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Environmental Assessment

TPF II East Texas Gathering, LLC Newfield-Huxley 12-Inch Natural Gas Gathering Pipeline

Angelina/Sabine Ranger District, Sabine National Forest
Shelby County, Texas

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APPENDICES

ACRONYMS:

°F	Degrees Fahrenheit
APD	Application for Permit to Drill
ASL	Above Sea Level
Bcfd	Billion Standard Cubic Feet per Day
BCI	Bat Conservation International
BE	Biological Evaluation
BGS	Below Ground Surface
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistics
BMP	Best Management Practices
CAA	Clean Air Act
CenterPoint	CenterPoint Energy
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CISC	Continuous Inventory of Stand Condition
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COA	Conditions of Approval
dBa	Decibel
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market
FONSI	Finding of No Significant Impact
Ft	Foot or Feet
GAI	Gremminger and Associates, Inc
GHG	Greenhouse Gases
HDD	Horizontal Directional Drill
HUC	Hydrologic Unit Code
IDT	Interdisciplinary Team
IUCN	International Union for the Conservation of Nature
IPMP	Integrated Pest Management Plan
LTP	Land Type Phase
MA-1	Management Area 1
MA-2	Management Area 2
MIS	Management Indicator Species
NO_2	Nitrogen Dioxide
mcfd	Million Standard Cubic Feet per Day
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NEPA	National Environmental Policy Act

Newfield	Newfield Production
NFGT	National Forests and Grasslands in Texas
NNIPS	Non-Native Invasive Plant Species
NO_x	Nitrous Oxide
NSPS	New Source Performance Standards
NRCS	Natural Resources Conservation Service
O_3	Ozone
ORV/OHV	Off Road Vehicle/ Off Highway Vehicle
PETS	Proposed, Endangered, Threatened & Sensitive Species
PHMSA	Pipeline and Hazardous Material Safety Administration
PM_{10} & $PM_{2.5}$	Particulate Matter
PSD	Prevention of Significant Deterioration
RCW	Red-Cockaded Woodpecker
RFSS	Regional Forester's Sensitive Species
ROD	Record of Decision
ROW	Right-Of-Way
RRC	Railroad Commission of Texas
S & G	Standards and Guidelines
SMZ	Streamside Management Zone
SNF	Sabine National Forest
SO_2	Sulfur Dioxide
SUP	Special Use Permit
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
The Project	Newfield Huxley 12-Inch Natural Gas Gathering Pipeline Project
The Plan	1996 Revised Land & Resource Management Plan
TMR	Travel Management Rule
TPWD	Texas Parks and Wildlife Department
TMR	Travel Management Rule
TWDB	Texas Water Development Board
TPF II	TPF II East Texas Gathering, LLC
TXDOT	Texas Department of Transportation
TxMUTCD	Texas Manual on Uniform Traffic Control Devices
USACE	United states Army Corps of Engineers
USDA	United States Department of Agriculture
USDOL	United States Department of Labor
USDOT	United States Department of Transportation
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Service
VQO	Visual Quality Objectives

SUMMARY

TPF II East Texas Gathering, LLC (TPF II) has requested the issuance of a Special Use Permit (SUP) to install and operate 6.6 miles of new 12-inch diameter natural gas gathering pipeline and five (5) meter station surface facilities located on United States Forest Service (USFS) land within the administrative boundaries of Compartments 9, 15, 16, and 19 of the Sabine National Forest (SNF).

The proposed action would involve the placement of a new 12- inch diameter natural gas pipeline adjacent to Farm-to-Market (FM) 2694 via conventional and non-conventional construction techniques. The gas pipeline right-of-way (ROW) would enter SNF land on the west edge of Compartment 9 on the north side of FM 2694 at a point 105 feet (ft) east of its beginning on private lands. From there, the ROW would proceed approximately 700 ft eastward parallel to FM 2694 before crossing FM 2694 into Compartment 15 at a point just east of the existing CenterPoint Energy (CenterPoint) compressor station near the west side of compartment 15. The pipeline route then proceeds 6.46 miles eastward paralleling the south side of FM 2694, transecting Compartments 15, 16 and 19, FM 3471, and Forest Service Roads 165 and 181 before exiting SNF land to private property. The pipeline ROW would transect 6.6 miles (34,937 ft) of SNF lands and would be 30 ft in width with five (5) 30-ft by 30- ft above ground service sites. An additional 20-ft-width from within the FM 2694 ROW would be used on a temporary basis during the construction phase of the pipeline. The total authorized use area within the SNF would be 40.2 acres (16.0 acres of temporary use and 24.2 acres of permanent easement) with 27,143 linear ft of surface disturbance (31.25 acres) resulting from the clearing of vegetation for the proposed construction activities and avoidance of 7,794 ft (8.9 acres) of surface impacts by horizontal directional drills (HDD) or bores.

This action is needed to provide a market outlet of sufficient size to accommodate currently produced and estimated future production of natural gas volumes of up to 60 million standard cubic feet (mcfd) of natural gas per day to an existing TPF II gathering trunkline west of the SNF boundary.

Alternatives to the proposed action are limited do the lack of existing pipeline infrastructure within the SNF. The proposed action would parallel an existing CenterPoint pipeline occurring on the opposite side of FM 2694. The potential use of this pipeline to replace the proposed service of the proposed TPF pipeline is limited by the age, smaller diameter, and low volume capability of the CenterPoint pipeline. An "in-trench" replacement would require decommissioning and removal of the existing pipeline, would cut off all existing public and private customer services currently relying on this pipeline for gas service, and would disturb a comparably equal amount of SNF lands. A "parallel" replacement installed at an offset to the existing CenterPoint pipeline would not disrupt existing customer services but would require disturbing an approximately equal amount of SNF land during construction. Neither the "in-trench" replacement or "parallel" new replacement pipeline offers any apparent saving of land or benefit to public resources.

An alternative project or multiple alternative projects able to provide equal service to the Newfield Production (Newfield) wells does not exist since production wells are set inside the boundaries of the forest compartments. There are no existing utility corridors in near proximity to utilize. The only existing corridor through this area of the SNF is FM 2694.

Review of the Project's potential effects results in determinations of little or no negative effects to Soil; Water Quality and Quantity; Air; Vegetation; Wildlife; Management Indicator Species (MIS); Proposed, Endangered, Threatened and Sensitive Species (PETS); Wetlands and Riparian Areas; Springs; Socio-economics; Recreation and Visual Resources; Public Health and Safety; Cultural Resources; and Transportation.

A Biological Evaluation (BE) of the proposed project has been completed and the project, as proposed, should have no direct, indirect, or cumulative effects on any Regional Forester's Sensitive Species (RFSS), and authorization of the project should not result in any negative trend for populations of these species. Therefore, the proposed project would have "no impact" to any RFSS.

A cultural resources assessment of the proposed project has been completed, and based upon the results of this assessment, the proposed project route would transect several locations recommended as being eligible for the National Register of Historic Places. To mitigate the presence of these resources, TPF II would install the pipeline using HDDs to pass under the resource area, with a minimum 50 meter buffer of no soil disturbance or timber removal on either side, to avoid affecting the resource.

HDDs and bores would be utilized to install a total of 7,794 ft. of the pipeline beneath known cultural resources; the Boles Field Campground; the National Hall of Fame Cemetery of Fox Hounds; road crossings, and intermittent and perennial streams. A non-disturbance 50 meter buffer would be applied to either side of known cultural resources and Boles Field Campground and the Fox Hound Cemetery. A non-disturbance buffer, 50-ft-wide, would be applied to either side of intermittent and perennial streams. No buffer would be required with road crossings. The use of the HDD and bore construction methods plus the required buffer results in a non-disturbance surface area of 8.9 acres out of the 40.2 acres that would be permitted for the utility easement.

Of the 31.25 acres of SNF lands directly affected by ground disturbance, 12.5 acres is previously cleared lands that are part of the FM 2694 easement which would be used for temporary workspace, and 18.7 acres of forested SNF lands would be cleared and maintained in an herbaceous state as the permitted maintenance easement for the pipeline and 0.1 acres would be cleared for the five (5) interconnect stations.

Based upon the effects of the alternatives analyzed in the Environmental Assessment (EA), the responsible official would decide if extraordinary circumstances exist; whether the Preferred Alternative would proceed as proposed; and, what mitigation measures would be applied if and when the proposed action proceeds.

INTRODUCTION

Document Structure

The USFS has prepared this EA in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The body of the document is organized into four parts:

- *Introduction:* This section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the USFS informed the public of the proposal and how the public responded.

- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on concerns raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.

- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by the Project's potential effects to Soil; Water Quality and Quantity; Air; Vegetation; Wildlife; MIS; PETS; Wetlands and Riparian Areas; Springs; Socio-economics; Recreation and Visual Resources; Public Health and Safety; Cultural Resources; and Transportation. Within each section, the affected environment is described first, followed by the effects of the "No Action" Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.

- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the EA.

- *Appendices:* The appendices provide more detailed information to support the analyses presented in the EA.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the SNF district office in Hemphill, Texas.

Background

The proposed project is driven by a current and future need to efficiently transport natural gas produced from wells inside the SNF boundary, occurring north and south of FM 2694.

Newfield acquired the mineral leases for these units inside the national forest in 2009. Commencing in 2010, Newfield submitted four (4) Applications for Permit to Drill (APD) for well pads, flowlines, and access roads as necessary. Based upon the mineral lease and production unit designations in 2011, Newfield has and is filing for additional APD's to authorize further exploration and production in their lease area inside the SNF.

Newfield sought gathering services from TPF II to obtain relief from the lack of gas gathering infrastructure in December 2010. TPF II is the sole company with a larger capacity gathering pipeline in near vicinity to the proposed production well locations.

TPF II submitted their request for a SUP on March 14, 2011, and an USFS Interdisciplinary Team (IDT) meeting with representatives of TPF II occurred May 19, 2011.

On September 30, 2011, a Scoping Letter was issued to the recognized Native American tribes, state and federal legislative and agency representatives, and members of the general public who requested notification of pending actions. A collaborative meeting with an interested member of the public was held by the USFS at the Boles Field shelter, SNF, on November 8, 2011.

Comments received in response to the Scoping letter and meeting are discussed in the Public Involvement section of this EA.

Purpose and Need for Action

The purpose of the TPF II pipeline is to provide 60 mcfd of natural gas intrastate gathering and transmission capability from inside the SNF boundary to an existing TPF II intrastate trunkline occurring west of the SNF.

The need of this project is driven by the lack of a market outlet sufficient to transport the produced volumes of natural gas without limiting production and potentially impacting well viability by restricting gas flows. The production wells which this pipeline would service are producing from the Haynesville Shale formation underlying the National Forest. Without a means to transport the produced natural gas, production from the wells either must be closed in (no flow) or restricted (throttled flows). Once a shale formation production well is "fraced" and the flow of natural gas commences, closing or throttling the gas production can severely damage or kill the well, forcing the production company to either abandon the well, or re-drill.

Currently, Newfield is permitting flow lines from their well locations inside the SNF to interconnects with an existing gas pipeline operated by CenterPoint occurring parallel to FM 2694. The issue with using and continuing to utilize the CenterPoint pipeline is that the line commences as an 8-inch diameter line on one side of the National Forest, reduces to a 4-inch diameter pipeline in the middle, and then drops to a 3-inch diameter line on the other end of the SNF. The existing gas service, small pipeline diameter, and operational limits due to the age of the pipeline provide limited and interrupted flow service to two (2) existing Newfield production wells, both of which spend multiple hours each day blocked and unable to flow gas due to the physical limitations of the CenterPoint pipeline. An inquiry to purchase the CenterPoint pipeline, and upgrade by replacement, was made by TPF II. CenterPoint is uninterested in taking the existing pipeline out of service so it can be replaced with a new larger diameter pipeline.

The proposed TPF II pipeline would provide gathering service and market outlet for the produced volumes from the existing and future Newfield production wells inside the SNF.

This action responds to the goals and objectives outlined within the Energy Policy Act of 2005; the National Forests and Grasslands in Texas (NFGT) 1996 Revised Land and Resource Management Plan (the *Plan*), and the Final Environmental Impact Statement (EIS) and Record of Decision (ROD) for Vegetation Management in the Coastal Plain/Piedmont dated February 27, 1989.

Proposed Action

TPF II proposes to install and operate 6.6 miles of new 12-inch diameter natural gas gathering pipeline, named the Newfield Huxley 12-Inch Natural Gas Gathering Pipeline Project (the Project), and five (5) 30-ft by 30-ft (0.1 acres total) surface sites interconnecting to Newfield wells. As shown on survey alignment sheets Shelby 01 through Shelby 06 provided in Appendix A, the pipeline would be installed within a 50-ft-wide construction ROW comprised of a 30-ft-wide permitted easement abutting an existing Texas Department of Transportation (TXDOT) easement associated with FM 2694. The remaining 20-ft of width would be temporary workspace allocated from within the FM 2694 easement.

Decision Framework

Given the purpose and need, the deciding official reviews the proposed action and the other alternatives in order to make the following decisions:

The decision to be made is whether to approve the Project, including any terms and conditions of authorization, and issue a SUP for the pipeline.

The responsible official must determine if the selected alternative would or would not be a major federal action, significantly affecting the quality of the human environment. If the responsible official determines that this project would not significantly affect the quality of the human environment, then the responsible official can prepare and sign a finding of no significant impact (FONSI) that would approve the project and allow it to proceed.

If the responsible official determines that the selected alternative would significantly affect the quality of the human environment, then an environmental impact statement and a record of decision must be prepared and signed before the project may proceed.

Public Involvement

The proposal was listed in the Schedule of Proposed Actions. Public notification began on September 30, 2011 when the Angelina/Sabine District Ranger mailed a scoping letter to interested and affected agencies, organizations, and individuals, and posted the scoping letter on the NFGT website. The letter outlined the proposed action and requested input.

Three (3) responses to the public notification letter were received. Two (2) were from Native American Tribes stating they either had no objections to the project, or it was outside their area of interest. One letter raised issues that include the following:

1. Transportation/Traffic Safety
2. Soil and Water
3. Visual Quality, and
4. Timber Resources

Using the comments from the public, other agencies (see *Issues* section), the IDT developed a list of issues to address.

Issues

The USFSIDT separated the issues into two (2) groups: issues to be analyzed in depth and issues not requiring further analysis. Issues to be analyzed in depth were defined as those directly or indirectly caused by implementing the proposed action. Issues not requiring further analysis were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence.

Issues to be Analyzed in Depth

As for issues to be analyzed in depth, the USFSIDT identified the following during scoping:

1. Forest Compartments 15, 16, and 19, on the south side of FM 2694, in the SNF are part of the Habitat Management Areas managed for red-cockaded woodpecker (*Picoides borealis*) (RCW) habitat (1996 Revised Land and Resource Management Plan, National Forests and Grasslands in Texas; April, 2006: Pages 116-126 MA-2: Red-cockaded Woodpecker Emphasis) . This issue will be addressed in the Design Criteria for the project.

2. Socio-Economic Issues including the loss of timber value and financial benefits from minerals: This issue will be addressed in the Socio-Economic Analysis.

3. Visual Resources: This issue will be addressed in the Design Criteria.

4. Public Health and Safety Issues: The removed timber will be mulched or hauled off-site rather than being burned. This issue will be addressed in the Design Criteria.

5. Archeological Resource Issues; There are known archaeological sites to protect on both sides of FM 2694, and there is potential for discovery of new archaeological sites along FM 2694 on both the north and south side. This issue will be addressed in the Design Criteria.

6. Perennial Streams, Intermittent Streams and Springs: While several streams would be transected by the Project, no evidence of inactive or active springs were observed during the biological review of the Project's potential area of affect. HDDs would be used to avoid impacts to streams and associated 50 ft buffers. This issue will be addressed in the Design Criteria.

Issues Not Requiring Further Analysis

The three (3) issues not requiring further analysis include:

1. Effects of the Project on Special Uses.

2. Presence of existing utility lines (electric, water, gas) on the north and south side of FM 2694. This is a standard issue encountered in pipeline construction and no special measures or procedures would be needed in TPF's implementation of the project. TPF II would be responsible for coordinating with other utility operators and locating and avoiding all conflicting utilities during installation of the new pipeline. In case of accidental interaction, TPF II would be responsible for immediate repair and restoration.

3. Presence of Boles Field and the National Hall of Fame Cemetery of Fox Hounds adjacent to FM 2694.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative and some of the information is based upon the environmental, social and economic effects of implementing each alternative.

Alternatives Considered in Detail

The IDT examined the issues and developed alternatives to the proposed action. The team considered, in detail, alternatives that addressed one or more of the major issues identified in scoping and also met the need for action. Two (2) alternatives were selected for detailed study: the "No Action" Alternative and the Proposed Action.

Alternative 1

No Action

Under the "No Action" Alternative, current forest management plans would continue to guide management of the project area. No gathering pipeline construction activities would be implemented to accomplish project goals. The "No Action" Alternative is not feasible and does not accomplish the project goals for reasons previously outlined in the Purpose and Need section of this assessment.

The purpose of the TPF II pipeline is to provide 60 mcfd of natural gas intrastate gathering and transmission capability from inside the SNF boundary to an existing TPF II intrastate trunkline occurring west of the SNF.

The need of this project is driven by the lack of a market outlet sufficient to transport the produced volumes of natural gas without limiting production and potentially impacting well viability by restricting gas flows. Without a means to transport the produced natural gas, production from the wells either must be closed in (no flow) or restricted (throttled flows) which can severely damage or kill the well, forcing the production company to either abandon the well, or re-drill.

The consequences of leasing the mineral rights for production were considered by the USFS prior to announcement and leasing. Under that agreement, the lessees' agreed to seek a means of market access that would be of minimal environmental consequence and they agreed to mitigate for unavoidable consequences. Prohibiting or restricting the lessees' ability to market the produced mineral would put the USFS in default of the lease terms.

Alternative 2

The Proposed Action

The proposed action is the new construction of a 6.6-mile-long (34,937 ft), 12-inch diameter natural gas gathering pipeline paralleling the south side FM 2694 for the majority of its length. The proposed construction ROW would abut the FM 2694 easement and would utilize a 20-ft-wide section of the FM 2694 maintained easement for temporary workspace. For recommended avoidance sites, incorporation of HDDs and non-disturbance buffers would be utilized in the installation of the new pipeline. Avoidance sites and their buffers (for each side of an avoidance feature) include perennial and intermittent streams (50 ft buffer), the Boles Field campground (50 meter buffer), the Fox Hound cemetery (50 meter buffer) and cultural resource sites (50 meter buffer). HDDs and bores would also be utilized to cross under roads to protect roadbed structure and avoid interruption of traffic.

These non-conventional construction techniques would avoid surface disturbance to 7,794 ft (8.9 acres) of SNF lands. Conventional construction techniques would result in 31.25 acres of surface disturbance. Published NFGT stand data, supplemented by data collected by Gremminger and Associates, Inc. (GAI) biologists was utilized to complete a continuous inventory of stand condition (CISC) foraging analysis for RCWs. The results of this CISC analysis determine that the pine forest habitats which would be directly affected by construction and operations of the proposed project score as "poor" or "fair" for potential use by this species. Principally, the poor and fair habitat analysis result is due to the location of the proposed action in the margin of the forest stand next to the roadway where the full effects of habitat improvement actions are buffered.

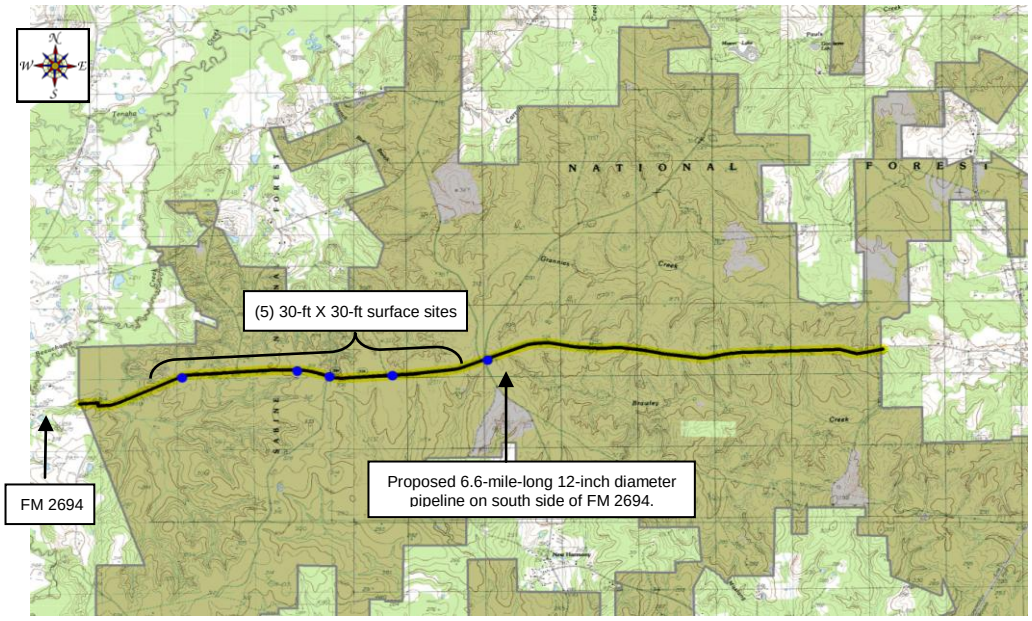

Figure 1. Proposed Newfield Huxley 12-inch Natural Gas Gathering Pipeline.

Alternatives Considered but Eliminated from Detailed Study

The IDT also examined the issues and developed alternatives to the proposed action pertaining to two (2) alternatives: the CenterPoint Replacement Alternative and the Parallel to CenterPoint Alternative that were considered but eliminated from detailed study.

Alternative 3

This alternative is a replacement of the existing CenterPoint pipeline with a new larger diameter pipeline that would provide service to the existing customers and to Newfield. To minimize the effects to resources inside the national forest, an "in-trench" replacement process would be used. To safely accomplish an "in trench" replacement, the process would require decommissioning and removal of the existing line. It would cut off service (temporarily) to all existing private and public customers who currently rely on this pipeline for gas service.

The total SNF land proposed for use for the workspace requirements for an "in-trench" replacement would consist of a 6.6-mile-long (34,732 ft.), 60-ft-wide construction ROW (47.8 acres). The 60-ft-wide workspace would be necessary to provide the workspace necessary for pipeline removal, installation and project site restoration operations. The existing 30-ft. wide maintenance easement could be used for a portion of this space and the remaining 30- ft. in width would require the clearing and temporary affect to forest stands immediately adjacent to the easement.

HDDs would be used to avoid impacts to the Boles Field Campground, known cultural resources, streams, and 50 meter buffers on either side of these resources occurring on the north side of FM 2694. Horizontal bores would be used to install the pipeline beneath Forest Roads 107, 142, 143 and 163. Since the exact location(s) of existing cultural resources on this route have not been provided, exact footages and impact acreages that would be avoided cannot be ascertained at this time. However, drills and bores of known resources would avoid a minimum of 1,890 ft. of SNF lands and reduce surface impacts by 2.17 acres.

The forest stands north of FM 2694 are not classified as RCW management habitat.

Of the 34,732 ft (47.8 acres) of SNF land proposed for use, the in-trench replacement would result in the need to clear approximately 32,842 ft. (22.6 acres) of forested SNF lands and 22.6 acres within the existing maintained pipeline easement for temporary workspace to safely accomplish the replacement installation of the new pipeline.

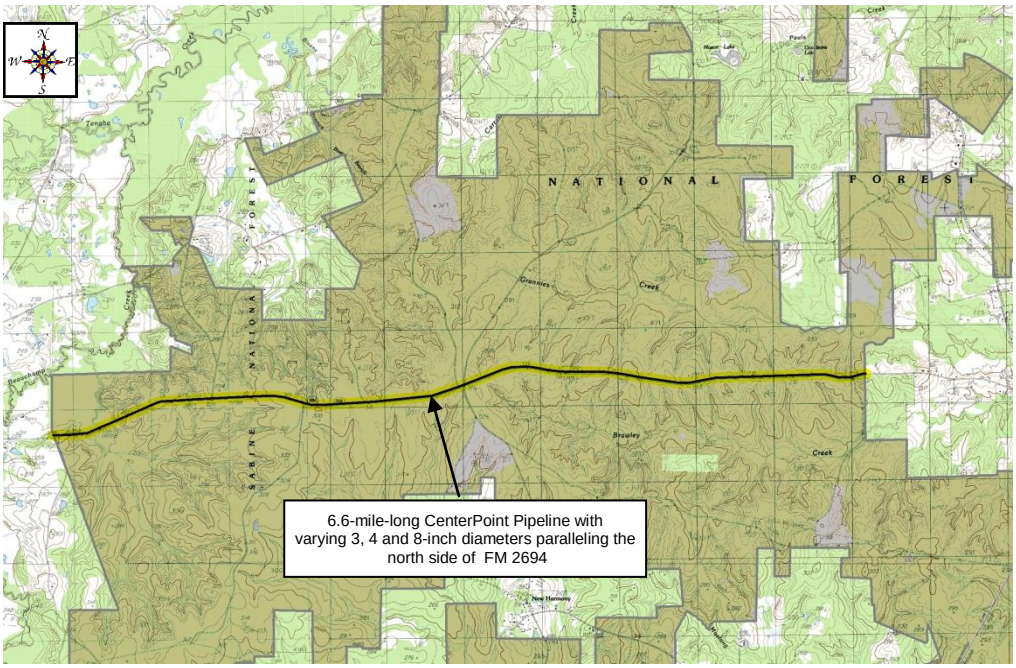

Figure 2. Existing CenterPoint Energy Pipeline

While this alternative would be feasible, the interruption of service and the associated costs of discontinuing service to their customers during the installation of the Project are sufficient enough that CenterPoint is unwilling to agree to such an action.

Alternative 4

This alternative would install the new pipeline on the north side of FM 2694 immediately north of and parallel to the existing CenterPoint pipeline in an area not classified as RCW management habitat. A total of 34,732 ft. (47.8 acres) of SNF land is proposed for use. This alternative would not interrupt existing gas services provided by CenterPoint. To avoid damaging the CenterPoint line and potential safety issues, 10-ft in width of the maintenance easement could be utilized for construction and 40- ft. in width of new workspace would be needed from the SNF compartments. Thirty (30) ft. in width of the 50-ft wide workspace would be retained as the maintenance easement for the new 6.6 mile-long utility.

HDDs would be used to install the pipeline and avoid impacts to the Boles Field Campground, streams, and 50 meter buffers either side of these resources. Horizontal bores would be used to

install the pipeline beneath Forest Roads 107, 142, 143 and 163. Since the exact location(s) of existing cultural resources on this route have not been provided, exact footages and impact acreages that would be avoided cannot be ascertained at this time. However, drills and bores of known resources would avoid a minimum of 1,890 ft. of SNF lands and reduce surface impacts by 2.17 acres.

The calculated area of surface disturbance for the 32,842 ft. of SNF lands would be 37.7 acres, of which 22.6 acres would be permanently maintained easement. Thus, this alternative would impact more forested acreage within the SNF than the preferred option.

Conceptually, a flow line from each individual well location could be assessed and planned that would take the most direct and shortest route out of the forest using any available common corridor (e.g. forest roads or trails, if they existed). However, this alternative does not accomplish the project goals outlined in the Purpose and Need section of this assessment since there is no existing gas trunkline surrounding the SNF that could then take the production volumes to market. Additionally, until a comprehensive assessment of the individual line concept is completed, the comparable resource affects cannot be evaluated. These affects would then have to be added to external impacts resulting from a new pipeline laid outside the SNF to provide a true comparison analysis.

Design Criteria Common to All Alternatives

In response to public comments on the proposal, design criteria were developed to ease some of the potential impacts the various alternatives may cause. The design criteria may be applied to any of the action alternatives.

1. The nearest known RCW clusters are more than 6.5 miles southeast of the eastern end of the proposed action, and no indications of this species presence were observed within ½-mile of the Project during a biological review of the proposed Project area;

2. Socio-Economic effects resulting from the Project would include the loss of timber value from the clearing of 19.6 acres of forest within the Project workspace, that would provide

market access to an estimated 550 bcfd of natural gas over the life of the Project worth an estimated $1.2 billion at current market prices;

3. Affects to visual resources would be limited as much as possible by 1) utilizing existing maintained easements along FM 2694 for use as temporary workspace, 2) avoiding clearing of 5.4 acres of forest on the SNF through the use of HDDs, 3) exposed soil would be fertilized and seeded with native or non-persistent forbs and grasses and 4) installing the Project within a 30-ft-wide easement immediately abutting to existing maintained easement along FM 2694 would reduce habitat fragmentation and limit impacts to "edge" habitat resulting from the Project. The installation and maintenance of temporary and permanent Best Management Practices (BMP) to control affects from erosion and sedimentation would be done in accordance to the Standards and Guidelines (S&G) of the *Plan;*

4. To insure public health and safety during the Project construction, cleared vegetation would be mulched and incorporated into the soils within the Project ROW or would be transported and disposed of off-site. No burning of stumps or cleared vegetation would occur that could present risk to public health or safety. The contractor would abide by all TXDOT regulations regarding management of traffic in the Project area and BMPs would be in place to assure roads are kept free of mud and debris and traffic would not be impeded;

5. Known archaeological sites occur on both sides of FM 2694, and the potential for discovery of new archaeological sites along FM 2694 on both the north and south side is high. A cultural resources assessment of the proposed action identified the presence of resources and recommended avoidance. The proposed action would utilize HDDs as the pipeline installation method allowing the pipe to pass under the resource locations without disturbing the soil surface at the areas; and

6. Known or discovered perennial and intermittent water sources, including springs, would be protected with buffers according to the *Plan*. These requirements are part of the Clauses and Attachments in the SUP. Operators are required to follow USFS S&G in the construction of pipelines. Those S&G contain mitigating measures that help control/minimize the potential negative impacts (sedimentation, pollution, damage to stream channel structure, etc.) of the project on stream courses and water quality. If the pipeline project crosses an intermittent or perennial stream, the pipeline is installed via HDD and pass under these resources at a sufficient depth without causing disturbance. No effects to these resources would result from implementing this mitigation method.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information presented in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table1

Alternatives Comparison
Newfield Huxley 12-Inch Natural Gas Gathering Pipeline Project
Sabine National Forest

	"No Action" Alternative	**Proposed Action by TPF II**	**CenterPoint Replacement**	**New Easement Parallel to CenterPoint**
Surface Disturbance Impacts	No Impacts	31.25 acres total in 27,143-ft-long, 50-ft-wide ROW (12.5 acres temporary impacts / 18.8 acres new easement)	45.6 acres total in 32,842-ft-long, 60-ft-wide ROW (22.8 acres in existing easement / 22.8 acres new easement)	37.7 acres total in 32,842-ft-long, 50-ft-wide ROW (7.5 acres in existing easement / 30.2 acres new easement)
Presence of Cultural Resources/ Impacts	Yes / No Impacts	Yes / Impacts avoided by HDD	Yes / Has potential to impact during replacement	Yes / Impacts avoided by HDD
MA-2: Red-cockaded Woodpecker Emphasis	No Impacts	Yes / 31.25 Acres	No impacts	No impacts

As presented and discussed in the EA sections and table above, the "No Action" Alternative is not feasible and does not accomplish the project goals for reasons previously outlined in the Purpose and Need section of this assessment.

Each of the three (3) remaining alternatives has similar abilities to implement alternate construction methods to avoid sensitive or significant resources; however, CenterPoint will not agree to the replacement option and the new easement option would result in more acres impacted.

Based upon the effected acreage of the Proposed Action and pipeline alternatives, the Proposed Action would affect less acreage of forest resources, and would be the Preferred Alternative as a result.

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. The analysis that follows has considered the best available science when evaluating the impacts of the proposed project on the forest resources through a review of scientific literature, a consideration of responsible opposing views, and the acknowledgement of incomplete or unavailable information, scientific uncertainty, and risk.

Introduction

This section describes the environmental effects of the alternatives. The best available science has been considered in this document. Scientific information from various papers and reports is referenced throughout this and other chapters of the document. To help quantify impact time periods for resource areas, the following terms are used:

- Short-term refers to impacts occurring less than one (1) year.
- Moderate-term refers to impacts occurring from one year through the life of the project and final reclamation (approximately 50 years).
- Long-term refers to impacts occurring longer than the life of the project and final reclamation.

Area Description

The Project begins approximately 2.4 miles east of Shelbyville in Shelby County, Texas, and parallels FM 2694 for 6.6 miles in length (Figure 1). The project occurs within approximately 40.2 acres of SNF lands in Shelby County, Texas, on the SNF, in administrative compartments 9, 15, 16, and 19. SNF Compartments 15, 16, and 19 are designated as part of Management Area 2 (MA-2) and Compartment 9 is part of MA-1 and is managed for maintenance of habitat components favorable to RCWs, including restoration and regeneration of upland pine forest

communities, while providing opportunity for timber production, mineral exploration and production and recreation. Several USFS roads and state roads transect the project area.

The project area is within the Lignitic Uplands Land Type Association of the Southeastern Mixed Forest Province, Western Mid-coastal Plains Section (NRCS 2010), predominantly consisting of upland pine-oak forests and mesic forests (American beech-white oak) along the drainages. Natural vegetation in the project area is primarily loblolly pine (*Pinus taeda*) with a midstory consisting of a mixture of hardwood trees and shrub/scrub including sweetgum (*Liquidambar styraciflua*), southern red oak (*Quercus falcata*), hickory (*Carya* spp.), and an understory with containing greenbrier (*Smilax* spp), grapes (*Vitis* spp), longleaf woodoats (*Chasmanthium sessiliflorum*) and American beautyberry (*Callicarpa americana*).

Effects Analysis Considerations

Definition of Effects

An assessment of the direct, indirect, and cumulative effects of the alternatives on environmental factors is presented in the following sections. Direct effects would be impacts caused by the alternatives at the same time and in the same place as the action. Indirect effects would be impacts caused by the alternatives that occur later in time or farther in distance than the proposed action. Cumulative effects would be additive impacts to a particular resource and include impacts of actions in the past, present and foreseeable future. The project area is defined as those areas on which management actions would take place, in this case the pipeline ROWs and interconnects. The cumulative effects analysis area includes all areas where direct and indirect effects may occur, not merely those areas upon which actions would take place.

Cumulative Effects

Cumulative effects in the analysis area would be related to past, present, and foreseeable future activities in the area surrounding the project. The cumulative effects analysis looks at major known activities including forest management activities and timber harvesting. This analysis

would look at how the proposed alternatives would add to the overall impacts to the surrounding area. A one-quarter (1/4)-mile buffer around the proposed project was selected as the spatial boundary for cumulative effects for all resource areas except for air quality, water quality and quantity where the watershed boundary was selected for the cumulative effects' spatial boundary. Cumulative effects of regional air quality are defined in this document as the immediate project location. These spatial boundaries are considered the surrounding area for cumulative effects analysis of the proposed action. The temporal boundary to determine foreseeable future activities is five (5) years because of the structure of SNF plans for the area.

Activities in the cumulative effect area include timber management, habitat improvement, and recreation activities (developed and dispersed) on SNF lands and private lands and dispersed recreation. Past activities have included forest management, recreation, and gas extraction.

Future forest management activities planned in the project area include prescribed burns. These prescribed burns should enhance forest quality by controlling understory growth.

Other specific disturbance acreage and impacts associated with the actions within the cumulative effects analysis area are not known. No major developments are known to be planned in the cumulative effects analysis area except for the Project's proposed action. Due to the lack of past, present, and future activities in the cumulative effects analysis area, there is little potential that the proposed action would contribute to significant cumulative impacts to the area. Cumulative effects are analyzed for each resource area in the following sections.

Soil

The *Plan* (USFS 1996) directs the SNF to prevent soil erosion and degradation. This includes analyzing all proposed surface-disturbing activities to determine the suitability of the soils to support and sustain the action.

Environmental Baseline

Soils in the area are described in the Natural Resources Conservation Service (NRCS) Soil Survey of Shelby County, Texas (NRCS 2010). Within the proposed area of disturbance, Metcalf-Sawtown complex, 0-2% slopes, mounded and Eastwood very fine sandy loam, 1-5% slopes are the soil map units most affected by the proposed action. Other soil map units affected include the Eastwood very fine sandy loam, 5-15% slopes; Eastwood-Latex complex, 1-3% slopes, mounded; Latex fine sandy loam, 1-3% slopes; Dreka loam, 0-1% slopes, frequently flooded; Maben fine sandy loam, 5-15% slopes; and Eastwood very fine sandy loams, 1-5% slopes. These soils are generally fine-textured ranging from very fine sandy loams to loams. Dominant soils are generally deep to very deep except for Maben soils that are moderately deep. Most of the soils are moderately well drained to well-drained with the exception of the Metcalf and Dreka soils that are somewhat poorly drained. Some soils, particularly the Dreka soils, could show hydric characteristics depending on saturation periods. The majority of soils are moderately susceptible to wind erosion. The Eastwood and the Maben soils are classified as very high or high runoff class; Metcalf soils are classified as medium runoff class; and the Sawtown and Latex soils are classified as a low runoff class. The soils are comprised of loams and sandy loams and thus have only pose a slight to moderate compaction hazard.

Table 2

Project Area Soils Data
Newfield Huxley 12-Inch Natural Gas Gathering Pipeline Project
Sabine National Forest

Soil Map Unit Name	Surface Impacts to SNF Lands (acres)	Surface Impacts to Private Land (acres)	Erosion Potential / K Factor Value	Bulk Density (g/cm^3)	Compaction Hazard
Eastwood very fine sandy loam, 5-15% slopes	1.52	0.12	High / 0.49	1.55	Slight/Moderate
Eastwood-Latex complex, 1-3% slopes, mounded	3.64	0	Medium-High / 0.37-0.49	1.55	Slight/Moderate
Eastwood very	5.73	0	High / 0.49	1.55	Slight/Moderate

fine sandy loam, 1-5% slopes					
Maben fine sandy loam, 5-15% slopes	0.27	0	Medium / 0.28	1.53	Slight/Moderate
Metcalf-Sawtown complex, 0-2% slopes, mounded	18.22	0	Medium-High / 0.37-0.49	1.49-1.59	Slight/Moderate
Latex fine sandy loam, 1-3% slopes	0.69	0	Medium / 0.37	1.55	Slight/Moderate
Dreka loam, 0-1%	1.18	0	Medium / 0.37	1.4	Slight/Moderate
Total	**31.250**	**0.12**			

The soils within the Project area exhibit medium to high erosion potential. The USFS recommended BMPs would be implemented to prevent the risk of erosion resulting from the proposed project activities. Root growth is restricted at a bulk density greater than 1.55 g/cm^3 and the soils within the Project area have undisturbed soil densities ranging from 1.4-1.59 g/cm^3. Soil compaction would result from vehicles and heavy equipment accessing the ROW during construction; however, mulching of the cleared vegetation to add organic matter into the soil, disking of the ROW, and revegetating the disturbed workspace would offset the temporary compaction of the soils experienced during construction.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

There would be no actions undertaken related to the Project, therefore no adverse direct or indirect impact on soil resources in this area. Soils would continue to erode off previously existing roads and there would be impacts from on-going activity in the watershed on SNF and private land (see Cumulative Effects).

Cumulative Effects

Under the "No Action" Alternative, there would be no effect on soil. Cumulative effects would include thinning, habitat management, and ongoing recreational activities in the project area in addition to timber harvest on private land. The known activities on SNF land would result in short- to moderate-term impacts from soil exposure from vegetation removal. Thus, the No Action Alternative would not be expected to impact soils.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

For the proposed action, the project area was assumed to be a 6.6-mile long, 50-ft-wide construction ROW, of which 30 ft in width would be the maintenance easement, 20 ft in width would be temporary workspace within the existing TXDOT easement, and there would be five (5) 30-ft by 30-ft interconnect points. Excluding areas avoided by horizontal bores and HDDs where no surface disturbance would occur, the proposed action would result in 31.25 acres of surface disturbance.

Impacts to soils from the proposed action would be long-term. Effects from the proposed action would include the temporary compaction, erosion, or decrease in soil quality (structure, organic matter, nutrients, etc.) from the construction of the pipeline. Soils would be affected by heavy equipment used to harvest timber, clear understory vegetation, and build the pipeline and surface sites within the watersheds. These actions would potentially expose mineral soil and result in possible acceleration of soil erosion, compaction, and reduction of soil quality. The NFGT standards and guidelines as defined in the *Plan* (USFS 1996) would be incorporated to minimize these impacts. Soil would be saved during construction and stored in stockpiles for redistribution during reclamation. Stockpiles would be protected from runoff to reduce soil loss, retain nutrients, and maintain soil microbial communities. During interim and final reclamation, the stockpiled soil would be redistributed, amended as needed and seeded in compliance with NFGT guidelines. These steps would minimize the potential for loss of productivity due to compaction and erosion. BMPs for the pipeline construction would be implemented as

recommended by the *Plan* to meet state water quality standards and heavy equipment would not operate when soils are wet to avoid compaction.

The use of HDDs and bores significantly reduces the amount of surface area disturbed, and in turn, the amount of soil exposed to erosion and compaction. Effects to subsoils could be considered a long-term impact due to restructuring of subsurface soil horizons.

Cumulative Effects

Cumulative effects to soils would include increased soil compaction, erosion, and loss of nutrients from construction activities, thinning, habitat improvement, and timber harvest activities in the project area. Through implementation of USFS BMP, the effects of implementing the proposed action with required mitigation would be minimal and would not be expected to result in a significant cumulative effect on soils when combined with other reasonably foreseeable activities in the surrounding area. Cumulative effects to soils would be considered a long-term impact due to soil compaction and restructuring of surface soil horizons.

Water Quality and Quantity

The *Plan* (USFS 1996) directs the NFGT to maintain and improve surface and ground water quality and quantity to be consistent with future needs.

Environmental Baseline

Surface Water

The Project area is in Toledo Bend Reservoir Subbasin (Hydrologic Unit Code [HUC]12010004); Bayou Siep (HUC 1201000408) and Tenaha Creek (HUC 12010000401) Watersheds; and the Grannies Creek-Toledo Bend Reservoir (HUC 120100040801), Bayou Siep (HUC 120100040803), and Beauchamp Creek-Tenaha Creek (HUC 120100040104) Subwatersheds in Shelby County. Surface hydrology is heavily influenced by temperature, rainfall, and humidity (Sabine River Authority of Texas 1999).

The streams within the Bayou Siep and Tenaha Creek Watersheds are tributaries to the Toledo Bend Reservoir. The construction of the Toledo Bend Dam, and subsequent formation of the Toledo Bend Reservoir, occurred in 1964. The Toledo Bend Reservoir is an 185,000-acre reservoir constructed primarily for the purposes of hydroelectric power generation, water supply and recreation.

The Bayou Siep Watershed consists of two (2) major drainages: Brawley Creek and Grannies. These drainages flow eastward and join together before entering Toledo Bend Reservoir.

The Tenaha Creek Watershed consists of Beauchamp Creek and Tenaha Creek which flow northeasterly and join together before entering Toledo Bend Reservoir. Most of the project length is parallel to these two (2) streams and along the ridgeline separating these waters. An unnamed tributary to Beauchamp Creek is transected on the western end of the project. All stream crossings with an established bed and bank would be avoided using HDDs or bores.

A search of the Texas Commission on Environmental Quality (TCEQ) surface water quality database found no water quality monitoring stations on the streams within the project area. The nearest gauging station is on the Sabine River, below Toledo Bend Reservoir, Station 802600 (USGS 2011). Flow records for the period 2000 to 2010 show an average annual flow rate of 7,730 cubic ft per second. No stream segments within the watersheds are listed as impaired (303d list). However, Toledo Bend Reservoir is listed as impaired for dissolved oxygen and mercury in fish (TCEQ 2008).

Floodplains are areas of low-elevation present along a river or stream channel. Such lands may be subject to periodic or infrequent inundation following large rain events that result in high stream stages. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which determines the floodplain for 100- and 500-year flood events. Federal, state, and local regulations often limit floodplain development to passive uses such as recreational and preservation activities in order to reduce the risks to human health and safety. A review of the FEMA-mapped 100-year floodplains for the project area show only one (1) location, the crossing of an unnamed tributary to Beauchamp Creek on the western end of the Project that lies within

Zone A or the 100-year floodplain. The project would be installed via HDD through this location. All other portions of the Project lie on a ridge above the 100-year flood plain.

Ground Water

The Project area was surveyed for any occurrences of springs at the time of review. No springs were observed to occur within the Project's area of effect.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

Under the "No Action" Alternative, the current activities on SNF and private land would continue. There would be no affect to water quality or to springs. There would be sediment loading from preexisting conditions, current gas facilities, timber management and recreation, but the increase would not be significant.

Cumulative Effects

Based upon USDA-NRCS soil information, the portions of the Bayou Siep-Toledo Bend Reservoir and Tenaha Creek watersheds transected by the project have a soil type of sandy loam.

The "No Action" Alternative would result in no measured effect to water quality or quantity or to springs. Therefore, these effects could not be combined or added to effects from other activities resulting in significant cumulative effects. Activities within the cumulative impacts analysis area do not pose other significant additional impacts to water quality.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

Surface Water

Potential direct effects include a decrease in surface water quality from increased sedimentation due to accelerated soil erosion from areas where vegetation is removed. Contamination of surface water by spills of fuels or petroleum products are also a potential effect of construction and equipment operations. The contamination could occur from two mechanisms: direct spills of materials into a creek, and indirect contamination of surface water due to migration of petroleum from areas of soil contamination adjacent to surface watercourses.

Measures incorporated into the project design, including sediment controls and avoiding streamside management zones (SMZs), minimize the potential for water quality impacts. Avoiding impacts in SMZs and use of USFS BMPs would minimize the potential to contaminate surface water.

Cumulative Effects

The two (2) alternatives ("No Action" and Proposed Action) and their activities would lead to increased sedimentation rates for the Project beyond historic and previously approved management activities in the watersheds. Despite HDD avoidance of streams and maintenance of buffers along streams transected by the Project, the proposed conventional construction activities conducted outside of these avoidance areas in the watersheds would have the potential to increase sedimentation load in the watersheds above baseline, but would be below the 3,000 percent increase criteria suggested as acceptable by the USFS (USFS 2003). The cumulative effect of the proposed action is expected to be relatively minor in relation to past and present management activities within the Bayou Siep-Toledo Bend Reservoir and Tenaha Creek watersheds.

The combined activities would not result in a significant increase in sediment that would affect water quality. The proposed action, when combined with reasonably foreseeable future activities, is not expected to significantly affect water quality or quantity.

Air

The Federal Clean Air Act (CAA) and its amendments established the prevention of significant deterioration (PSD) program to help protect attainment areas (Class I and Class II areas), and established limits to visibility impairment for Class I areas. The delegated authority within Texas is the TCEQ. Environmental regulations are set forth by TCEQ under the Texas Administrative Code (TAC). The *Plan* (USFS 1996) directs the NFGT to maintain air quality at federal and state standards.

Criteria Pollutants

Criteria pollutants are those air pollutants for which Environmental Protection Agency (EPA) has established standards that provide a threshold above which there is potential risk to public health and welfare. These standards, referred to as the National Ambient Air Quality Standards (NAAQS), are established through the CAA (40 CFR Part 50) for six (6) airborne pollutants including the following:

- Lead
- Nitrogen dioxide (NO_2)
- Sulfur dioxide (SO_2)
- Carbon monoxide (CO)
- Ozone (O_3)
- Particulate matter (implemented as PM_{10} and $PM_{2.5}$)

States are responsible for bringing their region into compliance with the NAAQS, which is achieved through state implementation plans. In addition, states have the authority to establish lower state-only ambient air quality standards and to implement stringent regulations. Emissions of criteria pollutants would be largely regulated at the federal level under New Source Performance Standards (NSPS) promulgated by EPA through the CAA. NSPS would be

established for numerous source categories to limit air pollutants from new or modified sources. The TCEQ has established state-only air quality rules and regulations under TAC, which include permitting requirements for proposed sources of criteria pollutants.

Climate Change

A quantitative analysis of the project's potential Green House Gas (GHG) emissions and effects on Climate Change is not necessary. As discussed below, the total direct and indirect emissions of GHG's is of minimal amounts and limited in duration, and the alternatives discussed offer no reduction in emissions in comparison to the preferred action.

Environmental Baseline

The Project area begins approximately six (6) miles east-southeast of the town of Center in Shelby County, Texas on the border with Louisiana. Most of the project is located in the SNF and adjacent to the Toledo Bend Reservoir (formerly the Sabine River) at an elevation of approximately 300 ft above mean sea level (ASL). The nearest major city is Shreveport, Louisiana, which is located approximately 54 miles to the north-northeast of the project area.

Climatology

The Project area is located in the humid subtropical climate zone, which is characterized by hot, humid summers and mild winters. There is some influence from the interior North American continental climates, especially during winter months when cool, dry Canadian air masses can reach the area. Historical meteorological data are available for Center, Texas (325 ft above sea level [ASL]) and Shreveport, Louisiana (254 ft ASL) (National Climatic Data Center [NCDC] 2010).

Daily mean temperatures in Center, Texas, remain above freezing throughout the year and range from 34.9 to 57.1 degrees Fahrenheit (°F) during mid-winter and 71.6 to 93.9 °F during mid-

summer. Extreme temperatures have reached 0 °F (February 1951) and 112 °F (September 2000). The frost-free period typically lasts from late March through early November.

Precipitation occurs throughout the year with minor peaks in mid-winter and late spring. The area is susceptible to tropical cyclones, which can bring brief, torrential rains capable of substantial flooding. The annual mean total rainfall is 53.01 inches, and the maximum daily rainfall was 9.66 inches (November 1940). Though snowfall is rare, recorded snowfall has occurred November through March. The mean annual snowfall is 1.6 inches, with the highest monthly snowfall at 5.0 inches (January 1973) (NCDC 2010).

Air Quality

Criteria Pollutants

The EPA or federally authorized state agency designates an area's air quality attainment status, based upon regional conditions. The designated attainment status effects the regulatory applications and requirements, for each criteria pollutant when new permanent emissions sources are under consideration. The attainment status is based on monitored concentrations compared to the NAAQS. The Project area is designated attainment for all criteria pollutants.

The nearest air quality monitors are located at the San Augustine Airport, approximately 17.5 miles southwest of the Project area. The site was active July 2005 through December 2006, and was equipped to measure NOx and O_3. Measured concentrations indicate compliance with the annual and one-hour NO_2 and the eight (8)-hour O_3 NAAQS during the monitoring period. However, three years of data are necessary to determine compliance with the one (1)-hour NO_2 and eight (8)-hour O_3 NAAQS.

Greenhouse Gases

Regulation of GHG has only been established in the past few years, and strategies for mitigation are still being developed. EPA has not established an ambient air quality standard for GHG, and

there has not been any local monitoring of GHG. Global background CO2 data are available, but effects of a single project on global background concentrations would be immeasurable.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

There would be no change to the baseline condition under the "No Action" Alternative.

Cumulative Effects

No effects to the baseline condition would occur if this project is not approved. However, nearby development of the Haynesville shale on non-federal land may still occur in the future, which may affect regional air quality. Regional air quality is defined in this document as the eastern Texas and western Louisiana area that encompasses approximately 500 miles surrounding the SNF.

Alternative 2 (Proposed Action)

Potential air quality effects of the project were assessed through emission calculations. Activities associated with the development were broken into two (2) main phases: construction and operation. The construction phase includes all activities associated with the construction of the proposed pipeline. The operation phase begins after completion and continues for the life of the pipeline.

Emissions of GHG are reported as CO_2e emissions. The CO_2e conversions are based on the global warming potential (greenhouse effect) of the GHG pollutant versus CO_2 and are as follows:

Pollutant	CO_2 Equivalent Emissions
CO_2	0.0
CH_4	0.0
NO_2	3,825

CO_2, CH4, and NO_2 emissions were calculated for each emission source and were converted to CO_2e with the following equation: $CO_2e = (1 \times CO_2) + (21 \times CH_4) + (310 \times NO_2)$. Detailed emission calculations by source are included in Appendix C.

Direct and Indirect Effects

Construction

Proposed project emissions account for this existing infrastructure and only consider future construction activities. Construction emissions are projected to last six (6) weeks total. All land preparation and earth-moving activities are assumed to occur continuously over that time period. Emission sources during the construction phase are detailed in Appendix C. Cumulatively, the calculated air emissions from construction and future operations do not achieve a level of significance such that individual state or federal permitting, or a General Conformity Analysis is required by regulation.

Vegetation

The *Plan* (USFS 1996) directs the NFGT to manage vegetation on the SNF. This includes analyzing all proposed surface-disturbing activities to determine the level of impacts to the vegetation community. The significance of potential effects is evaluated relative to the S & G in the *Plan* and state and federal laws.

Environmental Baseline

Regional

The project is located in the Lignitic Uplands Land type Association of the Southeastern Mixed Forest Province, Western Mid-coastal Plains Section (NRCS 2010). This section is split from the rest of the Oceanic Mixed Constantly Humid Forests Province at the Mississippi River. This western perimeter is where coastal plain elements transition into those more often associated with the central prairies. This mature, undulating to rolling landscape has developed on geologies of Eocene age and older.

The upland vegetation is dominated by fire-dependent pine, originally longleaf pine (*Pinus palustris*) as well as loblolly pine, shortleaf pine (*Pinus echinata),* and hardwoods in mesic areas and bottomland hardwood forest in extensive lowland drainages (USFS 1985). Many areas historically cleared for crop production have been converted to pasture or have been reforested, either by natural reseeding or by planting.

Project Area

The Project area is approximately 40.2 acres situated within compartments 9, 15-16, and 19 of the SNF, Shelby County, Texas. The Project area occurs in the Tertiary Uplands Ecoregion (Level IV) of the South Central Plains Ecoregion (Level III), which are generally flat to rolling hills with gentle and moderate slopes (Griffith et al 2007). Shortleaf pine-post oak, and shortleaf pine-(longleaf pine)-post oak communities are the most common land type phase (LTP) in the 19.7 acres of forested habitat that would undergo clearing and surface disturbance during the proposed action.

Natural vegetation is primarily loblolly pine with a mixture of hardwood trees such as sweetgum, blackjack oak (*Quercus marilandica*), white oak (*Quercus alba*), southern red oak (*Quercus falcata),* American beech (*Fagus grandifolia*), American hornbeam (*Carpinus caroliniana*), American holly (*Ilex opaca*) and hickories in the midstory. Sparse woody shrub species consist

of American beautyberry (*Callicarpa americana)* and yaupon holly *(Ilex vomitoria)*. The herbaceous layer consists of grasses like longleaf woodoats and vines including greenbrier and grapes. Most of the Project area shows evidence of prescribed burns.

The American beech-white oak series is preferred habitat for two (2) NFGT sensitive species: the barbed rattlesnakeroot (*Prenanthes barbata*) and southern lady's slipper (*Cypripedium kentuckiense*). This series is considered a mesic forest type within the bottomland hardwood community and stands generally occur along creek bottoms. Other plant species associated with this community are water oak (*Quercus nigra*), blackgum (*Nyssa sylvatica*), American holly, dogwood (*Cornus* spp.), and American hornbeam.

Non-native invasive plant species (NNIPS) observed or previously documented in the Project vicinity include Japanese climbing fern, (*Lygodium japonica),* silktree (*Albizia julibrissin*), multiflora rose (*Rosa multiflora*), Chinese privet (*Ligustrum sinense*), water hyacinth (*Eichhornia crassipes*), chinaberry tree (*Melia azedarach),* golden bamboo (*Phyllostachys aurea*), and Chinese tallow tree (*Triadica sebifera*). Monitoring and treatment of NNIPS would be conducted as described in the NNIPS EA.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

Under the "No Action" Alternative there would be no change from the current condition. Timber management and habitat management would continue.

Cumulative Effects

Under the "No Action" Alternative, there would be no overall negative effect on vegetation. Cumulative effects would include thinning, habitat management, and ongoing recreational

activities in the Project area in addition to timber harvest on private land. The known activities on SNF land would result in short- to moderate-term vegetation removal. Control of NNIPS would improve habitation, but would not impact vegetation.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

If the Project is approved, there would be the short- to moderate-term removal of 31.25 acres of vegetation to construct the pipeline on private and public land. The purpose of this EA is to acquire the authorization of the Project activities occurring on USFS lands only.

The effect would be long-term, due to the alteration of vegetation and installation of facilities during construction and production. The pipeline would remain in service until well production ends. At the end of production, the pipeline easement would be reclaimed to NFGT reclamation standards in accordance with Appendix B of the *Plan* and the clauses and attachments of the pipeline SUP. Re-growth of forest vegetation would take years to establish after reclamation activities due to the length of time to establish forest stands. The conversion of upland pine forest would not be significant because of the relatively small amount of disturbance when compared to the size of the SNF. TPF II would implement avoidance measures to minimize or avoid impacts to LTP areas labeled streams, riparian areas, wetlands, and temporarily flooded bottomlands (see Wetlands and Riparian Areas)

Without adequate weed management, noxious weeds tend to invade areas that are disturbed and contribute to low populations of native plants. TPF II would implement an Integrated Pest Management Plan (IPMP) to respond to NNIPS infestations. The IPMP includes monitoring and control methods to control or eradicate invasive species. Reclamation, per the *Plan*, would establish native and non-aggressive annuals as specified by the NFGT that would compete with, and limit the potential for NNIPS to establish. Interim reclamation with NFGT approved native and non-aggressive annual species would reduce bare areas that would be conducive to NNIPS

invasion. The seed mixes would be certified free of noxious weed seeds and any mulch or hay bales used for erosion control would be certified noxious weed free.

Revegetation with native, non-invasive annual species as specified by the SNF, as well as monitoring and control as part of the IPMP, would minimize the potential for increased competition from NNIPS. The proposed action would not have a significant negative effect on the forest and may have a positive effect if existing populations of NNIPS were better controlled or eradicated.

Clearing of vegetation could increase erosion and sediment contributed to streams, indirectly effecting water quality and aquatic wildlife. Siting of the facilities outside SMZs and implementation of USFS BMPs would minimize the potential to increase sediment loading.

Cumulative Effects

Cumulative effects to vegetation would include vegetation removal from pipeline construction activities, as well as thinning and habitat improvement activities elsewhere in the watershed conducted as part of SNF management practices in the Project area. Besides disturbance related to the proposed action, other known activities on SNF land would result in of the removal of vegetation. Some of these other activities (thinning and invasive species management) improve habitat. The effects of implementing the proposed action would be minimal and would not be expected to result in a significant cumulative effect on vegetation when combined with other reasonably foreseeable activities in the surrounding area. Cumulative effects to vegetation would be considered a long-term impact due to the project lifetime.

Wildlife

The *Plan* (USFS 1996) directs the NFGT to manage habitat to optimize use by the local wildlife populations. The *Plan* also requires analysis of all proposed surface-disturbing activities to determine the potential impacts to terrestrial and aquatic wildlife populations. The significance of potential effects is evaluated relative to standards in the *Plan* as well as state and federal laws.

Environmental Baseline

Terrestrial Wildlife

The Project area is composed predominately of fire-dependent loblolly pine forests with mesic hardwood areas along streams that provides habitat for a variety of terrestrial wildlife species. In addition to common terrestrial wildlife having the potential to occur in or near the Project area, several listed species including bald eagles (*Haliaeetus leucocephalus*) and RCWs are known to occur within the SNF, although not in close proximity to the Project itself.

Aquatic Wildlife

The Project area is on the western slopes of the Lower Sabine River Basin (Toledo Bend Reservoir) within the Bayou Siep-Toledo Bend Reservoir and Tenaha Creek watersheds in Shelby County. Soils surrounding waterways are highly susceptible to erosion and if not properly managed can results in bank instability or failure, reducing the quality of aquatic wildlife habitat. Currently, stream banks along waterways within the Project area are somewhat unstable due to past land use disturbances in combination with highly erodible sediments.

The Project crosses only one intermittent tributary to Beauchamp Creek; however, no impacts to the crossing would result due to avoidance by HDD.

Effects of Implementation

Alternative 1 (No Action)

Terrestrial Wildlife

Direct and Indirect Effects

There would be no change from the current condition under the "No Action" Alternative.

Cumulative Effects

Under the "No Action" Alternative, there would be no effect on terrestrial wildlife. Cumulative effects would include thinning, habitat management, and ongoing recreational activities in the Project area in addition to timber harvest on private land. The known activities on SNF land would result in short- to moderate-term vegetation removal and would improve habitat overall. Thus, the "No Action" Alternative would not negatively impact terrestrial wildlife.

Aquatic Wildlife

Direct and Indirect Effects

There would be no change from the current condition under the "No Action" Alternative.

Cumulative Effects

Under the "No Action" Alternative, there would be no effect on aquatic wildlife. Cumulative effects would include thinning, habitat management, and ongoing recreational activities in the Project area in addition to timber harvest on private land. The known activities on SNF land would result in short- to moderate-term vegetation removal and would improve aquatic habitat overall. Thus, the "No Action" Alternative would not negatively impact aquatic wildlife.

Alternative 2 (Proposed Action)

Terrestrial Wildlife

Direct and Indirect Effects

Effects to wildlife include direct loss of habitat due to surface disturbance and increased noise and habitat fragmentation from the clearing of vegetation and construction of the pipeline.

Direct effects include loss of habitat for wildlife species that depend on tree and shrub cover for nesting habitat, foraging, escape cover or loafing. Approximately 31.25 acres would be disturbed and vegetation removed; although, the effect would be short-term, since the pipeline disturbance would be revegetated immediately following completion of the construction activities.

New edge habitats would be avoided since the pipeline would parallel and abut previously cleared easements and an existing road, FM 2694. Timber would be removed from the construction easement along the ROW for the pipeline and would be replaced by emergent vegetation for pipeline inspection purposes.

The conversion of upland pine forest would not be significant and there is adequate upland pine forest habitat in the area for terrestrial species. Although these effects would be moderate-term a positive effect would be the increase of herbaceous foraging habitat for wildlife species that utilize early successional forest.

Increased noise from construction, drilling, and completion may have an effect on some species that use this habitat or adjacent habitats near the cleared easement. Noise effects would be short-term and limited to the construction phase.

Cumulative Effects

Cumulative effects to terrestrial wildlife would include increased noise, vehicle-animal collisions, habitat alterations, vegetation removal, and some edge effects. These effects are minimal and would not be expected to result in a negative effect on terrestrial wildlife. See Vegetation sections for further discussion on wildlife habitat.

Aquatic Wildlife

Direct and Indirect Effects

If the Project is approved, the most significant effect to aquatic wildlife within the Project area would be increased sedimentation as erosion may occur once upland vegetation is removed as a result from the proposed action (see Water Quality).

The potential for sedimentation has been minimized by maintaining a vegetated buffer for drainages and by installing the pipeline at stream crossings using HDDs and bores. The new pipeline would follow existing easements and roads to limit effects and total disturbed acreage. The practice of leaving a buffer around all drainages would minimize the amount of sediment that may potentially enter a stream after upland vegetation removal. Riparian vegetation can filter sediment, nutrients, and pollutants before they reach the waterway. Riparian vegetation is also critical for maintaining stable banks and therefore reducing any direct loss of fish habitat (see Wetlands and Riparian Areas).

Any effects from sedimentation during the HDD or other construction operations would be minimized using protective measures, as described in the guidelines for the management of SMZ to minimize sediment entering waterways. The use of silt fences during construction as well as reclamation of disturbed land would be utilized to limit the amount of time bare areas are exposed.

Additional direct effects to waterways could include contamination of waters by heavy machinery and spills. The accidental release of drilling fluid (water/bentonite mixture) during the HDD is another potential concern. Drilling fluid is typically a mixture of bentonite clay and is classified as a non-toxic and non-hazardous substance. TPF II or the drilling contractor would install control measures between the drilling area and streams, such as hay bales, silt fences, or berms to prevent drilling fluids and chemicals from entering streams. Measures incorporated into the Project design would serve to minimize any potential contamination.

Cumulative Effects

Cumulative effects to aquatic wildlife would include decreased aquatic habitat from preexisting conditions. The proper implementation of stormwater control measures for the associated activities in the cumulative effects analysis area can greatly reduce additional sedimentation. Waterways within the Project area are already experiencing high sediment load in some areas due to naturally unstable banks and sediments and past land management practices**.** The effects of implementing the proposed action when combined with other activities are minimal and would not be expected to result in a significant effect on aquatic habitat.

Proposed, Endangered, Threatened and Sensitive Species (PETS)

The Endangered Species Act, as amended (1973) protects threatened and endangered species and their habitat. The NFGT has a RFSS list of species that they designate as sensitive. In some cases, these sensitive species may be considered for future designation as federal candidate species. The *Plan* (USFS 1996) directs the NFGT to protect and manage PETS populations for future species sustainability. The significance of potential effects is evaluated relative to standards in the *Plan* and state and federal laws.

Environmental Baseline

The NFGT is responsible for protecting all federally proposed and listed species including those on the RFSS list likely to occur on the SNF.

Potential effects on federally listed threatened, endangered, or candidate species; PETS; and state listed species potentially located within Compartments 9, 15, 16, and 19 of the SNF were evaluated in the BE and a list of the species evaluated are included in Appendix D.

Of these species, only the RCW was further evaluated. Recent field studies and consideration of past element occurrence ranks provide sufficient effort of assessment for the activities planned within the scope of the proposed Project.

Federally Listed Species

Red-cockaded woodpecker (*Picoides borealis*) [Endangered]: The RCW is associated with open, mature pine forests that it uses for nesting, foraging, and cavity excavation (Jackson 1971). The RCW breeding season is designated from between April 1 – July 31 (Brett 2011).

The USFWS estimates the current RCW population in the southeastern U.S. is less than three percent of the original population (USFWS 2003). The loss of old-growth pine forest in the southeastern United States, particularly the open park-like longleaf uplands, has greatly contributed to the decline of the RCW. Large-scale timber harvesting during the latter 1800s and early 1900s in conjunction with the conversion of many forested areas to agriculture were the primary factors responsible for the decline in RCW habitat. More recently, conversion of forest habitat to non-forest uses, short-rotation timber management, and suppression of the natural fire regime have intensified the decline of suitable RCW habitat. Despite the USFS formally listing the RCW as endangered in 1970, RCW numbers continued to decline until the mid-1990s (James 1995). New management techniques increasing cavity availability (restrictor plates and artificial cavity inserts) and habitat management improvements (midstory control) have resulted in sustaining and/or increasing populations in the last 10 to 15 years (Copeyon et al 1991; Conner et al. 1995; Loeb et al. 1992).

No RCW clusters occur within one-half (1/2) mile of proposed Project area, in fact the nearest recorded cluster is in excess of six (6) miles to the southeast. Based upon stand data and stand data recorded during the pedestrian survey, the habitats within the Project area are classified as "Fair" or "Poor" for RCW use.

Two (2) qualified biologists from GAI surveyed the Project area for all suitable and potentially suitable RCW habitat, up to 200 ft out from the zone of disturbance, along FM 2694 for

undocumented cavity trees. Suitable habitat was defined as forest stands at least 60 years of age and classified as pine dominated. Surveys for undocumented cavity trees were conducted in August 2011 by federally permitted personnel experienced in identification of RCW and cavity trees. No undocumented cavity trees were identified during the survey.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

No effects to PETS species would occur under this alternative and conditions would remain the same.

Cumulative Effects

Under the "No Action" Alternative, there would be no known negative effect on PETS. The known activities on SNF lands would result in short- to moderate-term vegetation removal and would improve PETS habitat overall. Thus, the "No Action" Alternative would not be expected to negatively impact PETS.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

Red-cockaded woodpecker: A detailed analysis of potential effects to RCW clusters was performed and is included in the BE (Appendix B). The effects threshold includes the following:

- Any removal of good or fair habitat within 0.25 miles of an active RCW cluster
- Any removal of good or fair habitat within 0.50 miles of an active, inactive or recruitment RCW cluster, if there is less than 120 acres of good or fair habitat

- Any removal of good or fair habitat within 0.50 miles of an active, inactive or recruitment RCW cluster, that would reduce good or fair habitat to less than 120 acres
- Any disturbance within 200 ft of an active nest cavity tree (April 1 through July 31)
- Any disturbance one hour before sunset and one hour after sunrise within 200 ft of an active or roosting nest cavity tree (August 1 through March 31)

As presented and discussed in Section 4.0 of the BE prepared for this project, the section of the SNF crossed by the project contains habitats managed to be suitable habitat for RCWs. Since the lands immediately adjacent to and within the proposed area of effect were not observed to support, and are not known to support occurrences of any individual federal listed species, the project would have no direct effect to any Federal listed Threatened and Endangered species. However, activities within the cumulative effects analysis area would result in the moderate- to long-term net loss of 31.25 acres of potentially suitable RCW habitat. Because the impacted acreages are immediately adjacent to existing utility easements and FM 2694, are greater than six (6) miles from the nearest known cluster, and foraging habitat would not be substantially impacted for any individual cluster and would not likely reduce the ability of USFS to continue growing the population in the northern habitat management area, the project would be "not likely to adversely affect" RCWs.

Cumulative Effects

Red-cockaded woodpecker: Activities within the cumulative effects analysis area would result in the moderate- to long-term net loss of potentially less than 31.25 acres of suitable RCW habitat in the HMA, due to the proposed action. The impacted acreages are immediately adjacent to existing utility easements and FM 2694 and are greater than six (6) miles from the nearest known cluster. Foraging habitat would not be substantially impacted for any individual cluster and would not likely reduce the ability of NFGT to continue growing the population in the northern habitat management area.

Management Indicator Species

The *Plan* (USFS 1996) directs the NFGT to adequately address the Management Indicator Species (MIS) concept. This includes analyzing all proposed surface-disturbing activities to determine the potential impacts to MIS populations and habitat.

MIS are identified in the *Plan* for the entire NFGT. MIS are species that can be used to predict the response from habitat management activities of species that require similar habitats. These species are a way for the NFGT to monitor some forest health trends on SNF (USFS 1996).

MIS are used to provide management direction through objectives established to achieve the desired future conditions and to assess, through monitoring, the effects of management on an ecosystem. MIS are addressed in order to implement the National Forest Management Act regulations.

A subset list of forest-wide MIS was selected for further evaluation for the Project area. These MIS selected are evaluated because the vegetation types or habitat for the species exists in the Project area.

Environmental Baseline

Terrestrial Species

Red–cockaded woodpecker: Addressed under the PETS section.

Loblolly-oak forest: Loblolly-oak forest consists predominantly of loblolly pine, although shortleaf pine may be present, as well as southern red, white, post, and water oaks, and hickories. This is the predominant habitat within the Project area.

According to the 2009 Monitoring and Evaluation Report, 336,908 acres of loblolly-oak forest are known to occur in the SNF. The *Plan* states a short-term objective of 270,000 acres of

loblolly-oak forest and a long-term objective of 210,000 acres (USFS 1996). The Monitoring and Evaluation Report (USFS 2009) indicates that the aerial extent of the forest community has remained stable for many years.

Bottomland hardwood: Some of the species that are found in bottomland hardwood series are swamp chestnut oak (*Quercus michauxii*), cherrybark oak (*Quercus pagoda*), sweetgum, willow (*Salix nigra.*), sugarberry (*Celtis laevigata),* American elm (*Ulmus americana*), laurel oak (*Quercus laurifolia),* and water hickory (*Carya aquatica*). These species are generally found in bottomland areas or along streamsides.

The *Plan* states a short-term objective of 50,000 acres of bottomland hardwoods and a long-term objective of 60,000 acres (USFS 1996). The Monitoring and Evaluation Report (USFS 2009) indicates that the acreage of bottomland hardwoods on the NFGT is relatively stable.

The Project would have no affect to this habitat because HDDs would be utilized to avoid impacts.

Neotropical migrants: The neotropical migrants, specifically yellow-throated vireo (*Vireo flavifrons*), wood thrush (*Hylocichla mustelina*), and acadian flycatcher (*Empidonax virescens*) prefer hardwood bottoms in East Texas and are sensitive to habitat loss, degradation, and habitat fragmentation. Recently, there have been declining populations of neotropical migrants. MA-4 provides protection to neotropical migrants (USFS 2009).

Eastern wild turkey (*Meleagris gallopavo silvestris*): Eastern wild turkey requires a variety of habitats for different life stages. Forests in early seral stages (0-20 years) are important for brood success in the spring due to the availability of forage in this habitat for this species. The edges of mid-seral habitat (20- 50 years) provide dense nesting habitat and open mature (50-90 years) and old growth associated with frequent burning provide winter forage and roosting habitat.

Whitetail deer (*Odocoileus virginianus*): Whitetail deer are important species of the south both ecologically and economically. They are MIS for early successional (0-20 years) to old growth

forests (90+ years) (USFS 2009). This species responds to the availability of escape cover habitat, browse, and hard mast in the fall and winter. Timber harvesting practices favor the release of hard mast and maintenance of early successional habitat (USFS 2009).

Yellow-breasted chat (*Icteria virens*): This bird uses the NFGT primarily as breeding habitat. This habitat consists of densely covered understory areas found in second growth forests (i.e. shrubby pastures, thickets in woodland edges, brushy areas). They are an MIS for the brushy, scrub habitat layer available in early, mid, and late seral stages. Yellow-breasted chats respond well to prescribed burns because they help maintain early seral habitat (USFS 2009).

Pileated woodpecker (*Dryocopus pileatus*): These birds require large snags and prefer mature deciduous forests, although they use a variety of habitats for foraging. This species is an MIS for mid-succession (20-50 years) to old growth forests (90+ years). Pileated woodpeckers need at least 200 acres of foraging habitat per nesting pair (USFS 2009).

Gray squirrel and fox squirrel (*Sciurus carolinensis* and *Sciurus niger*): The optimum habitat for gray squirrel and fox squirrel is often near streamsides with mature deciduous and mixed forests where a large supply of mast can be found. These species are MIS for mid and late seral stages as well as old growth.

Variability of squirrel populations closely follows the availability of mast during the previous season, which varies with weather (USFS 2009).

Snags: Snags are generally found across all seral stages. Snags are important for a variety of reasons (i.e. nesting, roosting, perching) to many different wildlife species. Snags are indicators of early, mid, late seral and old growth habitat (USFS 2009).

Aquatic Species

There are six (6) aquatic species and two (2) species groups listed for the Project area; however, no effects to these species are anticipated as a result of this project since no perennial or intermittent waters would be directly affected by construction activities.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

No effects to MIS would occur under this alternative. Conditions would remain the same.

Cumulative Effects

No cumulative effects to MIS would occur under this alternative. Conditions would remain the same.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

Red–cockaded woodpecker: Addressed under the PETS section.

Loblolly-oak forest: Loblolly-oak forest would be removed under this alternative. The removal of loblolly-oak would be moderate- to long-term, since the pipeline easement would remain until production from the serviced wells ends and forest regrowth would take many years after final reclamation. The amount of loblolly-oak that may be removed under this alternative is less than one percent of the loblolly oak available in the Project area.

Bottomland hardwood: Bottomland hardwoods occur along streamsides and these areas would be bored; therefore, this habitat should not be affected under this alternative.

Neotropical migrants: Neotropical migrants are an MIS for bottomland hardwoods, which typically occur along streamsides. No mortality should occur to neotropical migrants during construction and operations, so there would be no direct impacts from the proposed action. No stands classified as bottomland hardwood would be affected under this alternative. Noise effects would be short-term, occurring during construction and ending once the completion pipeline construction is completed.

Eastern wild turkey: Eastern wild turkeys use a variety of habitats for different life stages and therefore indirect effects to these species should be minimal. Noise effects would be short-term, occurring only during construction. Construction during wild turkey nesting season could result in the loss of nests, but this impact would be insignificant to the overall turkey populations in the SNF.

Whitetail deer: An indirect effect of the proposed action is the removal of trees during the construction of the infrastructure, which may favor the maintenance of early seral habitat and the release of hard mast, an important food for deer in the fall and winter. Noise effects would be short-term, occurring only during construction. An increase in traffic along roadways associated with the construction activities may increase the number of vehicle collisions with deer, which is considered a direct effect to whitetail deer. These effects would be moderate-term, for the life of the Project until after final reclamation is complete.

Yellow-breasted chat: Moderate-term impacts associated with the removal of second growth forests with dense understory would decrease the availability of breeding habitat for the yellow-breasted chat if it occurred in the Project area; however prescribed burn management has prohibited establishment of a dense understory in the Project are. Short-term noise effects would only occur during construction and would not significantly affect this species.

Pileated woodpecker: Moderate to long term impacts associated with the removal of trees, and potentially snags during construction may indirectly affect the pileated woodpeckers by decreasing available foraging and nesting habitat. Noise effects would be short-term, occurring only during construction.

Gray squirrel and fox squirrel: Streamsides are the optimum habitat for gray squirrels and should not be affected under this alternative; therefore, effects to gray squirrels are minimal and moderate-term. Fox squirrels utilize upland habitats to a greater extent and would not be significantly affected because of their generalist nature and the large amount of available habitat in the SNF. Noise effects would be short-term, occurring only during construction.

Snags: Snags are generally found across all seral stages and the number of snags in the Project area is higher than normal due to mortality of trees as a result of the drought. Any snags within the pipeline construction ROW would be removed.

MIS aquatic species: No effects to these species are anticipated as a result of this project since no perennial or intermittent waters would be directly affected by construction activities.

Cumulative Effects

Red–cockaded woodpecker: Addressed under the PETS section.

Loblolly-oak forest: Loblolly-oak forest would be removed under this alternative. Cumulative effects would include thinning and NNIPS management in the Project area. The effects of implementing the proposed action are minimal and would not be expected to result in a significant effect on loblolly-oak forest and its associated species.

Bottomland hardwood: No bottomland hardwood would be removed under the proposed action because these habitats would be bored to avoid impacts; therefore, there should be no effects to this community in the cumulative effects analysis area as a result from the proposed action.

Other activities in the cumulative impacts analysis area would potentially improve forest habitats.

Neotropical migrants: Cumulative effects include a short-term increase noise because of the activities in the cumulative impacts analysis area. The increase in noise would be short-term that could temporarily displace Neotropical migrants, so significant cumulative effects on Neotropical migrant populations are not expected.

Eastern wild turkey: Activities in the cumulative effects analysis area would include habitat management activities to improve eastern wild turkey habitat and would cause short- and moderate-term habitat loss from vegetation removal in addition to noise from construction. Due to the relative small amount of vegetation removal in the cumulative effects analysis area and other habitat improvements in the area, significant cumulative effects on eastern wild turkey populations are not expected.

Whitetail deer: Activities in the cumulative effects analysis area would include habitat management activities to improve wild whitetail deer habitat. Activities would also cause short- and moderate-term habitat loss from vegetation removal in addition to noise from construction. Due to the relative small amount of vegetation removal in the cumulative effects analysis area and other habitat improvements in the area, significant cumulative effects on whitetail deer populations are not expected.

Yellow-breasted chat: Short- and moderate term vegetation removal associated with activities in the cumulative effects analysis area may remove second growth habitat and create additional disturbance from noise during construction. Due to the relative small amount of vegetation removal in the cumulative effects analysis area and other habitat improvements in the area, significant cumulative effects on yellow-breasted chat populations are not expected.

Pileated woodpecker: Short- and moderate term vegetation removal associated with activities in the cumulative effects analysis area may remove snags and woodpecker habitat and create additional disturbance from noise during construction. Due to the relative small amount of

vegetation removal in the cumulative effects analysis area and other habitat improvements in the area, significant cumulative effects on pileated woodpecker populations are not expected.

Gray squirrel and fox squirrel: Short- and moderate term vegetation removal associated with activities in the cumulative effects analysis area may remove squirrel habitat and create additional disturbance from noise during construction. Due to the relative small amount of vegetation removal in the cumulative effects analysis area and other habitat improvements in the area, significant cumulative effects on gray squirrel and fox squirrel populations are not expected.

Snags: Cumulative effects would include vegetation removal with potential removal of snags. Due to the small area of clearing under this alternative, cumulative effects would not be expected to be significant.

MIS aquatic species: No effects to these species are anticipated as a result of this project since no perennial or intermittent waters would be directly affected by construction activities.

Wetlands and Riparian Areas

The *Plan* (USFS 1996) directs the USFS to conserve and protect wetlands and riparian areas. The U.S. Army Corps of Engineers (USACE) also holds regulatory jurisdiction over all Waters of the United States and their adjacent wetlands. Wetlands within the Project area would be avoided by HDD and 50 ft buffers would be left in place on either side of the resource.

Environmental Baseline

Wetlands and riparian areas were assessed for the Project area to determine the amount and location of wetland and riparian habitat. USFWS National Wetland Inventory maps (Figure 13, USFWS 2010) were reviewed in addition to field surveys conducted by GAI along the pipeline route for potential wetlands and waters of the United States. Portions of the proposed pipeline containing wetlands and riparian areas would be bored under.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

No effects to riparian areas or wetlands would occur under this alternative. Conditions would remain the same.

Cumulative Effects

Cumulative effects would include vegetation removal with potential impacts to riparian areas and wetlands from thinning, invasive species management, timber harvest, recreational activities and other gas exploration and production activities. Cumulative effects would not be expected to be significant because of avoidance and mitigation measures. Proper mitigation measures would be required for all planned activities.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

No direct effects to wetlands or riparian areas are expected. HDDs would be utilized to avoid wetlands and streams and maintain a buffer from these resources of at least 50 ft outside the stream channel or wetland boundary.

Indirect effects may include increased sediment.

Cumulative Effects

Cumulative effects would include vegetation removal in adjacent stands with potential impacts to riparian areas and wetlands, invasive species management, timber harvest on private land,

recreational activities and other activities. Cumulative effects would not be expected to be significant because of avoidance and mitigation measures. Proper mitigation measures would be required for all planned activities. The proposed action, when combined with reasonably foreseeable future activities, is not expected to significantly affect wetlands or riparian areas.

Socio-economics

The *Plan* (USFS, 1996) directs the NFGT to help stabilize communities and ensure economic stability within forest communities. The significance of potential effects is evaluated relative to NFGT's socio-economic objectives.

Environmental Baseline

The Project area is located in Shelby County, Texas. Shelby County had an estimated population of 25,772 residents in 2011 (U.S. Census Bureau 2010). In February 2010, 11,260 Shelby County residents were employed. The unemployment rate was 8.3 percent, which matches the Texas statewide rate (United States Department of Labor [USDOL] 2010). This rate compares to an annual rate of 4.9 percent for 2008, indicating that the recession has affected employment. In 2008, approximately 57 percent of the population over the age of 16 years were in the work force (approximately 11,588 people) compared to the national average of 65 percent, indicating a decrease in employment since 2006.

Four (4) industry sectors in Shelby County employed the most number of people in 2010: (1) educational services, and health care and social assistance; (2) manufacturing; (3) agriculture, forestry, fishing, hunting, and mining (includes gas extraction); and (4) retail trade.

The median household income in 2010 for Shelby County was $32,425 while the median family income was $40,172. The national real median household income for 2010 was $49,445 and the median family income for a family of two in Texas was $55,660. According to 2011 Bureau of Labor Statistics (BLS), the annual mean wage for all occupations in the agriculture industry was $25,680 while the annual mean wage for all occupations in the mining industry was $57,840.

Based on the 2011 Census for Shelby County, Texas, Hispanics/Latinos comprised 16.4 percent of the population , black or African-American comprised 17.4 percent of the population, white (non-hispanics) comprised 52.2 percent of the population, and 16.6 percent identified as American Indian, Alaskan native, Asian, Native Hawaiian, Pacific Islander, some other race, or two or more races.

Estimates of total recoverable gas in the Haynesville Shale vary widely (25-245 trillion cubic ft). Even conservative estimates of the Haynesville Shale reserve size make it one of the largest domestic sources of natural gas. Economic effects from gas exploration can be broadly divided into four (4) categories: (1) new sales, (2) new household earnings, (3) new jobs (direct and indirect), and (4) new tax revenue. There appears to be no authoritative or quantitative reports on the potential economic effects of the exploration within Shelby County, Texas.

In 2007, Price Water House released statistics quantifying the gas industries economic effect by state and found that Texas ranks number one among other states in terms of employment, labor income, and value added income.

Socio-economic resources generally include both economic resources and more challenging conditions to assess such as quality of life, condition of infrastructure, educational and government services, etc. Large increases of onshore drilling activity have in the past created controversy over change in quality of life, school crowding, and also sparked discussions regarding local and non-local work force sources and its effects to community life.

Based upon 2011 US Census data, Shelby County had approximately 18.7 percent housing unit vacancy.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

TPF II would be denied its ability to construct the proposed pipeline and would likely have to reassess its service options for its federal leaseholds in Texas. TPF II would not service produced hydrocarbons, pay royalty, or employ service professionals, contractors, and permanent employees in relation to the Project.

There would be no indirect benefit of additional income to the local economy. There would be no increased tax revenues. The "No Action" Alternative would lead to no potential negative effects to local communities, increased use of public services, and no potential conflict between public land users.

Cumulative Effects

TPF II would likely see the choice of the "No Action" Alternative as a disincentive for servicing gas exploration wells on the federal mineral estate. They and possibly other companies would likely reinvest monies on private lands or outside of the area.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

Acceptance of the proposed action would lead to the construction of the pipeline with the potential to support 20-30 short-term jobs and no permanent positions. In addition, construction crews would require local lodging, food, recreation, and some durable goods. These activities would have both direct and indirect positive effects to the local economy. The Project is expected to lead to a small and localized influx of money to the economy and increased usage of locally available skilled and unskilled labor.

Cost estimates to complete the Project are approximately $3 million dollars. A large portion of these costs is for labor, fuel, and materials. Workforce and supplies would be mobilized by TPF II in an efficient manner and they would attempt to use locally available services where possible. Using locally and regionally available goods and services minimizes mobilization costs and maximizes positive economic effects to the local community.

The pipeline would put wells into production resulting in severance taxes, royalty payments, property taxes, and other fees and taxes paid to the local, state, and federal governments. Standard federal royalty is 1/8 or 12.5 percent. Production reports for wells in the area in 2009, show wells with very high initial flow rates (up to 25 million cubic ft/day), with wells routinely producing between 12-15 million cubic ft/day. Estimated production over the life of each well is 4.5 billion cubic ft of gas over a 50-year period. Assuming a price of $4.00 per thousand cubic ft of gas, royalties would equal $18 million per well in that time period.

The Project would likely lead to negligible or non-measurable negative effects to existing socio-economic conditions such as road conditions and increased use of public and government services. The potential for such negative effects would be offset by increased taxes and positive employment opportunities in the local area.

Cumulative Effects

The Haynesville Shale has the potential to provide a large domestic source for natural gas in the US. The shale-gas development in East Texas could also prove to provide a needed economic driver in the form of a large basic industry. The Project is a small portion of the overall development effect likely to occur as the Haynesville Shale is developed.

The BLM and USFS are currently reviewing development by several operators on multiple leases. The effects to socio-economic resources from the proposed Project would be increased as others develop on both private and SNF surface in Shelby County. The proposed action would have a significant positive cumulative effect.

Disposal of timber would be at current market value. Compensation for Present Net Value (PNV) for future timber growth loss would not be available because the agency lacks the policy and the supporting regulations to appraise and assess future growth loss value. While PNV compensation is unavailable for the 31.25 acres of timber taken out of production for the pipeline, Shelby County would be eligible to receive a minimal natural gas royalty revenue of $3.6 million per well (per 10 year period) for each federal well serviced by the TPF II pipeline.

Other forest management, habitat mitigation, and recreation activities would not have a significant impact to socio-economics, or are outside of the scope of analysis of this EA.

Recreation and Visual Resources

The *Plan* (USFS 1996) directs the NFGT to provide recreational opportunities and protect visual character of the SNF. The significance of potential effects is evaluated relative to standards in the *Plan* and state and federal laws.

Environmental Baseline

The eastern portion of the SNF is bounded by Toledo Bend Reservoir, the fifth largest man-made reservoir in the United States, the largest in the southern United States, and a nationally recognized recreational fishing and boating attraction. Toledo Bend Reservoir is nearly 200,000 acres in size and has over 1,200 miles of shoreline. Developed recreation opportunities adjacent to Toledo Bend Reservoir are extensive. Private facilities range from fish camps, with marinas and primitive camping, to highly developed lodge and motel type facilities. There are approximately 90 private facilities on Toledo Bend Reservoir, with the Texas side home to over half of them. In addition to water sports and fishing available to recreational users of the forest, additional recreation opportunities in the SNF include hunting, camping, hiking, restricted (designated roads/trails in MA-1 and MA-2 only) off-road vehicle/off-highway vehicle (ORV/OHV) use, horseback riding, and mountain biking). As of early 2011, there are no designated roads/trails for ORV/OHV use in the SNF.

The SNF, like all of the NFGTs, was developed from private land purchases in the mid-1930s. Many private land in-holdings still exist within the declared boundaries of the SNF and split estate is common.

The mixture of private and public land ownership in the area creates a mosaic of landscapes, including timberland, improved pasture, well pads and rural residential properties. The overall impression is a forested landscape with residential development and existing and historic gas facilities.

Management practices on the SNF are designed to meet the visual quality objectives (VQO) of partial retention along highways, paved state and county roads, and primary USFS roads. Management activities in partial retention areas may be visible, but should remain subordinate to the character of the surrounding landscape.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

There would be no change to recreational or visual resources under USFS management resulting from the "No Action" Alternative. Recreational use of the Project area is expected to continue at current levels.

Cumulative Effects

The activities in the cumulative effects analysis area would not affect overall recreational uses or visual resources of the SNF. Forest management activities in the area would potentially improve visual resources and recreation activities by improving the quality of the forest. The choice would not result in any effects that could be combined or added to other effects in the general area.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

During construction, new surface uses, construction crews, increased traffic, and equipment would create a combination of short- and moderate-term disturbances. These disturbances would include dust, noise, as well as reduced scenic value and visual aesthetics. This would potentially lead to a diminished experience for recreational users. Since visual aesthetics and recreational experience are qualitative and vary greatly between users, they are difficult to assess. These moderate-term recreational effects would be localized and vary greatly depending on the users' proclivities.

The pipeline is not expected to add to or diminish existing recreational opportunities significantly because of the existing road infrastructure and existing utility easements.

During construction, the visual aesthetics of the Project area would be reduced. The activities, equipment, traffic, mud, and dust would likely lead to a short-term negative effect. Once construction is completed and interim reclamation is complete, the pipeline route would be less unobtrusive to the casual observer. Surface equipment would be painted flat earth tone colors and natural vegetative screens would help sites blend into their setting.

There are existing gas wells and utility easements already in the Project area, so the new pipeline easement is not expected to significantly change the aesthetics of the area or conflict with established VQOs within the area.

Cumulative Effects

Activities in the cumulative effects analysis area could cause short- and moderate- term impacts to visual resources and recreation activities. With proper mitigation measure implementation, effects from the planned actions should be minimized and would not cause a significant impact

to the overall area. The short- and moderate-term effect to recreational and visual resources would be localized.

The long-term visual effect alone does not approach significance levels discussed above. The pipeline would directly abut existing cleared and maintained easement along FM 2694, so the new pipeline is not expected to significantly change the aesthetics of the area. There are no known activities or activities likely to occur that would significantly alter recreational opportunities or visual resources in or around the Project area when combined with the proposed action. Both long term and short-term effects would be combined with other SNF management and activities outside of the SNF.

Cultural Resources

The *Plan* (USFS 1996) directs the NFGT to protect cultural resources on the SNF. The National Historic Preservation Act of 1966 requires the USFS to evaluate the impact to cultural resources. The significance of potential effects is evaluated relative to S&G in the *Plan* and state and federal laws.

Environmental Baseline

The 1996 *Plan* and the 2011 Cultural Resources Survey Report provide detailed background information pertinent to the heritage resource baseline environmental conditions. Please reference these documents for a complete picture of the Project area's heritage resources.

In summary, the cultural chronology can be divided into five (5) periods: Paleo-Indian, Archaic, Early Ceramic, Late Prehistoric, and Historic. Each period is delineated by a change in environment, technology, and/or population requiring adaptations to meet varying circumstances.

Field Study

In November 2011, Deep East Texas Archeological Consultants conducted a cultural resources survey of the pipeline route.

The Project transects two (2) previously recorded sites: Myrick's Ferry Road and a mid-20th Century industrial site. Three (3) previously recorded and two (2) newly recorded segments of the Myrick's Ferry Road site were recorded in the Project area. No other evidence of historic or prehistoric period occupations within the Project area were recovered. In order to protect the resources, detailed descriptions and locations are not included in this EA and the sites would be avoided by HDD with a 50 meter buffer on either side.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

There would be no change to current management by the SNF. There would be no measurable change to heritage resource management or heritage resources resulting from the "No Action" Alternative.

Cumulative Effects

The implementation of the "No Action" Alternative would result in no measurable change to heritage resources or heritage resource management. Therefore, these effects could not be combined or added to effects from other activities resulting in significant cumulative effects.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

Based upon the fieldwork conducted, it is recommended that the two (2) archaeological sites be avoided by the proposed action developments using HDDs, with 50 meter buffers at either ends. It is assumed that the proposed action would have no effect to known historic properties eligible for inclusion to the National Register of Historic Places.

The possibility remains that activities undertaken as part of the proposed action may discover or disturb unknown and unidentified heritage resources.

Current and modern land uses have the potential to indirectly affect the context of known or unidentified historical properties. This has the potential to diminish the interpretation value of a site and alter the setting in a manner that reduces the sites' value. While value is a subjective determination, the USFS has regarded potentially eligible and eligible pre-historic and historic properties' value as being informational, educational, and recreational.

Due to the low density of sites found, it is expected that the proposed development would not damage or remove resource value by altering the context of eligible and potentially eligible sites. Improved access to the area could increase access and visibility to these previously undocumented historic sites. This could lead to an indirect effect from a potential increase in unauthorized looting and damage to historic property. The proposed action could also change the surrounding visual characteristics to historic sites due to visibility of disturbance corridors.

Cumulative Effects

The proposed action is unlikely to combine with other actions and result in potentially significant effects. Actions in the cumulative effects analysis area would result in short- to moderate-term visual impacts to historic properties, but due to the low density of both historic properties, the avoidance of surface disturbances to the recorded sites by the planned action, and the

establishment of 50 meter buffers on either side of the sites, significant impacts to cultural resources are not likely. There is potential that there may be an unquantifiable indirect effect to the context of a potentially eligible site due to its proximity to the actions in the cumulative effects analysis area. This indirect effect would only affect the context of the site. Improved access to the area could increase access and visibility to previously undocumented historic sites. This could lead to an indirect effect from a potential increase in looting and damage to historic property.

Public Health and Safety

The *Plan* (USFS 1996) directs the NFGT to manage public health and safety for the greater good. The NFGT provides valuable environmental, commercial, and recreational opportunities and resources in a manner that does not adversely affect public health and safety. The significance of potential effects is evaluated relative to standards in the Plan and state and federal laws.

Environmental Baseline

The Project is on SNF lands in Shelby County. There are no schools in close proximity to the Project area.

A water line that is part of the Huxley public water system is in close proximity to the Project but would not be affected by the proposed activities.

The Boles Field Campground and National Hall of Fame Cemetery of Fox Hounds are transected by the Project route, however, no effects would result from the construction activities because impacts would be avoided by HDD and a 50-meter-long undisturbed buffer on either side of these areas would be maintained. No private residences are within the Project's proximity.

The United States Department of Transportation (USDOT) Pipeline and Hazardous Material Safety Administration (PHMSA) maintains a database of serious pipeline incidents. The

PHMSA defines a serious pipeline incident as an event involving a fatality or injury requiring in-patient hospitalization. For gathering lines, there have been no incidents since 2000 for 7,292,197 miles of gas gathering lines in Texas (PHMSA 2011).

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

There would be no change to current management by the SNF. There would be no measurable increase or decrease in public health and safety under the "No Action" Alternative.

Cumulative Effects

The implementation of the "No Action" Alternative would result in no measurable increase or decrease to public health and safety; therefore, these effects could not be combined or added to effects from other activities resulting in significant cumulative effects.

Alternative 2 (Proposed Action)

TPF II would maintain a file containing material safety data sheets (MSDS) for all chemicals, compounds, and/or substances which are utilized during the course of construction and drilling, in accordance with 29 CFR 1910.1200(g). This file is to be available at all times employees are present at the site. Drilling mud, an inhalation hazard, is a hazardous material that would be present at the site. Flammable or combustible motor fuels would also be present.

Human solid and liquid wastes would be generated during the construction of the Project and portable toilets would be utilized while construction activities are ongoing.

Direct and Indirect Effects

No direct or indirect effects from the proposed action to public health and safety are expected. This is dependent upon responsible operations, the careful use of chemicals, and immediate containment and adequate cleanup in the event of a release. Consequences would be dependent on the volume and nature of the material released. In most situations involving hazardous materials, there are ways to remediate the area that has been contaminated. The operator is required to notify appropriate authorities including the State, the SNF, and the BLM, remove all free contaminants, and coordinate with the agencies in cleanup and remediation operations. TPF II would follow USFS guidelines and BMPs to handle spills and contaminations related to the proposed action.

Leaks or ruptures of natural gas gathering pipelines are very unlikely. The pipeline would be installed in compliance with 49 CFR Part 192 (Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards). The standards require compliance with minimum standards for corrosion protection leak testing, strength testing and reporting.

Unsafe road conditions and working conditions could occur if health and safety practices are not followed. TPF II would have a health and safety plan to help prevent incidents from occurring.

Cumulative Effects

No cumulative effects are expected from the actions planned in the cumulative effects analysis area. Any environmental releases are expected to be localized and required to be remediated immediately. USFS guidelines and BMPs address how to handle spills and contaminations related to the proposed action.

Transportation

The *Plan* guidance assures that the forest's character is both considered and protected during the planning process and monitored on the ground as the Project is developed. In 2006-2007, the

SNF undertook implementation of the USFS's Travel Management Rule (TMR). The TMR requires each forest to designate which roads, trails, tracks, and areas would be open for vehicle use by type and season. On segments of SNF roads specifically identified by the Forest Officer, the permittee would ensure, in accordance to state and federal traffic control regulations, that at least one lane of the roads remain open, except for short-term intervals of 15 minutes or less. The permittee would abide by TXDOT rules and regulations for managing traffic along FM 2694. The permittee shall meet all safety and signing requirements of the Texas Manual on Uniform Traffic Control Devices (MUTCD). The significance of potential effects is evaluated relative to standards in the *Plan* and state and federal laws

Environmental Baseline

The Project is accessed by public roads. Access to the Project area currently utilizes several existing county and USFS roads with different degrees of road quality.

Effects of Implementation

Alternative 1 (No Action)

Direct and Indirect Effects

There would be no change to current management by the SNF. There would be no measurable increase or decrease in traffic and safety near the proposed action.

Cumulative Effects

The implementation of the "No Action" Alternative would result in no measurable change to transportation networks; therefore, these effects could not be combined or added to effects from other activities resulting in significant cumulative effects.

Alternative 2 (Proposed Action)

Direct and Indirect Effects

There would be a short-term, increase in traffic during the construction of the Project.

Maintenance of existing roads would continue until completion of construction. Excessive rutting or other surface disturbance would be avoided and repaired. The funding mechanism for maintenance would be provided by TPF.

State and federal traffic control regulations require that the permittee maintain one (1) lane of traffic open, except for a period of 15 minutes or less. TPF II or the trucking contractor would provide traffic control, if needed. The road improvements and maintenance payments are expected to offset the effect of increased traffic.

Cumulative Effects

Cumulative effects would result from traffic associated with thinning, invasive species management in the Project area, timber harvest on private land, recreational activities and other gas exploration and production. These activities would be localized and, when combined with the proposed action, are not expected to significantly affect traffic.

CONSULTATION AND COORDINATION

The USFS consulted the following individuals, Federal, State, and local agencies, tribes and non-USFS persons during the development of this EA:

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