Federal Energy Regulatory Commission

Office of Energy Projects

April 2019

Gulf South Pipeline Company, LP **Docket No. CP19-3-000**

Petal III Compression Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas1
Gulf South Pipeline Company, LP.
Petal III Compression Project
Docket No. CP19-3-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Petal III Compression Project, proposed by Gulf South Pipeline Company, LP. (Gulf South) in the above-referenced docket. Gulf South requests authorization to construct, operate, and maintain two new electric-driven 5,000 horsepower compressor units, within the existing Petal III Compressor Station (Petal III CS) building and add a new dehydration unit, thermal oxidizer, and other auxiliary, appurtenant facilities adjacent to the Petal III CS building in Forrest County, Mississippi.

The EA assesses the potential environmental effects of the construction and operation of the project in accordance with the requirements of the National Environmental Policy Act (NEPA). The FERC staff concludes that approval of the proposed project, 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 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 Environmental Documents page (https://www.ferc.gov/industries/gas/enviro/eis.asp). 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/docs-filing/elibrary.asp), click on General Search, and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP19-3). 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.

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 **May 3, 2019.**

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 202-502-8258 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 located on the Commission's website (www.ferc.gov) under the link to Documents and Filings. 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 Documents and Filings. 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 following address. Be sure to reference the project docket number (CP19-3-000) with your submission: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR section 385.214). Motions to intervene are more fully described at http://www.ferc.gove/resources/guides/how-to/intervene.asp. Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. The Commission may grant affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

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 www.ferc.gov/docs-filing/esubscription.asp.

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TECHNICAL ABBREVIATIONS AND ACRONYMS

APE	area of potential effect
AR	access road
CAA	Clean Air Act
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
dBA	decibels on the A-weighted scale
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EI	Environmental Inspector
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
GHG	greenhouse gases
GWP	global warming potential
HAP	hazardous air pollutant
L_{dn}	day-night sound level
L_{eq}	24-hour equivalent sound level
MDEQ	Mississippi Department of Environmental Quality
MMscf/d	million standard cubic feet per day
MOU	Memorandum of Understanding
MSOGB	Mississippi Oil and Gas Board
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGA	Natural Gas Act
NO_2	nitrogen dioxide
NOI	Notice of Intent to Prepare an Environmental Assessment for the Planned Petal III Compression Project and Request for Comments on Environmental Issues
NO_x	nitrogen oxide
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
PFO	palustrine forest
PHMSA	Pipeline Hazardous Materials Safety Administration
Plan	FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan*
$PM_{2.5}$	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*
Project	Petal III Compression Project
PSD	Prevention of Significant Deterioration
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office(r)
SIL	significant impact level
SO_2	sulfur dioxide
SPCC Plan	*Spill Prevention, Control, and Countermeasure Plan*
tpy	tons per year
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 Petal III Compression Project (Project). On October 9, 2018, Gulf South Pipeline Company (Gulf South) filed an application with the Commission pursuant to Section 7(c) of the Natural Gas Act (NGA), as amended, (Docket No. CP19-3-000), seeking authorization to construct, operate, and maintain two new electric-driven 5,000 horsepower compressor units, within the existing Petal III Compressor Station (Petal III CS) building, and a new dehydration unit, thermal oxidizer, and other auxiliary, appurtenant facilities adjacent to the Petal III CS building for the purpose of transporting natural gas in interstate commerce.

We[1] prepared this EA in compliance with the requirements of the *National Environmental Policy Act of 1969* (NEPA), the Council on Environmental Quality regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR] 1500-1508 [40 CFR 1500-1508]) and the Commission's implementing regulations under 18 CFR 380.

The assessment of environmental impacts is an integral part of the Commission's decision on whether to issue Gulf South a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the proposed facilities. 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

Gulf South's stated purpose of the Project is to increase the injection capability by the installation of new compression and dehydration units at an existing oil and gas compressor station for an underground storage facility (Petal Gas Storage Facility) which is comprised of several injection and withdrawal wells owned by multiple entities.

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

Specifically, Gulf South would increase the injection capability from 1,488 million standard cubic feet per day (MMscf/d) to 1,738 MMscf/d; and restate the withdrawal capability from 3,430 MMcf/d to 2,495 MMscf/d based on the operational limitations of the existing and new dehydration units. The Project would not result in any changes to the existing wells.

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 Commission bases its decision on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a Project. Approval would be granted if, after consideration of both environmental and non-environmental issues, the Commission finds that the Project is in the public interest.

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; 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 our recommended mitigation measures.

4. Public Review and Comment

On November 20, 2018, we issued a *Notice of Intent to Prepare an Environmental Assessment for the Planned Petal III Compression Project and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to about 135 entities including federal, state, and local officials; Native American groups; agency representatives; potentially affected landowners and other interested individuals; and local libraries.

This EA addresses the potential environmental impacts of Gulf South's Project and the concerns identified by the public in response to the NOI. To date, we have received five comment letters in response to the NOI, including from the U.S. Environmental Protection Agency (EPA), Region 4; Mississippi Department of Wildlife, Fisheries and Parks; Transtitle Properties of Hattisburg, MS; Alabama-Cousetta Tribe of Texas, and Choctaw Nation Historic Preservation Department. Table 1 summarizes the environmental issues that were raised during scoping and indicates the section of this EA in which each issue is addressed.

Table 1 Comments Provided During the Comment Period	
Comment	EA Section Addressing Comment
EPA Region 4 recommends: -Use of observation wells; -Inspections/repairs are immediately taken after heavy rain events -Gulf South should not discharge hydrostatic test water into wetlands, and discharge into well-vegetated uplands only. -FERC consider two rules for new source engines. -Gulf South implement diesel controls.	Sections B.3.1, B.3.4, and B.7.9
MDWFP's recommendations for gopher tortoise avoidance.	Section B.4.6
Alabama-Cousetta Tribe of Texas comment of no impact on cultural assets.	Section B.6
Choctaw Nation Historic Preservation Department request for information.	Section B.6
Transtitle Properties Inc. safety concern for encroachment of salt domes near residences.	Section B.10.1

5. Proposed Facilities

The Project would include the installation of two new electric-driven 5,000 horsepower reciprocating compressor units with discharge gas coolers within Gulf South's existing Petal III CS building, and a new glycol dehydration unit and regenerator, and other auxiliary, appurtenant facilities in Forrest County, Mississippi. The Project would also include the installation of a new thermal oxidizer for both the new dehydration unit and Gulf South's existing dehydration unit, and a new permanent staging yard in support of the new dehydration unit. The general location of the facilities is shown in figure 1.

6. Land Requirements

The Project would affect 18.8 acres of land during construction and 5.5 acres of land during operation, including 4.9 acres for the permanent staging yard and 0.5 acre for the aboveground facilities. All Project activities would be within Gulf South's existing Petal Gas Storage Facility site and are further discussed below.

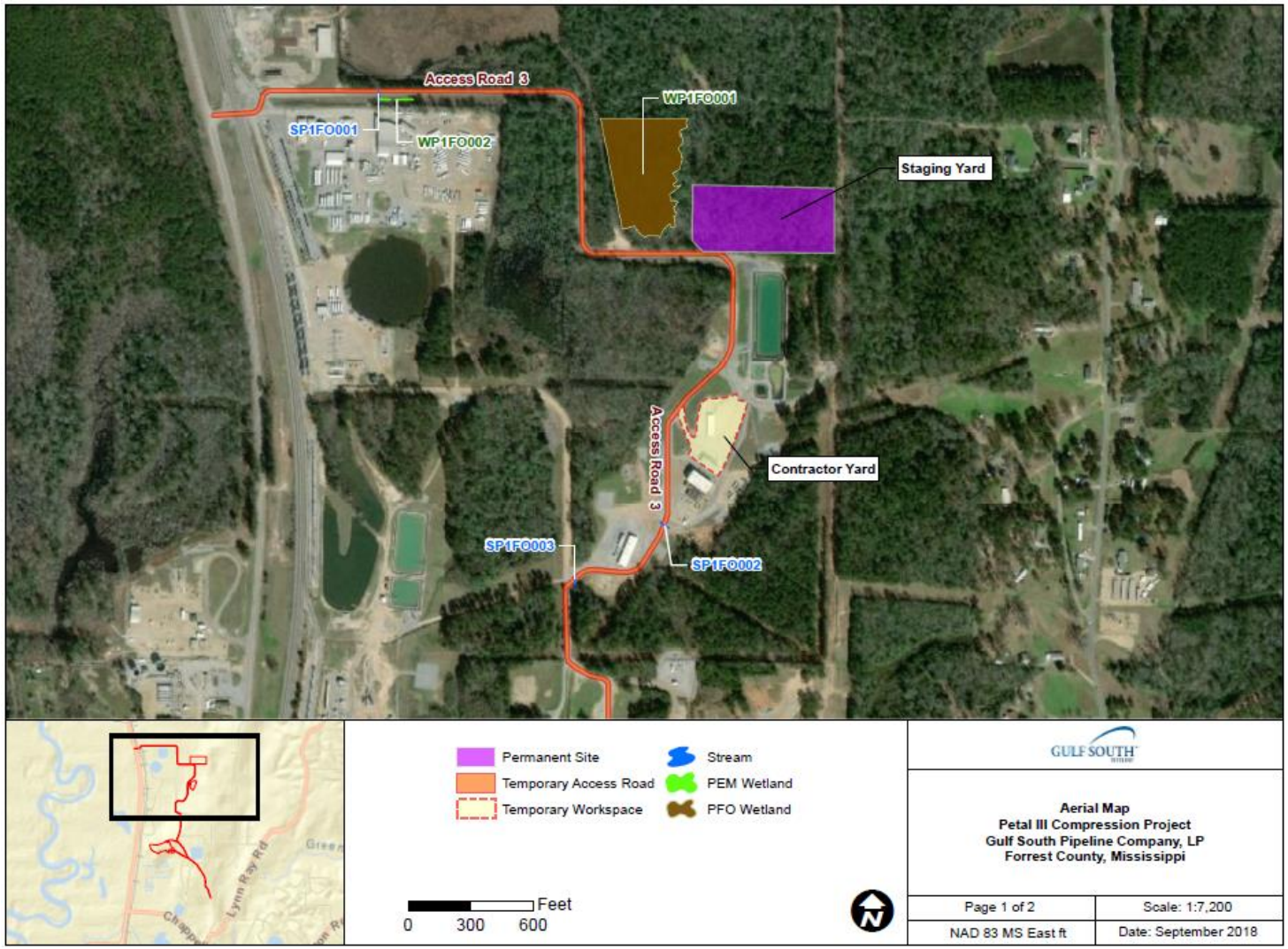
6.1 Petal III Compressor Station

Gulf South would install two new electric compressor units within the existing compressor building at the Petal III CS. The new dehydration unit would be installed adjacent to the existing dehydration unit and would require the expansion of the Petal III CS by 0.5 acre.

Gulf South would use the entirety of the existing Petal III CS (6.5 acres), as well as a small area to the southwest of the facility (0.2 acres), totaling 6.7 acres, as temporary workspace for the installation of the new compressor units, dehydration unit, and associated piping modifications.

The Project would require one staging yard and one contractor yard. The staging yard would require 4.9 acres north of the Project area on property owned by Gulf South. Gulf South would clear and gravel this area for use during construction and reseed and permanently maintain the yard for future use after construction is complete. The proposed 1.6-acre temporary contractor yard is near Gulf South's Petal Gas Storage Facility office building in an existing graveled area. All impacts associated with the contractor yard would be temporary. The Project would require three public temporary access roads, totaling about 5.1 acres; however no improvements are proposed. Table 2 summarizes the approximate land requirements for construction and operation of the proposed facilities.

Figure 1. Proposed Facilities



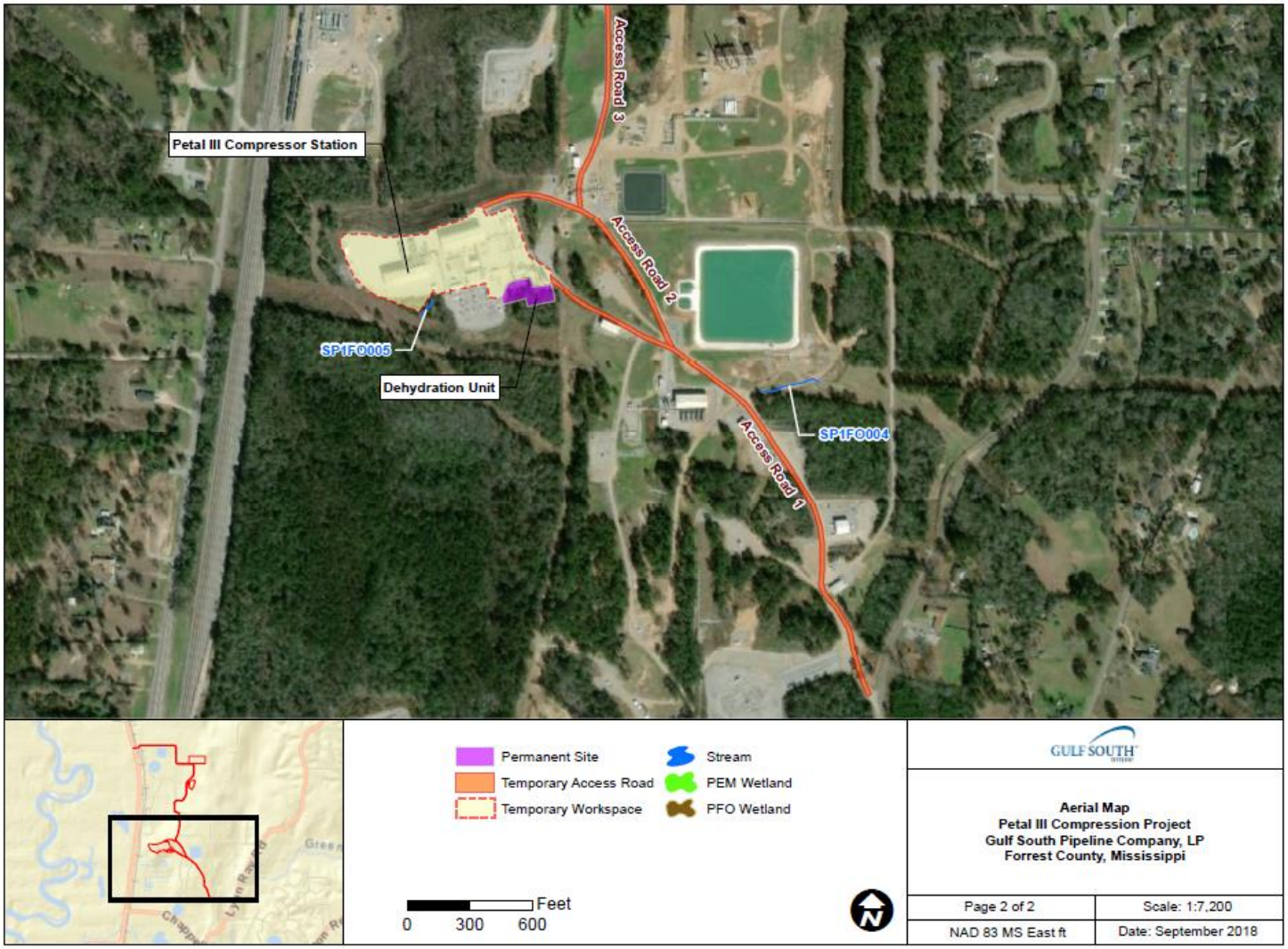

Petal III Compressor Station
Access Road 3
Access Road 2
Access Road 1
SP1FO005
Dehydration Unit
SP1FO004
Permanent Site
Temporary Access Road
Temporary Workspace
Stream
PEM Wetland
PFO Wetland
Feet
0
300
600
GULF SOUTH
Aerial Map
Petal III Compression Project
Gulf South Pipeline Company, LP
Forrest County, Mississippi
Page 2 of 2
Scale: 1:7,200
NAD 83 MS East ft
Date: September 2018

Table 2 Land Requirements for the Petal III Compression Project		
Facility	Land Affected During Construction (acres)	Land Affected During Operation (acres)
Petal II Compressor Station	6.7	0.0
Dehydration Unit	0.5	0.5
Contractor Yard	1.6	0.0
Staging Yard	4.9	4.9
Access Roads	5.1	0.0
Project Total	**18.8**	**5.5**

7. Construction Schedule

Gulf South states that construction would start in November 2019, and anticipates placing the Project into service by June 2020.

8. Construction, Operation, and Maintenance Procedures

The Project would be designed, constructed, operated, and maintained in accordance with the U.S. Department of Transportation (DOT) *Minimum Federal Safety Standards* in 49 CFR 192. Gulf South would adopt our *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures)[2] for the Project. There are no proposed deviations to our Plan and Procedures for the Project.

Gulf South 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. Gulf South would also participate in the local One Call system. These standards are in accordance with the *National Pipeline Safety Act of 1968*, as amended.

In order to minimize potential environmental impacts, Gulf South has developed the following Project-specific construction and reclamation plans,[3] which we have reviewed and find acceptable:

- *Stormwater Pollution Prevention Plan*;

[2] 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: http://www.ferc.gov/industries/gas/enviro/guidelines.asp.

[3] Copies of Gulf South's Project-specific construction and reclamation plans have been filed with the Commission and can be viewed on eLibrary at http://www.ferc.gov/docs-filing/elibrary.asp under this docket.

- *Exotic and Invasive Species Control Plan;*
- *Plan for the Unanticipated Discovery of Contaminated Environmental Media*; and
- *Fugitive Dust Control Plan*.

Gulf South has also developed a Project-specific *Spill Prevention, Control, and Countermeasures Plan* (SPCC Plan) that would protect surface groundwater resources in construction and support areas from inadvertent releases of fuel and other mechanical fluids that we find acceptable.

Gulf South would employ at least one environmental inspector (EI) for the Project during construction and restoration, as specified in our Plan. The EI would be on-site during Project construction activities to ensure Gulf South's compliance with the measures outlined in our Plan and Procedures and the environmental permit requirements from construction through restoration. The EI would have the authority to stop activities that are not in compliance with agency requirements until corrective action has been taken.

Gulf South would 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.

9. Residential Areas

The Project is not within 1,000 feet of any residences; however, Gulf South would ensure safety, direct traffic, limit the hours of construction, and perform clean-up once construction is complete. Gulf South would construct from Monday through Saturday, from 7 am to 7 pm. Additionally, Gulf South may elect to work on Sundays as the Project progresses and may conduct hydrostatic testing activities up to 24 hours per day in order to complete the timed test. Gulf South does not anticipate any additional construction activities outside of normal working hours.

10. Aboveground Facilities Construction and Operation Procedures

Project workspaces would be cleared of vegetation and debris, and disposed of in accordance with federal, state, and local regulations or disposal at a commercial disposal facility. Chipping and spreading of woody vegetation would be performed in accordance with the FERC Plan. Gulf South would install temporary erosion control devices (ECDs) prior to initial ground disturbance and maintain them throughout construction. Any soils

excavated for foundations would be compacted in place and excess soil would be used elsewhere on site or disposed of at an offsite facility.

Gulf South would install the two new compressor units on existing skids within the compressor building. New interstage and discharge gas coolers would also be installed adjacent to the compressor units. Gulf South would install new above and belowground pipe to connect the suction and discharge headers and to route the gas to and from the gas coolers. The dehydration unit would be installed adjacent to the existing dehydration unit on the southeast side of the Petal III CS. Gulf South would install a foundation consisting of 15 to 20-foot-wide concrete piles prior to placement of the dehydration unit. The new thermal oxidizer would then be connected to the new and existing dehydration units.

After construction and prior to placing the Project facilities in service, Gulf South would hydrostatically test the new above and belowground gas piping in accordance with the DOT's pipeline safety regulations, 49 CFR 192, Gulf South testing specifications, and applicable permits. During testing, a chloride reducer may be used for water obtained from municipal sources. Hydrostatic test water would only be in contact with new pipe, and the use of any chemical additives would be in accordance with applicable federal, state, and local regulations. Hydrostatic testing, along with potential test water source and disposal, is further discussed in the Water Use and Quality section below.

11. Non-Jurisdictional Facilities

Mississippi Power would make minor modifications to the existing electric substation adjacent to and south of the existing Petal III CS. All work would be conducted within the existing graveled substation and would not result in any ground disturbance. Therefore, these modifications are not discussed further in this EA.

12. Permits, Approvals, and Regulatory Consultations

Table 3 lists the major federal, state, and local permits, approvals, and consultations for construction and operation of the Project and provides the current status of each. Gulf south would be responsible for obtaining and abiding by all permits and approvals required for construction and operation of the Project regardless if they appear in this table.

Table 3 Federal and State Permits and Approvals		
Agency/Organization	**Permit/Approval**	**Status**
Federal		
Federal Energy Regulatory Commission	Certificate of Convenience and Necessity	Applied October 2018.
U.S. Fish and Wildlife Service – Mississippi Ecological Field Office	Endangered Species Act, Section 7 Consultation	Concurrence issued September 24, 2018.
State		
Mississippi Department of Wildlife, Fisheries, and Parks	Threatened and Endangered Species Consultation/Clearance	Received concurrence letter with recommendations August 6, 2018.
Mississippi Department of Archives and History	National Historic Preservation Act Section 106 Consultation	Received concurrence letter November 20, 2018.
Mississippi Department of Environmental Quality	Hydrostatic Test Discharge Permit	Notification to be provided prior to discharge in accordance with Gulf South's Statewide General Permit.
Mississippi Department of Environmental Quality	Title V Permit	Applied September 2018.

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 the 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.

Gulf South, as part of its proposal, 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 authorization that the Commission may issue to Gulf South.

1. Geology

The Project is in the East Gulf Coastal Plain section of the Coastal Plain physiographic province (U.S. Geological Survey [USGS], 2004). The altitude of most of the inland part of the Coastal Plain province ranges from 300 to 600 feet above mean sea level in Mississippi and is characterized by low hills, low cuesta[4] ridges, and gentle lowlands (USGS, 1998).

Based on topographic mapping, the Project vicinity is gently sloping with some areas that contain steeper slopes and elevation ranges from 164 to 257 feet above mean sea level.

[4] A ridge with a gentle slope (dip) on one side and a steep slope (scarp) on the other.

1.1 Mineral Resources

Based upon review of the U.S. Geologic Survey (USGS) Mineral Resources Online Spatial Data (2011), there are no active or historic mines, quarries, or mine spoil areas within 0.25 mile of the Project.

All Project activities would occur within the surface boundary of an existing oil and gas underground storage facility (Petal Gas Storage Facility) which is comprised of several injection and withdrawal wells owned by multiple entities. Thirty-seven oil and gas wells were identified within 0.25 mile of the Project area, of which five are within 200 feet of the workspace. Gulf South would field verify the location of oil and gas wells prior to the start of construction. If an active oil or gas well is encountered during construction of the Project, Gulf South would determine an appropriate buffer and construction procedures around the well based on site-specific conditions and coordination with the owner of the well. Additionally, Gulf South would flag the well and flow lines, and reduce the construction workspace, if necessary, to keep a safe buffer between the construction workspace and the well. If an oil or gas well is unexpectedly impacted during construction, Gulf South would stop work immediately, contain any spilled product, secure the area, and notify the FERC as well as the owner of the well and appropriate state and/or local agency. Although not anticipated, should an oil or gas well be damaged by construction of the Project, Gulf South would compensate the owner for the repair or replacement of the well.

Based on Gulf South's proposed measures to protect existing oil and gas infrastructure, the limited scope of Project activities, and construction would occur within the existing Petal Gas Storage Facility, we conclude that the Project would not impact mineral resource extraction activities.

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; landslides, and karst terrain; or ground subsidence hazards.

1.2.1 Seismicity

The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake expressed in terms of g. USGS National Seismic Hazard Probability Mapping shows that for the Project area, within a 50-year period, there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of 4 to 6 percent g; and a 10 percent probability of an

earthquake with an effective PGA of 2 to 3 percent g being exceeded (USGS, 2014a). For reference, a PGA of 10 percent g (0.1g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes.

Project facilities are not anticipated to be affected by faults, which are likely unable to generate the energy required to produce significant seismic events (Crone and Wheeler, 2000). Furthermore, since 1900, there have been no recorded earthquakes with a magnitude greater than 1.5 on the Richter scale within Forrest County (USGS, 2019).

The Project is in an area with low seismicity and, as such, the potential for soil liquefaction to occur is negligible. Given these conditions, we conclude that there is a low potential for damage due to prolonged ground shaking, ground rupture, or soil liquefaction to occur within the Project area.

1.2.2 Landslides and Slope Stability

According to the USGS Landslide Overview Map of the Conterminous United States, the Project area is in an area with moderate susceptibility to landslides (USGS, 2014b). Project area topography ranges from gently sloping to some areas with steep slopes. The majority of the workspace includes areas that have been previously graded and leveled; however, portions of proposed workspaces for the new dehydration facility and permanent staging area contain steep slopes (in excess of 30 percent).

Existing slopes at the proposed new dehydration facility would either be terraced similar to the rest of the facility or a retaining wall would be employed to prevent landslides. Gulf South would clear only as much of the proposed workspace for the staging yard as necessary for construction purposes and it does not intend to clear vegetation on steep slopes in this area. However, Gulf South would assess areas susceptible to slope failure during construction and implement controls consistent with the determined degree of susceptibility to slope failure within the Project workspace. Typical controls include the use of erosion control fabric in addition to the adequate placement of slope breakers and seeding. In the event additional controls are needed to ensure the prevention of slope failure, Gulf South would install armoring such as rip rap or reticulated concrete matts/blocks, as needed. Temporary slopes would be stabilized in accordance with the Plan and Procedures. Based on these proposed measures, we conclude that the Project is not likely to significantly adversely impact or be adversely impacted by slope instability.

1.2.3 Ground Subsidence

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst dissolution, sediment compaction due to oil and gas and/or groundwater extraction, and the occurrence of underground mines. No karst terrain is present and the lithology that could lead to bedrock dissolution and karst development do not generally occur within the Project area.

The Petal Salt Dome underlies the overall Petal Gas Storage Facility (Mississippi Office of Geology, 2009). The Petal Gas Storage Facility was converted from a salt cavern for the purpose of gas and liquids storage. Project facilities have been sited to achieve separation from the caverns of the salt dome as a measure to protect the facilities from potential surface subsidence and collapse. In addition, caverns within the Petal Salt Dome that are used for natural gas and liquids storage are pressurized, minimizing the potential for collapse. Therefore, Project facilities are not anticipated to be impacted by subsidence.

Based on the above assessment and because the Project would be outside of the 100-year and 500-year floodplains, as designated by the Federal Emergency Management Agency (FEMA, 2010), we conclude the Project would not significantly impact or be significantly impacted by geologic resources or hazards, or mineral resources.

2. Soils

Soil characteristics in the Project area were assessed using the Natural Resources Conservation Service (NRCS) Soil Survey geographic database (NRCS, 2018a). 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 stones and shallow bedrock. No Project area soils were classified as having a shallow depth to bedrock (bedrock within 60 inches of the ground surface) or being stony/rocky. Other soil limitations are depicted in table 4. Additional soil-related issues considered in the analysis include soil contamination.

Table 4
Soil Limitations Impacted by the Petal III Compression Project Construction (acres)

Facility	Prime Farmland [a]	High Compaction Potential [b]	Low Revegetation Potential [c]	High Erosion Potential	
				Water [d]	Wind [e]
Petal III Compression Station	0	0	6.6	0	0
Dehydration Unit	0	0	0.5	0	0
Contractor Yard	1.6	0	0	0	0
Staging Yard	4.9	0.1	0.1	0	0
Access Roads	2.0	1.0	2.8	0.5	0.2
Project Totals	**8.5**	**1.1**	**10.0**	**0.5**	**0.2**

[a] Includes prime farmland, unique farmland, and farmland of statewide or local importance (per the NRCS)

[b] Soil map units that are hydric and have a high soil rutting hazard (per the NRCS)

[c] Soil map unit is not classified as prime farmland and has one or more of the following characteristics: high soil rutting hazard, high compaction potential, high erosion potential, or steep slopes

[d] K Factor of 0.48 to 0.69

[e] Wind erodibility group values of 1 and 2.

Construction activities such as clearing, grading, trench excavation, backfilling, heavy equipment traffic, and restoration along the construction right-of-way have the potential to adversely affect natural soil characteristics such as water infiltration, storage and routing, and soil nutrient levels, thus reducing soil productivity. 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. Soil characteristics could affect construction performance or increase the potential for adverse construction-related soil impacts.

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.

A total of 8.5 acres of prime farmland (approximately 45 percent of the total Project area) would be impacted by construction of the Project, of which 4.9 acres (26 percent of total Project area) would be permanently impacted by the new permanent staging yard. However, none of the prime farmland soils that would be permanently impacted by the Project are currently being used for agricultural purposes. In addition, 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 Forrest County, Mississippi (92,949 acres) (NRCS, 2018a). Therefore, impacts on the availability of prime farmland would not be significant.

2.2 Compaction-Prone Soils

Soil compaction modifies the structure of soil and, as a result, alters its strength and drainage properties. Soil compaction decreases pore space and water-retention capacity, which restricts the transport of air and water to plant roots. As a result, soil productivity and plant growth rates may be reduced, soils may become more susceptible to erosion, and natural drainage patterns may be altered. Consequently, soil compaction is of particular concern in agricultural and wetland areas. The susceptibility of soils to compaction varies based on moisture content, composition, grain size, and density of the soil.

If construction activities, particularly the operation of heavy equipment, occur when soils are saturated, soil compaction and rutting could occur. Gulf South would minimize rutting and compaction by paying particular attention to areas identified as having hydric soils that are vulnerable to these types of impacts. In general, rutting and compaction of soils would be avoided or minimized through the use of timber mats, as deemed necessary during construction.

2.3 Erosion and Revegetation

To minimize or avoid potential impacts due to soil erosion, Gulf South would implement measures in accordance with the FERC Plan and Procedures. Examples of these erosion controls include interceptor devices and sediment filters, such as silt fences and erosion control fabric. Gulf South would inspect temporary erosion controls on a regular basis and after each rainfall event of 0.5 inch or greater to ensure proper functioning, and would maintain these devices until the Project area is successfully revegetated. At which time Gulf South would remove these devices. Gulf South would additionally utilize dust-control measures, including routine wetting of work areas, as needed.

A majority of the areas with low revegetation potential are either already developed (i.e., access roads and Petal III CS) or proposed for development (dehydration

unit) and would not be revegetated. Temporary workspace necessary for construction of the Project facilities that is not currently characterized by pavement or gravel, as well as the staging yard would be revegetated in accordance with the FERC Plan, the NRCS's Mississippi Field Office Technical Guide (2018b), consultations with the NRCS Field Service Center in Mississippi, and the Project's Exotic and Invasive Species Control Plan and Revegetation Plan.

Given Gulf South's proposed mitigation measures and that disturbed areas would be returned to pre-construction conditions, maintained in an herbaceous state, or stabilized with gravel cover, we conclude permanent impacts due to soil erosion or poor revegetation are not anticipated.

2.4 Soil Contamination

Gulf South reviewed the EPA and Mississippi Department of Environmental Quality (MDEQ) online databases to identify recent or historic sources of contamination such as spills, landfills, and leaking petroleum storage tanks, within 0.5 mile of the Project area (Boddie, 2018; EPA, 2018a; EPA, 2018b). Based on this effort, no recent or historic sources of contamination were identified that could impact the Project; however, it is possible that localized pre-existing evidence of contamination may be encountered during construction of the Project. If encountered, Gulf South would adhere to its Plan for the Unanticipated Discovery of Contaminated Environmental Media. This plan identifies the steps Gulf South would follow in the event that contaminated sediments or soils, as identified by evidence of subsoil discoloration, odor, sheen, or other such indicators, are encountered during construction.

Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely affect soils. Gulf South's SPCC Plan specifies 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 Project construction.

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

3. Water Resources and Wetlands

3.1 Groundwater Resources

The Project area is within the Coastal Lowlands Aquifer System. The locally named aquifer system underlying most of the southern half of Mississippi, including the Project area, is the Miocene aquifer system (also known as the Grand Gulf aquifer system) (MDEQ, 2017). Subsurface groundwater flow in the Miocene aquifer system is

generally towards the coast, however, factors such as natural discharge into streams or well withdrawal can change the direction of flow locally (MDEQ, 2017).

In the Project area, the general thickness of the aquifer is approximately 1,200 feet, while the base of freshwater is approximately 1,000 feet below the land surface (MDEQ, 2017). The water supply wells closest to the Project are installed to depths ranging from 100 to 382 feet below the ground surface.

The EPA commented that Gulf South should use water table observation wells to forecast the need for dewatering practices, including potential construction of a retention structure, to avoid discharge of sediment-laden water into sensitive environmental resources. Our Procedures require that dewatering occurs in a manner that would not cause erosion and would not result in silt-laden water flowing into any waterbody or wetland. An EI would monitor dewatering activities and dewatering would be stopped and modified if deposition of sand, silt, or sediment into environmental resources is identified. Furthermore, excavations and dewatering for the Project would be minimal. Therefore, we conclude that these measures sufficiently address the EPA's concerns.

3.2 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. The Project does not overlie a sole source aquifer (EPA, 2018c).

Source water protection areas can be defined as designated surface and subsurface zones surrounding public water supply wells or well fields. These zones have been identified in an effort to prevent contaminants from entering the groundwater table and compromising the quality of public drinking water. The closest source water protection area is more than 0.5 mile from the Project area (MDEQ, 2018). We conclude that neither Sole Source Aquifers nor source water protection areas would be impacted by construction or operation of the Project.

3.3 Water Wells and Springs

Based on field surveys conducted in July 2018 and a review of the USGS National Water Information System tool, there are no springs within 1 mile of the Project area (USGS, 2017). Gulf South identified 16 public and private water supply wells within 400 feet of the Project through review of data obtained from the MDEQ, USGS National Water Information System, and field surveys (Boddie, 2018; USGS, 2017). Of these water supply wells, 11 would be within 150 feet of the Project workspace, including 8 within 25 feet of the Project workspace.

Gulf South has committed to conducting pre- and post-construction monitoring of known water wells within 200 feet of the Project area for water quality and yield if requested by the well owner. If a well is determined to have been impaired during construction, Gulf South would compensate the landowner for the repair of the well, installation of a new well, or would otherwise arrange for a suitable water supply. Testing of water supply wells is fundamental to determining whether impacts on groundwater resources have resulted from construction of the Project, and should be offered regardless of whether the landowner has requested it. Therefore, **we recommend**:

- **<u>Prior to construction</u>, Gulf South should file with the Secretary of the Commission (Secretary) documentation confirming that it will offer to conduct pre- and post-construction monitoring of well yield and water quality for water supply wells within 150 feet of the workspaces. Gulf South should also provide a temporary supply of water if the landowner's water supply is contaminated or damaged by construction activities until a permanent water supply is established.**

Furthermore, Gulf South has not identified measures it would use to protect existing water wells from physical damage or destruction during construction activities. Because one water supply well is within the proposed contractor yard, and several other water supply wells are immediately adjacent to proposed Project workspaces, **we recommend:**

- **<u>Prior to construction</u>, Gulf South should file with the Secretary, for review and written approval by the Director of OEP, mitigation measures to protect wells within and adjacent to construction work areas from physical damage or destruction during construction activities.**

The Project would not cross areas of known groundwater contamination (Boddie, 2018; EPA, 2018a; EPA, 2018b). Groundwater contamination could occur from accidental spills of fuels, solvents, and lubricants used during construction at the Project site. Gulf South would implement the measures outlined in its SPCC Plan to minimize the risk of potential impacts from fuel or hazardous material spills and would prohibit storage of hazardous materials and re-fueling within 200 feet of private wells and 400 feet of community or municipal wells.

Based on Gulf South's proposed measures, and our recommendations, we conclude that the Project would not have a significant impact on groundwater resources.

3.4 Surface Water Resources

No waterbodies would occur within 100 feet of the Project. The nearest waterbody is 0.1 mile from Project workspaces. One existing facility, access road (AR-3), would cross three existing permanently culverted roadside ditches; however, no modifications or improvements would be required for the culverts. Given the ephemeral nature of the culverted ditches, water is may not be flowing during construction.

Gulf South would minimize potential impacts on waterbodies outside of the Project area by implementing our Plan and Procedures, and temporary or permanent ECDs would be installed to protect them from future erosion in all Project workspaces. We conclude impacts on waterbodies would not be significant using our Plan and Procedures throughout Project construction and restoration.

On November 9, 2018, the EPA Region 4 submitted a comment recommending that Gulf South ensure that erosion control measures are taken after storm events. Gulf South would implement our Plan and its *Stormwater Pollution Prevention Plan* to minimize the impacts of construction activities on stormwater runoff, and it would conduct routine inspections to verify the stormwater controls are effective.

3.5 Wetland Resources

Delineated wetlands closest to the Project consist of one palustrine emergent (freshwater) wetland system approximately 23 feet south of access road 3 (AR) and one palustrine forested wetland within 54 feet west of the proposed staging yard. Palustrine emergent wetlands are characterized by erect, rooted herbaceous vegetation, and palustrine forested wetlands are characterized by woody vegetation greater than 20 feet in height with more than 30 percent of canopy cover (Cowardin et al., 1979).

Gulf South's SPCC Plan provides restrictions and mitigation measures to limit potential impacts associated with the release of fuels, lubricants, or other potentially toxic materials used during routine construction. Refueling and storage of hazardous materials would be prohibited within 100 feet of wetlands during construction, unless otherwise reviewed and approved by the EI. Additionally, Gulf South would install ECDs such as erosion and sedimentation barriers as well as implement our Plan and Procedures to minimize impacts on nearby wetlands. Based on these measures, we conclude impacts on wetlands would be avoided and minimized to the extent practical and would not be significant.

3.6 Construction Water

Gulf South would use approximately 45,000 gallons of water for fugitive dust control and to hydrostatically test the newly installed above and below ground gas pipe sections. Water would be drawn from a municipal source and discharged into a well-vegetated upland area using hay bales for energy dissipation, or an existing stormwater system within the Petal Gas Storage Facility. Gulf South would implement our Procedures to minimize any potential erosion. Therefore, we conclude that impacts from construction water use would be minimal. In addition, Gulf South would follow all federal, state, and local permit requirements regarding water discharge.

4. Vegetation and Wildlife

4.1 Vegetation

The Project would occur within two dominant vegetation cover types, including industrial and forested land. The industrial land consists of sparsely vegetated land due to the presence of impervious surfaces such as cement foundations, pavement, or gravel. The forest areas are primarily comprised of red maple, eastern baccharis, American beautyberry, mockernut hickory, blue mistflower, Canadian horseweed, Bermuda grass, slender crabgrass, barnyard grass, American beach, American holly, yaupon, sweetgum, tuliptree, Japanese honeysuckle, southern magnolia, wax myrtle, loblolly pine, and Carolina laurelcherry.

There are no other known unique or sensitive vegetation types affected by the Project. Table 5 lists the acreage of each cover type that would be temporarily and permanently impacted by construction and operation of the Project.

Installation of the new dehydration unit and the permanent staging yard would require clearing and grading of 5.4 acres of forested land. Operation of the proposed facilities would result in the permanent conversion of about 5.2 acres of forested/woody vegetation to industrial land.

The primary impact of the Project on vegetation would be the cutting, clearing, and/or removal of existing vegetation within the construction work area. Secondary effects associated with disturbances to vegetation could include the increased potential for soil erosion, increased potential for the introduction and establishment of invasive weedy species, increases in fugitive dust, visual resource impacts, and wildlife impacts.

Best management practices (BMPs) would be implemented during construction activities, and tree removal would be avoided where practicable. Upon completion of construction, Gulf South would stabilize and seed all temporary workspaces not

previously covered in gravel or pavement in accordance with our Plan and the seed mixtures and application rates for revegetation established in the Natural Resources Conservation Service's *Mississippi Field Office Technical Guide* (2018). The staging yard would be reseeded following construction; however, it would be maintained in an herbaceous state.

Revegetation of temporary workspaces (0.2 acre) would be long-term as it could take 20 years to revert to preconstruction conditions due to the growth of trees. Given the lack of sensitive vegetation types and Gulf South's commitment to restoring areas affected by construction, we conclude that the Project's impacts on vegetation would be temporary and minor.

Gulf South would implement its *Exotic and Invasive Species Control Plan* to prevent, mitigate, and control the spread of exotic/invasive species during construction and operation of the proposed facilities along with:

- Implementing our *Upland Erosion Control, Revegetation, and Maintenance Plan* and *Wetland and Waterbody Construction and Mitigation Procedures* to assure that sediment movement and the associated movement of non-native seeds into newly disturbed soils are minimized.

- Using construction techniques that minimize the time that bare soil is exposed and, therefore, minimize the opportunity for exotic species to become established.

- Sowing a cover crop along all exposed soil surfaces as soon as practicable to assure that a suitable growing substrate for exotic or invasive species is not available for long periods of time.

Following the completion of the Project, Gulf South would monitor the workspace during normal maintenance procedures to allow for early detection of exotic and invasive species.

We have reviewed these measures and find they would adequately minimize the potential for exotic/invasive species to be introduced or spread due to the Project area, and that impacts would not be significant.

4.2 Wildlife

The most common wildlife habitat that would be affected by the Project is forested land. Gulf South conducted field assessments for the proposed Project in July 2018. Representative wildlife within the Project area includes common mammal, bird, and reptile species. There are no managed wildlife habitats along Project workspaces.

Wildlife habitats that would be affected by construction and operation are relatively abundant in the forested area, and displaced wildlife could relocate to similar habitat adjacent to the Project area. Disruption of wildlife movement is expected to be minor because no permanent barriers, with the exception of the fenced/graveled aboveground facilities, to wildlife would be constructed.

Construction and operation activities, including clearing, and maintenance, would reduce feeding, nesting, and cover habitat components. Mobile species could be disturbed or displaced from portions of their habitats, and mortality of individuals of less mobile species, such as some small mammals, reptiles, or amphibians, may occur. Indirect wildlife impacts associated with construction noise and increased human activity would be temporary and could include abandoned reproductive efforts, displacement, and avoidance of work areas. However, both direct and indirect impacts on wildlife within the construction workspace and other work areas, generally would be temporary and short-term and limited to the period of construction.

Following construction, workspaces would be allowed to revert to pre-construction conditions in accordance with our Plan. We conclude that any impacts on local wildlife would not be significant due to the minimally disturbed area and the abundance of similar habitat adjacent to the proposed Project.

4.3 Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (16 United States Code sections 703-711), which prohibits the taking of any migratory bird, or a part, nest, or eggs of any such bird, except under the terms of a valid permit issued pursuant to federal regulations. Bald and Golden Eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 United States Code sections 668-668d). Executive Order No. 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 effects on migratory birds through enhanced collaboration with the FWS. Executive Order No. 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 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.

In accordance with Executive Order No. 13186 and the Memorandum of Understanding, 53 Birds of Conservation Concern species were identified within Bird

Conservation Region Zone 27, where the proposed Project is located (FWS, 2008). Of the 53 BCC species listed for BCR 27 (Appendix A), 13 species do not have ranges that extend into the Project area, 20 species only occur in the Project area as occasional migrants or during the winter, 12 species have breeding ranges that extend into the Project area, and the remaining 8 species inhabit the Project area year-round.

The nesting season for migratory birds in Mississippi is generally from April 15 to August 1; however, Project construction would begin in November 2019 and is expected to be completed by May 2020. Tree clearing would be completed before April 15, which is outside of the nesting season and would minimize potential impacts on migratory birds.

Migratory birds not already nesting would be able to avoid Project activities and move to abundant habitat adjacent to the Project workspaces. Although individuals of bird species would be affected by Project construction and operation, most impacts on migratory birds would not likely have long-term population level impacts on bird species. During operation, adherence to the FERC Plan and Procedures would prohibit routine vegetation maintenance clearing from occurring between April 15 and August 1 of any year, unless otherwise approved by the FWS, to minimize potential impacts on migratory birds.

Given the abundance of adjacent similar habitat, the reduction of impacts associated with the implementation of mitigation measures mentioned previously, and the relatively small scope of the Project, we conclude that no population level impacts on migratory birds from construction and operation would occur.

4.4 Threatened, Endangered, and Special Status Species

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the *Endangered Species Act of 1973* (ESA), as amended, and those species that are state-listed as endangered or threatened. Section 7 of the ESA requires that the lead federal agency ensures that any action authorized, funded, or carried out by the agency does 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. FERC, as the lead federal agency for NEPA review of the Project, is required to consult with the FWS to determine whether any federally listed endangered or threatened species or any of their designated critical habitat are near the Project and to determine the proposed action's potential effects on those species or critical habitats. If FERC determines that the Project would have no effect on a listed species, further consultation with the FWS is not required.

Gulf South, acting as our non-federal representative for the purpose of complying with Section 7(a)(2) of the ESA, completed informal consultation with the FWS, and the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) regarding federal and state-listed species with the potential to be affected by the Project. Table 7 lists the federal- and state-listed threatened and endangered species and special concern species that have the potential to occur within the Project area, including their status, county of occurrence, habitat requirements, and the facilities where suitable habitat could exist.

4.5 Federally-Listed Threatened and Endangered Species

Gulf South conducted an Information for Planning and Consultation (IPaC) review of the amended Project area in July 2018. A total of nine federally listed threatened and endangered species were identified through the IPaC review, and are shown on table 5.

Table 5
Threatened and Endangered Species Potentially occurring within the Project Vicinity

Common Name	Federal Status
Birds	
red-cockaded woodpecker	Endangered
woodstork	Threatened
Plants	
Louisiana Quillwort	Endangered
Reptiles	
black pine snake	Threatened
gopher tortoise	Threatened
yellow-blotched map turtle	Threatened
Amphibians	
dusky gopher frog	Endangered
Fishes	
Atlantic (Gulf) sturgeon	Threatened
peal darter	Threatened

No suitable habitat exists within the Project area for any of the federally listed species. Due to lack of suitable habitat, we conclude that the Project would have *no effect* on all the species listed above except for the gopher tortoise. A letter from the FWS dated September 24, 2018 concurs with this determination.

Gopher Tortoise

Gopher tortoises use areas that contain dry, deep sandy soils below open canopies; and are most often found in longleaf pine-scrub oak-wiregrass sand hills where frequent burning occurs. Small groups or populations of tortoises can be found in loamier soils

covered by longleaf- wiregrass flatwoods. Some individuals may even be found near agriculture fields or open fields on fence lines where disturbances do not frequently occur (breeding season, etc.). Its burrows are characterized by dense canopy coverage and a dense mid-story. Gopher tortoises tend to be found in habitats that contain deep (at least 1 meter) dry sandy soils with a pine, oak overstory and a reduced understory. The sandy soils facilitate the extensive burrows that these tortoises dig for shelter.

Gopher tortoises eat a variety of foods; however, grasses (Poaceae) tend to dominate their diet. Pine needles, seeds, fruits, mast, and basal portions of forbs also compose a significant component of their diet. Breeding activity may occur as early as February or as late as September depending on geography and local weather conditions. Gopher tortoise eggs are typically found just outside the burrow.

A species-specific surveys for gopher tortoise individuals and burrows was conducted from July 24 through July 26, 2018 within the Project area. Three inactive burrows and one active burrow were documented; however, only one is within the survey corridor of the Project. The closest burrow, which was determined to be inactive, was approximately 147 feet south of the proposed dehydration unit, while the closest active burrow was approximately 443 feet southeast of the proposed dehydration unit.

In order to avoid impacts on gopher tortoises, Gulf South would implement its site-specific management plan for the species, which was approved by the FWS on October 31, 2018, and is attached in Appendix B. This management plan includes:

- employing qualified personnel to determine if gopher tortoises or indigo snakes are present at the work site. Training would be provided to those at the work site on how to identify the species and its habitat;
- reporting any and all findings made by trained personnel at the work site;
- surveying for burrows and tortoises before small excavations, and marking any burrows within 50 feet for avoidance;
- restricting routine maintenance activities to 15 feet from tortoise burrows; and
- mowing between November 1st through March 1st to reduce the likelihood of tortoise discovery.

In October 2018 correspondence, the FWS agreed with Gulf South's determination that the Project is *not likely to adversely effect* the gopher tortoise if the gopher tortoise management plan is implemented. Based on the availability of habitat

near Project workspaces, and Gulf South's FWS-approved site-specific management plan, we determine the Project *is not likely to adversely effect* the gopher tortoise.

4.6 State-Listed Threatened and Endangered Species and Special Concern Species

Gulf South consulted with the MDWFP regarding state-listed species of special concern. In correspondence dated December 17, 2018 to Gulf South in response to our NOI, MDWFP indicated the occurrence of four state-listed species within 2 miles of the Project area, including the Atlantic (Gulf) sturgeon, gopher tortoise, yellow-blotched map turtle, and the pearl darter, and are shown in table 6. The MDWFP recommends that Gulf South implement, monitor, and maintain for compliance best management practices for the construction of the Project. Specifically, the MDWFP recommends that gopher tortoise surveys be conducted within 20 feet of the Project site and if burrows are found, to contact both the MDWFP and FWS Representatives. We find that Gulf South's gopher tortoise Management Plan is consistent with the MDWFP's recommendations.

Table 6
State Species Potentially within 2 miles of the Project

Scientific Name	Common Name	State
Acipenser oxyrinchus desotoi	Gulf Sturgeon	Endangered
Gopherus polyphemus	Gopher Tortoise	Endangered
Graptemys flavimaculata	Yellow-blotched Map Turtle	Endangered
Percina aurora	Pearl Darter	Endangered

The MDWFP determined the Project would have no impact on the species listed above except for the gopher tortoise. The MDWFP concluded that if best management practices are properly implemented, monitored, and maintained (particularly measures to prevent, or at least, minimize negative impacts to water quality), the proposed Project likely poses a low threat to listed species and their habitats.

Given the limited area of disturbance from the Project facilities and Gulf South's commitment to follow the state's requests, we conclude that any impacts from the Project on the four species listed would be negligible and not significant.

5. Land Use and Visual Resources

5.1 Land Use

Land use categories identified in the Project area consist of forest and industrial land. The total acreage to be disturbed for construction of all Project facilities would be 18.8 acres, and operation be about 5.5 acres. A summary of the land use categories that would be affected by construction and operation of the Project facilities is provided in table 7.

Table 7
Summary of Land Use Impacts (acres)

Facility	Industrial		Forest		Project Total	
	Const. [a]	Op. [b]	Const. [a]	Op. [b]	Const. [a]	Op. [b]
Petal III Compressor Station	6.5	0.0	0.2	0.0	**6.6**	**0.0**
Dehydration Unit	0.2	0.2	0.3	0.3	**0.5**	**0.5**
Staging Yard	0.0	0.0	4.9	4.9	**4.9**	**4.9**
Contractor Yard	1.6	0.0	0.0	0.0	**1.6**	**0.0**
Access Roads	5.1	0.0	0.0	0.0	**5.1**	**0.0**
PROJECT TOTAL	**13.4**	**0.2**	**5.4**	**5.2**	**18.8**	**5.5**

[a] Land affected during construction is inclusive of operation impacts (permanent).
[b] Land affected during operation consists only of new permanent impacts associated with the new dehydration unit and staging yard.

5.2 Forested Land

Forest land affected by the Project would be comprised mainly of mixed pine forest. All forest land that would be impacted by the Project is on undeveloped land owned by Gulf South within the Petal Gas Storage Facility. A total of 5.4 acres of forested land would be cleared for construction of the Project, of which 5.2 acres would be required for the operation of the dehydration unit and the new permanent staging yard. Impacts and mitigation on forested land are described in section B.4.1 (vegetation) of this EA. The sections below focus on land uses not discussed in detail elsewhere in this EA.

5.3 Industrial Land

Industrial land in the Project area is primarily within the Petal Gas Storage Facility and existing access roads. A total of 13.4 acres of industrial land would be required during construction of the Project, of which 0.5 acre would be required for operation of

the dehydration unit. Most of these areas are either sparsely vegetated or lack vegetation due to the presence of impervious structures. Therefore, we find that impacts on developed lands would be temporary and not significant.

5.4 Planned Developments

Gulf South contacted the local planning districts with regards to future planned developments in Forrest County. One residential development was identified by the City of Petal. Williamsburg Estates, approximately 0.2 mile east of AR-2, currently has several residences under construction. Construction within Williamsburg Estates is anticipated to be ongoing as lots are sold. Impacts on planned developments from Project construction would be limited to increased construction-related noise and traffic on local roads. No additional future planned developments have been identified to date within 0.25 mile of the Project area. Therefore, we conclude impacts on planned developments would be temporary and minor.

5.5 Residential Areas

The Project would not affect residential land, as the nearest residence is approximately 0.2 mile from the proposed Project workspaces. Project construction could result in short-term impacts on residential areas in the Project vicinity, including increased construction-related traffic on local roads as well as noise generated during construction. Gulf South would minimize these impacts through implementation of mitigation measures which include:

- conducting construction activities during daytime hours, with the exception of hydrostatic testing;
- ensuring that utilities are not disrupted during construction. If the need to disrupt utilities arises, Gulf South would provide as much notice as possible to the landowner prior to the disruption;
- maintaining traffic flow and emergency vehicle access on residential roadways;
- detailing traffic personnel and/or detour signs where appropriate; and
- inspecting and cleaning road surfaces near residences periodically.

5.6 Visual Resources

The proposed Project is not within any federal, state, or locally designated scenic areas, such as National Wild and Scenic Rivers and scenic roads, highways, and byways.

Impacts on visual and/or aesthetic resources would primarily occur during construction as a result of the presence of construction equipment. However, the majority of the impacts on visual resources would be temporary or blocked by existing aboveground structures, as all Project activities would occur within the Petal Gas Storage Facility. In addition, all Project activities associated with the additional compressor units would be conducted within an existing compressor building at the Petal III CS. Further, the dehydration unit was sited adjacent to the existing dehydration unit within the Petal Gas Storage Facility and 0.3 mile northeast of the nearest sensitive visual area (residence). Therefore, we conclude visual impacts from construction and operation of the Project would be minimal and consistent with surrounding facilities.

6. Cultural Resources

Section 106 of the National Historic Preservation Act, as amended, requires FERC to take into account the effects of its undertakings on 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. Gulf South, as a non-federal party, is assisting FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

Gulf South defined the area of potential effects (APE) as approximately 18.8 acres which includes all areas of construction, operations, and maintenance for the proposed Project. Gulf South completed a Phase I cultural resources survey and provided the results in a report to FERC and the Mississippi State Historic Preservation Officer (SHPO). The entirety of the APE was surveyed by pedestrian transects and supplemented with periodic shovel testing in areas of low ground visibility. A total of 14 shovel tests were excavated within the APE, all of which were negative. One historic site (22FO1888) was identified during the survey. Site 22FO1888 is an early- to mid-twentieth century historic surface artifact scatter. Site 22FO1888 was evaluated as not eligible for inclusion in the NRHP.

With regard to indirect effects for the proposed Project, the new facilities would be within an existing station and would constitute in-kind elements on the landscape of similar construction style, height, and function as the existing infrastructure in the Project vicinity. Furthermore, the existing station is predominately bounded by dense forests that obscure the viewshed to other structures in the surrounding area, hence, the Project would not indirectly effect historic properties.

Gulf South submitted their findings to the SHPO for review and comment on September 20, 2018. Gulf South requested concurrence from the SHPO that the proposed Project would have no effect on historic properties. In a letter dated October 5, 2018, the SHPO concurred that site 22FO1888 was not eligible for listing in the NRHP

and that no historic properties are likely to be affected by the proposed Project. However, the SHPO request additional information regarding site 22FO1888 prior to their formal approval of the survey. Gulf South submitted the requested information and the SHPO responded on November 20, 2018 that no cultural resources listed, or eligible to be listed in the NRHP would be affected by the undertaking. FERC concurs with the SHPO's assessment.

Gulf South contacted the following Native American tribes regarding the proposed Project: Alabama-Coushatta Tribe of Texas; Alabama-Quassarte Tribal Town; Coushatta Tribe of Louisiana; Jena Band of Choctaw Indians; Kialegee Tribal Town; Miccosukee Tribe of Indians; Mississippi Band of Choctaw Indians; Muscogee (Creek) Nation; Poarch Band of Creek Indians; Seminole Nation of Oklahoma; The Chickasaw Nation; The Choctaw Nation of Oklahoma; Thlopthlocco Tribal Town; and Tunica-Biloxi Indian Tribe. The only response received by Gulf South was from the Muscogee (Creek) Nation, who indicated the proposed Project was outside their area of interest and that they would defer to other tribes contacted about the Project. FERC sent the Project NOI to these same tribes. Two tribes have responded. In a letter dated December 27, 2018, the Alabama-Coushatta Tribe of Texas indicated the Project was outside their area of interest. The Choctaw Nation of Oklahoma contacted FERC by letter on February 19, 2019, indicating that the Project lies within the tribe's area of historic interest. Additionally, the Choctaw Nation Historic Preservation Department requests copies of the Project Geographic Information Systems shapefiles, cultural resources reports, and environmental assessment. Gulf South and FERC will provide the Choctaw Nation Historic Department with the requested information. FERC has not received any other responses from tribes regarding the NOI.

Gulf South provided a *Plan for the Unanticipated Discovery of Cultural Resources and Human Remains*. FERC requested minor revisions to the plan. Gulf South provided a revised plan which we find acceptable.

7. Air Quality and Noise

7.1 Air Quality

Air quality in the Project area would be affected by construction and operation of the Project. Although minor air emissions would be generated by Project construction, the majority of air emissions associated with the Project would result from Project operation. The term air quality refers to relative concentrations of pollutants in the ambient air. The subsections below summarize federal and state air quality regulations that are applicable to the Project. This section also characterizes the existing air quality and describes potential impacts the facilities may have on air quality regionally and locally.

7.2 Existing Environment

The climate in the Project area (Forest County, Mississippi) is significantly humid throughout most of the year, with relatively short, mild winters and long warm summers. The Gulf of Mexico has a moderating effect on the climate. Rainfall is abundant and fairly well-distributed throughout the year, with December through May being the wettest months of the year. Average winter temperatures range from the mid-50s to upper 60s degrees Fahrenheit (ºF), and average summer temperatures range from the upper 80s to the low 90s. Average precipitation is 54 inches per year, with well-distributed rainfall throughout the year (National Climatic Data Center, 2017).

Ambient air quality is protected by the Clean Air Act (CAA) of 1970, as amended in 1977 and 1990. The EPA oversees the implementation of the CAA and establishes National Ambient Air Quality Standards (NAAQS) to protect human health and welfare.[5] NAAQS have been developed for seven "criteria air pollutants," including nitrogen dioxide (NO_2), carbon monoxide (CO), ozone, sulfur dioxide (SO_2), particulate matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), and lead, and include levels for short-term (acute) and long-term (chronic) exposures. The NAAQS include two standards, primary and secondary. Primary standards establish limits that are considered to be protective of human health and welfare, including sensitive populations such as children, the elderly, and asthmatics. Secondary standards set limits to protect public welfare, including protection against reduced visibility and damage to crops, vegetation, animals, and buildings (EPA, 2018a). Although ozone is a criteria air pollutant, it is not emitted into the atmosphere from an emissions source; rather, it develops as a result of a chemical reaction between nitrogen oxides (NOx) and VOCs in the presence of sunlight. Therefore, NOx and VOCs are referred to as ozone precursors and are regulated to control the potential for ozone formation. Additional pollutants, such as volatile organic compounds (VOC) and hazardous air pollutants (HAP), are emitted during fossil fuel combustion. These pollutants are regulated through various components of the CAA that are discussed further below.

The EPA, and state and local agencies have established a network of ambient air quality monitoring stations to measure concentrations of criteria pollutants across the U.S. The data are then averaged over a specific time period and used by regulatory agencies to determine compliance with the NAAQS and to determine if an area is in attainment (criteria pollutant concentrations are below the NAAQS), nonattainment (criteria pollutant concentrations exceed the NAAQS) or maintenance (area was formerly

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

nonattainment and is currently in attainment). Forrest County was designed as an attainment area for all criteria pollutants.

Greenhouse gases (GHG) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the CAA. The primary GHGs that would be emitted by the Project are CO_2, methane, and nitrous oxide. During construction and operation of the Project, these GHGs would be emitted from the majority of construction and operational equipment, as well as from fugitive methane leaks from the pipeline and aboveground facilities.

Emissions of GHGs are typically quantified and regulated in units of carbon dioxide equivalents (CO_2e). The CO_2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO_2. Thus, CO_2 has a GWP of 1, methane has a GWP of 25, and nitrous oxide has a GWP of 298.[6]

7.3 Regulatory Requirements

The provisions of the CAA that may be applicable to the Project are discussed below. The estimated potential operational emissions for the Project are shown in table 11.

7.4 Prevention of Significant Deterioration and Nonattainment New Source Review

Proposed new or modified air pollutant emission sources must undergo a New Source Review (NSR) prior to construction or operation. Through the NSR permitting process, state and federal regulatory agencies review and approve project emissions increases or changes, emissions controls, and various other details to ensure air quality does not deteriorate as a result of new or modified existing emission sources. The two basic groups of NSR are major source NSR and minor source NSR. Major source NSR has two components: Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review. PSD, Nonattainment New Source Review, and minor source NSR are applicable to projects depending on the size of the proposed project, the projected

[6] 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.

emissions, and if the project is proposed in an attainment area or nonattainment/maintenance area. PSD regulations define a major source as any source type belonging to a list of 28 specifically listed source categories that have a potential to emit 100 tons per year (tpy) or more of any regulated pollutant or 250 tpy for sources not among the listed source categories (such as natural gas compressor stations). These are referred to as the PSD major source thresholds.

The existing Petal III Compressor Station is not currently a PSD major source. However, following proposed Project modifications, the station would become a major PSD source due to potential CO emissions from the entire facility that would increase above 250 tpy. However, the proposed Project is not subject to PSD review because the emissions increase associated with the Project is less than the major source threshold for each criteria pollutant.

7.5 Title V Permitting

Title V is an operating air permit program run by each state for each facility that is considered a "major source." The major source threshold for an air emission source is 100 tpy for criteria pollutants, 10 tpy for any single HAP and 25 tpy for total HAPs. The existing Petal III Compressor Station is currently permitted as a Title V source. Gulf South would be required to obtain a modification to their existing Title V permit prior to placing the proposed equipment into service. Gulf South applied for a Title V significant permit modification from the MDEQ in September 2018.

7.6 New Source Performance Standards

The EPA promulgates New Source Performance Standards (NSPS) for new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology for stationary source types or categories as specified in the applicable provisions discussed below. NSPS also establishes fuel, monitoring, notification, reporting, and recordkeeping requirements.

NSPS Subpart OOOOa sets emission standards and compliance schedules for VOC and SO_2 emissions for new, modified, or reconstructed wet seal centrifugal compressors and reciprocating compressors; limits for bleed rates for natural-gas driven pneumatic controllers; requires work practice standards for compressor rod packing compressor units; and sets fugitive leak monitoring and repair requirements for compressor stations. The various components of Subpart OOOOa would apply, as applicable, to the Petal III Compressor Station. Gulf South would comply with the all applicable NSPS standards and requirements, as necessary and as stated in the air permit submitted to the MDEQ in September 2018.

7.7 General Conformity

The lead federal agency must conduct a conformity analysis if a federal action would result in the generation of emissions that would exceed the conformity threshold levels of the pollutant(s) for which a county is designated nonattainment or maintenance. Estimated emissions for the Project are not subject to review under the general conformity thresholds because the Project is in an area classified as attainment/unclassifiable for all criteria pollutants.

7.8 State Air Quality Regulations

This section discusses the potentially applicable state air regulations for the proposed Project.

7.8.1 MDEQ Standards

The proposed emission units at the Petal III Compressor Station would be subject to opacity standards per Mississippi Administrative Code 11 Part 2 Rule 1.3.A. The proposed new glycol reboiler and thermal oxidizer would comply with these requirements through combustion of pipeline-quality natural gas.

Additionally, the proposed glycol reboiler would be subject to PM and SO_2 emissions limits pursuant to Mississippi Administrative Code 11 Part 2 Rule 1.3D(1)(a) and Rule 1.4A(1), respectively. Gulf South would comply with these requirements through the combustion of pipeline-quality natural gas.

7.9 Construction Emissions Impacts and Mitigation

Project construction would result in temporary, localized emissions that would last the duration of construction activities (i.e., about 7 months, from November 2019 to May 2020). Heavy equipment, trucks, delivery vehicles, and construction workers commuting to and from work areas would generate exhaust emissions through the use of diesel or gasoline engines.

Construction activities, such as land clearing and grading, ground excavation and soil disturbance, and driving on unpaved roads would also result in the temporary generation of fugitive dust. The amount of dust generated would be a function of construction activity, soil type, soil moisture content, wind speed, precipitation, vehicle traffic and types, and roadway characteristics. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity.

Gulf South estimated construction emissions based on the fuel type and anticipated frequency, duration, capacity, and levels of use of various types of

construction equipment. Construction emissions were estimated using EPA's MOVES model, the EPA's Complication of Air Pollutant Emission Factors AP-42, and 40 CFR 98. Table 8 below provides the total Project construction emissions by county, including exhaust emissions and fugitive dust from on-road and off-road construction equipment and vehicles, exhaust emissions from construction worker vehicles for commuting and vehicles used to deliver equipment/materials to the site.

Table 8
Construction Emissions for the Project (tons per construction duration)

County	NO	CO	PM_{10}	$PM_{2.5}$	SO_2	VOC	HAPS	CO_{2e}
Total Project Emissions	0.9	0.6	1.0	0.2	0.001	0.1	0.006	250.7

Construction emissions shown in table 8 are not expected to result in a degradation of ambient air quality standards or an exceedance of the NAAQS. The EPA recommended that Gulf South implement diesel controls and strategies to reduce emissions of on-road and off-road equipment. Gulf South did not commit to implementing these specific recommendations, but did state that it would minimize construction exhaust emissions by federal design standards imposed at the time of manufacture of equipment, operating equipment on an as-needed basis, and using commercial gasoline and diesel fuel products. In order to mitigate and minimize fugitive dust, Gulf South would implement measures contained within its Fugitive Dust Control Plan, including the following:

- use of water during construction operations, road grading, or land clearing;
- maintain low speeds on unpaved roads;
- conduct proper maintenance of equipment;
- cover open-bodied haul trucks;
- minimize soil disturbance; and
- conduct street cleaning and maintenance of construction exits.

Construction emissions would occur over the duration of construction activity and would be emitted at different times throughout the Project area. Construction emissions would be relatively minor and would result in short-term, localized impacts in the immediate vicinity of construction work areas. With the mitigation measures proposed by Gulf South, we conclude air quality impacts from construction would be temporary and would not result in significant impact on local or regional air quality.

7.10 Operational Emissions

Operation of the proposed Project modifications would result in the addition of two new 5,000 horsepower electric motor-driven reciprocating compressor units, which would not generate combustion emissions but would result in minor fugitive emissions. Fugitive emissions are minor leaks that would occur at various piping components, valves, fittings, and aboveground equipment. Additionally, Gulf South would install a new glycol dehydration system, which would be equipped with a thermal oxidizer to control still vent emissions of VOCs, HAPs, and GHGs. The glycol dehydration system also includes a natural gas-fired glycol reboiler, which would result in emissions of all criteria pollutants. Lastly, Project modifications would result in minor operational emissions due to venting and fugitive natural gas emissions at the Petal III Compressor Station. Table 9 below provides estimates of the potential annual emissions of the proposed Project modifications, and table 10 below summarizes the pre- and post-Project operational emissions of the Petal III Compressor Station. These estimated emissions are based on manufacturers' data, and assumptions that the station operates at full load for an entire year (i.e., 8,760 hours per year). Due to the intermittent nature of natural gas storage, the Petal III Compressor Station would not likely operate at full load every day; therefore, tables 9 and 10 provide conservative, worst-case estimates of emissions.

Table 9
Proposed New Emissions Sources at the Petal III Compressor Station (tons per year)

Proposed Unit	NO_2	CO	$PM_{2.5}$	PM_{10}	SO_2	VOC	HAPs	CO_2e
Reboiler	2.2	1.8	0.2	0.2	0.1	0.1	0.00013	2,559
Glycol Dehydrator Still Vent	-	-	-	-	-	0.2	0.0058	3.8
Thermal Oxidizer	6	15.1	0.5	0.5	0.04	0.3	0.0003	7,063
Compressor Blowdowns	-	-	-	-	-	5.2	-	11,294
Fugitive Equipment Leaks	-	-	-	-	-	0.1	-	27
Total Emissions due to Project Modifications	**8.2**	**16.9**	**0.7**	**0.7**	**0.14**	**5.9**	**0.006**	**20,946.8**

Table 10
Total Facility-Wide Pre- and Post-Project Emissions

Project Phase	NO_x	CO	$PM_{2.5/10}$	SO_2	VOC	HAPs	CO_2e
Pre-Project Facility-wide Emissions (tpy)[1]	162.3	243.0	8.2	0.7	138.6	23.9	138,302
Post-Project Facility-wide Emissions (tpy)[2]	170.5	260.0	8.8	0.7	131.8	22.0	159,052
Difference in Emissions Post-Project	**8.2**	**17**	**0.6**	**0**	**-6.8**	**-1.9**	**20,750**

[1] existing, permitted emissions
[2] includes the proposed Project modification emissions

7.11 Air Quality Modeling

Gulf South completed an air quality screening model (model) to determine the impacts of the proposed modifications of the Petal III Compressor Station on regional air quality. The analysis was conducted using the EPA AERMOD screening model and methodology outlined in EPA guidance. The model estimates the maximum predicted concentrations of criteria pollutants emitted from the compressor station using conservative assumptions and meteorological data from five years. The maximum modeled concentration was compared to the Significant Impact Levels (SIL). The SIL is establish by the EPA for each pollutant modeled to serve as a threshold for determining if additional refined modeling is required. If the maximum concentration is less than the SIL, then the emissions would not cause or contribute to an exceedance of the NAAQS, and additional refined modeling is not necessary. The model results are provided below in table 11.

Table 11
Air Quality Modeling Results

Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)	Significant Impact Level($\mu g/m^3$)	Determination
CO	1-hour	8.38	2,000	Not Significant
	8-hour	5.88	500	Not Significant
NO_2	1-hour	3.53	7.5	Not Significant
	Annual	0.35	1	Not Significant
$PM_{2.5}$	24-Hour	0.11	1.2	Not Significant
	Annual	0.03	0.3	Not Significant
PM_{10}	24-Hour	0.11	5	Not Significant
SO_2	1-Hour	0.02	7.9	Not Significant
	3-hour	0.02	25	Not Significant
	24-Hour	0.01	5	Not Significant
	Annual	0.002	1	Not Significant

The results in table 11 indicate that the modeled concentrations are less than the applicable SILs for all modeled pollutants. Therefore, the proposed Project modifications would not cause or significantly contribute to a degradation of ambient air quality.

8. Noise

Noise is generally defined as sound with intensity greater than the ambient or background sound pressure level. Construction and operation of the Project would affect overall noise levels in the Project area. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across

seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures that relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same 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, the L_{dn} is the L_{eq} plus a 10 decibel on the A-weighted scale (dBA) penalty added to account for people's greater sensitivity to nighttime sound levels (typically considered between the hours of 10:00 p.m. and 7:00 a.m.). The A-weighted scale is used to assess noise impacts because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise (Bies and Hansen, 1988).

8.1 Federal Noise Regulations

In 1974, the EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA, 1974). This document provides information for state and local governments to use in developing their own ambient noise standards. 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). NSAs are defined as homes, schools, churches, or any location where people reside or gather. FERC requires that the noise attributable to any new compressor engine or modifications during full load operation not exceed an L_{dn} of 55 dBA at any NSAs. Due to the 10 dBA nighttime penalty added prior to the logarithmic calculation of the L_{dn}, for a facility to meet the 55 dBA L_{dn} limit, it must be designed such that actual constant noise levels on a 24-hour basis do not exceed 48.6 dBA L_{eq} at any NSA.

8.2 State and Local Noise Regulations

The State of Mississippi does not have any applicable noise regulations, nor are there are any applicable county or local noise regulations.

8.3 Ambient Noise Conditions

The existing Petal III Compressor Station is one of four separate compressor stations that are utilized for natural gas injection into the salt dome natural gas storage caverns. The Petal I, II, and III stations are all within 500 feet of each other, while the Hattiesburg Compressor Station is about 2,700 feet from the Petal III Compressor

Station. In order to predict the sound levels due to the proposed Project modifications, Gulf South completed a sound survey that measured existing noise levels at Petal III Compressor Station during operation. Additionally, due to the close proximity of Petal I and II, those facilities were also included as part of the existing noise conditions. The ambient noise survey is further discussed below in operational noise impacts. The results of the ambient sound survey are presented in table 12.

8.4 Construction Noise Impacts and Mitigation

Noise would be generated during construction of the Project. Construction activities in any one area could last from several weeks to several months on an intermittent basis. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and local. Gulf South would construct from Monday through Saturday, 7 am to 7 pm. Additionally, Gulf South may elect to work on Sundays as the Project progresses and may conduct hydrostatic testing activities outside of normal working hours and up to 24 hours per day in order to complete the timed test. Gulf South does not anticipate any additional construction activities that would be completed outside of normal working hours. Based on the temporary nature of construction activities, and Gulf South's commit to conduct the majority of construction activities during daytime hours, we conclude that construction noise would not result in significant noise impacts on residents or the surrounding communities.

8.5 Operational Noise Impacts and Mitigation

The proposed compressor station modifications would generate noise on a continuous basis (i.e., up to 24 hours per day) when operating. The noise impact associated with the compressor station would attenuate with distance. Noise generated at the compressor station would result primarily from the following operational noise sources:

- two new 5,000 horsepower electric motor-driven gas injection compressor units;
- outdoor lube oil cooler;
- gas aftercooler;
- existing wall-mounted air supply fans;
- gas piping and associated components; and
- electrical transformers and other electrical support.

A sound survey was completed to determine the existing noise conditions. Due to the close proximity of all three compressor stations, the sound survey captured the total

sound due to the operation of the Petal I and Petal III Compressor Station, which were in operation at the time of the sound survey, while the Petal II Compressor Station was not. The sound survey captured sound levels while the stations were operating at about 29 percent of their overall combined station capacity, if all three stations were running at full load (i.e., full operational capacity). The Petal III Compressor Station was operating at only 43 percent of its total station capacity during the sound survey. While it is typically preferred that sound surveys of existing compressor stations be completed during full load conditions to reflect the loudest noise conditions possible, operational restrictions can limit a facility's ability to operate at full load. Gulf South states that the operating conditions at the time of the sound survey represent the operational mode that generates the greatest amount of noise generated at the facility. Additionally, because the Project would result in modifications to the existing compressor station, our recommendation below ensures that the facility remain at or below the existing noise levels established during the sound survey. In the event that the compressor station is louder post-Project than that which was captured in the sound survey, Gulf South would be required to install additional noise mitigation equipment to meet the sound levels provided during the sound survey.

The results of the sound survey were used in determining the proposed Project's noise impacts on nearby NSAs. Based on manufacturers' data, Gulf South determined the noise levels due to operation of the new proposed equipment at the Petal III Compressor Station. The results of the existing sound survey were then combined with the predicted noise impacts from the proposed new equipment to determine the noise impacts from operation of the compressor station at each NSA. The results of the operational noise analysis are provided below in table 12. Lastly, Gulf South committed to installing the following noise control measures:

- gas piping would not hang off metal structures;
- lube oil coolers would be installed inside a building and rated to 62 dBA at 50 feet;
- gas aftercoolers would be rated to 62 dBA at 50 feet;
- electrical equipment would be installed inside an existing building; and
- unit blowdown silencers would be rated to 60 dBA at 300 feet.

Gulf South's noise consultant recommended numerous additional measures to implement to mitigate noise from the compressor station. Gulf South stated they would install additional control measures based on the post-construction sound survey, if necessary.

Table 12 Noise Analysis for the Proposed Modifications at the Petal III Compressor Station						
NSA	**Type**	**Distance and Direction from Facility**	**Sound Level during Operation of Maximum Available Gas Injection units (dBA L_{dn})[1]**	**Estimated Sound Level of Project Modifications (dBA L_{dn})**	**Total Sound Level after Project Modifications (dBA L_{dn})**	**Predicted Change in L_{dn} (dBA)**
NSA 1	residences	1,100 feet west	57	44.6	57	0
NSA 2	residences	2,550 feet east northeast	56	36.2	56	0
NSA 3	church/residences	2,900 feet east south-east	51	34.6	51	0
NSA 3	residences	3,990 feet east	56.1	31.6	56.1	0
1 = includes station load of about 29 percent of existing total station capacity at Petal I, II, and III combined						

The operational noise analysis in table 12 indicates that total noise at three of the four NSAs would be greater than 55 dBA; however, the contribution from proposed Project modifications would not exceed 55 dBA L_{dn} at any NSA. Additionally, table 12 indicates that that noise levels would remain the same post-Project compared to current existing sound levels, and that the proposed Project modifications would not result in perceptible increase in existing noise levels. However, Gulf South evaluated noise in terms of current, existing NSAs. As further reviewed in section 5.3, a residential development is currently undergoing construction 0.2 mile east of the proposed Project site. NSAs within this development were not evaluated in the current noise analysis and may be closer to the Petal III Compressor Station than the NSAs that were evaluated in the noise analysis. Therefore, Gulf South would be required to include these newly-constructed NSAs in the noise analysis required post-construction (see below recommendation) to ensure that the proposed Project would result in similar noise

impacts at the newly-constructed NSAs as compared to the NSAs that were previously analyzed.

Blowdown events generate noise at compressor stations and occur when pressure in the compressor casing, piping, or the entire station must be released in a controlled manner. Blowdown events cause a temporary increase in sound levels that would typically last for about 1 to 5 minutes. Because of the short duration and infrequent occurrence, we do not believe that blowdown events would be a significant contributor to operational noise from the Project.

While the analysis above shows that noise impacts at the NSAs from the Project modifications at the Petal III Compressor Station would be below our 55 dBA requirement, to verify compliance with the FERC's noise standards, **we recommend that**:

- **Gulf South should file with the Secretary noise surveys for the Petal III Compressor Station no later than 60 days after placing the modified station into service to verify that the noise from the existing and proposed new equipment operated at full power load condition does not exceed the previously existing noise levels that are at or above an L_{dn} of 55 dBA at nearby NSAs, and that the noise attributable to the operation of the new units at full power load condition does not exceed an L_{dn} of 55 dBA at any nearby NSAs. If a full power load condition noise survey is not possible, Gulf South should file an interim survey at the maximum possible power load within 60 days of placing the modified station into service and file the full power load survey within 6 months. If the noise from all the equipment operated at full power load condition exceeds the previously existing noise levels or if the total noise attributable to operation of the new units at the station under interim or full power load conditions exceeds an L_{dn} of 55 dBA at any nearby NSA, Gulf South should:**

  a. file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;

  b. install additional noise controls to meet that level within 1 year of the in-service date; and

  c. confirm compliance with this requirement by filing a second full power load noise survey with the Secretary no later than 60 days after it installs the additional noise controls.

Based on the predicted noise impacts at the Petal III Compressor Station, which would result in no perceptible sound increases, the sound mitigation measures proposed by Gulf South, and the recommendation stated above, we conclude that the proposed Project would not result in significant noise impacts on residents or the surrounding communities.

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 °F 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.

10. Safety Standards

The DOT 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 DOT'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.

10.1 Station Design

The piping and aboveground facilities associated with the proposed Project would be designed, constructed, operated, and maintained in accordance with the DOT 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 DOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

Part 192 of 49 CFR establishes safety guidelines for the design and construction of compressor stations in addition to pipeline safety standards. Part 192.163 requires the location of each main compressor building of a compressor station be on a property under the control of the operator. The station must also be far enough away from adjacent property, not under control of the operator, to minimize the possibility of fire spreading to the compressor building from structures on adjacent properties. Part 192.163 also requires each building on a compressor station site be made of specific building materials and to have at least two separate and unobstructed exits. The station must be in an enclosed fenced area and must have at least two gates to provide a safe exit during an emergency.

TransTitle Properties Inc. (TransTitle) filed comments on the NOI (TransTitle Comments) requesting that the Commission address safety issues from the Project based upon a 1974 "explosion at this very site," and a 1986 incident regarding an explosion at a nearby propane facility. Gulf South asserts in a February 1, 2019 filing, that the incidents cited by TransTitle are not relevant to the safety of Gulf South's Project. Gulf South further states that its above-ground facilities proposed are regulated by the Department of Transportation – Pipeline and Hazardous Materials Safety Administration (PHMSA). Gulf South further explains that the Project will be designed, constructed, operated, and maintained in compliance with PHMSA rules and regulations to ensure public safety.

We agree that TransTitle's safety concerns regarding Gulf South's proposal is more appropriately addressed by PHMSA. Additionally, we find that TransTitle's concerns of past incidents are not relevant to this proceeding.

TransTitle also states that there has been leaching of salt domes in the area that has expanded their size and location past TransTitle's property boundaries. Gulf South answers that the design, location, construction, integrity, and operation of salt dome facilities in Mississippi is subject to regulation by the Mississippi State Oil and Gas Board (MSOGB). Gulf South asserts that it is in compliance with the applicable MSOGB regulations. Gulf South explains that Mississippi State regulations require it to conduct mechanical integrity tests and volume verifications at least every five years, as well as perform sonar surveys and subsidence testing in accordance with these regulations. Gulf South asserts that Mississippi State regulations provide steps to be taken if it is determined that a storage cavern has expanded beyond permitted boundaries. Gulf South asserts that based on this testing, no Gulf South cavern has shown evidence of exceeding its permitted boundary.

Commission engineering staff reviewed documents submitted to the MSOGB including permit applications, data submissions, and test results as required by state regulations. Staff's assessment confirmed that Gulf South's caverns are properly spaced under MSOGB regulations for domal salt storage facilities. Staff's assessment also determined that the various tests and logs conducted on these caverns and wells, including a Mechanical Integrity Test based on measured cavern volumes, are consistent with Interstate Oil and Gas Compact Commission guidelines for salt dome storage. However, we find that Gulf South's encroachment under its property would be more appropriately addressed by the MSOGB.

10.2 Emergencies

The DOT prescribes the minimum standards for operating and maintaining pipeline and aboveground natural gas facilities, including the requirement to establish a written plan governing these activities. Each operator is required to establish an emergency plan that includes procedures to minimize the hazards of a natural gas 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 DOT 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 or facility emergency, and to coordinate mutual assistance. Gulf South must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas emergency and report it to appropriate public officials. Gulf South would provide the appropriate training to local emergency service personnel before the Project is placed in service.

The Project's construction and operation would represent a minimum increase in risk to the public; however, we are confident that with continued compliance with DOT safety standards, operation, and maintenance requirements, the Project would be constructed and operated safely.

11. 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 Council on Environmental Quality and EPA guidance and focuses on potential impacts from the proposed 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.

11.1 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 Project area 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 13.

Table 13 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, use 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 drill installation
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	Census tracts affected counties

The EA analyzed the Project impacts on geology and soils; groundwater resources; vegetation and wildlife; cultural resources; land use and visual resources; and air quality and noise. As described in section B of this EA, the Project-related construction and operational impacts would not impact wetlands or waterbodies. Additionally, the Project would not affect historical properties, and as such cumulative impacts on these resources were not considered in the cumulative impact analysis.

Impacts on vegetation, wildlife, and special status species could extend outside of the workspaces to plant seed dispersion areas or individual home ranges for species with potential to occur in the Project area, but would generally be contained to a relatively small area. We believe the watershed scale is most appropriate to evaluate impacts as it provides a natural boundary and a geographic proxy to accommodate general wildlife habitat and ecology characteristics in the Project area. Therefore, we evaluated projects within the HUC-12 watersheds crossed by the Project.

Temporary impacts on air quality, including fugitive dust, would be largely limited to areas within 0.25 mile of active construction. We evaluated current and proposed sources that overlap in time and location with construction activities.

Impacts from construction noise could potentially contribute to cumulative impact on NSAs within 0.25 mile of construction activities. Therefore, we evaluated current and proposed sources within 0.25 mile of the Petal III Compressor Station.

An evaluation was performed to identify 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. Gulf South obtained information about present and future planned developments by consulting sources, including federal, state, and local agency and municipality websites, reports, and direct communications; permit applications with various agencies; and online database searches.

11.2 Potential Cumulative Impacts of the Proposed Action

Table 16 lists the past, present, and reasonably foreseeable projects identified within the geographic scope for each resource, and considered in this cumulative impact analysis.

Table 14
Past, Present, and Reasonably Foreseeable Projects Considered in the Cumulative Impacts Analysis for the Petal III Compression Project

Project (No. on Map) [a]	Project Description	Estimated Construction Timeframe	Project Size (acres)	Closest Distance from Project [b]	Resources Potentially Affected within the proposed Project's Geographic Scope [c]
Williamsburg Estates Residential Development Project (1)	Construction of a multi-lot residential subdivision.	Ongoing	IU	0.22 mile east of AR-2	Groundwater; Vegetation; Wildlife; Land Use; Visual Resources; Noise (Operation); Noise (Construction); and Air Quality (Construction)
Petal School District Storm Shelter Project (2)	Construction of aboveground storm shelters for each of the five schools within the Petal School District.	Information Unavailable	IU	1.15 miles south of AR-1	Groundwater, Vegetation, and Wildlife

IU – Information unavailable
a The non-jurisdictional modifications to the existing substation located adjacent to the Petal III CS is not anticipated to result in environmental impacts; therefore, cumulative impacts associated with this non-jurisdictional activity were not evaluated.
b Distance is measured from nearest portion of the proposed Project workspace to the identified project's location.
c The Project does not include the construction or modification any aboveground structures; therefore, the Project would not contribute to cumulative impacts on socioeconomic resources.

Within the Project area, there are planned residential developments, and multiple storm shelters. As discussed, the Project would temporarily affect soils, groundwater, vegetation, land use, air quality and noise during construction, and potentially indirectly impact local wildlife during construction. Given the distance between the two projects in table 14, the Project would not contribute to cumulative impacts on soils or geology. Cumulative impacts from past, present, and reasonably foreseeable activities and projects shown in tables 13 and 14 on these individual resources are addressed below:

Groundwater, Vegetation, and Wildlife

Historic land use, construction, and development practices have permanently impacted native vegetation communities in the Project area and could have accounted for introduction of exotic, nuisance, and/or non-native vegetation. As discussed in section 4.1 of this EA, land converted to industrial/commercial usage contains no vegetation and includes county roads and existing access roads. There is no unique, sensitive, or protected vegetation in the vicinity of the Project area.

Cumulative impacts on groundwater (primarily due to increased turbidity or contamination due to spills), could extend outside of the Project workspaces, but would be contained to a relatively small area (in other words, within the same HUC 12-digit sub-watersheds).

Increased development and loss of habitat within the geographic scope from construction of the residential development, storm shelter, and the Project would cause wildlife to either adapt to new conditions (in the case of generalist species) 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 disturbance. However, 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 14 are anticipated to be minor.

Where construction schedules overlap, increased noise, lighting, and human activity could also disturb wildlife in the area. Wildlife may temporarily displace to nearby suitable habitat, but are anticipated to return to those areas temporarily impacted following the completion of construction activities. However, abundant habitat would remain available within the geographic scope; therefore, cumulative impacts on wildlife as a result of increased noise, light, and human activity are anticipated to be of short duration, local, and minor.

Project construction could impact local wildlife, including special status species such as the gopher tortoise. The current construction of the Williamsburg Estates Residential Development Project could likewise impact local wildlife, including the gopher tortoise. Because the proposed Project is not likely to adversely affect gopher tortoise and any other projects would be required to consult for their potential impacts on ESA listed species, we conclude that cumulative impacts on gopher tortoise would not be significant.

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 Hydrologic Unit Code 12 sub-watersheds). With the exception of trench dewatering, as necessary, no groundwater withdrawals are proposed for the Project. Gulf South would implement measures outlined in Section 3.1 to ensure groundwater resources are not adversely affected. Similarly, the other projects within the geographic scope would implement best management practices to limit impacts on groundwater. 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.

Additionally, while the existing projects have the potential to impact these resources, the Project would not contribute significantly to cumulative impacts on vegetation and wildlife resources within the geographic scope of the Project. All projects would be required to implement stormwater runoff controls, SPCC Plans, and other mitigation measures required by the state and federal permits. Therefore, the Project when considered cumulatively with past, present, and reasonably foreseeable projects, would not contribute to significant cumulative impacts on water resources, vegetation, or wildlife within the geographic scope of the Project.

Land Use

The Project would result in land use impacts resulting from conversion of forested land to industrial land and open land for operation of the dehydration unit and new permanent staging yard, respectively. The Williamsburg Estates Residential Development Project will result in a conversion of the current land use to residential (developed) land.

A majority of the areas to be impacted by the Williamsburg Estates Residential Development Project are currently characterized as either developed land (i.e., residential or industrial) or as a combination of open land and forest. Cumulative impacts in areas where the existing land use is already classified as developed land would be negligible as there would be no change in land use as a result of the projects. The conversion of open or forest land to developed land due to the construction and operation of the projects would result in a cumulative impact on land use.

Due to the abundance of land use types similar to those impacted by the proposed Project within the geographic scope and the negligible amount of land use conversion resulting from operation of the Project, we conclude cumulative impacts on land use are anticipated to be insignificant.

Visual Resources

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. As identified in Resource Report 1, the Williamsburg Estates Residential Development Project occurs within the geographic scope for cumulative impacts on visual resources and was considered in the cumulative impacts analysis.

The proposed Project's impacts on visual resources would be greatest near the new aboveground facilities. However, the proposed modifications at the Petal III CS will be within the existing compressor building and the expansion of the existing facility for the dehydration unit is adjacent to other industrial facilities. In addition, visual impacts associated with the Williamsburg Estates Residential Development Project would be negligible due to its location adjacent to an area of mixed-use development (i.e., industrial and residential). Therefore, the overall cumulative impact on visual resources associated with the construction and operation of the projects would be minor due to the existing developed nature of the areas surrounding each of the projects.

Air Quality

Construction of the proposed Project modifications would result in short-term construction impacts and long-term operational impacts on air quality in the vicinity of the Project, as discussed in section 7.0. Construction of current and reasonably foreseeable future projects and activities within the geographic scope that may impact air quality are discussed below.

Construction of the Williamsburg Estates Residential Development Project in table 16 is within the geographic scope of construction and has the potential to occur at the same time as the proposed Project; therefore, these projects, and the proposed Project, may result in cumulative impacts on air quality during construction of the proposed Project. Construction of both of these projects would involve the use of heavy equipment that would generate emissions of air pollutants and fugitive dust. Construction equipment emissions would result in short-term emissions that would be highly localized, temporary, and intermittent. In order to mitigate fugitive dust emissions, Gulf South would implement dust control measures such as watering access roads and construction areas. Because watering access roads and construction areas is a common construction best management practice, the Williamsburg Estates Residential Development Project may also implement similar dust control measures to minimize fugitive dust generation. Based on the mitigation measures proposed by Gulf South, and the temporary and localized impacts of construction, the proposed Project would not result in significant cumulative impacts on air quality during construction.

Gulf South compiled a list of all proposed new emissions sources within the geographic scope (i.e., 50 km) of the proposed Project. All of these proposed projects are minor sources and are sufficiently far away (from 8.5 to 48 km) from the proposed Project such that air quality impacts are not anticipated to overlap due to the minor quantity of emissions generated as a result of the proposed Project modifications. Therefore, we conclude the proposed Project would not result in significant cumulative impacts on air quality during operation.

Noise

Construction of the Project would result in short-term and temporary impacts on existing noise levels in the Project area. Construction of the Project may occur concurrently with construction of the Williamsburg Estates Residential Development Project in table 16 and may contribute cumulatively to impacts on noise levels. However, based on the short-term and temporary nature of construction-related activities, impacts from the Project are not expected to significantly contribute to cumulative impacts on noise levels during construction. Although Project operation would result in impacts on existing noise levels in the vicinity of the Petal III Compressor Station, these impacts are not anticipated to result in perceptible noise level increases. Therefore, operation of the Project would contribute negligibly to cumulative impacts on noise levels.

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. The evaluation criteria used for developing and reviewing alternatives were:

- ability to meet the Project's 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 the Project. An alternative that cannot achieve the purpose of the Project cannot be considered as an acceptable replacement for the Project. 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 Project economically impractical.

Alternatives that would not meet the Project's objective or were not feasible were not brought forward to the next level of review (i.e., the third evaluation criterion). 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, Gulf South 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 and the beneficial impacts of implementing the Project would not occur, including the purpose of the Project.

A Commission decision to deny the proposed action would avoid the environmental impacts addressed in this EA; however, other natural gas storage companies may be required to modify or construct new facilities to meet the demand for additional gas storage service. This action would likely result in similar or greater environmental impacts than the Project; therefore, we have dismissed this alternative as a reasonable alternative to meet the Project objectives.

2. System Alternatives

The proposed Project includes modifications at an existing compressor station within the existing Petal Gas Storage Facility. The purpose of the Project is to enhance operational flexibility to Gulf South to continue to provide consistent and reliable natural gas storage service to satisfy the needs of its customers utilizing the Petal Complex facilities as well as attract new customers. As the Project activities must occur at the existing Petal Gas Storage Facility to meet the purpose and need of the Project, we did not evaluate additional system alternatives.

3. Site Alternatives

The proposed modifications at the Petal III CS would occur within the existing compressor building, and the new dehydration unit would be installed adjacent to the existing Petal III dehydration unit. Installation of the new dehydration unit would require the development of the existing Petal III CS to the southeast, as there is no available space for development in any other direction adjacent to the existing infrastructure. Furthermore, Gulf South would install a new thermal oxidizer that would serve both the new and existing Petal III dehydration unit, thus requiring a close proximity to both units. Therefore, we conclude additional site alternatives for the additional compression or dehydration associated with the Project would not provide a significant environmental advantage over the Project and are not preferred. Furthermore, the proposed Project did not present any environmental concerns that justified further evaluation of any site alternatives. We conclude that the proposed Project, as modified by our recommendations, is the preferred alternative to meet the Project objectives.

D. STAFF'S CONCLUSIONS AND RECOMMENDATIONS

Based upon the analysis in this EA, we have determined that if Gulf South constructs and operates the proposed facilities in accordance with its 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. Gulf South shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Gulf South 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 **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**, Gulf South shall 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 EIs' 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 location 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**, Gulf South shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for the facility 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.

5. Gulf South shall 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 **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by our Plan and/or minor field realignments per landowner needs and requirements that 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**, Gulf South shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Gulf South must file revisions to the plan as schedules change. The plan shall identify:

a. how Gulf South 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 Gulf South 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 would ensure that sufficient personnel are available to implement the environmental mitigation;

d. company personnel, including EIs and contractors, who would receive copies of the appropriate material;

e. the location and dates of the environmental compliance training and instructions Gulf South would 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 Gulf South's organization having responsibility for compliance;

g. the procedures (including use of contract penalties) Gulf South would follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar Project scheduling diagram), and dates for the:

i. completion of all required surveys and reports;

ii. environmental compliance training of onsite personnel;

iii. start of construction; and

iv. start and completion of restoration.

7. Gulf South shall 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, Gulf South shall file updated status reports with the Secretary on a **biweekly** basis until all construction and restoration activities are complete. On request, these status reports shall also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

   a. an update on Gulf South'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 work in 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 that 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 Gulf South from other federal, state, or local permitting agencies concerning instances of noncompliance, and Gulf South's response.

9. Gulf South must receive written construction form the Director of OEP **before commencing construction of any Project facilities**. To obtain such authorization, Gulf South must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. Gulf South must receive written authorization from the Director of OEP **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**, Gulf South shall 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 Gulf South 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**, Gulf South shall file with the Secretary documentation confirming that it will offer to conduct pre- and post-construction monitoring of well yield and water quality for water supply wells within 150 feet of the workspaces. Gulf South shall also provide a temporary supply of water if the

landowner's water supply is contaminated or damaged by construction activities until a permanent water supply is established.

13. **Prior to construction**, Gulf South shall file with the Secretary, for review and written approval by the Director of OEP, mitigation measures to protect wells within and adjacent to construction work areas from physical damage or destruction during construction activities.

14. Gulf South shall file with the Secretary noise surveys for the Petal III Compressor Station **no later than 60 days** after placing the modified station into service to verify that the noise from the existing and proposed new equipment operated at full power load condition does not exceed the previously existing noise levels that are at or above an Ldn of 55 dBA at nearby NSAs, and that the noise attributable to the operation of the new units at full power load condition does not exceed an Ldn of 55 dBA at any nearby NSAs. If a full power load condition noise survey is not possible, Gulf South shall file an interim survey at the maximum possible power load **within 60 days** of placing the modified station into service and file the full power load survey **within 6 months**. If the noise from all the equipment operated at full power load condition exceeds the previously existing noise levels or if the total noise attributable to operation of the new units at the station under interim or full power load conditions exceeds an Ldn of 55 dBA at any nearby NSA, Gulf South shall:

    a. file a report with the Secretary, for review and written approval by the Director of OEP, on what changes are needed;

    b. install additional noise controls to meet that level **within 1 year** of the in-service date; and

    c. confirm compliance with this requirement by filing a second full power load noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

E. LIST OF PREPARERS

Bloomfield, Andrea- Project Manager, Land Use, Surface Water, Wetlands, Vegetation, Wildlife, Cumulative Impacts, and Alternatives

B.S., Environmental Management, 2018, University of Maryland University College

Augustino, Kylee- Air Quality, Noise, Safety and Reliability

M.S., Environmental Engineering, 2016, The Johns Hopkins University
B.A & Sc., Biology and Geography, 2005, McGill University

Ramsey, Dawn- Cultural Resources

Ph.D. Candidate, Anthropology, University of Florida
M.A. Anthropology, 2000, University of Memphis
B.A. History and Anthropology, 1997, Texas State University

Jensen, Andrea – Geology, Soils, Groundwater Resources

B.S., Environmental Geology, 2012, College of William and Mary

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APPENDIX A

Birds of Conservation Concern with Potential to Occur within the Project Area				
Common Name	**Scientific Name**	**Season Present**	**Preferred Habitat**	**Assessment of Potential Impacts**
American Bittern	*Botaurus lentignosus*	Wintering	Prefers large freshwater and sometimes brackish marshes, including lake and pond edges with vegetative cover and marshes with open water patches and bottom aquatic vegetation, for wintering habitats.	Suitable habitat is not present in the Project area.
American Kestrel	*Falco sparverius paulus*	Year-round	Found in open areas with short ground vegetation and sparse trees, including deserts, wood edges, parks, meadows, grasslands, farm fields, cities, and suburbs.	Suitable habitat exists in the Project area; however, individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats.
American Oystercatcher	*Haematopus palliatus*	Outside of range	Occurs in tidal flats and coastal habitats, including saltmarsh, marsh islands, sand or shell beaches, dunes, mudflats, and dredge spoil islands made of sand or gravel. Nests among dunes, on dredge spoil islands, or on islands in salt marsh. Migrates and winters in mud or sandflats exposed by tide or on shellfish beds.	The Project does not occur within the known range of the species.
Audubon's Shearwater	*Puffinus lherminieri*	Outside of range	Occurs in open ocean, generally over warm waters. Infrequently comes near land in North America. Nests in rocky coastal edges and inland wooded areas of islands.	The Project does not occur within the known range of the species.
Bachman's Sparrow	*Peucaea aestivalis*	Year-round	Occurs in open pine or oak forests, open grassland, palmetto scrub and brushy pastures. Historically found in the understory of mature pine forest, although now found in utility rights-of- way, old pastures, and clear-cut areas.	Suitable habitat exists in the Project area; however, individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats

Bald Eagle	*Haliaeetus leucocephalus*	Wintering	Inhabits rivers, large lakes, and coasts. Nests in forested areas near large waterbodies. During migration, stops near water in mountains and open country. Typically roosts in trees.	Suitable habitat is not present in the Project area.
Bewick's Wren	*Thryomanes bewickii bewickii*	Outside of range	Inhabits gardens, underbrush, scrub, thickets, oak woodlands, desert scrub, brushy areas around the edges of woods, and suburban plantings. Breeds in areas with open woodland and thick scrubby vegetation.	The Project does not occur within the known range of the species.
Black-capped Petrel	*Pterodroma hasitata*	Outside of Range	Found in burrows and over open ocean, seamounts, and submarine ridges.	The Project does not occur within the known range of the species.
Black Rail	*Laterallus jamaicensis*	Outside of Range	Habitat includes salt and fresh water marshes and wet meadows.	The Project does not occur within the known range of the species.
Black-throated Green Warbler	*Setophaga virens*	Migration	Inhabits coniferous and mixed deciduous forests, and cypress swamps. During migration, found in woodland and along edges. Winters in mountains and foothills associated with oaks and pines.	Suitable migration habitat exists in the Project area; however, individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats
Black Skimmer	*Rynchops niger*	Outside of Range	Found on ocean beaches, lagoons, tidewater, sheltered bays, estuaries, and inlets. Nests on beaches, shell banks, and sandy islands.	The Project does not occur within the known range of the species.
Blue-winged Warbler	*Vermivora cyanoptera*	Migration	Occurs in inlets, sheltered bays, tidewater, lagoons, estuaries, gravel or shell bars with sparse vegetation, and open, sandy ocean beaches. Nests on shell banks, sandy islands, and beaches.	Suitable habitat is not present in the Project area.

Brown-headed Nuthatch	*Sitta pusilla*	Year-round	Found in Southeastern pine forests year-round. Vegetation in habitat includes loblolly, slash, pond, and longleaf pines, bald cypress, sweetgum, hickory, Atlantic white cedar, sycamore, and oak.	Suitable habitat exists in the Project area; however, individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats.
Buff-breasted Sandpiper	*Calidris subruficollis*	Migration	Occurs in shortgrass prairies. Breeds on ridges with nearby streams or ponds and dry, grassy tundra. Migrates and winters in short, dry grasslands; stubble fields, airports, pastures, plowed fields, and mudflats.	Suitable habitat is not present in the Project area.
Cerulean Warbler	*Setophaga cerulea*	Migration	Inhabits deciduous forests and river valleys. Breeds in deciduous forest with open understory and mature hardwoods. Winters in broad-leaved evergreen forests.	Suitable migration habitat exists in the Project area; however, individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats.
Chuck-will's-widow	*Antrostomus carolinensis*	Breeding	Inhabits open areas of oak-hickory, pine, and other forests. Winters in hedgerows, fields, brush, thickets, and woodlands.	Suitable breeding habitat exists in the Project area; however, clearing activities will occur outside of the nesting season.
Common Ground-Dove	*Columbina passerina*	Year-round	Prefers savannas, wood edges, farms, mesquite thickets, orchards, roadsides, brushy fields, semi-open habitats with low brush and grass, pine woods, river bottomland hardwoods, oak scrublands, desert scrublands, understory of open pine woods, lake shores, ranch yards and forest edges.	Suitable habitat exists in the Project area; however, individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats.
Eastern Whip-poor-will	*Antrostomus vociferus*	Migration	Inhabits leafy woodlands. Breeds and migrates through dry deciduous or evergreen-deciduous woodlands, pine flatwoods, northern hardwood forests, and pine plantations.	Suitable migration habitat exists in the Project area; however, individuals potentially present during construction would likely avoid the area or displace to similar adjacent habitats.

Gull-billed Tern	*Gelochelidon nilotica*	Breeding	Found in fields, coastal bays, saltmarshes, farmland, pastures, and open country near coast. Breeding and nesting occurs on islands and beaches. Winters in plowed fields, estuaries, lagoons, and salt marshes and occasionally around lakes, along rivers, and in freshwater marshes.	Suitable habitat is not present in the Project area.
Henslow's Sparrow	*Ammodramus henslowii*	Wintering	Occurs in large, flat fields with standing, dead vegetation; tall, dense grass; no woody plants, and dense layer of litter. Breeds in low-lying damp areas with tall grass, standing dead weeds, and scattered shrubs, including fields and meadows. Winters in weedy fields.	Suitable habitat is not present in the Project area.
Kentucky Warbler	*Geothlypis formosa*	Breeding	Occurs in woodland undergrowth. Breeds in bottomlands near creeks and rivers, edges of swamps, ravines in upland deciduous woods, and deep shaded woods with dense humid thickets. Winters in second growth and dense lowland forests in the tropics.	Suitable breeding habitat exists in the Project area; however, clearing activities will occur outside of the nesting season.
Least Bittern	*Ixobrychus exilis*	Breeding	Occurs in freshwater marshes with tall, dense vegetation. Occasionally will utilize salt marshes or mangroves.	Suitable habitat is not present in the Project area.
Least Tern	*Sternula antillarum*	Breeding	Inhabits estuaries, seacoasts, lagoons, beaches, salt flats, lakes, bays, and rivers. Breeds on gravelly or sandy beaches, flat rooftops of buildings, and banks of rivers or lakes. Winters along tropical coasts.	Suitable habitat is not present in the Project area.
LeConte's Sparrow	*Ammodramus leconteii*	Wintering	Winters in damp weedy fields, coastal prairies, and shallow freshwater marshes.	Suitable habitat is not present in the Project area.

Limpkin	*Aramus guarauna*	Outside of range	Inhabits freshwater marshes, river shores, swamp forests, lake shores, and pond shores.	The Project does not occur within the known range of the species.
Loggerhead Shrike	*Lanius ludovicianus*	Year-round	Found in agricultural fields, riparian areas, old orchards, pastures, desert scrublands, golf courses, prairies, savannas, cemeteries, and open and semi-open country with well-spaced shrubs, low trees, and short vegetation. Breeds in semi-open terrain, such as open grasslands, large clearings in wooded areas, and desert with scattered trees and large shrubs. Winters in open country, including areas with scattered or no trees, as long as hunting perches, which may include fences or wires, are present.	Suitable habitat is not present in the Project area.
Long-billed Curlew	*Numenius americanus*	Outside of Range	Inhabits rangeland and high prairie. Nests in pastures and agricultural fields and breeds in sagebrush prairie and dry grassland. Migrates and winters in farm fields, coastal mudflats, marshes, wetlands, tidal estuaries, and grasslands.	The Project does not occur within the known range of the species.
Marbled Godwit	*Limos fedoa*	Outside of Range	Winters mostly in coastal regions around tidal marshes, ponds, and mudflats.	The Project does not occur within the known range of the species.
Nelson's Sharp-tailed Sparrow	*Ammospiza nelsoni*	Wintering	Prefers fresh and salt marshes and wet meadows. Winters in brackish and salt marshes.	Suitable habitat is not present in the Project area.

Painted Bunting	*Passerina ciris*	Breeding	Occurs in brush, towns, woodland edges, gardens, and semi-open areas with dense low growth. Breeds in hedgerows, woodland clearings and edges, thickets, and semi-open habitat with scattered trees or shrubs. Winters in thickets and high grass, shrubby, overgrown pasture.	Suitable habitat is not present in the Project area.
Peregrine Falcon	*Falco peregrinus*	Wintering	Wintering habitat includes open lands, such as farmlands, marshes, lakeshores, river mouths, tidal flats, and broad river valleys.	Suitable habitat is not present in the Project area.
Prairie Warbler	*Setophaga discolor*	Breeding	Occurs in low pines, brushy pastures and slashings, and a variety of shrubby habitats, such as Christmas-tree farms, regenerating forests, open fields, and mangrove forests. Breeds in edges of forest, and clearings. Winters in flat grasslands with scattered bushes and trees.	Suitable breeding habitat exists in the Project area; however, clearing activities will occur outside of the nesting season.
Prothonotary Warbler	*Protonotaria citrea*	Breeding	Found in wooded swamps. Breeds in flooded river bottom hardwoods or wooded swamps. Nests near borders of rivers, lakes, and ponds. During migration, found in marshes, citrus groves, coastal areas, and scrub. Winters in lowland tropical woods and dry forest as well as mangrove swamps.	Suitable breeding habitat is not present in the Project area.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Year-round	Inhabits pine savannas and other open forests with clear understories, forest edges, open pine plantations, standing timber, groves, farm country, orchards, shade trees in towns, and large scattered trees. Avoids unbroken forest, favoring open country or forest clearings.	Suitable habitat is not present in the Project area.

Red Knot	*Calidris canutus rufa*	Wintering	Breeds on shores, sparsely-vegetated hillsides, and tidal flats of the tundra. Nests in the Arctic tundra on high, barren, inland areas near water. During migration and winter, may be found in tidal zones, coastal mudflats, and marshes along the coast.	Suitable habitat is not present in the Project area.
Red-throated Loon	*Gavia stellata*	Outside of Range	Inhabits tundra lakes and coastal bays, waters, and estuaries. Breeds in tundra bogs, wetlands, and forests. During migration, stopover habitat includes large lakes. Winters protected bays, large estuaries, and the ocean.	The Project does not occur within the known range of the species.
Roseate Spoonbill	*Platalea ajaja*	Breeding	Prefers coastal marshes; fresh, brackish, and marine waters; mudflats; lagoons; bays; mangrove keys; and forested swamps. Nests in trees and shrubs along water edges and coastal islands in low scrub.	Suitable habitat is not present in the Project area.
Rusty Blackbird	*Euphagus carolinus*	Wintering	Wooded swamps and riverside forests are preferred wintering habitat	Suitable wintering habitat is not present in the Project area.
Saltmarsh Sharp-tailed Sparrow	*Ammospiza caudacuta*	Outside of Range	Prefers freshwater and coastal salt marshes with saltgrass, cordgrass, sedges, and rushes, or coastal fields.	The Project does not occur within the known range of the species.
Sandwich Tern	*Thalasseus sandvicensis*	Year-round	Found in estuaries, jetties, bays, coastal waters, mudflats, beaches, and seacoasts. Nests on sandbars, beaches, sandy islands, coastal lagoons, and offshore.	Suitable habitat is not present in the Project area.
Seaside Sparrow	*Ammospiza maritima*	Outside of Range	Inhabits coastal salt and tidal marshes with dense tall growth, consisting of spartina, tidal reeds, saltgrass, and rushes.	The Project does not occur within the known range of the species.

Sedge Wren	*Cistothorus platensis*	Wintering	Coastal prairies and weedy meadows are preferred wintering habitat.	Suitable habitat is not present in the Project area.
Semipalmated Sandpiper	*Calidris pusilla*	Migration	Occurs in mudflats and beaches and breeds on open tundra. During migration, stopover habitat includes ponds, sandy beaches, shores, lakes, shallow estuaries and inlets, wet meadows, and intertidal mudflats	Suitable habitat is not present in the Project area.
Short-billed Dowitcher	*Limnodromus griseus*	Wintering	Winters along coastal habitats such as sandy beaches, tidal marshes, and mud flats.	Suitable habitat is not present in the Project area.
Snowy Plover	*Charadrius nivosus*	Year-round	Inhabits barren to sparsely-vegetated coastal dry sand beaches, salt pans, river bars, or interior alkali flats.	Suitable habitat is not present in the Project area.
Solitary Sandpiper	*Tringa solitaria*	Migration	Breeds in muskeg region in taiga. During migration and winter, found along freshwater ponds, stream edges, marshes, riverbanks, temporary pools, and flooded ditches and fields; more commonly found in wooded regions, and less frequently on mudflats and open marshes.	Suitable habitat is not present in the Project area.
Swainson's Warbler	*Limnothlypis swainsonii*	Breeding	Occurs in river floodplain forests and swamps. Breeds in bottomlands and swamps of the southern coastal plain and Appalachian region. Winters in undergrowth of woodlands within tropics.	Suitable habitat is not present in the Project area.

Swallow-tailed Kite	*Elanoides forficatus*	Outside of Range	Inhabits wooded river swamps. Breeds in lowland forests, marshes, and swamps. Nests in tall trees near open country, cypress swamps, hardwood hammocks, mangrove forests, open pine woods near marsh, lowland rainforest, wet prairies, freshwater or brackish marshes, and mountain cloud forest.	The Project does not occur within the known range of the species.
Upland Sandpiper	*Bartramia longicauda*	Migration	Occurs in native prairie, dry grassland, and open meadows. Nests in native grassland. During migration, stops on open pastures and lawns.	Suitable habitat is not present in the Project area.
Whimbrel	*Numenius phaeopus*	Migration	Inhabits mudflats, tundra, shores, and marshes. Breeds in Arctic tundra, including dry heath and wet lowlands habitat. During migration, stops in mudflats, sandy beaches, flooded agricultural fields, rocky shores, salt marshes, and grassy fields. Winters along shorelines, tidal flats, and occasionally inland.	Suitable habitat is not present in the Project area.
Wilson's Plover	*Charadrius wilsonia*	Breeding	Inhabits very open areas in coastal regions, including estuaries, white sand and shell beaches, lagoons, sandy islands, offshore barrier beaches, tidal and salt flats, dredge spoil islands, and open ocean beaches.	Suitable habitat is not present in the Project area.
Wood Thrush	*Hylocichla mustelina*	Breeding	Occurs in deciduous woodlands. Breeds in woodland understory, damp forest, and mature deciduous and mixed forest. Nests in suburban areas, fragmented forests, and woodlands. Winters in mature, broad-leaved, and palm tropical forests, and lowland tropical forest understory.	Suitable breeding habitat exists in the Project area; however, clearing activities will occur outside of the nesting season.

Yellow Rail	*Coturnicops noveboracensis*	Wintering	Inhabits grassy, shallow marshes, and wet meadows. Breeds in sedge or grass-dominated wet meadows and shallow fresh or brackish marshes. Winters in rice fields, damp meadows, or coastal salt marsh.	Suitable habitat is not present in the Project area.

APPENDIX B

GOPHER TORTOISE MANAGEMENT PLAN

Gulf South Pipeline Company, LP

Introduction

Gulf South Pipeline Company, LP (Gulf South) wishes to develop a management plan to allow for routine maintenance operations on pipelines, without adversely effecting gopher tortoise (*Gopherus polyphemus*) or eastern indigo snake (*Drymarchon corais couperi*) populations. The purpose of this management plan is to provide a "plan of action" for necessary and routine pipeline work, such as, small excavations and Right-of-Way (ROW) mowing.

This plan is not intended to allow for the taking of gopher tortoises, eastern indigo snakes or to relinquish Gulf South's obligation to coordinate with U.S. Fish and Wildlife Service (USFWS) for projects beyond the scope of this plan. This document will provide a plan of action that can be implemented by the employees of Gulf South with minimal assistance from outside contractors.

Activities Covered

This management plan will provide guidance for small excavation or construction projects including ROW mowing.

Species Applicable

This plan is written for the gopher tortoise as well as the Threatened eastern indigo snake. The eastern indigo snake is included in this plan because it is known to inhabit similar habitats including gopher tortoise burrows.

Geographic Applicability

This plan will apply to the western population of gopher tortoises. This population is Federally protected as a Threatened Species. This population ranges west of the Mobile and Tombigbee Rivers in Alabama, Louisiana, and Mississippi. The counties/parishes that comprise the western population are as follows:

Alabama Counties	Mississippi Counties	Louisiana Counties
Choctaw	Covington	Washington
Mobile	Forrest	Tangipahoa
Washington	George	St. Tammany
	Hancock	
	Harrison	
	Jackson	
	Jones	
	Lamar	
	Marion	
	Pearl River	
	Perry	
	Stone	
	Wayne	

Species Description

The gopher tortoise is a medium sized tortoise with a broad head and a short tail. Adult tortoises average between 9-11 inches in length and weight between 8-10 pounds (Cox et. al. 1987). Gopher tortoises lack webbed feet, possess distinct sub-maxillary gular glands, and have an unhinged shell (Auffenburg and Franz 1978). Their color ranges from tan-brown to gray.

Range and Habitat

Gopher tortoises range from eastern Louisiana along the Gulf coast to southern South Carolina. Populations of gopher tortoises west of the Mobile and Tombigbee Rivers in Alabama, Louisiana, and Mississippi are Federally listed as Threatened species. Populations east of this "line" receive no Federal protection however they are listed as a "Species of Concern" in Florida.

Gopher tortoises tend to be found in habitats that contain deep (at least 1 meter) dry sandy soils with a pine (*Pinus* sp.), oak (*Quercus* sp.) overstory and a reduced understory. The sandy soils facilitate the extensive burrows that these tortoises dig for shelter. The herbaceous layer is composed of grasses and forbs. This habitat is typical of fire climax communities historically found in the southeastern United States.

Gopher tortoises eat a variety of foods, however grasses (Poaceae) tend to dominate their diet. Pine needles, seeds, fruits, mast, and basal portions of forbs also compose a significant component of their diet.

Habitat Loss

As with most threatened and endangered species, habitat loss is the major factor for population declines. Urban sprawl and fire suppression have contributed the most to habitat loss. Fire suppression has allowed a woody midstory to grow. This woody growth shades out the grass/forb component that is vital to the diet of the gopher tortoise. Maintained ROWs create a habitat that is similar to the native habitat of the gopher tortoise. For this reason ROWs are often exploited by gopher tortoises. In addition to ROWs, gopher tortoises utilize roadsides, fence rows, clearings, and fallow fields. Utilization of these habitats has increased the mortality rate for the tortoise.

Life History

Breeding activity may occur as early as February or as late as September depending on geography and local weather conditions. The eggs are laid shortly after mating occurs. The female selects a bare spot that receives sunlight to bury her eggs. Typically, this is found just outside the burrow. The eggs hatch in 80-110 days depending on temperature. The vast majority of tortoise eggs laid never hatch (Douglas and Winegarner 1977). In fact, Landers, et al. (1980) found that 88% of gopher tortoise nests in their study, were destroyed by mammalian predators. These included raccoons (*Procyon lotor*), Virginia opossum (*Didelphis virginianus*), and the gray fox (*Urocyon cinereoargenteus*).

After hatching the young remain vulnerable to predation. It takes 2-3 days for the young tortoises shell to dry and harden (Dietlein and Franz 1979). Tortoise mortality remains high throughout the first year. Alford (1980) discovered a 94.2% mortality rate for eggs and young during the first year. Mortality rates after the first year are unknown. Landers (1980), estimates that only 1-3 % of all eggs result in an actively breeding adult.

Gopher tortoises reach maturity in 10-21 years. Time to maturation increases with latitude. Their lifespan is estimated to be 40-60 years, however they may live to 150 years (Landers 1980). A typical clutch is 4-8 eggs. Females may lay eggs every year, but they often skip a year. Because of the lengthy maturation process, the low egg count, and high rate of mortality gopher tortoise populations are slow to recover from disturbances. For these reasons gopher tortoise populations should be protected before population declines occur.

Management Practices

Training

Qualified personnel will be used to determine if gopher tortoises or eastern indigo snakes are present on a job site before work begins. These personnel will be Gulf South employees or contracted mowing personnel that have been trained to identify gopher tortoises, their habitat, and burrows as well as eastern indigo snakes. A training module, including tortoise identification keys and habitat information will be provided to personnel who will be responsible for the ROW clearance. Maps showing the locations of known active/inactive burrows on the right-of-way will be provided to mowing personnel, as needed. A list of personnel who have completed training will be provided to the USFWS.

Reporting

Reporting of findings will be made, by a trained personnel, on all jobs. A form for these reports is included as an attachment to this plan. Report forms will be retained for inclusion in reporting under the blanket or for any reporting requested by USFWS under the terms of their approval of this plan.

Small Excavations

Small excavations are routinely necessary for replacing valves, sections of pipe or small appurtenance construction. Prior to the excavation the area in which work will be done (which includes the area to be excavated and the path that equipment will be traveling over) should be surveyed for tortoise burrows and individual tortoises. If maintenance activities are required within 50 feet of tortoise burrows, all burrows will be clearly marked for avoidance. Individual tortoises should be moved away from the work area. Eastern indigo snakes should be allowed to leave the area. If an active burrow cannot be avoided then the USFWS should be contacted.

Except for travel on existing roads and paths, routine maintenance activities (unrelated to vegetation maintenance) will be restricted to areas at least 15 feet from tortoise burrows. Where these maintenance activities require work be performed closer than 15 feet from burrows, only hand-held equipment will be used, and maintenance personnel will avoid the burrow apron, entrance and area immediately behind the entrance.

If excavations are to be left unattended they should be fenced to prevent gopher tortoises from falling into the excavation. All excavation areas within 100 feet of tortoise burrows will be surrounded by a fence with a minimum 2-inch mesh to exclude tortoises. Attention should be paid to the bottom of the fence to make sure that it is secured to prevent tortoises from going underneath the fence. Enough area should be fenced to

allow work to proceed within the enclosure. Fencing should remain in place until the excavation is backfilled.

All excavated trenches and underneath vehicles will be checked daily for tortoises before commencing work. All maintenance debris that could hinder tortoise movement will be removed at the completion of construction activities.

Right-of-Way Mowing

The mowing of ROWs is a necessary practice. Since gopher tortoises and eastern indigo snakes have shown an affinity for ROW clearings special attention should be given before mowing begins. The ROW should be walked before mowing begins to determine areas of occupied habitat and potentially occupied habitat. When mowing in these areas, a "tortoise monitor" should clear the ROW immediately ahead of the mowers. Individual tortoises or indigo snakes should be allowed to move off the ROW or relocated off the pipeline ahead of the mowers. When possible, mowing should be conducted in the winter (between November 1st and March 1st) to reduce the likelihood of gopher tortoises being active above the ground. Gopher tortoises are active year round, however their activity slows down in the winter months. If practical mowing should be planned for cloudy days when the temperature is below 50^{o}F. This will reduce the probability of encountering a tortoise on the surface. Mowing will be conducted at a frequency sufficient to maintain suppression of woody growth and no herbicides will be used to control vegetation within areas occupied by tortoises.

Maintenance personnel will use power equipment to mow vegetation surrounding the burrows, but will reduce their speed within 50 feet of burrows. Hand-pushed mowers and hand-held equipment will be used within 15 feet of tortoise burrows, and maintenance personnel will avoid mowing across the burrow apron, burrow entrance and the area immediately behind the entrance.

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GOPHER TORTOISE REPORTING FORM

Company: ☐ GC ☐ GS ☐ TG ☐ BFS ☐ BTI ☐ BSC ☐ BLM-192 ☐ BPP ☐ BLM-195 ☐ Other: _____

INSTRUCTIONS: This Form is to be sent to Environmental, Cale LeBlanc and Marc Hess for Records

LOCATION INFORMATION			
Date		Time	
Weather Conditions			
Location			
Activity			
HABITAT DESCRIPTION			
Forested	● Yes ☐ No If Forested, What Type: ☐ Pine ☐ Hardwood ☐ Mixed		
Agricultural	☐ Yes ☐ No		
Fence Row	☐ Yes ☐ No		
Roadside	☐ Yes ☐ No		
Pasture	☐ Yes ☐ No		
Wet	☐ Yes ☐ No		
If other, describe			
TORTOISE DATA			
Number of Individuals: - Location:			
	☐ On access route ☐ In work area ☐ Adjacent to work or access route		
Number of Burrows: - Location:			
	☐ On access route ☐ In work area ☐ Adjacent to work or access route		
ACTIONS TAKEN			
Observed and Avoided	☐ Yes ☐ No		
Monitored Ahead of Equipment	☐ Yes ☐ No		

Inspector	Signature	Date