Sterna antillarum athalassos</i>	E	E†	Nests along sand and gravel bars within streams and rivers, only listed when 50 miles inland	No	No Effect
Piping Plover (Wintering)	<i>Charadrius melodus</i>	T	T	Beach and bayside mud or salt flats	No	No Effect

Table 3: State and Federal Threatened and Endangered Species of Cameron Parish						
Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present	Impact/Effect
Red Knot	<i>Calidris canutus rufa</i>	SOC	T†	Intertidal marine habitats, especially near coastal inlets, estuaries, and bays. Mudflats	No	No Effect
Roseate Spoonbill	<i>Platalea ajaja</i>	S3	---	Prefers freshwater but is also known to inhabit varieties of marine and brackish waters	Yes	No Impact
Sandhill Crane	<i>Grus canadensis</i>	S1	---	Prairies, fields and marshes	Yes	No Impact
Snowy Plover	<i>Charadrius alexandrinus</i>	S1B, S2N	T†	Migrant, dry sandy or shell beaches, above high tide mark and along the coast or barrier islands	No	No Impact
Wilson's Plover	<i>Charadrius wilsonia</i>	S1, S2, S3	*	Coastal areas that are saline and thinly vegetated including salt flats, coastal lagoons, beaches and sand dunes	No	No Impact
FISHES						
Atlantic Sturgeon	<i>Acipenser oxyrinchus desotoi</i>	---	T	Anadromous species; coastal waters and estuaries and spawn in moderate flowing, cold, clean water rivers	No	No Effect
Paddlefish	<i>Polyodon spathula</i>	S4	---	Large, free-flowing rivers but is frequently found in impoundments	No	No Impact
MAMMALS						
Louisiana Black Bear	<i>Ursus americanus luteolus</i>	---	T†	Bottomland hardwoods; large, undisturbed forested areas	No	No Effect
Eastern Spotted Skunk	<i>Spilogale putoria</i>	S1	†	Forested and well covered areas are preferred, including open or brushy areas and prairie outcrops	Yes	No Impact
Red Wolf	<i>Canis rufus</i>	E	E†	Extirpated, brushy, forested areas, coastal prairies	No	No Effect
West Indian Manatee	<i>Trichechus manatus</i>	S1N	T	Gulf and bay system	No	No Effect
REPTILES						
Diamondback Terrapin	<i>Malaclemys terrapin</i>	S2	---	Seagrass beds, marshes and estuaries	Yes	No Impact
Green Sea Turtle	<i>Chelonia mydas</i>	---	T	Gulf and bay system	No	No Effect
Hawksbill Sea Turtle	<i>Eretmochelys imbricate</i>	---	E	Gulf and bay system	No	No Effect
Kemp's Ridley Sea Turtle	<i>Lipidochelys kempii</i>	---	T	Gulf and bay system	No	No Effect
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	---	T	Gulf and bay system	No	No Effect
Loggerhead Sea Turtle	<i>Caretta caretta</i>	---	E	Gulf and bay system	No	No Effect
Ornate Box Turtle	<i>Phrynosoma cornutum</i>	T	---	Open areas dominated by grasses and brushy vegetation such as prairies, grasslands, and sandy plains	No	No Impact
PLANTS						
Small Flowered Milk-Vetch	<i>Astragalus nuttallianus</i>	S2, S3	---	Coastal dune grasslands, Gulf beaches, and open areas on cheniers	No	No Impact
Blue Water Lily	<i>Nymphaea elegans</i>	S2, S3, S4	---	Pools in freshwater marshes	No	No Impact
Brookweed	<i>Samolus ebracteatus</i>	S1	---	Wet, open, disturbed areas	No	No Impact
Correll's False Dragon-head	<i>Physostegia correllii</i>	S1	---	Roadside ditches or riverbanks	Yes	No Impact
Dune Sandbur	<i>Cenchrus tribuloides</i>	S2	---	High energy Gulf beaches	No	No Impact
Elliot's Sida	<i>Sida elliotii</i>	SH	---	Saline prairie and Gulf beach habitats	No	No Impact
Florida Bully	<i>Sideroxylon reclinatum</i>	S1	---	Marsh, hammocks and shell middens	No	No Impact
Golden Canna	<i>Canna flaccida</i>	S4	---	Fresh marsh and open swamps	No	No Impact
Grapefruit Primrose Willow	<i>Ludwigia sphaerocarpa</i>	S2	---	Fresh water floatant marshes	No	No Impact
Gregg's Amaranth	<i>Amaranthus greggii</i>	S3	---	High energy beaches on the Chenier Plain and Deltaic Plain	No	No Impact
Mexican Hat	<i>Ratibida peduncularis</i>	S2, S3	---	Coastal dune grassland, Gulf beach, and disturbed areas with loose sand	No	No Impact
Narrow-leaved Puccoon	<i>Lithospermum incisum</i>	S1	---	Beach ridges with shelly-sand substrate	No	No Impact
Powdery Thalia	<i>Thalia dealbata</i>	S2, S3	---	Roadside/irrigation ditches or disturbed areas	Yes	No Impact
Punctate Cupgrass	<i>Eriochola punctate</i>	S2	---	Drainage ditches or other disturbed areas on the coast	Yes	No Impact

Table 3: State and Federal Threatened and Endangered Species of Cameron Parish

Common Name	Scientific Name	State Status	Federal Status	Habitat Description	Habitat Present	Impact/Effect
Roundleaf Scurf-pea	<i>Pedimelum rhombifolium</i>	S2, S3	---	High energy Gulf beaches and coastal dune grasslands	No	No Impact
Saltflat-grass	<i>Monanthochloe littoralis</i>	S1	---	Coastal saline mud flats and salt marshes on bay shores and behind beaches	No	No Impact
Sand Dune Purge	<i>Chamaesyce bombensis</i>	S1	---	Coastal dune grasslands and high energy beaches	No	No Impact
Sand Rose-gentian	<i>Sabatia arenicola</i>	S1	---	High energy Gulf beaches of the Deltaic Plain	No	No Impact
Sea Oats	<i>Uniola paniculata</i>	S2	---	High energy beaches and sand dunes	No	No Impact
Slim Spikerush	<i>Eleocharis elongata</i>	S3	---	Fresh marsh, especially pools in fresh marsh; lake and bayou shorelines	No	No Impact
Small's Beaksedge	<i>Rhynchospora globularis</i> var. <i>pintorum</i>	S1	---	Pine savannas and flatwoods, pond margins, swales, disturbed areas and ditches	No	No Impact
Southern Beaksedge	<i>Rhynchospora microcarpa</i>	S3	---	Savanna swales, marshes and pond shores	No	No Impact
Wand Blackroot	<i>Pterocaulon virgatum</i>	S2	---	Coastal prairie remnants	No	No Impact
Wedge-leaf Prairie Clover	<i>Dalea emarginata</i>	S2	---	Dry sandy Gulf beaches and coastal dune grassland	No	No Impact
Wedge-leaf Whitlow-grass	<i>Draba cuneifolia</i>	S1	---	Sandy substrate on cheniers in open conditions	No	No Impact
Woolly Honeysweet	<i>Tidestromia lanuginose</i>	S1	---	High energy Gulf beaches between Holly Beach and Johnsons Bayou	No	No Impact

Notes:

* These species occur on the State listing of threatened or endangered species; however, they are not federally listed at this time by the USFWS (05/18/16).

† These species are listed by the USFWS, however, they are not listed to occur within this Parish by the Lafayette office of the USFWS (2016).

--- No status listed by the LPWD or USFWS for this Parish (05/18/16).

E = endangered, T = threatened, SH = historical occurrence, I = introduced population, C = candidate species, S1 = Critically Imperiled, S2 = Imperiled, S3 = Vulnerable, S4 = Apparently Secure, S5 = Secure, DM = delisted taxon, recovered, being monitored first five years, D = delisted taxon.

Based on reconnaissance visits to the project area and a review of available data sources, such as the USFWS and Louisiana Department of Wildlife and Fisheries (LDWF) lists of threatened and endangered species, a determination was made that the proposed brine disposal pipeline replacement project would have “no effect” on Federally listed species and/or designated critical habitat. The proposed project would have “no impact” to State threatened and/or endangered species. No documented sightings of threatened and endangered species or critical habitat were identified during field visits to the project area (see Appendix D – Supporting Documentation; LDWF Rare Species for Cameron Parish; USFWS Endangered Species List for Cameron Parish).

One species (Roseate Spoonbill) listed as rare by the LDWF was observed during two field visit to the project area. This species was observed near low areas holding water within pastureland adjacent to the project area. Habitat for several additional species listed as rare by the LDWF were observed in the project area; however, such habitat is extremely common within and adjacent to the project area. Such habitat consists of roadside and irrigation ditches, prairies, fields or marshes, and brushy areas or rangeland; therefore, no critical habitat exists within or adjacent to the project area that is unique and which could not be found in other areas surrounding the proposed pipeline corridor.

The Bald and Golden Eagle Act of 1940 prohibits the taking of Bald or Golden Eagles, the destruction of their nests, or the taking of their eggs. This Act is intended to protect eagles from commercial exploitation and promote their survival. The Act prohibits anyone from taking or disturbing Bald or Golden Eagles, their nests, or eggs.

The Migratory Bird Treaty Act (MBTA) established a Federal prohibition, unless permitted by regulations, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird.” A cursory nest survey was conducted during the environmental investigations to this site. The environmental staff found no evidence of migratory bird nests. To avoid effects on migratory birds and their habitat, construction should be avoided during the peak-nesting season (March 1st through August 1st).

4.11.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on State or Federally listed rare, threatened and/or endangered species or their habitats throughout the project area.

4.11.3 Environmental Consequences – Build Alternative

The proposed project would not disturb or endanger either Bald or Golden Eagles. There is currently no suitable habitat in the immediate area of the proposed brine disposal pipeline for nesting Bald or Golden Eagles. Aside from an area of mature trees located on and adjacent to the Hackberry Recreation Area, no habitat for migratory birds was observed within the proposed project area. To comply with the MBTA, the USFWS recommends that vegetation disturbances potentially associated with construction activities be conducted so as to avoid the general nesting period from March 1st through August 31st, or that those areas proposed for disturbance be surveyed first for nesting birds, in order to avoid impacts to any migratory species. The SPR/DOE would comply with the USFWS recommendations and would take measures to avoid the take of migratory birds, their occupied nests, eggs, or young.

No suitable habitat for any State or Federally listed species and no critical habitat for species listed as rare by LDFW was observed; however, measures to avoid harm to any threatened and/or endangered species would be taken should such species be observed during construction of the proposed project. Coordination with the USFWS and LDFW to determine if any additional measures are need to be taken during the implementation of the proposed project would be conducted.

The Build alternative would not have any anticipated environmental consequences on State or Federally listed rare, threatened and/or endangered species or their habitats throughout the project area.

4.12 ESSENTIAL FISH HABITAT

4.12.1 Existing Conditions

The Magnuson-Stevens Fishery Conservation and Management Act, as amended on October 11, 1996, directs that all federal agencies, whose actions would impact Essential Fish Habitat (EFH), must consult with the National Marine Fisheries Service regarding potential adverse impacts to EFH. EFH is defined as, “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.” The EFH requirements apply to all estuarine habitats and inland of all waters, to the extent of salt-water influence. Nearby Black Lake is a brackish waterbody that is tidally influenced.

The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) EFH Mapper was utilized for the project area. No EFH, Habitat Areas of Particular Concern (HAPC) or EFH Areas Protected from Fishing (EFHA) were identified within the project area (Source: EFH Mapper, <http://www.habitat.noaa.gov/protection/efh/efhmapper/>). Browns Lake is contiguous with the Gulf Intracoastal Waterway and Calcasieu Lake which the EFH Mapper has identified as EFH for red drum, four shrimp species, three pelagics and 43 reef fish in all life stages. The proposed project area is approximately 5 miles south of the Gulf Intracoastal Waterway and approximately 4.5 miles west of Calcasieu Lake. Browns Lake is a shallow waterbody which is connected to waterbodies with designated EFH. Some fish species which are present in the Gulf Intracoastal Waterway or Calcasieu Lake may have the potential to inhabit the proposed project area, specifically near the southern project limits. As mobile species, fish within the proposed project area would be able to relocate during construction activities.

4.12.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on EFH or HAPC throughout the project area.

4.12.3 Environmental Consequences – Build Alternative

The Build alternative would occur within tidally influenced waters with no designated EFH; therefore, the proposed project would not have any anticipated impacts to designated EFH or HAPC throughout the project area.

4.13 COASTAL MANAGEMENT PROGRAM

4.13.1 Existing Conditions

The proposed project is located within a coastal Parish and within the Louisiana Coastal Resources Program (LCRP) boundary; therefore, LCRP applies to the proposed project and all actions would be coordinated with the Louisiana Office of Coastal Management (OCM). The purpose of the LCRP and Louisiana OCM is to maintain, protect, develop and restore or enhance the invaluable coastal region of the State of Louisiana. Such coastal features which occur within the proposed project area include coastal wetlands and open water habitat associated with Browns Lake. Since the proposed project is located within the LCRP boundary and because the project is a Federal action, the OCM shall review the project and issue a Federal Consistency Determination before any activity within waters of the U.S., including wetlands, can be authorized by the USACE, New Orleans District.

4.13.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on coastal resources along the Louisiana coast throughout the project area.

4.13.3 Environmental Consequences – Build Alternative

Temporary impacts, such as soil disturbance or vegetation removal, to coastal wetlands and open water areas associated with Browns Lake, would occur within the project area as a result of the open trench installation of the proposed brine disposal pipeline. Following installation of the pipeline, the area would be returned to pre-construction grade and revegetated (naturally or with planted vegetation). The DOE would comply with the wetland permit requirements as issued by the USACE.

The Build alternative would not have any anticipated long-term environmental consequences on coastal resources along the Louisiana coast surrounding the project area.

4.14 COASTAL BARRIER RESOURCES ACT

4.14.1 Existing Conditions

The Coastal Barrier Resources Act (CBRA) of 1982 designated relatively undeveloped coastal barriers along the Atlantic and Gulf Coast, which are biologically rich coastal barriers and are prone to impacts from hurricanes, as part of the John H. Chafee Coastal Barrier Resources System (CBRS). The CBRA discourages development in these areas restricting Federal expenditures and financial assistance; however, development is allowed as long as non-federal developers accept the entire cost. While areas of Cameron Parish are located within the CBRS; the project area is not located within a CBRS unit.

4.14.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on any CBRS units throughout the project area.

4.14.3 Environmental Consequences – Build Alternative

No areas within a listed CBRS unit are located within the project area; therefore, the Build alternative would not have any environmental consequences on any CBRS units throughout the project area.

4.15 PARKS AND MANAGED AREAS

4.15.1 Existing Conditions

The existing brine disposal pipeline is located adjacent to the western boundary of the Hackberry Recreation Area, a Cameron Parish Park. Due to insufficient ROW between two residential properties along Johnson Lane, a limited section of the brine disposal pipeline alignment is proposed to be located within the Hackberry Recreation Area. The proposed alignment would include a 100 foot perpetual ROW and a 25 foot temporary construction easement along approximately 800 feet of the Hackberry Recreation Area, all of which consists of a wooded area containing mature trees.

The proposed pipeline ROW exits the western edge of the Hackberry Recreational Area property and continues southward through a wetland area and pastureland west of the Hackberry Recreation Area until reaching Maggie Hebert Road, a distance of approximately 650 feet. No impacts to the Hackberry Recreation Area would occur within the 650 feet immediately north of Maggie Hebert Road.

The Sabine National Wildlife Refuge is located approximately 0.6 mile south and southwest of the southern project limits of the proposed brine disposal pipeline project. The Sabine National Wildlife Refuge is the largest coastal marsh refuge along the Gulf Coast of the U.S. totaling 124,511 acres in size, including 39,844 acres of water and 84,667 acres of marsh.

4.15.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on parks or managed areas, including the Sabine National Wildlife Refuge, throughout the project area.

4.15.3 Environmental Consequences – Build Alternative

Permanent ROW would be acquired from the Hackberry Recreation Area and a wooded area would be cleared on the Hackberry Recreation Area property as a result of the installation of the proposed brine disposal pipeline. Such acquisition and clearing activities would have no impacts to the existing function and services provided to the public by the Hackberry Recreation Area; however, impacts (e.g., the removal of mature trees and limited understory) would occur within the park property.

The Build alternative would have limited environmental consequences on the Hackberry Recreation Area as clearing activities would be minimized to the extent practicable. No environmental consequences are anticipated as a result of the implementation of the proposed brine disposal pipeline project on the nearby Sabine National Wildlife Refuge.

4.16 PERMITS/COMPLIANCE WITH OTHER REGULATIONS

4.16.1 Existing Conditions

The proposed project would consist of the installation of approximately 2.1 miles of pipeline which would connect the SPR WH facility to the brine injection wells. No additional permits would be required for the SPR WH facility; however, the permits listed in Table 4 would be required prior to installation of the proposed pipeline. In addition to the permits listed below, the DOE would coordinate with the USFWS and LDWF on threatened and endangered species and the NMFS on EFH, as applicable. Also, consultation would occur with the OCM, Louisiana State Historic Preservation Office and Native American Tribes prior to the construction of the proposed project (see Section 6).

Table 4: Major Permits for the WH Proposed Brine Disposal Pipeline Replacement Project	
Responsible Agency	Permit/Notification
Federal	
U.S. Corps of Engineers Regulatory Division	CWA Section 404 Permit Modification
State	
Louisiana Department of Environmental Quality Water Quality Division	Water Quality Certification (WQC)
	Hydrostatic Test Water Discharge General Permit (LAG670000)
	Louisiana Pollutant Discharge Elimination System (LPDES) Notice of Intent (LAR100000)
Louisiana Department of Natural Resources Office of Coastal Management	Federal Consistency Determination
Louisiana Department of Transportation	Road and Utility Crossing Permit
Local – Parish	
Cameron Parish Policy Jury	Road Crossing Permit

4.16.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on permitting throughout the project area as no permitting would be necessary.

4.16.3 Environmental Consequences – Build Alternative

Coordination with applicable agencies and required permits would be obtained prior to the onset of construction for the proposed project. Since all permits would be obtained prior to construction activities, the Build alternative would not have any environmental consequences on permitting throughout the project area.

CULTURAL RESOURCES

Cultural resources studies include the investigation of historical structures, buildings, archeological sites, districts (a collection of related structures, buildings, or archeological sites), cemeteries and objects. Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The State Historic Preservation Officer (SHPO) is a designated representative of the Louisiana Office of Cultural Development which oversees the Division of Historic Preservation and Division of Archeology; these divisions are designated and responsible for conducting Section 106 reviews. As part of the proposed project, consultation with the SHPO would be completed by the DOE to determine the project’s effect on cultural resources (see Appendix C – Agency Information and Correspondence). The review and coordination of this project would follow approved procedures for compliance with Federal laws under Section 106 of the NHPA.

4.17 HISTORIC RESOURCES

4.17.1 Existing Conditions

A review of the National Register of Historic Places (NRHP) indicated that no historically significant properties have been previously documented within the project’s Area of Potential Effect (APE). The APE for this proposed brine disposal pipeline project is the temporary and permanent ROW. The level of effort necessary to satisfy Section 106 obligations for the proposed action includes reconnaissance-level survey of the APE to identify historic-age

properties, evaluate them for eligibility for listing in the NRHP, and determine effects to historic properties. No standing structures were observed within the APE; therefore, no historic age structures exist within the APE or would be impacted by the proposed project.

4.17.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on historic resources throughout the project area.

4.17.3 Environmental Consequences – Build Alternative

No historic age structures exist within the APE; therefore, the Build alternative would not have any environmental consequences on historic resources throughout the project area.

4.18 ARCHEOLOGICAL RESOURCES

4.18.1 Existing Conditions

The pipeline project is located within proposed ROW adjacent to the existing ROW that has been previously disturbed. Historic uses and current uses for the project area include grazing of cattle and/or horses and development of areas associated with oil and gas production. Numerous oil and gas wells, well pads and pipelines have disturbed the project ROW and adjacent areas. No archeological deposits are anticipated to occur within the proposed project area. In the unlikely event that construction activities should contact archeological deposits in the project area, all work in the vicinity should cease and the SHPO would be notified for further guidance.

4.18.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on archeological resources throughout the project area.

4.18.3 Environmental Consequences – Build Alternative

The Build alternative would not have any anticipated environmental consequences on archeological resources throughout the project area.

POPULATION/COMMUNITY RESOURCES

4.19 DEMOGRAPHICS AND POPULATION GROWTH

4.19.1 Existing Conditions

Population Trends

The proposed project lies entirely within Census Tract 9702.01, Block Group 1 in Cameron Parish, Louisiana (see Appendix C – Supporting Documentation). The population of Cameron Parish has decreased 31.55 percent (3,152 individuals) between 2000 and 2010 while Census Tract 9702.01, Block Group 1 has decreased by 25.72 percent (437 individuals) between 2000 and 2010. The State of Louisiana has increased by 1.44 percent (64,396 individuals) over the same time period. Table 5: Population Trends (2000-2010) for Census Tract 9702.01, Block Group 1; Cameron Parish and the State of Louisiana, depicts the population growth/change between 2000 and 2010.

Geographic Type	Total Population 2000	Total Population 2010	Percent Growth 2000-2010	Average Annual Percent Growth 2000-2010
Louisiana	4,468,976	4,533,372	1.44%	0.13%
Cameron Parish	9,991	6,839	-31.55%	-2.87%
Census Tract 9702.01, Block Group 1	1,699*	1,262	-25.72%	-2.34%

Source: 2000 and 2010 Census Summary File 1—Texas [machine-readable data files]/prepared by the US Census Bureau, Table P001 and P1, respectively. *In 2000, Census Tract 9702.01, Block Group 1 was represented by Census Tract 9702, Block Group 2.

Age

The median age for Census Tract 9702.01, Block Group 1, adjacent to the proposed project area, is 42.9 years of age which is greater than the median age of State of Louisiana (36.0 years) and Cameron Parish (40.7 years). Table 6: Median Age in the Year 2013 for Census Tract 9702.01, Block Group 1; Cameron Parish and the State of Louisiana, denotes the median age of the population within the proposed project area compared to Cameron Parish and the State of Louisiana.

Geographic Type	Age in Years
Louisiana	36.0
Cameron Parish	40.7
Census Tract 9702.01, Block Group 1	42.9

Source: US Census Bureau, 2009-2013 American Community Survey, Table B01002.

4.19.2 Environmental Consequences – No-Build Alternative

The No Build alternative would not have any environmental consequences on demographics or the population growth throughout the project area.

4.19.3 Environmental Consequences – Build Alternative

Major hurricanes and other natural disasters have impacted the project area and Cameron Parish between 2000 and 2010. The frequency and severity of the natural disasters may have potentially led to the population decrease over that time period as some individuals may have chosen not to rebuild. The Build alternative would not have any anticipated environmental consequences on demographics or the population growth throughout the project area.

4.20 SOCIO-ECONOMIC (REGIONAL ECONOMY AND EMPLOYMENT)

4.20.1 Existing Conditions

Regional Economy

Education, health care and social assistance was the largest employment sector in the State of Louisiana and Cameron Parish and within the top three largest employment sectors for Census Tract 9702.01, Block Group 1, at 10.78 percent. The largest employment sector for Census Tract 9702.01, Block Group 1, is construction at 16.67 percent. Lake Charles and Sulphur are approximately 20 miles from the proposed project area; therefore, all employment sectors are located within a commutable distance of the project area. Table 7: Employment Status for Civilian Labor Force Population 16 Years and Older in Year 2014 for Census Tract 9702.01, Block Group 1; Cameron Parish and the State of Louisiana depicts the total population, percentages of the civilian population in various employment sectors and the unemployment rate.

Employment Sector	Louisiana		Cameron Parish		Census Tract 9702.01, Block Group 1	
	Total	%	Total	%	Total	%
Agriculture, forestry, fishing, hunting and mining	95,270	4.35	422	12.68	88	14.38
Construction	161,201	7.35	451	13.55	102	16.67*
Manufacturing	160,428	7.32	192	5.77	35	5.72
Wholesale trade	52,342	2.39	81	2.43	62	10.13
Retail trade	233,981	10.67	333	10.01	50	8.17
Transportation, warehousing and utilities	105,263	4.80	281	8.44	46	7.52
Information	31,077	1.42	48	1.44	6	0.98
Finance, insurance and real estate	103,808	4.74	70	2.10	4	0.65
Professional, scientific, management and administrative	172,182	7.85	219	6.58	55	8.99
Education, health care and social assistance	467,620	21.34*	617	18.55*	66	10.78
Arts, entertainment, recreation, accommodation and food services	203,255	9.27	120	3.61	23	3.76
Other services	103,477	4.72	111	3.34	25	4.08
Public administration	112,506	5.13	182	5.47	38	6.21
Employed	2,002,410	91.35	3,127	93.96	600	98.04
Unemployed	189,644	8.65	201	6.04	12	1.96
Total in Labor Force	2,192,054	100	3,328	100	612	100

Source: US Census Bureau, 2010-2014 American Community Survey Table C24030 and Table B23025. *Denotes the top employment sector per geographic region.

Employment

A total of 612 individuals 16 years of age or older in the labor force live within Census Tract 9702.01, Block Group 1, and the US Census Bureau, 2010-2014 American Community Survey (ACS) states that 600 of those individuals are employed. Census Tract 9702.01, Block Group 1, has an unemployment rate of 1.96 percent which is lower than both the State of Louisiana and Cameron Parish at 8.65 percent and 6.04 percent, respectively (see Table 7).

4.20.2 Environmental Consequences – No-Build Alternative

The No Build alternative would not have any environmental consequences on business, employment or other socio-economics throughout the project area.

4.20.3 Environmental Consequences – Build Alternative

Currently, the construction employment sector within Census Tract 9702.01, Block Group 1, may be inflated due to the expansion of the Cameron LNG Plant approximately 5 miles northwest of the project area. The proposed brine disposal pipeline project may have a positive impact on the local and/or regional economies in the short-term as pipeline construction crews would need temporary housing and provisions. Neither positive nor negative long-term economic impacts are anticipated as a result of the implementation of the proposed brine disposal pipeline project.

The Build alternative would not have any environmental consequences on business, employment or other socio-economics throughout the project area.

4.21 ENVIRONMENTAL JUSTICE

4.21.1 Existing Conditions

Executive Order (EO) 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires each Federal agency to “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.” The DOE defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, State, local, and tribal programs and policies.

Race and Ethnicity

The 2010-2014 ACS data for Census Tract 9702.01, Block Group 1, was analyzed to provide a comparative representation of the demographic composition of the project area. The 2010-2014 ACS data includes ethnicity composition data. Origin can be viewed as the heritage, nationality group, lineage or country of birth of the person or the person’s parents or ancestors before their arrival in the United States. People who identify their origin as Hispanic, Latino or Spanish may be any race. Table 8: Population Composition in the Year 2014 for Census Tract 9702.01, Block Group 1; Cameron Parish and the State of Louisiana provides population and ethnicity totals within the proposed project area. The following populations are US Census Bureau estimates and may not reflect the actual census data.

Table 8: Population Composition in the Year 2014 for Census Tract 9702.01, Block Group 1; Cameron Parish and the State of Louisiana									
Total Population	White	Minority Percent	Black*	Indian*	Asian*	Islander*	Other*	Two*	Hispanic**
Louisiana									
4,601,049	2,748,538	40.3%	1,468,208	25,498	74,878	1,604	7,158	64,641	210,524
Cameron Parish									
6,713	6,341	5.5%	207	0	0	0	0	25	140
Census Tract 9702.01, Block Group 1									
1,284	1,228	4.4%	0	0	0	0	0	15	41
Source: US Census Bureau, 2010-2014 American Community Survey Table B03002. Note: *The complete Census race descriptions are as follows: White alone; Black or African American alone; American Indian and Alaska Native alone; Asian alone; Native Hawaiian and Other Pacific Islander alone; Some Other Race alone; and Two or More Races. **Hispanic refers to a person of Cuban, Mexican, Puerto Rican, South or Central American or other Spanish culture or origin regardless of race.									

As defined by the CEQ report, *Environmental Justice Guidance Under the National Environmental Policy Act*, a minority population should be identified where either:

- The minority population of the affected area exceeds 50 percent; or
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

The DOE defines a minority person as individuals who are members of the following population groups:

- American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition;
- Asian or Pacific Islander: a person having origins in any of the original peoples of the Far East, Southeast Asia, Indian subcontinent or people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands;
- Black, not of Hispanic origin: a person having origins in any of the black racial groups of Africa; or
- Hispanic: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race.

Throughout the project area, as shown in Table 8, Census Tract 9702.01, Block Group 1 has a 4.4 percent minority population. According to the definition of a minority population listed above, no minority population is present within the proposed project area.

Income and Poverty

The 2010-2014 ACS developed estimates of median household income and poverty levels in each Block Group. These estimates for the proposed project area are shown in Table 9: Income in Year 2014 for Census Tract 9702.01, Block Group 1; Cameron Parish and the State of Louisiana. The following populations are US Census Bureau estimates and may not reflect the actual census data.

Geographic Type	Total Population	Population Below Poverty Line		Median Household Income
		Individuals	Percentage	
Louisiana	4,470,780	874,638	19.6%	\$ 44,991
Cameron Parish	6,661	555	8.3%	\$ 64,129
Census Tract 9702.01, Block Group 1	1,284	62	4.8%	\$ 61,974

Source: US Census Bureau, 2010-2014 American Community Survey, B19013 and B17021. ACS data are estimates; they are not actual counts. Income data is provided in 2013 inflation adjusted dollars.

The US Department of Health and Human Services (DHHS) poverty guidelines define a low-income population as a population whose median household income is at or below the poverty level. The DHHS determined the 2016 poverty level in the 48 contiguous states and the District of Columbia is \$24,300 for a family of four (see Appendix D – Supporting Documentation). No low income Block Groups exist within or adjacent to the proposed project area (see Table 9).

4.21.2 Environmental Consequences – No-Build Alternative

The No Build alternative would not have any environmental consequences on environmental justice throughout the project area.

4.21.3 Environmental Consequences – Build Alternative

As depicted in Table 8, the minority population within the project area consists of a Hispanic majority with two or more races comprising the remaining minority population. As defined by the CEQ report, *Environmental Justice Guidance Under the National Environmental Policy Act*, no minority populations exist within the project area.

As depicted in Table 9, the median household income for Census Tract 9702.01, Block Group 1 is over twice that of the Federal poverty level of \$24,300 for a family of four. The Block Group 1, which encompasses the proposed brine disposal pipeline project area, has no low income population.

The proposed project would not cause adverse human health or environmental effects, including social and economic effects on a minority population as defined by EO 12898. The implementation of the proposed project would have no permanent adverse impacts to the persons classified as minority populations or low income populations as such classifications do not exist within the project area.

The Build alternative would not have any anticipated environmental consequences on environmental justice throughout the project area.

4.22 LIMITED ENGLISH PROFICIENCY (LEP)

4.22.1 Existing Conditions

EO 13166, “Improving Access to Services for Persons with Limited English Proficiency,” requires agencies to examine the agency services, identify any need for services to those with Limited English Proficiency (LEP), and develop and implement a system to provide those services so that LEP persons can have meaningful access to agency services.

Results of a windshield survey indicate that no non-English signs, advertisements, or other posted information were present in close proximity to the proposed project area. According to the 2010-2014 ACS data, the percent of the population five years and over who speak English “Less than Very Well” in Census Tract 9702.01, Block Group 1, is 3.5 percent. Table 10: Limited English Proficiency Populations in Year 2014 for Census Tract 9702.01, Block Group 1; Cameron Parish and the State of Louisiana lists the ACS data for the population 5 years and over who speak English “Less than Very Well.”

Geographic Type	Population 5 Years & Over	Spanish Speakers	Other Indo-European Speakers	Asian & Pacific Islander Speakers	Other Speakers	Total Speakers of English Less Than Very Well	Percent of LEP Population
Louisiana	4,289,725	69,262	24,721	26,696	3,437	124,116	2.9%
Cameron Parish	6,340	41	43	0	0	84	1.3%
Census Tract 9702.01, Block Group 1	1,165	41	0	0	0	41	3.5%

Source: US Census Bureau, 2010-2014 American Community Survey Table B16004.

The Department of Justice Safe Harbor guidance recommends that if a language group in a Block Group adjacent to the project area exceeds the threshold of 5 percent or 1,000 persons, then an LEP population would exist and any Public Notices and/or any other correspondence would need to be published in English and the other language. Census Tract 9702.01, Block Group 1, has an LEP population of 3.5 percent (41 individuals); therefore, no LEP population exists within or adjacent to the project area.

4.22.2 Environmental Consequences – No-Build Alternative

The No Build alternative would not have any environmental consequences on LEP populations throughout the project area.

4.22.3 Environmental Consequences – Build Alternative

According to the census data, no LEP population is present within the general area of the proposed project; therefore, any Public Notices and/or any other correspondence would need to be published in English only. The Build alternative would not have any anticipated environmental consequences on the LEP population throughout the project area.

4.23 PUBLIC FACILITIES AND SERVICES

4.23.1 Existing Conditions

The proposed project area is located west of the town of Hackberry and in an area dominated by pastureland utilized for cattle and horses. The proposed alignment would be located beneath roadways, maintained lawns associated with private residential land, wooded areas within and adjacent to the Hackberry Recreation Area (Cameron Parish Park), Browns Lake and the SPR WH facility. Several public facilities and services are located within one mile of the project area including a park, wildlife refuge, recycling center, recreation center and cemetery (see Table 11).

Table 11: Public Facilities Within One Mile of the Project Area				
Facility Name	Facility Type	Distance to ROW feet/miles	Direction	Impact
Hackberry Recreation Area	Park	Within/Adjacent to ROW	East	Impact – Removal of mature trees along the proposed pipeline ROW.
Cameron Parish Solid Waste Collection Site	Recycling Center	1,998.11 feet/0.38 miles	Southeast	No impact
Sabine National Wildlife Refuge	Wildlife Refuge	3,188.1 feet/0.60 miles	South/Southwest	No impact
Hackberry Recreation Center	Recreation Center	4,108.1 feet/0.78 miles	East	No impact
Hackberry Cemetery	Cemetery	5,118.32 feet/0.97 miles	East	No impact

Additional public facilities and services are located in Hackberry (over one mile east of the project area) and include a high school, community center, fire department, church, cemetery, library, etc.

4.23.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on public facilities or services throughout the project area.

4.23.3 Environmental Consequences – Build Alternative

The pipeline alignment is proposed along approximately 800 feet of the western edge of the Hackberry Recreation Area resulting in the clearing of park land for the proposed pipeline installation. Numerous mature trees and understory vegetation would be removed in this area. The removal of such trees would have no adverse effect to the activities, features or attributes qualifying the area as a park. No other public facility or service would be impacted as a result of the proposed brine disposal pipeline project. The Build alternative would not contribute to any additional anticipated environmental consequences on public facilities or services throughout the project area.

4.24 PUBLIC HEALTH AND SAFETY

4.24.1 Existing Conditions

The existing brine disposal pipeline poses no impacts to the public health or safety of the residential properties in close proximity to the pipeline. The proposed brine disposal pipeline would transport the same brine concentration as the existing pipeline and would be manufactured and installed using current pipeline industry standards.

4.24.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on public health and safety issues throughout the project area.

4.24.3 Environmental Consequences – Build Alternative

The Build alternative would not have any anticipated environmental consequences on public health and safety issues throughout the project area.

4.25 TRANSPORTATION AND DETOURS

4.25.1 Existing Conditions

The proposed project is located in a rural area in which the roadways are utilized for local traffic including limited truck traffic. The proposed brine disposal pipeline would be constructed beneath four roadways within the general project area including Black Lake Road, Johnny Benoit Road, West Main Street/LA 390 and Maggie Hebert Road. Jack and bore techniques are planned to be used beneath all four roadways. The jack and bore technique consists of utilizing an entry pit, exit pit, boring machine and auger to install relatively short segments of pipe beneath the roadways to avoid closure of the roadway during installation of the pipeline.

4.25.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on transportation and detours throughout the project area.

4.25.3 Environmental Consequences – Build Alternative

Additional traffic may be present within the project area due to mobilization of workers, equipment and materials. Jack and bore techniques would be utilized to install the proposed brine disposal pipeline beneath roadways within the project area; therefore, no road closures or detours are anticipated as part of this project. A traffic control plan would be completed and in place prior to construction activities to minimize traffic disruptions. A traffic control plan would allow roads to remain open during the jack and bore activities. Other than a temporary increase in traffic volumes due to mobilization and equipment, the Build alternative would not have any anticipated environmental consequences along the local roadways within the project area. Detours could be utilized, as needed, to avoid the work areas at the brine disposal pipeline and Black Lake Road as well as West Main Street/LA 390. Detours for the traveling public along Johnny Benoit Road and Maggie Hebert Road would not be available; these roads would remain open during the jack and bore process.

4.26 VISUAL AND AESTHETIC QUALITIES

4.26.1 Existing Conditions

As described in Land Use (Section 4.1) the alignment of the proposed action is located primarily within pastureland utilized for cattle and horses. The proposed brine disposal pipeline is located beneath roadways, maintained lawns associated with private residential land, wooded areas within and adjacent to the Hackberry Recreation Area (Cameron Parish Park), and wetlands associated with Browns Lake. The proposed pipeline ROW would be incrementally cleared of vegetation, soil would be excavated for the open cut trench, the pipeline would be installed and then the trench would be backfilled prior to returning the project area to pre-construction grade. Existing vegetation within pastureland, maintained lawns and Browns Lake, including associated wetlands, would be disturbed; however, similar vegetation should re-grow after installation of the brine disposal pipeline. The proposed project would require the removal of mature live oak trees and other trees/vegetation within the 100 foot perpetual pipeline ROW within the Hackberry Recreation Area. The ROW would need to be permanently maintained to allow access to the proposed brine disposal pipeline.

4.26.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on visual and aesthetic qualities throughout the project area.

4.26.3 Environmental Consequences – Build Alternative

The clearing of pastureland, maintained lawns and wetlands, associated with Browns Lake, would consist of temporary impacts along the proposed pipeline project ROW; similar visual and aesthetic qualities would return to the area once the disturbed areas revegetate. The removal of the mature live oak trees would result in a permanent impact to the visual and aesthetic qualities of the area. The removal of the mature trees would result in a maintained pipeline ROW with similar vegetation as pastureland. The Build alternative would have short-term and long-term environmental consequences on the visual and aesthetic qualities of the wooded areas through which the proposed pipeline would be installed.

4.27 AIR QUALITY

4.27.1 Existing Conditions

Heavy equipment and vehicles would be utilized to complete the proposed project which may result in temporary increases in air pollutant emissions from construction activities, equipment, and related vehicles during the construction phase of the project. The primary construction related emissions are particulate matter (fugitive dust) from site preparation and construction as well as non-road Mobile Source Air Toxics (MSAT) from construction equipment and vehicles.

These emissions are temporary in nature (only occurring during actual construction activities) and it is not possible to reasonably estimate impacts from these emissions due to limitations of existing emission models. The potential impacts of particulate matter emissions would be minimized by dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate. The MSAT emissions would be minimized by construction contractors by measures to encourage the use of EPA required cleaner diesel fuels, increasing use of cleaner burning

diesel engines, limits on idling time of vehicles, and other emission limitation techniques, as appropriate.

4.27.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on air quality throughout the project area.

4.27.3 Environmental Consequences – Build Alternative

Considering the temporary and transient nature of construction related emissions as well as the mitigation actions to be utilized on equipment and vehicles, the Build alternative would not have any anticipated environmental consequences on the air quality within the project area.

4.28 GREENHOUSE GAS EMISSIONS/EFFECTS OF CLIMATE CHANGE

The Federal government has taken a number of steps to reduce Greenhouse Gas (GHG) emissions, conserve energy, reduce demand, and promote development of renewable energy sources and technologies. Executive Order (EO) 13693, Planning for Federal Sustainability in the Next Decade (EPA 2015), requires Federal agencies to set goals in the areas of energy efficiency, acquisition, renewable energy, toxics reductions, recycling, renewable energy, sustainable buildings, electronics stewardships, fleets, and water conservation. The goal of EO 13693 is (in part) to reduce agency GHG emissions by 40% over the next decade. This EO requires that DOE address agency GHG reduction targets, reductions in petroleum, potable water use, solid waste generation, recycling, and other targets. By implementing these EOs, the Federal government as a whole has reduced GHG emissions.

On August 1, 2016, the CEQ published final guidance on the inclusion of a GHG evaluation for NEPA projects. Federal agencies are advised to identify opportunities to reduce GHG emissions and evaluate the effects of climate change caused by proposed Federal actions and adapt their actions to reduce potential climate change impacts.

Identifying important interactions between a changing climate and the environmental impacts from a proposed action can help Federal agencies and other decision makers identify practicable opportunities to reduce GHG emissions, improve environmental outcomes, and contribute to safeguarding communities and their infrastructure against the effects of extreme weather events and other climate-related impacts.

GHG traps heat in the atmosphere. Common gases which contribute to the effects of GHG include Carbon monoxide (CO), Methane (CH₄), Nitrous oxide (N₂O) and Fluorinated gases. Concentration is the amount of a particular gas in the air. Larger emissions of GHG lead to higher GHG concentrations in the atmosphere.

4.28.1 Existing Conditions

The existing pipeline would have no impact to the climate in the region; the Gulf breezes would aid in dispersing air pollutants, if any, in the general vicinity of the project area. The impact on air quality as a result of the proposed action 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, other equipment (mobile or stationary), and related

vehicles during the construction phase of the project. The operation and maintenance of equipment, primarily diesel engines, would result in emissions of Nitrogen oxide (NO_x), CO, Particulate Matter greater than 10 microns (PM₁₀) and some trace amounts of volatile organic compounds. On a regional air quality basis, none of these pollutants are anticipated to be emitted by construction equipment (i.e., bulldozers, backhoes, etc.) in quantities more significant than vehicles which travel within the project area on a daily basis. Such emissions would be temporary for repair or maintenance activities. Diesel equipment must comply with EPA non-road engine standards for exhaust emissions.

4.28.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on GHG emissions or climate change throughout the project area. The existing pipeline would have no immediate impact on the ambient air quality. The No Build alternative anticipates no short-term construction activity though temporary air quality impacts due to heavy equipment used during repair activities could be considered in the future as the existing pipeline continues to age.

4.28.3 Environmental Consequences – Build Alternative

Once installed, the proposed pipeline would not result in an increase of any airborne pollutants within or near the project area. Since the proposed pipeline conveys brine, in the event of a breach or rupture, no release of emissions to the air would occur.

The Build alternative may have short-term/temporary and/or minimal impacts related to GHG emissions from construction equipment but would not have any long-term environmental consequences from localized exhaust emissions or other emissions within or beyond the project area. No contributions to GHG in quantities beyond those currently existing in the area of the proposed project, and no impacts to the local climate, are anticipated to result from construction impacts.

4.29 NOISE

4.29.1 Existing Conditions

Heavy equipment and vehicles would be utilized to complete the proposed project which would result in increases in noise from construction activities, equipment, and related vehicles during the construction phase of the project. The largest contributors of noise would be excavators utilized to dig the open trenches and the jack and bore machinery utilized to install pipe beneath the four roadways within the project area. Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. Construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the nearby residences are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal residential activities is not expected.

4.29.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on noise throughout the project area.

4.29.3 Environmental Consequences – Build Alternative

Provisions would be included in the construction phase of the project 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. The Build alternative may have short-term/temporary noise impacts but would not have any anticipated long-term environmental consequences from noise impacts within the project area.

4.30 CONSTRUCTION RELATED ACTIVITIES (LONG-TERM AND SHORT-TERM IMPACTS)

4.30.1 Existing Conditions

No construction activities are currently located along the existing brine disposal pipeline corridor within the project area; however, the existing corridor is routinely inspected and maintained as needed. During construction activities for the proposed brine disposal pipeline, machinery would increase dust, air pollutants, ambient noise levels, vibrations due to equipment, and may cause occasional traffic delays. Construction may result in activities which include, but are not limited to, removal of existing vegetation, trenching, installation of the proposed brine disposal pipeline (including jack and bore techniques at roadways) and re-grading and/or re-seeding the soil surface along the project corridor.

Once the proposed brine disposal pipeline is installed, activities along the pipeline corridor would primarily consist of maintenance activities such as routine inspection of the corridor and mowing as needed.

4.30.2 Environmental Consequences – No Build Alternative

The No Build alternative would not have any environmental consequences on construction related activities throughout the project area.

4.30.3 Environmental Consequences – Build Alternative

The proposed project would have short-term adverse impacts during construction activities. Contractors would be required to follow Federal, State and local regulations to minimize adverse impacts during construction related to water resources and erosion control, transportation safety, air quality and noise.

Water resources and erosion control would be monitored by construction oversight; BMPs would be implemented to prevent or limit stormwater/surface water runoff, erosion and sedimentation in the project area. BMPs may include hay bales or sediment control fencing in areas which may have the potential for erosion or sediment transfer into nearby waterways.

A traffic control plan would be developed to minimize traffic disruptions. Construction signs would be placed in advance to inform travelers of upcoming construction which may minimize travel delays and provide travelers with options for alternative routes. The proposed project would allow access to residential and commercial properties throughout the construction process.

Air quality measures would be required to comply with LDEQ standards on air pollution control. Fugitive dust would be created during construction activities. Watering areas where vegetation was removed may occur to reduce fugitive dust emissions in construction areas.

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise during construction, is constantly moving in unpredictable patterns and may vary from day to day. The jack and bore construction activities would likely generate the most noise and vibration throughout the duration of the project. Noise and vibration impacts would be limited to a few residential properties located at the proposed brine disposal pipeline crossing at Johnny Benoit Road and Maggie Hebert Road. No residential properties are located at the pipeline crossing at West Main Street/LA 390. No jack and bore construction activities would be associated with Johnson Lane as open cut trenching for the pipeline installation would occur to the east of Johnson Lane.

Construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the nearby residents are expected to be exposed to construction noise for a long duration; therefore, no extended disruption of normal daily activities at the residential properties is expected. Construction provisions would be included in the project for contractors to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and the proper maintenance of muffler systems.

The Build alternative would have short-term environmental consequences due to construction impacts within the project area though no long-term environmental consequences resulting from construction impacts are anticipated.

4.31 SUMMARY AND COMPARISON OF POTENTIAL EFFECTS

Table 12 summarizes the potential environmental consequences of the proposed brine disposal replacement project. The No Build and Build alternatives are compared with respect to potential environmental consequences and/or impacts. Additionally, temporary and permanent consequences and/or impacts are identified relative to the Build alternative.

Table 12: Summary of Potential Environmental Consequences of the Proposed Brine Replacement Project			
Name of Potential Consequence	No-Build Alternative	Environmental Consequences	
		Build Alternative	
		Temporary	Permanent
PHYSICAL RESOURCES			
Land Use	No	Yes – Soil and Vegetation Disturbance (Open Cut Trenching)	Yes – Removal of Mature Trees
Relocations and Right-of-Way Acquisitions	No	Yes – Construction Easement (no Relocations)	Yes – Permanent ROW (no Relocations)
Soils/Prime and Unique Farmland	No	Yes – Soil Disturbance (Open Cut Trenching)	No
Geology	No	No	No
Waste Management/Hazardous Materials	No	No	No
WATER RESOURCES			
Floodplain Assessment and Drainage	No	Yes – Soil Disturbance (Open Cut Trenching)	No
Surface Water Quality	No	Yes – Potential Erosion from Soil Disturbance	No
Waters of the US, including Wetlands	No	Yes – Soil and Vegetation Disturbance (Open Cut Trenching)	Yes – Fill within water of the U.S. (USACE Permit Modification)
Groundwater	No	No	No
NATURAL/ECOLOGICAL RESOURCES			
Vegetation and Wildlife	No	Yes – Vegetation Disturbance (Open Cut Trenching)	Yes – Removal of Mature Trees

Table 12: Summary of Potential Environmental Consequences of the Proposed Brine Replacement Project			
Name of Potential Consequence	No-Build Alternative	Environmental Consequences	
		Build Alternative	
		Temporary	Permanent
Threatened and Endangered Species	No	No	No
Essential Fish Habitat	No	No	No
Coastal Management Program	No	Yes – Soil and Vegetation Disturbance (Open Cut Trenching)	No
Coastal Barrier Resources Act	No	No	No
Parks and Managed Areas	No	Yes – Soil and Vegetation Disturbance (Open Cut Trenching)	Yes – Removal of Mature Trees
Permits/Compliance with other Regulations	No	No	No
CULTURAL RESOURCES			
Historic Resources	No	No	No
Archeological Resources	No	No	No
POPULATION/COMMUNITY RESOURCES			
Demographics and Population	No	No	No
Socio-Economic (Employment and Income)	No	No	No
Environmental Justice	No	No	No
Limited English Proficiency	No	No	No
Public Facilities and Services	No	Yes – Hackberry Recreation Area	Yes – Hackberry Recreation Area
Public Health and Safety	No	No	No
Transportation and Detours	No	Yes – Temporary Increase in Traffic/Equipment	No
Visual and Aesthetic Qualities	No	Yes – Construction Equipment	Yes – Removal of Mature Trees
Air Quality	No	No	No
Greenhouse Gas Emissions & Effects of Climate Change	No	No	No
Noise	No	Yes – Construction Equipment	No
Construction Related Activities (Long-term and Short-term Impacts)	No	Yes – Traffic Volume Increase, Noise, Soil/Vegetation Disturbance	No

5.0 DIRECT, INDIRECT/SECONDARY AND CUMULATIVE IMPACTS ANALYSIS AND FINDINGS

Indirect and cumulative impacts are evaluated for Federal projects in order to comply with the environmental process outlined in NEPA. Section 102(c) of NEPA (codified in 42 USC 4332), requires that proposals for actions that significantly affect the quality of the human and natural environment shall include a statement concerning the environmental impact of the proposed action and any adverse environmental impacts. The CEQ clarified this requirement further by defining three types of impacts that must be analyzed during the NEPA process: direct, indirect, and cumulative impacts (40 CFR 1508.25). NEPA requires each proposed project be assessed for the three types of impacts:

- **Direct Impacts** – The action causes impacts that occur at the same time and place as the action (detailed in Section 4.1 – 4.30 and 5.1).
- **Indirect Impacts** – The action causes impacts that occur later in time or farther removed in distance from the action, but are still reasonably foreseeable. Indirect impacts may include growth inducing impacts and other impacts that induce changes in the pattern of land use, population density or growth rate, and related impacts on air, water, and other natural systems including ecosystems (detailed in Section 5.1).
- **Cumulative Impacts** – Cumulative impacts build upon the information derived from the direct and indirect impact evaluations. These impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of the agency (Federal or Non-federal) that undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (detailed in Section 5.2).

5.1 DIRECT AND INDIRECT/SECONDARY IMPACTS ANALYSIS

Direct Impacts

As discussed in Sections 4.1 – 4.30, the Build alternative would result in both short-term and long-term direct impacts. By definition, short-term impacts would not cause permanent adverse effects to a resource. Short-term impacts which would be returned to normal conditions after the completion of the proposed project include soil/vegetation disturbance, disturbance within a floodplain, waters of the U.S., including wetlands, erosion from soil disturbance (water quality), increased traffic volumes, and increased noise from construction equipment. Long-term direct impacts which would result in adverse effects to a resource after completion of the proposed project include impacts to land use and the removal of mature trees within Hackberry Recreation Area.

Indirect/Secondary Impacts

Indirect impacts are defined as those caused by an action and are later in time or farther removed in distance, but still reasonably foreseeable. Indirect impacts would not be directly associated with the construction and operation of the pipeline. The indirect impacts analysis is organized by two different types of impacts; induced growth impacts and encroachment-alteration impacts.

- **Induced growth impacts** – The proposed project is not anticipated to contribute to a change in the demographics, population growth, regional economy or employment within the general project area. Construction staff may be hired locally or, if from another area, may contribute

positively to the local economy by purchasing materials, meals or lodging while working on the pipeline construction/installation project.

- Encroachment-alteration impacts – Potential encroachment alteration impacts to vegetation, wildlife habitats and water resources were determined to be minimal ecological indirect impacts with respect to the proposed project. The proposed project would be constructed on proposed ROW adjacent to the existing ROW within aquatic, wetland, pastureland and woodland habitat areas including a wooded area within the Hackberry Recreation Area. The resulting encroachment impact would eliminate mature trees within the proposed pipeline ROW but would create an open grassy area and edge habitat area within a wooded area. The removal of such trees would be necessary to implement the proposed project as designed and the area would be permanently maintained to allow access to the proposed brine disposal pipeline.

The proposed brine disposal pipeline would be installed near the western edge of an approximate 11.25 acre wooded area. This action would result in the fragmentation of habitat by creating two wooded areas (± 9.65 acres and ± 1.60 acres) which would be separated by a maintained pipeline corridor; this location is currently similarly fragmented by an existing roadway/trail, pipeline easement and a pole-mounted electrical easement in which trees were cleared. Clearing of the temporary ROW would be at the discretion of the contractor; however, the intent is to minimize the overall disruption to the wooded area, particularly east of the permanent ROW. The proposed pipeline ROW would permanently impact this wooded area due to the loss of mature trees as well as limited understory. The installation of the proposed pipeline ROW would increase edge habitat (wooded areas and open/grassy areas) along this area of the proposed pipeline ROW.

No industrial, commercial or residential structures would be impacted by the proposed project. No relocations, displacements or detours are required for the construction of the proposed pipeline project.

5.2 CUMULATIVE IMPACTS ANALYSIS

Twelve temporary direct impacts and two temporary indirect impacts, including ROW acquisition and removal of mature trees within Hackberry Recreational Area, are anticipated as a result of the implementation of the proposed project (see Table 13). Temporary direct and indirect impacts resulting from pipeline construction activities as well as two permanent direct impacts would not have any anticipated cumulative impacts to environmental or socioeconomic resources within the project area. The two permanent direct impacts (Land Use and Vegetation/Wildlife Habitat) reflect that the installation of the pipeline would limit the land use of the pipeline ROW in the future. Table 13 summarizes the direct, indirect and cumulative environmental/socioeconomic resources within the proposed project area.

Table 13: Direct, Indirect and Cumulative Environmental/Socioeconomic Resources of the Proposed Brine Disposal Pipeline Replacement Project					
EA Section	Environmental/Socioeconomic Resources	Permanent Direct Impact	Temporary Direct Impact	Temporary Indirect Impact	Cumulative Impacts Analysis Necessary
4.1	Land Use	Yes	Yes	No	No
4.2	Relocations and ROW Acquisitions	No	Yes	No	No
4.3	Soils/Prime and Unique Farmlands	No	Yes	No	No
4.4	Geology	No	No	No	No
4.5	Waste Management/Hazardous Materials	No	No	No	No
4.6	Floodplain Assessment and Drainage	No	Yes	No	No
4.7	Surface Water Quality	No	Yes	No	No
4.8	Waters of the US, Including Wetlands	No	Yes	No	No
4.9	Groundwater	No	No	No	No
4.10	Vegetation and Wildlife Habitat	Yes	Yes	No	No
4.11	Threatened/Endangered Species	No	No	No	No
4.12	Essential Fish Habitat	No	No	No	No
4.13	Coastal Management Program	No	Yes	No	No
4.14	Coastal Barrier Resources Act	No	No	No	No
4.15	Parks and Managed Areas	No	Yes	No	No
4.16	Permits/Compliance with Other Regulations	No	No	No	No
4.17	Historic Resources	No	No	No	No
4.18	Archeological Resources	No	No	No	No
4.19	Demographics and Population Growth	No	No	No	No
4.20	Socio-Economic (Regional Economy and Employment)	No	No	No	No
4.21	Environmental Justice	No	No	No	No
4.22	Limited English Proficiency	No	No	No	No
4.23	Public Facilities and Services	No	Yes	No	No
4.24	Public Health and Safety	No	No	No	No
4.25	Transportation and Detours	No	No	Yes	No
4.26	Visual and Aesthetic Qualities	No	No	Yes	No
4.27	Air Quality	No	No	No	No
4.28	Greenhouse Gas	No	No	No	No
4.29	Noise	No	Yes	No	No
4.30	Construction Related Activities (Long-term and Short-term Impacts)	No	Yes	No	No

The cumulative effect is the summation of direct and indirect effects of past actions, present actions, reasonable project alternatives, and other future actions. Other than those impacts requiring agency permitting (e.g., waters of the U.S./wetland permitting), no mitigation measures are offered for the temporary/short-term impacts or permanent direct impacts associated with this project. The project has been designed to generally follow the existing pipeline corridor, minimize the size/acreage requirement for a temporary construction easement, and minimize disturbances to wooded areas along the pipeline ROW. Once the pipeline has been installed, the site will be returned to the original grade and allowed to revegetate.

5.3 FINDINGS

This draft EA finds that implementing the Build alternative would not be considered a major Federal action significantly affecting the quality of the human or natural environment and thus a Finding of No Significant Impact (FONSI) is recommended for this Brine Disposal Pipeline Replacement Project.

6.0 ENVIRONMENTAL AND REGULATORY REVIEWS

6.1 LIST OF AGENCIES CONTACTED AND CORRESPONDENCE

The following Federal, State and local agencies were contacted as part of the NEPA coordination activities for this project on August 2, 2016. For a complete list of resource agencies and contacts, see Appendix C – Agency Information and Correspondence. Additionally, the FFPO/DOE will prepare the requisite tribal coordination for this project.

Table 14: Agencies Contacted for NEPA Coordination

RESOURCE AGENCY/OFFICE	DIVISION OR DEPARTMENT	ADDRESS
Federal Resource Agencies		
US Army Corps of Engineers	Regulatory Branch, New Orleans District	P.O. Box 60267, New Orleans, LA 70160
US Army Corps of Engineers	Western Evaluation Section	P.O. Box 60267, New Orleans, LA 70160
US Army Corps of Engineers	Southwest Waterways	P.O. Box 60267, New Orleans, LA 70160
US Fish and Wildlife Service	Louisiana Ecological Services Field Office	646 Cajundome Boulevard, Suite 400, Lafayette, LA 70506
US Fish and Wildlife Service	Sabine National Wildlife Refuge	3000 Holly Beach Highway, Hackberry, LA 70645
US Environmental Protection Agency	Office of Planning & Coordination	1445 Ross Avenue, Dallas, TX 75202
US Department of Homeland Security	US Coast Guard, Eighth District	Hale Boggs Federal Building, 500 Poydras Street New Orleans, LA 70130
US Department of Transportation	US Maritime Administration	1200 New Jersey Avenue, SE, Washington, D.C. 20590
National Oceanic and Atmospheric Administration	National Marine Fisheries Service	263 13 th Avenue South, Saint Petersburg, FL 33701
National Oceanic and Atmospheric Administration	National Marine Fisheries Service, Habitat Conservation Division	c/o LSU, Military Science Building, Room 266, South Stadium Drive, Baton Rouge, LA 70803
US Department of Agriculture	Natural Resources Conservation Service	3737 Government Street, Alexandria, LA 71303
State Resource Agencies		
Louisiana Department of Culture, Recreation & Tourism	State Historic Preservation Officer	P.O. Box 44247, Baton Rouge, LA 70804
Louisiana Department of Natural Resources (LDNR)	Office of the Secretary	P.O. Box 94396, Baton Rouge, LA 70804
LDNR Office of Coastal Management	Interagency Affairs & Field Services	P.O. Box 44487, Baton Rouge, LA 70821-4487
LDNR Office of Coastal Management	Permits/Mitigation Division	P.O. Box 44487, Baton Rouge, LA 70821-4487
LDNR Office of Conservation	Environmental Division	P.O. Box 94275, Baton Rouge, LA 70804
LDNR Office of Conservation	Pipeline Division	P.O. Box 94275, Baton Rouge, LA 70804
Louisiana Department of Wildlife and Fisheries	Office of the Secretary	P.O. Box 98000, Baton Rouge, LA 70898
Louisiana Department of Wildlife and Fisheries	Louisiana Natural Heritage Program	P.O. Box 98000, Baton Rouge, LA 70898
Louisiana Department of Environmental Quality	Office of the Secretary	P.O. Box 4301, Baton Rouge, LA 70821-4301
Louisiana Office of State Lands	Administration Section	P.O. Box 44124, Baton Rouge, LA 70704
Louisiana Department of Transportation and Development	Floodplain Management Office	1201 Capital Access Road, Baton Rouge, LA 70802
Local Resource Agencies		
Cameron Parish	Permitting	P.O. Box 1280, Cameron, LA 70631
Cameron Parish	Parks and Recreation (Hackberry Recreation District)	1095 Poncho Sanner Lane, Hackberry, LA 70645

Comments were received regarding the notification letter from both Federal and State resource agencies. No comments have been received from local resource agencies to date. The Louisiana Office of State Lands requested and received detailed plats/exhibits regarding the proposed project. The Natural Resources Conservation Service (NRCS) requested spatial information for the project area to determine impacts to soils and Prime and Unique Farmland. Coordination with the NRCS regarding the Farmland Protection Policy Act including the NRCS-CPA-106 Form for Farmland Conversion Impact Rating for Corridor Type Projects has occurred. Coordination with LDNR OCM regarding work within the coastal zone and with LDOT-Floodplain Management Program regarding work within floodplains has occurred. Additionally,

official Solicitation of Views were received from the US Coast Guard, USACE, NMFS and LDEQ recommending that appropriate permitting measures for the proposed project be in place prior to construction activities. Concerns or comments received by the resource agencies will be considered in preparation of the final EA. The DOE notification letter with attachments and responses to comments from resource agencies is presented in Appendix C – Agency Information and Correspondence. Additionally, resource agencies will have the opportunity to comment on the draft EA when it is made available for the public review on or about December 15, 2016.

6.2 PUBLIC INVOLVEMENT/OUTREACH ACTIVITIES

The DOE provided written notification of its intention to prepare this NEPA analysis to Federal, State and local government resource agencies, listed in Section 6.0, on August 2, 2016 (Appendix C – Agency Information and Correspondence). In December 2016, the DOE will additionally provide written notification and the opportunity for interested parties to comment on the draft EA. Parties expressing their interest and/or comments on the EA will receive individual responses, when appropriate, or a comment/response summary of all comments will be prepared. The comment/response summary would document each received comment and provide a corresponding response for each comment.

Electronic access to the draft EA for review and comment shall be made available on or about December 15, 2016 on the following website: www.energy.gov/nepa/nepa-documents/environmental-assessments-ea. The draft EA will also be available for review during a 30 day comment period (on or about December 15, 2016 to January 14, 2017) at five libraries located near the project area (see Section 2.4).

Concerns or comments received by the close of the 30 day comment period will be considered in preparation of the final EA. The DOE notification letter and responses to comments, received during the comment period by resource agencies and other interested parties, will be presented in Appendix C – Agency Information and Correspondence in the final EA at a later date.

7.0 LIST OF PREPARERS

The following preparers contributed to the completion of the Environmental Assessment for the West Hackberry Brine Disposal Pipeline Replacement Project.

Table 15: List of Preparers	
S&B Infrastructure, Ltd.	
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Bob Sevcik	Director – Environmental & Sustainability
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Department of Energy, Strategic Petroleum Reserve	
Nicholas Palestina, PE	General Engineer
Katherine Batiste	Environmental Specialist
Will Woods	Environmental Specialist

8.0 LIST OF REFERENCES

- American Society for Testing and Materials (ASTM) E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.
- City of Portland, Oregon. <https://www.portlandoregon.gov/bes/article/486791>. (Jack and Bore, June 13, 2016).
- Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508; 40 CFR §1502.13; 40 CFR §1508.25)
- CEQ, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, August 1, 2016.
- Daigle, J.J., Griffith, G.E., Omernik, J.M., Faulkner, P.L., McCulloh, R.P., Handley, L.R., Smith, L.M., and Chapman, S.S., 2006, Ecoregions of Louisiana (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,000,000).
- Department of Health & Human Services. <http://aspe.hhs.gov/poverty/14poverty.cfm>. Poverty Level, June 6, 2016.
- DOE NEPA Guidance: Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements, Second Edition.
- Environmental Protection Agency. <http://www.epa.gov/wed/pages/ecoregions.htm>. Ecoregions of Louisiana, June 15, 2016.
- Forest and Range. http://forestandrange.org/modules/Wildlifeenterprise/Wildlife_Basics/Wildlife_Concepts/Edges_and_Contrast.html. Edge Environments, June 24, 2016.
- <http://www.deq.louisiana.gov/portal/DIVISIONS/AirPermitsEngineeringandPlanning/NationalAmbientAirQualityStandards.as>. Louisiana DEQ, National Ambient Air Quality Standards, June 24, 2016.
- <http://energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve>. June 23, 2016.
- <http://energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve/spr-storage-sites>. June 23, 2016.
- <http://energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve/spr-quick-facts-and-faqs>. June 23, 2016.
- <http://www.epa.gov/wed/pages/ecoregions.htm>. June 23, 2016.
- <http://geology.com/stories/13/salt-domes/>. (What is a Salt Dome?, undated).
- <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100OA05.pdf>. Nonroad Compression-Ignition Engines: Exhaust Emission Standards, EPA, Office of Transportation and Air Quality, EPA-420-B-16-022, March 2016.

<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA08.pdf>. Nonroad Large Spark-Ignition Engines: Exhaust and Evaporative Emission Standards, EPA, Office of Transportation and Air Quality, EPA-420-B-16-023, March 2016.

<https://yosemite.epa.gov/r6/sip0304.nsf/dc994a1edbcf32c08625651c00552ed8/34c179877dbe685886256adb007ba30>. N. Federal Air Quality Control Regions in Region 6 as defined in 40 CFR 81.053, June 17, 2016.

Louisiana Department of Environmental Quality. <http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/WaterQualityInventorySection305b/2014IntegratedReport.aspx>. 2014 Water Quality Integrated Report, June 17, 2016.

Louisiana Department of Natural Resources. http://dnr.louisiana.gov/assets/OC/env_div/gw_res/LA.Aquifer.Map.pdf. Aquifers, June 22, 2016.

Louisiana Department of Wildlife and Fisheries. <http://www.wlf.louisiana.gov/wildlife/species-parish-list>. Species by Parish List, May 18, 2016.

Louisiana State University. <http://www.lsu.edu/seagrantfish/resources/chenier/2005/09-05.htm> Resources & Publications: Chenier Ecology, September 2005.

Magrorian, Thomas R. Neal, James T. Perkins, Stephen. Xiao, Qiang J. Bryne, Kathleen O. (1991), Strategic Petroleum Reserve (SPR) Additional Geologic Site Characterization Studies West Hackberry Salt Dome, Louisiana. Sandia National Laboratories. Albuquerque, NM.

National Oceanic and Atmospheric Association. <http://www.habitat.noaa.gov/protection/efh/habitatmapper.html>. Essential Fish Habitat Mapper, May 16, 2016.

Native Seed Network. <http://www.nativeseednetwork.org/ecodetail?region=34>. Western Gulf Coastal Plain Ecoregion, June 8, 2016.

NEPA applicability (10 CFR 1021).

Natural Resources Conservation Service. <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Web Soil Survey, May 17, 2016.

Purdue University. <https://hort.purdue.edu/newcorp/cropmap/ecoreg/descript.html#34>. New Crop Resource Online Program, June 8, 2016.

Strategic Petroleum Reserve (SPR) Project Management Office (PMO) NEPA Implementation Plan (SPRPMO O 451.1B).

SPRPMO Environmental Policy Statement (SPRPMO P 451.1E), May 4, 2016.

SPR Pollution Prevention Plan (Publication ASL5400.41), Version 10.0, August 2, 2016.

U.S. Census Bureau. <https://factfinder.census.gov>. Census Data, June 6, 2016.

42 U.S. Code §4332 – Public Health and Welfare

- U.S. Department of Energy, Office of NEPA Policy and Compliance, December 2004.
- U.S. Fish & Wildlife Service. <https://www.fws.gov/endangered/?ref=topbar>. Threatened & Endangered Species, May 18, 2016.
- U.S. Fish & Wildlife Service. <https://ecos.fws.gov/ipac/>. Information for Planning and Conservation, May 18, 2016.
- U.S. Geological Survey. http://pubs.usgs.gov/ha/ha730/ch_f/F-text1.html. Geology, June 22, 2016.
- Woodward-Clyde Consultants, Geological Site Characterization Strategic Petroleum Reserve Site West Hackberry, Louisiana. Prepared for Sandia National Laboratories. Albuquerque, NM. 1980.