Office of
Energy Projects

August 2020

Tennessee Gas Pipeline Company, LLC **Docket Nos. CP20-50-000**
Southern Natural Gas Company, LLC **CP20-51-000**

Evangeline Pass Expansion Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 2
Tennessee Gas Pipeline Company, LLC
Southern Natural Gas Company, LLC
Docket Nos. CP20-50-000 and
CP20-51-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Evangeline Pass Expansion Project, proposed by Tennessee Gas Pipeline Company, LLC (Tennessee) and Southern Natural Gas Company, LLC (SNG) in the above-referenced dockets.

Tennessee requests authorization to construct and operate a total of approximately 13 miles of 36-inch-diameter looping pipeline[1]: Yscloskey Toca Lateral Loop (about 9 miles) in St. Bernard Parish, Louisiana and Grand Bayou Loop (about 4 miles) in Plaquemines Parish, Louisiana. Additionally, Tennessee requests authorization to construct and operate a new 23,470 horsepower (hp) compressor station (Compressor Station [CS] 529) in St. Bernard Parish, Louisiana.

SNG requests authorization to construct and operate a new 22,220 hp compressor station (Rose Hill CS) in Clarke County, Mississippi and three new meter stations: Rose Hill Receipt Meter Station (MS) in Clarke County, Mississippi, MEP Receipt MS in Smith County, Mississippi, and Toca Delivery MS in St. Bernard Parish, Louisiana. SNG is also requesting authorization to abandon the new capacity by lease to Tennessee.

The proposed projects, collectively known as the Evangeline Pass Expansion Project, would provide up to 1,100,000 dekatherms per day to the Venture Global Gator Express Pipeline interconnect for feed gas for the Plaquemines Liquified Natural Gas Terminal in Plaquemines Parish, Louisiana.

The EA assesses the potential environmental effects of the construction and operation of the projects in accordance with the requirements of the National Environmental Policy Act. The FERC staff concludes that approval of the proposed

[1] A pipeline loop is a segment of pipe constructed parallel to an existing pipeline to increase capacity.

projects, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The Commission mailed a copy of the *Notice of Availability* to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the project area. The EA is only available in electronic format. It may be viewed and downloaded from the FERC's website (www.ferc.gov), on the natural gas environmental documents page (https://www.ferc.gov/industries-data/natural-gas/environment/environmental-documents). In addition, the EA may be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link (https://www.ferc.gov/ferc-online/elibrary/overview), select "General Search" and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP20-50 or CP20-51). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

The EA is not a decision document. It presents Commission staff's independent analysis of the environmental issues for the Commission to consider when addressing the merits of issues raised in this proceeding. Any person wishing to comment on the EA may do so. Your comments should focus on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this project, it is important that we receive your comments in Washington, DC on or before 5:00pm Eastern Time on **September 23, 2020.**

For your convenience, there are three methods you can use to file your comments with the Commission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov. Please carefully follow these instructions so that your comments are properly recorded.

(1) You can file your comments electronically using the eComment feature on the Commission's website (www.ferc.gov) under the link to FERC Online. This is an easy method for submitting brief, text-only comments on a project;

(2) You can also file your comments electronically using the eFiling feature on the Commission's website (www.ferc.gov) under the link to FERC Online. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first

create an account by clicking on "eRegister." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the Commission. Be sure to reference the project docket number (CP20-50-000 or CP20-51-000) on your letter. Submissions sent via the U.S. Postal Service must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. Submissions sent via any other carrier must be addressed to: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 12225 Wilkins Avenue, Rockville, Maryland 20852.

Filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered. Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. At this point in this proceeding, the timeframe for filing timely intervention requests has expired. Any person seeking to become a party to the proceeding must file a motion to intervene out-of-time pursuant to Rule 214(b)(3) and (d) of the Commission's Rules of Practice and Procedures (18 CFR 385.214(b)(3) and (d)) and show good cause why the time limitation should be waived. Motions to intervene are more fully described at https://www.ferc.gov/ferc-online/ferc-online/how-guides.

Additional information about the project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website (www.ferc.gov) using the eLibrary link. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to https://www.ferc.gov/ferc-online/overview to register for eSubscription.

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TECHNICAL ABBREVIATIONS AND ACRONYMS

AMSL	above mean sea level
APE	area of potential effect
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Certificate	Certificate of Public Convenience and Necessity
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2e}	carbon dioxide equivalents
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
CS	compressor station
dBA	decibels on the A-weighted scale
dth/d	dekatherms per day
EA	Environmental Assessment
EEM	estuarine emergent wetland
EFH	essential fish habitat
EFO	estuarine forest wetland
ESS	estuarine scrub/scrub
EI	Environmental Inspector
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
fbg	feet below ground
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
g	gravity
GHG	greenhouse gases
GMFMC	Gulf of Mexico Fishery Management Council
GWP	global warming potential
HAP	hazardous air pollutant
Hp	horsepower
IPaC	Information of Planning and Consultation
L_{dn}	day-night sound level
L_{eq}	24-hour equivalent sound level
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDNR-OCM	Louisiana Department of Natural Resources-Office of Coastal Management

LDOTD	Louisiana Department of Transportation and Development
LDWF	Louisiana Department of Wildlife and Fisheries
LNG	liquified natural gas
MDEQ	Mississippi Department of Environmental Quality
MDWFP	Mississippi Department of Wildlife, Fisheries, and Parks
MEP	Midcontinent Express Pipeline, LLC
MS	meter station
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGA	Natural Gas Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
NOI	*Notice of Intent to Prepare an Environmental Assessment for the Evangeline Pass Expansion Project*
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	noise sensitive area
NSPS	New Source Performance Standards
NSR	New Source Review
OEP	Office of Energy Projects
PEM	palustrine emergent wetland
PFO	palustrine forest wetland
Plan	FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan*
ppm	parts per million
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
Procedures	FERC's *Wetland and Waterbody Construction and Mitigation Procedures*
PSD	Prevention of Significant Deterioration
PSS	palustrine scrub/shrub wetland
RMS	root mean square
Secretary	Secretary of the Commission
SEL	strike exposure level
SHPO	State Historic Preservation Office(r)

SNG	Southern Natural Gas Company, LLC
SO_2	sulfur dioxide
SONRIS	Strategic Online Natural Resource Information System
SPCC Plan	*Spill Prevention, Control, and Countermeasure Plan*
Tennessee	Tennessee Gas Pipeline Company, LLC
tpy	tons per year
USDOT	U.S. Department of Transportation
USGS	U.S. Geological Survey
VOC	volatile organic compounds

A. PROPOSED ACTION

1. INTRODUCTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) prepared this environmental assessment (EA) to assess the environmental impacts of the proposed Evangeline Pass Expansion Project (Project). We[2] prepared this EA in compliance with the requirements of the *National Environmental Policy Act of 1969* (NEPA), the Council on Environmental Quality's regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR], Parts 1500-1508 [40 CFR 1500-1508]) and the Commission's implementing regulations under 18 CFR 380.

On February 7, 2020, Tennessee Gas Pipeline Company, LLC (Tennessee) filed an application with the Commission pursuant to Section 7(c) of the Natural Gas Act (NGA), as amended, under Docket No. CP20-50-000, seeking authorization to construct and operate two 36-inch-diameter looping pipeline segments, totaling 13 miles, in St. Bernard and Plaquemines Parishes, Louisiana and a new 23,470 horsepower (hp) compressor station in St. Bernard Parish. Tennessee's proposed facilities will be referred to as the Tennessee Project throughout this EA.

On February 7, 2020, Southern Natural Gas Company, LLC (SNG) filed an application with the Commission pursuant to Section 7(c) of the NGA, as amended, under Docket No. CP20-51-000, seeking authorization to construct and operate a new 22,220 hp compressor station in Clarke County, Mississippi, and three new meter stations in Clarke and Smith Counties, Mississippi and St. Bernard Parish, Louisiana. SNG is also requesting authorization under Section 7(b) of the Natural Gas Act to abandon the new capacity created by the Project by lease to Tennessee. SNG's proposed facilities will be referred to as the SNG Project throughout this EA.

Additionally, Tennessee and SNG propose to construct, modify, or replace certain system auxiliary and appurtenant facilities under sections 2.55(a) and 2.55(b) of the Commission's regulations.

The capacity associated with the Evangeline Pass Expansion Project would provide 1,100,000 dekatherms per day (dth/d) of transportation service to Venture Global, LLC's Plaquemines Liquefied Natural Gas (LNG) Export Terminal in Plaquemines Parish, Louisiana. Tennessee and SNG have executed a precedent agreement under which SNG would lease certain capacity on its system to Tennessee and SNG would construct and operate the necessary facilities for the lease. Both the Tennessee Project and the SNG Project have the same target in-service date (December 1,

[2] "We," "us," and "our" refers to environmental staff of the Commission's Office of Energy Projects.

2022). For these reasons, we have combined both the Tennessee Project and the SNG Project (collectively known as the Evangeline Pass Expansion Project) into this EA.

Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that would result from the implementation of the proposed action;
- identify and recommend alternatives and specific mitigation measures, as necessary, to avoid and minimize environmental impacts; and
- encourage and facilitate involvement by the public and interested agencies in the environmental review process.

2. PROJECT PURPOSE AND NEED

Tennessee's stated purpose of the Tennessee Project is to provide up to 1,100,000 dth/d of firm transportation capacity on Tennessee's interstate natural gas pipeline system for delivery to Venture Global at a proposed interconnection with Gator Express Pipeline in Plaquemines Parish, Louisiana to supply feed gas for Venture Global, LLC's Plaquemines LNG Export Terminal in Plaquemines Parish, Louisiana.

SNG's stated purpose of the SNG Project is to lease up to 1,100,000 dth/day of capacity to Tennessee from a new receipt point in Clarke County, Mississippi, to a new delivery point in St. Bernard Parish, Louisiana.

Under Section 7(c) of the NGA, the Commission determines whether interstate natural gas facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The assessment of environmental impacts is an integral part of the Commission's decision on whether to issue Tennessee and SNG a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the proposed facilities. The Commission bases its decisions on both economic issues, including need, and environmental impacts. Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities, or any service rendered by means of such facilities, subject to the Commission's jurisdiction without the Commission first finding that the abandonment will not negatively affect the present or future public convenience and necessity.

3. SCOPE OF THIS ENVIRONMENTAL ASSESSMENT

The topics addressed in this EA include geology and soils; groundwater, surface water, and wetlands; fisheries, vegetation, wildlife, and special status species; cultural resources; socioeconomics; land use and visual resources; air quality and noise; reliability

and safety; cumulative impacts; and alternatives. The EA describes the affected environment as it currently exists, discusses the environmental consequences of the Project, and presents the applicants' proposed and our recommended mitigation measures.

4. PUBLIC REVIEW AND COMMENT

On March 20, 2020 we issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Evangeline Pass Expansion Project and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to 336 entities including federal, state, and local officials; Native American groups; agency representatives; potentially affected landowners and other interested individuals; and local libraries. Additionally, due to the COVID-19 pandemic and the likelihood that offices would be closed for an extended period, the NOI was sent via email to agency representatives and federal, state, and local officials.

To date, we have received comment letters from a number of different groups in response to the NOI. The Teamsters National Pipeline Labor Management Cooperation Trust provided information on pipeline union workers and were in support of the Project. The Louisiana Department of Wildlife and Fisheries (LDWF) provided information on threatened and endangered species in the Project area, which is addressed in section B.4.5 of this EA. The Muscogee Nation requested a copy of this EA. Also, we received comments in a Request for Motion to Intervene of Shell Beach Partners, LLC regarding loss of potential residential and commercial land use (addressed in section B.5.); the destruction and pollution of inherent natural resources (addressed throughout section B), foliage, trees and vegetation (addressed in section B.4.2.); the destruction of existing hunting and fishing (addressed in sections B.4.3. and B.5.); the reduction of important wetland protection (addressed in section B.3.3); and the alteration of existing waterways (addressed in section B.3.2). The U.S. Environmental Protection Agency (EPA) Region 4 provided comments on the Mississippi portion of the SNG Project regarding alternatives (section C), power supply for the Rose Hill CS and cumulative impacts (sections A.9 and B.10), air compliance procedures and new source engine rules (section B.8.1), forest clearing (section B.4.2), hydrostatic testing (section B.3.2), and environmental justice (sections B.7.6 and B.10).

The EPA also provided comments regarding SNG's public outreach. SNG has initiated outreach with landowners, agencies, and state and local officials notifying them of the proposed SNG Project. SNG's proposed 2.55 activities are on existing SNG easements or properties. SNG has also notified these landowners and appropriate agencies of the work required at these sites.

Finally, we received comments from Alabama Municipal Distributors Group, the Austell Gas System, the Southeast Alabama Gas District, and the Municipal Gas

Authority of Georgia protesting the Project for matters concerning the treatment of rates for the leased capacity. This is outside of the scope of this EA and is not discussed further.

5. SUMMARY OF PROPOSED FACILITIES

Tennessee Project

The Tennessee Project would include construction of approximately 13 miles in total of 36-inch-diameter looping pipeline: Yscloskey Toca Lateral Loop (about 9 miles) in St. Bernard Parish, Louisiana and Grand Bayou Loop (about 4 miles) in Plaquemines Parish, Louisiana. Additionally, the Tennessee Project would include the construction of a new 23,470 hp compressor station (Compressor Station [CS] 529) in St. Bernard Parish, Louisiana. The general location of the facilities is shown in figure 1.

SNG Project

The SNG Project would include construction of a new 22,220 hp compressor station (Rose Hill CS) in Clarke County, Mississippi; and three new meter stations: Rose Hill Receipt Meter Station (MS) in Clarke County, Mississippi, Midcontinent Express Pipeline, LLC (MEP) Receipt MS in Smith County, Mississippi, and Toca Delivery MS in St. Bernard Parish, Louisiana. The general location of the facilities is shown in figure 2.

Facilities Proposed under 18 CFR § 2.55

In conjunction with the Project, Tennessee and SNG propose to construct, modify, or replace certain system auxiliary and appurtenant facilities under sections 2.55(a) and 2.55(b) of the Commission's regulations (2.55 facilities) (table 1).[3] Tennessee would replace two 10,410 hp units (like-for-like) under section 2.55(b) at existing CS 527 in Plaquemines Parish, Louisiana. SNG would construct and/or modify a number of system auxiliary and appurtenant facilities under section 2.55(a) at existing compressor stations and along the pipeline corridor in Clarke, Smith, Jasper, Simpson, Jefferson Davis, Lawrence, and Walthall Counties, Mississippi and St. Bernard, Washington, St. Tammany, and Orleans Parishes, Louisiana. Tennessee and SNG described the auxiliary facilities per the requirements under sections 2.55(a)(2)(iii) and 2.55(b)(3). All 2.55 facilities would be completed within the confines of existing facilities, rights-of-way, or

[3] Auxilliary installations and replacement activities pursuant to 18 CFR 2.55 do not require authorization from the Commission under the NGA; however, these activities are subject to workspace limits, environmental compliance, and reporting requirements, as more fully detailed in the Commission's regulations.

SNG or fee-owned property; therefore, environmental impacts are expected to be negligible and these facilities are not discussed further in EA, with the exception of B.10. (Cumulative Impacts). A map of the general location of SNG's 2.55 facilities is included in appendix A. Tennessee's proposed 2.55 activity would be at CS 527, which is shown on figure 1.

Table 1: 2.55 Facilities

Facility	State	County/ Parish	Milepost	Description
Tennessee Project – 2.55(b)				
Compressor Station 527	Louisiana	Plaquemines	--	• Like-for-like replacement of two older, less efficient 10,410 hp units
SNG Project – 2.55(a)				
Enterprise Compressor Station	Mississippi	Clarke County	--	• Install new gas coolers for units 14-16 • Modify 3 receiver traps
Pressure Test	Mississippi	Clarke and Jasper Counties	56 – 65	• Pressure test South Main Line and Loop Line MP 56 to MP 65
Bay Springs Compressor Station	Mississippi	Jasper County	--	• Pressure test South Main Loop Line Bay Springs Station Piping
Crossover Header	Mississippi	Smith County	35	• Install valve on South Main 2nd Loop Line East of Existing Header
Modify Receiver	Mississippi	Simpson County	12	• Modify receiver trap on South Main Third Loop Line
Gwinville Compressor Station	Mississippi	Jefferson Davis County	--	• Modify station piping • Modify 4 Launcher and 3 receiver traps
Southeast Supply Header (SESH) Interconnect	Mississippi	Jefferson Davis County	64	• Install 24" main line block valve on the 24" Franklinton-Gwinville Main • Install 24" tap valve to the Franklinton-Gwinville Main • Install 30" block valve on existing crossover header between the main line and SESH tap
Pressure Test	Mississippi	Jefferson Davis County	52 -67	• Pressure test Franklinton Gwinville Main Line MP 52 to MP 67
Remove Check Valves	Mississippi	Lawrence County	44	• Remove all check valves on the north side of the Pearl River
Modify Receiver	Mississippi	Lawrence County	44	• Modify receiver on the south side of the Pearl River, straighten access road out slightly to allow for equipment access

Table 1: 2.55 Facilities				
Facility	State	County/ Parish	Milepost	Description
Pearl River Compressor Station	Mississippi	Walthall County	--	• Modify the suction and discharge lines within the station • Modify 2 receiver traps • Pressure test the station piping on Main and Loop Lines at Pearl River Compressor Station
Modify Receiver	Mississippi	Walthall County	24	• Modify receiver trap on Main Pass Franklinton Second Loop Line
Remove Check Valves	Louisiana	Washington Parish	2	• Remove all check valves on the north side of the Bogue Chitto River
Franklinton Compressor Station	Louisiana	Washington Parish	--	• Modify 3 Receiver traps • Pressure test trap station piping on the Main and Loop Lines
Modify Receiver and Launcher	Louisiana	St. Tammany Parish	98	• Modify receiver and launcher on Main Pass Franklinton Second Loop Line
Lacombe Station	Louisiana	St. Tammany Parish	--	• Modify station traps and pressure test station piping
Modify Receiver	Louisiana	St. Tammany Parish	86	• Modify receiver on Main Pass Franklinton Second Loop Line
Modify Receiver and Launcher	Louisiana	Orleans Parish	70	• Modify receiver and launcher traps on Main Pass Franklinton Line
Toca Compressor Station	Louisiana	St. Bernard Parish	--	• Reline four compressor units • Modify station piping

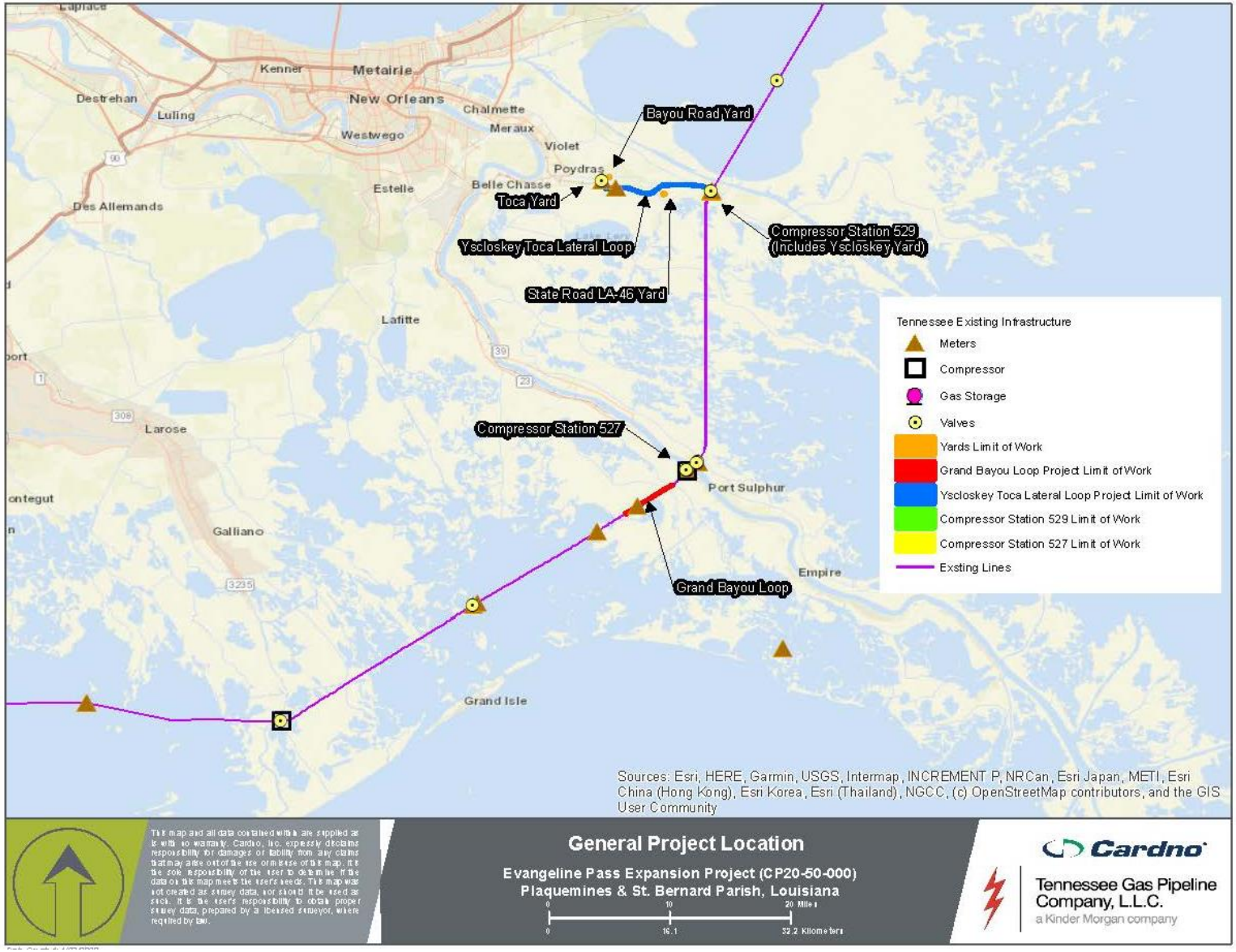

Figure 1. Tennessee Project General Location

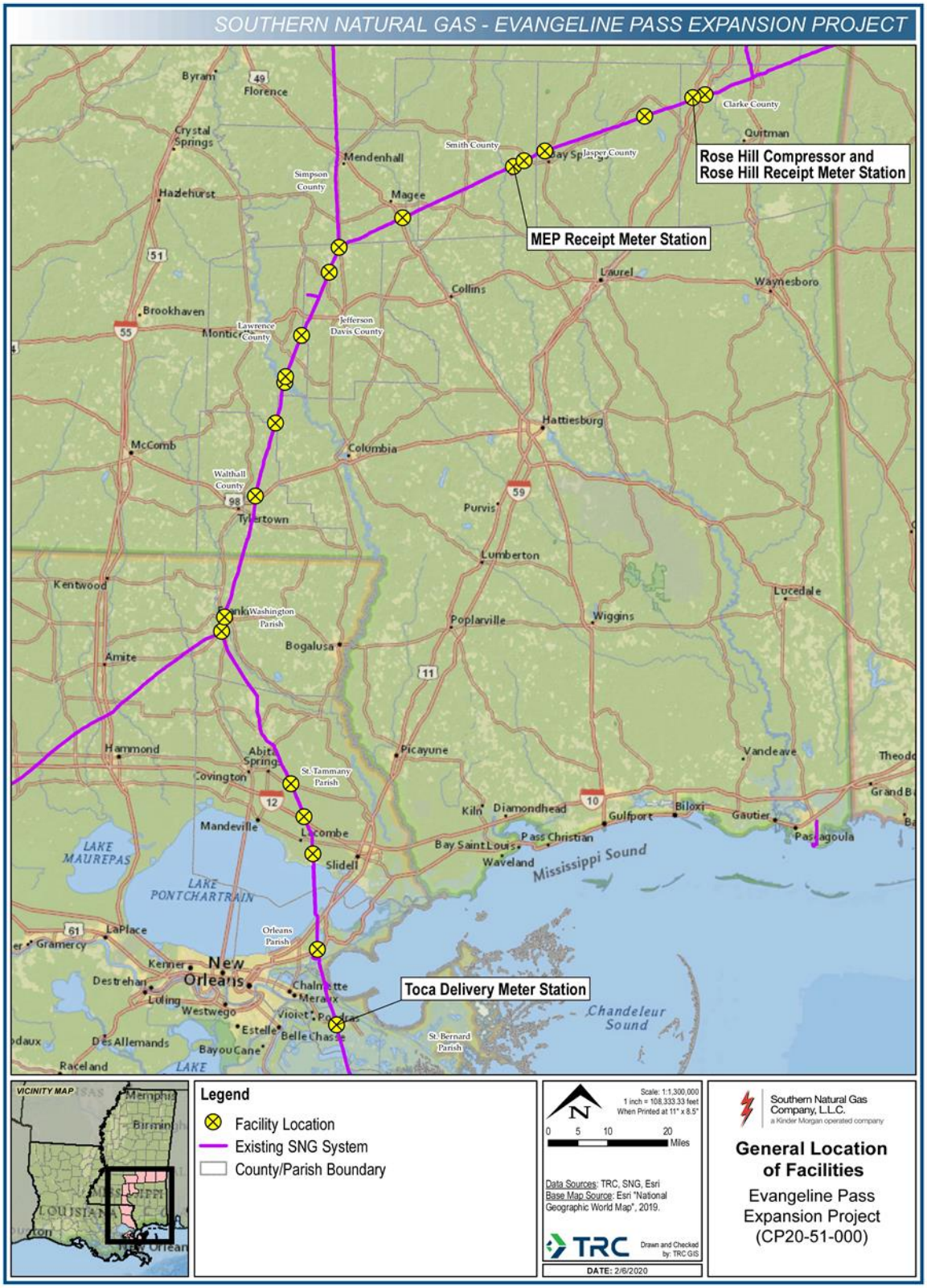

Figure 2. SNG Project General Location

6. LAND REQUIREMENTS AND FACILITIES

Tennessee Project

The Tennessee Project would affect about 386 acres of land during construction. Of this, about 142 acres would be new permanent easement during operation (table 2). Construction of the Tennessee Project would require disturbance within existing permanent easements and rights-of-way, as well as new permanent easement, temporary workspace, contractor yards, and access roads. Tennessee proposes to use four temporary contractor yards: Toca Yard, Bayou Yard, State Road LA-46 Yard and Yscloskey Yard. The Yscloskey Yard would be located at the new CS 529. Although Tennessee has identified areas where extra workspace would be required, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. Tennessee would be required to file information on each of those areas for review and approval prior to use.

Table 2: Land Requirements for the Tennessee Project

Facility	Facility Description	Temporary Workspace for Construction (acres)	New Permanent Easement/ Operations (acres)	Total Workspace (acres)
Looping Pipelines				
Yscloskey Toca Lateral Loop [1]	Pipeline Loop ROW	105.01	54.35	159.36
	Pig Launcher / Tie-In [4]	-	-	-
	Access Roads	-	13.31	13.31
	Canals	-	-	-
	Additional Temporary Workspace (ATWS)	11.71	-	11.71
	Pig Receiver / Tie-In [4]	-	-	-
	Yscloskey Toca Lateral Loop Subtotal	**116.72**	**67.66**	**184.38**
Grand Bayou Loop	Pipeline Loop ROW	100.11	24.54	124.65
	Pig Launcher / Tie-In [4]	-	-	-
	Access Roads	-	-	-
	Canals	-	12.02	12.02
	ATWS	0.16	-	0.16

Table 2: Land Requirements for the Tennessee Project				
Facility	Facility Description	Temporary Workspace for Construction (acres)	New Permanent Easement/ Operations (acres)	Total Workspace (acres)
	Pig Receiver / Tie-In [4]	-	-	-
	Grand Bayou Loop Subtotal	**100.27**	**36.56**	**136.83**
	Looping Pipelines Subtotal	**216.99**	**104.22**	**321.21**
Compressor Station 529				
CS 529 [2]	Compressor Station	-	37.42	37.42
	Access Roads	0.08	0.12	0.20
	CS 529 Subtotal	**0.08**	**37.54**	**37.62**
Contractor Yard(s)				
Toca Yard	Contactor Yard	6.49	-	6.49
Bayou Road Yard	Contractor Yard	6.13	-	6.13
State Road LA-46 Yard	Contractor Yard	14.82	-	14.82
Yscloskey Yard [3]	Contractor Yard	-	-	-
	Contractor Yard Subtotal	**27.44**	-	-
	TOTAL	**244.51**	**141.76**	**386.27**

Note: Totals may vary due to rounding.

1. Workspace for the Yscloskey Toca Lateral Loop overlapping with CS 529 (3.28 acres; 0.35 acre permanent easement, 1.40 temporary easement, and 1.53 acres ATWS) is not reported (included with CS 529).
2. Workspace attributed to CS 529 is also used for the Yscloskey Yard.
3. Workspace for the Yscloskey Yard is include with calculation for CS 529.
4. Areas for the pig launchers and pig receivers are included in the permanent easement of their respective pipeline.

CS 529

Tennessee would install a new natural gas-fired Solar Turbines Titan 130 turbine with a 23,470 hp International Organization for Standardization rating compressor unit within a new compressor building in St. Bernard Parish, Louisiana. Tennessee would also install miscellaneous auxiliary facilities, including gas coolers, Motor Control Centers and a pre-fabricated Motor Control Center building, compressor structure (canopy), stand-by generator, gas filters, catalytic heater, fiber communications, cathodic protection system, and miscellaneous pipe, valves, and fittings for gas handling in the

fenced yard of the station. The new compressor station would be located at an existing abandoned compressor station site owned by Tennessee.[4] Tennessee would re-develop the 46-acre, former CS site for CS 529 and enclose about 37 acres, within a chain-link security fence. The fence would be installed by airboat and require a 20-foot corridor. The operational area of the station would be just over 17 acres, with the rest of the land within the fenceline (about 20 acres) remaining undisturbed. Development of the permanent workspace would require the placement of permanent fill in wetlands and waterbodies (further discussed in section B.3).

Yscloskey Toca Lateral Loop

Tennessee proposes to construct about 9 miles of 36-inch-diameter looping pipeline adjacent to Tennessee's existing 529D-100 Yscloskey Toca Lateral in St. Bernard Parish, Louisiana. Appurtenant and auxiliary facilities associated with the Yscloskey Toca Lateral Loop include two bi-directional pig launcher and receiver facilities; overhead bridge across the Verret to Caernarvon Floodwall; cathodic protection system; and two tie-ins (one at the existing Toca Station and the second tie-in on Tennessee's 529D-100 Yscloskey Toca Lateral). To the extent that it is practicable, Tennessee would locate the Yscloskey Toca Lateral Loop within and adjacent to the right-of-way associated with its existing Yscloskey Toca Lateral. The permanent right-of-way would be 50-feet-wide, and would overlap with the existing Yscloskey Toca Lateral right-of-way, except at around mileposts (MP) 0.79-0.95, 7.54-8.92, and 8.97-8.99 where the pipeline would be installed in a new 50-foot-wide permanent right-of-way.

Grand Bayou Loop

Tennessee proposes to construct about 4 miles of 36-inch-diameter looping pipeline adjacent to Tennessee's existing 500-2 Line in Plaquemines Parish, Louisiana. Appurtenant and auxiliary facilities associated with the Grand Bayou Loop include two bi-directional pig launcher and receiver facilities; cathodic protection system; and two tie-ins (both on Tennessee's 500-2 Line). The entirety of the Grand Bayou Loop and appurtenant facilities are within jurisdictional wetlands and waterbodies. To the extent that it is practicable, Tennessee would locate the Yscloskey Toca Lateral Loop within and adjacent to the right-of-way associated with its existing 500-2 Line. The permanent right-of-way would be 50-feet-wide, and would overlap with the existing 500-2 Line right-of-way by 20-25 feet, except at around MPs 0.00-0.03 and 3.97-4.00 where the pipeline would be installed in a new 50-foot-wide permanent right-of-way.

[4] Tennessee Gas Pipeline Company, 40 FERC ¶61,132 (1987). (Docket No. CP87-293-00)

Contractor Yards

The Tennessee Project would require four contractor yards located within St. Bernard Parish, Louisiana (the Yscloskey Yard, Toca Yard, Bayou Road Yard, and State Road LA-46 Yard). All contractor yard impacts would be temporary. The 8.3-acre Yscloskey Yard is located immediately adjacent to a former compressor station site and within the area designated for permanent workspace for CS 529. The Toca Yard is located at Tennessee's existing Toca Station, near MP 0.0 of the Yscloskey Toca Lateral Loop. This yard would be about 6.5 acres and is located primarily in a maintained grass field. Ephemeral waterbodies and wetlands were identified within the limits of the Toca Yard, but they would be avoided. The Bayou Road Yard is located approximately 0.25 mile east of Tennessee's Toca Station along Bayou Road. This area is a wet pasture currently managed for hay production and much of the area is classified as herbaceous wetland. The State Road LA-46 Yard is located approximately 0.5 mile southeast of the Yscloskey Toca Lateral Loop crossing of State Road LA-46 (near MP 4.3). The area is currently managed for hay/pasture. Wetlands and waterbodies were identified within the limits of the State Road LA-46 Yard, but they would be avoided.

Access Roads and Canal

The Tennessee Project would require four permanent access roads, totaling about 13.4 acres. PAR-1 and PAR-2 are existing maintenance roads for the Verret to Caernarvon Floodwall and no improvements are proposed to these access roads. PAR-3 and PAR-4 are existing driveways to CS 529 that contain wooden bridges that would require improvements such as culvert installation, widening, and re-building. Tennessee would use one existing private canal (Canal-1) for access during construction and operation of the Grand Bayou Loop. Canal-1 would be accessed from public waterways. No improvements are proposed to the canal. Table 2 summarizes the approximate land requirements for construction and operation of the proposed facilities, including access roads and the canal.

<u>SNG Project</u>

The SNG Project would affect about 69 acres of land during construction and about 11 acres of new land during operation. Although SNG has identified areas where extra workspace would be required, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. SNG would be required to file information on each of those areas for review and approval prior to use. SNG does not propose use of any contractor yards. Land requirements for the SNG Project are provided in table 3.

Table 3: Land Requirements for the SNG Project					
Facility		Existing Workspace (acres)	Temporary workspace for construction (acres)	New permanent easement for operation (acres)	Total workspace (acre)
Rose Hill Compressor Station and Rose Hill Receipt Meter Station		-	18.60	9.71	28.31
MEP Meter Station	Interconnect	0.92	0.97	0.65	2.64
	Access roads	-	0.11	-	
Toca Delivery Meter Station	New delivery meter	37.47[1]	-	0.50[2]	38.09
	Access roads	-	0.11	-	
Total[3]		**38.39**	**19.79**	**10.86**	**69.04**

[1] Area within the fenceline of the Existing Toca Compressor Station.
[2] Toca Delivery Meter Station would be construction within the existing Toca Compressor Station.
[3] Addends may not equal the sums due to rounding.

Rose Hill Compressor Station and Rose Hill Receipt Meter Station

SNG proposes to construct a 22,220 hp compressor station (Rose Hill CS) in Clarke County, Mississippi. Two natural gas-fired Solar Taurus 70 turbine (11,110 hp each) compressors, filter separators, gas coolers, an auxiliary building fitted with a station control center, air compressors, cathodic protection system and other appurtenant and auxiliary facilities would be installed. A discharge line would tie in to the existing SNG 36-inch-diameter South Main 3rd Loop Line. Additionally, a natural gas-fired auxiliary generator would be installed for auxiliary power. The new Rose Hill Receipt MS would be installed on the same property as the new Rose Hill CS and would consist of aboveground measurement and telecommunications equipment. The location may also include a communication tower up to approximately 100 feet in height (no guy wires or lights required). The 44-acre site of the new Rose Hill CS and MS currently consists primarily of forested timber. SNG has executed an option agreement with the landowner for the Rose Hill CS and MS site. About 28 acres would be disturbed for construction. Due to the topography of the site, the permanent fence line for the station has not been finalized and will be completed after a geotechnical investigation and development of a site grading plan. For the purposes of this EA, we assumed that the entire 28 acres that would be temporarily disturbed during construction would be fenced in for operation; however, we expect a smaller acreage would be necessary for operation once the station layout is finalized.

The EPA inquired about the new pipe that would connect the new Rose Hill CS to the existing pipeline. The new pipe that would connect the new Rose Hill CS to the existing pipeline would be about 1,000 feet of 36-inch-diameter station piping (specifically, suction and discharge piping) that would be located on property to be purchased by SNG for the compressor station and within the area of permanent impacts.

MEP Receipt Meter Station

SNG proposes to construct the new MEP Receipt MS in Smith County, Mississippi near an existing interconnect with MEP. The facility would consist of aboveground measurement and telecommunications equipment and a cathodic protection system and would be fenced and graveled. About 3 acres would be disturbed during construction; of this, about 0.7 acres would be maintained for operation. SNG would obtain an additional permanent easement or purchase the area from the landowner for construction and operation of the MEP Receipt MS.

Toca Delivery Meter Station

SNG proposes to construct the new Toca Delivery MS in St. Bernard Parish, Louisiana within SNG's existing Toca CS, near an existing pipeline interconnect with Tennessee. The Toca Delivery MS would be fenced and graveled and consist of aboveground measurement and telecommunications equipment and a cathodic protection system. Construction would occur entirely within the fence line of the existing Toca CS (about 38 acres), with about 0.5 acre of this maintained for operation of the new Toca Delivery MS.

Access Roads

The permanent access roads to the Rose Hill CS and Rose Hill Receipt MS and the MEP Receipt Meter Station would be comprised of an existing access road that would be widened and improved. Improvements may include gravel, pavement or other treatment to adequately support construction equipment and the continued operation of the facilities. Access to the Toca Delivery MS would be from existing public roads.

7. CONSTRUCTION SCHEDULES

Tennessee Project

Tennessee anticipates beginning construction as early as first quarter 2021 and placing the Tennessee Project in-service by December 2022.

SNG Project

SNG anticipates mobilization and construction of the project facilities to begin in September 2021 for the Rose Hill CS and Rose Hill MS. The SNG Project is anticipated to be placed into service by December 2022.

8. CONSTRUCTION, OPERATION, AND MAINTENANCE PROCEDURES

Tennessee and SNG would design, construct, operate, and maintain their respective project facilities in accordance with the U.S. Department of Transportation's (USDOT) *Minimum Federal Safety Standards* in 49 CFR 192. Tennessee and SNG would adopt our *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures)[5] for the Project. Both companies propose certain modifications of the Plan and Procedures and are discussed further below.

Tennessee and SNG would operate and maintain the proposed facilities in compliance with the Commission's siting and maintenance regulations in 18 CFR 380.15, and the maintenance requirements in our Plan and Procedures. Project facilities would be marked and identified in accordance with applicable regulations. Both companies would also participate in the local One Call system. These standards are in accordance with the *National Pipeline Safety Act of 1968*, as amended.

Tennessee and SNG would construct from Monday through Saturday, from 7 am to 7 pm. Certain horizontal directional drilling (HDD) activities and hydrostatic testing would require extended construction hours, in some cases 24-hours. In addition, weather conditions, site conditions, specialized construction techniques, emergencies, or other atypical circumstances may also require extended construction hours, which may include nighttime and/or Sunday hours. If work hours are anticipated outside of the planned work hours, SNG and Tennessee would notify affected landowners and parties and work to accommodate any special needs. Construction hours are discussed further in section B.8.2.

8.1. General Construction Procedures

Construction activities associated with the projects typically would begin with land survey crews marking or staking the construction boundaries and any avoidance areas. As the marking is completed, it would be followed by clearing, erosion control device installation, facility development, cleanup, and restoration.

8.1.1. Pipeline Construction

Five installation methods would be used during construction of the Grand Bayou Loop and the Yscloskey Toca Lateral Loop: conventional lay, barge lay, push lay, HDD,

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[5] Copies of our Plan and Procedures are available for review on the FERC website (www.ferc.gov) under the environmental guidelines for the natural gas industry at: https://www.ferc.gov/industries-data/natural-gas/environment/environmental-guidelines.

and bore. In addition, Tennessee would construct a pipe bridge to cross the Verret to Caernarvon Floodwall (Yscloskey Lateral Loop at MP 0.8).

Conventional Lay

Pipeline construction using conventional techniques typically involves the following sequential activities: clearing; trenching; stringing, welding, and installation; backfilling and grade restoration; hydrostatic testing and tie-ins; and cleanup and restoration. Tennessee proposes to use conventional lay techniques in upland and non-saturated soil locations. The construction work area would be cleared to remove trees, rocks, brush, and roots, and then leveled to allow operation of construction equipment. Trenching involves excavating a pipeline ditch and would be accomplished with backhoes and/or similar excavation machinery. The trench would be excavated to a sufficient depth to allow a minimum of 4 feet of cover over the pipeline. The 36-inch-diameter pipe would require a minimum trench depth of 7 feet in order to allow 4 feet of cover. The bottom width of the trench would be cut to accommodate the pipe to be installed. Stringing trucks would lay, or string, the individual pipe sections on temporary supports (skids) along the working side of the trench in preparation for subsequent welding, joint coating, lowering-in, backfilling, and associated inspection activities. After the pipe is lowered into the trench, the trench would be backfilled with previously excavated material. After the completion of backfilling all disturbed areas would be graded, erosion controls installed, and restoration completed. This method would be used along the Yscloskey Toca Lateral Loop at: MPs 0.0-0.8, 0.85-0.9, 4.2-4.4, 4.8-5.2, and 8.7-8.9.

Barge Lay

The barge lay method would be required for the entire Grand Bayou Loop, where pipeline sections would be located in deeper water or channels as it eliminates the need for land-based equipment and fill. In open waters, the pipeline would be installed using shallow-draft spud barges. The use of spud barges[6] in open waters would require the excavation of a flotation channel within a 250-foot-wide construction right-of-way. Using barges with anchor spuds eliminates the need for an anchor spread and anchor-handling boats, minimizing the area affected by construction operations.

The right-of-way centerline and boundaries would be staked with poles or floating buoys ahead of excavation. The pipeline trench would be excavated using a barge-mounted clam-bucket (or equal) dredge. Within the construction right-of-way, it is anticipated that the dredge barge would first excavate the flotation channel (where necessary) and then excavate the pipe trench along the bottom of the flotation channel. The dredge barge would cast the flotation channel and sidecast spoil to either side of the

[6] A spud barge is a form of barge that can be moored through the use of through-deck pilings, known as spuds. Spuds may be fabricated or made of commercially available pipe sections or logs.

right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil piles would be placed parallel to the trench in 500-foot in lengths, with 50-foot-wide openings marked with warning signs and navigation lights to allow the passage of local watercraft.

All crane/dredge and pipeline barges would have in-hull fuel tanks with capacities ranging from 5,000 to 20,000 gallons. For field fueling equipment such as dozers, backhoes, marsh equipment (cranes, pull buggies, backhoes, jet pumps, welding machines, etc.) the contractor would utilize Coast Guard-approved portable fuel tanks (approximately 100 gallons) transported to equipment by truck, mud boat, or airboat. These tanks are filled at a barge site or from an on-land USDOT-approved skid tank (approx. 2,000 to 4,000 gallons) that is serviced by a fuel distribution truck. Additional fuel hauling and transfer to work barges in the field would be completed by a fuel hauling tug (as part of the daily supply run) with in-hull tanks and fuel station.

Tennessee has applied for a coastal use permit (CUP) from the Louisiana Department of Natural Resources – Office of Coastal Management (LDNR-OCM). The Oil Spill Section of the LDNR-OCM, responsible for implementation of the Oil Pollution Act (33 USC §2701) regulations in state waters, will review Tennessee's CUP application and incorporate recommendations and stipulations into the CUP. Tennessee would comply with all LDNR recommendations and stipulations.

The pipeline would be fabricated aboard a string of shallow-draft spud barges, connected together in a line to form the lay barge. The pipe would first be offloaded from tugboat-towed supply barges and then each pipe joint would then be aligned end-to-end with the previous joint. The pipe joints would be assembled into one continuous pipeline by passing through multiple welding, inspection, repair, and coating stations. To ensure that the assembled pipe meets or exceeds the design strength requirements, the welds would be visually inspected and examined using radiography (X-ray), ultrasound, or other approved methods, in accordance with American Society of Mechanical Engineers standards. Once each weld has passed inspection and received its final coating, the pipe would be lowered off the back end of the lay barge into the pipe trench by lifting the anchor spuds of the lay barge and moving the lay barge forward the length of one pipe joint. The next pipe joint would be rolled into position for welding and the process would be repeated.

Following lowering in, surveyors would confirm that the pipe is at sufficient depth to provide the depth of soil cover required by the USDOT or by permit condition. If the minimum cover is not achieved, the pipe would be lowered farther using a barge-mounted hydraulic jetting system. Once sufficient depth of the pipe is achieved to provide the minimum soil cover, the dredge barge would return to backfill the pipe trench and flotation channel, using the available spoil adjacent to the excavation.

Using the clam bucket, the bottom would be restored to within one foot of the original elevation contours. Surveyors would confirm that final grade and tolerance have

been achieved. Where the one-foot grade tolerance is not achieved, a board or joint of pipe would be mounted on the dredge line and dragged across the bottom to remove high spots, until the contours have been restored to within the allowable tolerance. Where insufficient spoil remains to completely backfill the trench and channel to within one foot of original contours, the trench and channel would be allowed to fill naturally with sediments over time.

Push Lay

For the push method, a 150-foot-wide construction right-of-way with a 30-foot-wide trench width (top) would be required. Push lay techniques are typically used in saturated areas where soil stability is efficient to support a trench and construction equipment. Trench spoil bank heights are anticipated to be relatively low because the excavated material lacks adequate unconfined compressive strength. To accommodate the trench spoil placement storage, the need for two spoil banks parallel to the push ditch is anticipated. A 60-foot-wide area would be required on both sides of the push ditch for spoil banks, equipment travel, and reasonable buffer gaps. Thus, the push construction technique would require a 150-foot-wide construction right-of-way due to the combination of the 30-foot-wide push ditch and the two 60-foot-wide areas for spoil piles, equipment travel, and reasonable buffer gaps between the edges of the right-of-way, spoil piles, and ditch.

Push sites in open-water areas would consist of several shallow-draft spud barges connected together to provide a working platform. At the push site, various pipeline operations would take place, including pipe make-up, welding, non-destructive testing, joint coating and coating repairs, and installation of flotation apparatus. Where there is standing water, only enough clearing and trenching would be done to accommodate installation of the pipe. Each excavator used would have a lateral reach sufficient to place spoil within the 150-foot-wide construction right-of-way. Pipe stringing and lowering in for the push lay method would be similar to that described in the conventional lay method. The push lay method would be used at: MPs 0.9-4.2 and MPs 5.2-8.7.

Horizontal Directional Drilling

The HDD method allows for construction across a waterbody, road, or other sensitive area without the excavation of a trench, by drilling a hole below the resource and pulling the pipeline through the pre-drilled hole. A small-diameter pilot hole is drilled under the area to be crossed and enlarged through successive reaming passes until it is large enough to accommodate a prefabricated segment of pipe. The head of the pilot drill string contains a pivoting head that can be controlled by an operator as the drill progresses. Typically, the pilot hole would be directed downward at an angle until the proper depth is achieved, then turned and directed horizontally for the required distance, and finally angled upward back to the surface. During this process, drilling fluid consisting primarily of bentonite clay and water is continuously pumped into the drilled

hole to lubricate the drill bit, remove cuttings, and maintain the integrity of the hole. When the hole has been sufficiently enlarged, a prefabricated segment of pipe is attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole towards the drill rig.

The HDD method involves an entry and exit pad on each side of the crossing. The initial step of placing HDD guide wires over the path of the drill may require minor hand clearing. Drilling fluid is pressurized and has the potential to be inadvertently released to the surface (IR) if fractures or fissures are encountered in the substrate during drilling.

The potential for an IR is generally greatest during drilling of the pilot hole when the pressurized drilling mud is seeking the path of least resistance and near the drill entry or exit pits where the drills are at their shallowest depths. The path of least resistance is typically back along the path of the drilled pilot hole. However, if the drill path becomes temporarily blocked or encounters areas such as large fractures or fissures that lead to the ground, then an inadvertent release could occur. Tennessee developed a site-specific HDD plan and an HDD Contingency Plan to monitor for, contain, and clean up IRs during HDD operations. The HDD Contingency Plan would be utilized to:

- provide procedures that would minimize the potential for release of drilling mud into sensitive resource areas, such as wetlands and waterbodies, or onto adjacent upland surfaces;
- provide for timely detection of IRs;
- ensure the implementation of an organized, timely, and "minimum impact" response in the event an IR of drilling fluid occurs;
- ensure that all appropriate notifications are made in a timely manner;
- provide for an alternative plan in case of drill failure; and
- establish the criteria by which Tennessee would determine when the proposed HDD crossing is unsuccessful and must be abandoned.

Tennessee would install one 0.4-mile-long segment of pipe via HDD along the Yscloskey Toca Lateral Loop for the crossing of Bayou Road and State Highway 46 from MP 4.4 to 4.8. A 200 foot by 200 foot area of temporary workspace would be needed at the entry and exit points. Additional information on the related geotechnical investigations is presented in section B.1.6.

Bore

The bore method is a process that allows for trenchless installation by drilling a horizontal tunnel beneath a surface feature, such as road or utility, and installing a prefabricated segment of pipeline through the hole. The boring method involves

excavation of a bore pit on one side of the crossing and a receiving pit on the other side. A boring machine would then cut a shaft under the crossing using a cutting head mounted on an auger. The pipeline would then be pushed or pulled through the hole.

Tennessee proposes to cross one railroad owned by the Alabama Great Southern Railroad Company via a 528-foot-long bore underneath the rail bed from MP 0.1 to MP 0.2 of the Yscloskey Toca Lateral Loop.

Hydrostatic Testing

All new pipe would be tested hydrostatically in accordance with USDOT's regulations at 49 CFR Part 192 prior to being put in service. The pipe would be filled with water obtained from waterbodies onsite and maintained at a test pressure and duration in compliance with Tennessee's engineering standards and applicable federal regulations. After the completion of a satisfactory test, the water would be tested and discharged back to its source. Final tie-in locations would be cleaned and restored after hydrostatic testing.

8.1.2 Compressor Station and Meter Station Construction

Foundations, Pilings, and Platforms

Tennessee and SNG would excavate as necessary to accommodate the reinforced concrete foundations required for the compression equipment, metering equipment, pigging equipment, and buildings. Tennessee and SNG would backfill removed spoil into the excavation and compact it in place. Concrete pours would be sampled to verify compliance with minimum strength requirements. Excess spoil would be distributed across the station sites or used as backfill elsewhere on the Project.

For SNG's Rose Hill CS and MS, shallow mat foundation or pilings (e.g., drilled piers) may be required to support foundations. At Tennessee's CS 529, pilings would be installed to support the gas cooler, office building, and ancillary equipment. The existing platforms would be repurposed to install Solar Turbine Titan 130 compressor unit, motor control center building, and air compressor skid.

Building Installations

Once the concrete foundations have been completed and determined to meet the design requirements, installation of the buildings and machinery for each compressor station would commence. The prefabricated buildings would be lifted off the delivery truck and set in place on the platform, leveled, grouted, and secured. The auxiliary and compressor building would be erected onsite by the general contractor. Various piping and electrical conduit systems would be connected once the machinery is placed. Electrical wiring would be installed for power and instrumentation. Compression equipment would be shipped to the site by truck after construction commences. The

compressors would be offloaded, positioned on the foundation, leveled, grouted, and secured.

Piping Installation

Piping connections that are not flanged or screwed would be welded. Tennessee and SNG would perform welding procedures, including visual inspections and non-destructive testing, in accordance with the safety standards and regulations in the USDOT's Minimum Federal Safety Standards in 49 CFR 192.

8.2. Special Construction Techniques

Only Tennessee would use the special construction techniques described below.

Road and Railroad Crossings

The Tennessee Project would cross two existing public roads, Bayou Road and Florissant Highway/LA 46. The road crossings would be completed by a single HDD as previously described. Additionally, an Alabama Great Southern Railroad near MP 0.1 via bore.

Levee Crossing

Tennessee plans to use a pipe bridge to cross the non-federal levee and adjacent canal at approximate MP 0.8 on the Yscloskey Toca Lateral Loop. For the pipe bridge crossing, the construction process includes piling, pile cap installation, crane erection, setting vertical and horizontal bridge assemblies, and piping installation.

Foreign Line Crossings

Where existing underground utilities are crossed, Tennessee would install the pipeline at an appropriate depth (either over or under the existing utility) to meet soil cover and separation requirements in accordance with USDOT regulations and specifications. Where feasible, at least 18 inches of separation between the pipeline and the existing utility line would be maintained.

Additional temporary workspace (ATWS) would be required at underground utility crossings to accommodate the increased excavation depths and minimize the need to operate equipment or store spoil over existing pipelines. Typical construction

underground utility crossings are provided (appendix B). Foreign line crossings are summarized by milepost and type of utility being crossed in table 4.

Table 4: Foreign Lines Crossed by the Tennessee Project

Milepost	Type of Utility	Ownership	Crossing Method
Yscloskey Toca Lateral Loop			
0.3	Unknown	Unknown	Conventional Lay
5.3	Natural Gas	Tennessee Gas Pipeline Company, L.L.C.	Push Lay
5.3	Refined Products	Colonial Pipeline	Push Lay
8.9	Natural Gas	Targa Resources Corporation	Conventional Lay
8.9	Natural Gas Liquids	Enterprise Products Partners, L.P.	Conventional Lay
Grand Bayou Loop			
0.3	Refined Products	Shell Pipeline Company	Barge Lay
0.3	Natural Gas	Gulfstream Natural Gas System, L.L.C	Barge Lay
3.0	Natural Gas	Targa Resources Corporation	Barge Lay
3.0	Natural Gas	Southern Natural Gas Company	Barge Lay

Wetland and Waterbody Construction Procedures

Crossings of waterbodies and wetlands would be undertaken in accordance with the Project-specific Procedures. The routes for the looping pipelines are located in a region where consolidated soils comprise less than 8 percent of the routes. Therefore, Tennessee's implementation of the push method is designed to minimize impacts on the vegetated wetland areas and requires workspaces greater than 75-feet-wide. Additionally, the barge lay method would be used for the entire installation of the Grand Bayou Loop in open water and would require a 250-foot-wide construction right-of-way. ATWS would also be required, oftentimes within 50 feet of wetlands and waterbodies. Modifications to the Plan and Procedures are discussed in sections A.8.3, B.3.2, and B.3.3.

8.3. Environmental Compliance

Tennessee and SNG would each employ at least one environmental inspector (EI) for the Project during construction and restoration, as specified in our Plan. The EIs would be on-site during Project construction activities to ensure Tennessee and SNG's

compliance with the measures outlined in our Plan and Procedures and the environmental permit requirements from construction through restoration. The EIs would have the authority to stop activities that are not in compliance with agency requirements until corrective action has been taken. Commission staff would also maintain oversight of construction and restoration to ensure compliance with the environmental conditions of the Commission's orders.

Tennessee and SNG would each conduct environmental training sessions in advance of construction to ensure that all individuals working on the project are familiar with the environmental mitigation measures appropriate to their jobs and the EI's authority.

Tennessee Project

In order to minimize potential environmental impacts, Tennessee has developed the following Project-specific construction and reclamation plans[7] which we have reviewed and find acceptable:

- Environmental Construction Management Plan (ECMP), which includes:
  - Tennessee's Upland Erosion Control, Revegetation, and Maintenance Plan (Tennessee's Plan);
  - Tennessee's Wetland and Waterbody Construction and Mitigation Procedures (Tennessee's Procedures);
  - Spill Prevention, Control, and Countermeasure Plan (SPCC Plan);
  - HDD Contingency Plan;
  - Invasive Plant Management Plan; and
  - Procedures Guiding the Discovery of Unanticipated Historic Properties and Human Remains (Unanticipated Discoveries Plan);
- Unanticipated Contamination Discovery Plan; and
- Fugitive Dust Control Plan.

[7] Copies of Tennessee's project-specific construction and reclamation plans have been filed with the Commission and can be viewed on eLibrary at https://elibrary.ferc.gov/idmws/docket_search.asp under docket CP20-50-000.

SNG Project

In order to minimize potential environmental impacts, SNG has developed the following Project-specific construction and reclamation plans,[8] which we have reviewed and find acceptable:

- SNG's Upland Erosion Control, Revegetation, and Maintenance Plan (SNG's Plan);
- SNG's Wetland and Waterbody Construction and Mitigation Procedures (SNG's Procedures)
- Noxious Weed Species Control Plan;
- Unanticipated Discoveries and Emergency Procedures Plan (Unanticipated Discoveries Plan); and
- Fugitive Dust Control Plan.

Additionally, per its Plan and Procedures, SNG would provide Project-specific Spill Prevention and Response Procedures prior to construction.

Proposed Modifications to the FERC's Plan and Procedures

Tennessee and SNG have proposed modifications to FERC's Plan and Procedures (appendix C and D). We have determined that Tennessee provided adequate justification to the proposed alternative measures which are listed in appendix C. We have determined that SNG provided adequate justification for all, but one of the proposed modifications, which is further discussed in section B.3.2 (Surface Water). The tables in appendix C and D include the original text from FERC's Plan and Procedures, the modified text in the Project-specific Plan and Procedures, and our determination regarding the proposed modification.[9]

9. NON-JURISDICTIONAL FACILITIES

Under Section 7 of the NGA, the FERC is required to consider, as part of its decision to authorize interstate natural gas facilities, all factors bearing on the public convenience and necessity. Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. As such, FERC has no authority or jurisdiction over the siting, permitting, licensing, construction, or operation of these facilities. These "non-jurisdictional" facilities may be integral to the need for the proposed facilities (e.g., a power plant at the end of a

[8] Copies of SNG's project-specific construction and reclamation plans have been filed with the Commission and can be viewed on eLibrary at https://elibrary.ferc.gov/idmws/docket_search.asp under docket CP20-51-000.

[9] The tables in appendix C and D only include substantive proposed modifications.

FERC-jurisdictional pipeline) or they may be merely associated as minor, non-integral components of the jurisdictional facilities that would be constructed and operated as a result of the Certification of the proposed. These facilities are addressed below.

Tennessee Project

Entergy Louisiana, LLC (Entergy) would construct and operate approximately 250 feet of overhead power line, originating at an existing power pole and transformer along Florissant Highway outside the proposed CS 529. According to Entergy, no federal, state, or local permits are expected to be required for the extension of electrical distribution to the site. Entergy does not plan to finalize its design of the facility and determine all necessary permits unless and until the Tennessee Project is authorized and Tennessee releases Entergy to begin work.

St. Bernard Water Company would construct about 200 feet of underground 4-inch-diameter potable water supply line originating between the fence of CS 529 and the adjacent bayou, parallel to the bayou and Florissant Highway to reconnect to the existing water system. According to St. Bernard Water Company, there are no federal, state, or local permits required to reconnect water meter and line.

Approximately 200 feet of overhead communications line would be constructed, originating between the fence of CS 529 and the adjacent bayou, parallel to the bayou and Florissant Highway. Tennessee has not yet chosen a provider (potentially Bell South, Verizon or others). No federal, state, or local permits are anticipated to be required for extending the communication line to CS529. The communication company would not commence and finalize its design of the facility and determine all necessary permits unless and until the Tennessee Project is authorized and Tennessee releases Bell South or Verizon or other chosen service provider to begin work.

Cumulative Impacts associated with these facilities are addressed in section B.10.

SNG Project

East Mississippi Electric Power Association (EMEPA) would upgrade an existing overhead power line to 3-phase service, originating at the location of a current power pole along County Road 336, and routed along existing power line right-of-way to the station access road, approximately 1.7 miles in length before reaching the Rose Hill Compressor Station site. The size of the electrical power line would be determined by EMEPA. EMEPA does not plan to finalize its design of the facility and determine all necessary permits until the SNG Project is authorized and SNG releases EMEPA to begin work. According to EMEPA, only a state permit for crossing Interstate 59 would require updating, as the crossing is currently only permitted for single phase service.

Other non-jurisdictional facilities that would be installed includeseptic system, groundwater well installation, and communication tower/lines. All nonjurisdictional facilities would be installed within the permanently disturbed area for the Rose Hill Compressor Station site.

Cumulative impacts associated with these facilities are addressed in section B.10.

10. PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS

Tables 5 and 6 list the major federal, state, and local permits, approvals, and consultations for construction and operation of the Tennessee Project and the SNG Project respectively and provides the current status of each. Tennessee and SNG would each be responsible for obtaining and abiding by all permits and approvals required for construction and operation of their respective Project facilities regardless if they appear in these tables.

Table 5: Permits for the Tennessee Project

Agency	Permit/Approval/Consultation	Status
Federal		
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act	Application filed 02/07/2020.
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act Section 7 Consultation Marine Mammal Protection Act	Tennessee signed Consistency Letter as Project Representative and returned to FWS 04/23/2020. FWS signed and returned consistency letter 04/29/2020 (Consultation Complete).
National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) – Southeast Regional Office	Endangered Species Act (ESA) Section 7 Consultation	Tennessee submitted draft Rare, Threatened, and Endangered Species Report to NMFS for review and comment submitted 02/07/2020. Consultation is ongoing.
	Magnuson-Stevens Fishery Conservation and Management Act - Essential Fish Habitat (EFH) Consultation	Consultation is ongoing.
U.S. Army Corps of Engineers (Corps),	Clean Water Act, Section 404 Rivers and Harbors Act, Section 10	LDNR-OCM is the clearinghouse for processing of the Joint Permit

Table 5: Permits for the Tennessee Project		
Agency	Permit/Approval/Consultation	Status
New Orleans District	Section 408 Request (Joint Permit)	Application (JPA). LDNR-OCM forward to Corps for Section 404/Section 10 review. Corps regulatory notifies Operations of JPA triggering Section 408 Review. Joint Permit Application submittal to LDNR-OCM 02/07/2020. LDNR-OCM deemed administratively complete on 06/09/2020 (Project under review).
State		
Louisiana Department of Environmental Quality	Air Quality Permit	Minor source air permit for CS 529 issued 05/14/2020.
Louisiana Office of Cultural Development Division of Historic Preservation and Division of Archeology	National Historic Preservation Act (NHPA), Section 106 Consultation	Concurrence letter received 03/09/2020. Consultation Complete.
Louisiana Department of Wildlife and Fisheries Natural Heritage Program	Threatened and Endangered Species Consultation	Recommendations received 04/21/2020.
Louisiana Department of Environmental Quality	Section 401 Water Quality Certification	Section 404/Section 10 Dredge and Fill Authorization. JPA filed 02/07/2020.
	National Pollutant Discharge Elimination System for Discharge of Hydrostatic Test Water	Tennessee's Louisiana Pollutant Discharge Elimination System General Permit for Hydrostatic Test and Vessel Testing Wastewater has been reissued effective March 23, 2018. Must comply with all permit conditions to be eligible.
Louisiana Department of Natural Resources – Office of Coastal Management (LDNR-OCM)	Coastal Use Permit (CUP); Coastal Zone Consistency Review	LDNR-OCM is the clearinghouse for processing of the JPA. CUP for overall Project and coastal zone consistency review. JPA submittal to LDNR-OCM 02/07/2020. CUP under review.
Lake Borgne Basin LD/Southeast Louisiana Flood Protection Authority-East	SLFPA-E Levee Safety Permit	Submission pending.
Coastal Protection and Restoration Authority	Letter of No Objection Review	Comments on Lake Borgne Basin LD – SLFPA-E Levee Safety Permit. Received February 12, 2020. Submission pending.
Louisiana Department of Natural Resources – Surface Water Management Program	Application for Surface Water Use	To be submitted 30-60 days prior to requested withdrawal date.

Table 6: Permits for the SNG Project		
Agency	Permit/Approval/Consultation	Status
Federal		
Federal Energy Regulatory Commission	Authorization and Certificate of Public Convenience and Necessity under Sections 7(b) and (c) of the Natural Gas Act	Application filed 02/07/2020.
U.S. Army Corps of Engineers (Corps) New Orleans, Mobile, and Vicksburg Districts	Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act	Application submitted 02/07/2020. New Orleans District: Confirmation of NWP-3 with no PCN required received 03/18/2020. Mobile District: Confirmation of no permit required received 03/05/2020. Vicksburg District: Confirmation of NWP-3 with no PCN required received 05/13/2020.
U.S. Fish and Wildlife Service Field Offices: Lafayette, LA Jackson, MS	Endangered Species Act Section 7 Consultation	Mississippi Sites: Clearance letter received 03/03/2020. Louisiana Non-Coastal Zone Sites: Signed IPaC consistency letter received 03/23/2020. Louisiana Coastal Zone Sites: Signed IPaC consistency letter received 03/26/2020. Section 7 consultation is complete for the SNG Project.
State – Louisisana		
Louisiana Department of Environmental Quality	Section 401 Water Quality Certification	Submitted 02/07/2020 (blanket coverage of Nationwide Permits).
	Hydrostatic test water discharge permits	Submission pending.
	Letter of No Objection Review	Submission pending.
Advisory Council on Historic Preservation	National Historic Preservation Act (NHPA), Section 106 Consultation.	Received 03/06/2020.
Louisiana Office of Cultural Development Division of Historic Preservation and Division of Archeology	NHPA, Section 106 Consultation	Received 02/18/2020.
Louisiana Department of Wildlife and Fisheries	Louisiana Revised Statute Title 56	Submitted 02/28/2020.
Louisiana Department of Natural Resources, Office of Coastal Management	Joint Permit Application for activities within the Louisiana Coastal Zone that also require permits from the Corps	Submitted 02/07/2020.
State – Mississippi		
Mississippi Department of Environmental Quality	State Permit to Construct for Rose Hill, two minor Title V permit modifications, and an operational flexibility notification for an existing Title V permit.	Submission pending.
	Section 401 Water Quality Certification	Submitted: 02/07/2020.

Table 6: Permits for the SNG Project		
Agency	Permit/Approval/Consultation	Status
	Hydrostatic Test Water Discharge Notice of Intent	To be submitted: 60 days prior to construction.
	Hydrostatic Test Water Withdrawal Notice of Intent	To be submitted: 60 days prior to uptake.
Mississippi Department of Archives and History	NHPA Section 106	Received: 03/06/2020.
Local		
Smith County Emergency Management Agency (Mississippi)	Floodplain Permit	Submittal 60 days prior to construction.

B. ENVIRONMENTAL ANALYSIS

In this section, we discuss the affected environment, general construction and direct and indirect operational impacts, and proposed mitigation to minimize or avoid impacts for each resource. When considering the environmental consequences of the proposed Project, the duration and significance of any potential impacts are described below according to the following four levels: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction, with the resources returning to pre-construction conditions almost immediately. Short-term impacts could continue for up to three years following construction. Long-term impacts would require more than three years to recover, but eventually would recover to pre-construction conditions. Permanent impacts could occur because of activities that modify resources to the extent that they may not return to pre-construction conditions during the life of a project, such as with the construction of an aboveground facility. An impact would be considered significant if it would result in a substantial adverse change in the physical environment.

Tennessee and SNG, as part of their respective proposals, agreed to implement certain measures to reduce impacts on environmental resources. We evaluate the proposed mitigation measures to determine whether additional measures would be necessary to reduce impacts. Where we identify the need for additional mitigation, the measures appear as bulleted, boldfaced paragraphs in the text. We will recommend that these measures be included as specific conditions to any Certificate or authorization that the Commission may issue to Tennessee and SNG.

1. GEOLOGY

All Tennessee and SNG Project sites are within the Coastal Plain physiographic province. The Tennessee Project is within the Mississippi Alluvial Plain section of the Coastal Plain province (U.S. Geological Survey [USGS], 2002). The Mississippi Alluvial Plain section extends along the Mississippi River, south to the Gulf of Mexico. This section is a broad, flat alluvial plain, with river terraces, swales, and levees providing the main elements of relief (U.S. Department of Agriculture, 2006). The Yscloskey Toca Lateral Loop Pipeline and CS 529 are mapped as being underlain by Holocene age alluvium deposits comprised of clays, sand, and minor gravel, as well as delta plain and saline marsh deposits comprised of clay with high organic content and some peat. The Grand Bayou Loop is underlain by Holocene age delta plain and saline marsh deposits (USGS, 2005a). In general, Tennessee Project areas are relatively flat and range in elevation from 1 to 55 feet above mean sea level (AMSL).

SNG Project sites are within the Mississippi Alluvial Plain section (described above) and East Gulf Coastal Plain section of the Coastal Plain physiographic province. The East Gulf Coastal Plain section consists of flat, relatively featureless plains

interspersed with cuestas, flatwoods, and floodplains. This section formed on Mesozoic era to recent sediments (gravels, sands, silts, and clays) and sedimentary rocks composed of chalk, limestone, sandstone, and claystone (Encyclopedia of Alabama, 2016; USGS, 2005b). In general, SNG Project areas are relatively flat and range in elevation from approximately 0 to 400 feet AMSL. The Rose Hill CS and MS site is at an elevation of approximately 380 feet AMSL and is in an area of moderate topography, with slopes ranging from 5 to 45 percent.

1.1. MINERAL RESOURCES

Louisiana and Mississippi's primary mineral resources include fuel (oil and gas production) and non-fuel (salt, sand and gravel, crushed stone, and lime) resources (USGS, 2020). A search of oil and gas production and non-fuel mineral resources in the Project vicinity utilizing the Louisiana Department of Natural Resources (LDNR) Strategic Online Natural Resource Information System (SONRIS) (LDNR, 2020); Mississippi State Oil and Gas Board databases (Mississippi State Oil and Gas Board, 2020); Mississippi Department of Environmental Quality (MDEQ) databases (MDEQ, 2020); the USGS Mineral Resource Data System (USGS, 2011); aerial imagery; and topographic maps did not identify active, inactive, abandoned, or reclaimed surface or subsurface mines within 0.25 mile of any proposed workspace.

Eight total oil and/or gas wells were identified within 0.25 mile of Tennessee Project workspaces; all listed as plugged and abandoned. One of these abandoned wells would be within temporary workspace for the Grand Bayou Loop Pipeline. This abandoned well is within temporary workspace in an area of barge lay construction where there no ground disturbance is proposed. Tennessee states there would be no disturbance to the well. Active and historic oil and/or gas wells were not identified within 0.25 mile of any SNG Project area.

Based on the distance from the Project to active mineral extraction, we conclude that the Project would not significantly impact availability of, or access to, mineral resources.

1.2. GEOLOGIC HAZARDS

Geologic hazards are natural, physical conditions that can result in damage to land and structures or injury to people. Such hazards typically are seismic-related, including earthquakes, surface faulting, and soil liquefaction. Geologic hazards discussed below also include landslides, ground subsidence (including karst terrain), flood hazards, as well as the feasibility of utilizing the HDD construction method, based on hydrogeologic conditions present in the Project area.

1.3. SEISMICITY AND SOIL LIQUEFACTION

Earthquake severity can be expressed in terms of intensity and magnitude. Intensity is based on observed effects of ground shaking, while magnitude describes seismic energy released at the earthquake source. Additionally, peak horizontal ground acceleration (PGA) (expressed in terms of acceleration as a percent of gravity [g]) is a measure of the effect of an earthquake at a certain distance from the source and based on geological conditions.

Tennessee Project

USGS National Seismic Hazard Probability Mapping shows that for the Tennessee Project area, within a 50-year period, there is a 2 percent probability of an earthquake with a PGA of 4 to 6 percent g; and a 10 percent probability of an earthquake with an effective PGA of 1 to 2 percent g being exceeded (USGS, 2018).

Even under much higher ground vibrations, the main risk to pipelines and aboveground facilities would be a fault that displaces laterally during an earthquake. The Tennessee Project would be within the Gulf-margin normal fault system, a belt of poorly defined, mostly seaward-facing normal faults that trend parallel to the Gulf Coast in westernmost Florida, southwestern Alabama, southern Mississippi, all of Louisiana and southernmost Arkansas, and eastern and southern Texas (USGS, 2019). Movement along active growth faults in this system tends to be minimal (less than 0.2 millimeters/year) and non-seismogenic; the Louisiana Geological Survey (2001) describes this process as gradual creep instead of sudden break or displacement. Tennessee Project facilities are not anticipated to be affected by faults given the nature of fault movement (gradual creep) and the composition of sediments and rocks that underlie the fault system, which are likely unable to generate the energy required to produce significant seismic events (Wheeler and Heinrich, 1998). Further, based on a review of the USGS Earthquake Archive search tool, no earthquakes with a magnitude greater than 1.0 on the Richter scale have occurred within 10 miles of the Project from January 1, 1900 through June 2020 (USGS, 2020b).

Soil liquefaction is a phenomena associated with seismic activity in which saturated, non-cohesive soils temporarily lose their strength and liquefy (i.e., behave like a viscous liquid) when subjected to forces such as intense and prolonged ground shaking. All three of these conditions (non-cohesive soils, near surface saturation, and seismicity) are necessary for soil liquefaction to occur. Soil conditions necessary for liquefaction to occur are likely present within the Tennessee Project area; however, given the seismic hazard risk for this region, it is unlikely that ground shaking strong enough to cause soil liquefaction would occur.

SNG Project

For the SNG Project area, within a 50-year period, there is a 2 percent probability of an earthquake with a PGA of 4 to 14 percent g; and a 10 percent probability of an earthquake with an effective PGA of 1 to 5 percent g being exceeded. These ground accelerations would be expected to correlate with approximate intensities between II and VI on the Modified Mercalli Intensity scale, associated with no damage to "light" damage potential for aboveground structures.

Historically, very few earthquakes have been recorded in the vicinity of the SNG Project. Based on a review of the USGS Earthquake Archive search tool, with the exception of the Rose Hill CS and MS, no earthquakes with a magnitude greater than 1.0 on the Richter scale have occurred within 10 miles of the Project from January 1, 1900 through June 2020 (USGS, 2020b). One Richter magnitude 3.0 earthquake occurred in October 1976 and one Richter magnitude 3.5 earthquake occurred in March 1996 approximately 8 and 10 miles east, respectively, of the Rose Hill CS and MS. With the exception of the Rose Hill CS and MS, the SNG Project would be within the Gulf-margin normal fault system, described above. The Rose Hill CS and MS site is not underlain by active faults.

Soil conditions necessary for liquefaction to occur are likely present within the SNG Project area; however, given the seismic hazard risk for this region, it is unlikely that ground shaking strong enough to cause soil liquefaction would occur. Further, the new Rose Hill CS design would incorporate structural engineering recommendations informed by the results of SNG's May 2020 geotechnical investigation, including the use of shallow mat foundation or pilings (e.g., drilled piers) to support foundations, which would minimize impacts from seismic events, should they occur, including soil liquefaction.

Based on the magnitude and intensity of recent and historic seismic activity in the Project vicinity, and the creeping nature of the fault system underlying Project areas, the Project is not likely to be adversely impacted by future seismic incidents. Therefore, we conclude that there is a low potential for prolonged ground shaking, ground rupture, or soil liquefaction to significantly impact Tennessee or SNG Project facilities.

1.4. LANDSLIDES AND SLOPE STABILITY

Landslides are defined as the movement of rock, debris, or soil down a slope. Slope failure causing a landslide can be initiated by precipitation, seismic activity, slope disturbance due to construction, or a change in groundwater conditions, such as a seasonal high groundwater table, and soil characteristics. Construction factors that may increase the potential for slope failure could include trenching along slopes and the burden of construction equipment or spoil on unstable surfaces.

With the exception of the new Rose Hill CS and MS, SNG and Tennessee Project areas are generally flat (mapped soil unit slopes range from 0 to 2 percent) and/or have been previously graded. Therefore, landslide risk in this Project area is negligible.

The Rose Hill CS and MS workspace is elevated topographically relative to adjacent land, and is in an area of moderate topography and with slopes ranging from 5 to 45 percent. SNG states the fence line for the station has not been finalized but that it completed a geotechnical investigation at the Rose Hill CS and MS site in May 2020 and that the recommendations of its geotechnical engineers would be incorporated into the final site design. SNG has also stated that during detailed design, it would develop guidelines and/or site-specific plans to manage surface and groundwater, slope stabilization techniques, placement of spoil and felled trees during construction, and monitoring and mitigation measures to protect Project facilities and downslope resources, as applicable. Given the variable terrain within the workspace, the necessity and extent of mitigation would be dependent on the finalized site design. However, by following the recommendations of its geotechnical engineers and developing plans for managing potential landslide triggering mechanizms, the associated hazards can be effectively mitigated. Because the fenceline and final station layout at the Rose Hill site have not been finalized and because SNG has not filed the results of its geotechnical investigation or its proposed measures to address slope instability hazards during construction and operation**, we recommend that:**

- **<u>Prior to construction at the Rose Hill Compressor and Meter Station site,</u> SNG should file with the Secretary of the Commission (Secretary), for review and written approval of the Director of the Office of Energy Projects (OEP), or the Director's designee, its geotechnical report for the site, as well as plans to manage surface and groundwater, slope stabilization techniques, placement of spoil and felled trees during construction, and any monitoring and mitigation measures to protect Project facilities and downslope resources during construction and operation.**

Based on the flat topography of the majority of Project area, and our recommendation for SNG's Rose Hill CS and MS site, we conclude that the Project would not significantly adversely impact or be adversely impacted by slope instability.

1.5. GROUND SUBSIDENCE AND FLOOD HAZARDS

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst dissolution, sediment compaction due to oil, gas, and/or groundwater extraction, and underground mines.

Tennessee Project

No karst terrain is present and the lithology that could lead to bedrock dissolution and karst development do not generally occur within the Tennessee Project areas. Further, active oil and gas extraction and subsurface mines were not identified within 0.25 mile of any Project area.

Coastal land loss is an ongoing process, which includes discrete (hurricanes) and continuous (subsidence and sea level rise) processes. Rising sea level and subsidence accelerate coastal erosion and wetland loss, exacerbate flooding, and increase the extent and frequency of storm impacts. The Mississippi Delta plain is subject to the highest rate of relative sea level rise of any region in the nation, largely due to rapid geologic subsidence (estimated at greater than 3.5 feet per century) (Plaquemines Parish Office of Homeland Security and Emergency Preparedness, 2015; St. Bernard Parish Office of Homeland Security and Emergency Preparedness, 2015). Subsidence rates tend to decrease inland, and vary across the coast. Further, the Yscloskey Toca Lateral Loop Pipeline, CS 529, and contractor yards are within the Federal Emergency Management Agency (FEMA) flood hazard zone AE. Zone AE is designated as being within the 100-year floodplain (subject to inundation by the 1 percent annual chance flood event).

Regional subsidence is not anticipated to affect the Yscloskey Toca Lateral Loop and the Grand Bayou Loop Pipelines due to the subsurface construction of these components and because Project workspaces would be restored to pre-construction conditions and contours in accordance with Tennessee's Plan and Procedures. Flood-induced erosion would be the primary impact that may occur along the pipeline system. The pipelines would be installed subsurface with at least three feet of cover, and would be protected against direct physical forces. Additionally, the pipelines would be coated in concrete in wet soils which would provide negative buoyance, preventing the pipelines from floating if they become exposed.

Aboveground components within the floodplain would be at CS 529 and the Yscloskey Toca Lateral Loop pipe bridge. The total volume of lost flood storage capacity would be approximately 61,250 cubic yards, which would be a minor impact compared to the volume of the floodplain as a whole. Tennessee would construct CS 529 on pilings to withstand a storm surge of 16 feet mean sea level. The pilings would raise the compressor station above FEMA flood elevations of 17 feet AMSL, with 18 inches of freeboard above that elevation. This adheres to local parish construction requirements. Tennessee has stated that its geotechnical report for CS 529 would describe the site conditions and the mitigation measures to be implemented in regard to any subsidence concerns. By assessing site-specific conditions and following the recommendations of geotechnical engineers, operationalsubsidence hazards can be effectively mitigated. However, because the geotechnical report has not been filed and to confirm the final mitigation measures for subsidence hazards, **we recommend that:**

- **<u>Prior to construction</u>, Tennessee should file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, its geotechnical report for CS 529, as well as its finalized measures to mitigate for subsidence during operation of the Tennessee Project facilities.**

The Grand Bayou Loop, Yscloskey Toca Lateral Loop, and CS 529 would be constructed in accordance with all federal, state, and local permit requirements. Tennessee, in compliance with PHMSA would construct the pipeline system and aboveground facilities in accordance with the latest design requirements regarding severe flooding events. Inspection, maintenance and monitoring would be conducted following any flood event to ensure the safety of the pipeline and aboveground facilities.

<u>SNG Project</u>

Active oil and gas extraction and subsurface mines were not identified within 0.25 mile of any SNG Project area; however, the MEP Receipt Meter Station is mapped as overlying the Vicksburg group (limestone and marl, with some clay and sand) and Chickasawhay limestone (USGS, 2005b). During SNG's May 2020 geotechnical investigation at this location, unconsolidated sandy clay, silty sand, clayey silt, and sand were encountered to a depth of 60 ft below ground surface. Soluble bedrock may be present at depths of greater than 60 feet below grade (fbg), but was not encountered, and no surface indications of karst were observed by SNG at the MEP site in May 2020.

The Toca Delivery MS would be in St. Bernard Parish, which is affected by regional coastal land loss (described above). The Toca Delivery MS would be within the existing Toca CS and within a natural levee. The Toca Delivery MS would not be within the FEMA 100-year floodplain, but would be raised 3 feet above the existing grade, which would minimize impacts from regional subsidence, as well as flood hazards. The MEP Receipt Meter Station would not be in an area affected by coastal land loss, but is the only new aboveground that would be within the mapped FEMA 100-year floodplain. The meter station would be raised approximately 3 feet about the existing grade, resulting in an estimated 1,200 cubic yards of lost flood storage capacity. During the detailed design phase, SNG would evaluate incorporation of mitigation techniques into the final design of the meter station to address hazards associated with occasional flooding. These measures may include: installing protective bollards around critical components; installing protective fencing; and installing a protective station dike/wall.

As described above, SNG and Tennessee Project areas are not anticipated to experience subsidence or impacts would be appropriately mitigated through SNG and Tennesee's construction plans and our recommendation. Therefore, we conclude that impacts from ground subsidence on the Project would not be significant.

1.6. HDD FEASIBILITY

Length of an HDD alignment, pipeline diameter, and subsurface material are factors in the technical feasibility of an HDD installation. Subsurface conditions that can affect feasibility of an HDD installation include excessive rock strength and abrasiveness, unconsolidated gravel and boulder materials, poor bedrock quality, solution cavities, and artesian conditions. It is also possible for HDD installations to fail, primarily due to encountering unexpected geologic conditions such as transitioning from coarse unconsolidated materials into bedrock or if the pipe were to become lodged in the hole during pullback operations. During HDD operations, drilling fluid consisting primarily of water and bentonite clay is pumped under pressure through the inside of the drill pipe and flows back (returns) to the drill entry point along an annular space between the outside of the drill pipe and the drilled hole. Because the drilling fluid is pressurized, in certain conditions it can seep into the surrounding rocks and sediment. Formational drilling fluid losses typically occur when the drilling fluid flows through the pore spaces in soil or within fractures in rock formations. IRs are more likely to occur in more permeable soils or via fractures or fissures in bedrock. Chances for an IR to occur are greatest near the drill entry and exit points where the drill path has the least amount of ground cover.

Tennessee has proposed to cross infrastructure (Bayou Road and Highway 46/Florissant Highway) and sensitive resources (wetlands and waterbodies) with one 1,600-foot-long HDD. A total of three geotechnical borings were completed for this crossing to depths of 80 fbg. The depth of cover of the HDD installation beneath Bayou Road would be approximately 32 feet and the depth of cover beneath Highway 46 would be approximately 60 feet, the maximum proposed depth of the drill.

Based on the results of geotechnical investigations, the alignment would cross unconsolidated subsurface material consisting primarily of clays, sands, and silt. No subsurface conditions were identified as a result of the geotechnical investigation that would increase the risk of HDD complications. Tennessee completed a hydrofracture risk assessment for the proposed HDD, and determined that the required bore pressure to facilitate installation would be below the allowable bore pressure except within approximately 50 to 150 feet of the entry and exit locations. This condition is common near HDD entry and exit points, but elevates the likelihood of an IR in these areas.

Tennessee would implement the measures in its HDD Contingency Plan during construction to minimize the potential for an IR to occur. Tennessee's HDD Contingency Plan states that it would monitor drilling pressures and return flows continuously during active drilling operations and use a down-hole annular pressure tool during the pilot hole drilling phase to ensure that the drilling contractor could respond to a loss or spike in drilling fluid pressure which would be indicative of a potential hydrofracture and IR. If an IR is identified, drilling fluid pressure would be reduced, Tennessee would implement response and clean-up efforts specific to the location of the IR (e.g., upland, waterbodies

or wetlands, sensitive resources areas) and would attempt to regain full circulation. Drilling operations would be suspended if the volume of a surface return in an upland area or wetland area exceeds that which can be contained and collected using small sumps, or if the EI determines that an IR poses a threat to the environment.

Drilling fluids would consist primarily of fresh water from a surface water source (WB-Q1) and bentonite clay. Tennessee would test the proposed source water for environmental contaminants prior to use, and a list of any additional proposed additives (and their respective safety data sheets) would be supplied to FERC for review prior to construction. Only non-petrochemical-based, non-hazardous additives that comply with permit requirements and environmental regulations would be used.

Based on the above analysis, we conclude that subsurface conditions would not render the HDD infeasible. With consideration of Tennessee's HDD Contingency Plan, we conclude that potential impacts from construction and any IRs would not be significant.

2. SOILS

Soil characteristics for the Project were assessed using the Natural Resources Conservation Service (NRCS) Soil Survey geographic database (NRCS, 2020). Soils were evaluated according to the characteristics that could affect construction or increase the potential for soil impacts during construction or operation. These characteristics include prime farmland designation, compaction potential, highly erodible soils, revegetation potential, and the presence of shallow bedrock. No Project area soils were classified as having a shallow depth to bedrock (bedrock within 60 inches of the ground surface). Other soil limitations are depicted in table 7. Additional soil-related issues considered in the analysis include soil contamination.

Table 7: Soil Limitations Impacted by Construction (acres)

Facility	Prime Farmland [a]	High Compaction Potential [b]	Low Revegetation Potential [c]	High Erosion Potential	
				Water [d]	Wind [e]
SNG Project					
Rose Hill Compressor Station and Rose Hill Receipt Meter Station	11.6	0	28.3	16.7	13.0
MEP Receipt Meter Station	2.6	2.6	< 0.1	0	0
Toca Delivery Meter Station	0.6	0.6	0	0	0
Project Totals	**14.8**	**3.2**	**28.3**	**16.7**	**13.0**
Tennessee Project					

Table 7: Soil Limitations Impacted by Construction (acres)					
Facility	**Prime Farmland [a]**	**High Compaction Potential [b]**	**Low Revegetation Potential [c]**	**High Erosion Potential**	
				Water [d]	**Wind [e]**
Grand Bayou Loop	0	0	48.5	12.8	0
Canal-1	0	0	2.0	0	0
Yscloskey Toca Lateral Loop	30.3	30.3	133.6	22.5	0
CS 529	23.0	31.2	20.9	0	0
PAR-1	0.7	0.7	0.9	0.2	0
PAR-2	0	0	0	0	0
PAR-3	< 0.1	< 0.1	0	0	0
PAR-4	< 0.1	< 0.1	0	0	0
Toca Yard	0	0	0	0	0
Bayou Road Yard	6.0	6.0	0	0	0
State Road LA-46 Yard	14.8	14.8	4.4	4.4	0
Project Totals	**74.9**	**83.1**	**210.3**	**39.9**	**0**

[a] Includes prime farmland, unique farmland, and farmland of statewide or local importance (per the NRCS).
[b] Soil components have: 1) a surface texture of sandy clay loam or finer; and 2) a drainage class of somewhat poorly, poorly, or very poorly drained.
[c] Soils with a non-irrigated capability class of 3 or greater.
[d] K Factor greater than 0.4 and/or with an average slope greater than or equal to 9 percent.
[e] Wind erodibility group values of 1 and 2.

Source: NRCS, 2020

Soil characteristics could affect construction performance or increase the potential for adverse construction-related soil impacts, as described in more detail below.

2.1. PRIME FARMLAND

The U.S. Department of Agriculture defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops. Unique farmland is land, other than prime farmland, that is used for production of specific high-value food and fiber crops. Soils that do not meet all of the requirements to be considered prime or unique farmland may be considered farmland of statewide or local importance if soils are capable of producing a high yield of crops when treated or managed according to accepted farming methods.

Tennessee Project

Approximately 60.1 acres are classified as prime farmland or farmland of statewide importance. Of this, less than one acre has been previously converted to industrial or road use and less than one acre is in current agricultural use. New, permanent impacts on prime farmland and farmland of statewide importance would occur where soils are permanently converted to industrial use. For the Tennessee Project, this would be limited to widening of permanent access roads, construction of new aboveground facilities (pig launchers and receivers), and the expansion of the fenceline of the existing CS 529. Specifically, approximately 23 acres would be permanently converted to industrial use. The remaining 37.1 acres would be temporarily unavailable for agricultural use during construction but would be returned to pre-construction conditions or otherwise revegetated in accordance with Tennessee's Plan and Procedures.

SNG Project

Approximately 14.8 acres are classified as prime farmland or farmland of statewide importance. Of this, approximately 1.6 acres have been previously converted to industrial or road use and none are currently in agricultural use. New, permanent impacts on prime farmland would be limited to construction of new aboveground facilities (Rose Hill CS and MS) and expansion of the fenceline for existing facilities (MEP Receipt Meter Station). Therefore, approximately 6.0 acres of prime farmland would be permanently impacted by the SNG Project. The remaining 8.8 acres would be temporarily unavailable for agricultural use during construction but would be returned to pre-construction conditions or otherwise revegetated in accordance with SNG's Plan and Procedures.

The acreage of prime farmland that would be permanently impacted by the Project is negligible when compared to the total acreage of prime farmland in Plaquemines Parish (42,407 acres) and St. Bernard Parish (18,370 acres) Louisiana; and Smith County (263,245 acres) and Clarke County (175,152 acres) Mississippi (NRCS, 2020). Therefore, we conclude impacts on the availability of prime farmland would not be significant.

2.2. COMPACTION-PRONE SOILS

Tennessee Project

Tennessee would minimize compaction through implementation of the construction and restoration measures outlined in its Plan and Procedures. These include the segregation of topsoil in agricultural areas and unsaturated wetlands; the use of timber mats in wetlands and other saturated areas as necessary; preparation of a proper seed bed prior to seeding, revegetating the right-of-way with seed mixes suitable for the area, and conducting follow-up inspections to evaluate the success of revegetation efforts. As

such, adverse impacts would be adequately mitigated. Soils underlying permanent aboveground facility foundations would be permanently affected by compaction; however, these effects would be highly localized and minor.

SNG Project

To minimize soil compaction, SNG would limit construction traffic within the right-of-way to only that which is required to accomplish the construction. Following completion of construction, SNG would identify areas of heavy compaction and these areas would be tilled, as necessary, when soil moisture conditions are suitable. The results of the compaction tests in undisturbed areas would be matched in the construction right-of-way. If tilling is not effective, SNG would identify additional mechanical methods (such as deep tilling) to restore the area, in consultation with state agencies and the landowner to meet the desired land use.

Soils underlying permanent aboveground facility foundations would be permanently affected by compaction; however, these effects would be highly localized and minor. Based on SNG and Tennessee's measures and because permanent impacts would be minor, we conclude that significant impacts due to soil compaction would not occur.

2.3. EROSION AND REVEGETATION

Clearing removes protective vegetative cover and exposes soils to the effects of wind and water which increases the potential for soil erosion and the transport of sediment to sensitive resource areas. Construction activities such as clearing, grading, trench excavation, backfilling, heavy equipment traffic, and restoration in construction work areas have the potential to adversely affect natural soil characteristics such as water infiltration, storage and routing, and soil nutrient levels, thus reducing soil productivity.

Tennessee Project

The majority of Tennessee Project area soils are not classified as highly erodible by wind or water. Most of the soils within the Tennessee Project area have poor revegetation potential based on NRCS-designated non-irrigated capability class; however, the non-irrigated capability class is slanted towards crop production and may not accurately reflect the revegetation potential of wetlands and open water areas.

Impacts on soils would be minimized by the implementation of Tennessee's Plan and Procedures. Typical measures include: minimizing the quantity and duration of soil exposure; protecting critical areas during construction by redirecting and reducing the velocity of runoff; installing and maintaining erosion and sediment control measures during construction; reestablishing vegetation as soon as possible following final grading; and inspecting the facility boundaries and maintaining erosion and sediment controls until final stabilization is achieved.

Tennessee has requested a modification to our Plan at section IV.F.3.c, which requires installation of sediment barriers along the edge of construction work areas where wetlands and waterbodies are adjacent and downslope of the construction work areas. Tennessee states that the Project terrain has limited elevation changes, yielding few downslopes, and that the workspace width where conventional lay is proposed would limit sediment migration laterally off the construction right-of-way. Tennessee also states that the poor cohesiveness of the native soil in marshland is not conducive to the installation of sediment barriers.

Tennessee states that at upland and wetland/waterbody interfaces within the construction right-of-way, sediment barriers (e.g., silt fence, silt curtains, turbidity curtains) would be installed as practicable. At waterbody crossings during pipeline construction, spoil would be placed in the construction right-of-way and ATWS without lateral silt fencing, with the anticipation that the width of these areas would be sufficient to preclude spoil migration beyond their boundaries. Tennessee would ensure that any stormwater runoff leaving the construction right-of-way would meet all applicable Louisiana Rules and Regulations and Clean Water Act regulations pertaining to erosion and sedimentation impacts to avoid adverse impacts to water quality.

Tennessee would revegetate areas of impact in accordance with its Plan and Procedures. For upland areas, Tennessee would utilize seed mix and fertilizer/lime applications stipulated in its Plan, in conjunction with NRCS critical area planting standards for Louisiana. Restoration would be monitored, and the successful achievement of pre-construction conditions would be determined after one full growing season post-construction. For locations where pre-construction conditions are not achieved after one full growing season, Tennessee would work with the Corps and LDNR-OCM to determine the appropriate follow-up measures.

Turbidity and sedimentation relative to open-water construction are further discussed in section 3.2.

SNG Project

The majority of SNG Project area soils are not classified as highly erodible by wind or water and have good revegetation potential based on NRCS-designated non-irrigated capability class.

Impacts on soils would be minimized by the implementation of SNG's Plan and Procedures. Typical measures include: minimizing the quantity and duration of soil exposure; protecting critical areas during construction by redirecting and reducing the velocity of runoff; installing and maintaining erosion and sediment control measures during construction; reestablishing vegetation as soon as possible following final grading; and inspecting the facility boundaries and maintaining erosion and sediment controls until final stabilization is achieved. Following completion of construction activities,

SNG would minimize erosion by implementing permanent restoration measures within the construction workspace areas. SNG would monitor the disturbed areas and maintain erosion control measures until final successful restoration has been achieved.

SNG would incorporate seed mix and rate information from the NRCS District Conservationist in Alexandria, Louisiana and Jackson, Mississippi, as applicable, and consultation with the NRCS would be ongoing. If there are landowner-specific requests regarding plant composition for revegetation (e.g., cover crops), SNG would replant with those particular species. SNG may develop specialized re-seeding treatment for wetlands, stream banks, and riparian areas. At a minimum, SNG would conduct inspections after the first two growing seasons, post-construction. SNG would develop and implement a corrective action plan for those areas that are not revegetating in accordance with regulatory requirements.

Given Tennessee and SNG's proposed mitigation measures and that disturbed areas would be returned to pre-construction conditions, maintained in an herbaceous state, or otherwise stabilized (e.g., gravel or pavement), we conclude that significant and permanent impacts due to soil erosion or poor revegetation would not occur.

2.4. SOIL CONTAMINATION

Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely affect soils. Tennessee would implement its SPCC Plan, which includes measures to prevent contamination from accidental spills or leaks of fuels, and lubricants, as well as cleanup procedures in the event of inadvertent spills during construction, to minimize the risk of potential impacts from fuel or hazardous material spills. SNG has stated that it would file Project-specific spill prevention and response procedures prior to construction which would be consistent with the FERC Procedures at section IV.A.

Tennessee Project

Site characterization and remediation activities at CS 529 were conducted in 1994 under the Administrative Order on Consent (AOC) between Tennessee and the EPA Region 4. Initial characterization included the collection of 140 surface soil samples, to depths of up to 8 fbg. The results from the site characterization program indicated polychlorinated biphenyls (PCB) were present in on-facility soil samples at concentrations up to 48 milligram per kilogram (mg/kg) with an average concentration of 1.2 mg/kg; most samples had concentrations of PCBs below the limits of laboratory detection. Under the AOC, drainlines were plugged and abandoned during the decommissioning of CS 529, and inspected semi-annually for the first 4 years, and annually for 16 years. No additional remediation was required for on-facility or off-facility media as no PCB concentrations exceeded the regulatory-approved action levels (500 mg/kg for a single sample, or an average concentration of 25 mg/kg).

The AOC specifies that groundwater must be adequately characterized. Tennessee did not collect and analyze samples of site groundwater; however, PCB concentrations in soil were generally low, and were not present in any sample collected at a depth greater than 3 fbg. Additionally, there is little or no potable groundwater in St. Bernard Parish and no domestic water supply wells were identified within a half mile radius of CS 529.

In a letter to Tennessee dated July 29, 2008, the EPA concluded that remediation efforts for CS 529 had been completed in accordance with the AOC[10].

Tennessee would perform excavation activities in accordance with its PCB/Hazardous Substances List (HSL) Remediation Program Maintenance Manual for Station 529. The PCB/HSL Remediation Program Maintenance Manual for Station 529 specifies general procedures for excavating, sampling, and disposing of PCB-containing soil, including: separate stockpiling of PCB-containing soils on an impermeable material, covering these stockpiles with an impermeable material, and placing excavated soil back into the same excavation location or disposing of soil at an off-site facility following characterization to verify PCB concentration. In the event that contamination is discovered, Tennessee would implement its Unanticipated Contamination Discovery Plan, and current health and safety regulations such as the PCB Spill Policy and the PCB Mega Rule contained in Title 40 of the Code of Federal Regulations, Part 761 (40 CFR 761), and Hazardous Waste Operations contained in 29 CFR 1910.120.

No other areas of known contamination were identified within Tennessee Project areas (EPA, 2019a; Louisiana Department of Environmental Quality [LDEQ], 2019).

SNG Project

SNG reviewed the EPA's Facility Registry Service to identify documented contaminated sites within 0.5 mile of the Project (EPA, 2019b). None were identified. In the event that unanticipated contaminated soil or groundwater is encountered during construction, SNG would determine the nature of the contamination and then work to develop a site-specific sampling plan. Any remediation activities would be conducted in accordance with MDEQ/LDEQ guidelines. In general, contaminated soil would be delineated, excavated, and stockpiled on-site with controls to minimize erosion and runoff. Likewise, any contaminated groundwater would be sampled, monitored, treated and/or potentially containerized in either drums or frac tanks. If soil or groundwater results indicate constituent levels where disposal is warranted, disposal would be coordinated with licensed third-party disposal facilities.

[10] EPA Approval of Final Program Report and Notice of Termination of Consent Order; Tennessee Gas Pipeline Company Administrative Order on Consent (AOC) for Removal Response Activities, CERCLA Docket No. 94-32-C

Given the minimization and mitigation measures described above, we conclude that soils would not be significantly impacted by the Projects' construction and operation.

3. WATER RESOURCES AND WETLANDS

3.1. GROUNDWATER RESOURCES

Tennessee Project

All Tennessee Project areas are within the Coastal Lowlands aquifer system. The Coastal Lowlands aquifer system is a regional aquifer spanning from coastal Texas to Florida. Groundwater withdrawn from the aquifer is used for agricultural, public supply, industrial, and other domestic and commercial purposes (USGS, 1998). In 2000, approximately 2.4 billion gallons of water per day were withdrawn from the Coastal Lowlands aquifer system (Maupin and Barber, 2005).

The Grand Bayou Loop is in an area of marsh and swamp. Plaquemines Parish as a whole does not have any major sources of fresh groundwater (water with a chloride concentration of 250 milligrams per liter [mg/L] or less) (USGS, 2013a). Very limited fresh groundwater is available in St. Bernard Parish where the Yscloskey Toca Lateral Loop, CS 529, and contractor yards are proposed (USGS, 2013b). Fresh groundwater sources are shallow, associated with Mississippi River point-bar deposits, and located in small areas in the vicinity of New Orleans (USGS, 2013b).

SNG Project

The SNG Project is within three principal aquifer systems: the Mississippi embayment aquifer system (Clarke County, Mississippi); minimally permeable rocks that contain locally productive aquifers (Jasper and Smith Counties, Mississippi); and the Coastal Lowlands aquifer system – described above (St. Bernard Parish, Louisiana) (USGS, 1998).

The Mississippi embayment aquifer system is a semi-consolidated sand and gravel aquifer. Fine, coarse grained sediment is also common in these systems to varied depositional areas. Regional aquifers in this system commonly contain saline water and shallow aquifers that have been pumped near the coast may have saltwater intrusion (USGS, 1999).

Within the Mississippi embayment aquifer system, the SNG Project occurs in the middle Claiborne aquifer. Of the six aquifers found in the Mississippi embayment system, the middle Claiborne is the most heavily used. This aquifer mostly consists of sand and the water can be highly mineralized, with over 1,000 mg of dissolved solids depending on the location. The middle Claiborne aquifer in Mississippi is capable of filling wells at a rate of 100 to 300 gallons/minute. Thickness of this aquifer can exceed 1,000 feet, but typically ranges from 200 to 800 feet (USGS, 1998).

The SNG Project in Smith County is within Oligocene and Miocene aquifers that are underlain with poor permeability rocks. These low permeability rocks can stretch over large areas and may only yield water when they are fractured. In many areas these aquifers may be the only reliable source of groundwater (USGS, 1999). The Oligocene aquifer consists mostly of limestone and marl, underlain by Forest Hill sand. This aquifer is of local importance and primarily used for domestic and agriculture purposes, although some small public water supplies may also rely on it. Water is generally soft and slightly alkaline, but there may be some locally high concentrations of iron. Most wells in this aquifer pump under 150 gallons per minute (USGS, 1979). The Miocene aquifer is characterized by a series of irregular sand and clay beds. And water quality is considered generally high except for some locally high concentrations of iron (USGS, 1975).

3.1.1. Sole Source Aquifers and Source Water Protection Areas

The EPA oversees the Sole Source Aquifer Protection Program to protect high production aquifers that supply 50 percent or more of the region's water supply and for which there are no reasonably available alternative drinking water sources, should the aquifer become contaminated. SNG and Tennessee Project facilities would not overlie sole source aquifers (EPA, 2020).

The LDEQ Drinking Water Protection Program establishes and protects wellhead areas associated with public water supply systems from contaminants that may have adverse effects on public health in Louisiana (Safe Drinking Water Act Amendments of 1986); the MDEQ's Office of Land and Water Resources establishes wellhead protection areas for Mississippi. Tennessee and SNG confirmed that the Project would not be within state-designated wellhead protection areas (Molieri, 2019; LDEQ, 2018; MDEQ, 2019).

3.1.2. Water Wells and Springs

<u>Tennessee Project</u>

Public and private water supply wells within 150 feet of the construction workspace were identified using the LDNR SONRIS (LDNR, 2020). Two registered wells were identified, both nearest MP 0.0 of the Yscloskey Toca Lateral Loop. The nearest registered water well is 22 feet northeast of the edge of the construction workspace and is used as a source for fire water for the facilities at the existing Toca compressor station. The second well is 91 feet west of the edge of the construction workspace, and listed as plugged and abandoned. No springs were identified within 150 feet of any Tennessee Project workspaces.

Although none have been identified to date, for active water wells used for domestic and agricultural supply that are identified within 150 feet of the Project work

areas, Tennessee would offer to conduct pre-construction and post-construction evaluation of the individual well water quality and quantity.

Based on the ample supplies of available groundwater in Louisiana, and an absence of potable water in the Tennessee Project vicinity, we conclude that the Tennessee Project would not significantly impact groundwater resources.

SNG Project

No public or private water wells were identified within 150 feet of the proposed workspaces (MDEQ 2019; LDNR 2020). SNG would inquire to landowners during pre-construction notifications about the presence of water wells within 150 feet of the work areas. SNG states it would also continue to work to identify springs within 150 feet of the Project workspace areas, but that based on field surveys, no springs have been identified within planned disturbance areas.

If identified, SNG would offer pre- and post-construction quality and yield testing to landowners for all water supply wells and springs within 150 feet of construction workspaces. If springs are identified that could be affected by construction activities, SNG would consult with the appropriate regulatory agencies and with individual landowners to minimize impacts.

SNG expects that the water supply for operation of the Rose Hill CS would be provided by an onsite groundwater well. Operational use of the water would consist of domestic purposes such as building and office cleaning, bathroom, and kitchen usage. Operational water use is anticipated to be approximately 7,200 gallons per year.

Based on SNG's minimal proposed operational water usage, the generally ample supplies of available groundwater in Mississippi, and an absence of other water supply wells in the SNG Project vicinity, we conclude that the SNG Project would not significantly impact groundwater resources.

3.1.3. Groundwater Contamination

The Project would not cross areas of known groundwater contamination (refer to section B.2.4 for further discussion). In the event that contaminated groundwater is encountered during construction, Tennessee would follow the measures outlined in its Unanticipated Contamination Discovery Plan, and SNG would follow its procedures for unanticipated discovery of contaminated environmental media (described in section B.2.4).

Groundwater contamination could occur from accidental spills of fuels, solvents, and lubricants used during the Projects' construction. Tennessee would implement the measures in its SPCC Plan to minimize the risk of potential impacts from fuel or hazardous material spills. SNG has stated that it would file Project-specific spill

prevention and response procedures prior to construction which would be consistent with the FERC Procedures at section IV.A.

Installation of piles has the potential to create preferential flow paths through aquitards or low permeability layers of multi-layered aquifers. Tennessee would install piles to depths of up to 70 fbg to support facilities at CS 529, the aerial pipe bridge, and pig launcher and receivers on the Grand Bayou Loop. SNG would install shallow mat foundation or pilings (e.g., drilled piers) to support equipment at the Rose Hill CS and MS site. Due to the absence of known groundwater contamination in these areas, as well as an absence of potable drinking water wells in proximity to these sites, adverse impacts on groundwater quality from installation of piles are not anticipated.

3.2. SURFACE WATER RESOURCES

Tennessee Project

The Yscloskey Toca Lateral Loop and CS 529 are in the Eastern Louisiana Coastal Watershed (Hydrologic Unit Code [HUC] 08090203). The Grand Bayou Loop is in the East Central Louisiana Coastal Watershed (08090301). Tennessee conducted field surveys in 100 percent of the construction workspaces in October and November 2019 to identify waterbodies affected by the Project. Identified waterbodies are listed in table E.1 in appendix E. Waterbodies would be crossed using the open cut method, HDD, the push lay, or the barge lay method. Most waterbodies crossed by the Yscloskey Toca Lateral Loop and the Grand Bayou Loop are open water systems, less than eight feet deep, where the pipeline would be installed using the push lay or barge lay method.

While the FERC Procedures typically require a 75-foot-wide construction right-of-way, Tennessee has requested a modification to the Procedures for a construction right-of-way of 250 feet for the barge lay method to allow for a relatively wide and deep trench to ensure the required depth of cover in the wet, poorly cohesive, and easily sloughed substrate, and the consequent need for increased space to sidecast relatively high spoil volumes, excavation of a floatation channel for barge traffic, as well as temporary spoil storage on both sides of the floatation channel. This procedure would reduce storage pile height and prevent material from re-entering the trench or leaving the construction right-of-way prior to placement of the concrete-coated pipe. Additionally, in shallow open water expanses where the pipelines cross waterbodies running through low-lying wetland areas that may not be perceptibly higher than the channel edge, the push lay method would be used and a right-of-way of 150 feet would be required due to wet, poorly cohesive, and easily sloughed soils. We accept that this proposed modification is necessary because the combination of pipe size, the inundated or saturated soil conditions, and the pervasiveness and extent of wetlands and open water in the Project area makes the 75-foot-wide right-of-way infeasible. Tennessee proposes to construct the entire Grand Bayou Loop via barge lay in a 250-foot-wide right-of-way in open water. The Yscloskey Toca Lateral Loop construction right-of-way width would be 150 feet.

Additionally, section VI.B.1.a requires all extra work areas (such as staging areas and additional spoil storage areas) to be located at least 50 feet away from wetland and waterbody boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. Due to the prevalence of open water and marsh in the Project area, several ATWSs are necessarily located in wetlands and waterbodies. These include ATWSs required at the mainline valve sites and HDD exit and/or entry locations, set-up sites for push method pipeline installations, bore exit and/or entry locations, and crossing sites of multiple foreign pipelines. Most of the ATWSs are required for HDD, push method pipeline installations, and bore crossings, methods that have been selected to minimize or avoid greater environmental impacts elsewhere. We find that the proposed ATWSs are justified.

One private canal, Canal-1 would be used to access the Grand Bayou Loop during construction and operation. Construction of the Project does not require widening or dredging of Canal-1. No waterbodies were identified within the Bayou Road Yard and the Project would avoid all waterbodies within the Toca Lateral Yard and State Road LA-46 Yard.

The LDEQ classifies waterbodies based on their designated use. A waterbody that does not achieve water quality criteria for one or more of its designated uses is considered impaired. All waterbodies in the Project area are designated for Primary Contact Recreation, Secondary Contact Recreation, Fish and Wildlife Propagation, and Oyster Propagation. Waters in the New Canal LDEQ subsegment are included on the final Louisiana 2016 Section 303(d) List. The New Canal subsegment includes some waterbodies that would be crossed by the Yscloskey Toca Lateral Loop and within the Toca Yard. The waters in the New Canal are considered impaired and sensitive. Impairment is due to low dissolved oxygen concentrations caused by natural sources. No Total Maximum Daily Load has been determined for the New Canal and LDEQ's priority according to the 303(d) List is low. No National Park Service designated, National River Inventory, or Wild and Scenic River reaches are in St. Bernard or Plaquemines Parishes, Louisiana.

A hazardous waste Resource Conservation and Recovery Act facility (Yscloskey Gas Plant) was identified on the abandoned site immediately adjacent to CS 529. The Yscloskey Gas Plant is not currently active and does not have any exceedances or violations. No contaminated sediments were found within the Project area. However, if contaminated sediment areas are identified during construction, Tennessee would work with federal and state agencies to develop appropriate avoidance and mitigation procedures.

Construction of the Tennessee Project would impact 108.6 acres of waterbodies and 0.1 acre of open water would be permanently filled to support the development of CS 529. The proposed HDD crossing of Bayou Road and Florissant Highway would avoid impacts to 0.2 acre of open water.

The pig launchers and receivers on the Grand Bayou Loop would be installed on platforms (approximately 100 feet x 40 feet) supported by 18 pilings with a diameter of 12 to 18 inches each. Construction of the platforms could increase turbidity generated by vessel anchoring and pile driving activities. Increased turbidity would be limited to the immediate vicinity of construction activities. Sediment would disseminate within the waterbody currents and impacts would be relatively minor. Once the pig launcher and receivers are complete, the primary impact would be shading by the overlying platforms. However, given the naturally turbid water in the area, relatively small profile of the platform footprint, and height range of the platforms, the potential effects of shading would be minor. The pilings that support the platforms would be 10 feet above mean sea level and would provide a substrate for marine algae, invertebrates, and other potential food sources for fish. The relatively close proximity of multiple pilings may also provide an area of refuge and protection for fish and other motile biota, while the platforms may offer some shading.

Additionally, Tennessee also requested modifications to the FERC Plan and Procedures pertaining to use of sediment barriers and equipment parking, refueling, and hazardous material storage. Given the environmental conditions of the Project area, we found Tennessee's justifications and alternative measures acceptable. Tennessee's proposed modifications and justifications, and our determinations are listed in appendix C.

Water Use

The Project would require surface water withdrawal for HDD, hydrostatic testing, and fugitive dust control. Water for drilling mud preparation would be withdrawn from the adjacent Bayou (WB-Q1). The suction end of the transfer hose would be equipped with a quarter inch to half-inch screening mesh to block the uptake of stones, sticks, and other debris and aquatic biota. The pumping rate would vary from 250 to 500 gallons per minute. Once pumped from the waterbody, the water for drill mud preparations would be staged in tanks at the drill entry site and used as needed.

Water for fugitive dust control would be obtained from municipal sources. An estimated 750,000 gallons of water would be required for fugitive dust control at CS 529 and 250,000 gallons along the Yscloskey Toca Lateral Loop. No fugitive dust control is required along the Grand Bayou Loop.

Water withdrawal locations for hydrostatic testing would be from waterbodies within the construction right-of-way. The withdrawal of water for hydrostatic testing would have the same rates and screening requirements as those proposed for HDD drill mud preparation. No chemicals would be added to hydrostatic test water. After testing, water would be discharged back into the water source near the point of withdrawal through an energy dissipating structure. If dewatering becomes necessary, it would be conducted in accordance with Tennessee's Procedures. The water would be pumped and

discharged in a manner that minimizes erosion and prevents silt-laden water from flowing into any surface waters or wetlands. The dewatering structures would be removed after the completion of dewatering activities. Tennessee would minimize the environmental impacts from discharge by adhering to the Tennessee Procedures and its Louisiana Pollutant Discharge Elimination System General Permit for Hydrostatic Test and Vessel Testing Wastewater. The estimated amount of water use and proposed withdrawal and discharge locations are listed in table 8.

Table 8: Tennessee Project Water Withdrawal and Discharge Location

Site	Use	Waterbody ID	Withdrawal MP	Discharge MP	Amount (Gallons)
Grand Bayou Loop	Hydrostatic Test	WBB-1	0.0	0.0	1,200,000
Grand Bayou Loop	Hydrostatic Test-Alternative*	WBB-7	3.4	3.4	1,200,000
Yscloskey Toca Lateral Loop	Hydrostatic Test	WB-H1	0.1	0.1	2,600,000
Yscloskey Toca Lateral Loop	Hydrostatic Test-Alternative*	WB-I1	8.9	8.9	2,600,000
Bayou Road/ HWY HDD	Hydrostatic Test/ HDD	WB-Q1	4.9	4.9	100,000

*Alternative sources and locations.

CS 529 would involve the creation of more impervious surfaces that could potentially increase the volume of stormwater runoff. Tennessee would construct a system of catchment areas and drainages to accommodate the potential increase in stormwater runoff. Operation of CS 529 and stormwater discharges from CS 529 would be regulated by Louisiana Pollutant Discharge Elimination System Permits. During the CS 529 operation, a chemical spill could adversely impact surface waters. The potential for a chemical spill is low and Tennessee would further minimize impacts of spills to surface waters by adhering to its Project-specific SPCC Plan.

Tennessee would purchase mitigation credits from a Corps and LDNR-OCM approved mitigation bank to offset the permanent filling of 0.1 acre of waterbodies. In order to minimize temporary impacts to waterbodies, Tennessee would adhere to its Procedures and all permit requirements. Therefore, we conclude that the Tennessee Project would not significantly impact waterbodies.

SNG Project

The Rose Hill CS and MS would be located in Algood Creek-Souenlovie Creek (031700020103); MEP Receipt MS would be located in Thompson Mill Creek-West Tallahala Creek (031700040204); and the Toca Delivery MS would be located in Bayou Terre aux Boeufs-Fourty Arpent Canal (080902030501). The SNG Project would impact one ephemeral drainage ditch at Toca Delivery MS, which would be permanently filled for a pervious gravel pad for the new meter station. Additionally, waterbodies are located within or adjacent to construction workspaces at the MEP Receipt MS and the Toca CS (table 9). The use of heavy equipment to complete construction in and near waterbodies may increase the potential for sedimentation, erosion, and run-off and accidental releases of fuels, lubricants, and coolants. Such releases could adversely affect aquatic species and contaminate public water supplies that rely on surface water intakes located downstream of the workspace adjacent to a waterbody. SNG would reduce impacts on waterbodies by following its Procedures, including installing and maintaining erosion control devices such as silt fence. Additionally, SNG would adhere to its Project-specific SPCC Plan, which include measures such as not parking, servicing, or refueling construction equipment and vehicles or storing hazardous materials, fuels, or coolants within a 100-foot radius of any waterbody or wetland. SNG would install signs along the right-of-way to identify such areas.

Table 9: SNG Construction Workspace Within 50 Feet of a Waterbody or Wetland

Facility	Resource Name	Distance in feet of Workspace from Resource a/
MEP Receipt MS	W-JLB-2	4.2
Toca CS and Toca Delivery MS	D-TAS-126	0
	D-TAS-127	0
	S-TAS-103	7.3
	D-TAS-120	0
	D-TAS-130	0
	D-TAS-129	0
	D-TAS-128	0
	D-TAS-127	0
	D-TAS-126	0
	D-TAS-125	0
	D-TAS-124	0
	D-TAS-123	0
	D-TAS-122	0
	D-TAS-121	0

Table 9: SNG Construction Workspace Within 50 Feet of a Waterbody or Wetland		
Facility	**Resource Name**	**Distance in feet of Workspace from Resource a/**
a/ A distance of 0 indicates that the resource occurs within the workspace "W-" wetland; "D-" drainage; "S-" stream		

Although no instream work is proposed for the SNG Project, SNG is requesting a modification to section V.B.1 of the FERC Procedures to conduct instream work outside of the specified timeframes (appendix D). SNG explains that it is only requesting this change to perform any repairs to a damaged pipeline in the unlikely occurrence of a blow out during a confirmation pressure test and that location be between streams or within streams. SNG has not provided written authorization from the appropriate agencies for instream work to occur outside of the specified timeframes. Therefore, if any instream becomes necessary, all instream work must occur during the specified timeframe or SNG must file the aforementioned written authorization with the Commission.

Water Use

SNG would hydrostatically test the piping at the new facilities prior to placing them into service. The EPA provided comments requesting information about the amount of water necessary for hydrostatic testing and whether any chemicals would be used. EPA further requested that if no chemicals would be used to aid in removal all water following testing, that plans for pipeline corrosion issues should be evaluated. EPA further recommended the use of filter covers to capture a variety of deposits such as metals before discharging the used water.

The SNG Project would require a total of 188,700 gallons of water for hydrostatic testing. SNG would purchase test water from the local authority or a private pond owner (if approved by regulatory authorities). If water from a private pond is used, SNG would utilize appropriate intake rates and would screen the intake hose to prevent entrainment of aquatic species. For the Rose Hill CS, frac tanks would be used to store hydrostatic test water. Water would be reused until all hydrostatic tests for the station are complete. Upon completion, the contractor would haul the water offsite and dispose of the hydrostatic test water according to the Project's Waste Management Plan and/or at a company approved waste facility. At the MEP Receipt MS and Toca Delivery MS, the water would be discharged using an energy dissipation device into a well vegetated upland after use. The discharge rate would be monitored and regulated using valves and energy dissipation devices to prevent erosion and sediment transport. Chemicals may be present in existing pipes that would be tested. If chemicals are present, before hydrostatic testing occurs, the line would be rinsed, and the wastewater would be collected and disposed of at a wastewater mitigation site. No chemical additives would be used to dry

the pipe. SNG would continue to monitor the facilities for corrosion and integrity to ensure that the facilities operate in a safe manner per USDOT regulations.

SNG estimates that about 300,000 gallons of water would be required for dust suppression during construction and would be obtained from municipal sources. Watering trucks would spray only enough water to control the dust or to reach the optimum soil moisture content to create a surface crust. No runoff is anticipated to be generated during this procedure.

SNG would obtain and adhere to all applicable permits/approvals. Given SNG's proposed measures, we conclude that the SNG Project would not significantly impact surface water resources.

3.3. WETLAND RESOURCES

Tennessee Project

Tennessee conducted field surveys in 100 percent of Project workspaces in October and November 2019 to identify wetlands affected by the Project. Six wetland types, palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), estuarine emergent (EEM), estuarine scrub/scrub (ESS), and estuarine forested (EFO) were identified in the Project workspaces. Construction would impact 194.9 acres of wetlands, and of that, 54.2 acres of wetlands would be impacted during operation. Table 10 shows the breakdown of impact for each wetland type and impacts on individual wetlands are described in table E.2 in appendix E.

Table 10: Tennessee Project Wetland Impacts

Wetland Type	Permanent ROW	Temporary ROW	Total Construction ROW
PEM	2.49	8.35	10.84
PSS	0.77[a]	1.99	2.76
PFO	3.46[a]	6.43	9.89
EEM	32.21[b]	92.14	124.35
ESS	14.93[c,d]	31.25	46.18
EFO	0.32[a]	0.55	0.87
Total	**54.18**	**140.71**	**194.89**

a. Wetland type would be converted and maintained as PEM/EEM during operation.
b. 2.19 acres of EEM would be permanently filled.
c. 7.44 acres of ESS would be permanent filled.
d. 7.49 acres of ESS would be converted and maintained as EEM during operation.

Tennessee would use the push lay, barge lay, and HDD method for pipeline construction in wetland areas. The push lay method would be used through most marshland and open water, and the barge lay method would be used in open water and channels where the water depth is sufficient. The HDD crossing of Bayou Road and Florissant Highway would avoid direct impacts on wetlands. In emergent wetlands, which comprise most of the areas to be crossed using the push lay method, vegetation within the construction workspace would be flattened during construction but would not be purposely cleared, other than through trench excavation. In standing water, only enough clearing and trenching would be done to accommodate the pipe. Restoration of areas disturbed by pipeline installation would be in accordance with Tennessee's Project-specific Procedures. Permanent access roads used in wetlands would not require any modifications or improvements, other than routine repair.

Most of the 195 acres of wetlands impacted during construction would be allowed to revegetate back to its original state (141 acres or 72.0 percent). There would be a long-term impact (temporary conversion) on the forested canopy in temporary additional temporary workspaces and (7.0 acres total; 6.4 acres PFO and 0.6 acres EFO), and a permanent conversion of the forested canopy within the permanent right-of-way (3.8 acres total; 3.5 acres PFO and 0.3 acres EFO). There would also be 8.3 acres of permanent conversion of scrub-shrub wetlands within the permanent right-of-way (0.8-acre PSS and 7.5 acres ESS). CS 529 would require permanent fill of 9.6 acres of wetland (2.2 EEM, 7.4 ESS).

Wetlands were identified within the Toca Yard and the State Road LA-46 Yard, but they would not be affected by the Project. Tennessee would avoid impacts on these wetlands by installing and maintaining erosion and sedimentation control devices (i.e. straw bales and silt fences). The Bayou Road Yard is a wet pasture that is currently managed for hay production and most of the area meets the hydrology, soil, and vegetation qualifications required to be classified as an herbaceous wetland. Tennessee would use temporary gravel pads and matting in this yard. Impacts on wetlands within the Bayou Road Yard would be temporary, but could be difficult to restore to preconstruction conditions. Therefore, **we recommend that**:

- **<u>Prior to construction,</u> Tennessee should file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, a site-specific plan for restoration of the Bayou Road Yard following construction, including procedures for topsoil segregation, cleanup, soil compaction mitigation, and revegetation.**

Tennessee would minimize impacts on wetlands by adhering to the mitigation measures outlined in its Procedures. These mitigation measures include minimizing vegetation clearing and soil disturbance, using sedimentation control devices, using low pressure ground equipment, reducing the duration of construction, and reducing vehicle

traffic in wetlands. Areas of wetland affected by construction would be restored to pre-construction conditions. The revegetation of these wetlands would be monitored to ensure that restoration is successful. Therefore, we conclude that the Project would not significantly impact wetlands. Additionally, Tennessee would mitigate the permanent fill of 9.6 acres of wetlands, the temporary conversion of about 7.0 acres of forested and scrub-shrub wetland, and the permanent conversion of 12.0 acres of forested and scrub-shrub wetlands by purchasing credits from a Corps and LDNR-OCM approved mitigation bank.

Tennessee requested modifications to the Procedures to utilize a construction right-of-way greater than 75 feet in wetlands. Section II.A.2 of the FERC Procedures requires site-specific justifications for the use of a construction right-of-way greater than 75 feet wide in wetlands. As previously discussed, Tennessee states that the Project requires a 150-foot-wide construction right-of-way for pipeline installation where the conventional and push method would be used, due to the wet, poorly cohesive, and easily sloughed substrate and a 250-foot-wide construction right-of-way for pipeline installation in open waters, where the barge lay method would be used to accommodate safe and wholly waterborne construction.

We accept that this proposed modification is necessary because the combination of pipe size, the inundated or saturated soil conditions, and the pervasiveness and extent of wetlands and open water in the Project area makes the 75-foot-wide right-of-way infeasible.

Additionally, as previously discussed, section VI.B.1.a of the FERC Procedures requires all extra work areas (such as staging areas and additional spoil storage areas) to be located at least 50 feet away from wetland boundaries. Due to the prevalence of open water and marsh in the Project area, several ATWSs are necessarily located in wetlands and waterbodies. Most of the ATWSs are required for HDD, push method pipeline installations, and bore crossings, methods that have been selected to minimize or avoid greater environmental impacts elsewhere.

Tennessee also requested modifications to the FERC Plan and Procedures pertaining to use of sediment barriers; equipment parking, refueling, and hazardous material storage, locating aboveground facilities in a wetland, multiple passes of construction equipment through the wetlands. Given the environmental conditions of the Project area, we found Tennessee's justifications and alternative measures acceptable. Tennessee's proposed modifications and justifications, and our determinations are listed in appendix C.

SNG Project

SNG completed wetland delineations of wetlands at 100 percent of the Project areas in December 2019. Construction of the Project would not impact wetlands;

however, a wetland is located adjacent to construction workspaces at the MEP Receipt MS. SNG would adhere to its Procedures to avoid impacts on the nearby wetland including installing and maintaining erosion control measures such as silt fences, interceptor dikes, and hay bale structures to minimize erosion, runoff, and sedimentation. Therefore, we conclude that the SNG Project would not significantly impact wetlands.

4. AQUATIC RESOURCES, VEGETATION, AND WILDLIFE

4.1. AQUATIC RESOURCES

Tennessee Project

Waterbodies crossed by the Yscloskey Toca Lateral Loop and in the area of CS 529 are classified as freshwater (palustrine) and estuarine and are in the Mississippi River Basin. Waterbodies crossed by the Grand Bayou Loop are classified as estuarine and are in the Barataria Basin. The game fish species most commonly found in the southern, salty reaches are the red drum (redfish) and spotted sea trout. Other game fish species common throughout the lower Mississippi River include black and white crappie, bluegill, catfish, largemouth bass, and white and striped bass. Bait fish species include skipjack herring, gizzard shad, and threadfin shad. All Project waters are regulated as saltwater per commercial and recreational fishing regulations.

In Louisiana, oystermen harvest oysters from public oyster grounds and from water bottoms leased by private entities for oyster production. A search of the LDWF oyster lease records identified one lease crossed by the Grand Bayou Loop from, MP 2.3 to MP 2.4. This lease is listed as active in the LDWF records but also as expired (January 1, 1933).

Tennessee requested a modification to the FERC Procedures to conduct in-water work any time of the year. Section V.B.1. states that instream work must occur during a certain timeframe unless expressly permitted by the appropriate federal or state agency in writing. Tennessee has obtained written confirmation from NMFS, FWS, and LDWF that the Tennessee Project would not be held to a specific timeframe and that in-water work can be conducted at any time. Because Tennessee has obtained such authorization, this activity is allowed by the FERC Procedures.

Construction impacts from excavation, dredging, and barge activity could include direct mortality of individuals, loss of food resources, noise disturbance, increased sedimentation and turbidity, alteration of aquatic habitat cover, and introduction of pollutants. These impacts would be mostly temporary and most disturbed areas would be allowed to return to preconstruction conditions. The pipeline trench would be backfilled following construction, and the barge channels would be allowed to backfill naturally through sedimentation.

The construction and operation of the platforms for the pig launcher and receiver would be a permanent impact. The platforms would be approximately 100 feet by 40 feet and would be supported by 18 pilings. The platforms would cause minor shading impacts and would remove benthic habitat. However, the pilings would provide a vertical substrate for marine life. Construction of CS 529 would result in permanent alteration, addition, or removal of fish habitat.

Tennessee would offset permanent impacts by purchasing mitigation credits from a Corps and LDNR-OCM approved mitigation bank. Tennessee would minimize temporary impacts to fisheries by adhering to its Procedures and state and federal permits. Tennessee would design and operate stormwater treatment and discharge facilities in accordance with the Louisiana Pollutant Discharge Elimination System regulation under the Clean Water Act of 1972. Tennessee would minimize temporary impacts by adhering to its Project-specific Procedures and restoring waterbodies and wetlands to pre-construction conditions.

Pile Driving

Pile driving during construction of the pig launcher and receiver platforms on the Grand Bayou Loop and the bridge supports for the aerial levee crossing on the Yscloskey Toca Lateral would temporarily increase underwater noise levels. Tennessee would install 18-inch-diameter concrete piles using an impact hammer during daylight hours. 40 piles would be installed for be installed for each of the Grand Bayou Loop launcher and receiver platforms and 9 piles would be installed for each bridge support on the Yscloskey Lateral Loop (2 supports total).

Pile driving activities could cause temporary, short-term, and localized impacts on fishes and swimming sea turtles within the vicinity of the Project, assuming they remain in the area during the duration of the activities. Tennessee used the NMFS' Southeast Regional Office Pile Drive Noise Calculator (2018) to assess noise and vibration impacts from pile driving associated with the construction of the pipe bridge along the Yscloskey Toca Lateral Loop and the pig launcher and receiver platforms along the Grand Bayou Loop. For the assessment, it is assumed that all piles are to be driven to 70 feet below substrate, requiring 80 strikes per foot (5,600 strikes per pile) and 3 piles would be installed a day. Water depth is assumed to be 8 feet.

The calculated peak single strike level is 185 decibels (dB), with the strike exposure level (SEL) value of 155, and a root mean square (RMS) pressure level of 166. The cumulative SEL adds up the sound energy associated with all pile strikes during a given day, and with the estimated 5,600 strikes per day for the installation of three piles per day, the cumulative SEL is 197 dB.

The single strike peak threshold dB level that can cause physical injury to fish and sea turtles is 206 dB. Calculated peak values for the pile installation is 185 dB, which is

below the threshold value, therefore a single pile strike is not anticipated to cause physical injury to fish and sea turtles. The cumulative SEL of 197 dB is above the threshold for the onset of physical injury for fish and sea turtles ≥ 2 grams (187 db), as well as fish < 2 grams (183 dB). The impact radius for both size classes of fish is about 70.7 feet. It is estimated that marine fishes that remain within the 0.36-acre area surrounding each of the platform locations of the pile driving activities could incur physical onset injury due to pile driving noise impacts.

The RMS level is used to characterize the average sound energy associated with a single strike, and is used to characterize changes in fish and sea turtle behavior. The calculated RMS value of 166 dB is above the threshold for impacts on both sea turtle behavior (160 dB) and fish behavior (150 dB). The impact radius for sea turtle behavior is about 82.4 feet, and 382.5 feet for fish behavior. It is estimated that sea turtles that remain within 0.5 acres surrounding each of the pile driving activities could potentially alter their natural behavior. It is also estimated that marine fishes that remain within about 10.6 acres surrounding each of the platform locations could potentially alter their natural behavior.

To reduce cumulative SEL and RMS levels, Tennessee would utilize a wood cushion during pile driving as a noise abatement measure. A wood cushion on the impact hammer could reduce underwater noise levels between 11 and 26 dB. Table 11 presents the impact acres utilizing no abatement, the wood cushion when conditions allow for 11 dB of abatement (worse case), and the wood cushion when conditions allow 26 dB of abatement (best case).

Table 11: Summary of Impact Calculations

Noise Impact Calculations Per Each Platform and Bridge Support Installation		**Onset of Physical Injury**			**Sea Turtle Behavior**	**Fish Behavior**
		Peak	**Cumulative SEL dB****		**RMS**	**RMS**
		Sea Turtles & Fish	**Sea Turtles & Fish ≥ 2 g**	**Fish < 2 g**	**dB**	**dB**
No Abatement Measures	**Threshold value**	***206***	***187***	***183***	***160***	***150***
	Distance to threshold (meters)	0	21.54	21.54	25.12	116.6
	Distance to threshold (feet)	0	70.68	70.68	82.41	382.52
	Acres of Impact Around Locations	***0***	***0.36***	***0.36***	***0.49***	***10.55***
Wood Cushion (11 dB - minimum)	**Distance to threshold (meters)**	0	3.98	3.98	4.64	21.54
	Distance to threshold (feet)	0	13.06	13.06	15.23	70.68
	Acres of Impact Around Locations	***0***	***0.01***	***0.01***	***0.02***	***0.36***

Table 11: Summary of Impact Calculations						
Noise Impact Calculations Per Each Platform and Bridge Support Installation		**Onset of Physical Injury**			**Sea Turtle Behavior**	**Fish Behavior**
		Peak	**Cumulative SEL dB****		**RMS**	**RMS**
		Sea Turtles & Fish	**Sea Turtles & Fish ≥ 2 g**	**Fish < 2 g**	**dB**	**dB**
Wood Cushion (26 dB - maximum)	**Distance to threshold (meters)**	0	0.4	0.4	0.00	2.15
	Distance to threshold (feet)	0	1.31	1.31	0.00	7.07
	Acres of Impact Around Locations	***0***	***<0.01***	***<0.01***	***0.00***	***<0.01***

The Tennessee Project falls within Essential Fish Habitat (EFH) for red drum, reef fish, shrimp, and coastal migratory pelagics, as detailed further in section B.4.1.1., and within the range of federally listed sea turtles, which is further discussed in section B.4.5. A review of Gulf of Mexico Fishery Management Council (GMFMC) Final Report: 5-Year Review of Essential Fish Habitat Requirements (2016) shows most commercially and recreationally important species do not have a spawning, and larval stage within the tidally-influenced, estuarine waters where the pile driving activities would be taking place. As such, the free-swimming juvenile and adult age class of these species would be found in the vicinity of the pile driving activities. While threshold noise levels for impacts to physical health and behavior is anticipated during construction, these free-swimming fishes are presumed to swim away from the noise source, thereby avoiding physical injury. Increased swimming has the potential to increase fatigue, making fish more susceptible to predation, but as the impact acres are small in comparison to the surrounding similar habitat, fishes vacating the area would find similar habitat and refuge nearby. Further, as the pile driving activities are temporary and short term, fishes would return to the area once construction is complete. Additionally, Tennessee has agreed to follow NMFS' Sea Turtle and Smalltooth Sawfish Construction Conditions (2006), which would halt activities, including pile driving, if sea turtles are present.

Given Tennessee's proposed measures, we conclude the Tennessee Project's impacts on aquatic resources would be adequately minimized.

SNG Project

The SNG Project does not require any in-stream work. Only one ephemeral drainage ditch within the existing Toca CS would be impacted at the Toca Delivery MS, which does not support fisheries. Additionally, SNG would use erosion control devices and adhere to its Project-specific Plan and Procedures to minimize runoff and erosion.

Although no instream work is proposed for the SNG Project, SNG is requesting a modification to section V.B.1 of the FERC Procedures to conduct instream work outside of the specified timeframes only to perform any repairs to a damaged pipeline in the unlikely occurrence of a blow out during a confirmation pressure test and that location be between streams or within streams. However, SNG may only conduct instream work outside of the specified timeframes if it recieves written authorization from the appropriate agencies and files that authorization with the Commission.

Given SNG's proposed measures, we conclude that construction and operation of the SNG Project would not impact aquatic resources.

4.1.1. Essential Fish Habitat

The Magnuson Sevens Fishery Conservation and Management Act (MSA) (Public Law 94-265) as amended through January 12, 2007, was established, along with other goals, to promote the protection of EFH during the review of projects to be conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. EFH is defined in the MSA as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Federal agencies that authorize, fund, or undertake activities that may adversely affect EFH must consult with NMFS. Although absolute criteria have not been established for conducting EFH consultations, NMFS recommends consolidated EFH consultations with interagency coordination procedures required by other 4-83 statutes, such as NEPA, the Fish and Wildlife Coordination Act, and the Endangered Species Act (ESA), to reduce duplication and improve efficiency (50 CFR 600.920(e)). As recommended by NMFS, we are incorporating EFH consultation for the Project into our responsibilities under NEPA and this EA.

Tennessee Project

The Grand Bayou Loop falls within Ecoregion 4 (East Texas and West Louisiana), and is directly adjacent to Ecoregion 3 (East Louisiana, Mississippi, and Alabama). The Grand Bayou Loop does not cross any Habitat Areas of Particular Concern (HAPCs). The Yscloskey Toca Lateral Loop and CS 529 are not located within any EFH areas or HAPCs. Table 12 lists the EFH species that could occur in the Project area. Construction would cause temporary disturbance and displacement of fish, increased sedimentation and turbidity, loss of prey, destruction of live bottom habitats, and temporary water quality degradation.

Table 12: EFH species that could occur in the Tennessee Project area						
Species		**Life Stage**				**Habitat Types**
Common Name	**Scientific Name**	**Eggs**	**Larval**	**Juvenile**	**Adult**	
Red Drum	*Sciaenops ocellatus*		X	X	X	Emergent marsh, open estuarine waters
Schoolmaster	*Lutjanus apodus*			X		Emergent marsh, open estuarine waters
Gray (mangrove) snapper	*Lutjanus griseus*			X	X	Emergent marsh, open estuarine waters, Soft bottom habitat
Dog snapper	*Lutjanus jocu*			X	X	Emergent marsh, tidal creeks
Lane snapper	*Lutjanus synagris*		X	X		Emergent marsh, open estuarine waters
Brown shrimp	*Penaeus aztecus*	X	X		X	Emergent marsh, open estuarine waters, Soft bottom habitat
Pink shrimp	*Penaeus dourarum*		X	X	X	Open estuarine waters, Soft bottom habitat
White shrimp	*Penaeus setiferus*	X	X	X	X	Emergent marsh, open estuarine waters, Soft bottom habitat
Cobia	*Rachycentron canadum*	X	X			Open estuarine waters

Temporary and Permanent Habitat Modification

Red drum, gray snapper, dog snapper, lane snapper, brown shrimp, pink shrimp, white shrimp, and cobia have the potential to utilize estuarine marsh and open water habitats during one or more of their life stages. Approximately 82.3 acres of estuarine open water and 42.5 acres of estuarine emergent or scrub-shrub wetlands would be temporarily modified by dredging, excavation, and related activities required for pipe installation and barge access for the Grand Bayou Loop. Barge access would require an increase of water depth to approximately 8 feet to allow for safe passage within the right-of-way. Impacts on EFH include sediment disturbance and temporary changes in water depth from dredging/excavation, although the benthic substrate would offer fundamentally similar habitat before and after dredging. As no submerged aquatic vegetation was found during the field surveys within the workspace, no impacts are anticipated to submerged aquatic vegetation and the organisms that utilize that habitat. The disturbed sediments in estuarine open water are expected to be quickly recolonized by invertebrates. Wetlands would be returned to the previous grade and are expected to revegetate within one growing season.

The primary permanent impact associated with the pig launcher and receivers, would be shading by the overlying platforms. Also, the pilings would directly, and permanently impact the soft bottom substrate. However, given the naturally turbid water in the area, relatively small profile of the platform footprint (about 100 feet by 40 feet), and height range of the platforms (about 10 feet above mean sea level), the potential effects of shading would be minor. The pilings could provide a substrate for marine algae, invertebrates, and other potential food sources for fish. The relatively close proximity of multiple pilings may also provide an area of refuge and protection for fish and other motile biota, while the platforms may offer some shading. The platforms would be accessed during operation for annual inspection and maintenance activities. A work barge equipped with a crane to lift the pig into pig launcher and out of the pig receiver would be necessary to perform the inspection and maintenance activities.

Given that most of the Project's impacts would be temporary and the limited spatial extent of the pig launcher and receiver platforms, we conclude that any adverse impacts on EFH would be minor.

Temporary Loss of Prey

Dredging/excavation would have temporary and localized effects on benthic substrates in the estuarine zone. These organisms are adapted to the naturally occurring turbid conditions of this part of Louisiana. To the extent practical, Tennessee has co-located the proposed pipelines with existing infrastructure and along existing canals that have been previously dredged. It is expected that benthos in the soft bottom habitats would recover rapidly through various reproductive and natural recolonization mechanisms within a few seasons. Because the effects would be temporary and limited in spatial extent, temporary loss of benthic invertebrates is expected to have a minor adverse impact on EFH.

Temporary Increased Turbidity/Sedimentation

The Project has the potential to produce temporary turbidity plumes in the water column during in water work activities, including pipeline construction and barge channel excavation. In water work may cause localized increases of suspended sediment and nutrient levels in the water column and decreases in dissolved oxygen. Tennessee would install turbidity curtains where suitable to minimize the distance that the turbidity plume would travel. Further, the Grand Bayou Loop is located within the Mississippi River Delta, a naturally turbid area with ambient values routinely measured at USGS stations above 200 Formazin Nephelometric Units. Therefore, turbidity effects would be temporary and limited in spatial extent and result in minor adverse impacts on EFH.

Temporary Impacts During Pile Driving

Pile driving during construction of the pig launcher and receiver platforms on the Grand Bayou Loop and the bridge supports for the aerial levee crossing on the Yscloskey Toca Lateral would temporarily increase underwater noise levels. As previously discussed in section B.4.1, Tennessee used the NMFS' Southeast Regional Office Pile Drive Noise Calculator to assess noise and vibration impacts from pile driving associated with the construction of the pipe bridge along the Yscloskey Toca Lateral Loop and the pig launcher and receiver platforms along the Grand Bayou Loop. Most commercially and recreationally important species do not have a spawning, and larval stage within the tidally-influenced, estuarine waters where the pile driving activities would be taking place and therefore, it is anticipated that the free swimming juvenile and adult age class of these species would be found in the vicinity of the pile driving activities. While threshold noise levels for impacts on physical health and behavior is anticipated during construction, these free-swimming fishes are presumed to swim away from the noise source, thereby avoiding physical injury. Increased swimming has the potential to increase fatigue, making fish more susceptible to predation, but as the impact acres are small in comparison to the surrounding similar habitat, fishes vacating the area would find similar habitat and refuge nearby. Further, as the pile driving activities are temporary and short term, fishes would return to the area once construction is complete. Tennessee would utilize a wood cushion on the impact hammer during pile driving as a noise abatement measure. Given Tennessee's proposed measures, we conclude that impacts on EFH due to pile driving would be temporary and adequately minimized.

Impingement and Entrainment

Hydrostatic testing for the Project would require the withdrawal of water from the estuarine environment. Impingement of adults and juvenile species could potentially occur during water withdrawal activities, but body size and low intake velocities would limit the impingement of most fish. Most adult and juvenile fish would likely avoid the withdrawal area. However, larvae and eggs are more susceptible to entrainment. Due to the physical stress, such as abrasions due to contact with equipment, and pressure changes within mechanical systems incurred during entrainment, mortality rates are often assumed to be 100 percent.

Factors that affect the richness of species impinged or entrained depends on distance from shore, depth of water intake, intake velocity, screen size, pumping capacity, species life history, species distribution, and the availability of quality habitat. Distribution and abundance of eggs and larvae are dependent on the distribution of spawning adults. Post larval and juvenile species are anticipated to be more abundant in the Project area due to the presence of preferred habitat for maturation, and that spawning activities for most of the managed species takes place in offshore environments. As spawning times, egg transport, and larval growth varies, especially between fish and shrimp, regardless of when hydrostatic testing occurs, prior to putting the line in service, water withdrawal would coincide with spawning/transport events of at least one EFH

species. Table 13 describes the timing of the lifestages for EFH species that may occur the Project area.

Due to the high mortality of eggs and larvae, the high fecundity of most pelagic fish species, and the relatively low volume of water uptake, the potential adverse impacts due to water withdrawals would be minor, due to the short term, temporary nature and limited spatial extent of the activities.

Table 13: Lifestages for EFH Species Potentially in the Project area

Common Name	Scientific Name	Life Stage				
		Egg	Larvae	Juvenile	Adult	Spawning/ Breeding
Red drum	*Sciaenops ocellatus*	OS	Late Summer/Fall (EST)	Fall (EST)	EST	Mid Aug-Oct (OS)
Lane snapper	*Lutjanus synagris*	OS	June-Aug (EST, NS, OS)	Late Summer/Fall (EST, NS, OS)	NS, OS	May-Aug (OS)
Brown shrimp	*Penaeus aztecus*	Fall/Spring (OS)	EST, NS, OS	Year-round, peak Spring (EST, NS)	OS	Fall/Spring (OS)
Pink shrimp	*Penaeus duorarum*	Year-round (OS)	Year-round (EST, NS, OS)	EST, NS	EST, NS, OS	Spring/Late Fall, peak Jun-Jul (EST, NS, OS)
White shrimp	*Penaeus setiferus*	Year-round (OS)	Year-round (EST, NS, OS)	EST, NS	EST, NS, OS	Spring/Late Fall, peak Jun-Jul (EST, NS, OS)
Cobia	*Rachycentron canadum*	Summer (EST, NS)	May-Sep (EST, NS, OS)	NS, OS	NS, OS	Apr-Sep (NS, OS)
Legend: EST = Estuarine, NS = Nearshore, OS = Offshore in ER3 or ER4						
Source: GMFMC 2004; GMFMC and NMFS 2015						

Introduction of Pollutants

Potential surface water quality impacts associated with accidental spills or leaks of hazardous liquids would be avoided or minimized by adhering to Tennessee's SPCC Plan. Impacts on surface waters during construction and operation would be mitigated by adherence to the Project-specific Procedures, HDD Plan, and best management practices provided in Tennessee's ECMP. Therefore, potential impacts on EFH due to pollutants would be of short duration and minimal.

<u>SNG Project</u>

SNG reviewed the NMFS online EFH Mapper tool to identify any EFH in the Project vicinity. The Toca CS in St. Bernard Parish is 3.5 miles from four EFH types:

shrimp EFH, reef fish EFH, red drum EFH, and coastal migratory pelagic EFH. The Project area in St. Bernard's Parish is also occurs within 4.1 miles of spinner shark EFH. No HAPCs occur in or near the Project area. No in-stream work is proposed. Therefore, we conclude that the SNG Project would not impact EFH.

4.2. VEGETATION

Tennessee Project

The Tennessee Project area consists of upland herbaceous, PEM, PSS, PFO, EEM, ESS, EFO, and open water vegetation. Upland herbaceous vegetation is comprised of agricultural land and land used for hay and pastures. PEM wetland vegetation typically consists of plants such as saltmarsh goldenrod, swamp smartweed, shortbristle horned beaksedge, oneflower false fiddleleaf, and pennywort. PSS wetlands vegetation include species such as groundseltree, marsh elder, and black willow. PFO wetland vegetation includes species such as sugarberry, sweetgum, red maple, and green ash. EEM wetlands consist of species such as salt codgrass, needlerush, saltmarsh goldenrod, and swamp smartweed. ESS wetlands include species such as groundseltree, marsh elder, and coffeweed. EFO wetland vegetation consists of mostly of water oak, black willow, red maple, and invasive Chinese tallow.

Construction of the Project would impact 206.1 acres of vegetation and operation would impact 55.6 acres of vegetation. Impacts from construction include clearing, grading and compaction in some areas. Construction would impact 11.2 acres of upland vegetation, and 194.9 acres of wetland vegetation. Operation would impact 0.4 acre of upland herbaceous vegetation, and 54.2 acres of wetland. Permanent impacts include fill of wetlands and conversion of forest and shrub habitats to herbaceous vegetation. Table 14 details the vegetation impacts of Tennessee Project. Some forested wetlands would be allowed to revegetate. However, revegetation would be slow so this would be a long-term impact.

Invasive Chinese tallow was identified in wetland habitats. Tennessee would reduce the spread invasive plants and noxious weeds by implementing its Project-specific Invasive Plant Management Plan and monitoring revegetation.

Tennessee would minimize impacts on vegetation by adhering to its Plan and Procedures and monitoring to ensure that revegetation is successful. Additionally, Tennessee plans to limit clearing of emergent wetlands to only the area needed for trench excavation. The remaining emergent wetland vegetation within the right-of-way would be flattened instead of cleared. Long-term impacts of forested wetland conversion would be mitigated by purchasing mitigation credits from an approved mitigation bank. Permanent impacts on wetlands would also be mitigated by purchasing mitigation credits. Therefore, we conclude that the Project would not significantly impact vegetation.

Table 14: Tennessee Project Vegetation Impacts

Vegetation	CS529		Yscloskey Toca Lateral Loop		Grand Bayou Loop		Toca Yard		Bayou Road Yard		State Road LA-46 Yard		Construction ROW Totals		
	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	**Total**
Upland Herbaceous															
Agricultural Lands	0.00	0.00	0.41	0.60	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.41	1.55	1.96
Hay/Pasture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.24	0.00	9.24	9.24
Subtotal	*0.00*	*0.00*	*0.41*	*0.60*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.95*	*0.00*	*9.24*	*0.41*	*10.79*	*11.20*
Wetlands															
PEM	0.00	0.00	2.49	3.17	0.00	0.00	0.00	0.00	0.00	5.18	0.00	0.00	2.49	8.35	10.84
PSS	0.00	0.00	0.77	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	1.99	2.76
EEM[c]	3.22	0.00	30.02	60.94	0.12	30.20	0.00	0.00	0.00	0.00	0.00	0.00	32.21	92.14	124.35
ESS[c]	8.35	0.00	7.50	17.99	0.12	12.33	0.00	0.00	0.00	0.00	0.00	0.00	14.93	31.25	46.18
PFO	0.00	0.00	3.46	6.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.46	6.43	9.89
EFO	0.00	0.00	0.32	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.55	0.87
Subtotal	*11.57*	*0.00*	*44.55*	*91.07*	*0.24*	*42.53*	*0.00*	*0.00[a]*	*0.00*	*5.18*	*0.00*	*0.00[a]*	*54.18*	*140.71*	*194.89*
Total	**11.57**	**0.00**	**44.98**	**91.63**	**0.24**	**42.30**	**0.00**	**0.00[a]**	**0.00**	**6.13**	**0.00**	**9.24[a]**	**54.59**	**151.50**	**206.09[b]**

a – Values for wetlands and waterbodies at the Toca Lateral Yard (0.05 acres of wetland and 0.44 acres of open water) and State Road LA-46 Yard (5.46 acres of wetlands and 0.11 acre of open water) have not been included given that these systems would not be disturbed during construction activities.
b - Project total does not include 6.06 acres of open water from Toca Lateral Yard and State Road LA-46 Yard given that these systems will not be disturbed during construction activities
c – 19.75 acres would be within the fenceline of CS529 but would not be disturbed (10.94 acres of EEM and 8.81 acres of ESS) and are not included above.
Note: Totals may vary due to rounding.

SNG Project

The Project is within the Southeastern Plains, Southern Coastal Plain, and Mississippi Alluvial Plain Level III Ecoregion. The vegetation habitats within the Project area include forests, shrubland, herbaceous areas, and planted/cultivated areas. Deciduous forest habitat in the vicinity generally consists of oak species, red maple and American beech. Evergreen forest in the Project area is dominated by loblolly pines and longleaf pines. Shrub vegetation includes young loblolly pines and red maples, Chinese privets, blackberries, and blueberries. Common herbaceous vegetation in the Project area includes orchard grass, red fescue, Japanese stiltgrass, long-leaf wood-oats, and bluestem. Construction of the Project would impact almost 26 acres of vegetation and operation would impact about 7 acres of vegetation. Table 15 depicts construction and operation impacts on each vegetation type.

Table 15: Vegetation Acreage Affected by Construction and Operation of the SNG Project

Site Name	Workspace Type	Deciduous Forest		Mixed Forest		Shrub/ Scrub		Herbaceous	
		Constr. (acres)	Oper. (acres)	Constr. (acres)	Oper. (acres)	Const. (acres)	Oper. (acres)	Const. (acres)	Oper. (acres)
Rose Hill Compressor and Rose Hill Receipt Meter Station	Facility	0.00	0.00	6.44	6.44	0.04	0.04	0.36	0.36
	Temporary Workspace	0.00	0.00	18.36	0.00	0.09	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**24.80**	**6.44**	**0.13**	**0.04**	**0.36**	**0.36**
MEP Receipt Meter Station	Access Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Existing Station Easement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Proposed Permanent	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00
	Temporary Workspace	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.23**	**0.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Toca Compressor Station and Toca Delivery Meter Station	Access Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Existing Station Easement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Facility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Project Totals		**0.23**	**0.23**	**24.80**	**6.44**	**0.13**	**0.04**	**0.36**	**0.36**

During the October and November 2019 field surveys, the following invasive plant species were identified within the Project area: Japanese honeysuckle, mimosa, vaseygrass, Chinese tallow tree, Chinese privet, Japanese climbing fern, and

Johnsongrass. Clearing of vegetation and movement of equipment during construction could increase the potential for infestations of non-native, invasive plant species. To minimize the spread of nonnative and invasive plants SNG would adhere to its Plan and Procedures and its Noxious Weed Species Control Plan. Specific measures include training, flagging concern areas, and removing populations of noxious weeds.

The EPA provided comments noting the amount of disturbance required to be cleared for the Rose Hill CS and that some forested areas would be allowed to revert naturally, which could take more than 30 years. EPA recommended that SNG consider and plan for less vegetation disturbance, developing a replanting proposal based on an analysis of forest fragmentation. EPA further recommended a tree targeted clearance to allow some old growth to remain and recycling vegetative debris to the extent practicable to divert it from landfills.

Impacts on vegetation include clearing and grading, permanent conversion to other vegetation types, introduction of invasive species, and possible spills of hazardous materials. SNG would minimize impacts on vegetation and old growth forests, during the station design and construction, and would clear only the area needed for construction and Project facilities. The specific areas to be cleared would be dependent on the clearing and grading plan developed during engineering design (up to 28 acres). Open burning of land-clearing debris (unspecified forest residues) may be conducted during site preparation for the Rose Hill CS. Cleared vegetation, including grasses and scrub-shrub species, along the construction right-of-way would be disposed of in accordance with federal and state regulations either by spreading or transportation to a commercial disposal facility. Following construction and restoration, most construction workspaces would be allowed to revert to pre-construction land use and vegetation type. Operational right-of-way maintenance would require the permanent conversion of some forest and shrub into herbaceous vegetation. This impact would be a minor proportion of the available shrub and forest vegetation types. SNG has consulted with NRCS to develop seed mixes that maximize the success of revegetation. Additionally, SNG would monitor revegetation of all disturbed areas following construction until revegetation is successful. Therefore, we conclude that the Project would not significantly impact vegetation.

4.3. WILDLIFE

Tennessee Project

Common wildlife species found in the Project area include the coyote, red fox, bobcat, raccoon, swamp rabbit, and gulf coast toad. Common fish species are discussed in section 4.1.

Construction activities such as trenching and excavation could temporarily displace wildlife, disturb wildlife habitat, disrupt normal activities, and increase stress. Wildlife sensitivity to elevated noise, light, and activity varies by species and individuals. Most wildlife present within the construction area would relocate to nearby suitable

habitat when construction commences. Construction vehicles, including barges and dredges, could cause direct or injury, particularly to less mobile wildlife or the young.

Development of CS 529 would permanently displace wildlife over most of the disturbed area. Most of the CS 529 site provides lower quality habitat due to existing agricultural and industrial disturbance. Given the low-quality habitat at the abandoned CS site and abundant adjacent habitat of similar type and quality, permanent impacts on wildlife are expected to be minimal. Additionally, Tennessee would install directional white lights at CS 529 and would ensure that only the lights necessary for safe operations are illuminated. Any additional station lighting would only be used for maintenance, or as emergent work arises.

Most impacts from construction of the looping pipelines would be temporary. Dredging and excavation, construction of the pipe bridge, pig launcher and receivers would temporarily impact coastal marsh habitat. In addition, two 50-foot-wide corridors over each pipeline would be maintained in an herbaceous state which would result in a permanent conversion of habitat in forested areas. In temporarily disturbed areas, wildlife is would return after construction and restoration are completed.

Project workspaces would be restored to preexisting conditions to the extent practicable in accordance with the Project-specific Plan and Procedures and the conditions noted in the Corps and LDNR-OCM authorizations. Based on the abundance of similar coastal marsh habitat in the Project vicinity, temporary and permanent impacts on wildlife would be minimal since they would impact a relatively small portion of the available habitat. Therefore, we conclude that the Project would not significantly impact wildlife resources.

SNG Project

Typical wildlife common in the Project area includes squirrels, owls, foxes, snakes, and white-tailed deer.

Increased noise and human activity from construction could result in abandoned or delayed reproductive efforts, displacement from the area, and complete avoidance of the area. Additionally, vegetation clearing would also reduce or and alter existing habitat. These impacts would be mostly minor and temporary as most of the disturbed habitat would be allowed to return to preconstruction conditions. Wildlife could fall and become trapped in exposed excavated areas. However, SNG would utilize gradual excavation slopes, barrier fences, and frequent inspections to minimize the potential impact to wildlife. Permanent impacts include direct mortality of less mobile species during clearing and grading, and permanent shrub and forest habitat conversion. Only a minor portion of the species population would be directly impacted from clearing and grading and there is sufficient surrounding habitat to support relocated wildlife. Therefore, we conclude that the SNG Project would not significantly impact wildlife resources.

4.4. MIGRATORY BIRDS

Migratory birds are protected under the Migratory Bird Treaty Act of 1918 (MBTA), 16 U.S.C. 703-712. Executive Order 13186 (66 Federal Register 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds. Executive Order 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

On March 30, 2011, the U.S. Fish and Wildlife Service (FWS) and the Commission entered into a Memorandum of Understanding that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This voluntary Memorandum of Understanding does not waive legal requirements under the MBTA, Bald and Golden Eagle Protection Act of 1940, ESA, NGA, Federal Power Act, or any other statutes and does not authorize the take of migratory birds. Birds of Conservation Concern (BCC) are a subset of protected birds under the MBTA and include all species, subspecies, and populations of migratory nongame birds that are likely to become candidates for listing under the ESA without additional conservation actions.

Tennessee Project

The Project is within Bird Conservation Region (BCR) 37, the Gulf Coast Prairie region of the United States. Breeding populations of reddish egret, roseate spoonbill, brown pelican, and other herons, egrets, ibis, terns, and skimmers are found within this BCR. Habitats in the BCR are critical for migrating shorebirds, including buff-breasted sandpiper and Hudsonian godwit, and for most of the neotropical migrant forest birds of eastern North America. There are 50 BCC with the potential to occur in the Project area. Tennessee plans on clearing trees within the primary nesting season, which, for Louisiana, is from April 15 to July 15. Over 10 acres of PFO and EFO are proposed be cleared during construction, of which almost four acres would be maintained for operation. Vegetation removal for construction of CS 529 and the looping pipelines could cause mortality of nesting birds or cause adult birds to abandon their nests. In order to minimize impacts on migratory birds, Tennessee would:

- provide pre-construction training to all construction personnel for the identification and reporting of protected species, as well as describing the relevant rules and regulations that protect wildlife, including the penalties for harassing or harming protected species. The required training slides would be developed by a professional biologist;
- prepare a leaflet to be used as a training refresher for construction personnel on the identification and reporting of protected species;

- assign at least one EI to the Project site for the duration of construction;
- conduct pre-construction surveys during the nesting season in the areas to be cleared, plus a 20-foot buffer adjacent to the areas affected by clearing/cutting/removal of vegetation, for migratory birds or active nests (i.e., eggs or chicks present). The FWS would be consulted on appropriate buffers to implement for any active migratory bird nests encountered;
- confine construction activity and disturbance to approved areas only;
- minimize security and night-time lighting to the extent practicable, and for bright lighting needed for construction or security, down shielding the light and directing it toward the work area/construction site as practicable;
- adhere to Tennessee's Plan and Procedures and SPCC Plan; and
- require all construction personnel to adhere to good waste management practices (e.g., waste collection, handling, and storage); maintain slow travel speeds on-site, be alert for wildlife, and use additional caution in low visibility conditions; and reduce the potential for fire hazards from vehicles and construction activities (e.g., use spark arrestors on power equipment, ensure that no metal parts are dragging from vehicles, use caution with open flame).

Seventeen species of colonial wading birds occur regularly in Louisiana. These species are listed in table 16. Based on Tennessee's consultation with LDWF, no colonial wading bird rookeries were identified within the vicinity of the Project. However, numerous bird species, including colonial species, may utilize the Project area.

Table 16: Louisiana Colonial Wading Bird Species Preferred Habitat

Species *(Scientific Name)*	**Emergent Marsh**	**Open Water**	**Herbaceous Uplands**	**Trees and Scrubs**	**Nesting Habitats**	**Habitat Descriptions**
Great egret (*Ardea alba)*	F	F		N	C, S	Known to utilize rice-crawfish aquaculture as a food source.
Great blue heron (*Ardea Herodias)*	F	F		N	C	Known to forage in a wide variety of habitats.
American bittern *(Botaurus Lentiginosus)*	F, N	F	F		S	Nesting is not known to occur in Louisiana.
Cattle egret (*Bubulcus ibis)*			F	N	C	Observed near CS 760 in rice field. Species occasionally forage in wetland habitat; however, they prefer upland habitat with disturbance (mowing, cattle). Prefers to nest over water in mixed species rookeries.

Table 16: Louisiana Colonial Wading Bird Species Preferred Habitat						
Species *(Scientific Name)*	**Emergent Marsh**	**Open Water**	**Herbaceous Uplands**	**Trees and Scrubs**	**Nesting Habitats**	**Habitat Descriptions**
Green heron (*Butorides virescens)*	F, N	F		N	S, C	Species occasionally nest in small colonies and utilize a wide variety of wet habitats, including ditch culverts.
Little blue heron *(Egretta caerulea)*	F		F	N	C	Species occupies a wide array of breeding sites.
Reddish egret *(Egretta rufescens)*	F			N	C	Range is confined to beaches and salt marshes.
Snowy egret (*Egretta thula)*	F	F		N	C	Known to utilize rice-crawfish aquaculture as a food source.
Tricolored heron *(Egretta tricolor)*	F			N	C	Confined mostly to coastal habitat.
White ibis *(Eudocimus albus)*	F, N	F		N	C	Known to utilize rice-crawfish aquaculture as a food source.
Least bittern *(Ixobrychus exilis)*	F, N	F			S	Utilizes marsh habitat for foraging and nesting.
Wood stork *(Mycteria americana)*		F		N	C	Known to utilize rice-crawfish aquaculture as a food source.
Yellow-crowned night heron *(Nyctanassa violacea)*	F	F		N	C	Species prefer nesting sites in forested wetlands. Known to utilize rice-crawfish aquaculture as a food source.
Black-crowned night heron *(Nycticorax nycticorax)*	F, N	F		N	C	Species prefer nesting sites within the coastal zone. Known to utilize rice-crawfish aquaculture as a food source.
Roseate spoonbill *(Platalea ajaja)*	F			N	C	Feeds predominantly on small fish and shellfish, aquatic insects, and plant material. Prefers freshwater but is also known to inhabit a variety of marine and brackish waters. Forages in shallow water ponds or sloughs in saline to freshwater marshes. Nests over standing water in shrubs and small trees with other colonial birds.
White-faced ibis *(Plegadis chihi)*	F			N	C	Known to utilize rice-crawfish aquaculture as a food source.
Glossy ibis *(Plegadis falcinellus)*					C	Known to utilize rice-crawfish aquaculture as a food source.
F=Foraging, N=Nesting, C=Colonial, S= Solitary						

Bald eagles are protected under the MBTA and the Bald and Golden Eagle Protection Act. Tennessee did not identify any bald eagles or nests within the Project vicinity during field surveys. If eagle nests are identified, Tennessee would comply with FWS' *National Bald Eagle Management Guidelines*.

The majority of the Project would be located within or adjacent to existing rights-of-way and in areas of emergent wetland or herbaceous vegetation that are expected to return to preconstruction condition relatively quickly following construction. This would, in turn, reduce land use change and tree clearing. The forested areas adjacent to the co-located rights-of-way already exist as edge habitat, not interior forested habitat. Therefore, although some long-term and permanent conversion of forested vegetation would occur, impacts on habitat for forest-dwelling birds would be minimal. Conversion of forested habitats has the potential to reduce the area of habitat available for woodland bird species; however, this permanent impact is expected to be minimal, given the relatively small amount of affected forested vegetation that is not already dominated by nuisance species (e.g., Chinese tallow) and the availability of similar habitat in the surrounding area.

Birds in the area would likely avoid the Project area during construction due to the human presence and noise. Depending on the season, construction could disrupt bird courting or nesting, and breeding behaviors, on and adjacent to the right-of-way. Given the construction timeframe (no more than 12 months for all components of the Project), adult birds relocating to avoid construction would not result in a substantial or long-term change in migration patterns through the area nor constitute a population-level impact. Further, all areas not needed for operation would be revegetated and restored to preconstruction conditions. Given Tennessee's proposed measures, the Project would not significantly impact migratory birds or migratory bird habitat in the Project area.

In a letter to FWS dated October 25, 2019, Tennessee provided information about the project and requested comments on potential impacts on migratory birds. FWS responded to Tennessee via email and directed Tennessee to review information provided by the FWS' Information for Planning and Consultation (IPaC) database to assist in developing protection measures for migratory birds and their habitats. IPaC identified numerous bird species, including colonial species and BCC, that utilize the Project area during various times of the year, and, therefore, may be affected by construction. This information was used by Tennessee to develop the measures discussed above. No additional comments from FWS regarding the Tennessee Project's potential impacts on migratory birds have been received to date.

SNG Project

The Project is located within the Mississippi Alluvial Valley BCR 26 and Southeastern Coastal Plain BCR 27. One BCC was identified as potentially occurring in the Mississippi portion of the Project area and 27 BCC were identified as potentially occurring in the Louisiana portion of the Project area.

Colonial species may utilize the Louisiana portion of the Project. Based on SNG's consultation with LDWF, LDWF did not identify any colonial nesting bird rookeries within the Project areas. However, if colonial nesting bird rookeries are identified by Project personnel within the Project workspaces, construction activities would be avoided

within 0.5 mile of identified rookeries from February 15-July 31 or until the rookeries are no longer active.

Biological field surveys conducted in October and November of 2019 did not identify any bald eagles or their nests within the vicinity of the Project in Louisiana and Mississippi. If eagle nests are identified, SNG would comply with FWS' *National Bald Eagle Management Guidelines*.

Birds in the area would likely avoid the Project area during construction due to the human presence and noise. Depending on the season, construction could disrupt bird courting or nesting, breeding behaviors, and foraging activities on and adjacent to the right-of-way. To minimize impacts on migratory birds, SNG intends to clear trees outside of the peak nesting season (April 15 to August 31). However, should the construction schedule be delayed, clearing could occur during the peak nesting season. SNG would work with FWS to determine appropriate voluntary conservation measures to minimize impacts to the greatest extent practicable.

Potential impacts also may include habitat loss. About 25 acres of trees would be cleared during construction, of which, six acres would be permanent for operation. However, the new MEP Receipt MS and Toca Delivery MS are co-located with existing rights-of-way and disturbed land, which minimizes forest habitat fragmentation. Additionally, all areas not needed for operation would be revegetated and restored to preconstruction conditions (approximately 56 percent), with herbaceous vegetation expected to be restored relatively quickly. Further, the construction areas are small in size and represent a small portion of the available nesting habitat within the vicinity of the Project areas. Given SNG's proposed measures, we conclude that the SNG Project would not significantly impact migratory bird species.

In letters to FWS' Louisiana and Mississippi Ecological Services Field Offices both dated December 11, 2019, SNG provided information about the project and requested comments on the project's potential impacts on migratory birds. SNG used information provided in FWS' IPaC database to assist in developing the protection measures discussed above for migratory birds and their habitats. SNG provided these measures to the FWS Louisiana office in letters dated February 28 and March 6, 2020. SNG also provided the proposed measures to the FWS Mississippi office on February 28, 2020. No additional comments from FWS regarding the SNG Project's potential impacts on migratory birds have been received to date.

4.5. SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES

Federal agencies are required under Section 7 of the ESA, as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the

destruction or adverse modification of the designated critical habitat of a federally listed species. As the lead federal agency authorizing the Project, FERC is required to consult with the FWS and/or the NMFS to determine whether federally listed endangered or threatened species or designated critical habitat are found in the vicinity of the Project, and to evaluate the proposed action's potential effects on those species or critical habitats.

Tennessee Project

Federally Listed Species

Tennessee, acting as our non-federal representative for ESA consultation, utilized the FWS'IPaC to obtain an official species list to determine the federally listed or protected species that could potentially occur within the Project area. IPAC only identified the West Indian manatee as potentially occurring within the Project area. Lists from NMFS and LDWF identified additional federally listed species that could potentially occur in the Project area. Table 17 lists all special status species that could potentially occur in the Project area, their habitats, determinations, and justification. We conclude that the Tennessee Project would have *no effect* on the federally listed fin whale, sei whale, sperm whale, piping plover, red knot, giant manta ray, gulf sturgeon, oceanic whitetip shark, pallid sturgeon, or the proposed federally listed Gulf of Mexico Bryde's whale. Therefore, these species will not be discussed further.

Table 17: Special Status Species with the Potential to Occur in the Tennessee Project Area

Species	Status[1]	Habitat	Determination/Justification
Fin whale (*Balaenoptera physalus*)	FE	Usually found 25 miles or more from shore in water 50-100 fathoms deep.	*No effect;* Project waters are not deep enough to support the normal presence of fin whales.
Gulf of Mexico Bryde's whale (*Balaenoptera edeni - subspecies*)	Proposed FE	Occurs in tropical and warm, temperate waters, often near shore in areas of high productivity. Severely restricted in range, found in DeSoto Canyon of the northeastern Gulf.	*No effect;* Given its restricted range, the species would most likely not be present in Project area.
Sei whale (*Balaenoptera borealis),*	FE	Generally, occurs in deep water along the edge of continental shelf and in open ocean.	*No effect;* Project waters are not deep enough to support the normal presence of sei whales.
Sperm whale (*Physeter macrocephalus*)	FE	Found in abyssal, pelagic marine habitat. Although they prefer deep water, they can sometimes occur around islands or in shallow shelf waters.	*No effect;* Project waters are not deep enough to support the normal presence of sperm whales.
Piping plover (*Charadrius melodus*)	FT, ST/E	Found on beaches, sand dunes, intertidal flats, lagoons, mudflats, tidal pools, and algal flats in protected bays. Critical habitat along the Louisiana Gulf Coast is found almost exclusively on barrier islands.	*No effect*; The Project would not disturb the sandy beach habitats preferred by the piping plover and construction noise is not expected to reach the critical habitat areas.

Table 17: Special Status Species with the Potential to Occur in the Tennessee Project Area			
Species	**Status[1]**	**Habitat**	**Determination/Justification**
Red knot (*Calidris canutus*)	FT, ST	Use sandy beaches, saltmarshes, lagoons, mudflats of estuaries and bays, and mangrove swamps that contain an abundance of invertebrate prey. In Louisiana they typically winter in the Terrebonne Preserve and the Chandeleur Islands.	*No effect;* Project located 16 miles or greater from typical red knot wintering area.
Giant manta ray (*Manta birostris*)	FT	Habitat of the giant manta ray ranges from near shore to pelagic, occurring over the continental shelf near reef habitats and offshore islands.	*No effect;* Project waters are not deep enough to support the normal presence of giant manta ray.
Gulf sturgeon (*Acipenser oxyrhynchus desotoi*)[2]	FT, ST	Habitat includes all saltwater habitats, except during the spawning season, when they travel upstream from rivers draining into the Gulf of Mexico.	*No effect;* FWS Guidance[3] indicated the Gulf sturgeon was unlikely to occur in the Project area and it was not included on the Official Species List obtained from IPaC. No LDWF/LDWFP record of these species within one mile of the Project.
Oceanic whitetip shark (*Carcharhinus longimanus*)	FT	Usually found far offshore in the open sea in waters 200 m deep, between about 30°N and 35°S in all oceans.	*No effect;* Project waters are not deep enough to support the normal presence of oceanic whitetip shark.
Pallid sturgeon (*Scaphirhynchus albus*)[2]	FE, SE	Primary habitat for pallid sturgeons includes large, braided rivers, using areas of high current and high turbidity over a firm sandy bottom	*No effect;* All construction would occur downstream of pallid sturgeon habitat. FWS Guidance[3] indicated the pallid Sturgeon was unlikely to occur in the Project area and it was not included on the Official Species List obtained from IPaC. No LDWF/LDWFP record of these species within one mile of the Project.
West Indian Manatee (*Trichechus manatus*)	FT, SE	Habitat includes shallow coastal waters, estuaries, bays, rivers, and lakes; throughout most of the range, manatees appear to prefer rivers and estuaries over marine habitats.	*May affect, but is not likely to adversely affect.*
Brown pelican (*Pelecanus occidentalis*)	FD, SE	Occur in salt bays, beaches, and ocean. They mostly are seen over shallow waters along immediate coast, especially on sheltered bays.	*Not likely to adversely impact.*
Peregrine falcon (*Falco peregrinus*)	ST/E	Occur in various open situations from tundra, moorlands, steppe, and seacoasts, especially where there are suitable nesting cliffs, to mountains, open forested regions, and human population centers.	*Not likely to adversely impact.*
Green sea turtle (*Chelonia mydas*)	FT, ST	Feeding habitat occurs in shallow, low-energy waters with abundant submerged vegetation, and in convergence zones in the open ocean. Nests on high-energy beaches with deep sand.	*May affect, but is not likely to adversely affect.*

Table 17: Special Status Species with the Potential to Occur in the Tennessee Project Area

Species	Status[1]	Habitat	Determination/Justification
Hawksbill Sea Turtle (*Eretmochelys imbricate)*	FE, SE	Uses a wide range of tropical and subtropical habitats, including shallow coastal waters with rocky bottoms, coral reefs, beds of sea grass or algae, mangrove-bordered bays and estuaries, and submerged mud flats.	*May affect, but is not likely to adversely affect.*
Kemp's Ridley sea turtle (*Lepidochelys kempii)*	FE, SE	Includes shallow coastal and estuarine waters, often over sandy or muddy bottoms where crab are numerous.	*May affect, but is not likely to adversely affect.*
Leatherback sea turtle[2] (*Dermochelys coriacea)*	FE, SE	Habitat is marine, primarily open ocean, often near edge of continental shelf; they also occur in seas, gulfs, bays, and estuaries.	*May affect, but is not likely to adversely affect.*
Loggerhead sea turtle (*Caretta caretta)*	FT, ST	Occur in open sea to more than 500 miles from shore, mostly over continental shelf, and in bays, estuaries, lagoons, creeks, and mouths of rivers; mainly warm temperate and subtropical regions not far from shorelines.	*May affect, but is not likely to adversely affect.*

1. FT= Federally Threatened, FE= Federally Endangered, FD= Federally Delisted, ST= State Threatened, SE= State Endangered, ST/E= State Threatened/Endangered
2. Not listed by NMFS or FWS as potentially occurring in the Project area, only listed in data provided by LDWF.
3. FWS Louisiana ESA Project Review and Guidance for other Federal Trust Resources

The West Indian Manatee

West Indian manatee habitat includes shallow coastal waters, estuaries, bays, rivers, and lakes and throughout most of the range, manatees appear to prefer rivers and estuaries over marine habitats. Manatees are not averse to traveling through dredged canals or using quiet marinas. They are not able to tolerate prolonged exposure to water colder than 20 degrees Celsius. In the north during October-April, manatees congregate in warmer waterbodies (spring-fed rivers, outfalls from power plants). They prefer waters at least 1-2 meters in depth, and along the coast manatees often are in water 3-5 meters deep, usually in areas lacking strong current (Lefebvre et al. 1989). U.S. West Indian manatee populations occur primarily in Florida, where they are effectively isolated from other populations by the cooler waters of the northern Gulf of Mexico and the deeper waters of the Straits of Florida (Domning and Hayek 1986). Manatees occur in summer from Texas to North Carolina (Schwartz 1995). Observations of manatees outside of Florida in the Gulf of Mexico have increased in recent years, with Louisiana accounting for the largest portion (39%) of reports (Fertl et al. 2005).

Pile installation, dredging, and trenching could temporarily impact the West Indian manatee. Further, excavation and back-filling during pipeline construction through approximately 6 miles of open water could impact the West Indian manatee.

Construction vessels could strike a manatee if encountered in the Project area. However, given manatee maneuverability, impacts on manatees are unlikely as they would likely disperse in advance of construction activities. Further, Tennessee agreed to follow the Standard Manatee Conditions for In-Water Activities. Specific measures include:

- All work, equipment, and vessel operation should cease if a manatee is spotted within a 50-foot radius (buffer zone) of the active work area. Once the manatee has left the buffer zone on its own accord (manatees must not be herded or harassed into leaving), or after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for manatee(s);
- If a manatee(s) is sighted in or near the project area, all vessels associated with the project should operate at "no wake/idle" speeds within the construction area and at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom. Vessels should follow routes of deep water whenever possible;
- Siltation or turbidity barriers should be properly secured, made of material in which manatees cannot become entangled, and be monitored to avoid manatee entrapment or impeding their movement; and
- Temporary signs concerning manatees should be posted prior to and during all in-water project activities and removed upon completion.

In addition, during in-water work in areas that potentially support manatees all personnel associated with the Project would be instructed about the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees, as well as the potential for civil and criminal penalties. Therefore, we conclude the Tennessee Project *may affect but is not likely to adversely affect* the West Indian manatee.

Tennessee accessed the Louisiana-specific project review tool available through the FWS IPaC system to obtain preliminary effect determinations, which generated an FWS Consistency Letter. This Consistency Letter was signed by Tennessee as our non-federal representative and signed by FWS on April 29, 2020, acknowledging that it agrees that the Tennessee Project is not likely to adversely affect the West Indian manatee and consultation is concluded.

Sea turtles

The FWS and the NMFS share federal jurisdiction for sea turtles per a 1977 MOU established joint jurisdictional authority for both the FWS and NMFS, with FWS responsible for sea turtles on land (nesting habitat) and the NMFS responsible for sea turtles in marine habitats (NMFS and FWS, 2015). Nesting in coastal Louisiana is

extremely rare and has been observed at only two locations in recent years, the Grand Isle and the Breton National Wildlife Refuge on the Chandeleur Islands. Based on the geographic separation between the Project area and these locations, facility construction and operation would not impact adult nesting sea turtles. No critical habitat for nesting sea turtles occurs in Louisiana. The nearest critical habitat for any sea turtle is LOGG-S-02 Sargassum for loggerhead sea turtles, which is a large section of the offshore Gulf of Mexico, located about 14.5 miles south of the Grand Bayou Loop. Based on this information, there would be no impacts on nesting sea turtles or nesting habitat. The discussion below concerns the potential presence of, and impacts on, sea turtles in marine/estuarine habitat in the Project area. All of the five federally listed sea turtles (green sea turtle, hawkbill sea turtle, Kemp's Ridley sea turtle, leatherback sea turtle, and loggerhead sea turtle) are common to both estuarine and marine environments along the southeastern coast of Louisiana.

The federally threatened green sea turtle feeds in shallow, low energy waters with abundant submerged vegetation, and in convergence zones in open ocean. Adults are tropical in distribution, whereas juveniles range into temperate waters. Hatchlings often float in masses of marine macroalgae (e.g., Sargassum) in convergence zones. Coral reefs and rocky outcrops near feeding pastures often are used as resting areas (Morreale and Standora, n.d.).

Hawkbill sea turtles use a wide range of tropical and subtropical habitats, including shallow coastal waters with rocky bottoms, coral reefs, beds of sea grass or algae, mangrove-bordered bays and estuaries, and submerged mud flats. Hatchlings and small juveniles associate with masses of floating sea plants (Sargassum rafts) in the open ocean (NMFS and FWS 2007).

The habitat of adult Kemp's Ridley sea turtles primarily includes shallow coastal and estuarine waters, often over sandy or muddy bottoms where crabs are numerous. Most adults stay in the Gulf of Mexico, and they are rare along the Atlantic Coast of the northeastern United States. Post-hatchlings spend 1-4 years as surface pelagic drifters in the weed lines of offshore currents in the Gulf of Mexico and Atlantic Ocean, then shift to benthic coastal habitats of various types, especially where crabs and other invertebrates are numerous.

Leatherback sea turtle habitat is marine, primarily open ocean, often near edge of continental shelf; they also occur in seas, gulfs, bays, and estuaries. Mainly pelagic, these sea turtles seldom approach land except for nesting. Leatherback sea turtles dive almost continuously, to depths of up to at least several thousand meters. They may also linger at the surface at midday but spend most of time submerged (Eckert 1992). Leatherbacks appear to spend the first portion of their lives entirely in tropical waters. Those less than 100 centimeters in carapace length occur only in waters warmer than 26 degrees Celsius, whereas adults may venture to high latitude waters in summer and occur occasionally in inshore waters (Goff and Lien 1988, Eckert 2002).

Loggerhead sea turtle occur in open sea to more than 500 miles from shore, mostly over continental shelf, and in bays, estuaries, lagoons, creeks, and mouths of rivers. The sea is mainly warm temperate and subtropical regions not far from shorelines. Adults occupy various habitats, from turbid bays to clear waters of reefs. Subadults occur mainly in nearshore and estuarine waters. Hatchlings move directly to sea after hatching, often float in masses of sea plants (Sargassum), and they may remain associated with Sargassum rafts perhaps for 3-5 years.

The Project's potential impacts on sea turtles would be similar to those previously described for the West Indian manatee, including pile installation, dredging, trenching, excavation and back-filling, and vessel strikes. As previously discussed in section B.4.1, Tennessee analyzed potential noise impacts from pile driving activities on sea turtles and committed to using a wood cushion on the impact hammer to reduce underwater noise levels. Given sea turtle maneuverability, impacts on sea turtles are unlikely as they would likely disperse in advance of construction activities. Further, during construction, Tennessee would follow the NMFS' Sea Turtle and Smalltooth Sawfish Construction Conditions in the unlikely event they are observed during construction. Specific conditions include, but are not limited to:

- instructing all personnel of the potential presence of these species and the need to avoid collisions;

- operating all vessels associated with the construction project at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom; and

- implementing appropriate precautions to ensure protection of a sea turtle or smalltooth sawfish within 100 yards of the active daily construction/dredging operation or vessel movement, which include immediately ceasing operation of any mechanical construction equipment if a sea turtle or smalltooth sawfish is seen within a 50-foot-radius of the equipment and not resuming activities until the protected species has departed the project area of its own volition.

Therefore, we conclude that the Project *may affect, but is not likely to adversely affect* the green sea turtle, the hawkbill sea turtle, the Kemp's Ridley sea turtle, the leatherback sea turtle and the loggerhead sea turtles.

NMFS has jurisdiction over sea turtles when in the marine environment. We have not yet completed consultation with the NMFS for sea turtles. To ensure compliance with section 7 of the ESA, **we recommend that**:

- **Tennessee should <u>not begin</u> construction of the Project <u>until</u>:**

  a. **FERC staff receives comments from NMFS regarding the proposed action;**

  b. **FERC staff completes ESA consultation with the NMFS; and**

  c. **Tennessee has received written notification from the Director of OEP, or the Director's designee, that construction or use of mitigation may begin.**

State-listed species

There are 12 state-listed species that could occur in the Project area, of these 10 species are also federally listed and are discussed in the section above.

The brown pelican was listed as endangered under the ESA in 1970 but was delisted in 2008 due to recovery. The brown pelican is currently a state-listed species. Brown pelicans occur in salt bays, beaches, and ocean. They mostly are seen over shallow waters along immediate coast, especially on sheltered bays. Nesting usually occurs on islands that may be bare and rocky or covered with mangroves or other trees. Some may nest on freshwater lakes inland. Brown pelicans nest in colonies, on the ground or cliff of an island, or on low trees such as mangroves. The nest may be a simple scrape in the soil, a heap of debris with a depression at the top, or a large stick nest in a tree. The female builds the nest, with material gathered by the male (Audubon 2019).

Peregrine falcons occur in various open situations from tundra, moorlands, steppe, and seacoasts, especially where there are suitable nesting cliffs, to mountains, open forested regions, and human population centers. When not breeding, the species occurs in areas where prey concentrate, including farmlands, marshes, lakeshores, river mouths, tidal flats, dunes and beaches, broad river, valleys, cities, and airports. Peregrine falcons often nest on a ledge or hole on face of rocky cliff or crag. Riverbanks, tundra mounds, open bogs, large stick nests of other species, tree hollows, and man-made structures (e.g., ledges of city buildings) are used locally (Cade 1982). Nests typically are situated on ledges of vertical rocky cliffs, commonly with a sheltering overhang. In the U.S., the Atlantic Coast from New Jersey to South Carolina and the barrier islands of the Texas Gulf Coast are important feeding areas for long-distance migrants (Palmer 1988).

Potential impacts on the brown pelican and peregrine falcon are similar to those discussed for other birds in section B.4.4, including temporary noise and other disturbance from construction activities, temporarily altered foraging and roosting habitats, nest abandonment, and permanent loss of foraging and roosting habitats. Potential habitat for both the brown pelican and the peregrine falcon is present in the Project area. However, no brown pelicans, peregrine falcons, or their nests were identified during the biological field surveys. The peregrine falcon can be classified as a

habitat generalist and is a highly mobile species that is unlikely to experience mortality as a result of construction activities. Also, mitigation measures previously described in section B.4.4 for birds would also reduce impacts on the brown pelican and peregrine falcon, including training construction personnel on identification and reporting of protected species and conducting pre-construction surveys should clearing occur during the nesting season. Therefore, we conclude that the Project would not have a significant impact on the brown pelican and the peregrine falcon.

SNG Project

Federally Listed Species

SNG, acting as our non-federal representative for ESA consultation, utilized IPAC to obtain an official species list to determine the federally listed or protected species that could potentially occur within the Project area. Lists from NMFS and LDWF identified additional federally listed species that could potentially occur in the Project area.[11] Table 18 lists the special status species that could potentially occur in the Project area, our determinations, and justifications. We conclude that the SNG Project would have *no effect* on the federally listed wood stork, red-cockaded woodpecker, piping plover, black pine snake, gopher tortoise, ringed map turtle, yellow-blotched map turtle, loggerhead sea turtle, Gulf sturgeon, pearl darter, pallid sturgeon, and the inflated heelsplitter. No in-water work is proposed for the SNG Project, and therefore, we conclude that the SNG Project *may affect, but is not likely to adversely affect* the West Indian manatee.[12]

Table 18: Special Status Species with the Potential to Occur in the SNG Project Area

Species (*Scientific Name*)	**Status**			**Preferred Habitat**	**Determination & Justification**
	US	**MS**	**LA**		
Wood Stork *(Mycteria Americana)*	T	E	--	Species forages in wetlands, marshes, narrow tidal creeks and flooded pools. It nests in the tops of cypress, mangrove, and dead hardwood trees over water or in islands within streams, or adjacent to shallow lakes.	*No effect;* No suitable habitat within the Project.
Swallow-tailed Kite (*Elanoides forficatus)*	--	E	--	Nesting and foraging habitats in the U.S. include various pine forests and savannas, cypress hardwood swamps, hardwood hammocks, mangrove swamps, narrow	*Not likely to adversely impact.*

[11] SNG included the 2.55 facilities, in addition to the facilities proposed for the SNG Project (under section 7(c)) in all consultations.

[12] SNG's 2.55 activity near milepost 69 in Orleans Parish would be within the Area of Importance for the West Indian manatee, near Lake Pontchartrain or Lake Borgne where manatees are known to be occasionally present, however no in-water work is proposed for the SNG Project (section 7(c) facilities) or associated 2.55 facilities.

Table 18: Special Status Species with the Potential to Occur in the SNG Project Area					
Species (*Scientific Name)*	**Status**			**Preferred Habitat**	**Determination & Justification**
	US	**MS**	**LA**		
				riparian forests, prairies, and freshwater brackish marshes.	
Red-cockaded woodpecker *(Picoides borealis)*	E	E	--	Open mature (>60 years in age) fire-maintained pine woodlands consisting of longleaf or loblolly pines.	*No effect. No suitable habitat.*
Peregrine falcon *(Falco peregrinus)*	--	E	--	Habitat for the peregrine falcon various open situations from tundra, moorlands, steppe, seacoasts, mountains, open forested regions, and human population centers.	*Not likely to adversely impact.*
Bewick's wren (*Thryomanes bewickii*)	--	E	--	Inhabits brushy areas, thickets and scrub in open country, open and riparian woodland, and chaparral. This species is known year-round within northern and central Mississippi, and the species present only in winter in southern Mississippi.	*No impact.*
Brown pelican (*Pelecanus occidentallis)*	--	--	E	Inhabits coastal areas, feeds in shallow estuarine waters, sand spits and bars, and islets, and breeds on coastal islands.	*No impact;* No Suitable habitat in Project area.
Piping plover[a] (*Charadrius melodus*)	T	--	T/E	Forages in expansive sandflats and mudflats.	*No effect;* No Suitable habitat in Project area.
Black pine snake (*Pituophis melanoleucus lodingi)*	T	E	--	Inhabits upland longleaf pine forests that include a fire-suppressed mid-story and dense herbaceous groundcover. Often found in rotting stumps, trunks, root channels, and occasionally gopher tortoise burrows.	*No effect;* No suitable habitat within the Project area.
Rainbow snake (*Farancia Erytrogramma*)	--	E	--	Lives primarily in or near rivers, creeks, swamps, springs, open marshes, including brackish tidal areas. It burrows into soil, wet debris, and mats of vegetation along the water's edge, and it may shelter among cypress roots, logs, stone piles, or dock pilings. This species requires soils with sandy textures to allow burrowing.	*No impact;* The Project does not contain sandy soils within the Project workspaces in Lawrence and Clarke Counties.
Gopher tortoise (*Gopherus polyhemus)*	T	E	T	Well drained sandy uplands associated with long leaf pine forest and dry oak sandhills. They also live in scrub, dry hammock, pine flatwoods, dry prairie, coastal grasslands and dunes, mixed hardwood-pine communities, and disturbed habitats such as roadsides and right-of-way.	*No effect; N*o known burrows/home range within project workspaces. No gopher tortoise burrows were observed during the October and November 2019 Field Surveys.
Ringed map turtle (*Graptemys oculifera*)	T	E	T	Inhabits streams with moderate to fast current, numerous basking logs and sand/gravel bars, and channels. Only known to inhabit the Pearl River and the Bogue Chitto River.	*No effect;* No in-stream work within preferred habitat.

Table 18: Special Status Species with the Potential to Occur in the SNG Project Area					
Species (*Scientific Name)*	**Status**			**Preferred Habitat**	**Determination & Justification**
	US	**MS**	**LA**		
Yellow-blotched map turtle (*Graptemys flavimaculata*)	T	E	--	Inhabits rivers with moderate currents, sand and clay bottoms with abundant sand bars, and limestone ledges along banks. This species is not known to occur beyond the Pascagoula River system.	*No effect;* No suitable habitat within Project area .
American Alligator (*Alligator mississippiensis)*	--	LH	--	Inhabits fresh and brackish marshes, ponds, lakes, rivers, swamps, bayous, canals, and large spring runs.	*No harvest.*
Loggerhead sea turtle[a] (*Caretta caretta*)	T	--	T	Primarily found either in open seas more than 500 miles from shore over continental shelves or in bays, estuaries, lagoons, creeks, and river mouths. Juveniles are often associated with Sargassum mats.	*No effect;* No suitable habitat in the Project area.
Diamondback terrapin (*Malaclemys terrapin*)	--	--	RH	Inhabits coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches. Individuals retreat to mud burrows when inactive.	*No harvest or interstate transport.*
Alligator snapping turtle (*Macrochelys Temminckii*)	--	--	RH	Inhabits slow-moving deep waters of rivers, sloughs, oxbows, canals, and lakes. They are also less commonly observed in swamps, bayous, and ponds near rivers.	*No harvest or interstate transport.*
Gulf sturgeon (*Acipenser oxyrhynchus desotoi*)	T	T	T	Spawning adult Gulf sturgeon spend winter months in marine and estuarine systems and migrate to upper rivers in spring to spawn, traveling to downstream habitats in the fall. Critical habitat exists in the Pearl River and Bogue Chitto River.	*No effect;* No suitable habitat in the project area.
Frecklebelly madtom (*Notorus munitus*)	--	E	--	Inhabits rocky riffles, rapids, and runs, often near vegetation, in small to large rivers. Occurs in the Tombigbee River and lower portions of the Pearl River in Mississippi.	*No impact;* Project does not impact the Pearl River.
Crystal darter (*Crystallaria asprella*)	--	E	--	Inhabits clear to slightly turbid water of raceways and swift to moderately swift riffles of small to medium rivers with expanses of clean sand or gravel. In Mississippi, the crystal darter occurs in the Bayou Pierre, Homochitto, Pearl, and Tombigbee watersheds.	*No impact;* Project does not impact the Pearl River.
Pearl Darter (*Percina aurora*)	T	E	--	Found in creeks, medium rivers and large rivers. Suitable habitat includes slow to moderate currents in deep runs over gravel or bedrock substrates, in sand pools beneath riffles, and swift shallow waters over firm mid-channel gravel and cobble substrates.	*No effect; N*o proposed in-stream work.
Pallid sturgeon[a] (*Scaphirhynchus Albus*)	E	--	E	Inhabits large turbid riverine habitat in strong currents over firm gravel or sandy substrates, including the main channels of the Mississippi River and several of its larger tributaries.	*No effect;* No large tributaries to the Mississippi River in the Project area.

Table 18: Special Status Species with the Potential to Occur in the SNG Project Area					
Species (*Scientific Name)*	**Status**			**Preferred Habitat**	**Determination & Justification**
	US	**MS**	**LA**		
Clear chub (*Notropis winchelli*)	--	--	Rare	Inhabits creeks and small to medium rivers over sandy or silty bottoms, usually in pools adjacent to riffle areas.	*No impact;* No direct impacts on nearby habitats.
Louisiana black bear (*Ursus americanus*)	--	E	T	Diverse, productive bottomland forest with ample food resources, including a variety of hard-mast-producing species. Winter den sites include hollow trees, brush piles, and ground nests.	*No impact;* No suitable habitat in the Project area.
West Indian manatee (*Trichechus manatus*)	T	--	E	shallow coastal waters, estuaries, bays, rivers, and lakes with a preference for estuarine and riverine habitat over marine environments.	*May affect, not likely to adversely affect;* No in-water work is proposed.[b]
Eastern tiger salamander (*Ambystoma tigrinum*)	--	--	P	Inhabits sandy areas near water in longleaf pine savannas and flatwoods. In Louisiana, the species resides primarily underground and is known to utilize abandoned rodent burrows or crayfish holes.	*No impact;* No suitable habitat in the Project area.
Gulf Coast mud salamander (*Pseudotriton montanus*)	--	--	P	Inhabits swamps, bogs, springs, and streams with muddy substrates and clean, clear water. Individuals may be found in abandoned crayfish burrows.	*No impact;* No suitable habitat in the Project area.
Southern Red Salamander (*Pseudotriton ruber*)	--	--	P	Inhabits Cold, clear streams and springs in woodlands in leaf litter or under rocks. Also found in some forested wetlands in crevices and burrows near water.	*No impact*; No suitable habitat in the Project area.
Inflated heelsplitter[a] (*Potamilus inflatus*)	T	--	T	This species inhabits flowing rivers with stable sand or silt bottoms and is known to occur within the Pearl and Pontchartrain drainage areas. In the Louisiana portion of the Project, this species is only known to occur in St. Tammany Parish.	*No effect;* No Suitable habitat in the Project area.

a. Federally protected species listed on state county/parish list(s) but not listed on Project Specific IPaC
b. SNG's 2.55 activity near milepost 69 in Orleans Parish would be within the Area of Importance for the West Indian manatee near Lake Pontchartrain or Lake Borgne where manatees are known to be occasionally present, however no in-water work is proposed for the SNG Project (section 7(c) facilities) or associated 2.55 facilities.

T= Threatened, E= Endangered LH= Limited Harvest P= Prohibited R= Restricted Harvest

In a letter dated December 11, 2019, SNG provided the results of biological surveys for the Mississippi portion of the Project to the FWS Mississippi Ecological Services Field Office. The FWS responded in a letter dated January 7, 2020 agreeing that the Project does not contain suitable habitat for the black pinesnake, and wood stork. Further, it stated that if gopher tortoises or its burrows are discovered, further coordination with FWS may be necessary. SNG provided additional information to FWS in a letter dated February 28, 2020. FWS responded on March 2, 2020 agreeing that no gopher tortoises or burrows were found within the Project area. It further confirmed that, because the Project would not impact the Chickasawhay or Pearl Rivers, the Project

would have no effect on the pearl darter, yellow-blotched map turtle, ringed map turtle, and Atlantic gulf sturgeon. No further consultation is required.

Per FWS' recommendation, SNG accessed the Louisiana-specific project review tool available through the FWS IPaC system to obtain preliminary effect determinations, which generated an FWS Consistency Letter. On March 6, 2020 SNG provided the signed Consistency Letter to the FWS Louisiana Ecological Services Office requesting concurrence that the Project is not likely to adversely affect the West Indian manatee and would have no effect on the red-cockaded woodpecker and gopher tortoise for the "coastal sites," which includes the Toca Delivery MS.[13] FWS signed the Consistency Letter on March 23, 2020 concurring with these determinations and concluding consultation.

Mississippi State-listed Species and Species of Concern

SNG consulted with the Mississippi Natural Heritage Program (MNHP) and the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) to determine the presence of state-listed species in the Project areas. SNG identified 15 state-listed species potentially within the Mississippi portion of the Project. Of these, eight species (the Gulf sturgeon, pearl darter, black pine snake, gopher tortoise, ringed map turtle, yellow-blotched map turtle, wood stork, red-cockaded woodpecker) are also federally listed and are described above. The Project would have no impact on the state listed Bewick's wren, rainbow snake, freckled belly madtom, crystal darter, and Louisiana black bear. The SNG Project's potential impacts on the state-listed swallow-tailed kite and peregrine falcon are described below. The American alligator is a game species with limited take in the state of Mississippi and the Project's impacts on it are also described below.

The swallow-tailed kite is a Mississippi state-listed endangered species that could potentially occur in the SNG Project area. The swallow-tailed kite is a mid-sized raptor with long pointed wings and a distinct deeply forked tail. Nesting and foraging habitats in the U.S. include various pine forests and savannas, cypress hardwood swamps, hardwood hammocks, mangrove swamps, narrow riparian forests, prairies, and freshwater brackish marshes. While the Project area also lacks individual tall pines or other trees that may provide desirable accessible nest sites, due to the species' broad variety of foraging habitat, the Project area includes habitat types within which the swallow-tailed kite is known to forage. Individuals foraging near the Project area during construction would likely avoid the area due to human activities and would be displaced to nearby forested habitats. Therefore, the SNG Project is unlikely to adversely impact the state-listed swallow-tailed kite.

[13] SNG included the 2.55 facilities, in addition to the facilities proposed for the SNG Project (under section 7(c)) in all consultations. FWS conducted consultation for "coastal sites" and "non-coastal sites" in Louisiana. The the Toca Delivery MS was included as a "coastal site," and the rest of the "sites" refer to 2.55 facilities.

The peregrine falcon is a Mississippi state-listed endangered species that could potentially occur in the SNG Project area. The peregrine falcon is a crow-sized bird with a wingspan of approximately 36 to 44 inches. Habitat for the peregrine falcon various open situations from tundra, moorlands, steppe, seacoasts, mountains, open forested regions, and human population centers. The peregrine falcon migrates through inland Mississippi and along the Gulf Coast and may occasionally winter on the coast. Due to the wide variety of habitats the peregrine falcon utilizes for foraging, transient foraging peregrine falcons may be present within the Project area. Individuals foraging near the Project area during construction would likely avoid the area due to human activities and would be displaced to nearby forested habitats. Therefore, the SNG Project is unlikely to adversely impact the state-listed peregrine falcon.

The American alligator is a game species with limited take in the state of Mississippi. The alligator is a large aquatic reptile which may grow to more than 13 feet in length and more than 800 pounds in weight. During the October and November 2019 field surveys, juvenile American alligators were observed across multiple workspaces within freshwater wetlands exhibiting surface water. If alligators are identified during construction or operation within unavoidable areas and do not appear to attempt to avoid human activities, SNG would cease any activities that may result in harassment, injury, harm, or death of alligator individuals. SNG would not attempt to capture or remove these individuals from the Project area and would contact the MDWFP nuisance alligator hotline to request removal of nuisance individuals. Therefore, the SNG Project is unlikely to adversely impact the state-listed American alligator.

In letters dated December 11, 2019 and April 2, 2020, SNG provided Project information to MDWFP. No comments from MDWFP have been filed to date.

Louisiana State-listed Species and Species of Concern

SNG reviewed the LDWF Species by Parish List, ten state-endangered or state threatened species were identified to potentially be in the Project counties in Louisiana. Of these, three species (the Gulf sturgeon, gopher tortoise, and ringed map turtle) are also federally listed within the Project and are described above. Five species (the pallid sturgeon, West Indian manatee, loggerhead sea turtle, piping plover, and inflated heelsplitter) are also federally protected under the ESA but were not listed as having the potential to occur within the Project according to Project-specific IPaC database results. The brown pelican was the only state-listed species, not previously discussed with the potential to occur in the Project area. The Project would have no impact on the state-listed brown pelican due to the absence of suitable habitat in the Project area.

Two state-designated restricted harvest species (diamondback terrapin and alligator snapping turtle), one rare species (clear chub), and three prohibited salamander species (Eastern tiger salamander, Gulf coast mud salamander, and Southern red salamander) have the potential to occur within the Project area. There is not suitable

habitat for the restricted harvest species, rare species, or the prohibited harvest species within the Project area. Additionally, the Project would not result in the harvest of any of the restricted or prohibited harvest species. Therefore, we conclude the Project would have no impact on the diamondback terrapin, alligator snapping turtle, clear chub, eastern tiger salamander, Gulf coast mud salamander, and the southern red salamander.

In a letter dated December 11, 2019 and February 28, 2020, SNG provided Project information and described potential impacts on state-listed species to LDWF. Additionally, we received comments from the LDWF stating that the West Indian manatee may occur in the surrounding waterbodies and that the Project is within the range of the gopher tortoise. These two species are also federally listed and were previously discussed.

5. LAND USE AND VISUAL RESOURCES

5.1. LAND USE

Tennessee Project

Land use categories identified in the Tennessee Project area consist of open, developed, agricultural land, wetland, and open water. Construction of all Project facilities would disturb about 386 acres. A summary of the land use categories that would be affected by construction and operation of the Project facilities is provided in table 19.

Table 19: Tennessee Project Land Use Impacts													
Facility	**Parish**	**Agricultural**		**Open Land**		**Developed**		**Wetland**		**Open Water**		**PROJECT TOTAL[d]**	
		Temp	**Perm.**	**Temp.**	**Perm.**	**Temp.**	**Perm.**	**Temp.**	**Perm.**	**Temp.**	**Perm.**	**Temp**	**Perm**
CS 529													
Facility and Access Road	St. Bernard	-	-	-	-	0.01	6.01	-	31.31	0.07	0.22	**0.08**	**37.54**
Yscloskey Toca Lateral Loop													
Pipeline Loop	St. Bernard	-	-	0.60	0.41	3.79	1.81	84.35	44.55	16.27	7.57	**105.01**	**54.34**
ATWS		-	-	-	-	2.20	-	6.73	-	2.78	-	**11.71**	**-**
Access Roads		-	-	-	-	-	13.31	-	-	-	-	**0.17**	**13.31**
Subtotals		***-***	***-***	***0.60***	***0.41***	***6.01***	***15.12***	***91.09***	***44.55***	***19.10***	***7.57***	***116.89***	***67.68***
Grand Bayou Loop													
Pipeline Loop	Plaquemines	-	-	-	-	-	-	42.20	0.24	57.91	24.30	**100.11**	**24.54**
ATWS		-	-	-	-	-	-	0.10	-	0.07	-	**0.17**	**-**
Access Roads/Canal		-	-	-	-	-	-	-	-	-	12.01	**-**	**12.01**
Subtotal		***-***	***-***	***-***	***-***	***-***	***-***	***42.30***	***0.24***	***57.98***	***36.31***	***100.28***	***36.55***
Contractor Yards													
Toca Yard	St. Bernard	--	-	--	-	6.00	-	0.05[a]	-	0.44[b]	-	**6.49**	**-**
Bayou Road Yard		0.95	-	--	-	--	-	5.18	-	--	-	**6.13**	**-**
State Road LA-46 Yard		--	-	9.24	-	--	-	5.46[a]	-	0.11[b]	-	**14.81**	**-**
Yscloskey Yard[c]		--	-	--	-	--	-	--	-	--	-	**-**	**-**
Subtotal		***0.95***	***-***	***9.24***	***-***	***6.00***	***--***	***10.69***	***-***	***0.55***	***-***	***27.43***	***-***
PROJECT TOTAL[d]		**0.95**	**-**	**9.84**	**0.41**	**12.02**	**21.13**	**144.08**	**76.10**	**77.70**	**44.10**	**244.68**	**141.77**

a – Wetlands will be avoided; b – Open water will be avoided; c – Yscloskey Yard is located within the construction ROW of CS 529; d-totals may not reflect sum of addends due to rounding

Looping Pipelines (Yscloskey Toca Lateral Loop and Grand Bayou Loop)

The existing land use for the Yscloskey Lateral Loop consists primarily of wetland, developed land, and open water. For the Grand Bayou Loop, existing land use consists primarily of wetland and open water.

CS 529

The existing land use at the future site of CS 529 consists primarily of wetland and developed land. The developed land is comprised of an abandoned Tennessee compressor station site. Development of CS 529 would include the conversion of wetlands and open water to developed lands. The permanent right-of-way associated with the new fence line would be maintained but kept in a wetland state. Impacts on wetlands and open waters jurisdictional to Corps or LDNR-OCM would be mitigated in accordance with the requirements of associated permits, resulting in no net loss of wetland function or value.

Contractor Yards

The Tennessee Project would require four contractor yards located within St. Bernard Parish, Louisiana (the Yscloskey Yard, Toca Yard, Bayou Road Yard, and State Road LA-46 Yard). All contractor yard impacts would be temporary. The Yscloskey Yard would be located within the wetland area designated to be permanently filled for operation of CS 529. The Toca Yard is primarily developed land (maintained grass field) as it is located at Tennessee's existing Toca Station, near MP 0.0 of the Yscloskey Toca Lateral Loop. Ephemeral waterbodies and wetlands were identified within the limits of the Toca Yard, however, they would be avoided. The Bayou Road Yard is primarily wetland, currently being managed as a wet pasture for hay production. The State Road LA-46 Yard is located approximately 0.5 mile southeast of the Yscloskey Toca Lateral Loop crossing of State Road LA-46 (near MP 4.3) and is currently managed for hay/pasture. Wetlands and waterbodies were identified within the limits of the State Road LA-46 Yard, but would be avoided.

<u>SNG Project</u>

Land use categories in the SNG Project area include agricultural, forested, developed land, open land, wetland, and open water. Construction of all Project facilities would affect about 69 acres of land. A summary of the land use categories that would be affected by construction and operation of the Project facilities is provided in table 20.

Table 20: SNG Project Land Use Impacts					
Site Name	**Workspace Type**	**Land Use Type**			
		Commercial/ Industrial (acres)	**Residential (acres)**	**Upland Open Land (acres)**	**Forest/Woodland (acres)**
Rose Hill Compressor Station and Rose Hill Receipt Meter Station	Facility	1.71	0.03	1.53	6.44
	Temporary Workspace	0.03	--	0.20	18.36
	Subotal	*1.74*	*0.03*	*1.73*	*24.80*
MEP Receipt Meter Station	Access Road	0.11	--	-	--
	Temporary Workspace	0.03	--	0.94	--
	Existing Station	0.85	--	0.06	--
	Proposed Permanent	0.05	--	0.37	0.23
	Subtotal	*1.04*	--	*1.37*	*0.23*
Toca Compressor Station and Toca Delivery Meter Station	Access Road	0.11	--	--	--
	Existing Station	37.47	--	--	--
	Permanent Facility	0.50	--	--	--
	Subtotal	*38.08*	--	--	--
SNG PROJECT TOTAL		40.87	0.03	3.10	25.03

Rose Hill CS

Construction of the proposed Rose Hill CS would disturb about 31 acres (including Rose Hill Receipt MS). The existing land use on and adjacent to the proposed CS and MS site is primarily is forested timber. Construction of the CS would result in the permanent conversion of upland forest/woodland, and upland open land to commercial/industrial land use. Approximately 15 acres of the 44-acre parcel would remain undisturbed during construction and operation.

Meter Stations

The Rose Hill Receipt MS would be constructed at the same location as the Rose Hill CS as described above. Existing land use on and adjacent to the MEP Receipt MS is

open and industrial land. The MEP Receipt MS would be constructed near an existing interconnect with MEP and consists of open and industrial land. Construction of the MEP Receipt MS would result in permanent conversion of 0.6 acres of open and forested land to industrial land and would fill a nonjurisdictional drainage ditch. SNG would obtain an additional permanent easement or purchase the area from the landowner for construction and operation of the MEP Receipt MS. The Toca Delivery MS would be constructed within SNG's existing Toca CS (commercial/industrial land).

5.1.1. Residential Areas

Tennessee Project

No residences are located within 50 ft of the construction right-of way for the looping pipelines. The nearest residence from CS 529 is located about 3,000 feet southeast of the site. Although some limitations would apply, once restoration and revegetation are complete, landowners would generally be able to use the land as it was previously used.

Potential temporary impacts on residential areas include noise and fugitive dust during construction activities, altered traffic patterns, and increased traffic in the area of the Project facilities. Tennessee would coordinate with the St. Bernard Public Works Department and LDOTD to maintain access and traffic flow during construction activities. Additionally, Tennessee would adhere to its Fugitive Dust Control Plan to minimize dust generated by construction. Further, CS 529 would be constructed at Tennessee's existing abandoned CS, which is near other existing facilities. For these reasons, we do not anticipate a significant impact on residences during construction or operation of the facilities.

SNG Project

The nearest residences to the Rose Hill CS and Receipt MS are about 2,900 feet to the south and southeast of the station. For the new proposed meter stations the nearest residential structures are 1,400 feet south of the MEP Receipt MS and 600 feet west of the Toca Delivery MS.

Temporary impacts on residential areas include noise and fugitive dust during construction activities, altered traffic patterns, and increased traffic in the area of the proposed facilities. Permanent impacts on residential areas during operation of the compressor stations include noise (see section B.8.2) and visual impacts (see below). Given the distance to the nearest residences, we do not anticipate significant impacts on residences during construction or operation of the facilities.

5.1.2. Planned Developments

There are no known planned, completed, or potential residential developments within 0.25 mile of the Tennessee Project or the SNG Project.

5.1.3. Public Lands, Other Designated Areas, and Special Land Uses

All components of the Tennessee Project are located within the Louisiana Coastal Zone, subject to the jurisdiction of the LDNR-OCM for compliance with the Louisiana Coastal Resources Program. Federal consistency reviews are integrated into other review processes conducted by the state of Louisiana. Consistency reviews of federal permits issued under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act are conducted as part of the Joint Permit Application (JPA) process. The JPA is used in Louisiana to obtain corresponding authorizations from the Corps New Orleans District and Coastal Use Permits (CUP) from the LDNR-OCM. The LDNR-OCM acts as the interagency clearinghouse for JPAs. The LDNR-OCM would review the Project for coastal zone consistency as part of the CUP review process. Given that consistency review is still ongoing, **we recommend that:**

- **Tennessee should <u>not begin</u> construction of the Tennessee Project <u>until</u> it files with the Secretary a copy of the determination of consistency with the Coastal Zone Management Plan issued by the LDNR-OCM.**

For the SNG Project, only the Toca Delivery MS would be constructed within the Louisiana Coastal Zone, and would impact a nonjurisdictional drainage ditch. Construction of the Toca Delivery MS would occur within the existing Toca CS. The LDNR-OCM would review the Project for coastal zone consistency. Given that consistency review is still ongoing, **we recommend that:**

- **SNG should <u>not begin</u> construction of the SNG Project <u>until</u> it files with the Secretary a copy of the determination of consistency with the Coastal Zone Management Plan issued by the LDNR-OCM for the Toca Delivery MS.**

No Native American reservations or lands owned or administered by federal, state, or local agencies or private preservation/conservation groups are within the vicinities of the Tennessee Project or SNG Project. No special land uses, such as orchards, nurseries, specialty crops, natural areas, national and state forests, or conversation lands are within 0.25 mile of Tennessee or SNG Projects.

5.1.4. Recreation and Public Interest Areas

No public recreation areas are located within either of the Project areas. However, we received a comment from Shell Beach Partners, LLC, an affected landowner, regarding the Project's impacts on existing hunting and fishing opportunities. Tennessee contacted several landowners in St. Bernard Parish and Plaquemines Parish. The landowners confirmed that their lands are not openly available for public use; however, the landowners grant specific permissions and leases to certain members of the public to access their private lands. Through these arrangements, individuals can hunt on these lands and gain access to waterways with their airboats. There are no designated public boating lanes across their lands.

The landowners did not enumerate the number of permissions or leases they issue each year nor were they aware of any specific boating traffic patterns. For safety reasons, access to the rights-of-way would be limited during construction. Tennessee would work with the landowners to discuss alternative routes (e.g., cross-overs, bridges) to mitigate for loss of access via the right-of-way. Tennessee committed to coordinate with landowners to mitigate any additional impacts that may occur.

SNG would work with landowners on planning work activities that would not disrupt their potential hunting activities during construction. No impacts on hunting are expected during operation. The SNG Project would not impact waterbodies that would disrupt fishing activities, therefore no impacts are anticipated on fishing opportunities during construction or operation of the Project. Impacts on hunting and fishing opportunities are not expected to be impacted by the SNG Project, given that SNG has executed an option agreement with the landowner for the Rose Hill CS and MS site; the limited footprint of the MEP Receipt MS that would be constructed near an existing interconnect; and the Toca Delivery MS would be constructed within the existing Toca CS facility. However, SNG would work with landowners to try to plan work activities that would not disrupt their potential hunting activities during construction.

In Louisiana, oystermen harvest oysters from public oyster grounds and from water bottoms leased by private entities for oyster production. A search of the LDWF oyster lease records identified one lease crossed by Tennessee's Grand Bayou Loop from, MP 2.3 to MP 2.4. This lease is listed as active in the LDWF records but also as expired (January 1, 1933).

No national or state wild and scenic rivers, designated scenic areas or lands, registered natural landmarks, state or local designated trails, nature preserves, game management areas, national or state forests, parks, golf courses, or designated recreational areas are within 0.25 mile of the proposed Tennessee or SNG Projects.

5.2. VISUAL RESOURCES

Tennessee Project

Construction of the looping pipelines would result in temporary visual impacts, including increased numbers of personnel, presence/storage of additional equipment and materials, removal of vegetative cover, and disturbance of soils. These impacts would cease following the completion of construction and successful restoration. Because the pipelines would be placed below ground, there would be no visual impacts after construction is completed, other than pipeline markers, aerial bridge levee crossing, and the pig launchers and receivers at each end of the new looping pipelines. The proposed activities would be co-located or adjacent to existing rights-of-way. The permanent right-of-way would result in an increase in the overall right-of-way width, but would be consistent with existing conditions.

The nearest residence to CS 529 would be about 3,000 feet southeast of the site. An existing Targa Resources facility would be located between this residence and the new CS 529. The western view to the nearest residence (more than 0.75 miles away) would be screened by natural vegetation including trees. There are no other residences within a half mile radius. During construction, the use of overhead cranes and other tall equipment would be necessary to place certain equipment, but use of these machines would be limited to a 12-month period. During operation, the tallest structure at CS 529 would be a 55-foot-high stack. Given that the Project is proposed at a former industrial site, immediately adjacent to an existing industrial site and that trees would provide screening, permanent visual impacts on the surrounding areas would be minimal.

Nighttime lighting could also contribute to visual impacts. Downward-shielded lighting would be installed on the perimeter of the compressor buildings to allow safe entry of Tennessee's personnel during nighttime hours. Tennessee would minimize visual impacts by turning off some of the perimeter lighting at night except when needed for nighttime work. Certain access point lights would remain illuminated during nighttime hours to allow for safe access to the CS and buildings. Construction of the new CS 529 would cause some long-term visual impacts due to lighting and an increase in industrial facility size, however, CS 529 would be constructed at Tennessee's previously abandoned facility and adjacent to similar facilities owned by others. Given the screening (existing facility and vegetation) and distance to the closest residence, we conclude that visual impacts would be adequately minimized.

Contractor yards would be used temporarily during construction of the Project. No permanent changes to any of these sites are proposed, and there would be no permanent visual impacts.

SNG Project

The nearest residences to the Rose Hill CS and Receipt MS are just over 0.5 mile. The presence of construction equipment and personnel at the compressor station sites during construction is not likely to have a visual impact on nearby residents given the distance and existing wooded vegetation between the proposed facility and the nearest residences. Following the completion of construction, the current land use at the proposed CS would be permanently converted to industrial use and would be fenced and graveled.

The tallest item that may be installed at the Rose Hill CS and Receipt MS would be a 100 –foot in height communication tower. The proposed communication tower would not require any guy wires or lights and the location of the tower would be set back from the road so that the grade of the terrain and existing heavily forested vegetation would provide visual screening of the facility from the road.

Nighttime lighting could also contribute to visual impacts. SNG would install outdoor lighting at the Rose Hill CS and Receipt MS to provide adequate illumination for personnel safety and facility security. During construction, a minimal amount of artificial lighting is anticipated and is typically located at the security entrance gate to the site, contractor's tool/equipment storage area, and near the construction offices. During operation, the station would have artificial lighting installed inside the perimeter fencing to provide lighting on the equipment should work be required during nighttime hours. The lighting would be installed on poles and would be downward facing and directionally focused towards the station facilities. Lighting would be controlled via a lighting panel and would remain off unless work is required during nighttime hours. There would also be a minimal amount of lighting around the exterior of the buildings and the station entrance road that would remain on after normal work hours to provide for safe and secure access for employees responding to operational needs during nighttime hours.

The Toca Delivery MS would be constructed within the existing Toca CS. Construction of the MEP Receipt MS would be constructed near an existing interconnect and would convert about 0.6 acres of open and forested land to industrial land. Trees would provide screening between both of the proposed facilities and the nearest residences. Given this vegetative screening and that both meter stations would be constructed in or near existing facilities, visual impacts, including the presence of equipment and workers during construction and operation, are expected to be minimal.

Given the distances from residences and SNG's proposed measures, we conclude that visual impacts of the proposed Project would be permanent, but not significant.

6. CULTURAL RESOURCES

In addition to accounting for impacts on cultural resources under NEPA, Section 106 of the National Historic Preservation Act (NHPA), as amended, requires FERC to consider the effects of its undertakings on historic properties listed, or eligible for listing,

on the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation an opportunity to comment. Tennessee and SNG, as non-federal parties, are assisting FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

6.1. CULTURAL RESOURCES INVESTIGATIONS

Tennessee Project

In an effort to identify historic properties within the Project's area of potential effects (APE) and to account for any direct or indirect effects to those properties by the Project, Tennessee completed a cultural resources investigation that included background research, a Phase I archaeological survey, and a historic architectural survey (Stack et al. 2020). Specifically, the APE consists of the construction of approximately 9.1 miles of looping pipeline and approximately 4.0 miles of looping pipeline, plus the construction of CS 529. Tennessee provided the results in a report to FERC and the Louisiana State Historic Preservation Officer (SHPO).

The survey area of the Grand Bayou Loop measured approximately 177.2 acres in size, while the combined Yscloskey Toca Lateral Loop and CS 529 survey areas (including one of the contractor yards entirely within the CS 529 area), which overlapped with each other, measured 604.4 acres in size. Survey of three contractor yards outside of the CS 529 area added an additional 26.8 acres. The total survey area for the Project was 808.4 acres. Because of heavy inundation, the archaeological survey along the Grand Bayou Loop was performed by airboat. Within the archaeological survey limits of the combined Yscloskey Toca Lateral Loop/CS 529 area, including all of the contractor yards, approximately 83 percent of the area was sufficiently inundated and surveyed by airboat, while just under 17 percent was surveyed via terrestrial means and supplemented with systematic shovel testing. In all, 672.8 acres were surveyed by airboat during the Project, while 135.6 acres were terrestrially surveyed.

Although no artifacts were recovered from subsurface shovel testing or from the surface, the survey passed through two previously recorded archaeological sites, 16SB160 and 16SB166. Additionally, a new archaeological site was recorded based on surface features and has been assigned the number 16SB208. Finally, a single historic structure, 40-01000, was visible from Project workspace or was otherwise within the APE for indirect effects.

Site 16SB160 is the embankment of a historic railroad constructed in the 1950s. The site was extended in length during the current survey. It was previously determined to be ineligible for inclusion on the NRHP, and there was nothing noted during the current survey to suggest altering that determination.

Site 16SB166 represents a previously recorded historic plantation within St. Bernard Parish. The site is currently considered undetermined for inclusion in the

NRHP. Since all shovel tests excavated within the vicinity of the site during the current survey were negative and the Project area mostly ran through inundated portions of the site, it was determined that no potentially significant portions of the site will be affect by the Project.

Site 16SB208 represents an abandoned and deteriorating historic railroad, related to the industrial development of the area and constructed in the 1950s or 1960s. Although there is insufficient information for an NRHP determination, given the significant deterioration of the section within the APE, this particular part of 16SB208 did not appear to retain sufficient integrity of historic material to contribute towards NRHP eligibility.

Structure 44-01000 is a one-story Frame Vernacular residence at that appears to have been built in the 1950s or 1960s. The structure is of a common design and the architectural integrity has been severely impacted by alterations and renovations. The limited historical information available does not indicate any significance associated with events or people. Therefore, the structure was recommended as ineligible for inclusion on the NRHP.

Tennessee submitted their findings to the Louisiana SHPO for review and comment on January 17, 2020, recommending that "construction of the Evangeline Pass Expansion Project will not affect any sites or properties in Louisiana that have historical, cultural, or sacred significance, or that otherwise meet the minimum criteria for listing in the NRHP. No further archaeological work is recommended at the Project area as currently surveyed."

On March 9, 2020, the Louisiana SHPO responded by letter, writing "[w]e concur that the portions of 16SB160, 16SB166, and 16SB208 intersected by the project are not eligible for nomination to the National Register. We further concur that structure 44-01000 is not eligible for nomination to the National Register. Our office has no further concerns for this project." We agree.

SNG Project

SNG completed a cultural resources investigation in Mississippi and Louisiana, which included background research, a Phase I archaeological survey, and a historic architectural survey, on approximately 497 acres (Eberwine 2019a, Eberwine 2019b)). Field methods for the Project included pedestrian survey augmented by systematic shovel testing.

No archaeological resources were identified in the APE in Louisiana or Mississippi. A total of eight standing structures greater than 50 years in age were identified within 1.0 mile of the proposed Louisiana Project components. Seven of the

eight structures were classified as residences, while the final building was a ruin. None of the historic structures were situated within the bounds of the current Project components. Two St. Bernard Catholic Church Cemeteries, which were designated Sites 16SB199 and 16SB200, were identified within 1.0 mi of the proposed Louisiana Project, and neither cemetery lie within the Project.

Nine standing structures greater than 50 years in age were identified within the 1.0 mile study area for Mississippi. These structures included four residences, the White Sands Creek Bridge, the Okatibbee Creek Bridge, the Okatibbee Creek Bridge #172, the Lawson Cemetery, and the former Magee's Creek Vocational School Complex. None of the historic structures are situated within the bounds of the current Project components. In Mississippi, the only identified cemetery was the Lawson Cemetery, situated outside the Project boundary.

SNG submitted their findings to the Louisiana State Historic Preservation Office on January 23, 2020. On February 18, 2020, the Louisiana State Historic Preservation Office responded by letter, writing that "our office concurs with the assessment that no properties listed in or eligible for listing in the National Register of Historic Places will be affected by this project. Our office has no further concerns for this project." We agree.

SNG also submitted their findings to the Mississippi State Historic Preservation Office on January 23, 2020. On February 19, 2020, the Mississippi State Historic Preservation Office responded by email, requesting additional clarification and documentation. On February 28, 2020, SNG submitted the requested information (Eberwine 2019b). Following this additional consultation, on March 6, 2020 the Mississippi SHPO responded by letter, writing that "no resources eligible for listing in the NRHP are likely to be affected by the proposed project…we have no reservations with the project." We agree.

6.2. TRIBAL CONSULTATION

Tennessee and SNG contacted the following Native American Tribes: Alabama Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, the Chitimatcha Tribe of Louisiana, the Choctaw Nation of Oklahoma, Comanche Nation, the Coushatta Tribe of Louisiana, the Jena Band of Choctaw Indians, the Mississippi Band of Choctaw Indians, Muscogee (Creek) Nation, the Seminole Tribe of Florida, the Seminole Nation of Oklahoma, and the Tunica Biloxi Indian Tribe. The letters were sent to inform each Native American Tribe about the Project and to request that they communicate any potential concerns they might have about possible impacts to traditional cultural properties and historic properties. On January 15, 2020, the Choctaw Nation sent an email and requested shapefiles of the Project components, asking if cultural resources surveys were proceeding. On January 22, 2020, the requested shapefiles and confirmation that cultural resources surveys had been completed were provided. On

January 29, 2020, the Seminole Nation of Oklahoma responded, writing "the Seminole Nation of Oklahoma has no objection to the proposed, we concur. On May 18, 2020 Muscogee (Creek) requested a copy of the EA but had no objections. There have been no additional comments filed.

FERC also contacted the Tribes listed above by letter regarding the Project, on May 7, 2020. In response to COVID-19 outbreak and the likelihood that Tribal Historic Preservation Offices would be closed indefinitely, FERC also emailed copies of the letter to the Tribes on May 12, 2020. To date, we have received no comments.

6.3. UNANTICIPATED DISCOVERIES PLAN

Both Tennessee and SNG developed Project-specific plans for the unanticipated discovery of cultural resources and/or human remains. The plans outline the procedure to follow, in accordance with state and federal laws, if unanticipated cultural resources or human remains are discovered during construction of the Project. The plans were submitted to FERC, the Louisiana SHPO, and the Mississippi SHPO. FERC and the Mississippi SHPO requested minor revisions to the plans. Tennessee and SNG provided copies of their respective revised plans with the requested changes. Mississippi SHPO approved the revised plan. We find both plans to be acceptable.

6.4. COMPLIANCE WITH THE NATIONAL HISTORIC PRESERVATION ACT

FERC has completed its compliance requirements with Section 106 of the NHPA for the Tennessee and SNG Projects.

7. SOCIOECONOMICS

The proposed Tennessee Project includes 9.1 miles of 36-inch-diameter looping pipeline, (the Yscloskey Toca Lateral Loop), approximately 4.0 miles of 36-inch-diameter looping pipeline (the Grand Bayou Loop), and a new compressor station (CS 529) in St. Bernard and Plaquemines Parishes, Louisiana. The SNG Project includes one new compressor station (Rose Hill) and three new meter stations (Rose Hill Receipt Meter Station, MEP Receipt Meter Station, and Toca Delivery Meter Station) in Clarke and Smith Counties, Mississippi, and St. Bernard Parish, Louisiana.

Socioeconomic impacts resulting from the construction and operation of the proposed Project would be related to the number of construction workers that would work in the Project area and their impact on population, public services, and employment during construction. Other potential effects include an increase in local traffic, decreased available housing, and increased tax revenue.

7.1. POPULATION AND EMPLOYMENT

Table 21 provides demographic information, including the population, per capita income, labor force, and unemployment rate for the States of Louisiana and Mississippi, and counties and parishes, within which any socioeconomics effects for the Project would be expected to occur.

Table 21: Project Area Socioeconomic Conditions

Area	2017 Population Estimate	Population Density (per square mile)	Per Capita Income	2017 Civilian Labor Force (1,000)	2017 Unemployment Rate (percent)	Major Employment Sectors
Louisiana	4,659,978	107.9	$26,205	2,031,238	7.2	E, A, R
Plaquemines Parish [1]	23,410	30.0	$26,177	9,849	3.0	E, A, R
St. Bernard Parish[1,2]	46,721	123.8	$20,431	18,382	10.7	E, C, R
Mississippi	**2,986,220**	63.6	$26,779	1,285,260	5.6	E, M, R, A, C
Clarke County[2]	16, 089	23.3	$20,564	5,934	6.5	E, Ag, M, R, C
Smith County[2]	16,114	25.3	$21,864	6,871	5.2	M, E, R, P, Ag

Source: U.S. Department of Commerce, Bureau of the Census, 2013-2017 American Community Survey 5-Year Estimates
1-Tennessee Project
2-SNG Project
A = Arts, entertainment, and recreation, and accommodation and food services
Ag = Agriculture, forestry, fishing and hunting, and mining
C = Construction
E = Education services, and health care and social assistance
M = Manufacturing
O= Other Services
R = Retail trade
W= Wholesale trade

Tennessee Project

Impacts on the local population would primarily result from the short-term influx of temporary employees during construction. Tennessee estimates that the maximum workforce of 120 people would be required throughout the 10 to12 month construction phase of CS 529 and estimates that a maximum combined workforce 100 people would be required throughout the four to seven month construction phase of two pipeline loops (40 for the Grand Bayou Loop and 60 for the Yscloskey Toca Lateral Loop). Tennessee

anticipates that most of the workforce with specialized skills and experience would come from outside the Plaquemines and St. Bernard parishes; however, Tennessee would attempt to hire up to 30 locally and regionally personnel. Increases in temporary population levels would occur as with the specialized skills move to the area. Tennessee anticipates hiring one to two additional permanent staff to operate and maintain CS 529.

SNG Project

Impacts on the local population would primarily result from the short-term influx of temporary employees during construction. SNG estimates that the maximum workforce of 200-300 people (which includes 122 people for the Rose Hill Compressor Station) would be required throughout the five-month construction phases. SNG anticipates that most of the workforce would come from outside Clark and Smith Parishes, Mississippi and St. Bernard Parish, Louisiana, and anticipates that between two and four workers would be hired locally and regionally. Increases in temporary population levels would occur as workers with the specialized skills move to the area. SNG anticipates hiring three additional permanent position employees for Project facilities.

Given the population of the counties and parishes, the size of the civilian labor force, and the relatively short duration of construction of the Project, we conclude that the Project would have a temporary and negligible impact on unemployment rates in the Project area and a negligible impact on the population of the local municipalities.

7.2. HOUSING

Tennessee Project

Construction of the Tennessee Project would require a maximum workforce of about 220 workers during peak construction. Tennessee estimates that about 14 percent of the construction workforce would be drawn from the Project area. The U.S. Census Bureau estimates that there were 2,134 vacant housing units available for rent in St. Bernard Parish; and 1,335 in Plaquemines Parish; (U.S. Census Bureau 2019). In addition, 8 hotels and motels, and 6 campsites are within these parishes.

SNG Project

Construction of the SNG Project would require a maximum workforce of about 200-300 workers. SNG estimates that about two percent of the construction workforce would be drawn from the Project area. The U.S. Census Bureau estimates that there were 1,603 vacant housing units available for rent in Clark Parish, Mississippi, 1,488 in Smith Parrish, Mississippi Parish; and 2,134 in St. Bernard Parish, Louisiana (U.S. Census Bureau 2019). In addition, there are 60,484 currently vacant hotel rooms in Clark and Smith Parishes, 3 hotels and motels in St. Bernard Parish, and a total 7 campgrounds in Smith and St. Bernard Parishes.

Based on the number of available rental units, hotels/motels, recreation vehicle parks, and campgrounds in the area for the Project, we conclude that, even if all workers were non-local, the presence of the construction crews could cause a minor, temporary impact on the availability of hotels/motels and rental units in the direct vicinity of the Project during construction and no discernable impact during operations. Therefore, we conclude the Project would have a negligible/not significant impact on housing in the Project area.

7.3. ECONOMY AND TAX REVENUE

The Tennessee Project and SNG Project would contribute to the local and regional economy directly and indirectly through purchases of goods and materials, and from taxes collected on purchases, payroll, and property. When in service, the Tennessee Project is estimated to bring in $3,179,484 in annual ad valorem taxes to Louisiana in St. Bernard and Plaquemines Parish; and the SNG Project is estimated to bring $2,165,980 in annual ad valorem taxes to Clarke and Smith Counties Mississippi and St. Bernard Parish, Louisiana. This investment in the local economy would have a positive impact on the localities in Louisiana and Mississippi. Property taxes are used by localities to fund public safety, education, transportation initiatives, and other community projects which benefit the local population. In addition to property tax revenue, the temporary and permanent workforce associated with the Project would spend money locally on consumer items and living expenses, which would generate sales tax revenue. This additional investment beyond property taxes would also represent negligible positive investment into the local economy.

7.4. PUBLIC SERVICES

Tennessee Project

Tennessee identified the existing inventory of service providers in the Project area, which includes 3 hospitals, 15 fire and rescue departments, and 5 police departments. Although the need for medical, fire, and police services may increase slightly during construction activities, adequate public services exist in the Project area to accommodate a civil, criminal, and emergency event.

Given the brief construction period, approximately 12 months, it is unlikely that families would accompany non-local workers to the Project area. There are 20 schools in the Project area. We find this inventory of public service providers, schools, and other infrastructure sufficient to accommodate the influx of construction workers and their families during the construction period and that the Project would not have a significant impact on public services.

SNG Project

SNG identified the existing inventory of service providers in the Project area, which includes 3 hospitals, 30 fire and rescue departments, and 13 police departments. Although the need for medical, fire, and police services may increase slightly during construction activities, we conclude adequate public services exist in the Project area to accommodate a civil, criminal, and emergency event.

Given the brief construction period, about 5 months, it is unlikely that families would accompany non-local workers to the Project area. There are 25 schools in the Project areas. We find this inventory of public service providers, schools and other infrastructure sufficient to accommodate the influx of construction workers and their families during the construction period and that the Project would not have a significant impact on public services.

7.5. TRANSPORTATION

Tennessee Project

Tennessee would utilize existing roadways to access the Project during construction and operation. The existing road networks would experience short-term, temporary impacts during construction as a result of equipment and materials delivery and construction workers commuting to the Project. An increased number of vehicles on nearby roadways at each of the Project locations would be encountered during morning and evening peak times, corresponding to normal workday hours. However, the existing roadway networks near the Project provide adequate alternate access; therefore, short-term, temporary impacts on traffic and transportation routes during construction are expected to be minimal. In addition, Tennessee would implement traffic control measures, including signs and traffic control devices with the St. Bernard Public Works Department and LDOTD. The path of the Grand Bayou Loop does not include any road crossings, therefore, minimal traffic impacts during construction are expected for that Project area. Tennessee proposes hiring only one to two personnel for modified operations at CS 529, and these operational positions would have a negligible long-term impact on traffic and transportation routes.

SNG Project

SNG would utilize existing roadways to access the Project during construction and operation. The existing road networks would experience short-term, temporary impacts during construction as a result of equipment and materials delivery and construction workers commuting to the Project. An increased number of vehicles on nearby roadways at each of the Project locations would be encountered during morning and evening peak times, corresponding to normal workday hours. The existing roadway networks near the Project provide adequate alternate access, and short-term, temporary impacts on traffic

and transportation routes during construction are expected to be minimal. Construction would also be scheduled for work within or adjacent to roadways so as to avoid commuter traffic and schedules for school buses and local city transit buses to the extent practical. In addition, SNG would implement traffic control measures, incorporate measures to maintain safety, minimize traffic disruption, and ensure that construction activities would not prevent the passage of emergency vehicles. SNG proposes hiring only three personnel for operation of the Project facilities, and these operational positions would have a negligible long-term impact on traffic and transportation routes.

SNG would obtain all necessary permits, including from the Mississippi Department of Transportation and the LDOTD. SNG would also require its construction contractors to ensure enforcement of local vehicle weight restrictions and limitations by its vehicles and to remove any soil that is left on the road surface. In the event that construction traffic causes damage to any roads, SNG would repair the road in accordance with the requirements set forth by the landowner or agency having jurisdiction over the road. SNG would also work with the landowners and affected parties to accommodate any special needs for work hours that are anticipated outside of the planned work hours.

Because of the limited size and duration of construction at each location, Tennessee's and SNG's proposed traffic management strategies, and adherence to applicable permits, we conclude impacts on transportation would be temporary, and not significant.

7.6. ENVIRONMENTAL JUSTICE

Environmental justice considers disproportionately high and adverse impacts on minority or low-income populations in the surrounding community resulting from the programs, policies, or activities of federal agencies. Items considered in the evaluation of environmental justice include human health or environmental hazards, the natural physical environment, and associated social, economic, and cultural factors.

According to the Council on Environmental Quality (CEQ) environmental justice guidance under NEPA (CEQ 1997) and US EPA's *Promising Practices for EJ Methodologies in NEPA Reviews* (EPA 2016), minorities are those groups that include American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Minority populations are defined where either; (a) the minority population of the affected area exceeds 50 percent or, (b) the minority population of the affected area is meaningfully greater (10 percent greater) than the minority population percentage in the general population or other appropriate unit of geographic analysis. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. In this EA, low-income populations are identified where the percent low income population of the affected block group is equal to or greater than that of the county or parish where the affected block group is located. Table 22 provides a summary of the minority or low-income percentage of county populations within the Project areas.

Table 22: Project Area Demographics for the Tennessee Project and the SNG Project										
Area	**White Alone Not Hispanic (percent)**	**African American (percent)**	**Native American and Alaskan Native (percent)**	**Asian (percent)**	**Native Hawaiian and Pacific Islander (percent)**	**Other Race (percent)**	**Two or More Races (percent)**	**Hispanic or Latino Origin (percent)**	**Total Minority (percent)**	**Below Poverty Level (percent)**
Tennessee Project										
State of Louisiana	59.0	32	0.5	1.7	0	0.2	1.6	5.0	41	19.6
Grand Bayou Loop										
Plaquemines Parish	65.2	20.6	0.8	3.3	0.0	0.1	3.3	6.7	34.8	19.7
Census Tract 1, Block Group 504	35.3	61.4	3.3	0.0	0.0	0.0	0.0	0.0	64.7	29.5
Yscloskey Toca Lateral Loop										
St. Bernard Parish	63.5	22.0	0.3	2.3	0.0	0.4	1.6	9.9	36.5	19.6
Census Tract 2, Block Group 301.04	90.9	3.9	0.0	0.0	0.3	0.0	0.0	4.9	9.1	16.4
Census Tract 2, Block Group 301.05	84.9	12.1	0.0	0.0	0.0	0.0	0.0	3.0	15.1	16.1
CS 529										
Census Tract 1, Block Group 301.05[1]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Census Tract 2, Block Group 301.05	84.9	12.1	0.0	0.0	0.0	0.0	0.0	3.0	15.1	16.1
SNG Project										
State of Mississippi	58.8	37.6	0.4	1.0	0.0	0.9	1.3	3.0	43.0	21.5
Rose Hill CS and Rose Hill MS										
Clarke County	63.8	35.1	0.1	0.0	0.0	0.4	0.5	0.9	36.6	21.5
Census Tract 3, Block Group 9502	89.5	7.3	0.0	0.0	0.0	3.2	0.0	0.0	10.5	16.3

Table 22: Project Area Demographics for the Tennessee Project and the SNG Project										
Area	**White Alone Not Hispanic (percent)**	**African American (percent)**	**Native American and Alaskan Native (percent)**	**Asian (percent)**	**Native Hawaiian and Pacific Islander (percent)**	**Other Race (percent)**	**Two or More Races (percent)**	**Hispanic or Latino Origin (percent)**	**Total Minority (percent)**	**Below Poverty Level (percent)**
MEP Receipt Meter Station										
Smith County	76.0	23.6	0.0	0.0	0.0	0.0	0.3	1.6	25.7	27.1
Census Tract 1, Block Group 9503	87.1	12.9	0.0	0.0	0.0	0.0	0.0	0.0	12.9	11.4
Census Tract 2, Block Group 9503	87.0	13.0	0.0	0.0	0.0	0.0	0.0	13.6	26.5	2.7
State of Louisiana	59.0	32	0.5	1.7	0	0.2	1.6	5.0	41	19.6
Toca Delivery Meter Station										
St. Bernard Parish	66.6	28.3	0.4	0.5	<0.1	0.0	1.3	4.0	33.4	23.9
Census Tract 1, Block Group 301.04	87.3	1.9	0.0	0.0	0.0	0.0	0.8	10.0	12.7	18.7
Census Tract 2, Block Group 301.04	90.9	3.9	0.0	0.0	0.3	0.0	0.0	4.9	9.1	16.4
Census Tract 2, Block Group 301.05	84.9	12.1	0.0	0.0	0.0	0.0	0.0	3.0	15.1	16.1

[1]Block Group 301.05 in St. Bernard Parish is estimated to have a population of zero.

Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates

Tennessee Project

As shown in table 22, only one block group in Plaquemines Parish (Census Tract 1, Block Group 504) is crossed by the proposed Grand Bayou Loop and has a minority population that is meaningfully greater than the Parish and a low-income population greater than the Parish (U.S. Census, 2019). No other minority or low-income populations were identified within 1-mile of CS 529, or crossed by the Yscloskey Toca Lateral Loop; therefore, these are not discussed further.

As discussed throughout this EA, potentially adverse environmental effects associated with the Tennessee Project would be minimized or mitigated, as applicable. Although a minority population exists within the block group crossed by the proposed Grand Bayou Loop, the nearest residence is approximately 0.5-mile away. Area residents may be temporarily affected by traffic, visual, air quality and noise during construction of proposed facilities. However, with Tennessee's commitment to implementing mitigation measures to alleviate any potential road congestion, we conclude these impacts would be minor and short-term.

Potential pollution emissions from construction would occur over the duration of construction activities and would be emitted at different times and locations along the length of the proposed Grand Bayou Loop. These potential pollution emissions, when considered with background concentrations, would be below the National Ambient Air Quality Standards (NAAQS), which are designated to protect public health. With the mitigation measures proposed by Tennessee, air quality impacts from construction activities would be temporary and would not have significant adverse air quality impacts on the general population, including the minority population in the project area. Air quality impacts are discussed in more detail in section B.8.1.

Temporary construction impacts on residences in proximity to construction work areas could include noise. As discussed in section B.8.2, noise levels resulting from construction would vary over time and would depend upon the number and type of equipment operating, the level of operation, and the distance between sources and receptors. With Tennessee's proposed mitigation measures and our recommendations in section B.8.2, the project would not result in significant noise impacts on local residents and the surrounding communities, including the EJ population, as the closest residence to the project area is approximately 0.5-mile away.

As described in section B.5.2, construction of the Grand Bayou Loop would have temporary visual impacts resulting from the presence of construction equipment and barges. Construction activity may be visible within the EJ community due to flat terrain and low vegetative buffers, however, it is unlikely as the nearest residence is over 0.5-mile away. Because the pipeline would also be placed belowground in a waterway, there

would be no visual impacts after construction is completed, other than pipeline markers, aerial bridge levee crossing, and the pig launchers and receivers at each end of the new looping pipelines. The proposed activities would be co-located or adjacent to existing rights-of-way. Therefore, we conclude the project would not result in significant visual impacts on EJ populations in the study area.

Because the Grand Bayou Loop affects only one block group classified as an EJ population, impacts from this portion of the project could be considered as disproportionate as no non-EJ communities are affected. However, Tennessee would implement a series of measures to minimize potential impacts on communities, including the EJ community, below a level of significance. In addition, based on our environmental analysis, the environmental and socioeconomic impacts on this population from the Tennessee Project would be short-term and minor.

SNG Project

As shown in table 22, none of the block groups within a 1-mile radius of Rose Hill CS and Rose Hill Receipt MS, MEP Receipt MS, and Toca Delivery MS have a minority population that exceeds the 50 percent minority threshold or is meaningfully greater (10 percent higher) than the reference communities; therefore, no "minority population" as defined by CEQ exists within the project area. Additionally, as shown in table 22, none of the block groups within a 1-mile radius Rose Hill CS and Rose Hill Receipt MS, MEP Receipt MS, and Toca Delivery MS have a higher percentage of people below the poverty level than the reference communities (U.S. Census, 2019). Because no minority or low-income populations exist in the SNG Project area, no disproportionately high and adverse impacts on low income populations would occur.

8. AIR QUALITY AND NOISE

8.1. AIR QUALITY

Air quality would be affected by construction and operation of the Project. During construction, short-term emissions would be generated from the usage of equipment, land disturbance, and increased traffic from worker and delivery vehicles for all locations. No operational emissions would be associated with the pipeline loops; operation of CS 529 would result in a minimum change in existing air emissions. Operation of SNG's new Rose Hill CS and Rose Hill Receipt MS, MEP Receipt MS, Toca Delivery MS would result in a minimum change in existing air emissions.

Ambient air quality is protected by federal and state regulations. Under the Clean Air Act of 1970 (CAA) and its amendments, the EPA has established NAAQS[14] for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NOx), ozone, particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and sulfur dioxide (SO_2). The LDEQ has the authority to implement permit programs under the CAA for the proposed Project facilities. These standards incorporate short-term (hourly or daily) levels and long-term (annual) levels to address acute and chronic exposures to the pollutants, as appropriate. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health. The LDEQ has adopted the Louisiana Ambient Air Quality Standards, which are presented in table 23. These standards would apply to work being done at SNG's Toca Delivery MS and Tennessee's CS 529. The MDEQ has adopted the NAAQS in full, these standards would apply to SNG's Rose Hill CS and Rose Hill Receipt MS and the MEP Receipt MS. Table 24 presents the NAAQS.

Air quality would be affected by construction and operation of the Project. During construction, short-term emissions would be generated from the usage of equipment, land disturbance, and increased traffic from worker and delivery vehicles for all locations. No operational emissions would be associated with the pipeline loops; operation of CS 529 would result in a minimum change in existing air emissions. Operation of the new Rose Hill CS and Rose Hill Receipt Meter Station, MEP Receipt Meter Station, Toca Delivery Meter Station would result in a minimum change in existing air emissions.

Table 23: Louisiana Ambient Air Quality Standards

Pollutant	Averaging Period	Standards	
		Primary	Secondary
Sulfur dioxide (SO_2)	1-hour [7]	75 ppb 196 µg/m^3	
	3-hour [10]	--	0.5 ppm 1300 µg/m^3
PM_{10}	24-hour [d]	150 µg/m^3	150 µg/m^3
$PM_{2.5}$	Annual [5]	12.0 µg/m^3	15.0 µg/m^3
$PM_{2.5}$	24-hour [6]	35 µg/m^3	35 µg/m^3
Nitrogen Dioxide (NO_2)	Annual [1]	0.053 ppm (53 ppb)	0.053 ppm (53 ppb)

[14] The current NAAQS are listed on EPA's website at https://www.epa.gov/criteria-air-pollutants/naaqs-table.

Table 23: Louisiana Ambient Air Quality Standards

Pollutant	Averaging Period	Standards	
		Primary	Secondary
		-	100 µg/m^3
	1-hour [8]	100 ppb	--
Carbon Monoxide (CO)	8-hour [2]	9 ppm	9 ppm
		10,000µg/m^3	10,000µg/m^3
	1-hour [2]	35 ppm	35 ppm
		40,000 µg/m^3	40,000 µg/m^3
Ozone	8-hour	0.075 ppm	0.075 ppm
Lead (Pb)	Rolling 3-month [9]	0.15 µg/m^3	0.15 µg/m^3

1. Annual arithmetic mean. The primary standard is met when the annual arithmetic mean is less than or equal to 53 ppb, as determined in accordance with 40 CFR Part 50, Appendix S. The secondary standard is met when the annual arithmetic mean concentration in a calendar year is less than or equal to 0.053 ppm.
2. For eight-hour, maximum eight-hour concentration not to be exceeded more than once per year. For one-hour, maximum one-hour concentration not to be exceeded more than once per year.
3. Maximum 24-hour concentration not to be exceeded more than once per year averaged over a three-year period.
4. Daily maximum eight-hour average. The standard is met at an ambient air monitoring site when the three-year average of the annual fourthhighest daily maximum eight-hour average ozone concentrations is less than or equal to 0.075 ppm, as determined in accordance with 40 CFR Part 50, Appendix P.
5. Annual arithmetic mean averaged over three years. The standard is met when the annual arithmetic mean concentration, as determined in accordance with Appendix N of 40 CFR Part 50 is less than or equal to 12 µg/m3 (primary standard) and 15 µg/m3 (secondary standard).
6. 24-hour averaged over three years. The standard is met when the 98th percentile 24-hour concentration, as determined in accordance with Appendix N of 40 CFR Part 50 is less than or equal to 35 µg/m3.
7. Daily maximum one-hour concentration. The standard is met at an ambient air monitoring site when the three-year average of the annual 99th percentile of the daily maximum one-hour average concentration is less than or equal to 75 ppb, as determined in accordance with 40 CFR Part 50 Appendix T.
8. One-hour average concentration. The standard is met when the three-year average of the annual 98th percentile of the daily maximum one-hour average concentration is less than or equal to 100 ppb, as determined in accordance with 40 CFR Part 50, Appendix S.
9. Three-month rolling average. The primary standard is met when the maximum arithmetic three-month mean concentration for a three-year period, as determined in accordance with Appendix R of 40 CFR Part 50 is less than or equal to 0.15 µg/m3. The secondary standard is met when the maximum arithmetic three-month mean concentration for a three-year period, as determined in accordance with Appendix R of 40 CFR Part 50 is less than 0.15 µg/m3.
10. Three-hour average concentration not to be exceeded more than once per year.

Table 24: National Ambient Air Quality Standards

Pollutant	Averaging Period	Standards	
		Primary	Secondary
Sulfur dioxide (SO_2)	1-hour [l,m]	75 ppb	
		196 µg/m^3	0.5 ppm
	3-hour [b]	--	

Table 24: National Ambient Air Quality Standards

Pollutant	Averaging Period	Standards	
		Primary	Secondary
			1300 µg/m^3
	Annual [a,m]	0.03 ppm	--
		80 µg/m^3	
	24-hour [b,m]	0.14 ppm	--
		365 µg/m^3	
PM_{10}	24-hour [d]	150 µg/m^3	150 µg/m^3
$PM_{2.5}$ (2012 Standard)	Annual [e]	12.0 µg/m^3	15.0 µg/m^3
$PM_{2.5}$ (2006 Standard)	24-hour [f]	35 µg/m^3	35 µg/m^3
Nitrogen Dioxide (NO_2)	Annual [a]	0.053 ppm (53 ppb)	0.053 ppm (53 ppb)
		100 µg/m^3	100 µg/m^3
	1-hour [c]	100 ppb 188 µg/m^3	--
Carbon Monoxide (CO)	8-hour [b]	9 ppm	--
		10,000µg/m^3	
	1-hour [b]	35 ppm	--
		40,000 µg/m^3	
Ozone (2008 Standard)	8-hour [g,h]	0.075 ppm	0.075 ppm
Ozone (2015 Standard)	8-Hour [i]	0.070 ppm	0.070 ppm
Ozone (O_3)	1-hour [j,k]	0.12 ppm	0.12 ppm
Lead (Pb)	Rolling 3-month [a]	0.15 µg/m^3	0.15 µg/m^3

a. Not to be exceeded.
b. Not to be exceeded more than once per year.
c. Compliance based on 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area.
d. Not to be exceeded more than once per year on average over 3 years.
e. Compliance based on 3-year average of weighted annual mean PM2.5 concentrations at community-oriented monitors.
f. Compliance based on 3-year average of 98th percentile of 24-hour concentrations at each population-oriented monitor within an area.
g. Compliance based on 3-year average of fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area.
h. The 2008 8-hour ozone standard would remain in effect until one year after an area is designated for the 2015 8-hour ozone standard, which corresponds with January 16, 2019 based upon attainment designations for the 2015 ozone standard issued on January 16, 2018.
i. Permit applications that have not met EPA's grandfathering criteria would have to demonstrate that the proposed project does not cause or contribute to a violation of any revised ozone standards that are in effect when the permit is issued, including the 2015 revised standards.

Table 24: National Ambient Air Quality Standards

Pollutant	Averaging Period	Standards	
		Primary	Secondary

j. Maximum 1-hour daily average not to be exceeded more than one day per calendar year on average.
k. The 1-hour ozone standard has been revoked in all areas in which Project activities would occur.
l. Compliance based on 3-year average of 99th percentile of the daily maximum 1-hour average at each monitor within an area.
m. The 24-hour and annual average primary standards for SO2 have been revoked.
ppm = parts per million by volume; ppb = parts per billion by volume; $\mu g/m^3$ = micrograms per cubic meter.

Air quality control regions (AQCRs) are areas established by the EPA and local agencies for air quality planning purposes, in which State Implementation Plans describe how the NAAQS would be achieved and maintained. The AQCRs are intra- and interstate regions such as large metropolitan areas where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or smaller portion within an AQCR (such as a county), is designated, based on compliance with the NAAQS, as attainment, unclassifiable, maintenance, or nonattainment, on a pollutant-by-pollutant basis. Areas in compliance or below the NAAQS are designated as attainment, while areas not in compliance or above the NAAQS are designated as nonattainment. Areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. Maintenance areas may be subject to more stringent regulatory requirements to ensure continued attainment of the NAAQS. Areas that lack sufficient data to determine attainment status are designated unclassifiable and treated as attainment areas.

Tennessee Project

For the Tennessee Project, emission generating Project facilities, CS 529 is located in St. Bernard Parish, which is situated in the Southern Louisiana-Southeast Texas Interstate Air Quality Region. St Bernard Parish is designated in attainment for all criteria pollutants with the exception of being classified as non-attainment for SO_2.

SNG Project

For the SNG Project, emission generating Project facilities are located in located in Clark and Smith counties, Mississippi, and St. Bernard Parish, Louisiana, which are situated in the SNG Louisiana-Southeast Texas Interstate Air Quality Region. St. Bernard Parish is designated in attainment for all criteria pollutants with the exception of being classified as non-attainment for SO_2. All other counties and parishes are classified as attainment for all criteria pollutants.

8.1.1. Permitting/Regulatory Requirements

8.1.1.1. Prevention of Significant Deterioration and Nonattainment New Source Review

The Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) air permit programs are designed to protect air quality when air pollutant emissions are increased either through the construction of new major stationary sources or major modifications to existing stationary sources. The LDEQ administer the PSD and NNSR permitting programs in their state. The MDEQ administer the PSD and NNSR permitting programs in their state.

For Tennessee Project, CS 529 is located within an attainment area for all criteria pollutants except SO_2. The facility is not considered a major stationary source and the potential emissions would not exceed the PSD threshold; therefore, the program does not apply to the Project. For the SNG Project, The Rose Hill CS is located within an attainment area for all criteria pollutants. The facility is not considered a major stationary source and the potential emissions would not exceed the PSD threshold; therefore, the program does not apply to the Project.

8.1.1.2. Title V Permitting

Title V is an operating air permit program run by each state for each facility that is considered a “major source.”

Tennessee Project

Emissions associated with the Tennessee Project would result from construction activities and the new CS 529, but as the facility emissions would be below the major source thresholds for each criteria pollutant, this program does not apply to CS 529.

SNG Project

Emissions associated with the SNG Project would result from construction activities and the new Rose Hill CS, but as the facility emissions would be below the major source thresholds for each criteria pollutant, this program does not apply to the Rose Hill CS or other facilities associated with the Project. Activities conducted under 2.55(a) at existing Title V facilities would require modifications to the current permits.

8.1.1.3. Non-Attainment New Source Review (NSSR)

Tennessee Project

The Tennessee Project is located in St. Bernard parish, which is designated as non-attainment for SO_2 and would meet NSSR standards. The NSSR threshold for St. Bernard Parish is 10 tons per year (tpy) of SO_2 emissions. Proposed facility operating emissions at CS 529 for SO_2 are estimated to be less than five tpy.

SNG Project

The SNG Project is located in Clark Smith counties Mississippi, which are designated as in attainment for all criteria pollutants, and St. Bernard Parish, Louisiana, which is designated as non-attainment for SO2 and would meet NSSR standards. The NSSR threshold for St. Bernard Parish is 10 tons per year (tpy) of SO2 emissions. Proposed facility operating emissions at the Toca Meter Station for SO2 would be negligible. The remaining Project facilities are not located in a parish designated as non-attainment, therefore NSSR review does not apply to the rest of the Project facilities.

8.1.1.4. New Source Performance Standards (NSPS)

The EPA promulgates NSPS to establish emission limits and fuel, monitoring, notification, reporting, and recordkeeping requirements for stationary source types or categories that cause or contribute significantly to air pollution.

Tennessee Project

Subpart KKKK (Standards of Performance for Stationary Gas Turbines) would apply to all of the stationary combustion turbines at CS 529.

Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines) would apply to the proposed combustion units at CS 529.

Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced after September 18, 2015) would apply to CS 529 and Tennessee would comply with all requirements.

SNG Project

The EPA promulgates NSPS to establish emission limits and fuel, monitoring, notification, reporting, and recordkeeping requirements for stationary source types or categories that cause or contribute significantly to air pollution.

Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) would apply to the two new turbines at the Rose Hill CS.

Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines) would apply to the proposed stationary spark engine at the Rose Hill CS.

Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution Commenced after September 18, 2015) would apply to the Rose Hill CS and SNG would comply with all requirements.

8.1.1.5. National Emission Standards for Hazardous Air Pollutants (NESHAP)

The 1990 CAA Amendments established a list of 189 hazardous air pollutants (HAPs), resulting in the promulgation of NESHAP. The NESHAP regulate HAP emissions from specific source types located at major or area sources of HAPs by setting emission limits, monitoring, testing, record keeping, and notification requirements.

Tennessee Project

Subpart ZZZZ (NESHAP for Stationary Reciprocating Internal Combustion Engines) would apply to the new emergency generator. By complying with NSPS Subpart JJJJ, the emergency generator would meet the requirements of NESHAP and no further requirements apply.

SNG Project

Subpart ZZZZ (NESHAP for Stationary Reciprocating Internal Combustion Engines) would apply to the new standby generator; SNG would comply with all requirements. By complying with NSPS Subpart JJJJ, the standby generator would meet the requirements of NESHAP and no further requirements apply.

8.1.1.6. State and County Regulations

Tennessee Project

Louisiana sets particulate matter emission limits requiring that shade from emissions not be darker than 20% average opacity. These requirements would apply to the proposed compressor unit, emergency generator, and fuel gas heater at CS 529.

The proposed compressor unit, emergency generator, and heater at CS 529 would require compliance with recordkeeping provisions to ensure emissions do not exceed five tpy of SO_2.

The proposed storage tank at CS 529 would be required to be equipped with a submerged fill pipe to comply with Louisiana regulations on storage of VOC.

SNG Project

Mississippi sets particulate matter emission limits to 0.6 lb/hr for sources with heat input less than 10 MMBtu/hr. Additional restrictions are calculated on a case by case basis for sources with a range between 10 and 10,000 MMBtu/hr.

SNG would comply with visible emission limit for opacity to not exceed 40%, with the exception for startups.

Mississippi regulates sulfur dioxide emissions from fuel burning to a maximum discharge of sulfur oxides from any fuel burning installation in which fuel is burned primarily to produce heat or power by indirect heat transfer would not exceed 4.8 lbs/MBTU. The proposed units at the Rose Hill CS would be subject to these provisions. SNG would comply with these requirements.

8.1.1.6. General Conformity

The EPA promulgated the General Conformity Rule to implement the conformity provision of Title I, Section 176(c)(1) of CAA. Section 176(c)(1) requires that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to, an approved CAA implementation plan.

The General Conformity Rule is codified in Title 40 CFR Part 51, Subpart W and Part 93, Subpart B, Determining Conformity of General Federal Actions to State or Federal Implementation Plans. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operational activities is likely to result in generating direct and indirect emissions that would exceed the conformity threshold (*de minimis*) levels of the pollutant(s) for which an air basin is in nonattainment or maintenance. According to the conformity regulations, emissions from sources that are subject to any NNSR or PSD permitting/licensing (major or minor) are exempt and are deemed to have conformed.

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. The lead federal agency must conduct a conformity determination if a federal action's construction and operational activities is likely to result in generating direct and indirect

emissions that would exceed the General Conformity Applicability threshold levels of the pollutant(s) for which an air basin is designated nonattainment or maintenance. Section 176(c)(1) states that a federal agency cannot approve or support any activity that does not conform to an approved State Implementation Plan. Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if deemed necessary. A General Conformity Determination must be completed when the total direct and indirect emissions of a project would equal or exceed the specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

Tennessee Project

As noted earlier, the CS 529 would be constructed and operated in St. Bernard Parish, which is in attainment for all criteria pollutants except SO_2. Project emissions would be well below the General Conformity threshold of 100 tons per year (tpy) for SO_2, therefore General Conformity Determination does not apply.

SNG Project

As noted earlier, the Rose Hill CS would be constructed and operated in Clarke county, which is in attainment for all criteria pollutants, therefore General Conformity Determination does not apply.

8.1.1.7. Greenhouse Gases

Greenhouse gases (GHGs) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are gases that absorb infrared radiation in the atmosphere, and an increase in emissions of these gasses has been determined by the EPA to endanger public health and welfare by contributing to global climate change. The most common GHGs emitted during fossil fuel combustion and natural gas transportation are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Emissions of GHGs are typically expressed in terms of CO_2 equivalents (CO_2e), where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of CO_2 over a specific timeframe, or its global

warming potential (GWP)[15]. The 100-year GWP of CO_2 is 1, CH_4 is 25, and N_2O is 298. During construction and operation of the Project, these GHGs would be emitted from non-electrical construction and operational equipment, as well as from fugitive CH_4 leaks from the pipeline and aboveground facilities.

On November 8, 2010, the EPA signed a rule that finalizes reporting requirements for the petroleum and natural gas industry under 40 CFR 98. Subpart W of 40 CFR 98 requires petroleum and natural gas facilities that emit 25,000 metric tons or more of CO_2e per year to report annual emissions of specified GHGs from various processes within the facility. Construction emissions are not covered under the GHG Reporting Rule, but those related to the proposed Project are expected to be well below the 25,000 metric tons reporting threshold. Operational emissions from the proposed facilities are likewise not expected to exceed this threshold and be reported to the EPA. The EPA has expanded its regulations to include the emission of GHGs from major stationary sources under the PSD program. The EPA's current rules require that a stationary source that is major for a non-GHG-regulated New Source Review pollutant must also obtain a PSD permit prior to beginning construction of a new or modified major source with mass-based GHG emissions equal to or greater than 100,000 tons per year (tpy) and significant net emission increases in units of CO_2e equal to or greater than 75,000 tpy. There are no NAAQS or other significance thresholds for GHGs.

8.1.2. Construction Emissions

Construction of the Project would result in short-term increases in emissions of some pollutants from the use of fossil fuel-fired equipment and the generation of fugitive dust due to earthmoving activities. Some temporary indirect emissions, attributable to construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic, could also occur. Large earth-moving equipment and other mobile equipment are sources of combustion-related emissions, including criteria pollutants (i.e., NO_x, CO, VOC, SO_2, and PM_{10}).

Tennessee and SNG would mitigate exhaust emissions from construction equipment by requiring contractors to meet all air quality regulations and emission standards associated with each piece of equipment, implementing idling restrictions, and utilize low-sulfur fuel. Fugitive dust emissions during construction would be mitigated by measures outlined in each Project's Fugitive Dust Control Plan, which we have reviewed and find acceptable. These measures include spraying water on unpaved areas subject to frequent

[15] These GWPs are based on a 100-year time period. We have selected their use over other published GWPs for other timeframes because these are the GWPs the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

vehicle traffic, limit vehicle speeds on unpaved roads, and removal of debris from roadways.

Construction related emission estimates were based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for each area of the Project. These emission-generating activities would include earthmoving, construction equipment exhaust, on-road vehicle traffic, and off-road vehicle traffic. Tennessee and SNG conservatively utilized emission factors from EPA's NONROAD2008a and MOVES2014 emission modeling software. These emissions present the combined emissions for each facility of construction equipment combustion, on-road vehicle travel, off-road vehicle travel, and earthmoving fugitives.

Tennessee Project

For the Tennessee Project, construction is estimated to occur between first quarter 2021 and December 2022. The air quality impacts of Project construction would be considered short-term and would be further minimized by Tennessee's implementation of fugitive dust control measures outlined in its Fugitive Dust Control Plan. Construction emissions for the Tennessee Project are presented in table 25.

SNG Project

For the SNG Project, construction is estimated to begin in September 2021 with completion in December 2022. The air quality impacts of Project construction would be considered short-term and would be further minimized by SNG's implementation of fugitive dust control measures outlined in its Fugitive Dust Control Plan. Construction emissions for the Project are presented in table 26.

Given the temporary nature of construction, and the intermittent nature of construction emissions, we find that emissions from construction-related activities for the Tennessee Project and the SNG Project would not be expected to cause or significantly contribute to a violation of any applicable ambient air quality standard, or significantly affect local or regional air quality.

Table 25: Estimated Construction Emissions for the Tennessee Project

Construction Activity	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	Total HAPs	CO_2e
2021 CS 529 Construction Emissions								

Table 25: Estimated Construction Emissions for the Tennessee Project								
Construction Activity	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**	**Total HAPs**	**CO_2e**
Diesel non-road equipment	8.49	27.12	1.52	1.48	0.05	2.19	1.11	6,269
Diesel and gas on-road equipment	12.51	12.37	0.43	0.40	0.07	0.72	0.26	8,001
Fugitive Dust	N/A	N/A	27.16	3.45	N/A	N/A	N/A	N/A
2021 Subtotal	**21.00**	**39.48**	**29.11**	**5.32**	**0.11**	**2.91**	**1.37**	**14,270**
2022 CS 529 Construction Emissions								
Diesel non-road equipment	7.09	23.13	1.28	1.24	0.05	1.83	0.94	6,155
Diesel and gas on-road equipment	2.44	1.24	0.04	0.04	0.01	0.09	0.18	1,010
Fugitive Dust	N/A	N/A	22.72	2.36	N/A	N/A	N/A	N/A
2022 Subtotal	**9.54**	**24.37**	**24.04**	**3.64**	**0.05**	**1.92**	**1.12**	**7,165**
Yscloskey Toca Lateral Loop and Grand Bayou Loop Construction Emissions								
Diesel non-road equipment	62.78	88.82	4.36	4.31	1.36	51.84	1.66	8,885
Diesel and gas on-road equipment	7.05	0.85	0.02	0.02	0.01	0.15	0.18	800
Fugitive Dust	N/A	N/A	14.50	1.52	N/A	N/A	N/A	N/A
Looping Subtotal	**69.82**	**89.67**	**18.88**	**5.85**	**1.37**	**51.99**	**1.83**	**9,685**

Table 26: Estimated Construction Emissions for the SNG Project								
Construction Activity	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**	**Total HAPs**	**CO_2e**
2021 Rose Hill CS Construction Emissions								
Diesel non-road equipment	1.59	4.83	0.33	0.32	0.01	0.49	0.33	1,663
Diesel and gas on-road equipment	2.26	0.26	0.01	0.01	0.01	0.04	0.18	350
Construction activity fugitive dust	N/A	N/A	3.42	0.37	N/A	N/A	N/A	N/A
Open burning	215.60	6.16	26.18	26.18	0.4	29.26	N/A	5,257
2021 Subtotal	**219.45**	**11.25**	**29.94**	**26.88**	**0.42**	**29.79**	**0.51**	**7,240**
2022 Rose Hill CS Construction Emissions								
Diesel non-road equipment	7.25	19.49	1.49	1.44	0.06	2.24	1.16	9,088
Diesel and gas on-road equipment	6.35	1.02	0.03	0.03	0.01	0.12	0.18	1,232
Construction activity fugitive dust	N/A	N/A	29.62	3.05	N/A	N/A	N/A	N/A
2022 Subtotal	13.60	20.51	31.14	4.52	0.07	2.36	1.34	10,320
2022 Rose Hill M&R Construction Emissions [a]								
Diesel non-road equipment	0.43	1.04	0.09	0.09	0.01	0.14	0.20	686
Diesel and gas on-road equipment	0.25	0.07	0.01	0.01	0.01	0.01	0.18	63
Construction activity fugitive dust	N/A	N/A	1.01	0.10	N/A	N/A	N/A	N/A
2022 Subtotal	**0.68**	**1.11**	**1.11**	**0.20**	**0.02**	**0.15**	**0.38**	**749**
2022 Toca Delivery Meter Station Construction Emissions[a]								
Diesel non-road equipment	2.16	4.98	0.42	0.41	0.03	0.62	0.40	3,861

Table 26: Estimated Construction Emissions for the SNG Project								
Construction Activity	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**	**Total HAPs**	**CO_2e**
Diesel and gas on-road equipment	1.44	0.35	0.01	0.01	0.01	0.03	0.18	356
Construction activity fugitive dust	N/A	N/A	8.64	0.88	N/A	N/A	N/A	N/A
2022 Subtotal	**3.60**	**5.34**	**9.07**	**1.30**	**0.04**	**0.65**	**0.58**	**4,217**
2022 MEP M&R Station Construction Emissions								
Diesel non-road equipment	0.43	1.04	0.09	0.09	0.01	0.14	0.20	686
Diesel and gas on-road equipment	0.25	0.07	0.01	0.01	0.01	0.01	0.18	63
Construction activity fugitive dust	N/A	N/A	0.43	0.05	N/A	N/A	N/A	N/A
2022 Subtotal	**0.68**	**1.11**	**0.53**	**0.15**	**0.02**	**0.15**	**0.38**	**749**
General Conformity Thresholds	**100**	**100**	**100**	**100**	**100**	**50**	**100**	**-**
a. These facilities do not have planned construction activities for 2021.								

8.1.3. Operational Emissions

Tennessee Project

Emission generating from the new CS 529 would include one natural gas-fired engine, one emergency generator, heater and fugitive emissions from ancillary equipment. Operational emissions for the Project facilities are presented in table 27.

Considering the low operational emissions associated with the CS 529

Table 27: CS 529 Operational Emissions (tpy)							
Equipment	**CO**	**NOx**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**
Newly Proposed Sources							
Solar Titan 130 Turbine	24.76	22.09	12.87	2.28	4.42	4.42	78,374
Emergency Generator Engine	0.33	0.07	0.12	<0.01	0.01	0.01	60.91
Catalytic Heater	1.00	1.19	0.07	0.01	0.09	0.09	1,418

Table 27: CS 529 Operational Emissions (tpy)							
Equipment	**CO**	**NOx**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**
Fugitive Emissions	-	-	8.76	-	-	-	208
Truck Loading (TL-1)	-	-	0.18	-	-	-	-
Condensate Tank (TK-1)	-	-	0.58	-	-	-	-
Maintenance and Insignificant Activities	1.25	1.11	13.19	0.11	0.22	0.22	2
Post Project Totals	**27.34**	**24.46**	**27.19**	**2.41**	**4.74**	**4.74**	**80,063**
PSD Major Source Thresholds	**250**	**250**	**250**	**250**	**250**	**250**	**100,000**
Title V Major Source Thresholds	**100**	**100**	**100**	**100**	**100**	**100**	**100,000**

SNG Project

Emission generating from the new Rose Hill CS would include two natural gas-fired engine, one emergency generator, heater and fugitive emissions from ancillary equipment. Operational emissions for the Project facilities are presented in table 28. Operational Emissions for the MEP Meter station and Toca Meter Station are presented in table 29.

Considering the low operational emissions associated with the Rose Hill CS, minimal emissions due to meter station fugitives, we conclude that the Project would not have a significant impact on air quality.

Table 28: Rose Hill CS Operational Emissions (tpy)							
Equipment	**CO**	**NOx**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**
Newly Proposed Sources							
Solar Taurus 70 Turbine	12.15	11.98	6.96	1.14	2.21	2.21	39,195
Solar Taurus 70 Turbine	12.15	11.98	6.96	1.14	2.21	2.21	39,195
Emergency Generator	0.33	0.07	0.12	-	0.01	-	61
Gas Heater	1.00	1.19	0.07	0.01	0.09	0.09	1,418
Fugitive Emissions	-	-	8.76	-	-	-	208

Table 28: Rose Hill CS Operational Emissions (tpy)							
Equipment	**CO**	**NOx**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**
Truck Loading	-	-	0.18	-	-	-	-
Condensate Tank	-	-	0.58	-	-	-	-
Maintenance	1.25	1.11	13.62	0.11	0.22	0.22	-
Post Project Totals	**26.88**	**26.33**	**37.25**	**2.40**	**4.74**	**4.73**	**80,077**
PSD Major Source Thresholds	**250**	**250**	**250**	**250**	**250**	**250**	**100,000**
Title V Major Source Thresholds	**100**	**100**	**100**	**100**	**100**	**100**	**100,000**

Table 29: Meter Station Operational Emissions (tpy)							
Facility	**CO**	**NOx**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2e**
MEP Receipt Meter Station	-	-	0.209	-	-	-	-
Toca Delivery Meter Station	-	-	0.209	-	-	-	-
PSD Major Source Thresholds	250	250	250	250	250	250	100,000
Title V Major Source Thresholds	100	100	100	100	100	100	100,000

8.2. NOISE IMPACTS

Construction and operation of the Project would affect the local noise environment in the Project area. The ambient sound level of a region, which is defined by the total noise generated within the specific environment, is usually comprised of sounds emanating from both natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week, in part due to changing weather conditions and the impacts of seasonal vegetative cover.

The EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Two measurements used by some federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same sound energy as the instantaneous sound levels measured over a specific time

period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, in the calculation of the L_{dn}, late night to early morning (10:00 PM to 7:00 AM) noise exposures are penalized +10 decibels (dB), to account for people's greater sensitivity to sound during the nighttime hours. The A-weighted scale (dBA) is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the L_{dn} is approximately 6.4 dB above the measured L_{eq}.

The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impacts from the proposed Project at noise sensitive areas (NSAs), such as residences, schools, or hospitals. Also, in general, a person's threshold of perception for a perceivable change in loudness on the A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

There are no applicable county, or local noise regulations associated with either of the Projects.

8.2.1. Construction Noise

Tennessee Project

Construction of the facilities would involve operation of general construction equipment and noise would be generated during the installation of the Project components. There were no NSAs within 0.5 mile of CS 529. Construction of the Project would include one HDD site to install the Yscloskey Toca Lateral loop at the crossing of Bayou Road and Highway 46/Florissant Highway. On November 6, 2019, Hoover and Keith conducted an acoustical assessment for the proposed HDD location. Two NSAs were identified; one near the entry, and one near the exit sites. A pre-construction sound survey for CS 529 was also conducted on that date, and one NSA was identified.

Construction noise would be highly variable because the types of equipment in use changes with the construction phase and the types of activities. Noise from construction activities may be noticeable at nearby NSAs. However, construction equipment would be operated on an as-needed basis during the construction period. Further, Tennessee would limit construction activities to occur during daytime hours, except when required for activities such as hydrostatic testing, operation of pumps at waterbody crossings, and certain HDD activities that require continuous work. FERC staff considers daytime hours

to be 7:00 AM to 7:00 PM. If nighttime construction is required, advanced notice would be provided to the residents informing them of the planned activities and duration.

Construction of CS 529 includes pile driving activities, which would be required for construction and installation of four new building platforms requiring re-cast support piles. The pile driving activities would be conducted only during daytime hours and are anticipated to last eight weeks with a maximum sound level of 59 dBA during pile driving activities.

Predicted noise levels for HDD activities are presented in table 30.

Table 30: HDD Noise Analysis

NSA	Distance (feet)/ Direction	Existing Ambient L_{dn} (dBA)	Estimated Construction Noise (dBA)	Construction Noise Levels+ Ambient (dBA)	Construction + Ambient Ldn with Mitigation (dBA)	Increase in Noise Levels with Mitigation (dBA)
NSA 1-Entry	450 ft/ N	51.0	67.5	67.6	55.7	4.7
NSA 2-Exit	750 ft/ W	51.0	50.4	53.7	N/A	2.7

Based on the projected drilling sound levels, **we recommend that:**

- **<u>Prior to construction of the Bayou Road and Highway 46/Florissant Highway HDD crossing,</u> Tennessee should file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, a HDD noise mitigation plan to reduce the projected noise level attributable to the proposed drilling operations at NSA 1. During drilling operations, Tennessee should implement the approved plan, monitor noise levels, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than an L_{dn} of 55 dBA at the NSA.**

Measures to mitigate construction noise at affected NSA's would include compliance with federal regulations limiting noise from trucks, proper maintenance of equipment, employ a temporary noise barrier around the HDD entry site workspace, install hospital-grade exhaust silencers on all engines in conjunction with any of the site HDD equipment, install barriers around specific equipment, and employ a low-noise generator.

Because construction of the Tennessee Project would be primarily intermittent and limited to daytime hours, and with implementation of our recommendation to reduce

HDD noise, we conclude that construction noise would not have a significant impact on the environment.

SNG Project

Construction of the facilities would involve operation of general construction equipment and noise would be generated during the installation of the Project components. Construction noise would be highly variable because the types of equipment in use changes with the construction phase and the types of activities. Noise from construction activities may be noticeable at nearby NSAs. However, construction equipment would be operated on an as-needed basis during the construction period. Further, SNG would limit construction activities to occur during daytime hours, except when required for activities such as hydrostatic testing, operation of pumps at waterbody crossings. If nighttime construction is required (outside of 7:00 AM to 7:00 PM), advanced notice would be provided to the residents informing them of the planned activities and duration.

Measures to mitigate construction noise at nearby NSA's would include compliance with federal regulations limiting noise from trucks, proper maintenance of equipment. Because construction of the SNG Project would be intermittent and mostly be limited to daytime hours, we conclude that construction noise would not have a significant impact on the environment.

8.2.2. Operational Noise

Tennessee Project

The new and modified compressor stations would produce operational noise. Hoover and Keith completed a pre-construction sound survey and noise analysis for the compressor stations using baseline sound surveys, sound level data for the specific equipment planned for the facility, and calculations for the noise attenuation over distance and proposed noise control measures. The existing (ambient) noise sound levels, estimated sound levels from the proposed sources, total noise sound levels, and noise increases/decreases were calculated.

CS 529

Blowdowns associated with operation of CS 529 would be mitigated by installing a unit blowdown system with silencers at each compressor unit, which would limit the sound level to 55 dBA. During initial start up and testing, it is anticipated that a unit blowdown could occur an average of 2 times per week and up to 104 times per year during normal operation.

Operational sound levels for CS 529 are presented in table 31.

Table 31: Noise Quality Analysis for CS 529					
NSA	**Distance and Direction of NSA to Station Site Center**	**Ambient Sound Level (Ldn) (dBA)**	**Est'd Sound Level (Ldn) of the Station at Full Load (dBA)**	**Est'd Total (Station Noise + Ambient Noise) (dBA)**	**Potential Noise Increase (dBA)**
NSA #1 (Residences)	3,000 ft. (SE)	48.2 dBA	45.7	50.1 dBA	1.9

To confirm the noise modeling and verify that noise generated from the new compressor station CS 529 would not exceed 55 dBA, **we recommend that:**

- **Tennessee should file noise surveys with the Secretary <u>no later than 60 days</u> after placing the CS 529 in service. If a full load condition noise survey is not possible, Tennessee should file an interim survey at the maximum possible horsepower load and file the full load survey <u>within 6 months</u>. If the noise attributable to the operation of all of the equipment at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, Tennessee should:**

  a. file a report with the Secretary on what changes are needed, for review and written approval by the Director of OEP, or the Director's designee;
  b. install additional noise controls to meet that level <u>within 1 year</u> of the in-service date; and
  c. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary <u>no later than 60 days</u> after it installs the additional noise controls.

There would be no operational noise from the proposed pipeline loops. Based on the analysis above, we conclude that the Tennessee Project would not have a significant impact on noise in the area.

<u>SNG Project</u>

Rose Hill CS

The new Rose Hill CS would produce operational noise. Hoover and Keith completed a pre-construction sound survey and noise analysis for the compressor stations using baseline sound surveys, sound level data for the specific equipment planned for the facility, and calculations for the noise attenuation over distance and proposed noise control measures. The existing (ambient) noise sound levels, estimated sound levels from the proposed sources, total noise sound levels, and noise increases/decreases were calculated.

Blowdowns associated with operation of the Rose Hill CS would be mitigated by installing a unit blowdown system with silencers at each compressor unit, which would limit the sound level to 55 dBA. During initial start up and testing, it is anticipated that a unit blowdown could occur an average of 3 to 4 times per day during daytime hours and up to 36 times per year during normal operation.

Operational sound levels for the Rose Hill CS are presented in table 32.

Table 32: Noise Quality Analysis for Rose Hill CS

NSA	Distance and Direction of NSA to Station	Ambient Sound Level (Ldn) (dBA)	Est'd Sound Level (Ldn) of the Station at Full Load (dBA)	Est'd Total (Station Noise + Ambient Noise) (dBA)	Potential Noise Increase (dBA)
NSA 1	2,900 ft/ SE	51.1	43.6	51.8	0.7
NSA 2	2,900 ft/ E	48.7	43.6	49.9	1.2
NSA 3	4,600 feet/ SSE	58.3	37.8	58.3	-

To confirm the noise modeling and verify that noise generated from the new compressor station would not exceed 55 dBA, **we recommend that:**

- **SNG should file noise surveys with the Secretary <u>no later than 60 days</u> after placing the Rose Hill CS in service. If a full load condition noise survey is not possible, SNG should file an interim survey at the maximum possible horsepower load and file the full load survey <u>within 6 months</u>. If the noise attributable to the operation of all of the equipment at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, SNG should:**

  a. **file a report with the Secretary on what changes are needed, for review and written approval by the Director of OEP, or the Director's designee;**
  b. **install additional noise controls to meet that level <u>within 1 year</u> of the in-service date; and**
  c. **confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary <u>no later than 60 days</u> after it installs the additional noise controls.**

<u>Toca Meter Station</u>

Operational sound levels for the new Toca Delivery Meter Station to be installed at the existing Toca CS, are presented in table 33.

Table 33: Noise Quality Analysis for Toca Meter Station					
NSAs	**Distance/ Direction**	**Existing Est'd Sound Level (Ldn) (dBA)**	**Est'd Sound (Ldn) of new meter station (dBA)**	**Est'd Total (Ldn) (dBA)**	**Increase (+)/ decrease(-) (dBA)**
NSA #1	600 ft. WNW	56.8	40.6	56.8	0.0
NSA #2	950 ft/ NW	53.7	38.4	53.7	0.0
NSA #3	1,350ft/ E	54.8	40.9	54.8	0.0

Based on the analysis above, we conclude that the SNG Project would not have a significant impact on noise in the area.

9. RELIABILITY AND SAFETY

The pressurization of natural gas at a compressor station involves some incremental risk to the public due to the potential for accidental release of natural gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Methane has an auto-ignition temperature of 1,000 ºF and is flammable at concentrations between 5.0 and 15.0 percent in air. An unconfined mixture of methane and air is not explosive; however, it may ignite and burn if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

9.1. SAFETY STANDARDS

The USDOT is mandated to prescribe minimum safety standards to protect against risks posed by natural gas facilities under Title 49 of the U.S. Code, Chapter 601. The USDOT's Pipeline and Hazardous Materials Safety Administration administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of natural gas facilities. Many of the regulations are written as performance standards which set the level of safety to be attained and allow the operator to use various technologies to achieve safety. The Pipeline and Hazardous Materials Safety Administration's safety mission is to ensure that people and the environment are protected from the risk of incidents. This work is shared with state agency partners and others at the federal, state, and local level.

Title 49, U.S.C. Chapter 601 provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. A state may also act as USDOT's agent to inspect interstate facilities within its boundaries; however, the USDOT is responsible for enforcement actions.

The USDOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 specifically addresses natural gas pipeline safety issues.

The USDOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of FERC's regulations require that an applicant certify that it would design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with federal safety standards and plans for maintenance and inspection. Alternatively, an applicant must certify that it has been granted a waiver of the requirements of the safety standards by the USDOT in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act. Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the USDOT and the FERC, FERC accepts this certification and does not impose additional safety standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert USDOT. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipelines under the Commission's jurisdiction.

The FERC also participates as a member of the USDOT's Technical Pipeline Safety Standards Committee which determines if proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with the USDOT Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. The USDOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

The USDOT also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

Class 1 Location with 10 or fewer buildings intended for human occupancy.

Class 2 Location with more than 10 but less than 46 buildings intended for human occupancy.

Class 3 Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.

Class 4 Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. For instance, pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (*e.g.*, 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures; hydrostatic test pressures; MAOP; inspection and testing of welds; and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas. Preliminary class locations for the Project have been developed based on the relationship of the pipeline centerline to other nearby structures and manmade features.

All proposed pipeline would be Class 1.

If a subsequent increase in population density adjacent to the right-of-way results in a change in class location for the pipeline, Tennessee would reduce the MAOP or replace the segment with pipe of sufficient grade and wall thickness, if required to comply with the USDOT requirements for the new class location.

The USDOT Pipeline Safety Regulations require operators to develop and follow a written integrity management program that contain all the elements described in 49 CFR 192.911 and address the risks on each transmission pipeline segment. The rule establishes an integrity management program which applies to all high consequence areas (HCA).

High Consequence Areas

The USDOT has published rules that define HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies,

in part, the Congressional mandate for USDOT to prescribe standards that establish criteria for identifying each gas pipeline facility in a high-density population area.

The HCAs may be defined in one of two ways. In the first method an HCA includes:

- current Class 3 and 4 locations,
- any area in Class 1 or 2 where the potential impact radius[16] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle[17], or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.

An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

In the second method, an HCA includes any area within a potential impact circle which contains:

- 20 or more buildings intended for human occupancy, or
- an identified site.

Once a pipeline operator has determined the HCAs along its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The USDOT regulations specify the requirements for the integrity management plan at section 192.911. There are no HCAs located near the Project.

Project facilities must be designed, constructed, operated, and maintained in accordance with the USDOT Minimum Federal Safety Standards in 49 CFR 192 that are designed to minimize the risks of such impacts. The USDOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion. The requirements include provisions for written emergency plans and emergency shutdowns. Tennessee would provide the appropriate training to local emergency service personnel before the facilities are placed into service.

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[16] The potential impact radius is calculated as the product of 0.69 and the square root of the MAOP of the pipeline in psig multiplied by the square of the pipeline diameter in inches.

[17] The potential impact circle is a circle of radius equal to the potential impact radius.

The USDOT prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Each pipeline operator is required to establish an emergency plan that includes procedures to minimize the hazards of a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency system shutdown and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

The USDOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. Tennessee would provide the appropriate training to local emergency service personnel before the pipeline and aboveground facilities are placed in service.

On October 1, 2019 the PHMSA issued new regulations modifying and expanding the standard pipeline safety standards under 49 CFR Parts 191 and 192. These regulations, in part, established: new standards for in-line inspections; requirements for newly established moderate consequence areas (MCA); explicitly requires consideration of seismicity and geotechnical risks in its integrity management plan for the pipeline; new regulations on pipeline patrol frequency for HCAs, MCAs and grandfathered pipelines; a policy to reconfirm MAOP for certain pipelines; installation of pressure relief for pig launcher/receivers, and report exceedances of MAOP to PHMSA. Tennessee would be required to comply with these regulations, which go into effect on July 1, 2020.

9.2. PIPELINE ACCIDENT DATA

The USDOT requires all operators of natural gas transmission pipelines to notify the USDOT of any significant incident and to submit a report within 30 days. Significant incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization; or

- involve property damage of more than $50,000 (1984 dollars)[18].

During the 20-year period from 1999 through 2018, a total of 1,310 significant incidents were reported on the more than 300,000 total miles of natural gas transmission pipelines nationwide.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 34 provides a distribution of the causal factors as well as the number of each incident by cause. The dominant causes of pipeline incidents are corrosion and pipeline material, weld or equipment failure constituting 53.2 percent of all significant incidents. The pipelines included in the data set in table 34 vary widely in terms of age, diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline. The frequency of significant incidents is strongly dependent on pipeline age. Older pipelines have a higher frequency of corrosion incidents and material failure, because corrosion and pipeline stress/strain is a time-dependent process.

Table 34: Natural Gas Transmission Pipeline Significant Incidents by Cause (1999-2018)[a]

Cause	Number of Incidents	Percentage
Pipeline material, weld, or equipment failure	413	30.1
Corrosion	317	23.1
Excavation	195	14.2
All other causes [b]	142	10.3
Natural forces [c]	156	11.4
Outside force [d]	95	6.9
Incorrect operation	55	4.0
Total	**1,310**	**100**

a. All data gathered from PHMSA's Oracle BI Interactive Dashboard website for Significant Transmission Pipeline Incidents (PHMSA, 2019).
b. All other causes include miscellaneous, unspecified, or unknown causes.
c. Natural force damage includes earth movement, heavy rain, floods, landslides, mudslides, lightning, temperature, high winds, and other natural force damage.
d. Outside force damage includes previous mechanical damage, electrical arcing, static electricity, fire/explosion, fishing/maritime activity, intentional damage, and vehicle damage (not associated with excavation).

[18] $50,000 in 1984 dollars is approximately $112,955.73 as of May 2015 (CPI, Bureau of Labor Statistics, 2015)

The use of both an external protective coating and a cathodic protection system[19], required on all pipelines installed after July 1971, significantly reduces the corrosion rate compared to unprotected or partially protected pipe.

Outside force, excavation, and natural forces are the cause in 33.5 percent of significant pipeline incidents. These result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. Table 35 provides a breakdown of external force incidents by cause.

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines contain a disproportionate number of smaller-diameter pipelines; which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movement.

Since 1982, operators have been required to participate in "One Call" public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The "One Call" program is a service used by public utilities and some private sector companies (*e.g.*, oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts.

The available data from PHMSA show that natural gas transmission pipelines continue to be a safe, reliable means of energy transportation. The construction and operation of the facilities would represent a minimum increase in risk to the nearby public and we are confident that with implementation of the required design criteria for the design of these facilities, that they would be constructed and operated safely.

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[19] Cathodic protection is a technique to reduce corrosion (rust) of the natural gas pipeline through the use of an induced current or a sacrificial anode (like zinc) that corrodes at faster rate to reduce corrosion.

Table 35: Excavation, Natural Forces, and Outside Force Incidents by Cause (1996-2015) [a]		
Cause	**Number of Excavation, Natural Forces, and Outside Force Incidents**	**Percentage of All Incidents [b,c]**
Third party excavation damage	172	13.1
Heavy rain, floods, mudslides, landslides	74	5.7
Vehicle (not engaged with excavation)	49	3.7
Earth movement, earthquakes, subsidence	32	2.4
Lightning, temperature, high winds	27	2.1
Operator/contractor excavation damage	25	1.9
Unspecified excavation damage/previous damage	13	1.0
Other or unspecified natural forces	13	1.0
Fire/explosion	9	0.7
Fishing or maritime activity	9	0.7
Other outside force	9	0.7
Previous mechanical damage	6	0.5
Electrical arcing from other equipment/facility	1	0.1
Intentional damage	1	0.1
Total	440	33.5

a. All data gathered from PHMSA's Oracle BI Interactive Dashboard website for Significant Transmission Pipeline Incidents, https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages&NQUser=PDM_WEB_USER&NQPassword=Public_Web_User1&PortalPath=%2Fshared%2FPDM%20Public%20Website%2F_portal%2FSC%20Incident%20Trend&Page=Significant&Action=Navigate&col1=%22PHP%20-%20Geo%20Location%22.%22State%20Name%22&val1=%22%22 (USDOT, 2016a). Accessed on 2/17/2016.
b. Percentage of all incidents was calculated as a percentage of the total number of incidents natural gas transmission pipeline significant incidents (i.e., all causes) presented in table 4.12.3-1.
c. Due to rounding, column does not equal 33.6 percent.

9.3. POLYCHLORINATED BIPHENYLS

When any existing station piping or pipeline is cut, the contractor would follow the EPA issued Polychlorinated Biphenyls (PCB) rules and regulations contained in 40 CFR Part 761. None of Tennessee's existing facilities have been found to have PCBs in excess of 50 ppm in pipeline liquids. Tennessee's system is considered "dry" system with no pipeline liquids generated. The proposed looping pipelines would be constructed from new pipe and no replacement or abandonment of pipelines are proposed as part of the Tennessee Project. In the event contaminated liquid, soil, or pipeline facilities are

encountered unexpectedly during construction, these materials would be managed in accordance with federal and state regulations.

SNG is not proposing replacement or abandonment of pipelines known to have PCBs in excess of 50 ppm in pipeline liquid as part of the SNG Project. In the event contaminated liquid, soil, or pipeline facilities are encountered unexpectedly during construction, these materials would be managed in accordance with federal and state regulations.

Based on the discussion above, we conclude that PCBs are not expected at the Tennessee Project or SNG Project facilities.

10. CUMULATIVE IMPACTS

In accordance with NEPA and with FERC policy, we evaluated the potential for cumulative effects of the Project. Cumulative impacts represent the incremental effects of a proposed action when added to other past, present, or reasonably foreseeable future actions, regardless of the agency or party undertaking such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time.

This cumulative effects analysis generally follows a method set forth in relevant CEQ and EPA guidance and focuses on potential impacts from the Project on resource areas or issues where the incremental contribution would be potentially significant when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affect a resource potentially affected by the project;
- cause this impact within all, or part of, the project's geographic scope; and
- cause this impact within all, or part of, the time span for the potential impact from the project.

10.1. PROJECTS IDENTIFIED WITHIN THE GEOGRAPHIC SCOPE

Our cumulative impacts analysis considers actions that impact environmental resources affected by the proposed action, within all or part of the SNG and Tennessee Project areas affected by the proposed action (i.e., geographic scope), and within all or part of the time span of the impacts. The geographic scope used to assess cumulative impacts for each resource are discussed below in table 36.

Table 36: Geographic Scope of Cumulative Impacts	
Resource	**Geographic Scope**
Soils and Geology	Construction Workspaces
Groundwater, Wetlands, Vegetation, Wildlife	Hydrologic Unit Code (HUC) 12 Watershed
Surface Water Resources	HUC 12 Watershed. For direct in-water work (e.g. dredging) include potential overlapping impacts from sedimentation, turbidity, and water quality
Cultural Resources	Overlapping impacts within the Area of Potential Effects
Land Use	1 mile radius
Visual	For aboveground facilities, distance that the tallest feature at the planned facility would be visible from neighboring communities. For pipelines, 0.25 mile and existing visual access points (e.g. road crossings)
Noise – Operations	Other facilities that would impact any NSA within 1 mile of a noise emitting permanent aboveground facility
Noise – Construction	0.25 mile from pipeline or aboveground facilities. 0.5 mile from horizontal direction drilling
Air Quality – Operations	50 kilometers (about 31.1 miles)
Air Quality – Construction	0.25 mile from pipeline or aboveground facilities
Socioeconomics	Affected counties and municipalities
Environmental Justice	Block groups crossed by the pipeline and aboveground facilities

The EA analyzed the impacts from the Project on geology and soils; groundwater, surface water and wetland resources; aquatic resources, vegetation and wildlife; cultural resources; land use and visual resources; socioeconomics, environmental justice, and air quality and noise.

We identified past, present, and reasonably foreseeable future projects within the resource-specific geographic scopes. In this analysis, we consider the impacts of past projects as part of the affected environment (environmental baseline) which was described and evaluated in the preceding analysis. However, present effects of past actions that are relevant and useful are also considered. Tennessee and SNG obtained information about present and future planned developments by consulting federal, state, and local agencies and municipality websites, reports, and direct communications; permit applications with various agencies; and online database searches.

10.2. POTENTIAL CUMULATIVE IMPACTS OF THE PROPOSED ACTION

Tables E.4 and E.5 in appendix E lists the past, present, and reasonably foreseeable projects we identified within the geographic scope for each resource, and we considered this cumulative impact in our analysis for the Tennessee and SNG Projects.

10.2.1 Tennessee Project

Within the Tennessee Project area, there are planned natural gas and crude oil infrastructure projects. As discussed in section A.9, at CS 529, Entergy would permit, construct, and operate approximately 250 feet of overhead power line; St. Bernard Water Company would install about 200 feet of an underground 4-inch-diameter potable water supply line to connect to the existing water system; and a communication provider (to be determined) would install approximately 200 feet of an overhead communication line, all originating between the fence of CS 529 and the adjacent bayou, parallel to the bayou and Florissant Highway. Other projects include the new IGP Methanol Plant, two sediment diversion projects, two shoreline and marsh restoration projects, and levee restoration. Venture Global's Plaquemines LNG Terminal and associated Gator Express Pipeline is a FERC-jurisdictional project that would occur during the Tennessee Project's timeframe. Plaquemines LNG would include a new LNG export terminal and a total of 27 miles of 42-inch-diameter pipeline that would be constructed in two phases: 15 miles would be constructed during phase 1 and would interconnect with Tennessee and Texas Eastern Transmission located offshore, southwest of the terminal site (SW Lateral TGP); and, 12 miles of looping pipeline would interconnect with Texas Eastern Transmission (SW Lateral TETLP).

These projects would temporarily and permanently affect soils, wetlands and waterbodies, wildlife, vegetation, land use, air quality, and noise during construction and operation. As described in section B of this EA, the Tennessee Project-related construction and operational impacts would not impact cultural resources, and as such, is not considered in the cumulative impact analysis for the Tennessee Project. Additionally, although the Grand Bayou Loop is located within an EJ community, impacts would be minor and temporary, as discussed in section B.7.6., and therefore is not discussed further. Cumulative impacts from the Project and the identified past, present, and reasonably foreseeable activities and projects on geology and soils, groundwater, wetlands, surface water, vegetation, wildlife, fisheries, land use, visual resources, socioeconomics, air quality, and noise are shown in table E.4 in appendix E are addressed below.

Geology and Soils

Concurrent or consecutive construction schedules with the non-jurisdictional projects at CS 529 (overhead power and communication lines and underground water line) could prolong the duration that soils would be disturbed and thus susceptible to erosion. However, the companies installing these facilities would be expected to adhere to similar erosion and sedimentation control plans and procedures to minimize erosion impacts. Given that CS 529 has already generally been graded, as well as the anticipated limited depth of disturbance that would be required to install the non-jurisdictional facilities, cumulative impacts on soils and geology would not be significant.

Groundwater, Wetlands, and Surface Water

Cumulative impacts on groundwater, wetlands, and surface water, primarily due to increased turbidity or contamination due to spills, could extend outside of the project workspaces, but would likely be contained to a relatively small area (the HUC 12 sub-watersheds). Projects identified within the HUC-12 include the Shell Pipeline, and SNG's modifications at its Toca CS. However, SNG's proposed activities at the Toca CS would be conducted within this existing compressor station, and no impacts on wetlands and waterbodies are expected and therefore, would not contribute to cumulative impacts on these resources.

Tennessee would implement measures outlined in section B.3.1 to ensure groundwater resources are not adversely affected. Similarly, the Shell Pipeline Company, LLC and SNG is expected to implement best management practices to limit impacts on groundwater. Because the proposed Tennessee Project is not anticipated to affect groundwater quality or supply, we conclude it would not contribute to cumulative impacts on groundwater resources.

Wetlands would be impacted during the construction of the looping pipelines and CS 529. Construction of the looping pipelines would not result in permanent loss of wetlands, but there would be a temporary loss that would be restored to pre-construction conditions and allowed to revegetate. Construction of CS 529 would require placement of fill in a wetland and fencing requiring temporary impacts on wetlands. The Tennessee Project's potential impacts on waterbodies during construction include water quality impacts from construction-related storm water runoff, inadvertent returns during HDD operations, hydrostatic testing of pipelines, site dewatering and construction vessel traffic. Wetland impacts during operational activities would be limited to periodic maintenance activities along the CS 529 fence line. Operational impacts on waterbodies are limited to the pig launcher and receiver platform, which would be accessed annually

via a work barge equipped with a crane to lift the pig into pig launcher and out of the pig receiver or inspection and maintenance activities.

As discussed in sections B.3.2, B.3.3, and B.4.1, Tennessee would minimize impacts on wetlands, waterbodies, and fisheries through adherence to its Environmental Construction Manual and permit conditions, including the Corps and LDNR-OCM permits. Further, to achieve no net loss of wetland function or value, Tennessee is proposing a compensatory mitigation plan for the permanent impacts associated with the fill for construction of CS 529 and temporary loss and permanent conversion of forested canopy in PFO and EFO wetland systems. Shell Pipeline Company has received, applied, or would apply for Corps and LDNR-OCM permits and would be required to adhere to similar permit restrictions as the Tennessee Project in regards to minimizing impacts on wetlands, waterbodies and associated fisheries through best management practices and mitigation to achieve a no net loss of wetland function or value. Further, Tennessee designed the project to avoid or minimize impacts on wetlands and waterbodies to the extent practicable, as the project components are all co-located with existing facilities. For these reasons, the Tennessee Project, when considered cumulatively with past, present, and reasonably foreseeable projects, would not contribute to significant cumulative impacts on wetlands and waterbodies within the geographic scope.

Vegetation, Wildlife, and Fisheries

Projects identified within the HUC-12 include the Shell Pipeline, and SNG's modifications at its Toca CS. However, SNG's proposed activities at the Toca CS would be conducted within this existing compressor station, and impacts on vegetation or wildlife are expected to be negligible and therefore, would not contribute to cumulative impacts on these resources.

Construction of the looping pipelines and CS 529 would have both temporary and permanent impacts on terrestrial and aquatic wildlife and vegetation due to disturbance of habitat. As discussed in section 4.2 of this EA, there is no unique, sensitive, or protected vegetation in the vicinity of the Project areas. Tennessee plans to minimize impacts on wildlife and vegetation by utilizing previously disturbed habitat at CS 529, adhering to Project-specific Plans and Procedures, through training and awareness programs and following the conditions noted in the Corps and LDNR-OCM authorizations. Temporary and permanent impacts on wildlife and vegetation are expected to be minimal and localized within a small portion of a wider habitat.

Work activities planned for the Shell Pipeline would occur along three sites on an existing Shell pipeline canal, including installation of a rock berm; replacement of existing pilings; and installation of Aquablock fill material around Shell's existing 20-inch-diameter pipeline. Shell Pipeline Company, LLC has received or applied for Corps and LDNR-OCM permits and would be required to adhere to similar permit

obligations/restrictions as the Tennessee Project minimizing impacts on wildlife and vegetation habitats.

Impacts on vegetation and wildlife from construction and operation of the Shell Pipeline would be similar to the impacts described above for this project (i.e., cause wildlife to either adapt to new conditions or relocate to undisturbed suitable habitat). Displacement of wildlife could result in additional stress and increased competition in available habitats. In addition, direct mortality of less mobile species may occur as a result of development activities. Overlapping construction schedules would result in greater area and duration of vegetation and wildlife disturbance. Additionally, wildlife could be impacted by increased noise, lighting, and human activity. Wildlife may temporarily displace to nearby suitable habitat, but are anticipated to return to those areas temporarily impacted following the completion of construction activities. Although about 12 acres of wetland would be converted as part of the Tennessee Project at the new CS 529, it would be located at an abandoned CS site and the looping pipelines would be co-located with existing pipelines. Work for the Shell Pipeline would be along its existing right-of-way and is expected to result in minimal habitat conversion. Therefore, abundant habitat would remain available within the geographic scope.

Construction of the looping pipelines and CS 529 would have the potential to impact fisheries associated with the impacted waterbodies. Grand Bayou Loop and Yscloskey Toca Lateral Loop would cross waterbodies and wetlands that have potential to support fish and a small portion of the Grand Bayou Loop crosses EFH and an oyster lease. Potential cumulative impacts previously described for surface waters would also apply to associated fisheries. Additionally, fisheries could be affected by construction noise and vibration, especially from pile driving activities, which would occur for both the Tennessee Project and the Shell Pipeline. As discussed in section B.4.1, Tennessee would use a wood cushion on its impact hammer to reduce noise levels and minimize impacts from pile driving on fisheries. The Shell Pipeline is expected to conduct an analysis similar to the discussion in section B.4.1, and implement mitigation necessary to reduce impacts on fisheries.

Tennessee designed the Project to avoid or minimize the Project's impacts on vegetation and wildlife, including aquatic wildlife, to the extent practicable by co-locating the proposed facilities with existing facilities, along with Tennessee's proposed measures. Additionally, many of the impacts of both projects would be temporary and there is an abundance of similar habitats within the geographic scope. Therefore, cumulative impacts on wildlife and vegetation/wildlife habitat as a result of the proposed Tennessee Project and the Shell Pipeline are not anticipated to be significant.

Threatened and Endangered Species and Essential Fish Habitat

Cumulative impacts on protected species can occur when multiple projects impact known or potential habitat for listed species. The FWS concluded that the Project is not likely to adversely affect the West Indian manatee. Consultation with NMFS regarding the project's potential impacts on listed sea turtles and EFH is ongoing. Venture Global's Plaquemines LNG Terminal and Gator Express Pipeline would also impact habitat for the West Indian manatee and federally listed sea turtles. Some of the other identified projects may also impact marine environments where the West Indian manatee and federally listed sea turtle could potentially be present. Tennessee has committed to implement the Standard Manatee Conditions for In-Water Activities and the Sea Turtle and Smalltooth Sawfish Construction Conditions during construction. Tennessee is also expected to adhere to the recommended protection measures provided by NMFS resulting from EFH consultation. Other projects within the marine habitat for the West Indian manatee and listed sea turtles would consult with FWS and NMFS and would also be expected to comply with these measures.

Based on the Tennessee's proposed restoration and mitigation efforts, and adherence to recommended protection measures and specific conservation measures, the Tennessee Project's contributions to cumulative impacts on protected species would not be significant, and the Project would not contribute to cumulative impacts associated with past/historical, present, or reasonably foreseeable future projects or activities.

Land Use and Visual Resources

At CS 529, the use of overhead cranes and other tall equipment would be necessary to place certain equipment but would be limited to a 12-month period. Existing access roads into CS 529 would be repaired or enhanced, improving the aesthetic appeal of the immediate surroundings. The tallest structure at CS 529 during operation would be a 55 foot in height stack. The estimate distance to horizon for a 55-foot structure is estimated at 9.1 miles, but this does not take into account other obstructions such as adjacent buildings and structures (Targa Resources site) to the southeast and tall vegetation to the northwest. However, projects were identified within 9.1 miles of CS 529 and include SNG Modifications at Toca CS and the South Lake Lery Shoreline and Marsh Restoration project. The SNG Modifications at Toca CS would occur at an existing facility and would not change the current aesthetic appeal of the surrounding area. Much of the area between the South Lake Lery Shoreline and Marsh Restoration Project and CS 529 is freshwater and estuarine marsh. The South Lake Lery Shoreline and Marsh Restoration Project would improve the visual appeal of the area.

The Shell Pipeline and SNG modifications at Toca were identified within the geographic scope for visual impacts for the looping pipelines. As previously stated, the SNG Modifications at Toca CS would occur at an existing facility and would not change the current aesthetic appeal of the surrounding area. The looping pipelines and the Shell

Pipeline would both occur within or along existing facilities and operation of both projects would negligibly change the current aesthetic appeal of the surrounding area, and they would be consistent with existing conditions.

The Tennessee Project and many of the other identified projects would be located within the Louisiana Coastal Zone. As discussed in section B.5.1.3, Tennessee would obtain authorization from LDNR-OCM prior to construction within the coastal zone. All projects requiring construction within the coastal zone would be required to obtain this authorization to determine consistency with the Louisiana Coastal Zone Management Plan and adhere to any requirements.

As discussed in section B.5, no public recreation areas are located within the Tennessee Project areas, however, some landowners in the Project area provide opportunities to hunt on their lands and gain access to waterways. Tennessee committed to work with these landowners on alternative routes to mitigate for loss of access and any additional impacts that may occur. Additionally, CS 529 would be screened by another facility (Targa Resources) and surrounding trees to the nearest residences. For these reasons, cumulative impacts on land use and visual resources are not expected to be significant.

Socioeconomics

For socioeconomics evaluation, the cumulative impacts of the Project were reviewed in association with known proposed activities that are anticipated to occur in Plaquemines and St. Bernard Parishes and include the IGP Methanol Project, Venture Global Plaquemines LNG and Venture Global Gator Express Pipeline, Plaquemines Liquid Terminal, NOLA Oil Terminal, Shell Pipeline Company, TGP Station 527 2.55 (b) Facilities Modifications, TGP Station 527 (Evangeline Pass Flexibility Project), Mid-Barataria Sediment Diversion Project, Mid-Breton Sediment Diversion Project, Barataria Basin Spanish Pass Ridge and Marsh Restoration Project, New Orleans to Venice Hurricane Risk Reduction Project (NFL/NOV), South Lake Lery Shoreline and Marsh Restoration project.

The Tennessee Project would have a total workforce upper limit estimated of approximately 220 people during peak construction (120 people throughout the 10 to 12 month construction phase of CS 529 and 100 people would be required throughout the four to seven month construction phase of the Grand Bayou and Yscloskey Toca Lateral Loops). Due to the relatively small workforce required during operations, the project would have a negligible impact on socioeconomics during operations. As such, cumulative impacts associated with facility operations are not discussed further.

The greatest potential for cumulative impacts on population, employment, local services, and tax revenues would be where the other projects are under construction at the

same time as the Tennessee Project. These parishes would likely see a temporary increase in population from non-local workers relocating to these areas during the construction of the Project, as well as for any concurrently constructed projects.

Local workers employed by the projects would likely live in the vicinity of the projects components they are working on; outside workers would be expected to stay in the parishes crossed by the Project to be near their worksites. Local communities would benefit from increased spending by construction crews at restaurants, hotels, and retailers. Additionally, taxes are paid to affected parishes during construction. Construction-related impacts from the proposed Project on employment and tax revenues would generally be temporary and minor; the other projects identified in table E.3 in appendix E would likely have economic impacts during construction, including those projects typical of ongoing urban/metropolitan development. As discussed in section B.7, the Tennessee Project would have negligible socioeconomic impacts during operation and therefore would not contribute to cumulative impacts on population, employment, and local services.

Construction of the proposed Project could result in minor, temporary impacts on some roads due to construction within the roadway and the movement of heavy equipment and personnel. Concurrent construction of the proposed Project and other projects in the vicinity could result in a temporary and minor cumulative impact on transportation due to increased use of roadways. Tennessee would perform construction of the Grand Bayou Loop from a barge, and would also use waterborne methods to transport personnel and material to the site via public waterways, thereby minimizing traffic impacts on nearby roads. Given Tennessee's commitment to implement mitigation measures to ensure traffic safety and maintain traffic flow, and similar actions that are likely to be taken by other project proponents, we conclude that cumulative impacts on traffic during the 10 to 12 month construction period for CS 529 and four to seven month construction phase of the Grand Bayou and Yscloskey Toca Lateral Loops would be minor. Operation of the Project would not contribute to any long-term cumulative impact on the transportation infrastructure, because only a small number of new permanent employees, a maximum of two, would be required.

Air Quality

Several projects were identified within the vicinity of the Tennessee Project with the potential to contribute to cumulative impacts on air quality during construction of the Project. Construction of these projects would involve the use of heavy equipment that would generate emissions of air pollutants and fugitive dust. Fugitive dust emissions would settle quickly, and dust suppression measures would be implemented for the Tennessee Project sites as necessary to ensure the Project-related effects from fugitive dust are intermittent and temporary and would occur within or very near the construction area. The potential cumulative impacts from the Tennessee Project and recently completed, current, and reasonably foreseeable projects in the vicinity would be

temporary and minor. Due to the timing of construction, minimization of fugitive dust as a result of the dust suppression measures, and the highly localized nature of construction emissions, there would be no significant cumulative impacts on air quality during construction.

Projects were identified within the cumulative impact scope for operational air quality for the Tennessee Project, including Plaquemines LNG, IGP methanol plant, Plaquemines Liquids Terminal, and NOLA Oil Terminal. Existing and new emission sources near CS 527 and CS 529 would be required to meet applicable state and federal air quality regulations to avoid significant impacts on air quality. CS 527 is currently a major source with respect to the Title V Major Source Operating Permit program; Tennessee would submit appropriate permit modification to LDEQ for the proposed turbine replacement activity. The proposed replacement would not result in a change of service, and the replacement facilities would have an equivalent design delivery capacity as the facilities being replaced.

There would be no operational emissions associated with the pipeline loops. Based on this and the minor amount of operational emissions associated with the Tennessee Project, we conclude there would be no significant cumulative impacts on air quality during operation of the Tennessee Project.

Noise

Concurrent construction of the projects and other actions in the vicinity of the same NSA could result in cumulative sound level impacts. Idenfied activities that would occur during construction include the installation of the non-jurisdictional facilities at CS 529. Temporary cumulative impacts on noise could occur if a project is actively constructed within the immediate vicinity and at the same time as construction of the Project. Based on the intermittent and temporary duration of construction activities, we conclude that there would be no significant impact on sound levels during construction of the Tennessee Project.

No projects were identified within the geographic scope that would contribute to operational noise in the area. As the increases in the existing noise environment due to the Project facilities are shown to be mininal, we conclude that there would be no significant impact on sound levels during operation of the Project.

10.2.2 SNG Project

Table E.4 in appendix E lists the past, present, and reasonably foreseeable projects identified within the geographic scope for each resource and considered in this cumulative impact analysis for the SNG Project.

Within the SNG Project area, there is one planned non-jurisdictional electrical infrastructure (power line) project that would bring power to the new Rose Hill CS and Receipt MS. An existing overhead power line would be upgraded to 3-phase by EMEPA. Other nonjurisdictional facilities that would be installed at the Rose Hill CS include septic system, groundwater well, and communication tower/lines. These would all be installed within the permanently disturbed area for the Rose Hill CS. There would also be a FERC jurisdictional maintenance project (under section 2.55 of the Commission's regulations) proposed to be conducted in 2021. LDOTD's Florida Avenue Project, which improve and extend a roadway (Florida Avenue) and construct a new bridge over the Inner Harbor Navigation Canal. As discussed, the SNG Project would temporarily affect soils, groundwater, vegetation, wildlife, cultural resources, socioeconomics, land use, air quality and noise during construction and operation. As described in section B of this EA, the SNG Project-related construction and operational impacts would not impact cultural resources, wetlands, or EJ communities, and as such cumulative impacts on these resources were not considered in the cumulative impact analysis for the SNG Project. Cumulative impacts from past, present, and reasonably foreseeable activities and projects shown in table E.4 of appendix E on individual resources are addressed below.

While the SNG Project would not impact environmental justice communities, the EPA provided comments regarding environmental justice communities crossed by the 2.55 facilities proposed by SNG. The 2.55 facilities located within Jasper, Simpson, Jefferson Davis, Lawrence, and Walthall Counties, Mississippi, and St. Tammany and Orleans Parishes, Louisiana, which are identified as EJ communities, would be completed within the confines of existing facilities, rights-of-way, or SNG or fee-owned property; therefore, there would be no additional impacts on EJ communities and impacts from those facilities are not discussed further.

Cumulative impacts from past, present, and reasonably foreseeable activities and projects shown in table E.4 of appendix E on these individual resources are addressed below.

Geology and Soils

Concurrent or consecutive construction schedules with the non-jurisdictional facilities at the Rose Hill CS and MS (overhead power and communication lines and underground water line) could prolong the duration that soils would be disturbed and thus susceptible to erosion. However, the companies installing these facilities would be expected to adhere to similar erosion and sedimentation control plans and procedures to minimize erosion impacts. Further, the depth of disturbance that would be required to install the non-jurisdictional facilities is anticipated to be relatively shallow. Therefore, cumulative impacts on soils and geology would not be significant.

Surface Water

As discussed in section B.3.3, the SNG Project would only impact one non-jurisdictional drainage ditch within its existing Toca CS. SNG would hydrostatically test the proposed facilities prior to placing them into in-service, requiring a total of 188,700 gallons of water for hydrostatic testing which would be obtained from a municipal source or a private pond owner. SNG's proposed 2.55 activities also would require about 3,925,000 gallons of water for hydrostatic testing and would also sourced from municipal sources or a private pond owner. SNG would only withdraw water from the private pond if approved by appropriate agencies and would comply with the measures described in section B.3.3. to minimize impacts, such as screening intakes and discharging through an energy dissipating device. For these reasons, we conclude that the cumulative impacts on surface water as a result of the proposed project and projects listed in table E.4. in appendix E are anticipated to be minor.

Groundwater, Vegetation, and Wildlife

Cumulative impacts on groundwater, vegetation, and wildlife resources (primarily due to increased turbidity or contamination due to spills), could extend outside of the project workspaces, but would likely be contained to a relatively small area (the HUC 12 sub-watersheds). The only other project identified within the HUC 12 is the power line project.

SNG would implement measures outlined in section B.3.1 to ensure groundwater resources are not adversely affected. Similarly, EMEPA is expected to implement best management practices to limit impacts on groundwater during the upgrade of the power line. Because the proposed project is not anticipated to affect groundwater quality or supply, we conclude it would not contribute to cumulative impacts on groundwater resources.

Historic land use, construction, and development practices have permanently impacted native vegetation communities in the SNG Project area and could have accounted for introduction of exotic, nuisance, and/or non-native vegetation. As discussed in section B.4.1 of this EA, about 10 acres would be permanently converted to industrial land including the Rose Hill CS and Receipt MS and permanent access roads. The new power supply to the Rose Hill CS and Receipt MS would be via an upgraded power line, for which work would be completed within the existing power easements. Best management practices would be implemented during construction and operation in accordance with all federal, state, and local requirements. SNG would implement erosion and sediment controls from its Plan and Procedures, which would be installed, inspected, and maintained to reduce sediment leaving the SNG Project workspace.

Overlapping construction schedules with the power line project within the same HUC-12 geographic scope would result in greater area and duration of vegetation disturbance. Additionally, increased noise, lighting, and human activity could also disturb wildlife in the area, temporarily displacing them to nearby suitable habitat. However, wildlife are anticipated to return to those areas temporarily impacted following the completion of construction activities. Further, both projects would be required to implement stormwater runoff controls, SPCC Plans, and other mitigation measures as required by the state and federal permits. Given that that work on the power line is expected to be limited to the existing power line easement and due to the abundance of similar habitats within the geographic scope, cumulative impacts on vegetation/wildlife habitat as a result of the proposed project and projects listed in table E.4. in appendix E are anticipated to be minor.

Threatened and Endangered Species

Cumulative impacts on protected species can occur when multiple projects impact known or potential habitat for listed species. The FWS concluded that the Project is not likely to adversely affect the West Indian manatee. No in-water work is proposed for the SNG Project. SNG's 2.55 activity near milepost 69 in Orleans Parish would be within the Area of Importance for the West Indian manatee, near Lake Pontchartrain or Lake Borgne where manatees are known to be occasionally present, however, no in-water work is proposed for this activity. For these reasons, the SNG Project is not expected to contribute to cumulative impacts on threatened and endangered species.

Visual Resources and Land Use

The geographic scope for assessing cumulative impacts on visual resources affected by construction and operation of the project includes areas within 0.5 mile of the aboveground facilities, as this is the range that the proposed facilities are likely to be seen. The only project identified within the geographic scope for cumulative impacts on visual resources is the non-jurisdictional power line associated with the new Rose Hill CS. As discussed in section B.5.2, the nearest residences to the Rose Hill CS and Receipt MS are just over 0.5 mile. The presence of equipment and personnel during construction and the facility and nighttime lighting during operation is not likely to have a visual impact on nearby residents given the distance and existing wooded vegetation between the proposed facility and the nearest residences. Additionally, the power line upgrade would occur within the existing power line right-of-way. Given that the Rose Hill CS is not expected to result in visual impacts on the nearest residences, we conclude that the SNG Project would not contribute to any cumulative impacts on visual resources.

The power line project is also the only project identified within the geographic scope for assessing cumulative impacts on land use. Because the power line project

consists of upgrading an existing power line to 3-phase service, and work would be conducted within the existing power line easement, no impacts on land use are expected and therefore, no cumulative impacts on land use would occur.

Socioeconomics

For socioeconomics evaluation, the cumulative impacts of the Project were reviewed in association with known proposed activities that are anticipated to occur in Clarke, Mississippi and St. Bernard Parish, including the Turbine Exhaust Stack Replacement, Florida Avenue Project, 3-phase service overhead power line upgrade project.

The SNG Project would have a total workforce upper limit estimated between 200 to 300 people during peak construction and three people during operations. Due to the relatively small workforce required during operations, the project would have a negligible impact on socioeconomics during operations. As such, cumulative impacts associated with facility operations are not discussed further.

The greatest potential for cumulative impacts on population, employment, local services, and tax revenues would be where the other projects are under construction at the same time as the SNG Project. These parishes would likely see a temporary increase in population from non-local workers relocating to these areas during the construction of the Project, as well as for any concurrently constructed projects.

Local workers employed by the projects would likely live in the vicinity of the projects components they are working on; outside workers would be expected to stay in the parishes crossed by the Project to be near their worksites. Local communities would benefit from increased spending by construction crews at restaurants, hotels, and retailers. Additionally, taxes are paid to affected parishes during construction. Construction-related impacts from the proposed Project on employment and tax revenues would generally be temporary and minor; the other projects identified in table E.4. in appendix E would likely have economic impacts during construction, including those projects typical of ongoing urban/metropolitan development. As discussed in section B.7, the SNG Project would have negligible socioeconomic impacts during operation and therefore would not contribute to cumulative impacts on population, employment, and local services.

Construction of the proposed Project could result in minor, temporary impacts on some roads due to construction within the roadway and the movement of heavy equipment and personnel. Concurrent construction of the proposed Project and other projects in the vicinity could result in a temporary and minor cumulative impact on transportation due to increased use of roadways. Given SNG's commitment to implement mitigation measures to ensure traffic safety and maintain traffic flow, and

similar actions that are likely to be taken by other project proponents, we conclude that cumulative impacts on traffic during the 5-month construction period would be minor. Operation of the Project would not contribute to any long-term cumulative impact on the transportation infrastructure, because only a small number of new permanent employees, a maximum of three, would be required.

Air Quality

Activities within the vicinity of the SNG Project with the potential to contribute to cumulative impacts on air quality during construction include SNG's 2.55 activity at Toca CS and installation of the non-jurisditional facilities at Rose Hill CS and MS. These activities could involve the use of heavy equipment that would generate emissions of air pollutants and fugitive dust. Fugitive dust emissions would settle quickly, and dust suppression measures would be implemented at the Project site as necessary to ensure the Project-related effects from fugitive dust are intermittent and temporary and would occur within or very near the construction area. The potential cumulative impacts from the Project and recently completed, current, and reasonably foreseeable projects in the vicinity would be temporary and minor. Due to the timing of construction, minimization of fugitive dust as a result of the dust suppression measures, and the highly localized nature of construction emissions, there would be no significant cumulative impacts on air quality during construction.

No facilities were identified within the geographic scope for operational air quality for the Project, as discussed in section B.8., emission sources would be required to meet applicable state and federal air quality regulations to avoid significant impacts on air quality. Based on this and the amount of operational emissions associated with the SNG Project, we conclude there would be no significant cumulative impacts on air quality during operation of the SNG Project.

Noise

Concurrent construction of the SNG Project and other actions in the vicinity of the same NSA such as 2.55 activities at the Toca CS could result in cumulative sound level impacts. Noise impacts from the SNG Project as well as the other SNG activities would be temporary and only occur during construction activities. Based on the intermittent and temporary duration of construction activities, we conclude that there would be no significant impact to sound levels during construction of the Project.

There are no reasonably foreseeable projects within the vicinity of the Rose Hill CS that would result in cumulative impacts on noise levels. Therefore, operation of the SNG Project would not contribute to cumulative impacts.

C. ALTERNATIVES

In accordance with NEPA and Commission policy, we evaluated alternatives to the Project to determine whether they would be reasonable and environmentally preferable to the proposed action. These alternatives included the no-action alternative, system alternatives, and site alternatives. The evaluation criteria used for developing and reviewing alternatives were:

- ability to meet the projects' stated objective;
- technical and economic feasibility and practicality; and
- significant environmental advantage over the proposed action.

Through environmental comparison and application of our professional judgement, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same general workspace requirements.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether it could satisfy the stated purpose of each project. An alternative that cannot achieve the purpose of the either project cannot be considered as an acceptable replacement for the projects. The second evaluation criteria is feasibility and practicality. Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique, or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the projects economically impractical.

Alternatives that would not meet the Project objective or were not feasible were not brought forward to the next level of review (i.e., significant environmental advantage over the proposed project). Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results

in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts to another location, potentially affecting a new set of landowners.

1. NO-ACTION ALTERNATIVE

Under the No-Action Alternative, Tennessee and SNG would not construct the proposed Project. If the proposed facilities were not constructed, the adverse impacts identified in section B of this EA would be avoided. However, other natural gas companies may be required to modify or construct new facilities to meet the demand for additional natural gas transportation service. This action would likely result in similar or greater environmental impacts than the proposed Project. Furthermore, our environmental analysis concludes that the proposed Project would not result in significant impacts. Therefore, we have dismissed this alternative as a reasonable alternative to meet the Evangeline Pass Project objectives.

2. SYSTEM ALTERNATIVES

A viable system alternative would make it unnecessary to construct all or part of the Project, although some modifications or additions to the existing system may be required, while still meeting the project's purpose and need.

Tennessee Project

The proposed Tennessee Project includes construction of a new CS and a total of about 13 miles of looping pipeline. The purpose of the Project is to provide up to 1,100,000 Dth/d of firm transportation capacity on Tennessee's interstate natural gas pipeline system for delivery to Venture Global at a proposed interconnection with Gator Express Pipeline in Plaquemines Parish, Louisiana to supply feed gas for Venture Global's Plaquemines LNG Terminal in Plaquemines Parish, Louisiana.

As approved by the Commission, the Gator Express pipeline, which provides feed gas to Venture Global's Plaquemines LNG Terminal, will tie into and receive gas from Tennessee and Texas Eastern Transmission Company (TETCO). In addition to TETCO, Columbia Gulf Transmission, LLC (Columbia) is also located near the Project area. While the TETCO and Columbia systems could potentially serve as alternatives to the Project, Tennessee understands that the TETCO and Columbia systems are at or near capacity and cannot provide the additional capacity proposed by the Project to supply feed gas to Venture Global Plaquemines LNG Terminal absent construction or pipeline looping to expand the current capacity of their systems.

Additional system alternatives evaluated were Tennessee system expansion in lieu of SNG leased capacity; additional looping in lieu of new CS 529; and booster compressor station in lieu of the Grand Bayou Loop.

Tennessee System Expansion in lieu of SNG Leased Capacity

As an alternative to acquiring the leased capacity, Tennessee considered looping its entire system from Tennessee's existing Rose Hill interconnect with SNG in Clarke County, Mississippi to the Toca Lateral, with an approximately 175 mile, 36-inch-diameter pipeline. This alternative would also require installation of another new compressor station, in addition to installing proposed CS 529 and the Grand Bayou Loop. With a typical 125-foot-wide construction right-of-way, along with the new CS with two Solar Turbines Titan 130 turbine compressor units that would be required, this alternative would a result in a minimum construction area 2,692 acres (not including the acreage needed for the Grand Bayou Loop and CS 529), which is much greater than construction of the proposed Yscloskey Toca Lateral Loop (184 acres) and for the SNG Project (69 acres), combined. Therefore, expansion of the Tennessee system would not provide a significant environmental advantage over the proposed Project and we did not consider it further.

Additional Looping in lieu of New CS 529

As an alternative to installing the new compressor station at MLV 529, Tennessee considered the installation of approximately 28 miles of 36-inch-diameter looping pipeline along the Tennessee 500 line commencing at MLV 529 and extending north. This alternative would still require Tennessee to acquire the leased capacity from SNG and construct the Yscloskey Toca Lateral Loop and the Grand Bayou Loop. This alternative would result in greater temporary and permanent land disturbance (estimated at 849 acres based on a 250-foot-wide construction right-of-way for barge lay installation) and would impact more environmentally sensitive areas (e.g., approximately 53.9 acres of wetlands and 778.9 acres of waterbodies through Lake Borgne). For these reasons, this alternative would not provide a significant environmental advantage over the proposed project and we did not consider it further.

Booster Compressor Station in lieu of the Grand Bayou Loop

As an alternative to installing the Grand Bayou Loop, Tennessee considered the installation of an approximate 12,500 hp booster CS branching off of the Tennessee 500 line. This alternative would still require Tennessee to acquire leased capacity and construction of the Yscloskey Toca Lateral Loop in addition to installing proposed CS 529. Given the high rate of flow and low compression ratio, five Caterpillar 3608 A4 reciprocating engines driving Ariel JGK/6 reciprocating compressors would also be required, and the booster CS would be expected to operate around the clock for Tennessee to meet its pressure commitment to the project shipper. The reciprocating compressors would have higher operating and maintenance costs than the proposed loop, as well as additional air emissions (Tennessee estimates an additional 53 tons of NOx emissions per year if the compressors were operated at an 88% load factor). The

estimated land disturbance for the booster CS alternative would be approximately 11 acres (5 acres for temporary workspace and 6 acres for permanent workspace/operations). The entire construction workspace for this alternative would be in open water in Barataria Bay.

Although the construction of the Grand Bayou Loop would impact a greater area during construction, the loop would be installed belowground, adjacent to an existing line, and would not be expected to have any additional impacts during operations. The booster CS, conversely, being located in an offshore environment would be more susceptible to damages and potential outage risks from hurricane conditions when compared to the proposed buried loop, which would be protected from weather impacts on gas deliveries to Gator Express. Operation of the booster CS in an offshore environment could include potential effects to water quality, such as the potential for spills while transporting hazardous materials to and from the CS through the open water. The booster CS would require electrical power for ancillary equipment. To supply this power, either a high voltage distribution line would need to be connected to the station or on-platform generators would be installed. The nearest high voltage electric power transmission line is a 69/138 kV Entergy Louisiana line which is located approximately 8 miles from the booster CS location, in the middle of Barataria Bay. The installation of on-platform generators would result in additional air emissions.

Because of the increased air emissions, increased maintenance, the potential for hazardous material spills during normal operations, as well as the fact that the Grand Bayou loop can be installed in an area in which some of the area was previously disturbed during the construction of Tennessee's 500-1 and 500-2 lines, this alternative would not provide a significant environmental advantage over the proposed Project and we did not consider it further.

SNG Project

The proposed SNG Project includes the construction and operation of a greenfield CS and three new meter stations. The purpose of the proposed SNG Project is to transport additional natural gas to Tennessee's new delivery point in St. Bernard Parish, Louisiana to be used as natural gas feedstock by Venture Global's Plaquemines LNG Terminal in Plaquemines Parish, Louisiana.

SNG's analysis of publicly available information concluded that an expansion of any other existing pipeline system cannot meet the Project objective of transporting 1,100,000 Dth/d of natural gas from the receipt points requested by TGP to the delivery point without incurring environmental impacts that are similar to or greater than those described for the proposed Project. Additional system alternatives evaluated were a looping alternative and a compression alternative (Enterprise Alternative to the Rose Hill CS Site).

Looping Alternative

A looping alternative would require SNG to loop the system from the new Rose Hill Receipt MS to the new Toca Delivery MS, approximately 200 miles. This alternative would still require the installation of compressor units in order to meet the required delivery pressure and thus would not totally eliminate the air emissions associated with the Project. Further, this would result in greater environmental impacts than the proposed facilities. Therefore, we conclude it would not provide a significant environmental advantage, and we have not considered it further.

Compression Alternative

Addition of compression is required to move gas from Tennessee's system into SNG's system because TGP's system operates at a lower pressure than SNG's system. Placing the compression as close to the interconnect as possible is a better hydraulic design and reduces the length of pipe that must be installed as well as the required diameter of the pipe to transport the natural gas. Accordingly, SNG primarily focused on potential sites to add compression as close to the interconnect as practicable.

The EPA provided comments inquiring about the need for an additional compressor station, as the proposed Rose Hill CS would be near SNG's Enterprise CS and Bay Springs CS. The Bay Springs CS is not addressed because it is further away and, therefore, would have greater constraints than the Enterprise CS, which is discussed below.

<u>Enterprise Alternative to the Rose Hill Compressor Station Site</u>

SNG evaluated expansion of the Enterprise CS to determine whether the benefit of using a brownfield site outweighed the use of a greenfield compressor site nearer to the interconnect. Locating new compressors at the existing SNG Enterprise CS offered the advantages of using previously disturbed space for the new units, existing access roads, existing control building, and existing utility services, such as electrical power and communications. This alternative would require installation of approximately three miles of new pipeline to connect to Tennessee's system, with associated disturbance and landowner impacts. Transporting the gas to Enterprise would require a slight increase in compression relative to the Rose Hill CS location to compensate for the frictional losses in the pipeline. Due to the layout of the existing facilities at Enterprise, a new pipeline would enter the CS on the northwest corner of the station property, which would require crossing U.S. Highway 11 and the railroad line running parallel and adjacent to the highway. The Enterprise Alternative would result in additional environmental impact, cost, and landowners affected by construction of the new pipeline and entry into Enterprise, additional compression and associated fuel use, and

slightly increased air emissions relative to the proposed Rose Hill CS site. In addition, the proposed Rose Hill CS site allows the SNG/Tennessee interconnect MS to be located within the new CS boundaries. Based on this analysis, we conclude the Enterprise Alternative would not provide a significant environmental advantage, and we have not considered it further.

3. SITE ALTERNATIVES

Tennessee Project

New CS 529 is located immediately downstream of the juncture of the existing 24-inch-diameter Toca Lateral and the Tennessee 500 line in order to compress the 900,000 Dth/d flowing on Tennessee and 1,100,000 Dth/d coming into Tennessee at Toca from SNG. As such any CS 529 site alternatives must be located downstream of the Toca Lateral in order to compress both gas streams. Two siting alternatives were evaluated for CS 529 (figure 3).

Site Alternative 1

Alternative 1 would not utilize Tennessee's abandoned facility on the north side of Florissant Highway and would instead use a similar size construction footprint on adjacent property to south of Florissant Highway. The workspace layout would be a mirror image to that of the proposed site, with the exception that access bridges from Florissant Highway would not be needed. The entirety of this alternative is located either in wetlands or in open waterbodies and would require additional permanent fill impacts. This alternative would also be associated with a greater amount of prime farmland soil conversion. An additional road crossing (for Florissant Highway) would be needed for the Yscloskey Toca Lateral Loop which would most likely be done via an additional HDD. Due to the increase in wetland and open water impacts, increase in prime farmland soil conversion, and the need for an additional road crossing, Alternative 1 would not provide a significant environmental advantage over the proposed location and we did not consider it further.

Site Alternative 2

Alternative 2 would utilize Tennessee's abandoned facility located on a former industrial operation site immediately adjacent to the east. This alternative would utilize mostly developed areas and have the least amount of wetland and open water impacts. Wetland and open water impacts would be associated with improvements of access roads across the canal that parallels the north side of Florissant Highway. However, the majority of the area for this alternative occurs on a former industrial complex not owned by Tennessee, and there is a significant concern that there are unknown environmental

factors that would require remediation before the site would be suitable for use. Tennessee has conducted a Phase I Environmental Site Assessment (ESA) that identified potential environmental issues recommending further environmental investigation. Tennessee has been unable to secure survey permission from the current owner for access to the site to complete assessments. For these reasons, we did not consider Alternative 2 to be a technically practicable alternative that could provide a significant environmental advantage.

SNG Project

SNG considered two alternative sites for the new Rose Hill CS. Figure 4 depicts Alternative A and Alternative C (Alternative B is the proposed location). The Rose Hill CS Alternative A site for the new CS is located adjacent to the Tennessee system and the SNG 36-inch-diameter South Main pipeline. This site was considered as it provides closest access to both pipelines. However, the topography and biological resources reduce the total usable area of this site from a desired 15 acres to approximately five acres. Further, this site requires the most soil disturbance in the form of cut (5,003 cubic yards) and fill (55,767 cubic yards), a longer access road into the site by 900 feet when compared to proposed site, and due to the topography, Alternative A increases the likelihood of large equipment/facilities items being set on fill areas. Therefore, this alternative would not provide a significant environmental advantage over the proposed location and we did not consider it further.

Alternative C was initially considered as the topography appeared to be suitable from desktop review. However, after SNG performed civil and environmental surveys and an engineering analysis of possible equipment/facility locations this site was determined to be of insufficient size and did not meet engineering requirements. Therefore, constructability is not feasible, and this alternative was not considered further.

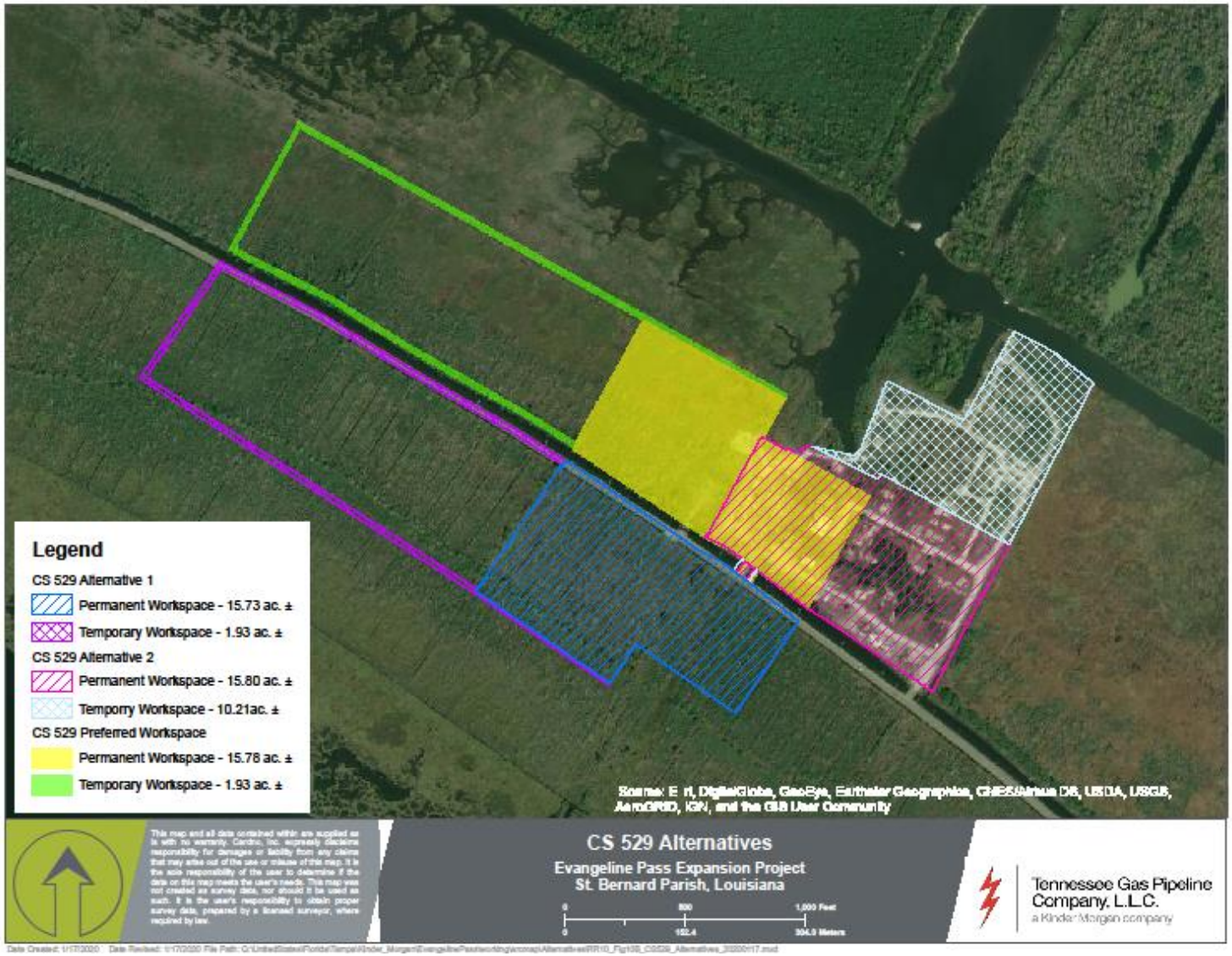

Figure 3: CS 529 Alternative Locations

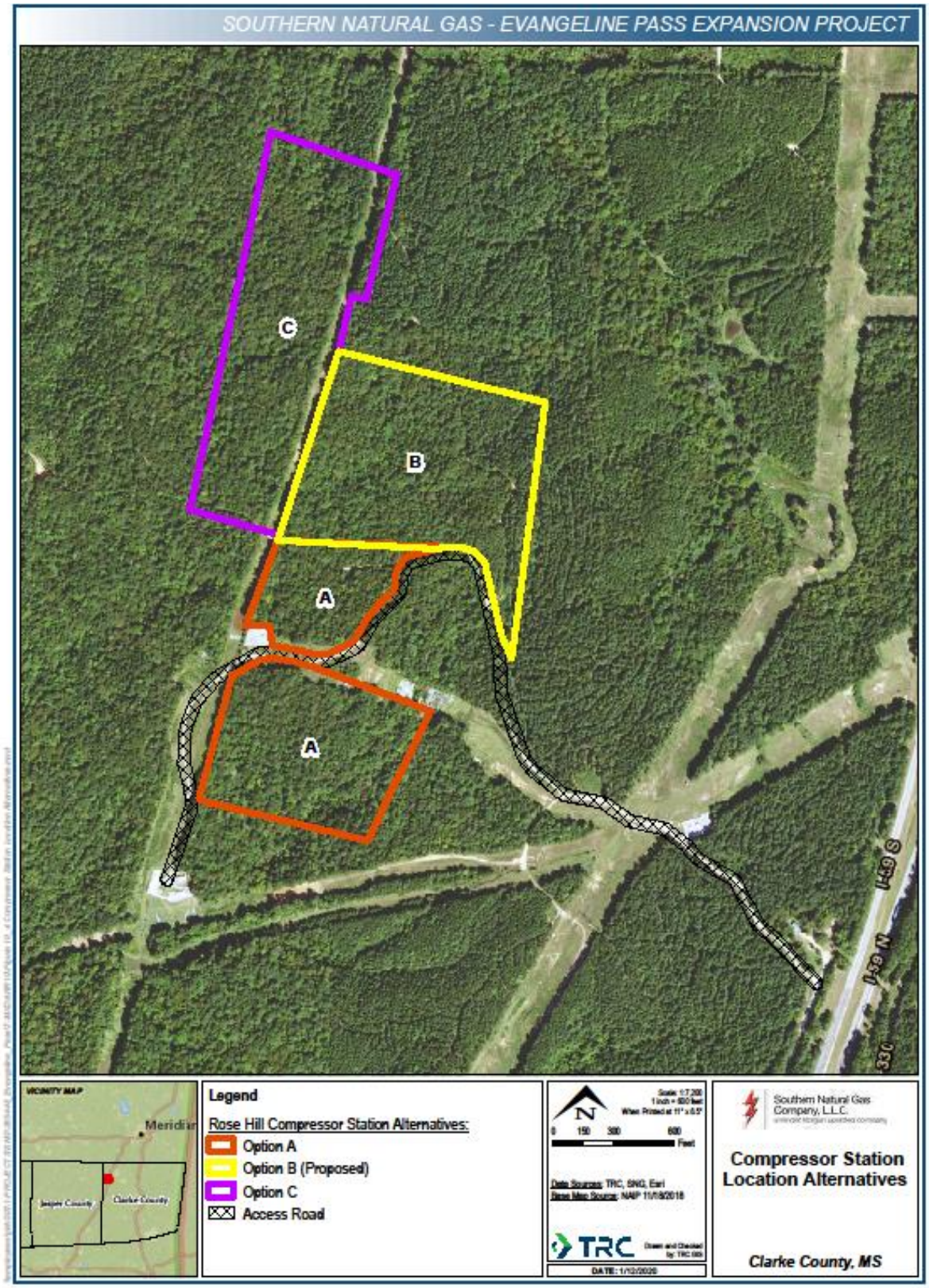

Figure 4. Rose Hill CS Alternative Locations

4. ROUTE ALTERNATIVES

HDD was evaluated as an alternative to the aerial bridge crossing method for the Verret to Caernarvon Floodwall on the Yscloskey Toca Lateral Loop, which resulted in the development of three route alternatives (figure 5). No pipeline construction is proposed for the SNG Project, and therefore no route alternatives were considered.

Alternative 1 would not be co-located with Tennessee's 529D-100 Yscloskey Toca Lateral north of the Floodwall and would instead be a greenfield pipeline line route heading east of Toca before turning south and crossing the Floodwall via an HDD. Alternative 1 is associated with a greater amount of wetland crossings (by count and length) and open water crossings (by length) (table 37). Based on review of the desktop data and observations made during field studies, the wetlands north of the Floodwall that would be crossed by Alternative 1 are PFO wetland systems that are higher quality than the majority of the wetlands crossed by the proposed route, which are scrub-shrub or emergent/herbaceous. Alternative 1 also crosses a greater distance of prime farmland soils in comparison to the proposed route. Alternatives 2 and 3 would provide an approximately 1,500-foot setback from the levee system, and would also cross more wetlands and open waters (by count and length) than the proposed route. To date, we have not received comments recommending an alternative crossing option for the Verret to Caernarvon Floodwall, nor have agencies requested a setback from the Verret to Caernarvon Floodwall. An HDD also adds the potential for inadvertent returns of drilling fluid. For these reasons, none of the route alternatives that could utilize an HDD as an alternative to the aerial crossing of the floodwall would present a significant environmental advantage over the proposed and we did not consider them further.

Table 37: Desktop Comparative Analysis of Environmental Impacts of Proposed Project and Route Alternatives for the Yscloskey Toca Lateral Loop

Resource	Route Alternative 1	Route Alternative 2	Route Alternative 3	Proposed Evangeline Pass Expansion Project – Yscloskey Toca Lateral Loop
Footprint				
Length (miles)	9.11	9.12	9.26	8.93
HDD Crossings (count)	2	2	2	1
Wetland Crossings (count)	20	21	20	15
Wetlands (miles)	8.54	8.41	8.74	7.40
Waterbody Crossings (count)	9	15	11	8

Table 37: Desktop Comparative Analysis of Environmental Impacts of Proposed Project and Route Alternatives for the Yscloskey Toca Lateral Loop				
Resource	**Route Alternative 1**	**Route Alternative 2**	**Route Alternative 3**	**Proposed Evangeline Pass Expansion Project – Yscloskey Toca Lateral Loop**
Open water (miles)	0.20	0.40	0.21	1.19
Open Land (miles)	0.10	0.11	0.11	0.08
Developed (miles)	0.27	0.20	0.20	0.26
Prime farmland soils centerline crossings (ft)	14,011	7,249	9,889	9,221
100-year Floodplain centerline crossings (ft)	44,947	47,037	47,795	45,715

5. CONCLUSION

We have determined that the proposed Project, as modified by our recommended environmental conditions in section D of this EA, is the preferred alternative than can meet the Project objectives.

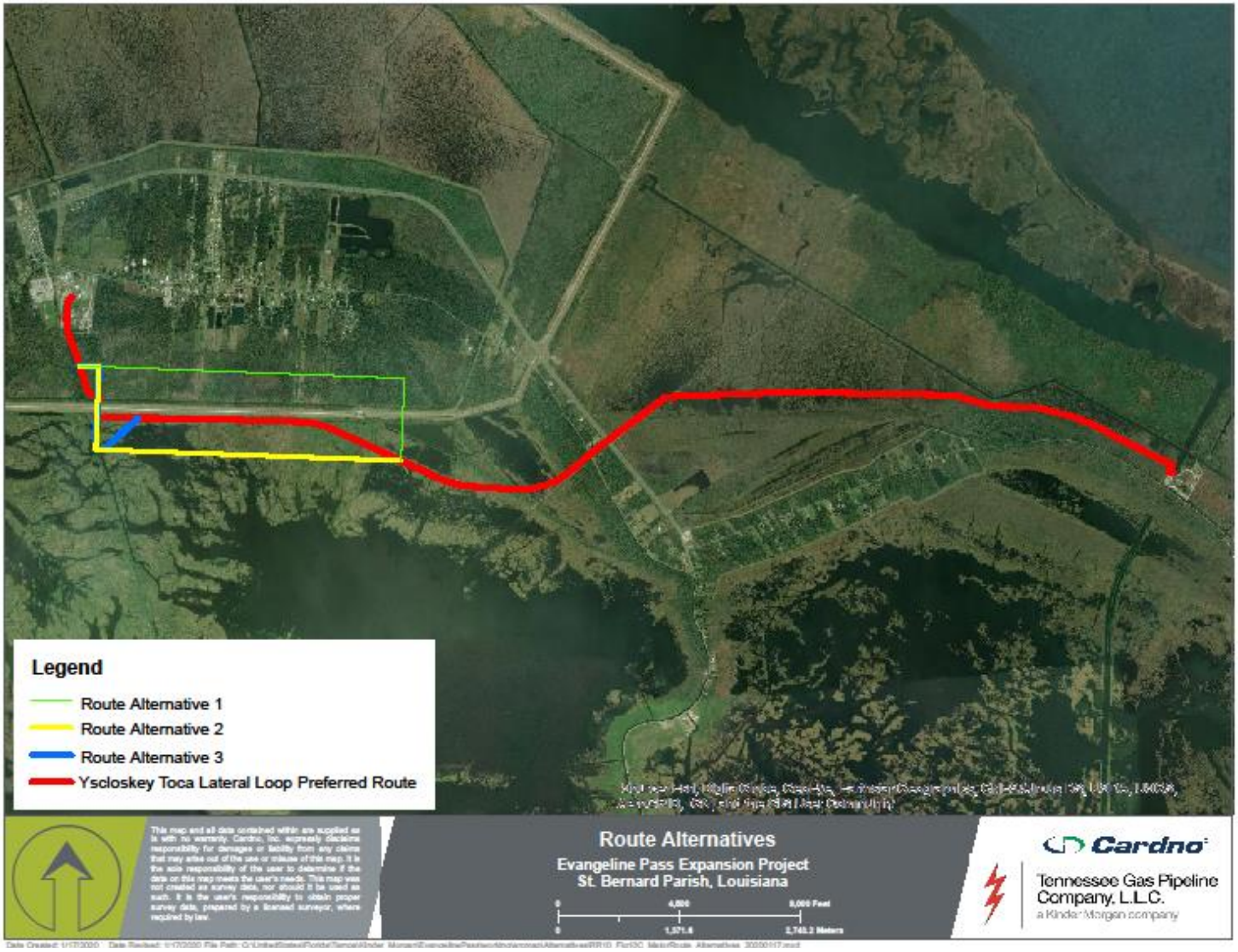

Figure 5. Route Alternatives for the Yscloskey Toca Lateral Loop

D. STAFF'S CONCLUSIONS AND RECOMMENDATIONS

Based upon the analysis in this EA, we have determined that if Tennessee and SNG construct and operate the proposed facilities in accordance with the respective application, supplements, and staff's recommended mitigation measures below, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment.

We recommend that the Commission Order contain a finding of no significant impact and that the following mitigation measures be included as conditions to any Certificate the Commission may issue:

1. Tennessee and SNG shall follow the construction procedures and mitigation measures described in its applications and supplements (including responses to staff data requests) and as identified in the EA unless modified by the Order. Tennessee and SNG must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of OEP, or the Director's designee, **before using that modification**.

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the project. This authority shall allow:

    a. the modification of conditions of the Order;
    b. stop-work authority; and
    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from project construction and operation.

3. **Prior to any construction**, Tennessee and SNG shall each file an affirmative statement with the Secretary, certified by a senior company official, that all

company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Tennessee and SNG shall each file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

   Tennessee's and SNG's exercise of eminent domain authority granted under Natural Gas Act section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Tennessee's and SNG's right of eminent domain granted under Natural Gas Act section 7(h) does not authorize it to increase the size of its natural gas pipeline or facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Tennessee and SNG shall each file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP, or the Director's designee, **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by the our Plan and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

a. implementation of cultural resources mitigation measures;
b. implementation of endangered, threatened, or special concern species mitigation measures;
c. recommendations by state regulatory authorities; and
d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the authorization and before construction begins**, Tennessee and SNG shall each file an Implementation Plan with the Secretary for review and written approval by the Director of OEP, or the Director's designee. Tennessee and SNG must file revisions to the plan as schedules change. The plan shall identify:

a. how Tennessee and SNG will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
b. how Tennessee and SNG will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
e. the location and dates of the environmental compliance training and instructions Tennessee and SNG will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change);
f. the company personnel (if known) and specific portion of Tennessee and SNG's organization having responsibility for compliance;
g. the procedures (including use of contract penalties) Tennessee and SNG will follow if noncompliance occurs; and
h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

(1) the completion of all required surveys and reports;
(2) the environmental compliance training of onsite personnel;
(3) the start of construction; and

(4) the start and completion of restoration.

7. Tennessee and SNG shall each employ at least one EI. The EI(s) shall be:

   a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
   b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
   c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
   d. a full-time position, separate from all other activity inspectors;
   e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
   f. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, Tennessee shall file updated status reports with the Secretary on a **biweekly** basis and SNG shall file updated status reports with the Secretary on a **monthly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

   a. an update on Tennessee's and SNG's efforts to obtain the necessary federal authorizations;
   b. the construction status of the project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
   c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
   d. a description of the corrective actions implemented in response to all instances of noncompliance;
   e. the effectiveness of all corrective actions implemented;
   f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
   g. copies of any correspondence received by Tennessee and SNG from other federal, state, or local permitting agencies concerning instances of

noncompliance, and Tennessee's and SNG's response.

9. Tennessee and SNG must receive written authorization from the Director of OEP, or the Director's designee, **before commencing construction of any project facilities.** To obtain such authorization, Tennessee and SNG must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. Tennessee and SNG must receive written authorization from the Director of OEP, or the Director's designee, **before placing the project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Tennessee and SNG shall each file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    b. identifying which of the conditions in the Order Tennessee and SNG has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. **Prior to construction at the Rose Hill Compressor Station and Meter Station site,** SNG shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, its geotechnical report for the site, as well as plans to manage surface and groundwater, slope stabilization techniques, placement of spoil and felled trees during construction, and any monitoring and mitigation measures to protect SNG project facilities and downslope resources during construction and operation.

13. **Prior to construction,** Tennessee shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, its geotechnical report for CS 529, as well as its finalized measures to mitigate for subsidence during operation of the Tennessee project facilities.

14. **Prior to construction,** Tennessee shall file with the Secretary, for review and

written approval by the Director of OEP, or the Director's designee, a site-specfic plan for restoration of the Bayou Road Yard following construction, including procedures for topsoil segregation, cleanup, soil compaction mitigation, and revegetation.

15. Tennessee shall **not begin** construction activities **until**:

    a. FERC staff receives comments from the NMFS regarding the proposed action;
    b. FERC staff completes ESA consultation with the NMFS; and
    c. Tennessee has received written notification from the Director of OEP, or the Director's designee, that construction or use of mitigation may begin.

16. Tennessee shall **not begin** construction of the Tennessee Project **until** it files with the Secretary a copy of the determination of consistency with the Coastal Zone Management Plan issued by the LDNR-OCM.

17. SNG shall **not begin** construction of the SNG Project **until** it files with the Secretary a copy of the determination of consistency with the Coastal Zone Management Plan issued by the LDNR-OCM for the Toca Delivery Meter Station**.**

18. **Prior to construction of the Bayou Road and Highway 46/Florissant Highway HDD crossing**, Tennessee shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, an HDD noise mitigation plan to reduce the projected noise level attributable to the proposed drilling operations at NSA 1. During drilling operations, Tennessee shall implement the approved plan, monitor noise levels, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than a L_{dn} of 55 dBA at the NSA.

19. Tennessee shall file noise surveys with the Secretary **no later than 60 days** after placing the CS 529 in service. If a full load condition noise survey is not possible, Tennessee shall file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, Tennessee shall:

    a. file a report with the Secretary on what changes are needed, for review and written approval by the Director of OEP, or the Director's designee;
    b. install additional noise controls to meet that level within 1 year of the in-service date; and
    c. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second

noise survey with the Secretary no later than 60 days after it installs the additional noise controls.

20. SNG shall file noise surveys with the Secretary **no later than 60 days** after placing the Rose Hill CS in service. If a full load condition noise survey is not possible, SNG shall file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, SNG shall:

    a. file a report with the Secretary on what changes are needed, for review and written approval by the Director of OEP, or the Director's designee;
    b. install additional noise controls to meet that level **within 1 year** of the in-service date; and
    c. confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

E. LIST OF PREPARERS

Crumpton, Christine – Project Manager, Surface Water, Wetlands, Vegetation, Wildlife, Land Use, Cumulative Impacts, and Alternatives

M.S., Environmental Management, 2013, Samford University
B.S., Biology, 2012, Stillman College

Baum, Elaine – Socioeconomics

M.P.A., 2006, Florida State University
B.S., Environmental Policy and Planning, 2004, Virginia Tech

Jensen, Andrea – Geology, Soils, Groundwater Resources

B.S., Environmental Geology, 2012, College of William and Mary

McDaniel, Nina – Air Quality, Noise, Safety and Reliability

M.S., Engineering Management, 2012, University of New Orleans
B.S., Civil Engineering, 2010, University of New Orleans

Plummer, Amber – Surface Water, Wetlands, Wildlife, Vegetation

M.S., Environmental Biology, 2020, Hood College
B.S., Environmental Science and Studies, 2016, Towson University

Wazaney, Brad – Cultural Resources

Ph.D., Anthropology, 2006, Washington State University
M.A., American Studies, 2001, University of Wyoming
B.A., History, 1996, Old Dominion University

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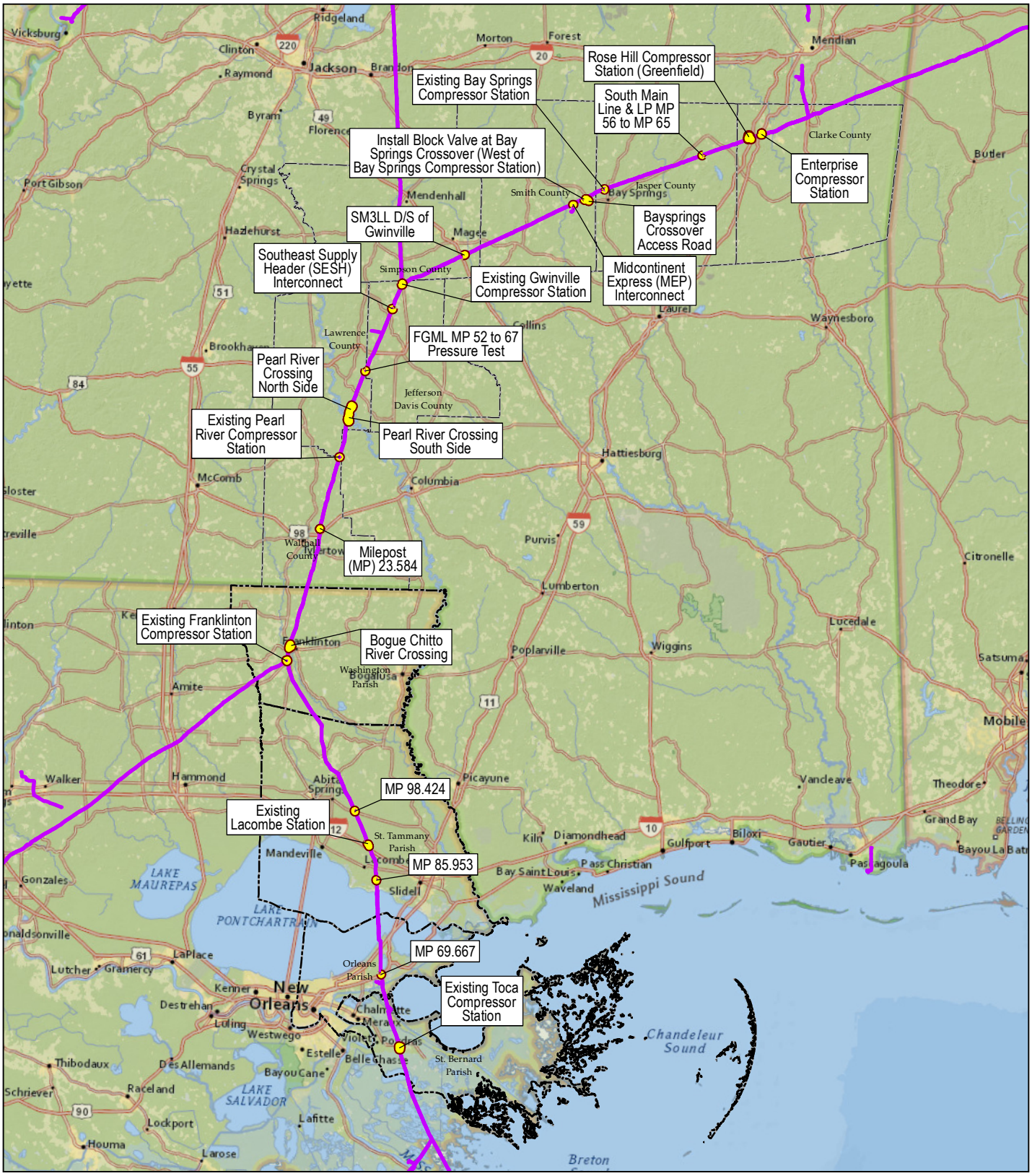
APPENDIX A

FIGURES

SOUTHERN NATURAL GAS - EVANGELINE PASS PROJECT



Legend

County/Parish Boundary

Existing SNG System

Scale: 1:1,500,000
1 inch = 125,000 feet
When Printed at 11" x 8.5"

0 5 10 20 Miles

Data Sources: TRC, SNG, Esri
Base Map Source: Esri "National Geographic World Map", 2019.

TRC

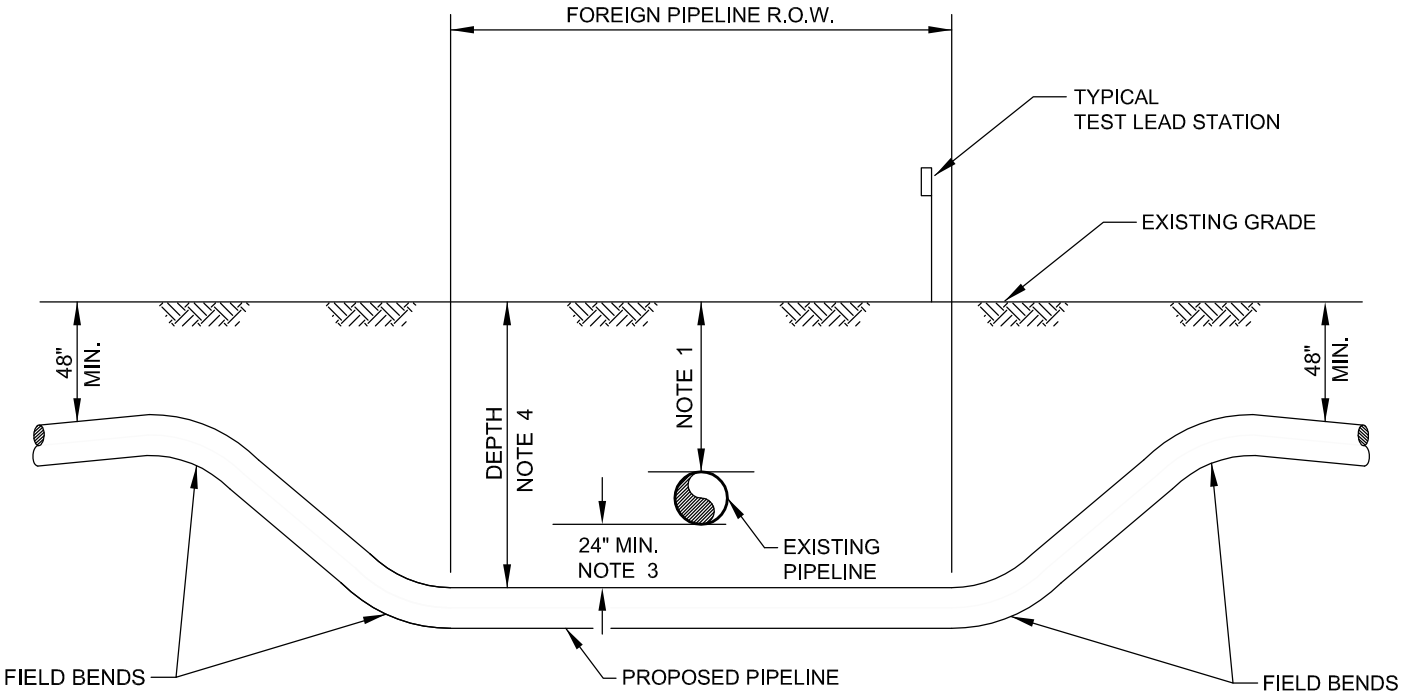
Southern Natural Gas Company, L.L.C.
a Kinder Morgan operated company

Figure 1
2.55 Facilities

Clarke, Jasper, Smith, Simpson, Jefferson Davis, Lawrence and Walthall Counties, Mississippi and Washington , St. Tammany, Orleans and St. Bernard Parishes, Louisiana

APPENDIX B

CONSTRUCTION TYPICALS FOR THE TENNESSEE PROJECT



CROSS SECTION OF FOREIGN P/L R.O.W.

YSCLOSKEY TOCA LATERAL LOOP		
PROPOSED EASEMENT CROSSING EXISTING EASEMENT		
CROSSING STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
14+20	50'-ASSUMED WIDTH	LLC GAS
473+83	30'	KINDER MORGAN
474+33	30'	MOEM

B

NOTES:

1. FOREIGN PIPELINE LOCATIONS & DEPTHS TO BE DETERMINED BY ELECTRONIC MEANS IN ADVANCE OF PIPELINE CONSTRUCTION AND CONFIRMED BY CAREFULLY EXPOSING BY HAND DIGGING WITHIN 24" IN ANY DIRECTION FROM THE PIPELINE.
2. OWNER OF FOREIGN PIPELINE(S) SHALL BE NOTIFIED A MINIMUM OF 48 HOURS IN ADVANCE OF EXCAVATION OF CROSSING.
3. DEPTH OF PIPELINE, INCLUDING 24" MIN. CLEARANCE SHALL BE MAINTAINED FOR FULL WIDTH OF FOREIGN PIPELINE R.O.W.
4. PROPOSED PIPELINE MAY CROSS ABOVE THE FOREIGN PIPELINE(S) ONLY WHERE REQUESTED BY OR APPROVED BY FOREIGN PIPELINE OWNER IN WRITING. 24" SEPERATION WILL BE MAINTAINED IF PIPELINE CROSSES ABOVE THE FOREIGN PIPELINE(S).
5. DO NOT SEED WETLAND AREAS W/SATURATED SOIL.
6. NO FERTILIZER OR LIME IS PERMITTED.
7.DO NOT USE LIQUID MULCH BINDERS WITHIN 100 FEET OF WETLANDS OR WATERBODIES.
8. MATS WILL BE UTILIZED TO CONSTRUCT THE TRENCH AND REMOVED AS DITCHING PROGRESSES.

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
B	06/20	JKB	ADDED CROSSING TABLE	7090082	SKB

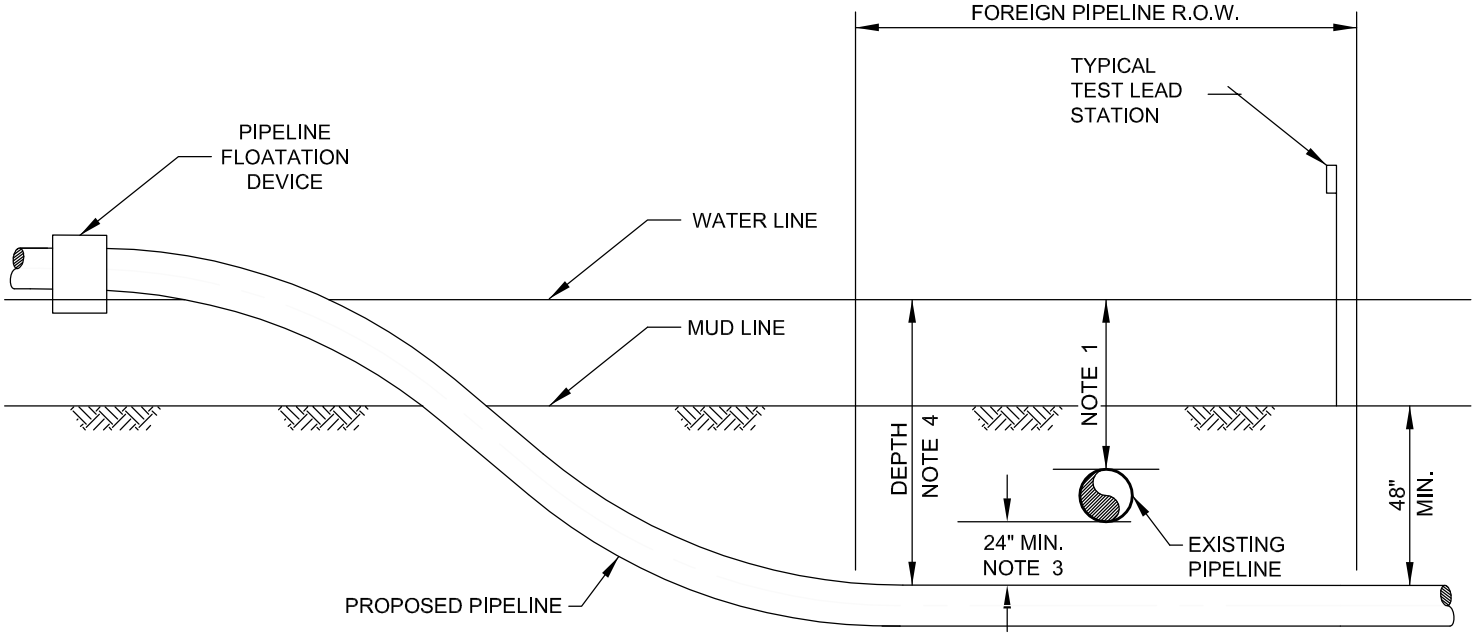
REVISIONS

ENG. RECORD		DATE
DRAWN BY:	GH	04/20
DRAWING APPROVAL	JKB	04/20
PROJECT APPROVAL	SKB	04/20
SURVEY DATE:		
SCALE: NONE		
PROJECT ID: 7090082		
FILE NAME: CLFPC		

BURROW GLOBAL MIDSTREAM

CONVENTIONAL LAY FOREIGN PIPELINE(S) CROSSING

DWG. NO. CLFPC



CROSS SECTION OF FOREIGN P/L R.O.W.

YSCLOSKEY TOCA LATERAL LOOP		
PROPOSED EASEMENT CROSSING EXISTING EASEMENT		
CROSSING STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
278+01	30'	KINDER MORGAN
278+95	30'	COLONIAL
392+28	50'-ASSUMED WIDTH	TARGA
392+76	50'-ASSUMED WIDTH	ENTERPRISE

GRAND BAYOU LOOP		
PROPOSED EASEMENT CROSSING EXISTING EASEMENT		
CROSSING STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
16+51	50'-ASSUMED WIDTH	SHELL
17+22	50'-ASSUMED WIDTH	GULF SOUTH
159+92	50'-ASSUMED WIDTH	TARGA
160+22	50'-ASSUMED WIDTH	SNG

B

NOTES:

1. FOREIGN PIPELINE LOCATIONS & DEPTHS TO BE DETERMINED BY ELECTRONIC MEANS IN ADVANCE OF PIPELINE CONSTRUCTION AND CONFIRMED BY CAREFULLY EXPOSING BY HAND DIGGING WITHIN 24" IN ANY DIRECTION FROM THE PIPELINE.
2. OWNER OF FOREIGN PIPELINE(S) SHALL BE NOTIFIED A MINIMUM OF 48 HOURS IN ADVANCE OF EXCAVATION OF CROSSING.
3. DEPTH OF PIPELINE, INCLUDING 24" MIN. CLEARANCE SHALL BE MAINTAINED FOR FULL WIDTH OF FOREIGN PIPELINE R.O.W.
4. PROPOSED PIPELINE MAY CROSS ABOVE THE FOREIGN PIPELINE(S) ONLY WHERE REQUESTED BY OR APPROVED BY FOREIGN PIPELINE OWNER IN WRITING. 24" SEPERATION WILL BE MAINTAINED IF PIPELINE CROSSES ABOVE THE FOREIGN PIPELINE(S).
5. DO NOT SEED WETLAND AREAS W/SATURATED SOIL.
6. NO FERTILIZER OR LIME IS PERMITTED.
7.DO NOT USE LIQUID MULCH BINDERS WITHIN 100 FEET OF WETLANDS OR WATERBODIES.
8. MATS WILL BE UTILIZED TO CONSTRUCT THE TRENCH AND REMOVED AS DITCHING PROGRESSES.

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
B	06/20	JKB	ADDED CROSSING TABLE	7090082	SKB

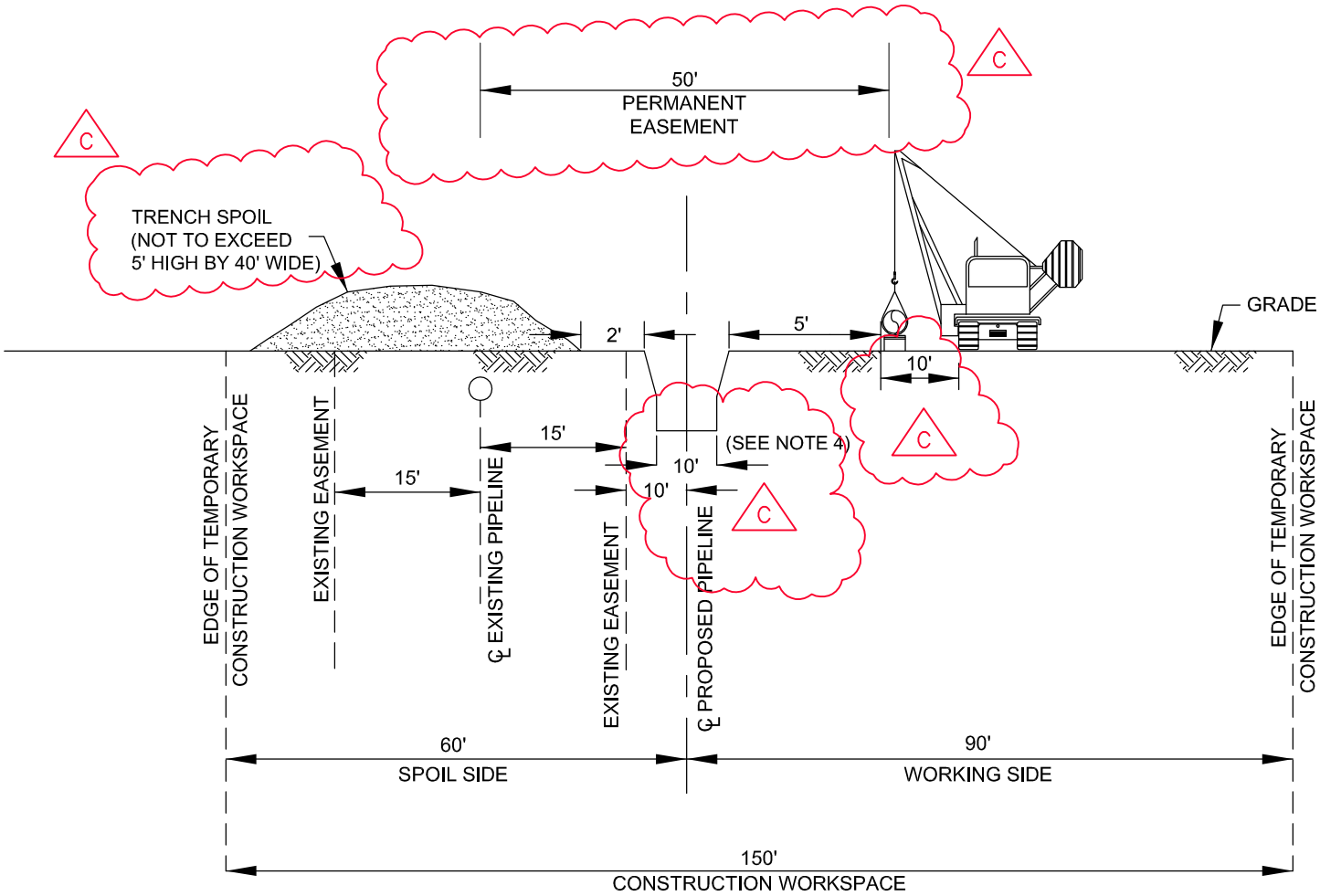
REVISIONS

ENG. RECORD		DATE
DRAWN BY:	GH	04/20
DRAWING APPROVAL	JKB	04/20
PROJECT APPROVAL	SKB	04/20
SURVEY DATE:		
SCALE: NONE		
PROJECT ID: 7090082		
FILE NAME: PPFPC		

BURROW GLOBAL MIDSTREAM

PUSH-PULL/BARGE LAY FOREIGN PIPELINE(S) CROSSING

DWG. NO. PPFPC



PROPOSED EASEMENT OVERLAPPING EXISTING EASEMENT			
STATION	TO STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
11+68	41+27	30'	KINDER MORGAN
228+47	239+89	30'	KINDER MORGAN
255+65	277+58	30'	KINDER MORGAN

NOTES:

1. EXTRA TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROADS, RAILROADS, RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
2. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING AND SPOIL PILES.
3. THE OFFSET FROM EXISTING PIPELINE TO THE INSTALLED PIPELINE WHERE APPLICABLE, WILL BE 50 FEET, BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE SPECIFIC CONSTRUCTION REQUIREMENTS.
4. SAME LAYOUT APPLIES WHERE CONSTRUCTION WORKSPACE DOES NOT ABUT EXISTING EASEMENT
5. BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 10' WIDE. TRENCH DEPTH WILL BE A MINIMUM OF 7' DEEP TO MAINTAIN 4' DEPTH OF COVER. THE AVERAGE TOP WIDTH OF THE TRENCH WILL BE 30'.
6. DO NOT SEED WETLAND AREAS W/SATURATED SOIL.
7. NO FERTILIZER OR LIME IS PERMITTED.
8. DO NOT USE LIQUID MULCH BINDERS WITHIN 100 FEET OF WETLANDS OR WATERBODIES.
9. MATS WILL BE UTILIZED TO CONSTRUCT THE TRENCH AND REMOVED AS DITCHING PROGRESSES.

ENG. RECORD		DATE
DRAWN BY:	JKB	04/20
DRAWING APPROVAL	KB	04/20
PROJECT APPROVAL	KG	04/20
SURVEY DATE:		
SCALE: NONE		
PROJECT ID: 7090082		
FILE NAME: R1A		

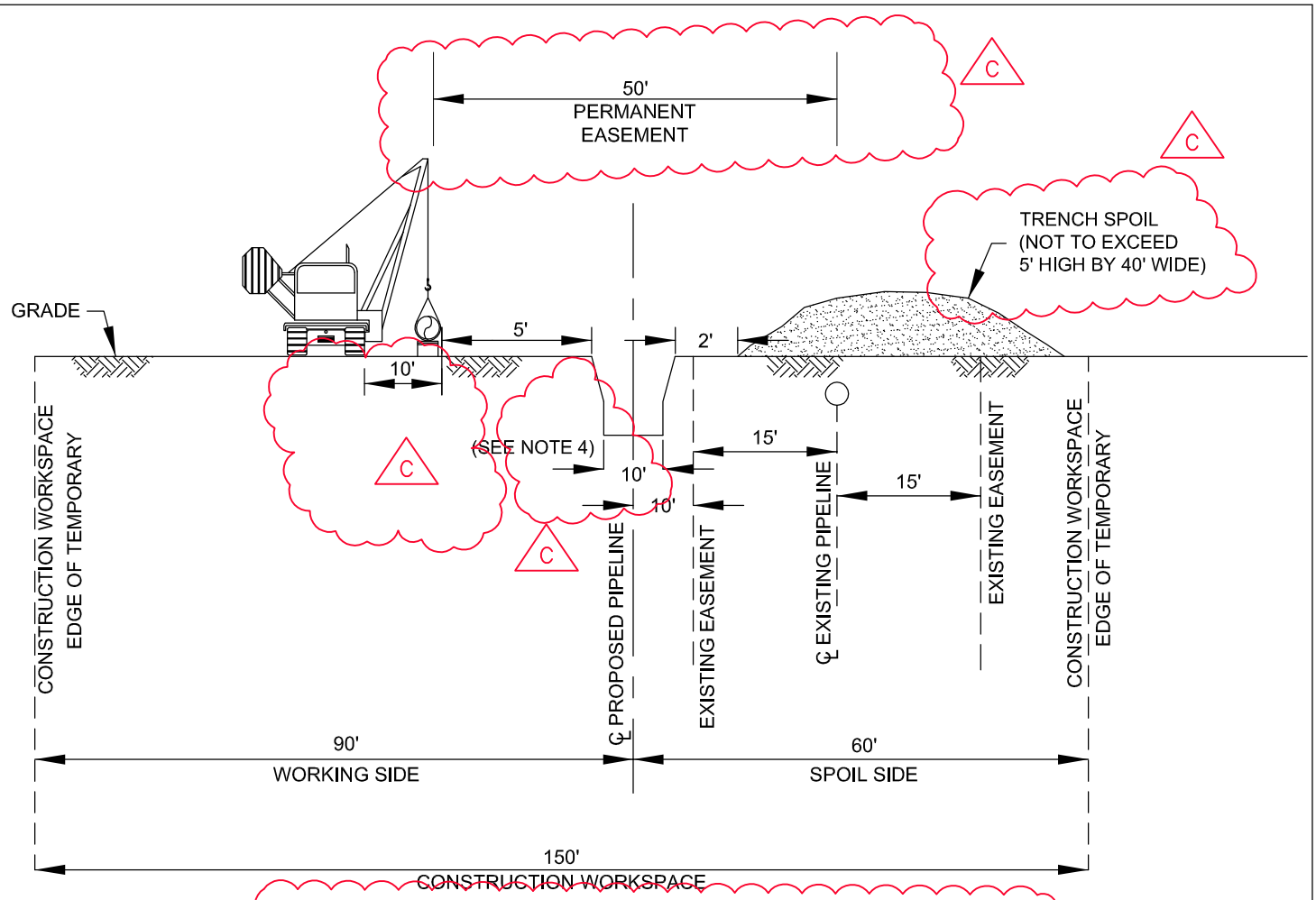
BURROW GLOBAL MIDSTREAM

TYPICAL WORKSPACE PARALLELING A PIPELINE

DWG. NO. R1A C

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
C	06/20	JKB	REVISED NOTES	7090082	KG

REVISIONS



PROPOSED EASEMENT OVERLAPPING EXISTING EASEMENT			
STATION	TO STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
471+18	473+82	30'	KINDER MORGAN

C

NOTES:

1. EXTRA TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROADS, RAILROADS, RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
2. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING AND SPOIL PILES.
3. THE OFFSET FROM EXISTING PIPELINE TO THE INSTALLED PIPELINE WHERE APPLICABLE, WILL BE 50 FEET, BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE SPECIFIC CONSTRUCTION REQUIREMENTS.
4. SAME LAYOUT APPLIES WHERE CONSTRUCTION WORKSPACE DOES NOT ABUT EXISTING EASEMENT
5. BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 10' WIDE. TRENCH DEPTH WILL BE A MINIMUM OF 7' DEEP TO MAINTAIN 4' DEPTH OF COVER. THE AVERAGE TOP WIDTH OF THE TRENCH WILL BE 30'.
6. DO NOT SEED WETLAND AREAS W/SATURATED SOIL.
7. NO FERTILIZER OR LIME IS PERMITTED.
8. DO NOT USE LIQUID MULCH BINDERS WITHIN 100 FEET OF WETLANDS OR WATERBODIES.
9. MATS WILL BE UTILIZED TO CONSTRUCT THE TRENCH AND REMOVED AS DITCHING PROGRESSES.

C

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
C	06/20	JKB	REVISED NOTES	7090082	KG

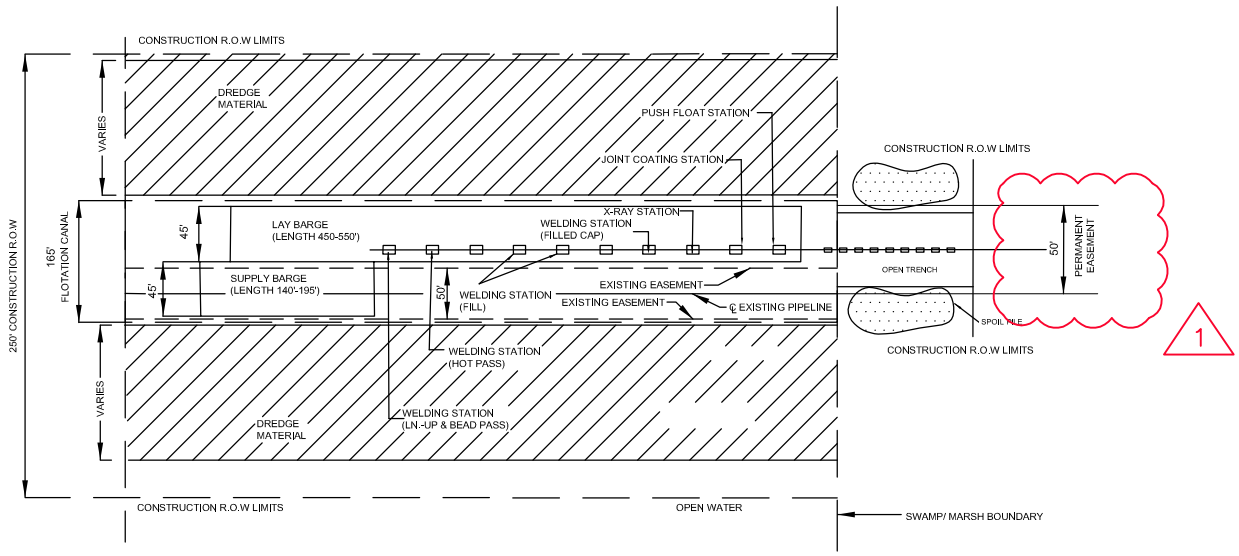
REVISIONS

ENG. RECORD		DATE
DRAWN BY:	JKB	04/20
DRAWING APPROVAL	KB	04/20
PROJECT APPROVAL	KG	04/20
SURVEY DATE:		
SCALE: NONE		
PROJECT ID: 7090082		
FILE NAME: R1B		

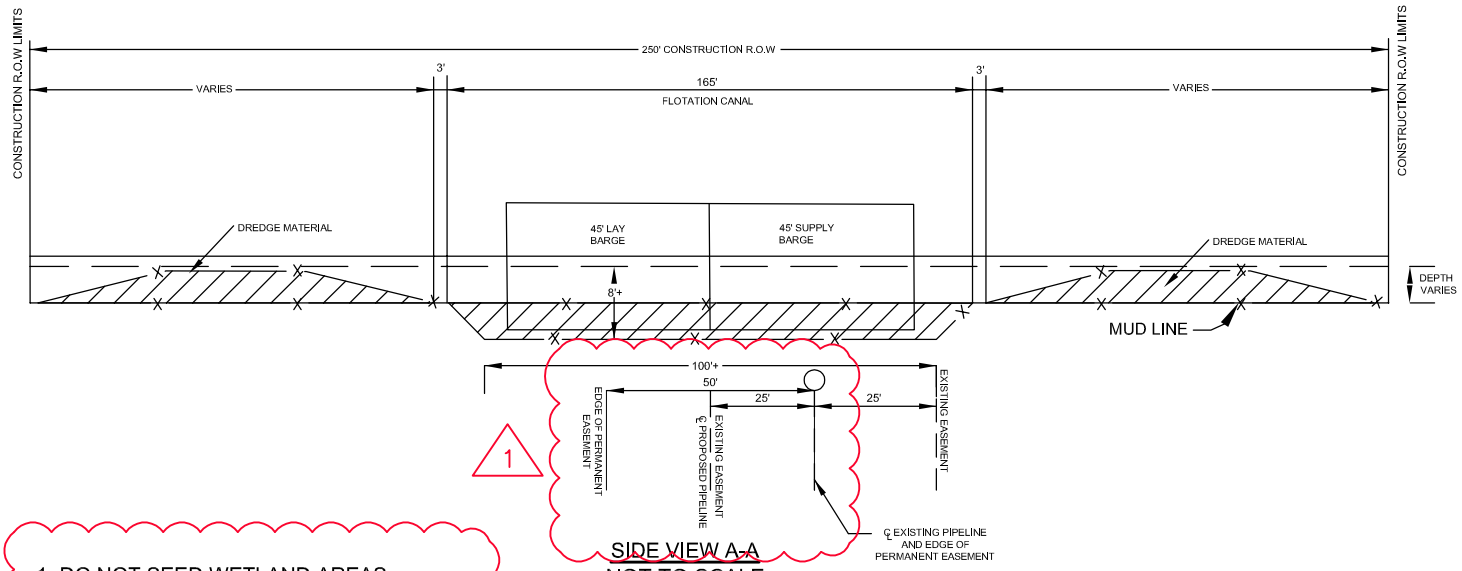
BURROW GLOBAL MIDSTREAM

TYPICAL WORKSPACE PARALLELING A PIPELINE

DWG. NO. R1B C



PLAN VIEW
NOT TO SCALE



SIDE VIEW A-A
NOT TO SCALE

1. DO NOT SEED WETLAND AREAS W/SATURATED SOIL.
2. NO FERTILIZER OR LIME IS PERMITTED.
3. DO NOT USE LIQUID MULCH BINDERS WITHIN 100 FEET OF WETLANDS OR WATERBODIES.

1

PROPOSED EASEMENT OVERLAPPING EXISTING EASEMENT

STATION	TO STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
1+50	209+73	50'	KINDER MORGAN

1

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
1	6/20	JKB	ADDED IN PERMANENT EASEMENT	7090082	KG

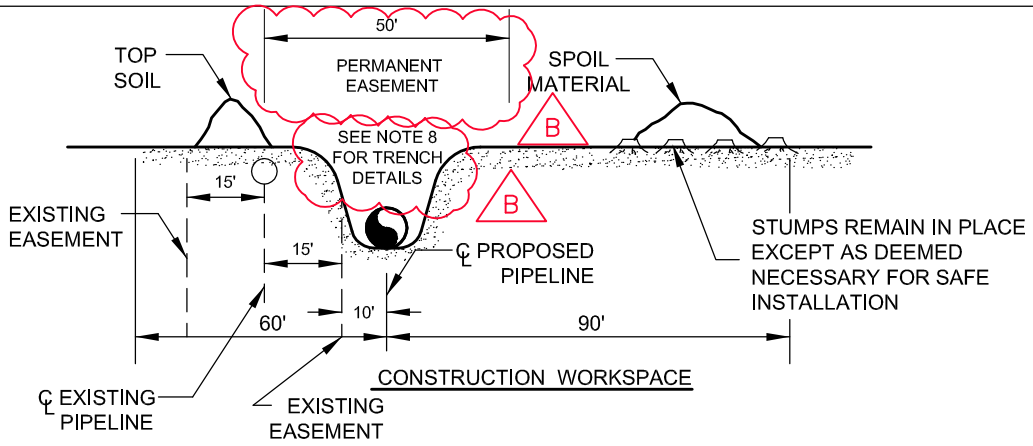
REVISIONS

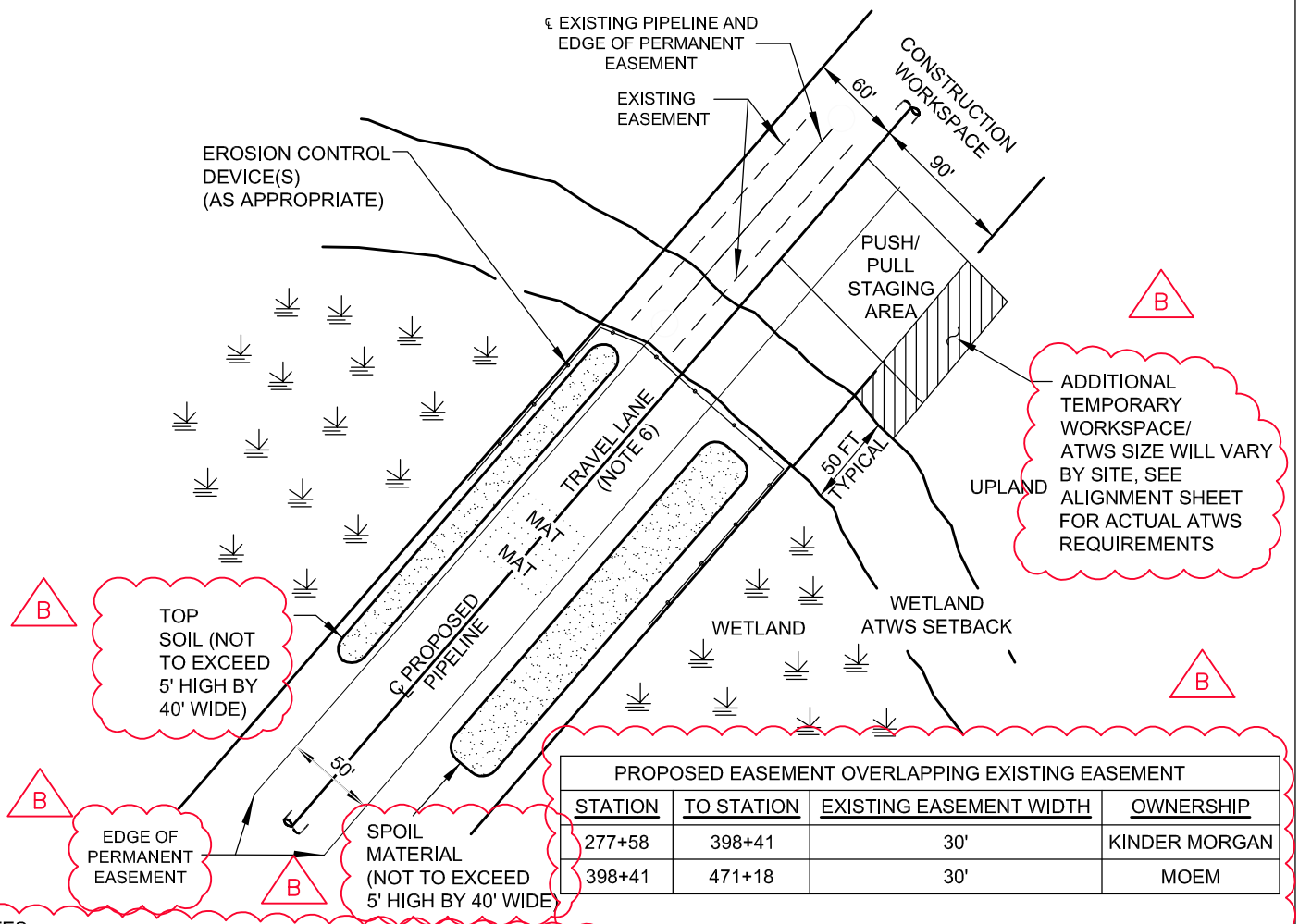
ENG. RECORD		DATE
DRAWN BY:	JKB	04/30/20
DRAWING APPROVAL	KB	04/30/20
PROJECT APPROVAL	KG	04/30/20
SURVEY DATE:		
SCALE: NONE		
PROJECT ID: 7090082		
FILE NAME:		

BURROW GLOBAL MIDSTREAM

TYPICAL PUSH SITE ON LAY BARGE

DWG. NO. TPSLB





PROPOSED EASEMENT OVERLAPPING EXISTING EASEMENT			
STATION	TO STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
277+58	398+41	30'	KINDER MORGAN
398+41	471+18	30'	MOEM

NOTES:

1. SEGREGATE TOPSOIL FROM THE AREA DISTURBED BY TRENCHING, EXCEPT IN AREAS WHERE STANDING WATER IS PRESENT OR SOILS ARE SATURATED OR FROZEN.
2. INSTALL TRENCH BREAKERS & WATERBARS ON BOTH SIDES OF THE WETLAND IF HYDROLOGIC CONDITIONS WOULD DRAIN THE WETLAND. B
3. DO NOT SEED WETLAND AREAS W/SATURATED SOIL.
4. NO FERTILIZER OR LIME IS PERMITTED.
5. DO NOT USE LIQUID MULCH BINDERS WITHIN 100 FEET OF WETLANDS OR WATERBODIES.
6. TRAVEL LANE WIDTH WILL VARY, MAXIMUM WIDTH WILL BE 50'.
7. THE PUSH/PULL METHOD CAN ONLY BE UTILIZED IF THE TRENCH IS INUNDATED WITH WATER. OTHERWISE, THE TYPICAL WETLAND CONSTRUCTION METHOD WILL BE USED.
8. BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 10' WIDE. TRENCH DEPTH WILL BE A MINIMUM OF 10' DEEP. THE AVERAGE TOP WIDTH OF THE TRENCH WILL BE 30'

ENG. RECORD		DATE
DRAWN BY:		
DRAWING APPROVAL		
PROJECT APPROVAL		
SURVEY DATE:		
SCALE: NONE		
PROJECT ID:		
FILE NAME:		

BURROW GLOBAL MIDSTREAM

TYPICAL PUSH/PULL WETLAND CONSTRUCTION

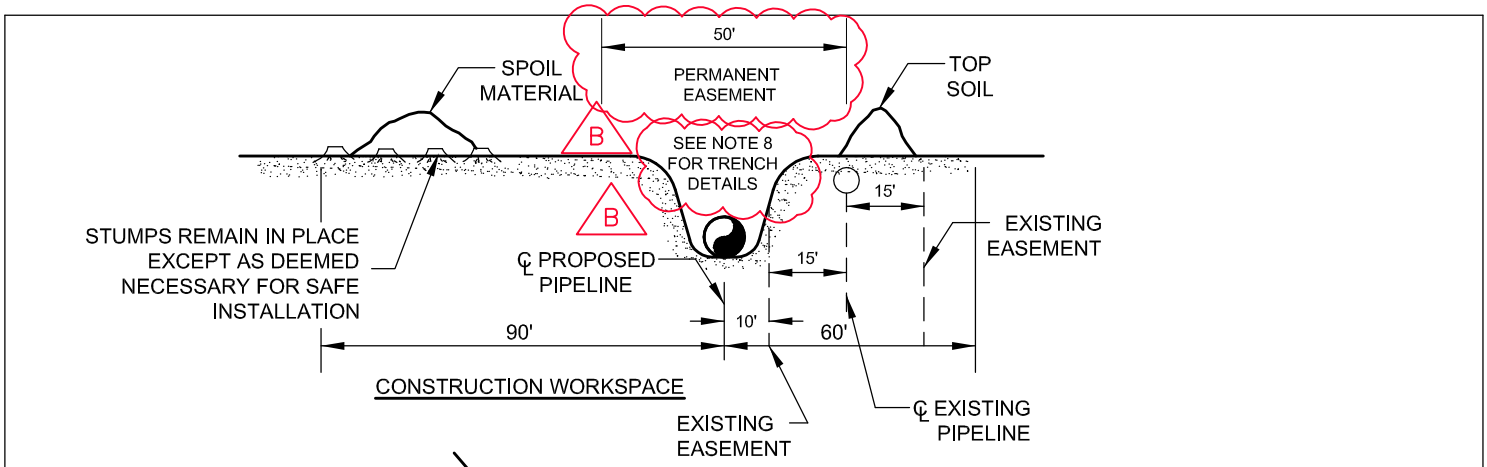
NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
B	06/20	JKB	ADDED PERMANENT EASEMENT		

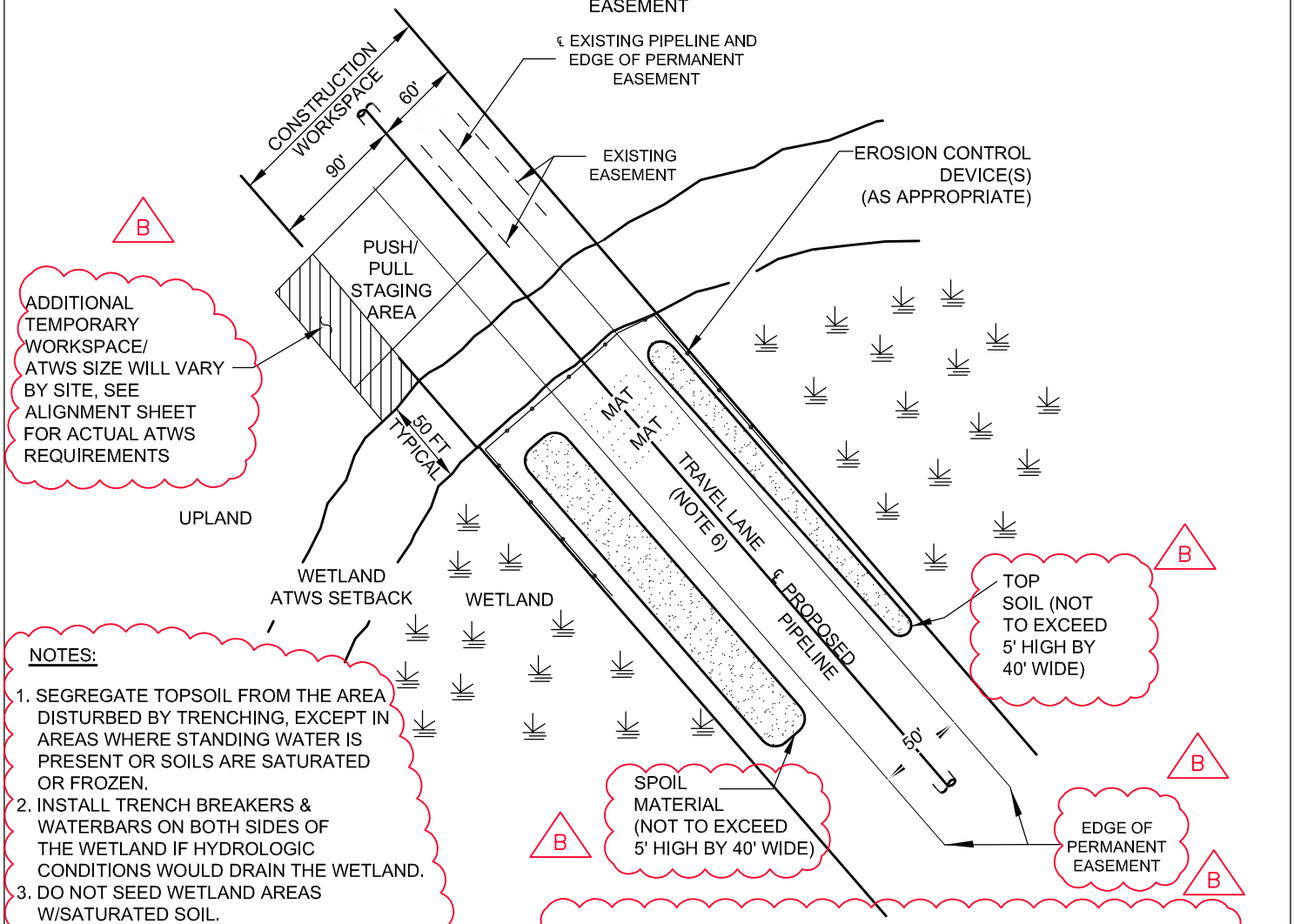
REVISIONS

DWG. NO. WW3A

REV. B

REVISED





NOTES:

1. SEGREGATE TOPSOIL FROM THE AREA DISTURBED BY TRENCHING, EXCEPT IN AREAS WHERE STANDING WATER IS PRESENT OR SOILS ARE SATURATED OR FROZEN.
2. INSTALL TRENCH BREAKERS & WATERBARS ON BOTH SIDES OF THE WETLAND IF HYDROLOGIC CONDITIONS WOULD DRAIN THE WETLAND.
3. DO NOT SEED WETLAND AREAS W/SATURATED SOIL.
4. NO FERTILIZER OR LIME IS PERMITTED.
5. DO NOT USE LIQUID MULCH BINDERS WITHIN 100 FEET OF WETLANDS OR WATERBODIES.
6. TRAVEL LANE WIDTH WILL VARY, MAXIMUM WIDTH WILL BE 50'.
7. THE PUSH/PULL METHOD CAN ONLY BE UTILIZED IF THE TRENCH IS INUNDATED WITH WATER. OTHERWISE, THE TYPICAL WETLAND CONSTRUCTION METHOD WILL BE USED.
8. BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 10' WIDE. TRENCH DEPTH WILL BE A MINIMUM OF 10' DEEP. THE AVERAGE TOP WIDTH OF THE TRENCH WILL BE 30'

B

PROPOSED EASEMENT OVERLAPPING EXISTING EASEMENT

STATION	TO STATION	EXISTING EASEMENT WIDTH	OWNERSHIP
50+04	228+47	30'	KINDER MORGAN

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
B	06/20	JKB	ADDED PERMANENT EASEMENT		

REVISIONS

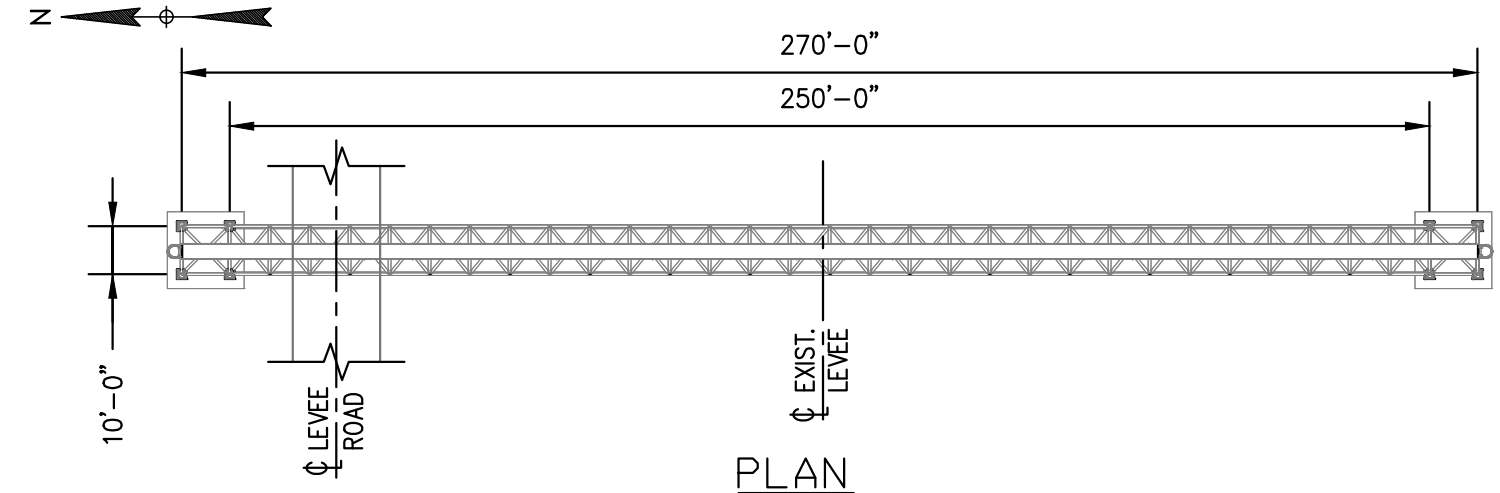
ENG. RECORD		DATE
DRAWN BY:		
DRAWING APPROVAL		
PROJECT APPROVAL		
SURVEY DATE:		
SCALE: NONE		
PROJECT ID:		
FILE NAME:		

BURROW GLOBAL MIDSTREAM

TYPICAL PUSH/PULL WETLAND CONSTRUCTION

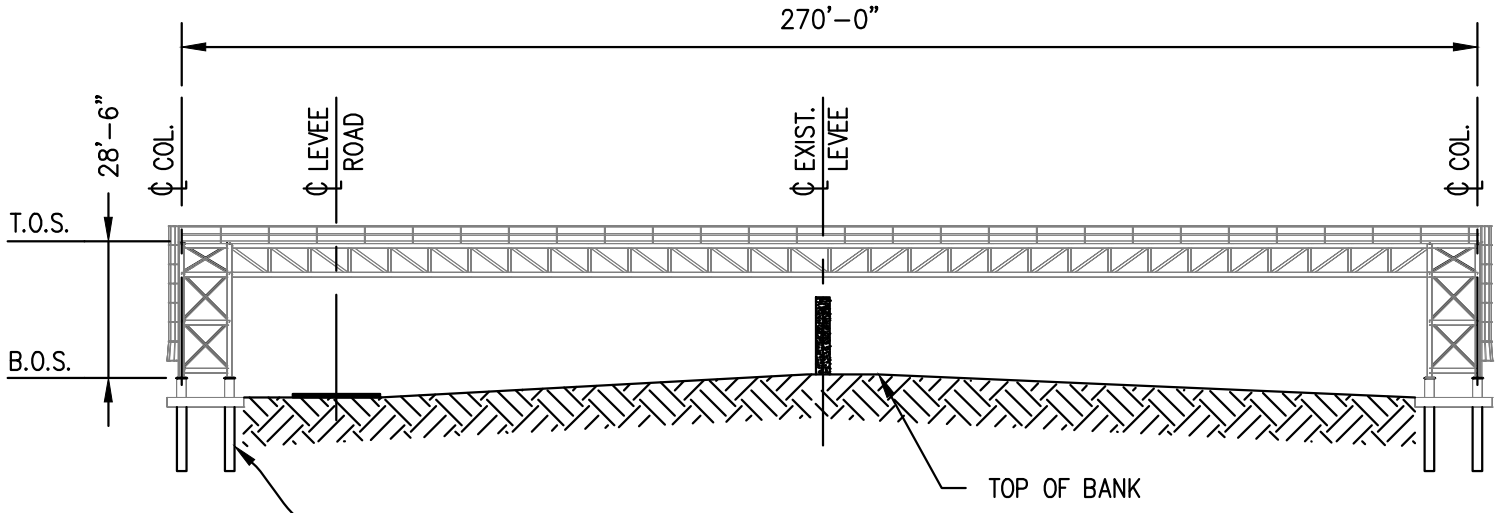
DWG. NO. WW3B

REV. B



PLAN

SCALE: 1"=40'



ELEVATION

SCALE: 1"=40'

CONSTRUCTION SEQUENCE:

1. OBTAIN PERMIT
2. MOBILIZE PILE CONTRACTOR AND INSTALL PILES
3. POUR FOUNDATION CAPS ON TOP OF PILES
4. RECEIVE PARTIALLY FABRICATED STRUCTURAL STEEL SUPPORTS ON SITE
5. ASSEMBLE FINAL STRUCTURAL COMPONENTS ON SITE WHILE FOUNDATIONS ARE CURING
6. UTILIZE CRANE TO INSTALL STRUCTURAL STEEL SUPPORTS AND HORIZONTAL BRIDGE SECTIONS
7. FAB PIPE ON GROUND INTO FEWEST SECTIONS POSSIBLE BASED OFF CRANE LIMITS, THUS LIMITING TIE–INS AND WELD COATING IN ODD POSITIONS
8. HYDRO TEST
9. UTILIZE CRANE TO LIFT PIPE INTO PLACE ON BRIDGE
10. MAKE FINAL TIE–INS AND FINAL COATING
11. SITE CLEANUP AND DE–MOBILIZATION

ENG. RECORD		DATE
DRAWN BY:	JG	04/24/20
DRAWING APPROVAL	DG	04/24/20
PROJECT APPROVAL	KB	04/24/20
SURVEY DATE:		
SCALE: AS SHOWN		
PROJECT ID: 7090082		
FILE NAME: EPP PIPE BRIDGE		

BURROW GLOBAL MIDSTREAM

EVANGELINE PASS PIPE BRIDGE

DWG. NO. PIPE BRIDGE SKETCH

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR
A	04/24	JG	ISSUED FOR REVIEW	7090082	KB

REVISIONS

APPENDIX C

TENNESSEE'S MODIFICATIONS TO THE FERC PLAN AND PROCEDURES

Tennessee's Modifications to the FERC Plan

Section	Original Text	Proposed Text (Changes bolded and italicized)	Determination
II.A.1	The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.	The number and experience of Environmental Inspectors assigned ***the Project shall be appropriate for the size of the construction area, the level of activity, and the number/significance of resources affected.***	FERC accepts that the proposed alternative measure will achieve a comparable level of mitigation.
III.A.1	The project sponsor must ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.	***The Project sponsors will*** ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.	FERC accepts that the proposed alternative measure will achieve a comparable level of mitigation.
IV.A.2	The construction right-of-way width for a project shall not exceed 75 ft or that described in the FERC application unless otherwise modified by a FERC Order.	***The Project will require a nominal 150-ft-wide right-of-way where conventional lay, 250-ft-wide right-of-way where barge lay, 150-ft-wide right-of-way where push lay, and a 200-ft wide by 200-ft-wide workspace at the entry and exit, with no surface disturbance within the 50-ft permanent easement between the entrance and exit of where HDD lay is proposed.*** ***The construction right-of-way width for the Project shall not exceed that described in the FERC application unless otherwise modified by a FERC Order.***	This is not a necessary modification because the wording in the FERC Plan allows for and anticipates evaluating project-specific rights-of-way in the EA.
IV.F.3.c	Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.	***The Project terrain has limited elevation changes yielding few downslopes. However, the soils in upland areas, as well as wetland areas, are of types that will tend to slough when stacked as spoil. The workspace width within the conventional lay (150 ft) will limit sediment migration laterally off the construction right-of-way. At upland and wetland/waterbody interfaces within the construction right-of-way, sediment barriers will be installed as practicable.***	FERC accepts that this measure will achieve a comparable level of mitigation.

Tennessee's Modifications to the Procedures			
Section	**Original Text**	**Proposed Text (Changes bolded and italicized)**	**Determination**
II.A.2	Site-specific justifications for the use of a construction right-of-way greater than 75-feet wide in wetlands**.**	***Site-specific justifications for the use of a construction right-of-way greater than 75-ft-wide in wetlands.*** ***The 36 inch (in) Yscloskey Lateral Loop proposed trench for Push Lay is 10 feet (ft) deep with a 10 ft bottom width and 1:1 side slopes and will require a trench top width of approximately 30 ft. The proposed trench for Conventional Lay is 7 ft deep with a 10 ft bottom width and 1.5:1 side slops and will require a trench top width of approximately 30 ft. Soil in this area is generally a mix of humas, loosely consolidated clays, and river sediment (stiffer clay and sand) with a high water content. These soil conditions will require a berm parallel to the trench to contain dredge spoils from flowing back into the trench. The proposed temporary dredge spoil areas on the left and right sides of the trench are to minimize lateral spread and vertical consolidation.*** ***Based on construction methodology and anticipated soil conditions, Tennessee requests a workspace of 150 ft. for conventional lay and for push lay. The proposed trench for the 36 in Grand Bayou Loop is estimated to be 18 ft deep with a 10 ft bottom width and 1:1 side slopes and will require a trench top width of approximately 46 ft. Soil in this area is generally a mix of humas, loosely consolidated clays, and river sediment (stiffer clay and sand) with a high water content. These soil conditions will require a berm parallel to the trench to contain dredge spoils from flowing back into the trench. The proposed temporary dredge spoil areas are on the left and right sides of the trench are to minimize lateral spread and vertical consolidation.*** ***Based on construction methodology and anticipated soil conditions, Tennessee requests a workspace of 250 ft for barge lay.*** ***The Project requires a 200-ft wide by 200-ft wide workspace at the entry and exit location of the horizontal directional drill (HDD) method to accommodate the drill set up and pull back workspaces. There will be no surface disturbance within the 50-ft permanent easement between the entrance and exit of where the HDD construction method is utilized resulting in minimized impacts and mitigation relative to conventional lay method. A workspace of 75-ft is infeasible based on construction methodology, Tennessee requests a workspace of 200-ft wide by 200-ft wide workspace for the HDD construction method and the entry and exit locations.***	FERC accepts that this proposed modification is necessary because the combination of pipe size, the inundated or saturated soil conditions, and the pervasiveness and extent of wetlands and open water in the project area make the 75-foot-wide right-of-way infeasible.
IV.A.1.d	… all equipment is parked overnight and/or fueled at least 100 ft from a waterbody or in an upland area at least 100 ft from a wetland boundary. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including	***In construction locations where there is no reasonable alternative other than to locate upland refueling sites less than 100 ft from wetlands or waterbodies, the Project will maintain at least a 10- ft setback. All refueling and equipment storage procedures, irrespective of proximity to wetlands or waterbodies, will be undertaken in accordance with Tennessee's Spill Prevention, Control, and Countermeasure Plans to reduce the potential for spills during construction and to mitigate the environmental impacts if a spill should occur.***	FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible and the alternative measure would achieve a comparable level of mitigation.

Tennessee's Modifications to the Procedures			
Section	**Original Text**	**Proposed Text (Changes bolded and italicized)**	**Determination**
	secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;		
IV.A.1.e	… hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 ft of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas;	***Equipment used in wetlands and open water would often operate at long distances (up to several miles) from the nearest upland refueling station. To track the equipment out of the wetland or open water for refueling, possibly on multiple occasions, is logistically impractical and potentially more environmentally damaging than refueling in situ. To minimize the environmental damage caused by excessive tracking, all crane/dredge and pipeline barges have in hull fuel tanks from 5,000 to 20,000 gallons. There is an on-deck fueling station with meter, hose and off/on fuel nozzle to fuel various pieces of equipment such as generators, deck crane, spud hoist, etc. For field fueling equipment such as dozers, backhoes, marsh equipment (cranes, pull buggies, backhoes, jet pumps, welding machines, etc.) the contractor will utilize portable fuel tanks (approximately 100 gallons) transported to equipment by truck, mud boat or airboat. These tanks are Coast Guard approved and have 12-volt fuel pumps with hose and off/on nozzles. These tanks are filled at a barge site or from an on land USDOT approved skid tank (approx. 2,000 to 4,000 gallons) that is serviced by a fuel distribution truck. Additional fuel hauling and transfer to work barges in the field is completed by a fuel hauling tug (as part of the daily supply run) with in hull tanks and fuel station. Equipment operators will be fully trained in refueling procedures and Tennessee's Spill Prevention, Control, and Countermeasure Plans;***	FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible and the alternative measure would achieve a comparable level of mitigation.
V.B.1.	Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows: a. coldwater fisheries - June 1 through September 30; and b. coolwater and warmwater fisheries - June 1 through November 30.	Coolwater and warmwater fisheries - June 1 through November 30. ***The schedule for pipeline construction in open waters will necessarily be integrated with the overall Project schedule, such that certain Terminal facilities can receive gas supply at the appropriate time. As such, pipeline construction cannot be restricted to a specific seasonal timeframe. Use of the Push and Barge Lay installation methods will minimize impacts over reasonable alternative methods. Construction cannot be restricted to a specific seasonal timeframe, based on the anticipated length of the construction period and the need for an integrated schedule across the multiple Project facilities.***	Tennessee has obtained written confirmation from NMFS, FWS, and LDWF that the Tennessee Project would not be held to a specific timeframe and that in-water work can be conducted at any time. Because Tennessee has obtained such authorization, this activity is allowed by the FERC Procedures.
V.B.4.b.	Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody.	Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody. ***For pipeline construction, the poor compaction of the native soil in marshland and open water is not conducive to the installation of sediment barriers. Due to the poor cohesiveness of the native spoil, as well as its low angle of repose after sidecasting, the use of sediment barriers, such as silt fences, to prevent the flow of spoil or to contain the spoil would require the barrier to withstand the pressure of the weight of the spoil against the barrier. It is anticipated that the native soil would not offer enough lateral***	FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible and the alternative measure would achieve a comparable level of mitigation.

Tennessee's Modifications to the Procedures			
Section	**Original Text**	**Proposed Text (Changes bolded and italicized)**	**Determination**
		support to withstand the pressure of unconsolidated spoil against the barrier. ***Therefore, at waterbody crossings during pipeline construction, spoil will be placed in the construction right-of-way and ATWS without lateral silt fencing, with the anticipation that the width of these areas will be sufficient to preclude spoil migration beyond their boundaries. During pipeline installation using the Barge Lay Method, the dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity. The spoil will be placed parallel to the trench in 500-ft-long piles, with 50- ft-wide openings to allow the passage of local watercraft.***	
V.B.10	Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the waterbody or adjacent upland.	Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately ***prior to*** initial disturbance of the waterbody or adjacent upland. The ***Project sponsors will install sediment barriers as practicable.***	FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible and the alternative measure would achieve a comparable level of mitigation.
V.B.10.a., b., and c.	{Specific measures related to installation of sediment barriers and trench plugs}	Tennessee will implement these measures ***"Except where the project's push and barge lay method is used on the construction right-of-way."***	FERC accepts that this proposed modification is necessary due to the pervasiveness and extent of wetlands and open water in the project area.
VI.A.3	Limit the width of the construction right-of-way to 75 ft or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 ft. Early in the planning process the project sponsor is encouraged to identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength.	***The Project will require a nominal 150-ft-wide right-of-way using the Conventional and Push Method for the lateral pipelines in wetlands due to soil conditions along the proposed routes. The soils in the project area are characteristically poorly cohesive and prone to sloughing. This is exacerbated in the inundated or saturated soil conditions found in the marshland and open water areas that characterize the routes. Project anticipates that, to maintain side slopes with a sufficiently shallow angle to prevent collapse, the pipeline trenches will require relatively wide tops and bases. Consequently, a relatively high volume of trench spoil will be generated, necessitating storage piles on both sides of the trench line for push lay and one large spoil bank for Conventional Lay.*** ***Because of the excavated material's lack of cohesion, the storage piles will be relatively wide and low. The 150-ft wide right- of-way is needed to accommodate the wide trench, the two wide-based storage piles, and equipment that must operate at some distance from the trench line to avoid edge cave-in. The use of the Push Method for pipeline installation, while reducing equipment-related disturbance, does not preclude the spoil storage issues associated with trench excavation. Installation of silt fences or other containment structures along the outer edges of the construction right-of-way in marshland and open water is technically infeasible, given the poorly compacted benthic substrate and average water depth of several ft. Compared to a narrower workspace, the 150-ft workspace width means that laterally migrating spoil is more likely to remain in an authorized area (the workspace), where any remedial measures can be readily and effectively deployed.***	FERC accepts that this proposed modification is necessary because of the inundated or saturated soil conditions found in the marshland and open water areas, which make constructing within a 75- foot-wide right-of-way infeasible. The alternative measures would achieve a comparable level of mitigation.

Tennessee's Modifications to the Procedures			
Section	**Original Text**	**Proposed Text (Changes bolded and italicized)**	**Determination**
		The Project will require a 250-ft-wide right-of-way using the Barge Lay Method, used to install the pipelines in open water along the proposed routes. In water depths of less than eight ft, it is anticipated that the dredge barge will first excavate the flotation canal. Afterwards the pipe trench will be excavated along the bottom of the flotation canal. The dredge barge will cast the flotation canal and pipe trench spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave- generated turbidity. The spoil will be placed parallel to the trench in 500-ft-long piles, with 50- ft-wide openings to allow the passage of local watercraft.	
VI.A.6	Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.	***While avoidance and minimization of wetland impacts was integral to site selection, construction of the Project's aboveground facilities will permanently impact some wetlands, as well as uplands. All wetlands impacted will be appropriately mitigated, and construction of the aboveground structures will result in no net loss of wetlands. The Project sponsors will provide the FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to Project construction.***	FERC accepts that this proposed modification is necessary because the location of the existing abandoned compressor station site and existing pipelines make avoiding wetlands infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction.
VI.B.1.a	Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 ft away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.	***Several ATWSs are necessarily located in wetlands and waterbodies due to their intended use and the limited availability of suitable upland sites. These include ATWSs required at the HDD exit and/or entry locations, set up sites for Push Method operations, bore exit and/or entry locations, and crossing sites of multiple foreign pipelines. The Project sponsors believe there are no feasible location alternatives for these ATWSs that would cause less significant environmental impacts. Moreover, most of the ATWSs are required for HDD, Push Method pipeline installation, and bore crossings, methods that have been selected to minimize or avoid greater environmental impacts elsewhere.***	FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction.
VI.B.1.c	In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas**.** Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way	In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas**.** ***Project construction is primarily located within wetlands and waterbodies and certain work areas may require access via the construction right-of-way across wetland areas or waterbodies. The Push Method will be used to install portions of the lateral pipelines with limited equipment traffic crossing the wetlands. At certain locations, such as tie-ins or foreign line crossings, additional equipment will be required to complete the pipeline installation. To access these locations multiple passes of construction equipment through the wetlands will be required, using the construction right-of-way. Access channels through open water will be used to mobilize construction equipment to install the majority length of the lateral pipelines using the Barge Lay Method.*** Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way	FERC accepts that this proposed modification is necessary because the pervasiveness and extent of wetlands and open water in the project area make this measure infeasible. The project sponsors will provide FERC with copies of the wetland delineation report, wetland mitigation plans, and additional agency permits and approvals prior to project construction.
VI.B.2.d	Minimize the length of time that topsoil is segregated and	Minimize the length of time that topsoil is segregated and the trench is open. ***The Project will use the Push Method for***	FERC accepts that this proposed alternative measure would achieve a

Tennessee's Modifications to the Procedures			
Section	**Original Text**	**Proposed Text (Changes bolded and italicized)**	**Determination**
	the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering in.	***portions of the Looping Pipelines, requiring the excavation of the pipe trench prior to pipeline assembly in order for the assembled pipeline segment to be floated and lowered into in the open trench.*** Do not trench the wetland until the pipeline is assembled and ready for lowering in.	comparable level of mitigation.
VI.B.3	Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately after initial disturbance of the wetland or adjacent upland.	Install sediment barriers (as defined in section IV.F.3.a of the Plan) immediately ***prior to*** initial disturbance of the wetland or adjacent upland.	FERC accepts that this proposed alternative measure would achieve a comparable level of mitigation.
VI.B.3.a	Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland	***Except for the Project's Push Method use on the construction right-of-way,*** install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland	FERC accepts that this measure is unnecessary in areas sufficiently inundated to allow installation by the push method.
VI.B.3.b	Where wetlands are adjacent to the construction right- of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland	***Except for the Project's Push Method use on the construction right-of-way,*** where wetlands are adjacent to the construction right-of-way and the right- of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland	FERC accepts that this measure is unnecessary in areas sufficiently inundated to allow installation by the push method.
VI.B.3.c	Install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup	***Except for the Project's Push Method use on the construction right-of-way,*** install sediment barriers along the edge of the construction right-of- way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup	FERC accepts that this measure is unnecessary in areas sufficiently inundated to allow installation by the push method.
VI.C.6.	Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).	Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre ***or other species at a rate acceptable to the Corps and LDNR*** (unless standing water is present).	FERC accepts that the proposed alternative measure will achieve a comparable level of mitigation.

APPENDIX D

SNG'S MODIFICATIONS TO FERC'S PLAN AND PROCEDURES

SNG's Proposed Modifications to the FERC Plan			
Section	**Original**	**Proposed Text (Changes italicized in bold)**	**Determination**
II.B.7	Added	***Inspector shall also verify that that during all trench dewatering activities within a trench will have a flotation device attached to the intake hose of the dewatering pump. All dewatering activities will be required to use a filtering device at the discharge end of the dewatering pump.***	FERC accepts the proposed measure.

SNG's Proposed Modifications to the FERC Procedures			
Section	**Original Text**	**Proposed Text (Changes italicized in bold)**	**Determination**
V.B.1	Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows: • coldwater fisheries - June 1 through September 30; and • coolwater and warmwater fisheries - June 1 through November 30.	***SNG will conduct all in-stream work in consultation with federal and state regulatory agencies. Unless specific issues are identified for a particular stream crossing, SNG will use its discretion to utilize the most appropriate crossing method for that location during a time period within its construction schedule. In all events, SNG will attempt to minimize in-stream impacts by expediting the crossing time and adhering to best management practices for waterbody crossings***.	No instream work is proposed for the SNG Project. SNG is only requesting this change for any repairs to a damaged pipeline if a blow out occurs during a confirmation pressure test and that location be between streams or within streams. This change is proposed for an unlikely occurrence. However, SNG has not provided written authorization from the appropriate agencies for instream work to occur outside of the specified timeframes. Therefore, all instream work must occur during the specified timeframe.
V.B.3.h	none	***The Chief Inspector (CI), EI, Environmental Contractor (EC), appropriate agency(s), and other SNG inspectors will identify or approve the appropriate waterbody crossing method from Section V.B.6-9 or Section VI.B of the Procedures for each location, based on site-specific conditions at the time of construction. In all instances, the crossing method utilized will be in accordance with all federal, state and local permit requirements including specific measures listed within this plan for the selected method.***	FERC accepts the proposed measure.
V.B.11; VI.B.4	Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as practicable after the completion of dewatering activities. [Additional text added here]	***SNG proposes that all trench dewatering activities within the ditchline will have a flotation device attached to the intake hose of the dewatering pump. All dewatering activities will be required to use a filtering device at the discharge end of the dewatering pump.***	FERC accepts the proposed measure.

APPENDIX E

TABLES

Table E.1: Waterbodies Crossed by the Tennessee Project

Waterbody ID	MP Entry	MP Exit	Cowardin Classification	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Construction Impacts (acres)	Pipeline Permanent ROW Crossing Length (ft)	FERC Waterbody Classification	Designated Use	Water Quality Impairment	Crossing Method
Yscloskey Toca Lateral Loop											
D-TAS-126	0	0	R6	0	0.02	0.02	0.00	Minor	PCR, SCR, FWP	Oxygen, Dissolved – Natural Sources	Conventional (Open Cut)
D-TAS-127	0	0	R6	0	0.03	0.03	0.00	Minor	PCR, SCR, FWP	Oxygen, Dissolved – Natural Sources	Conventional (Open Cut)
D-TAS-128	0	0	R6	0.00	0.03	0.03	0.00	Minor	PCR, SCR, FWP	Oxygen, Dissolved – Natural Sources	Conventional (Open Cut)
WB-Z1	0	0.1	PUB	0.00	0.09	0.09	31.46	Intermediate	PCR, SCR, FWP	Oxygen, Dissolved - Natural Sources	Conventional (Open Cut)
WB-D1	0.1	0.2	PUB	0.00	0.09	0.09	0.00	Intermediate	PCR, SCR, FWP	Oxygen, Dissolved - Natural Sources	Conventional (Open Cut)
WB-E2	0.1	0.2	PUB	0.00	0.67	0.67	0.00	Intermediate	PCR, SCR, FWP	Oxygen, Dissolved - Natural Sources	Conventional (Open Cut)
WB-H1	0.2	0.2	PUB	0.00	0.02	0.02	0.00	Minor	PCR, SCR, FWP	Oxygen, Dissolved - Natural Sources	Conventional (Open Cut)
WB-G1	0.3	0.3	PUB	0.00	0.11	0.11	33.44	Intermediate	PCR, SCR, FWP	Oxygen, Dissolved - Natural Sources	Conventional (Open Cut)
WB-F1	0.8	0.8	PUB	0.00	0.49	0.49	107.11	Major	PCR, SCR, FWP	Oxygen, Dissolved - Natural Sources	Conventional (Open Cut)
WB-P6	2.9	3.1	EUB	0.00	1.16	1.16	293.12	Major	PCR, SCR, FWP, OYS	None	Conventional (Open Cut)
WB-P5	3.1	3.2	EUB	0.00	1.27	1.27	306.04	Major	PCR, SCR, FWP, OYS	None	Push

Table E.1: Waterbodies Crossed by the Tennessee Project

Waterbody ID	MP Entry	MP Exit	Cowardin Classification	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Construction Impacts (acres)	Pipeline Permanent ROW Crossing Length (ft)	FERC Waterbody Classification	Designated Use	Water Quality Impairment	Crossing Method
WB-P4	3.2	3.3	EUB	0.00	0.37	0.37	118.79	Major	PCR, SCR, FWP, OYS	None	Push
WB-P3	3.3	3.4	EUB	0.00	0.33	0.33	94.18	Intermediate	PCR, SCR, FWP, OYS	None	Push
WB-P2	3.4	3.5	EUB	0.00	0.12	0.12	0.00	Major	PCR, SCR, FWP, OYS	None	Push
WB-01	4	4.3	EUB	0.00	3.72	3.72	797.51	Major	PCR, SCR, FWP, OYS	None	Push
WB-C1	4.5	4.5	PUB	0.00	0.07	0.07	58.94	Intermediate	PCR, SCR, FWP, OYS	None	Push
WB-C2	4.5	4.5	PUB	0.00	0.01	0.01	0.00	Intermediate	PCR, SCR, FWP, OYS	None	Push
WB-E1	4.7	4.7	PUB	0.00	0.02	0.02	18.32	Intermediate	PCR, SCR, FWP, OYS	None	Push
WB-Q1	4.9	5	EUB	0.00	0.11	0.11	28.18	Intermediate	PCR, SCR, FWP, OYS	None	Conventional (Open Cut)
WB-N1	5	5.8	EUB	0.00	17.04	17.04	0.00	Major	PCR, SCR, FWP, OYS	None	Push
WB-M1	6.8	6.9	EUB	0.00	0.15	0.15	4,314.05	Major	PCR, SCR, FWP, OYS	None	Push
WB-L1	7.1	7.1	EUB	0.00	0.00	0.00	41.38	Intermediate	PCR, SCR, FWP, OYS	None	Push
WB-I1	8.8	8.9	EUB	0.00	0.36	0.36	22.47	Intermediate	PCR, SCR, FWP, OYS	None	Conventional (Open Cut)

Yscloskey Toca Lateral Loop Subtotals

Table E.1: Waterbodies Crossed by the Tennessee Project

Waterbody ID	MP Entry	MP Exit	Cowardin Classification	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Construction Impacts (acres)	Pipeline Permanent ROW Crossing Length (ft)	FERC Waterbody Classification	Designated Use	Water Quality Impairment	Crossing Method
			EUB	*0.00*	*24.63*	*24.63*	*5,974.34*				
			PUB	*0.00*	*1.57*	*1.57*	*249.27*				
			R6	*0.00*	*0.08*	*0.08*	*0.00*				
			Subtotal	*0.00*	*26.28*	*26.28*	*6,223.61*				
Grand Bayou Loop											
WBA-1	0.0	0.0	EUB	0.00	0.33	0.33	n/a	Major	PCR, SCR, FWP, OYS	None	Barge
WBB-1	0.0	1.3	EUB	0.00	27.24	27.24	7,057.50	Major	PCR, SCR, FWP, OYS	None	Barge
WBC-1	1.3	1.4	EUB	0.00	1.28	1.28	221.56	Major	PCR, SCR, FWP, OYS	None	Barge
WBB-2	1.4	1.8	EUB	0.00	8.87	8.87	2,305.67	Major	PCR, SCR, FWP, OYS	None	Barge
WBD-1	1.8	1.8	EUB	0.00	1.40	1.40	254.42	Major	PCR, SCR, FWP, OYS	None	Barge
WBB-3	1.9	2.3	EUB	0.00	9.02	9.02	2,486.99	Major	PCR, SCR, FWP, OYS	None	Barge
WBE-1	2.3	2.4	EUB	0.00	1.08	1.08	197.28	Major	PCR, SCR, FWP, OYS	None	Barge
WBB-4	2.4	2.9	EUB	0.00	11.29	11.29	2,899.22	Major	PCR, SCR, FWP, OYS	None	Barge
WBF-1	2.9	2.9	EUB	0.00	1.07	1.07	197.22	Major	PCR, SCR, FWP, OYS	None	Barge

Table E.1: Waterbodies Crossed by the Tennessee Project

Waterbody ID	MP Entry	MP Exit	Cowardin Classification	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Construction Impacts (acres)	Pipeline Permanent ROW Crossing Length (ft)	FERC Waterbody Classification	Designated Use	Water Quality Impairment	Crossing Method
WBB-5	3.0	3.0	EUB	0.00	1.28	1.28	329.13	Major	PCR, SCR, FWP, OYS	None	Barge
WBG-1	3.0	3.0	EUB	0.00	0.86	0.86	157.21	Major	PCR, SCR, FWP, OYS	None	Barge
WBB-6	3.1	3.4	EUB	0.00	6.53	6.53	1,910.41	Major	PCR, SCR, FWP, OYS	None	Barge
WBH-1	3.1	3.1	EUB	0.00	0.86	0.86	154.31	Major	PCR, SCR, FWP, OYS	None	Barge
WBB-7	3.4	4.0	EUB	0.00	10.49	10.49	2,875.40	Major	PCR, SCR, FWP, OYS	None	Barge
WBI-1	3.4	3.5	EUB	0.00	0.69	0.69	122.71	Major	PCR, SCR, FWP, OYS	None	Barge
Grand Bayou Loop Subtotals											
			EUB	*0.00*	*82.27*	*82.27*	*21,169.03*				
			PUB	*0.00*	*0.00*	*0.00*	*0.00*				
			Subtotal	*0.00*	*82.27*	*82.27*	*21,169.03*				
CS 529											
WB-B1	7.7	8.9	EUB	0.22	0.07	0.29	n/a	Intermediate	PCR, SCR, FWP, OYS	None	n/a
CS 529 Subtotals											
			EUB	*0.22*	*0.07*	*0.29*	*n/a*				

Table E.1: Waterbodies Crossed by the Tennessee Project

Waterbody ID	MP Entry	MP Exit	Cowardin Classification	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Construction Impacts (acres)	Pipeline Permanent ROW Crossing Length (ft)	FERC Waterbody Classification	Designated Use	Water Quality Impairment	Crossing Method
			PUB	*0.00*	*0.00*	*0.00*	*n/a*				
			Subtotal	*0.22*	*0.07*	*0.29*	*n/a*				
State Road LA-46 Yard											
WB-Z3	n/a	n/a	PUB	0.00	0.00	0.00	n/a	Intermediate	PCR, SCR, FWP, OYS	None	n/a
WB-Z4	n/a	n/a	PUB	0.00	0.00	0.00	n/a	Intermediate	PCR, SCR, FWP, OYS	None	n/a
			State Road LA-46 Yard Subtotals								
			EUB	*0.00*	*0.00*	*0.00*	*n/a*				
			PUB	*0.00*	*0.00*	*0.00*	*n/a*				
			Subtotal	*0.00*	*0.00*	*0.00*	*n/a*				
Toca Yard											
D-TAS-124	n/a	n/a	R6	0.00	0.00	0.00	n/a	Minor	PCR, SCR, FWP	Oxygen Dissolved – Natural Sources	n/a
D-TAS-125	n/a	n/a	R6	0.00	0.00	0.00	n/a	Minor	PCR, SCR, FWP	Oxygen Dissolved – Natural Sources	n/a
D-TAS-126	n/a	n/a	R6	0.00	0.00	0.00	n/a	Minor	PCR, SCR, FWP	Oxygen Dissolved – Natural Sources	n/a
D-TAS-127	n/a	n/a	R6	0.00	0.00	0.00	n/a	Minor	PCR, SCR, FWP	Oxygen Dissolved – Natural Sources	n/a

Table E.1: Waterbodies Crossed by the Tennessee Project

Waterbody ID	MP Entry	MP Exit	Cowardin Classification	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Construction Impacts (acres)	Pipeline Permanent ROW Crossing Length (ft)	FERC Waterbody Classification	Designated Use	Water Quality Impairment	Crossing Method
WB-Z1	n/a	n/a	PUB	0.00	0.00	0.00	n/a	Intermediate	PCR, SCR, FWP	Oxygen Dissolved – Natural Sources	n/a
Toca Yard Subtotals											
			R6	*0.00*	*0.00*	*0.00*	*n/a*				
			PUB	*0.00*	*0.00*	*0.00*	*n/a*				
			Subtotal	*0.00*	*0.00*	*0.00*	*n/a*				
Tennessee Project Totals											
			EUB	***0.22***	***106.97***	***107.21***	***27,143.37***				
			PUB	***0.00***	***1.57***	***1.57***	***249.27***				
			R6	***0.00***	***0.00***	***0.00***	***n/a***				
			Total	***0.22***	***108.62***	***108.86***	***27,392.64***				

Table E.2. Wetlands Crossed by the Tennessee Project

Wetland ID	MP Entry	MP Exit	Cowardin Classification	Permanent ROW (acres)	Temporary ROW (acres)	Construction ROW (acres)	Crossing Length (ft)	Crossing Method
Yscloskey Toca Lateral Loop								
W4-1a	0.2	0.3	PFO	0.04	0.12	0.16	0.00	Conventional Lay
W4-2a	0.2	0.3	PEM	0.04	0.03	0.08	73.08	Conventional Lay
W4-2b	0.2	0.7	PEM	0.86	1.86	2.72	535.49	Conventional Lay
W4-1b1	0.3	0.7	PFO	2.12	4.22	6.34	2,059.01	Conventional Lay
W4-1c	0.7	0.7	PFO	0.00	0.07	0.07	0.00	Conventional Lay
W5-1b	0.8	0.8	PFO	0.11	0.29	0.40	97.12	Conventional Lay
W5-2a	0.8	0.8	PEM	0.00	0.03	0.03	0.00	Conventional Lay
W2-1a	0.9	0.9	EFO	0.00	0.10	0.10	0.00	Push Lay
W2-1b	0.9	0.9	EFO	0.01	0.20	0.21	1.22	Push Lay
W2-2a	0.9	0.9	EEM	0.10	0.20	0.30	86.90	Push Lay
W2-3a	0.9	0.9	ESS	0.23	0.66	0.89	203.49	Push Lay
W2-3i	0.9	1.6	ESS	0.00	0.27	0.27	0.00	Push Lay
W2-3i	0.9	1.6	ESS	4.29	8.88	13.18	3,741.75	Push Lay
W10-1d	1.6	3	EEM	1.30	5.73	7.04	1,066.56	Push Lay
W10-1d	1.6	3	EEM	6.45	10.09	16.54	5,679.83	Push Lay
W11-1a	1.8	2	EFO	0.07	0.14	0.21	278.62	Push Lay
W11-1a	1.8	2	EFO	0.24	0.11	0.35	0.00	Push Lay
W10-1c	3	3.1	EEM	0.74	1.37	2.11	650.91	Push Lay
W10-1b	3.2	3.4	EEM	0.87	1.60	2.48	751.52	Push Lay
W10-1a	3.4	3.7	EEM	2.25	4.36	6.61	1,961.19	Push Lay
W9-1a	3.7	4	ESS	0.82	1.71	2.53	425.51	Push Lay
W9-1a	3.7	4	ESS	0.49	0.84	1.33	718.02	Push Lay
W2-5b	4	4.1	EEM	0.11	0.15	0.26	107.26	Push Lay
W2-5c	4	4.1	EEM	0.00	0.01	0.01	0.00	Push Lay
W2-5aa	4.1	4.3	EEM	0.97	1.79	2.76	942.57	Push Lay
W2-4a	4.3	4.5	PFO	0.72	1.73	2.45	814.52	Push Lay
W2-5ab	4.3	4.5	PEM	0.52	0.32	0.84	265.02	Push Lay
W2-6aa	4.3	4.3	ESS	0.05	0.36	0.41	0.00	Push Lay
W2-6ab	4.3	4.5	PEM	0.00	0.48	0.48	0.00	Push Lay
W2-6b	4.3	4.3	ESS	0.04	0.44	0.48	0.00	Push Lay
W2-4b	4.5	4.5	PFO	0.00	0.00	0.00	0.00	Push Lay
W3-1a	4.6	4.6	PFO	0.47	0.00	0.47	501.28	Push Lay

Table E.2. Wetlands Crossed by the Tennessee Project

Wetland ID	MP Entry	MP Exit	Cowardin Classification	Permanent ROW (acres)	Temporary ROW (acres)	Construction ROW (acres)	Crossing Length (ft)	Crossing Method
W3-2a	4.6	4.6	PEM	0.32	0.00	0.32	190.21	Push Lay
W1-2b	4.7	5	ESS	0.02	0.06	0.08	14.47	Push Lay
W1-2d	4.7	5	PSS	0.77	1.57	2.34	514.88	Push Lay
W1-3a	4.7	5	PEM	0.75	0.45	1.20	814.99	Push Lay
W1-2a	4.8	4.9	PSS	0.00	0.42	0.42	0.00	Conventional Lay
W1-3c	5	5.1	EEM	0.39	0.74	1.13	363.10	Conventional Lay
W7-1d	5.8	6.9	EEM	6.15	12.33	18.47	5,356.04	Push Lay
W1-1d	6.9	7	ESS	0.19	0.38	0.58	168.90	Push Lay
W7-1c	6.9	6.9	EEM	0.46	0.90	1.36	397.38	Push Lay
W7-1b	7	7.2	EEM	1.57	4.40	5.97	1,372.61	Push Lay
W1-1c	7.2	7.3	ESS	0.10	0.45	0.55	87.63	Push Lay
W7-1a	7.3	8.9	EEM	8.66	17.27	25.93	7,563.13	Push Lay
W1-1b	7.4	7.7	ESS	0.93	2.63	3.56	808.51	Push Lay
W1-1a	8.8	8.9	ESS	0.33	1.31	1.64	292.48	Conventional Lay
Yscloskey Toca Lateral Loop Subtotals								
PEM				*2.49*	*3.17*	*5.66*	*1,878.79*	
			PSS	0.77	1.99	2.76	514.88	
			PFO	3.46	6.43	9.89	3,471.93	
			EEM	30.02	60.94	90.96	26,299.00	
			ESS	7.49	17.99	25.48	6,460.76	
			EFO	0.32	0.55	0.87	279.84	
			Total	44.55	91.07	135.62	38,905.20	
Grand Bayou Loop								
W1-1a	0.0	0.0	ESS	0.12	0.88	0.88	100.31	Barge
W1-1b	0.0	0.2	EEM	0.02	1.90	1.90	n/a	Barge
W2-1a	0.0	0.0	ESS	0.00	0.17	0.17	n/a	Barge
W2-1b	0.0	0.2	EEM	0.00	0.13	0.13	n/a	Barge
W2-1c	0.0	0.1	ESS	0.00	0.00	0.00	n/a	Barge
W2-1d	0.2	0.3	ESS	0.00	0.19	0.19	n/a	Barge
W1-1d	0.3	0.3	EEM	0.00	0.19	0.19	n/a	Barge
W1-2b	0.3	0.5	ESS	0.00	1.84	1.84	n/a	Barge
W2-2a	0.3	0.3	EEM	0.00	0.01	0.01	n/a	Barge
W1-2a	0.4	0.4	EEM	0.00	0.15	0.15	n/a	Barge
W1-2c	0.4	0.8	EEM	0.00	1.38	1.38	n/a	Barge

Table E.2. Wetlands Crossed by the Tennessee Project

Wetland ID	MP Entry	MP Exit	Cowardin Classification	Permanent ROW (acres)	Temporary ROW (acres)	Construction ROW (acres)	Crossing Length (ft)	Crossing Method
W2-2b	0.4	0.7	ESS	0.00	0.66	0.66	n/a	Barge
W1-2d	0.5	0.7	ESS	0.00	1.56	1.56	n/a	Barge
W1-2e	0.7	0.7	ESS	0.00	0.22	0.22	n/a	Barge
W2-3a	0.7	0.8	ESS	0.00	0.00	0.00	n/a	Barge
W1-3a	0.8	1.3	EEM	0.00	2.50	2.50	n/a	Barge
W1-3b	0.8	1.3	ESS	0.00	2.48	2.48	n/a	Barge
W2-3c	0.9	1.1	ESS	*0.00*	*0.02*	*0.02*	n/a	Barge
W2-3d	1.0	1.3	EEM	0.00	0.01	0.01	n/a	Barge
W1-4a	1.4	1.8	EEM	0.00	2.72	2.72	n/a	Barge
W1-4b	1.4	1.8	ESS	0.00	1.61	1.61	n/a	Barge
W2-4b	1.4	1.6	ESS	0.00	0.00	0.00	n/a	Barge
W2-4c	1.5	1.8	EEM	0.00	0.01	0.01	n/a	Barge
W2-4d	1.7	1.7	ESS	0.00	0.01	0.01	n/a	Barge
W1-5	1.9	2.3	EEM	0.00	5.31	5.31	n/a	Barge
W2-5	1.9	2.3	EEM	0.00	0.00	0.00	n/a	Barge
W1-1c	2.0	0.3	ESS	0.00	1.14	1.14	n/a	Barge
W1-6	2.4	2.8	EEM	0.00	3.53	3.53	n/a	Barge
W2-6	2.4	2.8	EEM	0.00	0.02	0.02	n/a	Barge
W1-7	2.7	2.9	EEM	0.00	1.89	1.89	n/a	Barge
W2-7	2.8	2.9	EEM	0.00	0.01	0.01	n/a	Barge
W1-8a	2.9	3.0	EEM	0.00	0.38	0.38	n/a	Barge
W2-8a	2.9	3.0	ESS	0.00	0.02	0.02	n/a	Barge
W1-8b	3.0	3.0	ESS	0.00	0.17	0.17	n/a	Barge
W1-9	3.0	3.1	ESS	0.00	0.08	0.08	n/a	Barge
W1-10a	3.1	3.1	EEM	0.00	0.07	0.07	n/a	Barge
W1-10b	3.1	3.3	ESS	0.00	1.14	1.14	n/a	Barge
W1-10c	3.1	3.1	EEM	0.00	0.09	0.09	n/a	Barge
W1-10d	3.1	3.4	EEM	0.00	2.83	2.83	n/a	Barge
W2-9a	3.1	3.3	ESS	0.00	0.14	0.14	n/a	Barge
W2-9b	3.2	3.4	EEM	0.00	0.14	0.14	n/a	Barge
W1-11	3.5	3.8	EEM	0.00	4.04	4.04	n/a	Barge
W2-10	3.5	3.8	EEM	0.00	0.30	0.30	n/a	Barge
W1-12	3.8	4.0	EEM	0.10	2.43	2.43	83.62	Barge
W2-11	3.8	4.0	EEM	*0.00*	*0.07*	0.07	n/a	Barge
W1-13a	4.0	4.0	EEM	0.00	0.06	0.06	n/a	Barge

Table E.2. Wetlands Crossed by the Tennessee Project

Wetland ID	MP Entry	MP Exit	Cowardin Classification	Permanent ROW (acres)	Temporary ROW (acres)	Construction ROW (acres)	Crossing Length (ft)	Crossing Method
W2-12a	4.0	4.0	EEM	0.00	0.03	0.03	n/a	Barge
Grand Bayou Loop Subtotals								
			PEM	0.00	0.00	0.00	*n/a*	
			PSS	0.00	0.00	0.00	*n/a*	
			PFO	0.00	0.00	0.00	*n/a*	
			EEM	0.12	30.20	30.32	83.62	
			ESS	0.12	12.33	12.45	100.31	
			EFO	0.00	0.00	0.00	*n/a*	
			Total	0.24	42.53	42.77	183.93	
CS 529								
W1-1a	7.7	8.9	ESS	8.35	0.00	8.35	*n/a*	*n/a*
W1-1a*	7.7	8.9	ESS	8.81	0.00	8.81	*n/a*	*n/a*
W7-1a	7.2	8.9	EEM	3.22	0.00	3.22	*n/a*	*n/a*
W7-1a*	7.2	8.9	EEM	10.94	0.00	10.94	*n/a*	*n/a*
CS 529 Subtotals								
			PEM	0.00	0.00	0.00	*n/a*	
			PSS	0.00	0.00	0.00	*n/a*	
			PFO	0.00	0.00	0.00	*n/a*	
			EEM	3.22	0.00	3.22	*n/a*	
			EEM	10.94	0.00	10.94	*n/a*	
			ESS	8.35	0.00	8.35	*n/a*	
			ESS	8.81	0.00	8.81	*n/a*	
			EFO	0.00	0.00	0.00	*n/a*	
			Total	11.57	0.00	11.57	*n/a*	
			*Total (*Undisturbed)*	19.75	0.00	19.75	*n/a*	
Bayou Road Yard								
W13-1	n/a	n/a	PEM	5.18	0.00	5.18	5.18	n/a
Bayou Yard Subtotals								
			PEM	0.00	5.18	5.18	*n/a*	
			PSS	0.00	0.00	0.00	*n/a*	
			PFO	0.00	0.00	0.00	*n/a*	
			EEM	0.00	0.00	0.00	*n/a*	

Table E.2. Wetlands Crossed by the Tennessee Project

Wetland ID	MP Entry	MP Exit	Cowardin Classification	Permanent ROW (acres)	Temporary ROW (acres)	Construction ROW (acres)	Crossing Length (ft)	Crossing Method
			ESS	0.00	0.00	0.00	*n/a*	
			EFO	0.00	0.00	0.00	*n/a*	
			Total	0.00	5.18	0.00	*n/a*	
State Road LA-46 Yard								
W14-1	n/a	n/a	PEM	0.00	0.00	0.00	n/a	n/a
W14-2	n/a	n/a	PEM	0.00	0.00	0.00	n/a	n/a
W14-3	n/a	n/a	PEM	0.00	0.00	0.00	n/a	n/a
W14-5	n/a	n/a	PEM	0.00	0.00	0.00	n/a	n/a
Toca Yard								
W12-4	n/a	n/a	PEM	0.00	0.00	0.00	n/a	n/a
W12-5	n/a	n/a	PEM	0.00	0.00	0.00	n/a	n/a
Tennessee Project Totals								
			PEM	2.49	8.35	10.84	1,878.79	
			PSS	0.77	*1.99*	2.76	514.88	
			PFO	3.46	*6.43*	9.89	3,471.93	
			EEM	32.21	*92.14*	124.35	26,382.62	
			ESS	14.93	*31.25*	46.18	6,561.07	
			EFO	0.32	*0.55*	0.87	279.84	
Grand Total				**54.18**	***140.71***	**194.89**	**39,089.13**	

Table 3E: Planned and Existing Development Projects Considered in the Project's Cumulative Impacts Analysis for the Tennessee Project						
Project Name	**Sponsor/Proponent**	**Location (Parish/State)**	**Project Type/Description of Project**	**Approximate Distance and Direction from Project (miles)**	**Status/Schedule**	**Resources Assessed for Cumulative Impacts**
IGP Methanol Project	IGP Methanol, LLC	Plaquemines Parish, LA	Large Scale Methanol Plant to be built on a 140-acre parcel including four methanol production units planned to be built in phases, when completed the plant can produce 7.2 million tonnes per year of methanol. Methanol will be produced using natural gas, water and oxygen. Methanol will be loaded onto marine vessels for export.	22 miles southwest of CS 529	Permitting phase, site geotechnical completed, obtained CAA Title V air permit and Corps permit, impacts to wetlands and coastal will be addressed through required mitigation in permit. Construction start date TBD.	Socioeconomics; Air Quality;
Venture Global Plaquemines LNG and Venture Global Gator Express Pipeline	Venture Global LNG, Inc.	Plaquemines Parish, LA	LNG plant will have an export capacity of 20 million metric tonnes per year (MMTPY) developed in two phases, with phase I providing 10 MMTPY constructed upon receipt of all permits. Phase II will involve an additional 10 MMTPY based on market demand. Three marine loading berths capable of receiving LNG carriers up to 185,000 cubic meters. Phase I Gator Express Pipeline will involve construction of 42-inch-diameter pipeline, 15 miles long that will interconnect with TGP and Texas Eastern Transmission located offshore southwest of terminal site (SW Lateral TGP). Phase II will involve a 42-inch-diameter looped section, 12 miles long to interconnect with Texas Eastern Transmission (SW Lateral TETLP).	LNG plant 22 miles southwest of CS 529 and Yscloskey Toca Lateral Loop Gator Express Pipeline 10 miles west of Grand Bayou Loop	FERC Orders and Certificate Section 3 and 7 received September 2019; Venture Global received approval from FERC in June 2020 to begin initial mobilization and limited site preparation. At the time of EA Venture Global is planning on commencting site work in September 2020, expected to continue for about 35 months.	Socioeconomics; Air Quality; Threatened and Endangered Species
Plaquemines Liquid Terminal	Tallgrass Energy and Drexel Hamilton	Plaquemines Parish, LA	Crude Export Terminal with crude oil storage capacity of 20 million barrels and docking facilities capable of handling larger capacity vessels such as those used in Panama Canal.	23 miles southwest of CS 529	Permitting phase, site geotechnical completed, applied for Corps Section 408 permit on September 5, 2018. Cultural surveys 4Q 2019. Construction start date TBD.	Socioeconomics; Air Quality

Table 3E: Planned and Existing Development Projects Considered in the Project's Cumulative Impacts Analysis for the Tennessee Project						
Project Name	**Sponsor/Proponent**	**Location (Parish/State)**	**Project Type/Description of Project**	**Approximate Distance and Direction from Project (miles)**	**Status/Schedule**	**Resources Assessed for Cumulative Impacts**
NOLA Oil Terminal	McEnery Company	Plaquemines Parish, LA	Crude oil storage and distribution hub capable of handling larger capacity vessels such as those used in the Panama Canal.	20 miles southwest of CS 529	Permitting phase, have obtained CUP and Corps permit in 2013/14 with extensions.	Socioeconomics; Air Quality
Shell Pipeline Company	Shell Pipeline Company LP	Plaquemines Parish, LA	Work is planned along three sites on an existing Shell pipeline canal approximately 200 feet south of Grand Bayou. Site 1 involves installation of a rock berm; Site 2 involves replacement of existing pilings; and Site 3 involves installation of Aquablock fill material around Shell's existing 20 –inch-diameter pipeline.	Adjacent to the northeast limit of the Grand Bayou Loop	Permitting phase, received CUP November 20, 2018. Construction start date TBD.	Groundwater, Wetlands, Surface Water, Wildlife and Vegetation, Visual, Socioeconomics, Air Quality
TGP Station 527 2.55 (b) Facilities Modifications	Tennessee Gas Pipeline Company, L.L.C.	Plaquemines Parish, LA	Like for like replacement of two existing General Electric Frame three gas turbine driven compressor units, B-1 and B-2 will be replaced with two Solar Taurus 70 11,110 ISO hp gas turbine driven compressor units.	23 miles southwest of CS 529 two miles northeast of Grand Bayou Loop	Permitting phase in conjunction with the Project, construction start anticipated second half of 2021	Socioeconomics, Air Quality
TGP Station 527 (Evangeline Pass Flexibility Project)	Tennessee Gas Pipeline Company, L.L.C.	Plaquemines Parish, LA	Station reversal for bi-directional flow including installation of gas cooling and upgrade of existing station controls.	23 miles southwest of CS 529 two miles northeast of Grand Bayou Loop	Permitting phase , construction start anticipated second half of 2020	Socioeconomics; Air Quality
SNG Modifications at Toca Compressor Station	Southern Natural Gas	St. Bernard Parish, LA	Reline four compressor units and modify station piping.	nine miles west of CS 529	Permitting phase, 7(c) certificate anticipated Q1 2021 and start construction Q1 2021	Groundwater, Wildlife and Vegetation, Land Use, Visual
CS 529 Overhead Power Line (Non-Jurisdictional Facility)	Entergy Louisiana, LLC	St. Bernard Parish, LA	A new overhead power line (approximately 250 ft) at CS 529	At CS 529	Discussions ongoing, not entered design or permitting phase.	Soils, Geology, Air Quality, Noise

Table 3E: Planned and Existing Development Projects Considered in the Project's Cumulative Impacts Analysis for the Tennessee Project						
Project Name	**Sponsor/Proponent**	**Location (Parish/State)**	**Project Type/Description of Project**	**Approximate Distance and Direction from Project (miles)**	**Status/Schedule**	**Resources Assessed for Cumulative Impacts**
CS 529 (Potable Water Supply Line (Non-Jurisdictional Facility)	St. Bernard Water Company	St. Bernard Parish, LA	Reconnection of water meter and line (approximately 200 ft) at CS 529	At CS 529	Discussions ongoing, not entered design or permitting phase.	Soils, Geology, Air Quality, Noise
CS 529 Overhead Communication Line (Non-Jurisdictional Facility)	To be determined	St. Bernard Parish, LA	A new overhead communication line (approximately 200 ft) at CS 529	At CS 529	Discussions ongoing, not entered design or permitting phase.	Soils, Geology, Air Quality, Noise
Mid-Barataria Sediment Diversion Project	Louisiana Coastal Protection and Restoration Authority	Plaquemines Parish	Placement of a sediment diversion through the federal Mississippi River and Tributaries Project mainline levee on the right descending side at River Mile 60.7 and through the New Orleans to Venice (NOV) Hurricane Protection Levee, extending to mid-Barataria Basin.	15 miles north of Yscloskey Toca Lateral Loop	Permitting phase, DEIS expected mid- 2020, Record of Decision (ROD) could be 2.5 to 3 years	Socioeconomics
Mid-Breton Sediment Diversion Project	Louisiana Coastal Protection and Restoration Authority	Plaquemines Parish	Placement of sediment diversion through a portion of the federal Mississippi River and Tributaries Project mainline levee on the descending bank of the Mississippi River from River Mile 68 extending into Mid-Breton Basin.	five miles northwest of Grand Bayou Loop	Initial Permitting phase, ROD could be greater than 3 years in future	Socioeconomics
Barataria Basin Spanish Pass Ridge and Marsh Restoration Project	Louisiana Coastal Protection and Restoration Authority	Plaquemines Parish	Dredging of sediment from the Mississippi River to restore 120 acres of earthen ridge and approximately 1,130 acres of marsh along Spanish Pass in Plaquemines Parish to a river tributary west of Venice.	27 miles southeast of Grand Bayou Loop	Initial engineering and design phase	Socioeconomics
New Orleans to Venice Hurricane	Louisiana Coastal Protection and	Plaquemines Parish	Restoration of existing project levees to achieve storm risk and impact reduction in Plaquemines Parish and mitigation areas	five miles northwest of Grand Bayou Loop	In construction and permitting phase	Socioeconomics

Table 3E: Planned and Existing Development Projects Considered in the Project's Cumulative Impacts Analysis for the Tennessee Project						
Project Name	**Sponsor/Proponent**	**Location (Parish/State)**	**Project Type/Description of Project**	**Approximate Distance and Direction from Project (miles)**	**Status/Schedule**	**Resources Assessed for Cumulative Impacts**
Risk Reduction Project (NFL/NOV)	Restoration Authority					
South Lake Lery Shoreline and Marsh Restoration	US Fish and Wildlife Service	Plaquemines Parish	Expand ongoing restoration efforts by dredging an additional 450,000 cubic yards of material from previously permitted area and deposit the material on the southern shorelines of Lake Lery. The permit modification is expected to nourish up to 1,100 acres of fragmented marsh areas.	eight miles southwest of Yscloskey Toca Lateral Loop	Permitting phase	Visual, Socioeconomics

Table 4E: Planned and Existing Development Projects Considered in the Project's Cumulative Impacts Analysis for the SNG Project							
Project Name	**Sponsor/ Proponent**	**Location (Parish/County and State)**	**Project Type/Description of Project**	**Acres**	**Permits or Environmental Review Required**	**Status/ Permitting Schedule**	**Resources Assessed for Cumulative Impacts**
Turbine Exhaust Stack Replacement	Southern Natural Gas Company	Clarke, MS	Natural Gas Maintenance / Turbine exhaust stack replacement at Enterprise	0 acres*	Maintenance project currently under development and design. This work is expected to be permitted pursuant to FERC 2.55(a) under the NGA. Depending on final design, modification to existing air quality permits may be required through the Mississippi Department of Environmental Quality, Air Branch.	2021 – Pending Final Design Scope	Socioeconomics (Rose Hill CS and Receipt MS)
Florida Avenue Project	Louisiana Department of Transportation and Development (LDOTD)	St. Bernard, LA	Transportation / Improving and extending Florida Avenue and construct a new bridge over the Inner NHC.	20 acres**	Data not publicly available. LDOTD is required to implement the NEPA process and will perform the required level of environmental review for air quality, water quality impacts, wetlands/waterbody impacts, protected species concerns, cultural resource concerns and human health protections. Typical permit/authorizations include Corps-Section 404, Louisiana Office of Cultural Development Division of Historic Preservation and Division of Archaeology Section 106, LDEQ Section 401, and LDEQ Stormwater General Permit.	Present 2020–TBD / Project is currently in planning stages	Socioeconomics (Toca Delivery MS)
3-phase service overhead power line upgrade	East Mississippi Electric Power Association (EMEPA)	Clarke, MS	An existing overhead power line will be upgraded to 3-phase service by EMEPA, originating at the location of a current power pole along County Road 336, and routed along	0 acres (Within existing EMEPA right-of-way)	No federal or local permits are expected to be required for the extension of electrical distribution to the site. However, a state permit for crossing Interstate 59 will require updating as the crossing is currently only permitted for single phase service.	2021 or during construction of Rose Hill CS	Water, Wildlife, and Vegetation, Socioeconomics, Geology, Soils, Land Use, and Visual Resources, Air Quality, Noise (Rose Hill CS and MS)

Table 4E: Planned and Existing Development Projects Considered in the Project's Cumulative Impacts Analysis for the SNG Project							
Project Name	**Sponsor/ Proponent**	**Location (Parish/County and State)**	**Project Type/Description of Project**	**Acres**	**Permits or Environmental Review Required**	**Status/ Permitting Schedule**	**Resources Assessed for Cumulative Impacts**
			existing power line right-of-way to the station access road, approximately 1.7 miles in length before reaching the Rose Hill CS site.				
Enterprise CS	SNG	Clarke County, MS	Install new gas coolers for units 14-16; Modify 3 receiver traps	26.44	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	
Pressure Test (near MP 56-65)*	SNG	Clarke and Jasper Counties, MS	Pressure test South Main Line and Loop Line MP 56 to MP 65	1.60	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Bay Springs CS	SNG	Jasper County, MS	Pressure test South Main Loop Line Bay Springs Station Piping	9.34	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Crossover Header (near MP 35)*	SNG	Smith County, MS	Install valve on South Main 2nd Loop Line East of Existing Header	4.97	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water
Modify Receiver (near MP 12)*	SNG	Simpson County, MS	Modify receiver trap on South Main Third Loop Line	2.92	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Gwinville CS	SNG	Jefferson Davis County, MS	Modify station piping; Modify 4 Launcher and 3 receiver traps;	19.44	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice

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Project Name	**Sponsor/ Proponent**	**Location (Parish/County and State)**	**Project Type/Description of Project**	**Acres**	**Permits or Environmental Review Required**	**Status/ Permitting Schedule**	**Resources Assessed for Cumulative Impacts**
Southeast Supply Header Interconnect (near MP 64)*	SNG	Jefferson Davis County, MS	Install 24" main line block valve on the 24" Franklinton-Gwinville Main; Install 24" tap valve to the Franklinton-Gwinville Main; Install 30" block valve on existing crossover header between the main line and SESH tap	0.93	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Pressure Test (near MP 52-67)*	SNG	Jefferson Davis County, MS	Pressure test Franklinton Gwinville Main Line MP 52 to MP 67	1.65	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Remove Check Valves (near MP 44)*	SNG	Lawrence County, MS	Remove all check valves on the north side of the Pearl River	9.80	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Modify Receiver (near MP 44)*	SNG	Lawrence County, MS	Modify receiver on the south side of the Pearl River, straighten access road out slightly to allow for equipment access.	9.67	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Pearl River CS	SNG	Walthall County, MS	Modify the suction and discharge lines within the station; Modify 2 receiver traps	7.82	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice

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Project Name	**Sponsor/ Proponent**	**Location (Parish/County and State)**	**Project Type/Description of Project**	**Acres**	**Permits or Environmental Review Required**	**Status/ Permitting Schedule**	**Resources Assessed for Cumulative Impacts**
			Pressure test the station piping on Main and Loop Lines at Pearl River Compressor Station				
Modify Receiver (near MP 24)*	SNG	Walthall County, MS	Modify receiver trap on Main Pass Franklinton Second Loop Line	0.98	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Remove Check Valves (near MP 2)*	SNG	Washington Parish, LA	Remove all check valves on the north side of the Bogue Chitto River	4.74	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water
Franklinton CS	SNG	Washington Parish, LA	Modify 3 Receiver traps; Pressure test trap station piping on the Main and Loop Lines	2.30	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water
Modify Receiver and Launcher (near MP 98)*	SNG	St. Tammany Parish, LA	Modify receiver and launcher on Main Pass Franklinton Second Loop Line	1.42	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Lacombe Station	SNG	St. Tammany Parish, LA	Modify station traps and pressure test station piping	6.17	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice
Modify Receiver (near MP 86)*	SNG	St. Tammany Parish, LA	Modify receiver on Main Pass Franklinton Second Loop Line	0.96	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Environmental Justice

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Project Name	**Sponsor/ Proponent**	**Location (Parish/County and State)**	**Project Type/Description of Project**	**Acres**	**Permits or Environmental Review Required**	**Status/ Permitting Schedule**	**Resources Assessed for Cumulative Impacts**
Modify Receiver and Launcher (near MP 70)*	SNG	Orleans Parish, LA	Modify receiver and launcher traps on Main Pass Franklinton Line	0.72	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Suface Water, Threatened and Endangered Specties, Environmental Justice
Toca CS	SNG	St. Bernard Parish, LA	Reline four compressor units Modify station piping	49.33	Permitting phase in conjunction with the Project; proposed under section 2.55	start anticipated second half of 2021	Geology and Soils, Surface Water, Air Quality, Noise
*Mileposts (MP) given for SNG's 2.55 activities are for SNG's existing system.							