

**Federal Energy
Regulatory
Commission**

**Office of
Energy Projects**

February 2024

Golden Triangle Storage, L.L.C.

Docket No. CP23-542-000

Golden Triangle Storage Expansion Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas Branch 2
Golden Triangle Storage, L.L.C.
Golden Triangle Storage Expansion
Project
Docket No. CP23-542-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Golden Triangle Storage Expansion Project (Project), proposed by Golden Triangle Storage, L.L.C. (Golden Triangle) in the above-referenced docket. Golden Triangle requests authorization to conduct the following construction activities in Jefferson County, Texas:

- developing and operating two new salt dome natural gas storage caverns and appurtenant facilities;
- constructing and operating a brine disposal well and brine disposal pipeline;
- constructing and operating six new 5,500 horsepower compressor units and appurtenant facilities; and
- constructing and operating two new service corridors and three new permanent access roads.

The EA assesses the potential environmental effects 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* of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the Project area. The EA is only available in electronic format. It may be viewed and downloaded from the FERC's website (www.ferc.gov), on the natural gas environmental documents page (<https://www.ferc.gov/industries-data/natural-gas/environment/environmental-documents>). In addition, the EA may be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link (<https://elibrary.ferc.gov/eLibrary/search>), select "General Search" and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP23-542). Be sure you have selected an appropriate

date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

The EA is not a decision document. It presents Commission staff's independent analysis of the environmental issues for the Commission to consider when addressing the merits of all issues in this proceeding. Any person wishing to comment on the EA may do so. Your comments should focus on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this Project, it is important that we receive your comments in Washington, DC on or before 5:00pm Eastern Time on **March 4, 2024**.

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

- (1) You can file your comments electronically using the [eComment](#) feature on the Commission's website (www.ferc.gov) under the link to [FERC Online](#). This is an easy method for submitting brief, text-only comments on a project;
- (2) You can also file your comments electronically using the [eFiling](#) feature on the Commission's website (www.ferc.gov) under the link to [FERC Online](#). With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "[eRegister](#)." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or
- (3) You can file a paper copy of your comments by mailing them to the Commission. Be sure to reference the Project docket number (CP23-542-000) on your letter. Submissions sent via the U.S. Postal Service must be addressed to: Debbie-Anne Reese, Acting Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. Submissions sent via any other carrier must be addressed to: Debbie-Anne Reese, Acting Secretary, Federal Energy Regulatory Commission, 12225 Wilkins Avenue, Rockville, Maryland 20852.

Filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered. Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. At this point in

this proceeding, the timeframe for filing timely intervention requests has expired. Any person seeking to become a party to the proceeding must file a motion to intervene out-of-time pursuant to Rule 214(b)(3) and (d) of the Commission's Rules of Practice and Procedures (18 CFR 385.214(b)(3) and (d)) and show good cause why the time limitation should be waived. Motions to intervene are more fully described at <https://www.ferc.gov/how-intervene>.

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.

The Commission's Office of Public Participation (OPP) supports meaningful public engagement and participation in Commission proceedings. OPP can help members of the public, including landowners, environmental justice communities, Tribal members and others, access publicly available information and navigate Commission processes. For public inquiries and assistance with making filings such as interventions, comments, or requests for rehearing, the public is encouraged to contact OPP at (202) 502-6595 or OPP@ferc.gov.

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

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TECHNICAL ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
APE	area of potential effects
AQCR	Air Quality Control Region
BCC	Birds of Conservation Concern
Bcf	billion cubic feet
BMP	best management practice
CAA	Clean Air Act of 1970
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalents
Commission	Federal Energy Regulatory Commission
dB	decibel
dBA	A-weighted decibel
EA	environmental assessment
EI	environmental inspector
EPAR	existing permanent access road
ESC	Erosion and Sediment Control
ESA	Endangered Species Act of 1973
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
g	gravity
GHG	greenhouse gas
HAP	hazardous air pollutants
HUC	hydrologic unit code
IPaC	Information for Planning and Consultation
IWG	Interagency Working Group on Social Cost of Greenhouse Gases
L _{dn}	day-night sound level
L _{eq}	equivalent sound level
LNG	Liquid Natural Gas

MMcf	million cubic feet
Memorandum	Memorandum of Understanding on Natural Gas Transportation Facilities
MOA	Memorandum of Agreement
mph	miles per hour
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGA	Natural Gas Act of 1935
NHPA	National Historic Preservation Act of 1966
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOS	<i>Notice of Scoping Period Requesting Comments on Environmental Issues for the Proposed Golden Triangle Storage Expansion Project</i>
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
NSPS	New Source Performance Standards
NSR	New Source Review
O ₃	ozone
OEP	Office of Energy Projects
OPP	Office of Public Participation
Pb	lead
PEM	palustrine emergent wetland
PHMSA	Pipeline and Hazardous Materials Safety Administration
Plan	<i>Upland Erosion Control, Revegetation, and Maintenance Plan</i>
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
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
Procedures	<i>Wetland and Waterbody Construction and Mitigation Procedures</i>
Project	Golden Triangle Storage Expansion Project
RICE	reciprocating internal combustion engine
SC-GHG	Social Cost of Greenhouse Gases

Secretary	Secretary of the Commission
SFHA	special flood hazard area
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Containment, and Control
SSA	sole-source aquifer
SWPA	source water protection area
SWPP	Stormwater Pollution Prevention
TAC	Texas Administrative Code
TCEQ	Texas Council on Environmental Quality
tpy	tons per year
TPWD	Texas Parks and Wildlife Department
TWDB	Texas Water Development Board
TWS	temporary workspace
TXNDD	Texas Natural Diversity Database
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
USGS	U.S. Geological Survey
µg/m ³	micrograms per cubic meter
VOC	volatile organic compound

SECTION A – PROPOSED ACTION

1.0 INTRODUCTION

The Federal Energy Regulatory Commission (Commission or FERC) staff has prepared this environmental assessment (EA) to assess the environmental impacts of the construction and operation of the Golden Triangle Storage Expansion Project (Project) proposed by Golden Triangle Storage, L.L.C. (Golden Triangle) in Docket No. CP23-542-000. We¹ prepared this EA in compliance with the requirements of the National Environmental Policy Act (NEPA),² the Council on Environmental Quality (CEQ) regulations for implementing NEPA,³ and the Commission’s implementing regulations.⁴

On September 12, 2023, Golden Triangle filed an application in Docket No. CP23-542-000 requesting a Certificate of Public Convenience and Necessity (Certificate) pursuant to Section 7(c) of the Natural Gas Act (NGA) to construct and operate certain natural gas storage facilities in Jefferson County, Texas, including:

- developing and operating two new salt dome natural gas storage caverns and appurtenant facilities;
- constructing and operating a brine disposal well and brine disposal pipeline;
- constructing and operating six new 5,500 horsepower compressor units and appurtenant facilities; and
- constructing and operating two new service corridors and three new permanent access roads.

Our EA is an integral part of the Commission’s decision on whether to issue Golden Triangle a Certificate to construct and operate the proposed facilities under Section 7(c) of the NGA. Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that could result from implementation of the proposed action;
- identify and recommend specific mitigation measures, as necessary, to avoid or minimize Project-related environmental impacts; and
- facilitate public involvement in the environmental review process.

¹ “We,” “us,” and “our” refer to the Commission's environmental and engineering staff of the Office of Energy Projects.

² National Environmental Policy Act of 1969 amended (Pub. L. 91-190, 42 U.S.C. §§ 4321–4347, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, Pub. L. 97-258, §4(b), September 13, 1982, Pub. L. 118-5, June 3, 2023).

³ 40 CFR Parts 1500-1508.

⁴ 18 CFR Part 380.

2.0 PURPOSE AND NEED

Golden Triangle states that the purpose of the Project is to satisfy a growing demand for natural gas storage in the Gulf Coast region. Golden Triangle further states that the Project would add deliverability and injection capability that would enhance customers' ability to move natural gas to and from storage on very short notice and at high rates of flow. Construction of the two new salt dome natural gas storage caverns would increase Golden Triangle's storage capacity by 14.4 billion cubic feet (Bcf) and add 1,200 million cubic feet (MMcf) per day of deliverability and injection capability.

The Commission is an independent regulatory agency and conducts a complete independent review of project proposals, including an environmental review of the proposed facilities. Under section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission bases its decisions on both economic issues, including need, and environmental impacts.

3.0 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

As the lead federal agency for the Project, FERC is required to comply with Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA). These statutes have been considered in the preparation of this EA. FERC will use this document to consider the environmental impacts that could result if it authorizes the Project. In addition to FERC, other federal, state, and local agencies may use this EA in approving or issuing permits for all or part of the proposed Project. Permits, approvals, and consultations for the Project are discussed in section A.7.

The topics addressed in this EA include geology and soils; water resources and wetlands; fisheries, vegetation, wildlife, and special status species; land use and visual resources; cultural resources; environmental justice; air quality and noise; reliability and safety; alternatives; and cumulative impacts, including climate change. This EA describes the affected environment as it currently exists, discusses the environmental consequences of the Project, and identifies measures proposed by Golden Triangle to reduce impacts. This EA also presents our conclusions and recommended mitigation measures, which are summarized in section D.

4.0 PUBLIC PARTICIPATION AND COMMENT

On September 20, 2023, FERC issued a Notice of Application and Establishing Intervention Deadline for Golden Triangle's Project in Docket No. CP23-542-000. The notice announced the receipt of Golden Triangle's application pursuant to section 7(c) of the NGA, identified ways for the public to provide comments on the Project, and

established a deadline for submitting a motion to intervene in the proceeding. No comments in response to the Notice of Application were received.

On September 21, 2023, the Commission issued a *Notice of Scoping Period Requesting Comments on Environmental Issues for the Proposed Golden Triangle Storage Expansion Project* (NOS). The NOS was published in the Federal Register and was mailed to federal, state, and local officials; agency representatives; affected landowners; environmental and public interest groups; Native American tribes; and local libraries and newspapers. Publication of the NOS established a 30-day public comment period for submission of comments, concerns, and issues related to the environmental aspects of the Project. All comments received by the Commission are part of the public record for the Project and are available for viewing on the FERC website (www.FERC.gov).

In response to the NOS, comments were received from the Texas Parks and Wildlife Department (TPWD), the Texas Commission on Environmental Quality (TCEQ), the Sierra Club, and the U.S. Environmental Protection Agency (USEPA). The primary issues raised by the commentors are construction procedures, flood risks, effects on threatened and endangered species, water quality, air quality, hazardous waste management, and impacts on environmental justice communities. All substantive environmental comments are addressed throughout the EA.

A notice announcing the EA's issuance will be sent to affected landowners and stakeholders, including anyone who submitted comments to the Commission. The public will have another opportunity to provide comments during the EA comment period. All substantive comments received will be addressed in the Commission's Order.

5.0 PROPOSED FACILITIES

The Project consists of the construction of natural gas storage facilities within and around Golden Triangle's existing Central Storage Site, in Jefferson County, Texas, and are described in detail in section A.1.

The facilities that would be constructed are further identified in table 1 and figure 1.

Table 1	
Facilities to be Constructed for the Project	
Facility	Description
Compression Facility	Six Caterpillar-Ariel compressor units
	Gas metering and drying systems
Brine Disposal	One brine disposal well
	2,000 feet of 16-inch-diameter pipe
Cavern Sites	Two new solution mined gas storage caverns (Cavern 3 and Cavern 4)
	Two wellheads, associated valves, piping, instruments
	Two permanent well pads
Service Corridors	Two 16-inch-diameter water lines
	Two 16-inch-diameter brine return lines
	Two 2-inch-diameter instrument air pipelines
	Two electrical duct banks
Access Roads	Three new permanent access roads
Non-Jurisdictional Facilities	Substation upgrades and optimization

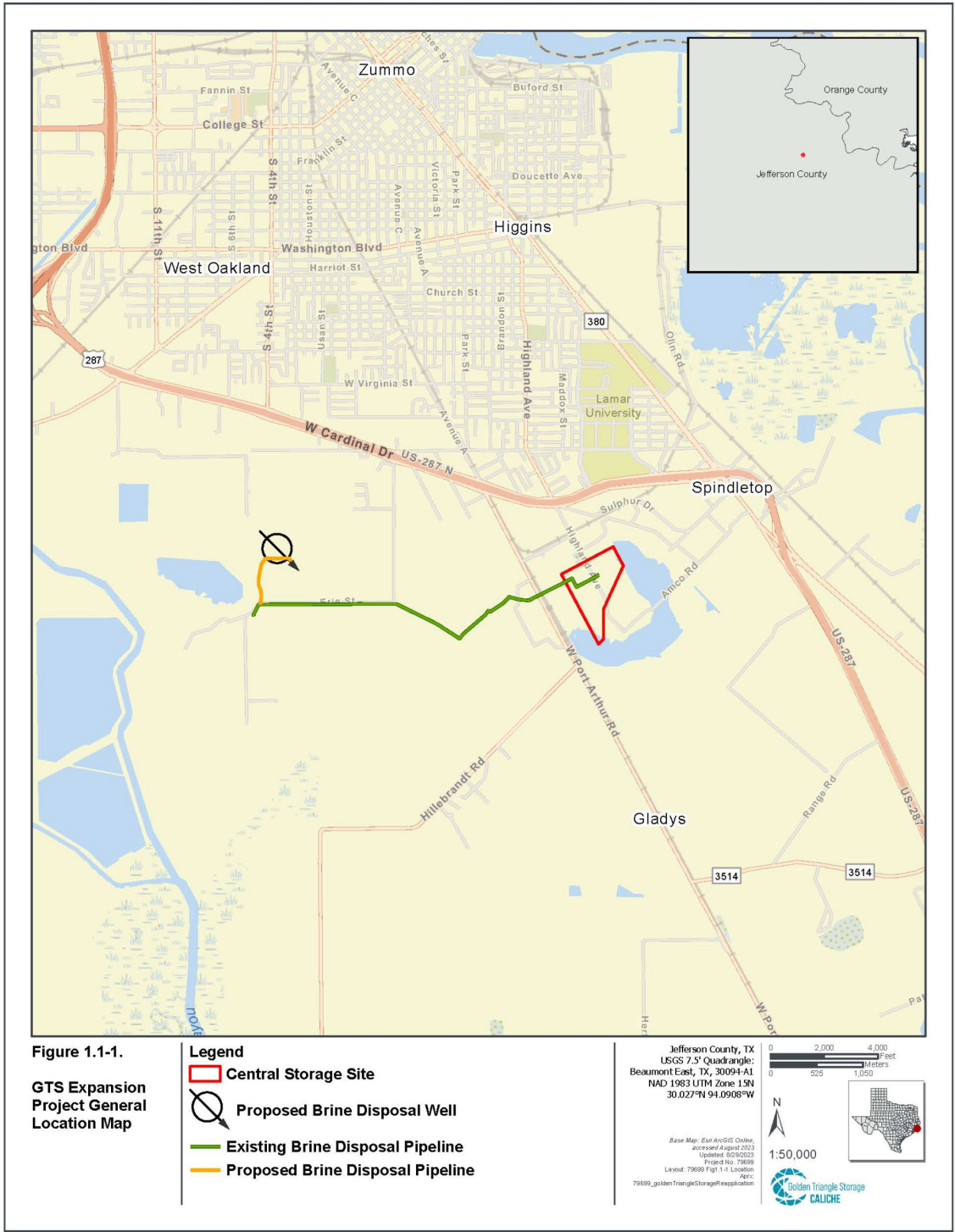


Figure 1 Project Location

6.0 LAND REQUIREMENTS

The Project would require 31 acres of land during construction and would permanently affect 5.2 acres during operation. The required land would be located within Golden Triangle’s existing Central Storage Site, except for the proposed brine disposal well, associated disposal line, and one access road. These areas would be located about 2 miles outside of the Central Storage Site, on semi-developed agricultural land. The Project would utilize about 6.1 acres of temporary workspace (TWS), which would mainly be used for equipment laydown areas. Following construction, Golden Triangle would restore TWS to its former uses.

Golden Triangle would utilize three new permanent access roads for the Project, as well as existing permanent access roads (EPAR), and existing state and local roads.

Table 2 Land Requirements for the Project		
Facility	Construction (acres)	Operation (acres)
Existing Facilities within 90-acre Central Storage Site		
Existing Aboveground Facilities	11.8	0.0
Existing Access Roads	2.6	0.0
Existing Pipeline Corridor	1.8	0.0
Proposed facilities within 90-acre Central Storage Site		
Cavern 4 Well	0.5	0.5
Service Corridor to Cavern 4	0.3	0.3
Cavern 3 Well	0.7	0.7
Service Corridor to Cavern 3	0.2	0.2
Access Roads	0.2	0.2
Substation	0.2	0.2
Total Laydown and Temporary Workspace Areas	6.1	0.0
Proposed facilities outside 90-acre Central Storage Site		
Brine Disposal Well	1.5	0.5
Brine Disposal Pipeline	3.4	1.9
Access Road	1.0	0.7
Project Totals	31.0	5.2
Totals may not be the sum of the addends due to rounding.		

6.1 Construction Schedule and Workforce

Golden Triangle proposes to begin construction activities in the second half of 2024, subject to receipt of all necessary regulatory approvals and permits. Construction activities would be completed by 2026. Golden Triangle would require a total peak workforce of 50 personnel. Except for cavern drilling, general construction would occur during the daytime between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. There may be circumstances when Golden Triangle would not be able to halt construction activities at a precise time and work would extend into nighttime or Sunday hours. In that event, Golden Triangle would cease construction activities as soon as it could do so in a safe and responsible manner. Drilling of the storage caverns would occur 24 hours per day, 7 days per week.

6.2 Construction Procedures

Golden Triangle would implement FERC's *Upland Erosion Control, Revegetation and Maintenance Plan* (Plan) and FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) during construction activities.⁵ Golden Triangle would also implement its Erosion and Sediment Control and Storm Water Pollution Prevention (ESC/SWPP) Plan; Spill Prevention, Containment, and Control (SPCC) Plan; Unanticipated Discoveries Plan for Cultural Resources and Human Remains; Plan for the Unanticipated Discovery of Contaminated Soils or Groundwater; and its Fugitive Dust Control Plan.⁶ FERC has reviewed these plans and finds them acceptable.

Golden Triangle would assign an Environmental Inspector (EI) responsible for ensuring compliance with environmental conditions attached to any Certificate issued by the Commission for the Project. The EI would have the authority to stop activities that violate the environmental conditions of any FERC Certificate, and other federal and state permits or landowner requirements, and to order corrective action. Golden Triangle would provide training for its EI and would conduct an environmental training session for all construction management and contractor personnel prior to and during Project activities.

FERC staff would also maintain compliance oversight of the Project during construction. We would review regularly filed inspection reports, address compliance

⁵ FERC's Plan and Procedures can be accessed online at <https://www.ferc.gov/industries-data/natural-gas/environmental-overview/environmental-guidelines>.

⁶ Golden Triangle's ESC/SWPP Plan, SPCC Plan, Unanticipated Discoveries Plan for Cultural Resources and Human Remains, Unanticipated Discovery of Contaminated Soils or Groundwater Plan, and Fugitive Dust Control Plan can be found in Appendices 1F, 2A, 4A, 7A, and 9D of the application filing, accession no. 20230912-5208.

issues, and would have the authority to stop any activity that violates an environmental condition of a Certificate issued by FERC.

The areas needed for placement of cavern drilling equipment would be graded and cleared. Wells would be drilled into the areas sited for cavern development. The drilling process for cavern wells would be conducted over an approximately 100–120-day period for each well. After drilling, Golden Triangle would convert each well to a solution mining service by installing a wellhead and connecting it to the water and brine pipelines. Construction of the two new storage caverns would then occur via solution mining. This involves using water to extract salt from the salt dome, thus creating a large open space. Golden Triangle would circulate water in the cavern and the resulting brine would be pumped up the well. This process would take over two years. The top of the new storage caverns would be located about 3,500 feet below ground surface (bgs), while the base of the caverns would be located about 5,000 feet bgs. The maximum cavern diameter would be about 300 feet for Cavern 3 and 250 feet for Cavern 4. After each cavern has been solution mined to its maximum volume, the wells would be converted to natural gas service, and Golden Triangle would conduct a mechanical integrity test. Following this, Golden Triangle would inject natural gas into the caverns for storage.

The service corridor connecting the components of the Central Storage Site would require clearing and grading activities. The new permanent access roads within the Central Storage Site and at the brine disposal well location would be constructed with aggregate base material, and the pipeline extensions required for the Project would be constructed through conventional pipeline construction techniques. All Project components that connect with the pipeline header and the Central Compressor Station would be hydrostatically tested.

In accordance with 49 CFR Part 192, the natural gas pipeline interconnections to Cavern 3 and Cavern 4 would have a cathodic protection system to help protect against corrosion.

7.0 PERMITS AND APPROVALS

Table 3 provides a list of federal and state permits for the Project, as well as any responses received to date. The USEPA recommended that Golden Triangle obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for the Project. Golden Triangle would be responsible for obtaining all permits and approvals required for the Project, regardless of their listing in the table.

Table 3 Permits and Approvals		
Agency	Permit, Approval, Consultation	Status
Federal		
FERC	Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act	Application Filed September 12, 2023
U.S. Fish and Wildlife Service (USFWS)	Section 7 of the Endangered Species Act consultation	Consultation Completed September 2023
U.S. Army Corps of Engineers (USACE)	Clean Water Act Section 404, Nationwide Permit 12, 14, 39	Pending
State		
Railroad Commission of Texas	Application to Inject Fluid into a Reservoir Productive of Oil or Gas	Pending
	Application to drill, re-complete, or re-enter	Pending
	Certificate of Compliance and Transportation Authority	Pending
State Historic Preservation Office, Texas Historical Commission	Section 106 National Historic Preservation Act	Pending
Texas Commission on Environmental Quality	Air Quality Permitting Non-rule Standard Permit	Pending
	Air Quality Permit by Rule Registration	Pending
	Construction General Permit TXR150000	Pending
	Application to Create, Operate, and Maintain an Underground Hydrocarbon Storage Facility	Approved September 12, 2016

8.0 NON-JURISDICTIONAL FACILITIES

Under Section 7 of the NGA, the Commission is required to consider, as part of the decision-making process, all factors bearing on the public convenience and necessity. Occasionally, projects have associated facilities that do not come under the jurisdiction of the Commission. These “non-jurisdictional facilities” may be integral to the need for the proposed facilities or may be minor components of the jurisdictional project. Several

new non-jurisdictional facilities would be required for the Project. Golden Triangle would upgrade its existing electrical power and data communication lines; and the existing substation, owned by an affiliate of Entergy Corporation, would be expanded. These activities would occur within the existing Central Storage Site and no new land would be needed for the installation of non-jurisdictional facilities.

SECTION B – ENVIRONMENTAL ANALYSIS

The following sections discuss the Project’s potential impacts on environmental resources. When considering the environmental consequences of the 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 approximate 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 are defined as activities that modify resources to the extent that they may not return to pre-construction conditions, such as with the construction of an aboveground facility. When determining the significance of an impact, we consider the duration of the impact; the geographic, biological, and/or social context in which the impact would occur; and the magnitude and intensity of the impact.

The analysis contained in this EA is based upon Golden Triangle’s application and supplemental filings and our experience with the construction and operation of natural gas infrastructure. However, if the Project is approved and proceeds to the construction phase, it is not uncommon for a project proponent to require modifications (e.g., minor changes in workspace configurations). These changes are often identified by a company once on-the-ground implementation work is initiated. Any Project modifications would be subject to review and approval from FERC’s Director of the Office of Energy Projects (OEP), or the Director’s designee, and any other permitting/authorizing agencies with jurisdiction.

1.0 ENVIRONMENTAL TRENDS AND PLANNED ACTIVITIES

The Project includes the construction and operation of facilities in Jefferson County, Texas. Jefferson County is located along the Gulf Coast region of Texas. It consists of developed areas, coastal plains, and marshland, and encompasses 1,113 square miles with about 250,000 residents. The population is trending slightly downward. Major industries within the area center around petroleum refining.

There are several planned projects in this area, including those related to the construction of natural gas facilities, the construction of transportation facilities, and residential/commercial developments. Natural gas related projects are located between 6 miles and 28 miles from Golden Triangle’s Project. Transportation related projects are

located between 2.5 miles and 11 miles from Golden Triangle's Project, while residential/commercial development projects range from 2.5 miles to 10 miles from Golden Triangle's Project. Projects that may have a cumulative effect on the environment are discussed in section B.11.

The environmental resources that would be affected by the Project are discussed in the sections below.

2.0 GEOLOGY

The Project is located within the Western Gulf Coastal Plains section of the Piedmont physiographic province (American Southwest Virtual Museum [ASVM] 2023). This section is a generally flat and drained alluvial plain that is overlain with sandy dunes in areas and underlain by sedimentary rocks (ASVM 2023).

The Project area is underlain by about 1,000 feet of Quaternary deposits located above the Spindletop salt dome (U.S. Geological Survey [USGS] 1992). Bedrock underlying the Project area mainly consists of the Beaumont Formation, which is composed of sedimentary floodplain deposits. The Project area is characterized by low relief, with elevations ranging from 5-15 feet above mean sea level.

2.1 Mineral and Paleontological Resources

Mineral resources in the vicinity of the Project include sulfur, halite, salt, and limestone (USGS 2000). However, there is no existing or planned mining of commercially recoverable mineral resources in the vicinity of the Project. Active oil production occurs in the vicinity of the Project; however the nearest oil production wells are located about 170 feet from the proposed Cavern 3 location and 580 feet from the proposed Cavern 4 location. Golden Triangle would avoid these wells and would notify all potentially affected, abutting, or adjacent landowners who may own facilities in the area. If Golden Triangle encounters an unexpected oil or gas well, it would stop work, barricade the area, and notify the EI and FERC. Based on Golden Triangle's mitigation measures, we do not expect that the Project would affect, or be affected by, mineral resources in the area.

Several types of Pleistocene fossils may be found in the Project vicinity. Although records of these fossils are scarce in the Project area itself, potential fossils along the Texas Gulf Coast may include those of terror birds, toxodonts, capybara, and giant sloths. If Golden Triangle were to discover paleontological resources during Project activities, it would stop work and paleontologists would decide whether the specimens should be saved. If the specimens are saved, then Golden Triangle would develop a plan to properly excavate, remove, and safeguard the fossils, in consultation with the appropriate state scientists. Based on these mitigation measures and the lack of paleontological

resources in the Project area, we do not expect the Project to result in adverse impacts on paleontological resources.

2.2 Geologic Hazards

Geologic hazards are natural and physical conditions that can result in damage to land and structures, or injury to people. These include hazards that are seismic-related, including earthquakes, surface faulting, and soil liquefaction. Seismicity, soil liquefaction, karst terrain, landslides, and flood hazards are discussed below.

The shaking during an earthquake can be expressed in terms of the acceleration as a percentage 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 10 percent probability of an earthquake with an effective peak ground acceleration of 0.01 g to 0.03 g; and a 2 percent probability of an earthquake with an effective peak ground acceleration of 0.03 g to 0.07 g (Rukstales and Petersen 2019). For reference, peak ground acceleration of 10 percent g (0.1 g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes. The nearest fault to the Project area is located about 85 miles from the Project (Texas Bureau of Economic Geology 2021). In addition, the region in which the Project is located is considered to be of low seismic risk (USGS 2019). Furthermore, we do not expect seismicity as a result of blasting, because blasting would not be needed for the Project. As a result, we conclude that the Project would not be significantly affected by seismicity.

Because the Project is in an area of low seismic risk, we conclude the Project is not likely to be adversely affected by soil liquefaction, in which the strength of the soil is greatly reduced by ground shaking, such that the soil may act like a viscous liquid.

“Landslide” is a general term for downslope mass movement of soil, rock, or a combination of materials on an unstable slope. It can be rapid, very slow, or in between; it can involve large or small areas and volumes of material. The Project workspace is located within an area of moderate landslide incidence, and no individual landslide features are mapped in the Project vicinity (USGS 2021). In addition, no areas of steep slopes are located within the Project area. Therefore, we conclude that landslides would not have a significant effect on the Project.

Karst describes a group of physical features that form from the dissolution of soluble rocks. Hazards associated with karst topography include sinkholes and ground subsidence (Weary and Doctor 2014). The Project area is not located within a mapped karst region, the geologic conditions needed for karst formations are not present in the Project area, and the nearest karst feature is about 214 miles away (Weary and Doctor

2014). As a result, we conclude that karst related hazards would not affect the Project area.

Land subsidence is the result of collapse or down warping of surface and subsurface sediments, primarily in response to sediment compaction; oil, gas, and mineral extraction; and groundwater pumping. As a result of sulfur mining operations and extraction of oil, gas, and groundwater, subsidence has been a recurring issue within the Project area. However, since improvements in well design were implemented in 1949, subsidence caused by modern salt solution mining and cavern formation is considered negligible (Mullican 1988). To monitor the Project area for subsidence, Golden Triangle developed a Subsidence Monitoring Plan⁷ which describes the procedures for annual monitoring of subsidence for natural gas storage facilities. We have reviewed this plan and find it acceptable. In addition, excavated salt domes generally experience volumetric closure over time. Natural gas storage caverns in Gulf Coast salt domes generally experience annual closure rates of 1 to 3 percent. Golden Triangle would monitor the storage caverns to ensure that any volumetric closure is in line with expectations and does not pose a hazard to surface infrastructure. As a result, we conclude that subsidence and volumetric closure would not adversely impact the Project.

The Sierra Club commented requesting a flood risk-assessment. According to floodplain maps from the Federal Emergency Management Agency (FEMA), the Project area is within a Zone C flood zone, which is an area of minimal flooding that has a less than 0.2 percent annual risk of flooding (FEMA 1991). Additionally, Golden Triangle has developed an Emergency Action Plan⁸, which includes protocols to take in the event of a natural disaster, such as flooding. FERC has reviewed this plan and finds it acceptable. Therefore, we conclude that the Project would not significantly affect, or be affected, by flood hazards.

Based on the above analysis and the scope of the Project, we conclude that the Project would not affect, or be affected by, geological resources or hazards.

3.0 SOILS

Construction activities such as clearing, grading, pipeline removal, 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.

⁷ Appendix 6A of the application filing. Accession No. 20230912-5208.

⁸ Appendix 11A of the application filing. Accession No. 20230912-5208.

We assessed soil characteristics in the Project area using the Natural Resources Conservation Service (NRCS) Soil Survey geographic database (NRCS 2023). Soils were grouped and evaluated according to the characteristics that could affect construction or increase the potential for soil impacts during construction and operation; these were prime farmland, high potential for soil compaction, erosion potential, and shallow bedrock.

The NRCS defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops (NRCS 2017). No soils within the Project area are considered prime farmland, or have a high potential for soil compaction or wind erodibility, and therefore we conclude that adverse impacts on these soils would not occur as a result of the Project.

However, 2.5 acres of soils affected by construction are highly erodible due to water, and 3.3 acres of soils affected by the operation of the Project are highly erodible due to water. Clearing, grading, and equipment movement can accelerate the erosion process and, without adequate protection, result in the discharge of sediment to waterbodies and wetlands. To minimize or avoid potential impacts due to soil erosion and waterbody sedimentation, Golden Triangle would utilize sediment and erosion control measures in accordance with its ESC/SWPP Plan, as well as the Plan and Procedures. This includes installing temporary erosion controls, such as slope breakers and berms, as well as sediment barriers to stop the flow of sediment.

Successful restoration and revegetation of the Project workspaces is important for maintaining productivity and protecting the underlying soil from potential damage. Low soil fertility and erosion are generally the two main factors that would limit the regrowth of vegetation, but these can be mitigated through the application of fertilizers and/or proper seeding. Golden Triangle would revegetate disturbed areas with a seed mix recommended by the local NRCS office and would monitor these areas afterwards for two growing seasons to ensure successful revegetation. Given Golden Triangle's mitigation measures, we do not expect significant impacts due to soil erosion or poor revegetation potential.

The area in which the Project would be located has been used for oil production since the early twentieth century. Site investigations conducted in the vicinity of the Project showed oil-stained soils and areas devoid of vegetation. Therefore, the Project may encounter contaminated soil during Project activities. The USEPA recommended identifying projected solid and hazardous waste types, volumes, and expected storage, disposal, and management plans, as well as a spill response and mitigation plan for an accidental release of hazardous material. Golden Triangle would follow the procedures for handling hazardous materials as specified in its ESC/SWPP Plan for the Project. If Golden Triangle encounters contaminated soils, it would implement measures in its Plan for the Unanticipated Discovery of Contaminated Soils or Groundwater, which describes measures to contain and dispose of contaminated material. In addition, Golden Triangle

would follow the measures in its SPCC Plan, which specifies cleanup procedures to be used in the event of soil contamination from spills or leaks of oils and hazardous materials. We conclude that these measures would adequately minimize the potential for contamination to impact soils.

We conclude that Golden Triangle's measures, including implementation of the Plan and Procedures, its SPCC Plan, its Plan for the Unanticipated Discovery of Contaminated Soils or Groundwater, and its ESC/SWPP Plan, would adequately minimize the potential for impacts on soils. Therefore, we conclude that the Project would not significantly adversely affect soils.

4.0 WATER RESOURCES

4.1 Groundwater

The Project is underlain by the Coastal Lowlands aquifer system, which is a large aquifer system extending from Texas to Florida (USGS 1996). This aquifer system mainly consists of clays, silts, sands, and gravels. Water from the Coastal Lowlands aquifer system is used for agricultural, industrial, and public water needs. Golden Triangle would not use groundwater for the solution mining process to develop the two new storage caverns, and based on Golden Triangle's mitigation measures, including adherence to its ESC/SWPP Plan and SPCC Plan, we do not expect significant adverse effects on the Coastal Lowlands aquifer.

Sole Source Aquifers and Source Water Protection Areas

The USEPA oversees the Sole Source Aquifer 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 area does not overlie any USEPA-designated sole-source aquifers (SSA) (USEPA 2023a). The nearest SSA is Chicot aquifer, which is located about 16 miles east of the Project area (USEPA 2023a). Source water protection areas (SWPAs) are designated surface and subsurface zones surrounding public water supply wells. These zones have been identified to prevent contaminants from entering the groundwater table and compromising the quality of public drinking water. The Project area is not underlain by any SWPAs (TCEQ 2023a; TWDB 2023; USGS 2023a). Therefore, we conclude that the Project would not affect any SSAs or SWPAs.

Public and Private Water Supply

One inactive water supply well occurs within the Project area, and no other springs or water supply wells are located within 150 feet of the Project area (TCEQ 2023a; TWDB 2023; USGS 2023a). Golden Triangle would avoid impacts on this well and

because it is inactive, we do not expect adverse impacts on public or private water supply wells.

Groundwater Contamination

There are no industrial hazardous waste sites, contaminated sites, or landfills within 0.25 mile of the Project area (TCEQ 2023b; USEPA 2023a). If Golden Triangle encounters any unanticipated groundwater contamination, it would implement its Plan for the Unanticipated Discovery of Contaminated Soils or Groundwater, as discussed in section B.3. The USEPA recommended addressing the possibility of compromises to the proposed pipelines or appurtenant facilities and how they would be planned for and addressed in terms of water quality protection. During cavern well construction, Golden Triangle would install a series of casings and tubulars ranging in diameter from approximately 10.8 inches to 48 inches. The layered surface and intermediate cemented casings would help ensure that the brine and water stay within the system. Additionally, brine collected during the cavern development phase would be filtered within the existing closed-loop treatment system and transported through the existing brine disposal pipeline to the existing and new brine disposal wells. Surface casings would be installed in each cavern well to a depth of approximately 600 feet bgs. Three additional casing strings would be cemented as well, and the final production casing would be cemented at about 3,300 feet bgs. The drill depths and casing integrity would help ensure that water used for cavern development does not leach into the surrounding groundwater. Golden Triangle would also comply with the Railroad Commission of Texas permit and regulatory requirements under the Texas Administrative Code, Title 1, Chapter 3 and Rule 3.97 for the underground storage of natural gas in salt domes and Rule 3.46 for the existing brine disposal wells and brine disposal facilities. In addition, Golden Triangle would implement its SPCC Plan to reduce the risk of accidental spills of any material that may contaminate groundwater. We conclude that Golden Triangle's mitigation measures, including implementation of the Plan and Procedures, its SPCC Plan, and its Plan for the Unanticipated Discovery of Contaminated Soils or Groundwater, would adequately minimize the potential for contamination to affect groundwater.

Based on Golden Triangle's construction procedures, mitigation measures, the lack of nearby SSAs, drinking water source protection areas, and public water system intakes, we conclude that no significant impacts on groundwater resources would occur from Project activities.

4.2 Surface Water

The Project is within the Hillebrandt Bayou subwatershed (hydrologic unit code [HUC] 12: 120402010200). Section 303(d) of the federal Clean Water Act mandates that states list all waters that fail the water quality criteria for their designated uses, which are referred to as impaired waters. The nearest impaired waters are the

Hillebrandt Bayou, located about 0.9 mile west of the Project, and the Neches River, located about 2 miles east of the Project (TCEQ 2023c). The Project workspaces do not cross any 303(d)-listed impaired waters and surveys did not indicate the presence of contaminated sediments within the Project area. Therefore, we do not expect impaired waters would affect, or be affected, by the Project.

Golden Triangle's waterbody surveys identified four ephemeral drainage ditches within the Central Storage Site, two of which the Project would not cross and two that are culverted under existing access roads. None of the waterbodies support fisheries. A review of the National Hydrography Dataset did not identify waterbodies within the brine disposal well workspaces.

Project construction could disturb and suspend existing sediments in surface waterbodies, temporarily degrading water quality and redistributing contaminants downstream. Construction may impact aquatic and benthic species and downstream water uses. Golden Triangle would install erosion control devices to minimize contaminant suspension and prevent sediment from entering the waterbody via disturbed workspaces. Given the existing culverted crossings and Golden Triangle's mitigation measures, we conclude that construction and operation of the Project would not result in significant impacts on surficial waterbodies.

4.3 Wetlands

Golden Triangle conducted wetland delineation surveys of the Project area following the 1987 Corps of Engineers Wetlands Delineation Manual and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*. The surveys identified 23 wetlands, but the Project would only impact one palustrine emergent wetland. Construction of the Project would result in 0.6 acre of wetland impacts during construction, while operation of the Project would result in 0.08 acre of impacts as shown in table 4. Golden Triangle would cross the wetland using conventional open cut and trenchless methods based on site-specific conditions and the new access road would include a culverted crossing of the wetland.

If the wetland soil is saturated or unable to support construction equipment, Golden Triangle would use timber mats to prevent rutting. Additionally, Golden Triangle would install erosion control devices and comply with all federal, state, and local regulations and permit requirements for wetland crossings, to minimize impacts. Golden Triangle would operate, store, and refuel all construction equipment and heavy machinery in accordance with the Procedures and its SPCC Plan. Following construction, Golden Triangle would restore and seed the wetland with NRCS-approved emergent seed mixes. Given these mitigation measures, we conclude that construction and operation of the Project would not result in significant impacts on wetlands.

4.4 Water Use

Golden Triangle would use water from the Lower Neches Valley Authority Canal to leach the caverns. Water flow rates would range up to 4,100 gallons per minute per cavern. Golden Triangle would also use hydrostatic test water sourced from the Lower Neches Valley Authority Canal to test the cavern facilities as well as the brine disposal pipeline. Golden Triangle would use about 303,000 gallons of water for hydrostatic testing and would not use additives. Following hydrostatic testing, Golden Triangle would discharge the water into an upland area within the southern portion of the Project area, in accordance with the Plan and Procedures. Golden Triangle would also utilize water for fugitive dust control and estimates it would need about 750,000 gallons of water for fugitive dust control, sourced from the Lower Neches Valley Authority Canal.

Table 4				
Wetlands within the Project Workspaces				
Project Component	Wetland ID	Wetland Classification^a	Acreage Affected^{b,c}	
			Construction	Operation
Service Corridors	WA001a	PEM	0.12	0.0
Cavern 3	WA001a	PEM	0.07	0.07
Substation	WA001a	PEM	0.007	0.007
Temporary Workspaces	WA001a	PEM	0.35	0.0
New Access Road	WA001a	PEM	0.003	0.003
Project Total			0.55	0.08
^a Field designation ^b Construction acreage = combined impacts in construction and other temporary workspaces, such as temporary access roads and contractor yards, coupled with operation impacts. ^c Operation acreage = a permanent impact. Total may not sum exactly due to rounding. PEM = Palustrine Emergent Wetland				

Given that Golden Triangle would comply with measures contained in its ESC/SWPP Plan, Fugitive Dust Control Plan, and FERC’s Plan and Procedures, we conclude that water used during Project work activities would not result in significant adverse effects on water resources.

5.0 VEGETATION, WILDLIFE, AND SPECIAL STATUS SPECIES

5.1 Fisheries

As discussed in section B.4.2, none of the drainages within the Project area support fisheries and Golden Triangle did not identify essential fish habitat or fisheries of special concern within the Project area. Golden Triangle would avoid direct impacts on waterbodies and fishery resources. Construction could indirectly affect aquatic resources through stormwater runoff from active worksites, resulting in sedimentation downstream in the affected watershed. Sediment and potential hazardous spills could affect water quality and toxicity, and cause stress, injury, or potential mortality of aquatic species.

As discussed in section B.4.2, Golden Triangle would implement the erosion and sediment control measures described in the Plan and Procedures and its ESC/SWPP Plan to minimize impacts on waterbodies and aquatic resources. We conclude the Project would not have significant impacts on aquatic resources and fisheries.

5.2 Vegetation

The Project is within the Western Gulf Coastal Plain (Level III) and Northern Humid Gulf Coastal Prairies (Level IV) ecoregions. The Project area consists of agricultural land, wetlands, and developed land. Common crops in the area include rice, grain, sorghum, cotton, and soy. Historically, the region consisted of grassland vegetation and shrubs, although in recent decades urban and industrial land development has increased. Vegetation in the area provides stormwater control, carbon sequestration, and foraging/sheltering habitat for wildlife. The Project would affect about 5.9 acres of agricultural land and 0.6 acre of wetland during construction (table 5).

Golden Triangle would limit the effects of clearing and grading on herbaceous and shrub species within non-forested habitat. Impacts on herbaceous plants would also result from moving construction vehicles, equipment, and staging materials as well as temporary workspace. The USEPA recommended describing revegetation monitoring strategies, including a timeline to verify the success of revegetation efforts. Following construction, Golden Triangle would stabilize and seed disturbed areas, and monitor the success of revegetation efforts for two growing seasons as per the Plan and Procedures. As discussed in section B.3, the use of heavy construction equipment could result in soil compaction. Soil compaction could limit water flow through the soil to root systems and potentially cause erosion and sediment run-off. Golden Triangle would implement best management practices (BMPs) to control erosion and run-off. In the event of a spill or release of hazardous materials, Golden Triangle would implement its SPCC Plan.

Table 5 Vegetation Impacted by the Project (acres)				
Facility	Agricultural Lands		Wetland	
	Construction	Operation	Construction	Operation
Existing Aboveground Facilities	0.0	0.0	0.0	0.0
Gas Storage Cavern 3	0.0	0.0	0.1	0.07
Gas Storage Cavern 4	0.0	0.0	0.0	0.0
Service Corridors	0.0	0.0	0.12	0.0
Existing Pipeline Corridor, Temporary Workspace and Laydown Areas	0.0	0.0	0.35	0.0
Substation	0.0	0.0	0.0	0.0
Brine Disposal Well Pad	1.5	0.5	0.0	0.0
Brine Disposal Pipeline	3.4	1.9	0.0	0.0
Access Roads	1.0	0.7	<0.1	0.003
Total	5.9	3.1	0.55	0.08
Due to rounding differences in the dataset, the totals may not reflect the sum of the addends.				

Finally, construction equipment and soil disturbance would increase the potential for the introduction and/or spread of noxious weeds and invasive plant species. Invasive species could compete with native vegetation for resources and/or spread disease. Golden Triangle would adhere to Project-specific BMPs to minimize the spread of invasive plant species. Given the mitigation measures, we conclude that the Project’s impacts on vegetation would be minor, short-term, and not significant.

5.3 Wildlife and Migratory Birds

Wildlife species typical to agricultural land in the Project area include birds such as cattle egrets, grackles, and killdeer; burrowing mammals such as rats, mice, and gophers; and several insects including bees, butterflies, and moths. Most of the Project would occur within an existing commercial/industrial setting lacking undisturbed vegetation and suitable wildlife habitat. The nearest sensitive wildlife habitat is the Lower Neches Wildlife Management Area, about 7 miles east of the Project. Wetland habitat in the Project area may support species including the cattle egret, grackle, and

burrowing crayfish. Permanent impacts on wildlife habitat would occur on 0.08 acre of PEM wetlands.

The Sierra Club recommended that TPWD provide review and comment on the Project. We received several comments and recommendations from TPWD. TPWD recommends the judicious use and placement of an exclusion fence to keep wildlife out of the construction area, and where trenching or other excavation is involved in construction, TPWD recommends that contractors keep trenching/excavation and backfilling crews close together to minimize the amount of trenches/excavation areas left open at any given time during construction. TPWD also recommends that any open trenches or excavation areas be covered overnight and/or inspected every morning to ensure that no wildlife species have been trapped. For soil stabilization and/or revegetation of disturbed areas within the Project area, TPWD recommends erosion and seed/mulch stabilization materials that avoid entanglement hazards to snakes and other wildlife species during construction, operation, and maintenance of the proposed facility. TPWD also recommends observing slow speed limits within the Project site. These recommendations are consistent with the Plan and Procedures, which Golden Triangle has committed to following, and Golden Triangle has stated that it would ensure that an exclusion fence is implemented.⁹ Golden Triangle would restrict vehicles to speeds of 7 miles per hour (mph) within fenced areas. Furthermore, activities related to natural gas storage facility construction, including vegetation removal, soil disturbance, human presence, and noise—are temporary direct and indirect impacts on mobile species; birds and mammals would be displaced until equipment is offsite and vegetation is reestablished. For less mobile, or habitat range limited species, impacts on wildlife may include stress, loss of nests, injury, or mortality. To reduce entrapment and injury to wildlife during active construction and abandonment phases, Golden Triangle would have an onsite EI inspect the construction area and identify trapped or injured animals/livestock on a regular basis. Additionally, Golden Triangle would minimize the use and duration of open trenches in accordance with the FERC Plan and Procedures, which would reduce disturbances to wildlife. Given Golden Triangle’s construction and mitigation plans, the limited nature of suitable wildlife habitat in the Project area and limited scope of Project disturbances, we conclude that impacts on wildlife would be minor and not significant.

Migratory Birds

The Sierra Club expressed concerns about the potential for construction or operation to occur during periods of greatest migratory bird nesting and recommended that the U.S. Fish and Wildlife Service (USFWS) provide comment on the Project. Migratory birds are protected under the Migratory Bird Treaty Act (16 U.S Code [U.S.C.]

⁹ Golden Triangle’s Response to Scoping Comments, December 22, 2023. Accession No. 20231222-5075.

703-711); bald and golden eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Executive Order 13186 (66 FR 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the USFWS. On March 30, 2011, USFWS and the Commission entered into a Memorandum of Understanding that focuses on avoiding, minimizing, or mitigating adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the Commission and the USFWS.

Golden Triangle requested USFWS consultation on August 28, 2023 and used the USFWS Information for Planning and Consultation (IPaC) system to identify 37 Birds of Conservation Concern (BCC) with the potential to occur in the Project area (see appendix B). The migratory bird breeding season in Texas generally extends from March 1 – July 1. The primary impacts on nesting birds are the cutting, clearing, and removal of existing vegetation during the primary nesting season. Direct mortality of tree-nesting birds, nestlings, and fledglings is not likely, as Golden Triangle would not trim or remove trees during construction.

Construction would include ground or sediment disturbance that could result in impacts on migratory bird habitat through erosion, contaminants, and the introduction and/or spread of invasive species. Construction-related activities and the resulting increased human presence and noise during the nesting season could result in a decrease in bird density and diversity within construction workspaces, and/or lead to nest abandonment. However, these impacts would be limited and, as discussed in section B.3 and B.5.2, Golden Triangle would implement BMPs to stabilize soils, control erosion, and reduce the spread of invasive plants.

Golden Triangle would dispose of brine in brine disposal wells about 2 miles to the west of the Central Storage Site. Therefore, brine would not be stored aboveground and we conclude there would be no impacts to migratory birds from brine disposal.

TPWD recommended minimizing skyglow by using dark sky friendly lighting and focusing light downward. For nighttime construction, Golden Triangle would avoid upward-projected lighting during the migratory periods of August – November and March – May. We expect impacts from light pollution to migratory birds to be minimal and short-term. Overall, we do not expect notable impacts on local populations of migratory birds from the Project and conclude that impacts would not be significant.

Bald Eagles

Bald eagles typically nest in large, tall trees within 1 mile of open water or reservoirs. Nesting in Texas typically occurs October – July with breeding pairs returning to the same nest annually (Campbell 2003). No eagle nests or individuals were

identified during April 2023 field surveys, and a review of the Texas Natural Diversity Database (TXNDD) identified no occurrence records for eagles within 10 miles of the Project area (TPWD 2023a). Additionally, there is no suitable habitat for bald eagles within the Project area. TPWD recommended contacting USFWS if there are potential impacts to the bald eagle. The Project is not likely to cause a take of the bald eagle; however, if an eagle is observed, Golden Triangle would notify the Clear Lake Ecological Services Field Office. Additionally, if a bald eagle nest is observed in the Project area before or during construction, Golden Triangle would implement BMPs outlined in the USFWS 2007 National Bald Eagle Management Guidelines. Therefore, we conclude that the Project would not significantly impact bald eagles or their habitat.

5.4 Threatened, Endangered, and Candidate Species

Federally Listed Species

The Commission is required by Section 7 of the ESA to ensure that the Project would not jeopardize the continued existence of a federally listed threatened or endangered species or result in the destruction or adverse modification of the designated critical habitat of a federally listed species. Golden Triangle, acting as our nonfederal designee (18 CFR 380.13(b)(1)), used the USFWS IPaC system to obtain an official species list for the Project area. Ten species potentially occur in the Project area. The listing status and effects determinations for all species is in appendix A. TPWD recommended that if Golden Triangle encounters federally listed species during construction, work should stop immediately. Golden Triangle's EI would have Stop Work authority if a federally listed species is identified during construction.

The IPaC official species list identified five sea turtle species that potentially occur within the Project area, including Kemp's ridley, green, loggerhead, and Atlantic hawksbill sea turtles. However, all five species occur along South Texas inshore and nearshore coastal waters, which are not found within the Project area. Additionally, there are no TXNDD occurrence records of, and the Project area does not overlap, critical habitat for any sea turtles. Due to the lack of suitable marine habitat, Golden Triangle determined that the Project would have *no effect* on the federally listed turtles. We agree.

The IPaC official species list identified four birds that potentially could occur within the Project area. The piping plover, eastern black rail, red knot, and whooping crane are all unlikely to occur within the Project area due to the lack of suitable habitat. Additionally, there are no TXNDD occurrence records for these species in or near the Project area and Golden Triangle identified no individuals during field surveys. Therefore, Golden Triangle determined that the Project would have *no effect* on the four federally listed birds. We agree.

The Texas trailing phlox is a federally and state endangered plant, often found in uplands dominated by longleaf pine. TXNDD occurrence records from 2003 – 2004 list

no records of the species within 10 miles of the Project area. Additionally, Golden Triangle identified no trailing phlox or longleaf pine individuals during April 2023 field surveys. However, known populations exist in neighboring Hardin County and there may be species range overlap. Golden Triangle determined that the Project *may affect, but is not likely to adversely affect* the Texas trailing phlox. We agree. On August 28, 2023, Golden Triangle requested written concurrence from the USFWS Texas Coast Ecological Services Field Office – Clear Lake on the effects determinations for the Project. USFWS response is pending and consultation is ongoing for this species.

Given that ESA Section 7 consultation is not complete for the Texas trailing phlox, **we recommend that:**

- **Golden Triangle should not begin construction activities until:**
 - a. **FERC staff receives comments from the USFWS regarding impacts of the proposed action;**
 - b. **ESA consultation with the USFWS is complete; and**
 - c. **Golden Triangle has received written notification from the Director of the Office of Energy Projects (OEP), or the Director’s designee, that construction or use of mitigation may begin.**

5.5 Special Status Species

Federal candidate and proposed species are not afforded protection by law under the ESA and therefore, consultation with USFWS under Section 7 is not required. However, Golden Triangle considered the potential Project effects on the tricolored bat, monarch butterfly, alligator snapping turtle, and Louisiana pigtoe to facilitate Section 7 consultation should these species become listed before or during Project construction.

The proposed endangered tricolored bat is present in 39 states, including Texas, as well as Canada. Tricolored bats forage near trees, along forest perimeters, and along waterways. The species hibernates in caves and mines during the winter, although in the southern U.S., tricolored bats often hibernate in road-associated culverts and tree cavities (USFWS 2023a). Golden Triangle would not remove trees and all proposed activities are consistent with existing activities in the Central Storage Site and surrounding industrial area. Additionally, there are no TXNDD occurrence records of tricolored bats within the Project area. Nighttime lighting, noise, and vibrations from construction could impact the bat. Increased noise and lighting may cause individuals to temporarily avoid foraging in the area during active drilling, however construction would be a temporary disturbance. Given the lack of occurrence records, down-shielding of artificial lighting, and consistency with existing construction activities, Golden Triangle determined that the Project *would not jeopardize the continued existence* of the tricolored bat. We agree.

The monarch butterfly is a candidate species that potentially occurs in the Project area. Breeding habitat for this butterfly specifically consists of milkweed. Golden Triangle did not find individuals during the April 2023 field survey; however host plants may occur within the Project area. Construction would temporarily disturb potential habitat for the monarch butterfly; however, disturbances would be limited to areas of temporary workspaces that would be allowed to return to pre-construction conditions over time. Golden Triangle would implement BMPs for the butterfly, which include planting native milkweed, nectar plants, and NRCS-recommended seed mixes; promoting habitat for native plants during right-of-way maintenance; and implementing invasive species control BMPs. Therefore, Golden Triangle determined that the Project would not adversely impact the monarch butterfly. We agree.

The proposed threatened alligator snapping turtle is unlikely to occur within the Project area due to a lack of suitable habitat and the distance from intermittent and perennial streams. TXNDD occurrence records exist for 2018, 2021, and 2022, about 5 miles northeast and 14 miles southwest of the Project. However, the Project is too far from waterbodies that are required for females to nest. Given the lack of suitable habitat, Golden Triangle determined that the Project would have *no effect* on the turtle. We agree.

The proposed threatened species, the Louisiana pigtoe, occurs along the Neches and Angelina Rivers, and there is one TXNDD occurrence record from 2019 in the Lower Neches Valley Authority Canal, 10 miles northwest of the Project area. The species is unlikely to occur in the Project area due to the lack of habitat and stream access. Therefore, Golden Triangle determined that the Project would have *no effect* on this species. We agree.

State Listed Species

Golden Triangle identified and reviewed 16 state listed threatened and endangered species, but only 3 potentially occur within or near the Project: Rafinesque's big-eared bat, the Northern scarlet snake, and the Texas trailing phlox previously discussed in section B.5.4. The Project would have no effect on the remaining 13 state listed species based on occurrence records and a lack of suitable habitat.

No state listed species were observed during field surveys. Golden Triangle requested the TPWD review the Project and submit written concurrence with determinations on state listed species on August 28, 2023. TPWD filed comments and recommendations on the docket on October 10, 2023. TPWD recommended Golden Triangle use the Rare Threatened and Endangered Species of Texas application. If rare species, natural plant communities, or special features occur in the Project area, TPWD recommended submitting observations to the TXNDD and avoiding impacts to sensitive species. Golden Triangle would follow these recommendations and would implement

general construction procedures to minimize any risk or impacts to Species of Greatest Conservation Need.

Rafinesque’s big-eared bats roost in caves, hollow trees, and under bridges. Golden Triangle did not observe individuals or suitable habitat during the April 2023 field survey. Additionally, there are no TXNDD records of the species within 10 miles of the Project area. Given the lack of both suitable habitat and species observations, we conclude that the Project would not significantly affect the species.

The Northern scarlet snake occurs in soft, sandy or loamy soils and in open agricultural fields. The Project area contains suitable habitat for the snake, however only one TXNDD occurrence record from 1953 identified the snake in the surrounding area. Given the lack of recent occurrence records, we conclude that the Project would not significantly affect the snake.

Given Golden Triangle’s commitment to minimize impacts on all wildlife and the measures described above, we conclude that the Project would not significantly affect threatened or endangered species or species of special status.

6.0 CULTURAL RESOURCES

In addition to accounting for impacts on cultural resources under NEPA, Section 106 of the NHPA, as amended, requires FERC to take into account the effects of its undertakings on historic properties listed, or eligible for listing, on the National Register of Historic Places (NRHP),¹⁰ and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Golden Triangle, as a non-federal party, is assisting FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800. The Section 106 process is coordinated at the state level by the Texas Historical Commission, which serves as the Texas State Historic Preservation Office (SHPO).

Area of Potential Effects

The area of potential effects (APE) is the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist” (36 CFR 800.16(d)). The direct APE for archaeological sites includes all areas of potential effects where ground-disturbing activities are possible. Although construction impacts and new permanent facilities

¹⁰ In accordance with 36 CFR 800.16(l)(1), a historic property is any prehistoric or historic district, site, building, structure, object included in, or eligible for inclusion in the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

would primarily be located within the existing Central Storage Site, the Project would also include construction of a brine disposal well and associated brine disposal pipeline, and an access road beyond the footprint of the existing facility. These areas make up the APE, which is sufficient to account for all potential effects to historic properties by the Project.

Cultural Resources Investigations

In an effort to identify historic properties within the APE and to account for any effects to those properties by Project construction, Golden Triangle conducted a background literature and database review of the APE, as well as a Phase I archaeological survey. As a result of these investigations, six newly recorded historic archaeological were identified within the Central Storage Site. None of these sites were recommended as eligible for the NRHP. The Central Storage Site is located within the Lucas Gusher Spindletop Oil Field, which is listed on the NRHP and is also a National Historic Landmark. During consultations for the existing Golden Triangle Storage facility, the SHPO and Golden Triangle agreed that despite the potential for adverse effects to the Lucas Gusher Spindletop Oil Field, these could be mitigated through the development of a Memorandum of Agreement (MOA). The MOA was executed on May 14, 2008, and the Commission issued to Golden Triangle the authorization to construct the existing storage facility, on December 31, 2007. We conclude that the MOA would adequately mitigate significant adverse effects on the oil field from the expansion facilities.

In October 2023, Golden Triangle conducted additional surveys in support of the proposed construction of the brine disposal well, associated brine disposal pipeline, and the access road, which would be located west of the Central Storage Site. Efforts to identify historic properties included an archaeological background literature and records review, field surveys and a concurrent historic structures survey to systematically identify any cultural resources located within the APE. No potential historic properties were identified within or adjacent to the brine disposal well area, and Golden Triangle recommended a determination of no historic properties affected and suggested no further study of the Project area. Golden Triangle has not filed the SHPO's response to its October 2023 Phase I cultural resources investigations.

Tribal Outreach

On September 21, 2023, Golden Triangle contacted the following federally recognized Tribes regarding the Project: Alabama–Coushatta Tribe of Texas, Alabama–Quassarte Tribal Town, Apache Tribe of Oklahoma, Coushatta Tribe of Louisiana, Tonkawa Tribe of Indians of Oklahoma, and the Wichita and Affiliated Tribes. Golden Triangle provided a project information package, which included the Project description and location maps. On September 21, 2023, we sent our NOS to those Tribes. On October 24, 2023, the Wichita and Affiliated Tribes responded to the outreach by letter, writing that the proposed Project “is not located within our tribal area of interest;

therefore, we decline comment on this project.” There have been no additional comments from any of the Tribes to date.

Unanticipated Discoveries Plan

Golden Triangle developed a Project-specific Unanticipated Discovery Plan for Cultural Resources and Human Remains for the Golden Triangle Storage Expansion Project, Jefferson County, Texas (Unanticipated Discovery Plan), which outlines the procedures to follow, in accordance with state and federal laws, in the event that unanticipated cultural resources or human remains are discovered during construction of the Project. This includes consultation with FERC, the SHPO, and tribes regarding discoveries. The Unanticipated Discovery Plan was submitted to FERC and the SHPO. We find the Unanticipated Discovery Plan to be acceptable.

Compliance with the National Historic Preservation Act

Because Golden Triangle has not completed consultation with the SHPO and other appropriate parties regarding the potential for the Project to affect historic properties, we **recommend that:**

- **Golden Triangle should not begin construction of facilities until:**
 - a) **Golden Triangle files with the Secretary of the Commission (Secretary) comments on the cultural resources reports and plans from the SHPO;**
 - b) **the ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and**
 - c) **the FERC staff reviews and the Director of OEP, or the Director’s designee, approves the cultural resources reports and plans, and notifies Golden Triangle in writing that treatment plans/mitigation measures may be implemented and/or construction may proceed.**

All materials filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: “CUI//PRIV- DO NOT RELEASE.”

7.0 LAND USE, RECREATION, AND VISUAL RESOURCES

Land uses within the Project area are categorized based on vegetative cover or predominant land use. The Project would temporarily impact 31 acres of land during construction and would permanently impact 5.2 acres of land during operation. The predominant land uses characterized within the Project area are industrial land, agricultural land, and wetlands.

As presented in section A.6, Project facilities would be located within Golden Triangle’s existing Central Storage Site, except for the brine disposal well, brine disposal pipeline, and the access road to access these facilities. The brine disposal facilities would be located on land that is agricultural, but semi-developed. Golden Triangle currently operates four existing disposal wells at that site. Land use within the existing Central Storage Site is classified as industrial and the area is located on land for which Golden Triangle has a lease for the construction and operation of natural gas storage facilities. About 78 percent of the Project area would occur on industrial land. Following the completion of construction, Golden Triangle would restore temporarily impacted agricultural areas to approximate pre-construction conditions and revegetate these areas in accordance with the Plan and Procedures and its ESC/SWPP Plan.

The Project would utilize three new permanent access roads as identified in table 6, as well as existing permanent access roads and existing local and state roads, to gain access to the Project workspace. The existing access roads would not require any modifications and are located on industrial land. Existing access roads within the Central Storage Site are already used for operational access, and therefore, the Project would not change land use for these access roads. The three new access roads would be graded, and Golden Triangle would add gravel.

Access Road Type	Purpose	Existing Land Use	Length (feet)	Width (feet)
Existing	Access to existing facilities and Gas Storage Cavern 4	Industrial	4,610	25
New	Access to Gas Storage Cavern 3	Industrial	314	20
New	Access to Gas Storage Cavern 3	Industrial	54	20
New	Access to Brine Disposal Well/Pipeline	Agricultural	2,203	15

While there are several aboveground structures within the Project area, these are associated with existing energy infrastructure such as the Central Compressor Station. There are no residences within 0.25 mile of the Project area, and the closest planned residential area is 0.5 mile from the Project area (City of Beaumont 2023). Therefore, we do not expect significant impacts on residential land use. Furthermore, no industrial or commercial businesses or retail stores occur within 50 feet of the construction workspace, and we conclude businesses would not be significantly impacted by construction activities. In addition, Golden Triangle would coordinate construction activities with local officials to minimize disruptions to local traffic patterns.

Asides from the Lucas Gusher Spindletop Oil Field, the Project is not located within 0.25 mile of any other National Park Service units, which include national parks, monuments, preserves, historical parks, memorials, battlefields, military parks, cemeteries, recreation areas, seashores, lakeshores, rivers, parkways, or trails. Additionally, the Project is not located within any state lands, national recreation trails, national historic trails, national water trails, national forests, nationally designated wild and scenic rivers, or wildlife management areas (American Trails 2023; National Park Service [NPS] 2023a, 2023b, 2023c, 2023d, 2023e; Texas GLO 2023; U.S. Department of Transportation [USDOT] 2023; USFWS 2023b; USFS 2023, 2019; USGS 2023b). As a result, we do not expect the Project to significantly affect recreational areas.

Most of the Project construction would occur within existing industrial land and therefore would not significantly affect visual resources in the area. Construction of the brine disposal area and related access roads, which would be outside the Central Storage Site, would result in limited visual impacts. The brine disposal facilities would occur within an agricultural area and the proposed brine disposal well, brine disposal pipeline, and associated access road would be visible from surrounding roadways; however, the visual change associated with the new permanent well pad and access road would be consistent with the current visual setting of agricultural land with scattered well pads and access roads. In addition, the Project would not affect nationally designated visual resources or visually sensitive areas such as scenic roads, trails, or rivers (NPS 2023a; TPWD 2023b). As a result, we conclude that the Project's impact on visual resources would be minor.

Based on the scope of the Project and the existing land use types, we conclude that the Project would not significantly affect land use, recreational resources, or visual resources.

8.0 ENVIRONMENTAL JUSTICE

In conducting NEPA reviews of proposed natural gas projects, the Commission follows the instruction of Executive Order 12898 and Executive Order 14096, which directs federal agencies to identify and address “disproportionately high and adverse human health or environmental effects” of their actions on minority and low-income populations (i.e., environmental justice communities).¹¹ Executive Order 14008 also directs agencies to develop “programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts.”¹² Environmental justice is “the fair treatment and

¹¹ Exec. Order No. 12,898, 59 Fed. Reg. 7629, at 7629, 7632 (Feb. 11, 1994) and Exec. Order No. 14,096, 88, Fed. Reg. 25254 (Apr. 21, 2023).

¹² Exec. Order No. 14,008, 86 Federal Register 7619, at 7629 (Jan. 27, 2021).

meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”¹³ The term “environmental justice community” includes disadvantaged communities that have been historically marginalized and overburdened by pollution.¹⁴

Commission staff used Promising Practices for EJ Methodologies in NEPA Reviews (Promising Practices)¹⁵ which provides methodologies for conducting environmental justice analyses throughout the NEPA process for this Project. Additionally, consistent with USEPA recommendations, Commission staff used USEPA’s Environmental Justice Screening and Mapping Tool (EJScreen) as an initial screening tool to better understand locations that require further review or additional information regarding minority and/or low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors.¹⁶

8.1 Meaningful Engagement and Public Involvement

The CEQ’s *Environmental Justice Guidance Under the National Environmental Policy Act (CEQ Environmental Justice Guidance)* (CEQ 1997) and Promising Practices recommend that federal agencies provide opportunities for effective community participation in the NEPA process by: identifying potential effects and mitigation measures in consultation with affected communities; improving the accessibility of public meetings, crucial documents, and notices; and using adaptive approaches to overcome potential barriers to effective participation. In addition, Executive Order 13985 and Executive Order 14096 strongly encourage independent agencies to “consult with members of communities that have been historically underrepresented in the federal

¹³ EPA, *Learn About Environmental Justice*, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> (Sep. 6, 2022). Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Id.* Meaningful involvement of potentially affected environmental justice community residents means: (1) people have an appropriate opportunity to participate in decisions about a proposed activity that may affect their environment and/or health; (2) the public’s contributions can influence the regulatory agency’s decision; (3) community concerns will be considered in the decision-making process; and (4) decision makers will seek out and facilitate the involvement of those potentially affected. *Id.*

¹⁴ Environmental justice communities include, but may not be limited to minority populations, low-income populations, or indigenous peoples. *See* USEPA, *EJ 2020 Glossary* (Aug. 18, 2022), <https://www.epa.gov/environmentaljustice/ej-2020-glossary>.

¹⁵ Federal Interagency Working Group on Environmental Justice & NEPA Committee, Promising Practices for EJ Methodologies in NEPA Reviews (Mar. 2016) (Promising Practices), https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

¹⁶ The USEPA recommends that screening tools, such as EJScreen, be used for a “screening-level” look and a useful first step in understanding or highlighting locations that may require further review.

government and underserved by, or subject to, discrimination in federal policies and programs,”¹⁷ and “provide opportunities for the meaningful engagement of persons and communities with environmental justice concerns who are potentially affected by federal activities.”¹⁸

There have been opportunities for public involvement during the Commission’s environmental review processes.¹⁹ As discussed in section A.4, Golden Triangle states that it identified environmental justice communities and used that information to inform its public outreach and engagement opportunities. On September 15, 2023, Golden Triangle placed complete copies of the application and Project fact sheets, in both English and Spanish, in four public libraries in Beaumont, Texas that serve minority and low-income populations.²⁰ As stated by Golden Triangle, a website was made publicly available to accommodate Spanish-speaking residents on September 18, 2023. Further, Golden Triangle conducted an open house on December 13, 2023, at a venue within a 3-mile radius of the Project. Golden Triangle states that a Spanish language interpreter was provided at the open house and that the open house was promoted in both English and Spanish. Additionally, Golden Triangle provided a supplemental Spanish language public notice print ad, which ran on November 2, 2023, in *El Perico*, with distribution in the Beaumont, Texas area. In addition to the local Beaumont newspapers, Golden Triangle mailed English and Spanish literature to landowners, public officials, and environmental justice stakeholders that it determined may be affected by the Project.²¹

We recognize that not everyone has internet access or is able to file electronic comments. Each notice was physically mailed to all parties on the environmental mailing list and made available at the Theodore R Johns Sr., Elmo Willard, R.C. Miller Memorial, and Main Downtown libraries, near the Project vicinity. All documents that form the administrative record for these proceedings are available to the public electronically through the internet on the FERC’s website (www.ferc.gov). Anyone may comment to FERC about the Project, either in writing or electronically.²² All substantive

¹⁷ Exec. Order No. 13,985, 86 Fed. Reg. at 7011 (Jan. 20, 2021).

¹⁸ Exec. Order No. 14,096, 88, Fed. Reg. at 25254 (Apr. 21, 2023).

¹⁹ See supra at P. 2-3.

²⁰ See Golden Triangle’s response to FERC’s Environmental Information Request, November 2, 2023 (Accession Number 20231102-5088).

²¹ *Id.*

²² The Office of Public Participation (OPP) provides members of the public, including environmental justice communities, landowners, Tribal citizens, and consumer advocates, with assistance in FERC proceedings—including navigating Commission processes and activities relating to the Project. For assistance with interventions, comments, requests for rehearing, or other filings, and for information about any applicable deadlines for such filings, members of the

environmental comments received prior to issuance of this EA have been addressed within this document.

FERC received comments addressing environmental justice from the USEPA. During the scoping period, USEPA recommended that FERC (1) provide documentation and/or educational material during any public meetings along with a summary of the Project scope and environmental and safety impacts associated with the stability and pressures anomalies of salt dome natural gas storage caverns, brine disposal wells and sink holes; and (2) document any environmental, health and safety history of adverse impacts associated with the existing salt domes and mitigation measures in place. to the nearest disadvantaged or underserved community with environmental justice concerns. As discussed in section B.2.2, Golden Triangle has committed to monitoring the caverns for subsidence and volumetric closure to ensure that closure rates are in line with expectations, and these hazards do not affect surface infrastructure.²³ FERC did not hold public meetings for this Project.

8.2 Identification of Environmental Justice Communities

According to the CEQ's *Environmental Justice Guidance and Promising Practices*, minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Following the recommendations set forth in *Promising Practices*, FERC uses the **50 percent** and the **meaningfully greater analysis** methods to identify minority populations. Using this methodology, minority populations are defined in this EA where either: (a) the aggregate minority population of the block groups in the affected area exceeds 50 percent; or (b) the aggregate minority population in the block group affected is 10 percent higher than the aggregate minority population percentage in the county. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using *Promising Practices'* **low-income threshold criteria** method, low-income populations are identified as block groups where the percent of low-income population in the identified block group is equal to or greater than that of the county. Here, Commission staff selected Jefferson County and Orange County, Texas as comparable reference communities to ensure communities

public are encouraged to contact OPP directly at 202-502-6595 or OPP@ferc.gov for further information.

²³ With respect to cumulative impacts on soils and geological resources, as explained below in section B.11.2, due to Golden Triangle's implementation of our Plan and Procedures, and its ESC/SWPP Plan, Project impacts on soils and geological resources would be highly localized and limited primarily to the Project workspaces during the period of active construction (i.e., soil movement). Golden Triangle would also implement its Traffic Mitigation Plan. No other projects occur within the geographic scope for geologic resources and soils, and therefore we do not expect significant impacts on the Project area.

with potential environmental justice concerns are properly identified. A reference community may vary according to the characteristics of the project and the surrounding communities.

Table 7 below identifies the minority populations (by race and ethnicity) and low-income populations affected by the Project, and census block groups²⁴ within a 5-kilometer-radius of the Project facilities. For the purposes of analyzing impacts on environmental justice communities, this EA considers a 5-kilometer-radius from the facilities that are being constructed as the appropriate unit of geographic analysis. We believe the 5-kilometer-radius is sufficiently broad considering the likely concentration of construction and operational air emissions, noise, and traffic impacts proximal to the Project area. As discussed in section B.9.1, air dispersion modeling using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) shows that emissions from the Project would not result in a violation of the National Ambient Air Quality Standards (NAAQS). As shown in Table 12, the largest radius of impact for any individual pollutant that exceeds the Significant Impact Level (SIL) is 4.2 kilometers. Therefore, a 5-kilometer-radius would include impacts from operational emissions. To ensure we are using the most recent available data, we use the U.S. Census American Community Survey²⁵ as the source for race and ethnicity data and low-income data at the census block group level.

As presented in table 7, minority and low-income populations exist within 5 kilometers of the Project area. Within the Project's area of review, Commission staff identified 31 block groups as environmental justice communities based on the minority population or low-income population thresholds. Of the 31 identified environmental justice block groups, 12 block groups were identified based off the minority population threshold and 19 block groups were identified based off both the minority population and low-income population thresholds.

²⁴ Census block groups are statistical divisions of census tracts that generally contain between 600 and 3,000 people. U.S. Census Bureau. 2022. Glossary: Block Group. Available online at: <https://www.census.gov/programs-surveys/geography/about/glossary.html#par>. Accessed January 2024.

²⁵ U.S. Census Bureau, American Community Survey 2021 ACS 5-Year Estimates Detailed Tables, File# B17017, Poverty Status in the Past 12 Months by Household Type by Age of Householder, <https://data.census.gov/cedsci/table?q=B17017>; File #B03002 Hispanic or Latino Origin By Race, <https://data.census.gov/cedsci/table?q=b03002>.

Table 7 Environmental Justice Populations in the Project Area											
	RACE AND ETHNICITY										LOW-INCOME
State/County/ Census Tract/ Block Group/Map Reference Number	Total Population	White Alone Not Hispanic (%)	African American (%)	Native American / Alaska Native (%)	Asian (%)	Native Hawaiian & Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority ^a (%)	Below Poverty Level ^b (%)
Texas	28,662,581	40.7	11.8	0.2	5.0	0.1	0.3	2.3	39.8	59.3	13.3
Jefferson County	256,755	39.1	33.2	0.2	3.8	0.1	0.1	1.7	21.9	60.9	17.1
Census Tract 17, Block Group 1, 1	669	25.9	49.8	0.0	0.0	0.0	0.0	0.0	24.4	74.1	7.4
Census Tract 17, Block Group 2, 2	327	0.0	74.3	0.0	0.0	0.0	0.0	0.0	25.7	100.0	25.3
Census Tract 17, Block Group 3, 3	633	0.0	100	0.0	0.0	0.0	0.0	0.0	0.0	100.0	13.2
Census Tract 19, Block Group 1, 4	1,093	16.7	12.5	0.0	5.7	0.0	0.0	0.0	65.1	83.3	16.2
Census Tract 19, Block Group 2, 5	708	0.0	24.7	0.0	27.8	0.0	0.0	0.0	47.5	100.0	24.0
Census Tract 19, Block Group 3, 6	1,066	1.8	53.2	0.0	2.7	0.0	0.0	0.0	42.3	98.2	0.6
Census Tract 20, Block Group 1, 7	848	0.0	53.1	0.0	1.2	0.0	0.0	0.0	45.8	100.0	16.7

Table 7 Environmental Justice Populations in the Project Area

State/County/ Census Tract/ Block Group/Map Reference Number	RACE AND ETHNICITY										LOW- INCOME
	Total Population	White Alone Not Hispanic (%)	African American (%)	Native American / Alaska Native (%)	Asian (%)	Native Hawaiian & Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority ^a (%)	Below Poverty Level ^b (%)
Census Tract 20, Block Group 2, 8	1,584	5.4	47.9	0.0	1.3	0.0	0.0	1.1	44.3	94.6	23.1
Census Tract 21, Block Group 2, 9	896	9.4	29.5	0.0	0.0	0.3	0.0	7.8	53.0	90.6	21.3
Census Tract 22, Block Group 1, 10	1,873	0.6	84.1	0.0	0.0	0.0	0.0	0.0	15.3	99.4	37.5
Census Tract 22, Block Group 2, 11	804	15.2	73.0	0.0	0.0	0.0	0.0	0.0	11.8	84.8	20.5
Census Tract 22, Block Group 3, 12	272	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	18.7
Census Tract 23, Block Group 1, 13	960	2.9	65.1	0.0	0.0	0.0	4.0	0.0	28.0	97.1	36.1
Census Tract 23, Block Group 2, 14	452	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	8.1
Census Tract 23, Block Group 3, 15	711	1.3	97.5	0.0	0.0	0.0	0.0	1.3	0.0	98.7	29.2
Census Tract 23, Block Group 4, 16	606	5.8	84.2	0.0	0.0	0.0	0.0	0.0	10.1	94.2	18.7
Census Tract 23, Block Group 5, 17	666	9.0	87.8	0.0	1.5	0.0	0.0	1.7	0.0	91.0	0.9

Table 7 Environmental Justice Populations in the Project Area

State/County/ Census Tract/ Block Group/Map Reference Number	RACE AND ETHNICITY										LOW- INCOME
	Total Population	White Alone Not Hispanic (%)	African American (%)	Native American / Alaska Native (%)	Asian (%)	Native Hawaiian & Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority ^a (%)	Below Poverty Level ^b (%)
Census Tract 24, Block Group 1, 18	576	14.8	76.0	0.0	0.0	0.0	0.0	0.0	9.2	85.2	17.4
Census Tract 24, Block Group 2, 19	770	3.4	48.7	0.0	0.0	0.0	0.0	1.6	46.4	96.6	5.0
Census Tract 24, Block Group 3, 20	656	9.1	40.2	0.0	0.0	0.0	0.0	0.0	50.6	90.9	46.4
Census Tract 24, Block Group 4, 21	479	10.0	88.3	0.0	0.0	0.0	0.0	0.0	0.0	90.0	14.2
Census Tract 25, Block Group 1, 22	1,313	5.0	61.8	0.0	2.6	0.0	0.0	5.9	24.7	95.0	30.8
Census Tract 25, Block Group 2, 23	2,589	5.3	77.1	0.0	3.5	0.0	0.0	0.0	14.1	94.7	32.5
Census Tract 26, Block Group 1, 24	859	21.8	69.6	0.0	0.0	0.0	0.0	0.0	8.6	78.2	31.9
Census Tract 26, Block Group 2, 25	455	8.1	73.0	0.0	0.0	0.0	0.0	0.0	18.9	91.9	31.0
Census Tract 26, Block Group 3, 26	1,976	25.1	49.4	0.0	12.0	0.0	0.0	0.7	12.9	74.9	75.9
Census Tract 26, Block Group 4, 27	1,083	7.8	73.8	0.0	0.0	0.0	0.0	0.0	18.5	92.2	25.1

Table 7 Environmental Justice Populations in the Project Area

Table 7 Environmental Justice Populations in the Project Area											
	RACE AND ETHNICITY										LOW-INCOME
State/County/ Census Tract/ Block Group/Map Reference Number	Total Population	White Alone Not Hispanic (%)	African American (%)	Native American / Alaska Native (%)	Asian (%)	Native Hawaiian & Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority ^a (%)	Below Poverty Level ^b (%)
Census Tract 26, Block Group 5, 28	1,362	20.8	37.6	0.0	22.0	0.0	0.0	0.7	19.0	79.2	26.1
Census Tract 112.04, Block Group 3, 29	2,273	84.7	0.0	0.0	1.2	0.0	0.0	2.2	11.9	15.3	8.9
Census Tract 112.05, Block Group 1, 30	906	93.6	4.5	0.0	0.0	0.0	0.0	0.4	1.4	6.4	0.0
Census Tract 113.04, Block Group 4, 31	2,330	23.8	36.9	0.0	0.6	0.0	0.0	0.0	36.8	76.2	13.1
Census Tract 9802, Block Group 1, 32	6510	29.0	42.1	1.0	0.3	0.0	0.0	0.4	27.3	71.0	0.0
Census Tract 9803, Block Group 1, 33	3,030	27.7	38.8	3.0	0.7	0.0	0.0	0.0	29.8	72.3	0.0
Orange County	85,045	79.3	8.6	0.1	0.8	0.0	0.1	2.4	8.5	20.7	12.2
Census Tract 222, Block Group 3, 34	1407	84.1	0.0	0.0	0.0	0.0	0.0	12.6	3.3	15.9	6.7

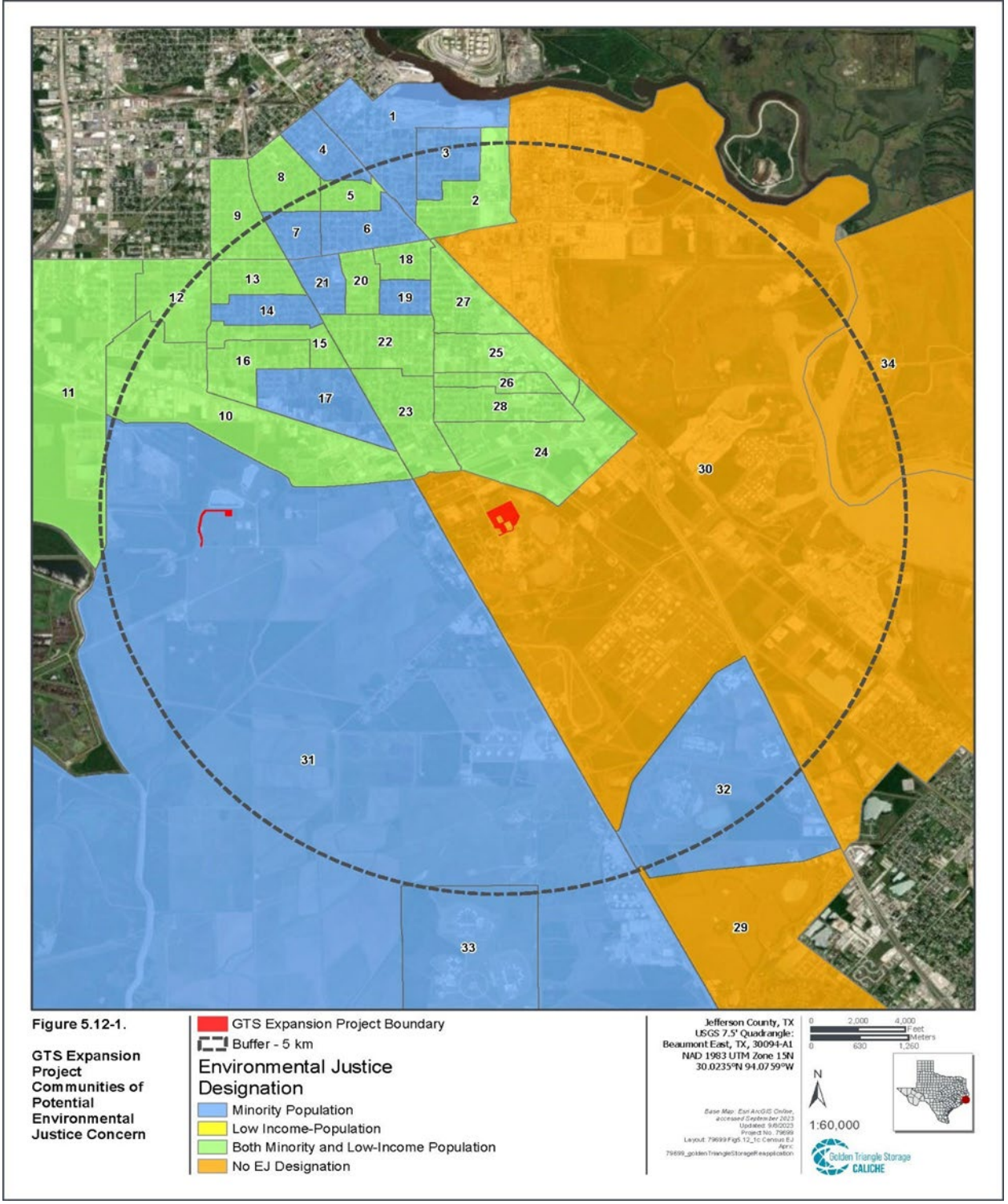


Figure 2 Environmental Justice Communities near the Project area

8.3 Impacts on Environmental Justice Communities

Promising Practices provides methodologies for evaluating environmental justice impacts related to human health or environmental hazards; the natural physical environment; and associated social, economic, and cultural factors. Consistent with Promising Practices, Executive Order 12898, and Executive Order 14096, we reviewed the Project to determine if its resulting impacts would be disproportionate and adverse on minority and low-income populations and also whether impacts would be significant.²⁶ Promising Practices provides that agencies can consider a number of conditions in this determination and the presence of any of these factors could indicate a potential disproportionate and adverse impact. For this Project, a disproportionate and adverse effect on an environmental justice community means the adverse effect is predominantly borne by such population. Relevant considerations include the location of Project facilities and the Project's human health and environmental impacts on identified environmental justice communities, including direct, indirect and cumulative impacts.

Project actions within the identified environmental justice communities include impacts to visual, socioeconomic, transportation, air quality, and noise resources. Impacts on the natural and human environment from construction and operation of Project facilities are identified and discussed throughout this EA. Environmental justice concerns are not present for other resource areas such as geology, soils, groundwater, surface water, wetlands, vegetation, wildlife, fisheries, land use, or cultural resources due to the minimal overall impact the Project would have on these resources. Potentially adverse environmental effects on surrounding environmental justice communities would be minimized and/or mitigated. However, the magnitude and intensity of the impacts would be greater for individuals and residences closest to the Project facilities and would diminish with distance.

Visual Resources

The majority of the Project would be within existing industrial and agricultural land use areas. The Central Storage Site is not located within an environmental justice block group and, as described in further detail in section B.7, it is not expected to affect nationally designated visual resources or visually sensitive areas such as scenic roads, trails, or rivers. The brine disposal area is located within an environmental justice block

²⁶ See Promising Practices at 33 (stating that “an agency may determine that impacts are disproportionately high and adverse, but not significant within the meaning of NEPA” and in other circumstances “an agency may determine that an impact is both disproportionately high and adverse and significant within the meaning of NEPA”); see also Promising Practices at 45-46 (explaining that there are various approaches to determining whether an impact will cause a disproportionately high and adverse impact). We recognize that CEQ and USEPA are in the process of updating their guidance regarding environmental justice and we will review and incorporate that anticipated guidance in our future analysis, as appropriate.

group and would predominantly be in an agricultural area with existing well pads and access roads within view.

Existing and proposed Project facilities at the Central Storage Site are unlikely to affect visual resources during construction and operation, and thus, would not require additional screening as they are currently screened by existing vegetation and are located about 0.5 mile from the nearest public highway. No additional visual screening of Project activities that would be within the Central Storage Site is required. The proposed brine disposal well, brine disposal pipeline, and associated access road would also be visible from surrounding roadways; however, the visual change associated with the new permanent well pad and access road would be consistent with the current visual setting of agricultural land with scattered well pads and access roads.

The nearest residence to the brine disposal well is 0.6 mile east of the well site. Furthermore, no residential or commercial areas, or individual residences are located within 50 feet of the Project facilities. The closest planned residential area is 0.5 mile north/northwest from the proposed Project, and the closest planned commercial area is 0.9 mile northwest of the Project in the City of Beaumont. We conclude that visual impacts on nearby environmental justice block groups would not be significant.

Socioeconomics

Golden Triangle anticipates approximately 50 non-local construction, supervisory, and inspection personnel would be required during the construction period. Golden Triangle anticipates hiring one additional permanent employee once construction is complete. Due to the small size of the permanent workforce, there would be no effect on employment and overall community income during the Project. The employee would also likely already reside within the Project vicinity; therefore, there would be no significant effect on housing availability. Temporary use of available rental housing by the non-local workforce in Jefferson County, would represent a low utilization, less than a two percent temporary increase in the county population, with little impact on populations in Jefferson County, Texas.

The area has fire and public safety departments commensurate with the population and industrial activity in the county. The fire station closest to the Project area is the Beaumont Fire/Rescue Station No. 3 (1.8-mile driving distance to the Project site). The law enforcement department nearest to the Project site is the Lamar University Police Department (2.0-mile driving distance to the Project area). The nearest hospital is the Beaumont Emergency Hospital (6.0-mile driving distance to the Project area). The K-12 school systems identified nearest to the Project area are in Beaumont, Texas and neighboring Nederland, Texas.

Given the Project duration and workforce required to operate the facilities, we conclude that impacts on socioeconomics (e.g., population, housing demand, or the

provision of public services such as police, fire, medical facilities, or schools) would be negligible and temporary, with no impact on environmental justice communities near the Project area.

Transportation

The Project is in an unincorporated area on the southern edge of Beaumont, Texas. U.S. State Highways 287, 69, and 96 South border the Project site to the north and east. Existing local roads and access roads pass through the Project area and the surrounding industrial area. A railroad track runs parallel to State Highway 93 and borders the industrial area to the west and southwest. No industrial or commercial businesses or retail stores are within 50 feet of the proposed construction workspace, and there would be no direct impact on these types of businesses. The closest suburban residential area to the proposed brine disposal area is identified as an environmental justice group and lies approximately 0.5 mile to the northwest across State Highway 93. The immediate area surrounding the proposed Central Storage Site (approximately 0.5 mile) is industrial. The closest residence in an environmental justice community is approximately 0.5 mile northwest of the Central Storage Site.

The existing Highland Avenue Extension off Highland Avenue provides the primary access into and through the existing Central Storage Site and would be used during construction and operation of the Project facilities. Additional existing permanent access roads within the Central Storage Site would also be used for construction and operation. No modifications are proposed to these existing roads. No changes to existing land use would result from using these existing access roads. Construction of three new permanent gravel access roads for the Project that would extend from existing permanent access roads in the Central Storage Site project area within Census Tract 112.05, Block Group 1 (Map Reference 30).

Golden Triangle would coordinate its proposed construction activities with local officials to minimize any disruptions to the local traffic patterns. Increased use of public roads along with the use of three other private roads would result in a higher volume of traffic, delays and increased commute times, a greater risk of vehicle accidents, and interruption of residential access. The impacts would be limited to periods of active construction over the course of the construction period. Minor traffic impacts would be limited primarily to daytime hours before 7:00 a.m. and after 7:00 p.m., Monday through Saturday. State Highway 93 is the only public roadway near environmental justice communities that would be crossed during Project construction. This roadway would be accessed at an open cut crossing during Project activities.

Golden Triangle has committed to maintaining traffic flow and other measures according to all necessary permits and approvals from the appropriate traffic control agencies. Measures in Golden Triangle's Traffic Management Plan include traffic safety

controls, vehicle weight restrictions, and turning radius restrictions. Road surfaces near any residences would be periodically inspected and cleaned of debris. Golden Triangle would coordinate traffic with local school districts to activate construction traffic limitations, and traffic impacts would cease upon Project completion. Given Golden Triangle's proposed use of traffic management procedures and the temporary nature of construction activities, we conclude that traffic would not significantly impact environmental justice communities.

Air Quality

As discussed in detail in section B.9.1, construction emissions would occur in the form of particulate matter (e.g., dust) and equipment exhaust emanating from construction equipment and vehicles and road disturbance resulting in short-term, localized impacts in the immediate vicinity of construction work areas. Operational emissions would result from the operation of the natural gas-fired compressor engines and glycol reboilers, emergency generator, fugitive emissions from leaks from piping components and compressor blowdowns. These permanent impacts would affect areas up to 4.2 kilometers from the Central Storage Site, as discussed further in section B.9.1 and table 12. Therefore, air quality impacts associated with construction and operation of the facility would be predominately borne by residences within all communities.

Fugitive dust would result from land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. Construction activities for the Project would result in fugitive dust emissions from vehicular traffic and soil disturbance, and combustion emissions from diesel and gasoline fired construction equipment and vehicles used by construction workers to commute to and from work sites during construction. Particulate matter emissions would be mitigated by Golden Triangle's implementation of its Fugitive Dust Control Plan, which complies with state regulations and FERC requirements to control construction-related dust produced by land clearing, grading, excavation, and backfilling activities in environmental justice block groups. The Fugitive Dust Control Plan includes but is not limited to 1) using water to control dust during construction operations, road grading, or land clearing, 2) maintaining roadways and driveway entrances to be free of dirt, 3), minimizing use of unpaved roadways, 4) slowing vehicular speeds over unpaved roadways, and 5) covering open-bodied trucks while transporting materials.

There also would be some emissions attributable to vehicles driven by construction workers commuting to, from, and between Project areas during construction. Air emissions associated with construction of the Project would include emissions from fossil-fueled equipment and fugitive emissions such as dust. Earth moving equipment and other mobile sources may be powered by diesel or gasoline engines and are sources of combustion-related emissions.

Air quality impacts from the brine disposal well and pipeline construction in Census Tract 113.04, Block Group 4 (Map Reference 31) would generally be temporary, localized, and insubstantial. Air emissions from construction equipment would be limited to the immediate vicinity of the construction area and would be temporary and is expected to last for a total of 695 days.

As discussed in detail in section B.9.1, a multi-tiered air quality modeling approach to model operational emissions shows that emissions would not contribute to an exceedance of the NAAQS standards in the Project area. While three operational emission pollutants would exceed the SIL, the largest radius of impact would be 4.2 kilometers. We conclude that operational emissions from the Project would be insubstantial, localized, and would not significantly affect environmental justice communities.

Taking into consideration Golden Triangle's proposed mitigation measures, the construction and operational emissions from the Project would not have significant adverse air quality impacts on the environmental justice communities in the Project area.

Noise

Construction of the Project would affect the local noise environment. At the Project locations in Census Tract 113.04, Block Group 4 (Map Reference 31) and Census Tract 112.05, Block Group 1 (Map Reference 30), both the magnitude and frequency of noise may vary considerably over the course of the day and throughout the week, in part due to changing weather conditions and the impacts of seasonal vegetative cover. Golden Triangle conducted an acoustical assessment near the Project site in the city of Beaumont, in Jefferson County, Texas, between April 24 and April 25, 2023. Two potential NSAs were identified within a 1-mile-radius of the Project compressor station.

The first NSA is located within an environmental justice block group and is a building located approximately 1,950 feet northwest of the Project. The building was identified based on aerial imagery, but could not be ascertained if it was an inhabited residence.²⁷ Due to this location being closer to the Project and its potential noise sources being closer than the residential neighborhood further to the north, it was classified as an NSA for the purposes of a noise impact analysis and would produce conservative impact estimates that show greater impacts than what would be experienced in the residential neighborhood. The second NSA is not located within an environmental justice block group and is in an industrial area surrounded by oil and gas sites, compression and storage sites, a concrete batch plant, and Highway 287 to the north. The long-term noise monitoring location is located on the public right-of-way, on the west side of Highland Avenue near the property.

²⁷ Section 9.3.4 of Golden Triangle's Environmental Report. Accession No. 20230912-5208.

Both NSAs are in the same compass direction and at greater distances from the Project. Impacts on potential NSAs at further distances from the Project site in the same compass direction would experience lesser noise impacts due to the attenuation of noise with distance. The noise levels experienced at both NSA locations represents the highest potential noise impacts attributable to the Project.

Noise levels above ambient conditions attributable to Project construction activities would vary over time and would depend upon the nature of the construction activity, the number and type of equipment operating, and the distance between sources and NSAs. These impacts would be limited primarily to daytime hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Further, Golden Triangle would limit construction activities to occur during daytime hours except for the operation of compressors that would be required within the Central Storage site. Golden Triangle would notify local residents if nighttime construction hours are needed.

Although there would be a slight noise increase as a result of operating the compressor units, based on the projected noise levels, the Project would not result in significant operational noise impacts on local residents and those residing in close proximity to the Central Storage site or natural gas dual pipeline header system that extends from the Central Storage Site northeast into Orange County, Texas. Golden Triangle would use noise reduction and mitigation strategies. As discussed in section B.9.2, based on the low projected noise levels and construction noise mitigation measures Golden Triangle would employ, the short duration of nighttime construction activities, estimated noise levels in compliance with FERC thresholds, and distance to nearby NSAs, we conclude that noise levels in the Project vicinity would not significantly impact environmental justice community residents who reside in surrounding communities.

8.4 Environmental Justice Impact Mitigation

As described in Promising Practices, when an agency identifies potential adverse impacts, it may wish to evaluate practicable mitigating measures. Golden Triangle has committed to ensuring that all Project-related activities minimize any impact to the environmental justice communities within the identified block groups. Although mitigation measures were not specifically created to reduce impacts on environmental justice communities, the Project would minimize adverse effects on the identified communities in the following ways:

- generally limiting construction activities other than well drilling, to 7:00 a.m. to 7:00 p.m., Monday through Saturday;
- using paved roads or equipment haul roads for construction vehicle traffic;
- prompt removal of earth or other material from paved streets;
- coordinating traffic with local school districts to maintain access and safety;

- maintenance of access roads;
- limiting vehicle speeds, as may be required, to reduce dust generation;
- if deemed necessary based on coordination with local officials, Golden Triangle would implement Traffic Management Plan measures such as traffic safety controls, vehicle weight and turning radius restrictions on local roads, and inspection and cleaning debris from access roads;
- complying with all fugitive dust requirements according to its Fugitive Dust Control Plan to minimize fugitive dust during construction;
- covering open hauling trucks with tarps, as necessary;
- maintaining vehicles and equipment per manufacturers' specifications and complying with applicable vehicle emissions standards;
- complying with applicable air quality regulations during operation of compressor engines, cooling fans, and various pumps;
- implementing air quality mitigation measures during construction, such as ensuring that each construction equipment engine complies with USEPA emission standards throughout its life to lessen exhaust emissions, and using low-sulfur diesel fuel in non-road construction equipment; and,
- implementing noise mitigation measures during construction, such as positioning equipment so noise propagates away from the nearest NSAs, restricting onsite vehicle idle time, and using sound control devices no less effective than those provided by the manufacturer, and to maintain equipment in accordance with manufacturer's recommendations.

8.5 Determination of Disproportionately High and Adverse Impacts on Environmental Justice Communities

As described throughout this EA, the proposed Project would have a range of impacts on the environment and on individuals living in the vicinity of the Project locations, including environmental justice communities. As highlighted in Table 7, the brine disposal area is located in an environmental justice community and the Central Storage Site is not located within an environmental justice community.

Based on the foregoing analysis, impacts related to visual resources, socioeconomics, transportation, air quality, and noise related to the brine disposal area would be disproportionately high and adverse on environmental justice communities as they would be predominantly borne by environmental justice communities. At the Central Storage Site, impacts related to visual resources, socioeconomics, transportation, air quality, and noise would not be disproportionately high and adverse on environmental justice communities, as they would not be predominantly borne by environmental justice communities. Project impacts associated with visual, socioeconomics, transportation, air quality, and noise would be temporary and less than significant.

9.0 AIR QUALITY AND NOISE

9.1 Air Quality

This section summarizes federal and state air quality regulations that are applicable to the proposed facilities. The term air quality refers to relative concentrations of pollutants in the ambient air. Air quality would be affected by construction of the Project. During construction, short-term emissions would be generated from the usage of equipment, land disturbance, and increased traffic from worker and delivery vehicles for all locations. Once completed, the Project would transition to operational phase emissions from the new natural gas-fired compressor engines and glycol reboilers, emergency generator, fugitive emissions from leaks from piping components (connectors, valves, flanges), and compressor blowdowns and rod packing leaks.

Ambient air quality is protected by federal and state regulations. Under the Clean Air Act (CAA) and its amendments, the USEPA has established NAAQS²⁸ for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone, particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), and sulfur dioxide (SO₂). States have the authority to adopt ambient air quality standards if they are at least as stringent as the NAAQS. While states can promulgate more stringent standards than the NAAQS, the TCEQ has adopted all the NAAQS established by the USEPA. These standards incorporate short-term (hourly or daily) levels and long-term (annual) levels to address acute and chronic exposures to the pollutants, as appropriate. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health. Volatile organic compounds (VOC) are also regulated by the USEPA to prevent the formation of ozone (O₃), a constituent of photochemical smog. Many VOCs form ground level ozone by reacting with sources of oxygen molecules such as nitrogen oxides (NO_x) in the atmosphere in the presence of sunlight. NO_x and VOC are referred to as ozone precursors. Hazardous air pollutants (HAP) are also emitted during fossil fuel combustion. HAPs are chemicals known to cause human health and environmental impacts. There are no national air quality standards for HAPs, but their emissions are limited through permit thresholds and technology standards.

Greenhouse gases (GHGs) occur in the atmosphere both naturally and as a result of human activities, such as from the burning of fossil fuels. GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). GHGs status as a pollutant is not related to toxicity; GHGs are non-toxic and

²⁸ The current NAAQS are listed on USEPA's website <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHGs under the Clean Air Act. During construction activities, GHGs would be emitted from construction equipment and during operation GHGs would be produced by the new natural gas-fired compressor engines and glycol reboilers, emergency generator, fugitive emissions from leaks from piping components (connectors, valves, flanges), and compressor blowdowns and rod packing leaks. GHGs emissions are typically expressed in terms of CO₂ equivalents (CO_{2e}). The CO_{2e} unit of measure takes into account the global warming potential (GWP) of each GHG over a specified timeframe. The GWP is a ratio relative to CO₂ that is based on the gas' ability to absorb solar radiation as well its residence time in the atmosphere. Thus, CO₂ has a GWP of 1, CH₄ has a GWP of 25, and N₂O has a GWP of 298 on a 100-year timescale. To obtain the CO_{2e} quantity, the mass of the particular compound is multiplied by the corresponding GWP, the product of which is the CO_{2e} for that compound. The CO_{2e} value for each of the GHG compounds is summed to obtain the total CO_{2e} GHG emissions. There are no NAAQS or other significance thresholds for GHGs.

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

**Table 8
National Ambient Air Quality Standards**

Pollutant	Averaging Period	Standards	
		Primary	Secondary
Sulfur dioxide (SO ₂)	1-hour ^{l,m}	75 ppb 196 µg/m ³	
	3-hour ^b	--	0.5 ppm 1300 µg/m ³
	Annual ^{a,m}	0.03 ppm 80 µg/m ³	--
	24-hour ^{b,m}	0.14 ppm 365 µg/m ³	--
	PM ₁₀	24-hour ^d	150 µg/m ³
PM _{2.5} (2012 Standard)	Annual ^e	12.0 µg/m ³	15.0 µg/m ³
PM _{2.5} (2006 Standard)	24-hour ^f	35 µg/m ³	35 µg/m ³
Nitrogen Dioxide (NO ₂)	Annual ^a	0.053 ppm (53 ppb) 100 µg/m ³	0.053 ppm (53 ppb) 100 µg/m ³
	1-hour ^c	100 ppb 188 µg/m ³	--
	Carbon Monoxide (CO)	8-hour ^b	9 ppm 10,000µg/m ³
	1-hour ^b	35 ppm 40,000 µg/m ³	--
Ozone (2008 Standard)	8-hour ^{g,h}	0.075 ppm	0.075 ppm
Ozone (2015 Standard)	8-Hour ⁱ	0.070 ppm	0.070 ppm
Ozone (O ₃)	1-hour ^{j,k}	0.12 ppm	0.12 ppm
Lead (Pb)	Rolling 3-month ^a	0.15 µg/m ³	0.15 µg/m ³

- a. Not to be exceeded.
- b. Not to be exceeded more than once per year.
- c. Compliance based on 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area.
- d. Not to be exceeded more than once per year on average over 3 years.
- e. Compliance based on 3-year average of weighted annual mean PM_{2.5} concentrations at community-oriented monitors.
- f. Compliance based on 3-year average of 98th percentile of 24-hour concentrations at each population-oriented monitor within an area.
- g. Compliance based on 3-year average of fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area
- h. The 2008 8-hour ozone standard would remain in effect until one year after an area is designated for the 2015 8-hour ozone standard, which corresponds with January 16, 2019 based upon attainment designations for the 2015 ozone standard issued on January 16, 2018.
- i. Permit applications that have not met USEPA's grandfathering criteria would have to demonstrate that the proposed project does not cause or contribute to a violation of any revised ozone standards that are in effect when the permit is issued, including the 2015 revised standards.
- j. Maximum 1-hour daily average not to be exceeded more than one day per calendar year on average.
- k. The 1-hour ozone standard has been revoked in all areas in which Project activities would occur.
- l. Compliance based on 3-year average of 99th percentile of the daily maximum 1-hour average at each monitor within an area
- m. The 24-hour and annual average primary standards for SO₂ have been revoked.
- ppm = parts per million by volume
ppb = parts per billion by volume

9.1 Permitting/Regulatory Requirements

The CAA is the basic federal statute governing air pollution in the United States. We have reviewed the following federal requirements and determined that they are not applicable to the proposed Project:

- Title V
- General Conformity of Federal Actions

The provisions of the CAA that are potentially relevant to the Project are discussed below.

9.1.1 Prevention of Significant Deterioration and New Source Review

Proposed new or modified air pollutant emission sources must undergo a New Source Review (NSR) prior to construction or operation. The NSR air permit programs are designed to protect air quality when air pollutant emissions are increased either through the construction of new major stationary sources or major modifications to existing stationary sources. There are three types of NSR permitting requirements, of which a source may have to meet one or more of the requirements:

- **Prevention of Significant Deterioration (PSD)** permits are required for new major sources or an existing source making a major modification in an attainment area. In areas with good air quality (attainment areas), the PSD program ensures that the new emissions do not degrade the air quality.
- **Nonattainment NSR** permits are required for new major sources or an existing source making a major modification in a nonattainment area.
- **Minor NSR** permits are required for new minor sources or an existing source making a minor modification. This is the minor source permitting process for the state or local jurisdictional agencies.

The Project does not include components that would be applicable under PSD or Nonattainment NSR permitting regulations and these programs do not apply to the Project. The Project would be subject to applicable state-level permit requirements under a Minor Source NSR permit program. The site would be authorized under a Non-Rule Standard Permit, issued by TCEQ.

9.1.2 New Source Performance Standards

The USEPA promulgates New Source Performance Standards (NSPS) for new, modified, or reconstructed stationary 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. The NSPS also establish fuel, monitoring, notification, reporting, and recordkeeping requirements.

40 CFR 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. NSPS Subpart JJJJ applies to stationary spark ignition internal combustion engines greater than or equal to 500 horsepower, which commenced construction, modification, or reconstruction after July 1, 2007. The six gas-fired Caterpillar 5,500 horsepower stationary internal combustion engines associated with the Project would be subject to Subpart JJJJ. Golden Triangle would comply with the emissions limits, testing requirements, monitoring, recordkeeping, and reporting requirements of Subpart JJJJ.

Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced after September 18, 2015. The fugitive equipment components from new or modified natural gas compressor stations are subject to requirements under NSPS OOOOa. The Project triggers the definition of “modification” at the Central Compressor Station. Golden Triangle would comply with the applicable requirements of this subpart.

9.1.3 National Emission Standards for Hazardous Air Pollutants

The 1990 CAA Amendments established a list of 189 HAPs, resulting in the promulgation of National Emission Standards for Hazardous Air Pollutants (NESHAP). The NESHAP regulate HAP emissions from specific source types located at major or non-major sources (area sources) of HAPs, by setting emission limits, monitoring, testing, record keeping, and notification requirements. Major source thresholds for NESHAP are 10 tons per year (tpy) of any single HAP or 25 tpy of total HAPs.

40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Subpart ZZZZ establishes emissions limitations and operating limitations for HAP emissions from reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. Because the stationary RICEs meet the criteria of 40 CFR 63.6590(c)(1) (a new or reconstructed stationary RICE located at an area source), the stationary RICEs meet the requirements of Subpart ZZZZ by meeting those of Subpart JJJJ.

9.1.4 Greenhouse Gas Reporting

In September 2009, the USEPA issued the final Mandatory Reporting of Greenhouse Gases Rule, requiring reporting of GHGs emissions from suppliers of fossil fuels, and for facilities where the aggregated maximum heat input from all combustion sources is greater than 30 metric million British thermal units per hour and that emit greater than or equal to 25,000 metric tpy of GHGs (reported as CO_{2e}). Golden Triangle would continue to report emissions in accordance with the reporting rule as

proposed additional emissions associated with the Project are expected to be greater than 25,000 metric tpy. Golden Triangle would continue to monitor actual emissions at the Central Compressor Station following the proposed modifications and would comply with the GHGs reporting requirements as they apply.

Applicable State Regulations

The state regulatory discussion provided below addresses air pollution control regulations in Texas, which are governed by the TCEQ. The construction and operation of compressor stations are regulated by TCEQ’s NSR and Title V permitting programs, which require construction permit applications be submitted to the applicable state prior to modifications of air emission sources at existing facilities. Texas has full delegation from the USEPA for air permitting programs, which are codified in 30 Texas Administrative Code (TAC) (30 TAC) Texas regulations under 30 TAC Chapter 101. In addition to minor NSR permitting program requirements, the following air quality standards apply to the Project as shown in table 9.

Table 9 TCEQ Air Pollution Control Rules Applicability Determination			
State Regulation Citation	Title	Applicability	Justification
30 TAC Chapter 101	General Air Quality Rules	Yes	The Project must comply with all TCEQ General Air Quality Rules. Applicable rules would be incorporated into an air permit, which Golden Triangle would comply with.
30 TAC Chapter 39	Public Notice Information	Yes	If Golden Triangle is contacted by TCEQ’s Air Permit Division and informed that they would need to make public notice, Golden Triangle would comply with this request and make public notice in accordance with this regulation.
30 TAC Chapter 111	Control of Air Pollution from Visible Emissions and Particulate Matter	Yes	The Project must comply with visible emission requirements provided by this regulation. Normal operations of the facility are not expected to cause visible emissions. Golden Triangle would ensure that visible emissions do not occur.
30 TAC Chapter 112	Control of Air Pollution from Sulfur Compounds	Yes	Emissions of sulfur compounds regulated by this rule, as applicable to the Project, must be compliant. Based on emission estimates, the facility would be compliant with this rule.
30 TAC Chapter 113	Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants	Yes	Emissions of hazardous air pollutants regulated by this rule, as applicable to the Project, must be compliant. Emission rates for new operational equipment at the site would be compliant with this regulation.

30 TAC Chapter 115	Control of Air Pollution from Volatile Organic Compounds	Yes	Emissions of VOCs regulated by this rule, as applicable to the Project, must be compliant. Based on emission estimates, the Project would be compliant with this regulation.
30 TAC Chapter 116	Construction Permit & Amendment Requirements	Yes	Project emissions must comply with TCEQ air quality rules and all applicable federal regulations. Based on emission estimates, the Project would be compliant with all applicable rules and federal regulations.
30 TAC Chapter 117	Control of Air Pollution from Nitrogen Compounds	Yes	Emissions of NO _x compounds regulated by this rule, as applicable to the Project, must be compliant. Based on emission estimates, the Project would be compliant with this regulation.
30 TAC Chapter 122	Title V Applicability	No	Project emission rates would not cause the facility to be subject to Title V permitting.
30 TAC Chapter 118	Control of Air Pollution Episodes	Yes	If a generalized air pollution episode, as defined in 30 TAC Chapter §118.1, occurs, appropriate actions must be taken as required by this regulation. Golden Triangle would take the required actions provided in this regulation in the event of a generalized air pollution episode.
Source: TAC 2023.			

9.1.5 Construction Emissions

The Project would result in air quality impacts associated with construction, including emissions from fossil-fuel powered construction equipment and fugitive dust. The emissions would be temporary in nature and would not significantly affect regional air quality. Emissions from construction equipment would depend on the duration, number, and type of vehicles/equipment. Potential emissions include combustion-related air pollutants (NO_x, CO, VOC, sulfur dioxide [SO₂], PM₁₀, PM_{2.5}, CO_{2e}, and HAPs) as well as fugitive dust. Emissions from equipment would be temporary, short-term, and localized at each of the Project work areas. Some temporary indirect emissions, attributable to construction workers commuting to and from work sites during construction and from on-road and off-road construction vehicle traffic, could also occur.

Golden Triangle would mitigate fugitive dust emissions by implementing measures included in its Fugitive Dust Control Plan.²⁹ These measures include maintenance of roadways, spraying water as needed for dust suppression on the existing access roads, limiting speed limits on unpaved roads, covering material trucks during transit, and proper maintenance of equipment. Golden Triangle would mitigate exhaust emissions from construction equipment by limiting idling where applicable, using low-sulfur diesel

²⁹ Appendix 9D of application filing, accession no. 20230912-5208.

fuel, and requiring contractors to meet all air quality regulations and emission standards associated with each piece of equipment.

Construction related emission estimates were based on a typical construction equipment list, hours of operation, vehicle miles traveled by the construction equipment and supporting vehicles for the Project. These emission-generating activities would include earthmoving, construction equipment exhaust, on-road vehicle traffic, and off-road vehicle traffic. Golden Triangle conservatively utilized emission factors from the USEPA’s Motor Vehicle Emission Simulator model, MOVES3.³⁰ These emissions present the combined emissions for the construction equipment’s combustion, on-road vehicle travel, off-road vehicle travel, and earthmoving fugitives. Construction is estimated to occur over a two-year period beginning in the second half of 2024. The air quality impacts from Project construction would be short-term and intermittent. Following construction, air quality would transition to operational phase conditions. Construction emissions for the Project are presented in table 10.

Table 10 Construction Emissions (tpy)								
Source	Pollutants							Total HAPs
	NO_x	CO	SO₂	VOC	PM₁₀	PM_{2.5}	CO_{2e}	
Construction Equipment Engines	14.93	39.51	0.01	2.16	0.99	0.96	3,861	0.90
On-Road Vehicle Travel	0.71	2.82	0.00	0.03	0.03	0.02	550	0.00
Fugitive Dust	-	-	-	-	10.86	1.08	-	-
TOTAL	15.64	42.33	0.01	2.19	11.88	2.06	4,411	0.90

Given the temporary and intermittent nature of construction emissions, and Golden Triangle’s adherence to applicable regulatory requirements, we conclude that construction of the Project would not cause or significantly contribute to a violation of any applicable ambient air quality standard, or significantly affect local or regional air quality.

9.1.6 Operational Emissions

Operational emissions would occur as a result of operation of the natural gas-fired compressor engines and glycol reboilers, emergency generator, fugitive emissions from leaks from piping components (connectors, valves, flanges), and compressor blowdowns and rod packing leaks. Operational emissions for the Project are presented in table 11.

³⁰ Emission breakdowns can be found in appendix 9A of application filing,

**Table 11
Operational Emissions**

Emission Sources	Emissions (tons/year)							
	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	VOC	HAP	CO _{2c}
Existing Sources								
Compressor Engines EQT-001/002/003 ^{a,b}	9.47	17.00	1.85	0.01	0.01	2.15	1.46	12,387.05
Glycol Reboiler Exhaust EQT-004 ^{a,b}	0.45	0.54	0.00	0.04	0.04	0.03	0.01	644.98
Glycol Reboiler Exhaust Reboiler EQT-005 ^{a,b}	0.45	0.54	0.00	0.04	0.04	0.03	0.01	644.98
Emergency Generator EQT-006 ^{a,b}	0.07	0.05	0.01	0.01	0.01	0.01	0.01	12,674.46
Piping Fugitives FUG- 001	-	-	-	-	-	0.20	-	540.11
Periodic Pigging MSS- 001	-	-	-	-	-	0.03	-	81.02
Decompression of plant piping MSS-002	-	-	-	-	-	0.14	-	378.08
Periodic maintenance of compressors MSS-003	-	-	-	-	-	0.29	-	783.16
Periodic maintenance of manual valves and/or relief valves MSS-004	-	-	-	-	-	0.04	-	108.02
Periodic calibrating of the natural gas meter and regulator stations MSS- 005	-	-	-	-	-	0.21	-	567.12
Vapor Combustion Unit 1 EQT013 ^c	1.18	0.68	0.18	0.11	0.11	5.61	-	115.40
Vapor Combustion Unit 2 EQT014 ^c	1.18	0.68	0.18	0.11	0.11	5.61	-	115.40
Existing Sources Subtotal	12.80	19.49	2.22	0.32	0.32	14.35	1.49	29,039.78
New Project Sources								
Compressor Engines	21.18	29.31	0.20	3.31	3.31	16.12	3.483	44,532.93
Glycol Reboilers	0.721	0.859	0.005	0.065	0.065	0.047	0.005	1,025.77
Fugitive Emissions	-	-	-	-	-	0.05	0.01	262.8531
Compressor Blowdowns and Rod Packing	-	-	-	-	-	0.49	0.03	1323.27
New Project Sources Subtotal	21.90	30.17	0.20	3.38	3.38	16.71	3.53	47,144.83
Total Existing and Expansion Sources	34.7	49.66	2.42	3.70	3.70	31.05	5.02	76,184.60

^a Emission rates have been calculated to account for an operational limitation of 2,200 hours on the existing compressor engines.

b Emission rates provided in TCEQ issued air permit in document Emission Sources – Maximum Allowable Emission Rates TCEQ Permit Number 82554, dated October 16, 2013. No maximum allowable emission rate was provided in Maximum Allowable Emission Rates TCEQ Permit Number 82554, dated October 16, 2013 for HAPs. HAPs (including formaldehyde) emission rates are from potential to emit calculations provided by applicant in permit modification submitted to TCEQ on September 14, 2012.

c From Standard Permit 164029, issued March 11, 2021. This permitting action replaced the previously used thermal oxidizer with two vapor combustion units.

Air Quality Modeling

To assess air quality impacts from the Project on regional air quality, air dispersion modeling was performed for the Project Compressor Station using AERMOD, the most advanced sequential Gaussian plume model sanctioned by the USEPA. The modeling was performed according to the TCEQ guidelines. A source impact analysis is a modeling analysis designed to show that the allowable emissions from a project would not result in a violation of the NAAQS. The predicted modeled concentrations, when added to the representative ambient background concentration and compared to the NAAQS, demonstrate compliance with their respective standards for normal operation. Air quality impacts from operation of the Project would be minimized by the use of equipment, emissions controls, and operating practices that meet or exceed industry standards to minimize emissions and compliance with federal and state emission thresholds. Compliance with federal and state air regulations and state permit requirements would ensure that air quality impacts would be minimized during installation and operation of the Project's modified compressor stations and ancillary facilities.

The SIL are used to determine if the ambient impact of a project is significant enough to warrant further review. If a project is below the SIL for a pollutant and averaging period, further analysis is not required. Golden Triangle completed a modeling analysis to compare the results to the SILs and determine compliance with NAAQS for the Project. Results of the modeling analysis are listed in table 12 for all required pollutants and averaging periods.

The USEPA's Guideline on Air Quality Models (40 CFR 51, Appendix W) recommends a tiered approach for modeling annual average NO₂ concentrations. The guideline and memo provide that for:

- Tier 1, assume a total conversion of NO to NO₂ (Tier 1 approach was performed above).
- Tier 2 (second level) screening analysis, Ambient Ratio Method: multiply the Tier 1 estimate(s) by an empirically derived NO₂/NO_x value.
- Tier 3 (third level) analyses, a detailed screening method may be selected on a case-by-case basis.

Table 12 Modeling Results					
Pollutant	Averaging Period	Modeled Conc. ($\mu\text{g}/\text{m}^3$)	SIL ($\mu\text{g}/\text{m}^3$)	Exceeds SIL?	Radius of Impact (km)
CO	1-hour	153.69	2,000	No	-
	8-hour	134.9	500	No	-
NO ₂	1-Hour	189.24	7.5	Yes	4.233
	Annual	25.32	1	Yes	1.441
PM _{2.5}	24-hour	11.17	1.2	Yes	0.964
PM ₁₀	24-hour	13.71	5	Yes	1.124
	Annual	2.86	1	Yes	1.066
SO ₂	1-hour	1.07	7.8	No	-

A comprehensive Tier 1 analysis including new and existing sources was performed; these results are presented in table 13.

Table 13 NAAQS Comparison Summary						
Pollutant	Averaging Period	Background Concentration ($\mu\text{g}/\text{m}^3$)	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Total Predicted Conc. ($\mu\text{g}/\text{m}^3$)	Primary NAAQS ($\mu\text{g}/\text{m}^3$)	Modeled Conc.< NAAQS?
NO ₂	1-Hour	38.54	29.77	332.31	188	No
	Annual	10.72	29.35	40.07	100	Yes
PM _{2.5}	24-hour	19.63	14.35	33.98	35	Yes
PM ₁₀	24-hour	95	16.29	111.29	150	Yes
	Annual	8.22	3.10	11.32	12	Yes

Since the 1-hr standard was exceeded using a Tier 1 analysis, a Tier 2 approach was used to estimate the NO₂ concentration for the 1-hour NO₂ averaging period. Tier 2 assumes that the conversion of NO_x into NO₂ will reach an equilibrium level in the atmosphere. This ambient ratio method uses a minimum and a maximum ratio that varies based on the modeled level of NO_x. The national default minimum ambient ratio is 0.5 and the maximum ratio is 0.9. The results are presented in table 14.

Table 14 NO₂ 1-hour Tier 2 Analysis						
Pollutant	Averaging Period	Background Concentration ($\mu\text{g}/\text{m}^3$)	Modeled Conc. ($\mu\text{g}/\text{m}^3$)	Total Predicted Conc. ($\mu\text{g}/\text{m}^3$)	Primary NAAQS ($\mu\text{g}/\text{m}^3$)	Modeled Conc.< NAAQS?
NO ₂	1-hour	38.54	147.86	186.40	188	Yes

The air dispersion modeling result mapping illustrates the location of the highest concentrations resulting from the Project.³¹ Based on the modeling results, we conclude that operation of the Project facilities would not contribute to an exceedance of the NAAQS standards in the Project area. Therefore, we conclude that operation of the Project would not have a significant impact on air quality.

9.2 Noise

Construction and operation of the Project would affect the local noise environment in the Project area. The ambient sound level of a region, which is defined by the total noise generated within the specific environment, is usually composed of sounds emanating from both natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of the day and throughout the week and year, in part due to changing weather conditions and the impacts of seasonal vegetative cover. The nearest NSA is located 1,950 feet northwest of the Project site.

The USEPA has published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Two measurements used to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same sound energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, in the calculation of the L_{dn} , late night to early morning (10:00 p.m. to 7:00 a.m.) noise exposures are penalized +10 decibels (dB), to account for people's greater sensitivity to sound during the nighttime hours. The A-weighted scale (dBA) is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the L_{dn} is about 6.4 dB above the measured L_{eq} .

We have adopted the USEPA's L_{dn} of 55 dBA noise criterion and use it to evaluate the potential noise impacts from the proposed Project at NSAs, such as residences, schools, or hospitals. In general, a person's threshold for a perceivable change in loudness on the A-weighted sound level is about 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

There are no state or local noise ordinances applicable to the Project.

³¹ Appendix 9C of the application filing. Accession no. 20230912-5208.

9.2.1 Construction Noise

Noise would be generated during construction of the aboveground facility modifications for the Project. Noise levels would be highest in the immediate vicinity of construction activities and would diminish with distance from each work area. Noise impacts would be localized and temporary. Sound level changes would depend on the type of equipment used, the duration of use for each piece of equipment, the number of construction vehicles and machines used simultaneously, and the distance between the sound source and receptor. Construction activities associated with the Project would be performed with standard heavy equipment, such as track-excavators, backhoes, cranes, bulldozers, dump trucks, and drilling and boring equipment. Noise would also be generated by trucks and other vehicles traveling in and near areas under construction. Construction equipment and worker vehicles generally operate intermittently and may change depending on project activity or phase.

Measures to mitigate construction noise at nearby NSAs would include limiting construction activities to daytime hours (FERC staff considers daytime hours to be 7:00 a.m. to 7:00 p.m.), with the exception of well drilling; equipping vehicles and equipment with mufflers; compliance with federal regulations limiting noise from trucks; and proper maintenance of equipment.

Noise impacts from the drill rig are not assessed from the closest border of the Project to the NSA, but rather from the location of the cavern wells. NSA 1 is approximately 2,570 feet from the drilling location for Cavern 3 and approximately 3,040 feet from Cavern 4. Drilling of the new cavern wells would occur 24 hours a day for up to 120 days per cavern well. Estimated construction noise levels at the nearest NSA, NSA 1, are provided in table 15.

Cavern 3 NSA^a	Drilling Noise at NSA, L_{dn} (dBA)	Ambient Noise Level, L_{dn} (dBA)	Ambient + Construction Noise Level, L_{dn} (dBA)	Increase over Ambient (dBA)
1	25.7	67.0	67.0	0.0

^a NSAs greater than 2,640 feet (0.5 mile) from a drill site were not evaluated for noise impacts. No NSAs were identified within 0.5 mile of the Cavern 4 drill site.

Modeling results show that drilling of Cavern 3 would not contribute to noise levels above 55 dBA, L_{dn}, nor would activities result in a perceptible increase relative to existing noise in the area during nighttime hours.

Based on the limited duration and estimated noise levels during nighttime activities, we conclude that construction noise would not have a significant impact on the environment.

9.2.2 Operational Noise

The Project modifications would result in operational noise. Golden Triangle performed a pre-construction sound level survey to assess operational noise contribution from the Project. Table 16 summarizes the estimated operational noise impacts on the nearest NSAs.

Table 16 Estimated Noise Levels from Operation of the Project							
NSA	Distance to NSA (feet)	Direction	Measured Existing Background L_{dn} (dBA)	Estimated Existing Station Contribution L_{dn} (dBA)	Sound Level Attributable to Project L_{dn} (dBA)	Sound Level Attributable to Project with Existing Background L_{dn} (dBA)	Increase Above Existing (dBA)
NSA 1	1,950	NW	67	51.4	53.3	67.2	0.2

The highest sound level contribution from equipment at the Central Compressor Station is 51.4 dBA L_{dn} at NSA 1, which is below the FERC limit of 55 dBA L_{dn} . The predicted increases above the existing sound levels are below the threshold of human perception of 3 dBA. To confirm operational noise levels are in compliance with the established FERC noise thresholds, we recommend that:

- Golden Triangle should file a noise survey with the Secretary no later than 60 days after placing the modified Central Compressor Station in service. If a full power load condition noise survey is not possible, Golden Triangle should provide an interim survey at maximum possible horsepower load and provide the full load survey within 6 months. If the noise attributable to the operation of all the equipment at the Central Compressor Station under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, Golden Triangle should file a report on what changes are needed and shall install additional noise controls to meet the level within 1 year of the in-service date. Golden Triangle should confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

Based on the predicted Project operational noise levels and our recommendation, we conclude that operation of the Project components would not significantly impact

noise in the surrounding area or contribute to a substantial increase in existing station noise.

Blowdowns

Under certain circumstances, the pressure in the compressor casing and unit piping must be released in a controlled manner. These events are commonly called “blowdowns” and occur when the unit is shut down for an extended period. During the blowdown, the high-pressure gas in the system is released in a controlled fashion through a blowdown silencer. Blowdown events cause a temporary increase in sound levels that typically lasts about five minutes.

Gas blowdown events would be vented via a blowdown silencer specified to meet an A-weighted sound level of 60 dBA at a distance of 300 feet. Consequently, the sound level of a unit blowdown would be approximately 43.7 dBA (i.e., L_{dn} of 50.1 dBA) at the closest NSA, which would be lower than 55 dBA (L_{dn}). Noise from a blowdown event may be audible at nearby NSAs, but it is not expected to present a significant noise impact if the noise control measures are successfully employed, noting that a unit blowdown event occurs infrequently for a short time frame.

As stated above, blowdowns would be below the FERC criterion of 55 dBA, L_{dn} ; therefore, we conclude that blowdown activities would not have a significant impact on noise quality in the surrounding area.

10.0 RELIABILITY AND SAFETY

The transportation and storage of natural gas involves some risk to the public in the event of an accident and subsequent release of 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 and 15 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.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the USDOT and FERC, the USDOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the FERC's regulations require that an applicant certify that it would design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with

federal safety standards and plans for maintenance and inspection. Alternatively, an applicant must certify that it has been granted a waiver of the requirements of the safety standards by the USDOT in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act. FERC accepts this certification and does not impose additional safety standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert USDOT. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipelines under the Commission's jurisdiction.

10.1 Safety Standards

The USDOT is mandated to prescribe minimum safety standards to protect against risks posed by natural gas facilities under Title 49 U.S.C. Chapter 601. The USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) 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. PHMSA'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.

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

10.2 Emergencies

The USDOT 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.³² 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:

³² Title 49, USC Chapter 601.

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

The USDOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline or facility emergency, and to coordinate mutual assistance.

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

This Project does not incorporate any modifications that change the reliability and safety standards. With Golden Triangle’s continued compliance with USDOT safety standards, ongoing operation, and maintenance requirements, we conclude the Project would be completed safely.³³

10.3 Polychlorinated Biphenyls

During Project activities, Golden Triangle would follow appropriate testing and disposal procedures which would follow federal regulations under the Toxic Substances Control Act. The Project would not involve the replacement or abandonment of polychlorinated biphenyl (PCB)-contaminated facilities. However, should PCBs be identified during the Project, Golden Triangle would follow the USEPA-issued PCB rules and regulations contained in 40 CFR 761. Based on the Project scope, we conclude that PCBs are not expected to exceed hazardous waste concentration thresholds on any portion of the Project facilities.

³³ PHMSA federal inspectors perform inspections on interstate natural gas pipeline facilities. The USDOT pipeline standards are published in CFR Parts 190-199 of Title 49.

11.0 CUMULATIVE IMPACTS

In accordance with NEPA and FERC policy, we identified other actions in the vicinity of the Project facilities and evaluated the potential for cumulative impacts on the environment. Cumulative impacts represent the incremental effects of a proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time. In this analysis, we consider the impacts of past projects within the region as part of the affected environment (environmental baseline) which was described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful were also considered.

As described in the environmental analysis section of this EA, Project activities would impact the environment. The Project would affect geology, soils, water resources, wetlands, vegetation, wildlife, land use, air quality, noise, and environmental justice communities.

11.1 Geographic Scope of Cumulative Impacts

Our cumulative impacts analysis considers actions that impact environmental resources 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 Project's impacts. Actions outside the geographic scope are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project. Based on the conclusions and determinations reached in section B, Golden Triangle's implementation of impact avoidance, minimization, and mitigation measures as described in section B, and FERC's Plan and Procedures, we conclude that cumulative impacts of the Project would be minor. Table 17 presents resource-specific geographic scopes consistent with CEQ guidance that we used to determine if there are other Projects that could cumulatively affect a given resource impacted by the Project. There would be no cumulative impacts on cultural resources, as there are no identified cultural resources in the Project area. Appendix C lists projects that are potentially within the geographic scope of each resource area.

11.2 Geology and Soils

Due to Golden Triangle's implementation of our Plan and Procedures and its ESC/SWPP Plan, Project impacts on soils and geological resources would be highly localized and limited primarily to the Project workspaces during the period of active construction (i.e., soil movement). No other projects occur within the geographic scope

Table 17 Geographic Scope for Cumulative Impact Analysis	
Environmental Resource	Area of Impact
Soils and Geology	Project workspace
Groundwater, Surface Water, Wetlands, Vegetation, and Wildlife	Hydrologic Unit Code (HUC) 120402010200
Land Use	1.0 mile from Project workspace
Noise - Construction	0.5 mile from Project workspace
Noise – Operation	1.0 mile surrounding aboveground facilities
Air Quality – Construction	0.25 mile from Project workspace
Air Quality – Operation	5 kilometers from aboveground facilities, 1.0 mile from belowground facilities
Environmental Justice	Affected environmental justice block groups

for geologic resources and soils, and therefore we do not expect any cumulative impacts on the Project area from these projects. As a result, we conclude that the cumulative impacts on geologic resources and soils resulting from the Project and other nearby projects would not be significant.

11.3 Water Resources, Vegetation, and Wildlife

The geographic scope of the cumulative impact analysis for groundwater, surface water, wetlands, vegetation, and wildlife is the HUC code 120402010200, which covers the Hillebrandt Bayou Subwatershed. Projects that overlap this area include the US Highway 90 Crossover Removal project, the Interstate-10/US Highway 69 Interchange projects, and State Highway 124– Hillebrandt Bayou Bridge project, which would all be managed by the Texas Department of Transportation. These projects and Golden Triangle’s proposed Project could potentially have cumulative impacts on groundwater, surface water, wetlands, vegetation, and wildlife resources occurring within this defined area.

Golden Triangle would install cavern wells with cement surface casings and intermediate casings to prevent groundwater contamination and would implement its SPCC Plan as discussed in section B.4.1. The US 90 Crossover Removal project is within the same HUC 12 watershed as Golden Triangle’s Project; but would be confined to existing infrastructure and would follow state-approved sediment and erosion control plans. The I-10/US 69 Interchange projects would also be within the geographic scope. The project was reviewed in an EA that resulted in a Finding of No Significant Impact (FONSI); therefore, we do not expect significant impacts on water resources. The State

Highway 124 project - Hillebrandt Bayou Bridge and the 4th Street Roadway Rehabilitation are also within the HUC 12 watershed, but do not involve significant impacts on waterbodies or water resources. As a result, we do not expect significant impacts on groundwater or surface water and conclude there would be no cumulative impacts as a result of the projects.

Concurrent construction activities of other projects within the geographic scope could result in potential impacts on wetlands, including increased turbidity and sedimentation, increased water temperatures, and decreased water quality during and immediately following construction. Wetlands are broadly regulated under the Clean Water Act. Golden Triangle and the proponents of other projects included in the cumulative impacts analysis, would need to obtain (or have already obtained) permits from the U.S. Army Corps of Engineers, as applicable. As discussed in section B.4, the Project would not result in significant impacts on surficial waterbodies or wetlands. In addition, none of the other projects within the geographic scope for the cumulative impacts analysis would significantly affect wetlands or waterbodies. Therefore, these projects and Golden Triangle's Project would not contribute to significant cumulative impacts on waterbodies and wetlands.

As discussed in section B.5.2, clearing and grading would remove vegetation, alter wildlife habitat, displace wildlife, and could result in other potential secondary effects, such as increased population stress, predation, and the establishment or spread of invasive species. Construction of the I-10/US Highway 69 Interchange and State Highway 124 – Hillebrandt Bayou Bridge projects may overlap with the Project, however construction would be completed under similar state and federal permits. While the I-10/US 69 Interchange project may require tree clearing, we do not expect long-term impacts on vegetation and wildlife and the clearing would be in an area not impacted by Golden Triangle's Project. In addition, the State Highway 124 – Hillebrandt Bayou Bridge project would not result in tree clearing, and disturbances would be limited to existing infrastructure. The appropriate wildlife agencies would review the projects. Therefore, we do not expect cumulative impacts on vegetation. Given the minor, short-term impacts on vegetation and wildlife from the Project and from other projects in the area, we conclude that there would be no significant cumulative impacts on vegetation or wildlife.

11.4 Land Use and Visual Resources

No overlapping actions that could potentially impact land use or visual resources were identified. As part of Golden Triangle's project, temporary workspaces would be restored to approximate pre-existing conditions. Golden Triangle would minimize temporary impacts on agricultural lands through topsoil conservation measures, maintaining landowner access to the fields and other agricultural facilities during construction, and correcting any damage to irrigation and/or drainage systems that cross or intersect the easement, to the extent practicable. Therefore, we do not expect significant cumulative effects on land use as a result of construction and operation of the

Project. As a result, we conclude that the Project's cumulative impacts on land use and visual resources, when combined with past, present, and reasonably foreseeable projects, would not be significant.

11.5 Environmental Justice

Project impacts associated with construction activities within the geographic scope for environmental justice would include temporary impacts associated with visual resources, traffic, air quality, and construction noise. Other projects within the geographic scope for environmental justice communities include the Port Arthur Liquid Natural Gas (LNG) Expansion project, the Golden Pass LNG Export project, the US Highway 69/Chinn Lane Construction project, the State Highway 73 Crossover Removal project, the US Highway 90 Crossover Removal project, the I-10/US Highway 69 Interchange Project, the US Highway 69/State Highway 73 Interchange project, the State Highway 124 -Hillebrandt Bayou Bridge project, and the 4th Street Roadway Rehabilitation project. The latter seven transportation projects may have beneficial impacts on environmental justice communities by creating jobs and economic opportunities, while the remaining two projects would have minor, less than significant impacts on environmental justice communities. We do not expect permanent adverse impacts on environmental justice communities, and we conclude that cumulative impacts resulting from the Project and other nearby projects would not be significant.

11.6 Air Quality and Noise

No projects were identified within the geographic scope for cumulative air quality or noise impacts during Project construction, or for cumulative noise impacts during Project operation. In addition, there are no projects located within 5 kilometers of the Project that would result in cumulative operational air quality impacts. We do not expect emissions from these projects to cause or significantly contribute to a violation of any applicable air quality standards. Therefore, we expect that impacts on air quality during operation of these projects would not be significant. Operational air quality impacts due to Golden Triangle's Project would also represent a limited increase to the overall existing operational conditions in the area as discussed in section B.9. As a result, we conclude that the Project's cumulative impacts on air quality and noise, when combined with past, present, and reasonably foreseeable projects, would not be significant.

11.7 Climate Change

Climate change is the variation in the Earth's climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time. Climate change is driven by the accumulation of GHGs in the atmosphere due to the increased consumption of fossil fuels (e.g., coal, petroleum, and natural gas) since the early

beginnings of the industrial age and accelerating in the mid- to late-20th century.³⁴ The GHGs produced by fossil-fuel combustion are carbon dioxide, methane, and nitrous oxide.

In 2017 and 2018, the U.S. Global Change Research Program (USGCRP)³⁵ issued its Climate Science Special Report: Fourth National Climate Assessment, Volumes I and II.³⁶ This report and the recently released report by the Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis*, state that climate change has resulted in a wide range of impacts across every region of the country and the world. Those impacts extend beyond atmospheric climate change alone and include changes to water resources, agriculture, ecosystems, human health, and ocean systems.³⁷ According to the Fourth Assessment Report, the United States and the world are warming; global sea level is rising and oceans are acidifying; and certain weather events are becoming more frequent and more severe (USGCRP 2018). These impacts have accelerated throughout the end of the 20th century and into the 21st century.³⁸

GHGs emissions do not result in proportional local and immediate impacts; it is the combined concentration in the atmosphere that affects the global climate. These are fundamentally global impacts that feed back to local and regional climate change impacts. Thus, the geographic scope for cumulative analysis of GHGs emissions is global rather than local or regional. For example, a project 1 mile away emitting 1 ton of GHGs would contribute to climate change in a similar manner as a project 2,000 miles distant also emitting 1 ton of GHGs.

Climate change is a global phenomenon; however, for this analysis, we will focus on the existing and potential climate change impacts in the general Project area. The USGCRP's Fourth Assessment Report notes the following observations of environmental impacts attributed to climate change in the Southern Great Plains region of the United

³⁴ Intergovernmental Panel on Climate Change, United Nations, Summary for Policymakers of Climate Change 2021: The Physical Science Basis. (Valerie Masson-Delmotte et al., eds.), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf (IPCC Report) at SPM-5. Other forces contribute to climate change, such as agriculture, forest clearing, and other anthropogenically driven sources.

³⁵ The U.S. Global Change Research Program is the leading U.S. scientific body on climate change. It comprises representatives from 13 federal departments and agencies and issues reports every four years that describe the state of the science relating to climate change and the effects of climate change on different regions of the United States and on various societal and environmental sectors, such as water resources, agriculture, energy use, and human health.

³⁶ U.S. Global Change Research Program. *Climate Science Special Report: Fourth National Climate Assessment, Volume I, Chapter 3 Detection and Attribution of Climate Change* (2017), available at: https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf (accessed July 2023).

³⁷ IPCC Report at SPM-5 to SPM-10.

³⁸ See, e.g., USGCRP Report Volume II at 99 (describing accelerating flooding rates in Atlantic and Gulf Coast cities).

States (USGCRP 2017);

- the near decade of 2010 through 2017 has been warmer than any previous decade since 1920 for average daily maximum and average daily minimum temperature;
- since 1960, there have been fewer days above 95°F compared to the pre-1960 period but during the 2010s the number of nights above 75°F has been nearly double the average over 1901 – 1960. The length of the freeze free season was 1.5 weeks longer on average in the 2010s compared to any other historical period on record;
- the number of days with 3 or more inches of rain has been historically high over the past 25 years. The 1990s, 2000s, and 2010s rank first, third, and second, respectively in the number of these events; and
- summers have been either increasingly dry or extremely wet, depending on location.

The USGCRP’s Fourth Assessment Report³⁹ notes the following projections of climate change impacts in the Southern Great Plains region with a high or very high level of confidence.⁴⁰

- climate models project nighttime temperatures above 75°F and daytime maximum temperatures above 100°F become the summer norm;
- the frequency and intensity of heavy precipitation are anticipated to continue to increase;
- drought will create stressful conditions for coastal trees in Texas; and
- severe weather, such as tornadoes and hurricanes may become more intense and frequent.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound events (such as simultaneous heat and drought, or flooding associated with high precipitation on top of

³⁹ U.S. Global Change Research Program (USGCRP). 2018. Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018. Available at: <https://nca2018.globalchange.gov/> Accessed June 2023.

⁴⁰ The report authors assessed current scientific understanding of climate change based on available scientific literature. Each “Key Finding” listed in the report is accompanied by a confidence statement indicating the consistency of evidence or the consistency of model projections. A high level of confidence results from “moderate evidence (several sources, some consistency, methods vary and/or documentation limited, etc.), medium consensus.” A very high level of confidence results from “strong evidence (established theory, multiple sources, consistent results, well documented and accepted methods, etc.), high consensus.”
<https://science2017.globalchange.gov/chapter/front-matter-guide/>.

saturated soils) can be greater than the sum of the parts.⁴¹

The GHGs emissions from the Project were identified and quantified in section B.9.1, in terms of CO_{2e}.⁴² Construction activities would result in 4,000 metric tpy of CO_{2e} emissions.⁴³ Operational CO_{2e} emissions as a result of the Project would be 42,760 metric tpy. There are no downstream emissions associated with the Project. Construction and operation of Project would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally, and would contribute incrementally to future climate change impacts. To assess impacts on climate change associated with the Project, Commission staff considered whether it could identify discrete physical impacts resulting from the Project's GHGs emissions or compare the Project's GHGs emissions to established targets designed to combat climate change.

To date, Commission staff have not identified a methodology to attribute discrete, quantifiable, physical effects on the environment resulting from the Project's incremental contribution to GHGs. Without the ability to determine discrete resource impacts, Commission staff are unable to assess the Project's contribution to climate change through any objective analysis of physical impact attributable to the Project. Additionally, Commission staff have not been able to find an established threshold for determining the Project's significance when compared to established GHGs reduction targets at the state or federal level. Ultimately, this EA is not characterizing the GHGs emissions as significant or insignificant.⁴⁴ However, as we have done in prior NEPA analyses, we disclose the Project's GHG emissions in comparison to national and state GHG emission inventories.

In order to provide context for the Project emissions on a national level, we compare the Project's construction GHGs emissions to the total GHGs emissions of the United States as a whole. At a national level, 5,586 million metric tons of CO_{2e} were emitted in 2021 (inclusive of CO_{2e} sources and sinks) (USEPA 2022). Construction emissions from the Project could potentially increase CO_{2e} emissions based on the national 2021 levels by 0.00007 percent. In subsequent years, Project operations could result in a potential increase in CO_{2e} emissions by 0.0008 percent based on the national

⁴¹ USGCRP Report Volume II.

⁴² GHGs are converted to CO_{2e} by means of the global warming potential, the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere, consistent with the USEPA's established method for reporting GHG emissions for air permitting requirements that allows a consistent comparison with federal regulatory requirements.

⁴³ Construction emissions were extrapolated to cover the 1.9 years of construction, in GHG emissions calculations and SC-GHG calculations.

⁴⁴ *See e.g., Driftwood Pipeline LLC*, 183 FERC ¶ 61,049, at P 63 (2023) (“...there currently are no accepted tools or methods for the Commission to use to determine significance, therefore the Commission is not herein characterizing these emissions as significant or insignificant.”)

2021 level.

To provide context on a state level, we compare the Project’s estimated GHGs emissions to the state emission inventories. The Project’s construction and operational emissions would occur in Texas. At a state level, 663.5 million metric tons of CO₂ were emitted in 2021 in Texas (inclusive of CO₂ sources and sinks) (U.S. Energy Information Administration 2023). Construction emissions from the Project could potentially increase CO_{2e} emissions based on the state 2021 levels by 0.0006 percent. In subsequent years, operational emissions from the Project in Texas could potentially increase CO₂ emissions based on statewide 2021 levels by 0.006 percent.

We also typically compare a project’s operational and downstream emissions in the context of state GHGs reduction goals. The state of Texas did not have established reduction targets at the time of analysis.⁴⁵

Below, we include a disclosure of the social cost of greenhouse gases (SC-GHG), also known as the social cost of carbon. Calculating SC-GHG does not enable the Commission to determine whether the reasonably foreseeable GHGs emissions associated with the Project are significant or not significant in terms of their impact on global climate.⁴⁶ In addition, there are no criteria to identify what monetized values are significant for NEPA purposes.⁴⁷

As both the USEPA and CEQ participate in the Interagency Working Group on Social Cost of Greenhouse Gases (IWG), Commission staff used the methods and values

⁴⁵ We reviewed the U.S. State Greenhouse Emission Targets site for individual state requirements at: <https://www.c2es.org/document/greenhouse-gas-emissions-targets/>

⁴⁶ See *Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 at P296, (2017), *aff’d sub nom.*, *Appalachian Voices v. FERC*, 2019 WL 847199 (D.C. Cir. 2019); *Del. Riverkeeper v. FERC*, 45 F.3d 104, 111 (D.C. Cir. 2022); and *Driftwood Pipeline LLC*, 183 FERC ¶ 61,049, at P 61 (2023). The Social Cost of GHGs tool merely converts GHG emissions estimates into a range of dollar-denominated figures; it does not, in itself, provide a mechanism or standard for judging “significance.”

⁴⁷ *Tenn. Gas Pipeline Co., L.L.C.*, 181 FERC ¶ 61,051 at P 37; see also *Mountain Valley Pipeline, LLC*, 161 FERC ¶ 61,043 at P 296, order on reh’g, 163 FERC ¶ 61,197, at PP 275-297 (2018), *aff’d*, *Appalachian Voices v. FERC*, No. 17-1271, 2019 WL 847199, at 2 (D.C. Cir. Feb. 19, 2019) (unpublished) (“[The Commission] gave several reasons why it believed petitioners’ preferred metric, the Social Cost of Carbon tool, is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for NEPA purposes.”); *EarthReports*, 828 F.3d 949, 956 (D.C. Cir. 2016) (accepting the Commission’s explanation why the social cost of carbon tool would not be appropriate or informative for project-specific review, including because “there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes”); *Tenn. Gas Pipeline Co., L.L.C.*, 180 FERC ¶ 61,205, at P 75 (2022); See, e.g., *LA Storage, LLC*, 182 FERC ¶ 61,026, at P 14 (2023); *Columbia Gulf Transmission, LLC*, 180 FERC ¶ 61,206, at P 91 (2022); and *Driftwood Pipeline LLC*, 183 FERC ¶ 61,049, at P 61 (2023).

contained in the IWG’s current draft guidance but note that different values will result from the use of other methods.⁴⁸ Accordingly, Commission staff calculated the SC-GHG for carbon dioxide, nitrous oxide, and methane. For the calculation, staff assumed discount rates of 5 percent, 3 percent, and 2.5 percent,⁴⁹ assumed the Project begins service in 2026 and that the emissions would be at a constant rate throughout a 20-year period, based on the term of the precedent agreements for the Project.

Noting these assumptions, the GHG emissions from Project activities disclosed in the EA are calculated to result in a total SC-GHG equal to \$10,330,673, \$38,490,218, and \$57,959,928 respectively (all in 2020 dollars).⁵⁰ Using the 95th percentile of the social cost of GHGs using the 3 percent discount rate,⁵¹ the total SC-GHG from the Project is calculated to be \$116,477,414 (in 2020 dollars).

11.8 Conclusions on Cumulative Impacts

We conclude that impacts associated with the Project would be relatively minor. We also expect the impacts from other existing and proposed projects within the geographic scope to be generally minor. Therefore, we expect that the Project would result in only minor cumulative impacts when the effects of the Project are added to past, present, and reasonably foreseeable projects within the geographic scope.

SECTION C – ALTERNATIVES

In accordance with NEPA and Commission policy, we identified and evaluated alternatives to the Project to determine whether they would be reasonable and

⁴⁸ *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021 (IWG Interim Estimates Technical Support Document).

⁴⁹ IWG Interim Estimates Technical Support Document at 24. To quantify the potential damages associated with estimated emissions, the IWG methodology applies consumption discount rates to estimated emissions costs. The IWG’s discount rates are a function of the rate of economic growth where higher growth scenarios lead to higher discount rates. For example, IWG’s method includes the 2.5 percent discount rate to address the concern that interest rates are highly uncertain over time; the 3 percent value to be consistent with Office of Management and Budget Circular A-4 (2003) and the real rate of return on 10-year Treasury Securities from the prior 30 years (1973 through 2002); and the 5 percent discount rate to represent the possibility that climate-related damages may be positively correlated with market returns. Thus, higher discount rates further discount future impacts based on estimated economic growth. Values based on lower discount rates are consistent with studies of discounting approaches relevant for intergenerational analysis. *Id.* at 18-19, 23-24.

⁵⁰ The IWG draft guidance identifies costs in 2020 dollars. *Id.* at 5 (Table ES-1).

⁵¹ This value represents “higher-than-expected economic impacts from climate change further out in the tails of the [social cost of CO₂] distribution.” *Id.* at 11. In other words, it represents a higher impact scenario with a lower probability of occurring.

environmentally preferable to the proposed action. These alternatives include the no-action alternative, facility siting alternatives, and system alternatives.

The Commission reviews applications for natural gas infrastructure. The NEPA process (and the alternatives analysis) is used to evaluate industry proposals and inform the Commission and stakeholders about the expected impacts that would occur if the Project is constructed and operated. The alternatives considered must first satisfy the objective identified by the Project proponent. In reviewing an application, the Commission's options are to approve, approve with modifications, or deny the application.

1.0 NO ACTION ALTERNATIVE

NEPA requires the Commission to consider and evaluate the no-action alternative. According to CEQ guidance, in instances involving federal decisions on proposals for projects, no-action would mean the proposed activity would not take place and the resulting environmental effects from taking no-action would be compared with the effects of permitting the proposed activity. Further, the no-action alternative provides a benchmark for decision-makers to compare the magnitude of environmental effects of the proposed activity and alternatives.

The no-action alternative consists of not constructing facilities associated with the Golden Triangle Storage Expansion Project at this time. The no-action alternative would avoid the impacts of ground disturbance, brine disposal, water usage, emissions from construction equipment, and emissions from operation of the new compressor units. However, the no-action alternative would not meet the Project objectives (purpose and need) to add deliverability and injection capability to satisfy growing demand for natural gas storage in the Gulf Coast region.

We have prepared this EA to inform the Commission and stakeholders about the reasonably foreseeable impacts that would occur if the Project is constructed and operated. The Commission would ultimately determine the Project need and could choose the No-Action Alternative.

2.0 FACILITY SITING AND SYSTEM ALTERNATIVE EVALUATION PROCESS

To ensure a consistent environmental comparison and to normalize the comparison factors of alternatives and the proposed action, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery). Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental evaluation considers quantitative data (e.g., acreage or mileage) and uses common comparative factors such as total length, amount of collocation, and land requirements. In recognition of the competing interests and the

different nature of impacts that sometimes exist (i.e., impacts on the natural environment versus impacts on the human environment), we also consider other factors that are relevant to a particular alternative and discount or eliminate factors that are not relevant or may have less weight or significance. We generally consider an alternative to be preferable to a proposed action using three evaluation criteria, as discussed in greater detail below. These criteria include:

1. the alternative meets the stated purpose of the project;
2. is technically and economically feasible and practical; and
3. offers a significant environmental advantage over a proposed action.

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 or not it could satisfy the stated purpose of the Project. A preferable alternative must meet the stated purpose of the Project, which is to add deliverability and injection capability to meet a growing demand for natural gas storage in the Gulf Coast region. It is important to recognize that not all conceivable alternatives can meet the Project's purpose, and an alternative that does not meet the Project's purpose cannot be considered a viable alternative.

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., significant environmental advantage).

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 from the current set of landowners to a new set of landowners.

3.0 SYSTEM ALTERNATIVES

System alternatives would generally use existing, modified, or proposed natural gas storage systems to meet the purpose and need of the Project. Although modifications or additions to existing or proposed natural gas storage systems may be required, implementation of a system alternative would deem it unnecessary to construct all or part of the Project. These modifications or additions could result in environmental impacts that are less than, similar to, or greater than those associated with construction and operation of the Project.

The purpose of the Project is, in part, to add deliverability and injection capability to satisfy growing demand for natural gas storage in the Gulf Coast region. We did not identify system alternatives that would provide a significant environmental advantage over the Project.

4.0 SITE ALTERNATIVES

The proposed construction of additional natural gas storage caverns would occur within the existing Central Storage Site. No alternative sites were considered for the construction of the additional storage caverns, as the existing Central Storage Site was developed to accommodate construction and operation of future storage caverns and thus the proposed location is needed to meet the Project's purpose and need. In addition, the proposed location of the new brine disposal well and brine disposal pipeline is adjacent to the existing brine disposal facilities that Golden Triangle currently utilizes. Golden Triangle would use an existing brine disposal pipeline system to transport brine to this area from the Central Storage Site. The new brine disposal pipeline would then transport brine the remaining distance to the new brine disposal well. Because this area 2 miles west of the Central Storage Site was developed to accommodate construction and operation of brine disposal wells and there is an existing brine disposal pipeline to deliver brine to this area, no alternative sites were considered for the construction of the additional brine disposal facilities. We identified no significant impacts that would drive further consideration of site alternatives.

5.0 CONCLUSION

We did not identify any alternatives that would meet all three evaluation criteria. In summary, we have determined that the proposed action, as modified by our recommended mitigation measures, is the preferred alternative that can meet the Project's objectives.

SECTION D – CONCLUSIONS AND RECOMMENDATIONS

Based upon the analysis in this EA, we have determined that if Golden Triangle constructs the proposed facilities in accordance with its application, supplements, Project-specific plans, and the 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. The staff recommends that the Commission Order contain a finding of no significant impact and the following mitigation measures be included as conditions of any Certificate the Commission may issue:

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

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from construction and operation.

3. **Prior to any construction activities**, Golden Triangle 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 EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Golden Triangle 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 facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Golden Triangle's exercise of eminent domain authority granted under NGA Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Golden Triangle's right of eminent domain granted under the NGA Section 7(h) does not authorize it to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

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

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

Examples of alterations requiring approval include all 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**, Golden Triangle shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP, or the Director's designee. Golden Triangle must file revisions to the plan as schedules change. The plan shall identify:
- a. how Golden Triangle 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 Golden Triangle will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions Golden Triangle will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);
 - f. the company personnel (if known) and specific portion of Golden Triangle's organization having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Golden Triangle will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the environmental compliance training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. Golden Triangle shall employ at least one EI for the Project. The EI 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, Golden Triangle shall file updated status reports with the Secretary on a **monthly basis** until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Golden Triangle's efforts to obtain the necessary federal authorizations;
 - b. the construction status of the project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - d. a description of the corrective actions implemented in response to all instances of noncompliance;
 - e. the effectiveness of all corrective actions implemented;
 - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by Golden Triangle from other federal, state, or local permitting agencies concerning instances of noncompliance, and Golden Triangle's response.
9. Golden Triangle must receive written authorization from the Director of OEP, or the Director's designee, **before commencing construction of any Project facilities**. To obtain such authorization, Golden Triangle must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
10. Golden Triangle must receive written authorization from the Director of OEP, or the Director's designee, **before placing the Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by

the Project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, Golden Triangle 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 Golden Triangle 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. **Within 5 days of receipt of a water quality certification issued by the Texas Commission on Environmental Quality and the Texas Railroad Commission** Golden Triangle shall file the complete certification, including all conditions. All conditions attached to the water quality certification constitute mandatory conditions of the Commission's Order. **Prior to construction**, Golden Triangle shall file, for review and written approval of the Director of OEP, or the Director's designee, any revisions to its project design necessary to comply with the water quality certification conditions.

13. Golden Triangle **shall not** begin construction activities **until**:
 - a. FERC staff receives comments from the USFWS regarding impacts of the proposed action;
 - b. ESA consultation with the USFWS is complete; and
 - c. Golden Triangle has received written notification from the Director of the OEP, or the Director's designee, that construction or use of mitigation may begin.

14. Golden Triangle **shall not** begin construction activities **until**:
 - a. Golden Triangle files with the Secretary comments on the cultural resources reports and plans from the SHPO;
 - b. the ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and
 - c. FERC staff reviews and the Director of OEP, or the Director's designee, approves the cultural resources reports and plans, and notifies Golden Triangle in writing that treatment plans/mitigation measures may be implemented and/or construction may proceed.

All materials filed with the Commission containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: “**CUI//PRIV- DO NOT RELEASE.**”

15. Golden Triangle shall file a noise survey with the Secretary **no later than 60 days** after placing the modified Central Compressor Station in service. If a full power load condition noise survey is not possible, Golden Triangle shall provide an interim survey at maximum possible horsepower load and provide the full load survey **within 6 months**. If the noise attributable to the operation of all the equipment at the Central Compressor Station under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, Golden Triangle shall file a report on what changes are needed and shall install additional noise controls to meet the level **within 1 year** of the in-service date. Golden Triangle shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

SECTION E – LIST OF PREPARERS

Das-Toke, Shyam – Project Manager, Groundwater, Geology, Soils, Land Use, Alternatives

M.S., Geology, 2019, Oregon State University

B.A., Geology, 2017, Whitman College

McDaniel, Nina –Air Quality, Noise, Reliability and Safety

M.S., Engineering Management, 2012, University of New Orleans

B.S., Civil Engineering, 2010, University of New Orleans

Hall, Tayoka – Environmental Justice

B.S., Civil Engineering, University of New Orleans

Moseley, Rachel – Surface Water and Wetlands, Vegetation and Wildlife

B.A., Animal Behavior; Spanish, 2007, Bucknell University

Wazaney, Brad – Cultural Resources

Ph.D., Anthropology, 2006, Washington State University

M.A., American Studies, 2000, University of Wyoming

B.A., History, 1995, Old Dominion University

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Appendix A

Threatened, Endangered, and Special Status Species

Appendix A
Threatened, Endangered, and Special Status Species

Common Name (Scientific Name)	Federal Status^a	State Status^b	Potential to Occur in Project Area	Determination of Effect
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	O	T	<i>May occur.</i> There have been no TXNDD occurrence records within the Project area (TPWD 2023a). The Project area does contain suitable habitat; however, no nests or individuals were observed during field surveys.	<i>Not likely to cause a take</i>
Piping Plover (<i>Charadrius melodus</i>)	BCC, T	BCC, T	<i>Unlikely to occur.</i> The Project area does not have suitable habitat for the piping plover and does not overlap with the critical habitat for piping plover (USFWS 2023a). There were no TXNDD occurrence records for this species within the Project area (TPWD 2023a).	<i>No effect</i>
Eastern Black Rail (<i>Laterallus jamaicensis</i> ssp. <i>jamaicensis</i>)	T	T	<i>Unlikely to occur.</i> The Project area does not contain suitable habitat. Emergent wetlands are not large enough nor meet vegetative criteria for eastern black rail. There were no occurrence records for this species within the Project area (TPWD 2023a).	<i>No effect</i>
Red Knot (<i>Calidris canutus rufa</i>)	BCC, T	BCC, T	<i>Unlikely to occur.</i> There is no suitable habitat within the Project area for red knot. There are no known TXNDD occurrences in the vicinity of the Project (TPWD 2023a). No critical habitat has been designated for the red knot.	<i>No effect</i>
Whooping Crane (<i>Grus americana</i>)	BCC, E	BCC, E	<i>Unlikely to occur.</i> There is no suitable habitat within the Project area. The Project area does not overlap with critical habitat for whooping cranes. There are no TXNDD occurrences within or near the Project area (TPWD 2023a).	<i>No effect</i>
Monarch Butterfly (<i>Danaus plexippus</i>)	C	-	<i>May occur.</i> Herbaceous areas within the Project area would be maintained and mowed, limiting suitable habitat on flowering plants for the monarch butterfly. Golden Triangle did not observe any milkweed within the Project area during the field survey.	<i>No adverse effect</i>
Rafinesque's Big-Eared Bat (<i>Corynorhinus rafinesquii</i>)	-	T	<i>Unlikely to occur.</i> There are no TXNDD occurrences in the Project area (TPWD 2023a). No suitable habitat for this species was observed within the Project area during field surveys. Species have been recorded approximately 22 miles from the Project area (iNaturalist 2023a).	<i>No adverse effect</i>
Tricolored Bat (<i>Perimyotis subflavus</i>)	PE	PE	<i>May occur.</i> There have been no TXNDD occurrence records within the Project area (TPWD 2023a). The Project area does contain suitable habitat; however, no roosts or individuals were observed during field surveys.	<i>Would not jeopardize the continued existence</i>

Louisiana Pigtoe (<i>Pleurobema riddellii</i>)	PT	T	<i>Unlikely to occur.</i> The Project area does not contain suitable habitat for the Louisiana pigtoe. The upland-dug human-made ditches would not support this species, nor would the Project require rerouting of existing streams.	<i>No effect</i>
Texas Pigtoe (<i>Fusconaia askewi</i>)	-	T	<i>Unlikely to occur.</i> No TXNDD occurrences were reported within the Project area (TPWD 2023a). The upland-dug human-made ditches would not support this species, nor would the Project require rerouting of existing streams.	<i>No effect</i>
Sandbank Pocketbook (<i>Lampsilis satura</i>)	-	T	<i>Unlikely to occur.</i> The upland-dug human-made ditches would not support this species, nor would the Project require rerouting of existing streams. No TXNDD occurrences were reported within 10 miles of the proposed Project (TPWD 2023a).	<i>No effect</i>
Kemp's Ridley Sea Turtle (<i>Lepidochelys kempii</i>)	E	E	<i>Does not occur.</i> In Texas, this species can be found along South Texas inshore and near-shore coastal waters. There is no marine habitat, waterbodies, or rivers that could be traversed by sea turtles; therefore, no occurrence of this species is anticipated within the study area. There are no known occurrences within the study area (TPWD 2023a).	<i>No effect</i>
Green Sea Turtle (<i>Chelonia mydas</i>)	T	T	<i>Does not occur.</i> In Texas, this species can be found along South Texas inshore and near-shore coastal waters. There is no marine habitat, waterbodies, or rivers within the Project area. There are no known occurrences within the study area (TPWD 2023a).	<i>No effect</i>
Hawksbill Sea Turtle (<i>Eretmochelys imbricata</i>)	E	E	<i>Does not occur.</i> In Texas, this species can be found along South Texas inshore and near-shore coastal waters. There is no marine habitat, waterbodies, or rivers within the Project area. There are no known occurrences within the study area (TPWD 2023a).	<i>No effect</i>
Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)	E	E	<i>Does not occur.</i> In Texas, this species can be found along South Texas inshore and near-shore coastal waters. There is no marine habitat, waterbodies, or rivers within the Project area. There are no known occurrences within the study area (TPWD 2023a).	<i>No effect</i>
Loggerhead Sea Turtle (<i>Caretta caretta</i>)	T	T	<i>Does not occur.</i> In Texas, this species can be found along South Texas inshore and near-shore coastal waters. There is no marine habitat, waterbodies, or rivers within the Project area. There are no known occurrences within the study area (TPWD 2023a).	<i>No effect</i>
Alligator Snapping Turtle (<i>Macrochelys temminckii</i>)	PT	T	<i>Unlikely to occur.</i> There are TXNDD occurrences for this species in 2018, 2021, and 2022 approximately 5 miles northeast and 14 miles southwest of Project (TPWD 2023a). However, the ephemeral upland-dug human-made ditches and ponds within the Project area are not deep enough to provide suitable habitat for large adults of this species. Additionally, the Project area is too far from larger waterbodies for females to nest.	<i>No effect</i>

Northern Scarlet Snake (<i>Cemophora coccinea</i>)	-	T	<i>May occur.</i> The Project area has loamy soils that may provide suitable habitat for the northern scarlet snake. There were no TXNDD occurrences of this species within the Project area (TPWD 2023a).	<i>No significant effect</i>
Texas Trailing Phlox (<i>Phlox nivalis ssp. Texensis</i>)	E	E	<i>May occur.</i> The Project area is in Jefferson County, just south of Hardin County where this species is known to occur. There was an occurrence record for this species in 2003–2004 (TPWD 2023a) more than 10 miles from the Project area; however, there were no occurrences within the Project area.	<i>May affect, not likely to adversely affect</i>
<p>^a Federally Listed Status Definitions C = Candidate Species E = Endangered PT = Proposed Threatened PE = Proposed Endangered T = Threatened BCC = Bird of Conservation Concern O = Other. Additional formal federal protections under the Bald and Golden Eagle Protection Act.</p> <p>^b State Listed Status Definitions E = Endangered. T = Threatened.</p>				

Appendix B
Birds of Conservation Concern in the Project Area

Appendix B
Birds of Conservation Concern in Bird Conservation Region 37

Common Name	Scientific Name
American Golden-plover*	<i>Pluvialis dominica</i>
American Oystercatcher	<i>Haematopus palliatus</i>
Black Skimmer	<i>Rynchops niger</i>
Buff-breasted Sandpiper*	<i>Calidris subruficollis</i>
Chimney Swift	<i>Chaetura pelagica</i>
Dickcissel	<i>Spiza americana</i>
Dunlin*	<i>Calidris alpina</i>
Forster's Tern	<i>Sterna forsteri</i>
Gull-billed Tern	<i>Gleochelidon nilotica</i>
Henslow's Sparrow	<i>Centronyx henslowii</i>
Hudsonian Godwit*	<i>Limosa haemastica</i>
King Rail	<i>Rallus elegans</i>
Least Tern	<i>Sternula antillarum</i>
LeConte's Sparrow*	<i>Ammospiza leconteii</i>
Lesser Yellowlegs*	<i>Tringa flavipes</i>
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Long-billed Curlew*	<i>Numenius americanus</i>
Marbled Godwit*	<i>Limosa fedoa</i>
Mountain Plover*	<i>Charadrius montanus</i>
Painted Bunting	<i>Passerina ciris</i>
Pectoral Sandpiper*	<i>Calidris melanotos</i>
Prothonotary Warbler	<i>Protonotaria citrea</i>
Pyrrhuloxia	<i>Cardinalis sinuatus</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
Red Knot*	<i>Calidris canutus</i>
Reddish Egret	<i>Egretta rufescens</i>
Ruddy Turnstone*	<i>Arenaria interpres morinella</i>
Sandwich Tern	<i>Thalasseus sandvicensis</i>
Seaside Sparrow	<i>Ammospiza maritima</i>
Short-billed Dowitcher*	<i>Limnodromus griseus</i>
Snowy Plover	<i>Charadrius nivosus</i>
Sprague's Pipit*	<i>Anthus spragueii</i>
Swallow-tailed Kite	<i>Elanoides forficatus</i>
Whimbrel*	<i>Numenius phaeopus</i>

Appendix B
Birds of Conservation Concern in Bird Conservation Region 37

Common Name	Scientific Name
Willet	<i>Tringa semipalmata</i>
Wilson's Plover	<i>Charadrius wilsonia</i>
Yellow Rail*	<i>Coturnicops noveboracensis</i>
Note * = nonbreeding bird	

Appendix C

Projects in the Vicinity of the Golden Triangle Storage Expansion Project

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
FERC-Jurisdictional Natural Gas Actions						
Port Arthur LNG Expansion Project (Port Arthur LNG Phase II, LLC and PALNG Common Facilities Company, LLC)	Jefferson County, Texas	Proposed to FERC	Expansion of the previously certificated Port Arthur Liquefaction Terminal by construction and operation of additional LNG facilities within the existing terminal. The project would increase the terminals capability to liquefy natural gas for export by 13.46 MTPA and would increase total liquefaction capacity from 13.46 MTPA to 26.92 MTPA.	17 miles (28 kilometers) southeast of Expansion Project	60 acres	<p><u>Air Quality:</u> The EA concludes that with implementation of mitigation measures, construction and operation would not contribute to any NAAQS violation and, therefore, would not result in any significant air quality impacts.</p> <p><u>Socioeconomics:</u> The EA concludes the action would have no significant impacts on housing resources, negligible impacts on the local school system and hospitals, minor and temporary negative impacts on the local police and fire services. With the implementation of a Traffic Management Plan, critical intersections and roadways would continue to operate at acceptable levels of service and impacts to traffic would not be significant.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: FERC 2021a, FERC 2021b.</p>
MP33 Compressor Station Modification Amendment Project (Golden Pass Pipeline, LLC's)	Orange County, Texas	Under Construction	Includes relocating existing MP33 Compressor Station approximately 50 feet north-northwest to avoid an existing pipeline right-of-way; increasing the authorized compression at the station from 17,994 horsepower to 37,101 horsepower; constructing three new interconnects and appurtenant facilities adjacent to the station; and eliminating receipt stations at the existing Texoma delivery interconnect on Golden Pass's existing system at MP33.	6 miles northeast of the Expansion Project	9 acres	<p><u>Air Quality:</u> The EA concludes that with implementation of mitigation measures, construction would not have a significant impact on air quality. Additionally, operation would not significantly impact air quality in the surrounding area.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: FERC 2022a, 2022b.</p>

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
Texas to Louisiana Energy Pathway Project, CS40 (Transcontinental Gas Pipeline Company, LLC)	Hardin County, Texas	Proposed to FERC / Anticipated construction start Q2 2024; Anticipated in-service Q1 2025	Modification of six existing compressor units at the existing CS 40 to accommodate new flow conditions resulting from the project.	28 miles (44 kilometers) northwest of Expansion Project	12 acres	<u>Air Quality:</u> The EA concludes that with implementation of mitigation measures, impacts from construction emissions on air quality are anticipated to be minor, intermittent, and temporary. Additionally, operation would not result in significant adverse impacts on air quality. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: FERC 2023a, 2023b.
Golden Pass LNG Export Project (Golden Pass LNG Terminal, LLC)	Jefferson County, Texas	Under Construction / Anticipated in-service for Train 1 Q1 2024, Train 2 Q3 2024, and Train 3 Q1 2025	Expansion and modification of the existing Golden Pass LNG Import Terminal to allow the export of LNG, which would require construction and operation of various liquefaction, LNG distribution, and appurtenant facilities.	20 miles (32 kilometers) southeast of Expansion Project	1,017 acres	<u>Air Quality:</u> The Final EIS concludes that with implementation of FERC's recommendation, construction equipment emissions are not expected to cause or significantly contribute to a violation of an applicable air quality standard. Impacts on air quality during operations would not be significant with strict adherence to permit requirements. <u>Socioeconomics:</u> The Final EIS concludes that construction of the Project would have a minor to moderate, temporary negative impact on housing. Construction and operation would have beneficial impacts, including increased local and state tax revenues from sales taxes, payroll taxes, and property taxes, and would likely increase local employment. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: FERC 2016.
Sabine Pass Stage 5 Expansion Project (Sabine Pass Liquefaction, LLC and Sabine Pass Liquefaction Stage V, LLC)	Cameron Parish, Louisiana	Proposed to FERC (Pre-filing) / Anticipated construction start Q1 2026; Anticipated in-service second half of 2032	Expansion of existing Sabine Pass LNG terminal to add incremental liquefaction capacity and associated equipment and facilities, while also increasing the efficiency and reliability for the loading of LNG carriers for transport from the existing terminal.	22 miles (35 kilometers) southeast of the Expansion Project	605 acres	<u>Air Quality:</u> Information on air emissions is not available. It is anticipated that the action will be completed under a state-approved air permit and under FERC review and approval; therefore, significant cumulative impacts are not anticipated. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: Cheniere 2023, FERC 2023c.
Other Natural Gas Facility Actions						
No other natural gas facility actions identified						

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
USACE Regulated In-Water Actions						
No USACE Regulated In-Water actions identified						
Transportation Facility Actions						
US 69/Chinn Lane Construction Project (TxDOT)	Jefferson County, Texas	Unknown	The US 69/Chinn Lane construction project is located at the intersection of US 69 and Chinn Lane in Beaumont, Jefferson County. Intersections will be changed to an all-way stop with illuminated, flashing stop signs.	11 miles (17.7 kilometers) northwest of Expansion Project	Unknown	<u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: TxDOT 2023a; 2023b).
SH 73 Crossover Removal Project (TxDOT)	Jefferson County, Texas	Construction start: Fall 2022 Construction completion: Two-month duration	Removal of seven highway crossovers spanning 20 miles on SH 73, from SH 124 east to 0.627 miles south of Portland Street.	9.5 miles (15.3 kilometers) south of Expansion Project	20 miles (32 kilometers)	<u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: TxDOT 2023c
US 90 Crossover Removal Project (TxDOT)	Jefferson County, Texas	Construction start: Fall 2025 Construction completion: TBD (future project will dictate timeline)	Proposed removal of 26 crossovers spanning 11.7 miles on US 90, from Keith Road west to SH 326.	9.5 miles (15.3 kilometers) northwest of Expansion Project	12 miles (19 kilometers)	<u>Groundwater, Wetlands, Vegetation, Wildlife:</u> Disturbance will be confined to existing infrastructure and will include removal of pavement markings and signage. Due to the nature of the Action, there are no anticipated cumulative impacts to wildlife, vegetation, wetlands, or groundwater. <u>Surface Water:</u> Disturbance will be confined to existing infrastructure (removing pavement markings and signage); therefore, no cumulative impacts are anticipated. <u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: TxDOT 2023d

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
I 10/US 69 Interchange Projects (TxDOT)	Jefferson County, Texas	Construction start: Summer 2024 Construction completion: Anticipate 60- month construction duration	Reconstruct and expand I-10 and US 69, where they converge in Beaumont. The project area includes existing right of way (ROW) of I-10 and US 69.	4 miles (6.4 kilometers) northwest of Expansion Project	Approximately 11 acres (4.4 hectares) of additional ROW is anticipated as part of the Eastex Interchange project.	<p><u>Groundwater, Wetlands, Vegetation, Wildlife:</u> The Project may require tree clearing. Construction is anticipated to be completed under state-approved sediment and erosion control plans. It is anticipated the Action will also be completed under state-approved sediment and erosion control plans. The Project will be reviewed by the appropriate wildlife agencies. It is anticipated the Action may affect similar wildlife communities and will be reviewed by the appropriate agencies, with mitigation enacted where required. The Project required an EA that resulted in a FONSI; therefore, it is anticipated that potential impacts to wetlands, groundwater, vegetation, and wildlife were evaluated in order to result in a FONSI. Therefore, significant cumulative impacts are not anticipated.</p> <p><u>Surface Water:</u> Construction is anticipated to be completed under state-approved sediment and erosion control plans; therefore, no cumulative impacts are anticipated.</p> <p><u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment). No residential displacements are anticipated. One governmental and twelve commercial properties will be displaced ; therefore, minor, beneficial, and non-beneficial cumulative impacts may occur as a result of the action and the Project.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: TxDOT 2023e, TxDOT 2020; TxDOT 2023f</p>
US 69/SH 73 Interchange (TxDOT)	Jefferson County, Texas	Finalized design and construction plans: late winter/early spring 2021 Construction: summer/fall 2021	Improve US 69 and SH 73 interchange southeast of Beaumont near Port Arthur.	8 miles (12.8 kilometers) southeast of Expansion Project	Unknown	<p><u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment). No displacements are anticipated; therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: TxDOT 2023g</p>

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
SH 124 Project - Hillebrandt Bayou Bridge (TxDOT)	Jefferson County, Texas	Construction start: January 2022 Construction Completion: Late 2022	Remove and replace the Hillebrandt Bayou bridge on SH 124.	4 miles (6.4 kilometers) northwest of the Expansion Project	0.1 mile (0.16 kilometer)	<p><u>Groundwater, Wetlands, Vegetation, Wildlife:</u> The Project will not result in tree clearing, disturbance will be confined to existing infrastructure, and construction will be completed under state-approved sediment and erosion control plans. The Project will be reviewed by the appropriate wildlife agencies, if applicable. The Project does not include impacts to wetlands/waterbodies. Therefore, significant cumulative impacts are not anticipated.</p> <p><u>Surface Water:</u> The Project will not result in tree clearing, disturbance will be confined to existing infrastructure, and construction will be completed under state-approved sediment and erosion control plans; therefore, no cumulative impacts are anticipated.</p> <p><u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: TxDOT 2023h</p>

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
4 th Street Roadway Rehabilitation (City of Beaumont)	Jefferson County, Texas	Construction start: mid-August 2023 Construction completion: Late-October 2023	Concrete repairs to 4 th Street and stormwater point repairs.	2.5 miles (4 kilometers) northwest of Expansion Project	Unknown	<p><u>Groundwater, Wetlands, Vegetation, Wildlife:</u> Disturbance will be confined to existing and maintained roadways; therefore, significant cumulative impacts are not anticipated.</p> <p><u>Surface Water:</u> The Project will not result in tree clearing and will only include restoration to the existing roadway and stormwater points; therefore, no cumulative impacts are anticipated.</p> <p><u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project.</p> <p><u>Environmental Justice:</u> Action completed in accordance with applicable agency permits and authorizations, and it is assumed that appropriate impact avoidance, minimization, and mitigation measures were implemented. No significant disproportionate and adverse cumulative impacts on environmental justice communities are anticipated.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: City of Beaumont 2023c</p>
Residential/Commercial/Industrial Developments						
Port of Beaumont Mainstreet Terminal One Dock Construction Project	Downtown Beaumont, Jefferson County, Texas	Under construction	Phase 2 construction in 2022 included existing dock demolition and beginning construction of new cargo dock, construction to end June 2024	3.8 miles north of Expansion Project	421 linear feet of revetment; discharge of approximately 1,512 cubic yards of concrete fill for the construction of a new revetment system	<p><u>Socioeconomics:</u> Beneficial impacts, including jobs and economic developments to Southeast Texas, increase the port's capacity by 15%--which in turn will decrease rail and big rig shipping traffic as more cargo can come in by ship (beneficial impacts to local supply chains). Minor impacts to local transportation in the downtown area from construction equipment and workers.</p> <p><u>Environmental Justice:</u> Action completed in accordance with applicable agency permits and authorizations. No significant disproportionate and adverse cumulative impacts on environmental justice communities are anticipated. Beneficial impacts including an increase in jobs.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: Port of Beaumont, 2022; 12News, 2022</p>

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
Riverfront Park	Downtown Beaumont, Jefferson County, Texas	Under construction. FEMA and USACE approval received. Construction: Q1 2023-Q3 2024	Riverfront Park along Neches River to get multi-million-dollar renovations. Restoration from Hurricane Harvey impacts. New dock, sidewalks, rails, water fountains, bank erosion control, etc.	4 miles north of Expansion Project	Unknown	<p><u>Socioeconomics</u>: Localized beneficial impact anticipated, including (creation of jobs, increases in downtown property values); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project.</p> <p><u>Other resources</u>: This action is outside of the geographic scope for other resources.</p> <p>Ref: City of Beaumont, 2023a</p>
OCI Fuels USA Inc.	1575-1505 Lone Star Dr, Nederland, Texas 77627	Under construction; Production start between 2025 and 2027	Proposed lumber waste-to-fuels project, to be built within OCI existing 28-acre site. The renewable fuels plans call for a unit that turns wood waste into synthesis gas, creating renewable natural gas.	2.5 miles southeast of Expansion Project (Different HUC)	Unknown	<p><u>Socioeconomics</u>: New facility will support around 60-80 new full-time jobs, as well as around 1,000 construction jobs at the peak of site construction for the OCI scope.</p> <p><u>Environmental Justice</u>: Beneficial impacts to the local community include company donations. Beneficial impacts to the local community include company donations to Beaumont Independent School District to develop opportunities to expand STEM education for students, continuing its long-term partnership with the school district.</p> <p><u>Other resources</u>: This action is outside of the geographic scope for other resources.</p> <p>Business Wire, 2022; BIC Magazine 2022</p>
OCI Clean Ammonia (Project name is Blue Ammonia Project)	1575-1505 Lone Star Dr, Nederland, Texas 77627	Under construction; Production start between 2025 and 2027	On-going construction of an ammonia fertilizing facility plant that will capture and sequester carbon dioxide from the production of ammonia. Project is within OCI existing 28-acre site.	2.5 miles southeast of Expansion Project (Different HUC)	Unknown	<p><u>Socioeconomics</u>: New facility will support around 60-80 new full-time jobs, as well as around 1,000 construction jobs at the peak of site construction for the OCI scope.</p> <p><u>Environmental Justice</u>: Beneficial impacts to the local community include company donations to Beaumont Independent School District to develop opportunities to expand STEM education for students, continuing its long-term partnership with the school district.</p> <p><u>Other resources</u>: This action is outside of the geographic scope for other resources.</p> <p>Refs: Beaumont Enterprise, 2022; Business Wire, 2022; OCI Global, 2022; Reuters, 2023</p>

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
Other Projects						
El Vista Subdivision Drainage Improvements (TxDOT)	Port Arthur, Jefferson County, Texas	Pre-bid meeting August 30, 2023	The Project will consist of improvements to the existing drainage system in the El Vista subdivision located in Port Arthur, Texas. Additional drainage features will be added along with regrading the open roadside ditches and replacing the culverts with new piping. Modifications are made to the existing water and sanitary sewer system where conflicts exist.	10 miles (16 kilometers) southeast of Expansion project	72 acres (29 hectares)	<u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: Port Arthur, Texas 2023a; 2023b
Port Acres Subdivision Drainage Improvements (TxDOT)	Port Arthur, Jefferson County, Texas	Pre-bid meeting August 31, 2023	Drainage improvements for Port Acres.	9 miles (14.5 kilometers) southeast of Expansion Project	377 acres (152.5 hectares)	<u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: Port Arthur, Texas 2023c
Landfill Waterline Extension from Hazel Ave to City Landfill (TxDOT)	Port Arthur, Jefferson County, Texas	Pre-bid meeting August 17, 2023	Construct approximately 8,320 linear feet of water line from existing water system at Hazel Avenue to City Landfill property.	8.5 miles (13.7 kilometers) southwest of Expansion Project	8,320 linear feet (2,536 meters) of water line	<u>Socioeconomics:</u> Localized beneficial impact anticipated (creation of jobs and capital investment); therefore, minor, beneficial cumulative impacts may occur as a result of the action and the Project. <u>Other resources:</u> This action is outside of the geographic scope for other resources. Ref: Port Arthur, Texas 2023d

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
Air Quality Permitting Actions						
Motiva Enterprises LLC Renew Draft Operating Permit	Port Arthur, Jefferson County, Texas	Public Comment	Permit renewal for the Port Arthur Chemicals Plant.	10 miles (16.1 kilometers) southeast of the Expansion Project	0	<p><u>Air Quality:</u> This permitting action is to renew an existing permit for the Port Arthur Chemicals Plant. This permitting action will not result in new emission sources or greater emission rates, but will authorize future emissions for the facility. This project will not affect air quality in the region due to the emission rates associated with the facility remaining unchanged.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: TCEQ 2023a</p>
Jefferson Railport Terminal I Texas LLC Significant Revision	Vidor, Orange County, Texas	Public Comment	Significant permit modification subject to PSD and Title V permitting to modify/authorize emissions sources.	7.75 miles (12.5 kilometers) northeast of the Expansion Project	Unknown	<p><u>Air Quality:</u> The project associated with this permitting action will authorize additional emissions of VOCs, SO₂, NO_x, CO, and HAPs. Due to PSD requirements, air quality impacts will require that the project demonstrate compliance with the NAAQS, which would result in minor impacts to air quality.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: TCEQ 2023b</p>
TPC Group LLC Renew Draft Operating Permit	Port Neches, Jefferson County, Texas	Public Comment	Permit renewal for TGP's Port Neches Operations.	8.3 miles (13.4 kilometers) southeast of the Expansion Project	0	<p><u>Air Quality:</u> This permitting action is to renew an existing permit for the Port Neches Operations. This permitting action will not result in new emission sources or greater emission rates, but will authorize future emissions for the facility. This project will not affect air quality in the region due to the emission rates associated with the facility remaining unchanged.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: TCEQ 2023c</p>

Past, Present, and Reasonably Foreseeable Future Actions Evaluated for Potential Cumulative Effects

Project (Company Name as appropriate)	Location (County, State)	Status / Estimated Construction Date	Description	Approximate Closest Distance (miles to Expansion Project)	Approximate Construction Impacts	Overlapping Geographic Scope(s) and Discussion of Impact
The Dow Chemical Company Renew Draft Operating Permit	Orange, Orange County, Texas	Public Comment	Permit renewal for the DuPont Sabine River Works.	19.2 miles (30.8 kilometers)	0	<p><u>Air Quality:</u> This permitting action is to renew an existing permit for the DuPont Sabine River Works. This permitting action will not result in new emission sources or greater emission rates, but will authorize future emissions for the facility. This project will not affect air quality in the region due to the emission rates associated with the facility remaining unchanged.</p> <p><u>Other resources:</u> This action is outside of the geographic scope for other resources.</p> <p>Ref: TCEQ 2023d</p>