



Office of Energy  
Projects

FERC/SEIS-019-20-000-1726224918

July 2025

# RIO GRANDE LNG TERMINAL AND RIO BRAVO PIPELINE PROJECT

## FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Rio Grande LNG, LLC  
Rio Bravo Pipeline Company, LLC

Docket Nos: CP16-454-000  
CP16-455-000  
CP20-481-000

### Abstract

The staff of the Federal Energy Regulatory Commission (FERC or Commission) prepared a final supplemental environmental impact statement (EIS) to address the August 6, 2024 opinion issued by the U.S. Court of Appeals for the District of Columbia Circuit (court) regarding the Commission's environmental review of the Rio Grande LNG Terminal and Rio Bravo Pipeline Project. The court remanded the Commission's April 21, 2023 *Order on Remand and Amending Section 7 Certificate* that approved the liquefied natural gas terminal and pipeline project, including a pipeline amendment in FERC Docket No. CP20-481-000. The court found that FERC failed to issue a supplemental EIS consistent with the National Environmental Policy Act to discuss impacts on communities with environmental justice concerns, address why the Commission did not use data from a particular air quality monitor in the air analysis, and address a carbon capture and sequestration proposal. These items are addressed within this supplemental EIS.

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OFFICE OF ENERGY PROJECTS

In Reply Refer To:  
OEP/DG2E/Gas Branch 1  
Rio Grande LNG, LLC  
Rio Bravo Pipeline Company, LLC  
Docket Nos. CP16-454-000,  
CP16-455-000, and CP20-481-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared a final supplemental environmental impact statement (EIS) to address the August 6, 2024 opinion issued by the U.S. Court of Appeals for the District of Columbia Circuit (court) regarding the Commission's environmental review of the Rio Grande LNG Terminal and Rio Bravo Pipeline Project proposed by Rio Grande LNG, LLC and Rio Bravo Pipeline Company, LLC, respectively.<sup>1,2</sup> The court remanded the Commission's April 21, 2023 *Order on Remand and Amending Section 7 Certificate* that approved the liquefied natural gas (LNG) terminal and pipeline project. The court found that FERC failed to issue a supplemental EIS consistent with the National Environmental Policy Act to discuss impacts on communities with environmental justice concerns, address why the Commission did not use data from a particular air quality monitor in the air analysis, and address a carbon capture and sequestration proposal. As part of the Commission's consideration of the proposed projects on remand, we<sup>3</sup> prepared this final supplemental EIS to assess the issues remanded by the court.

The Commission mailed a copy of the *Notice of Availability* of the final supplemental EIS 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 final supplemental EIS is only available in electronic format. It may be viewed and downloaded from the FERC's website ([www.ferc.gov](http://www.ferc.gov)), on the natural gas environmental documents page (<https://www.ferc.gov/industries-data/natural-gas/environment/environmental-documents>). In addition, the final supplemental EIS may be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link

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<sup>1</sup> For tracking purposes under the National Environmental Policy Act, the unique identification number for documents relating to this environmental review is FERC/SEIS-019-20-000-1726224918.

<sup>2</sup> *City of Port Isabel v. FERC*, 111 F.4th 1198 (D.C. Cir. 2024). On March 18, 2025, the court partially granted rehearing and remanded the case without vacatur [*City of Port Isabel v. FERC*, No. 23-1174 (D.C. Cir. Mar. 18, 2025)].

<sup>3</sup> "We," "us," and "our" refer to the environmental and engineering staff of the FERC's Office of Energy Projects.

(<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., CP16-454, CP16-455, or CP20-481). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at [FercOnlineSupport@ferc.gov](mailto:FercOnlineSupport@ferc.gov) or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

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## **Commission Staff Page Limit and Deadline Certifications**

I certify that Commission staff has considered the factors mandated by the National Environmental Policy Act (NEPA) and that this environmental document represents a good-faith effort to disclose the most important considerations required by NEPA within the statutory page limit (42 U.S.C. § 4336a(e)) and the statutory deadline (42 U.S.C. § 4336a(g)). This certification reflects staff's expert judgment that the analysis contained within this environmental document is an accurate representation of the potential environmental effects of the proposed action and the analysis is substantially complete. In staff's judgment, any considerations addressed briefly or left unaddressed would not meaningfully inform the assessment of environmental effects.

Gertrude Fernandez Johnson, Director  
Division of Gas – Environment and  
Engineering

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## TECHNICAL ACRONYMS AND ABBREVIATIONS

ACS	American Community Survey
AEGL	Acute Exposure Guideline Level
AERMOD	American Meteorological Society/EPA Regulatory Model
AMS	Aerodynamic Modeling System
ATSDR's	Agency for Toxic Substances and Disease Registry's
BCC	Birds of Conservation Concern
Bcf/d	billion cubic feet per day
BND	Brownsville Navigation District
BPUB	Brownsville Public Utilities Board
BSC	Brownsville Ship Channel
CAA	Clean Air Act
CAMx	Comprehensive Air Quality Model with Extensions
CBO	Congressional Budget Office
CCS	Carbon Capture and Sequestration
Certificate	Certificate of Public Convenience and Necessity
CEQ	Council on Environmental Quality
<i>CEQ Environmental Justice Guidance</i>	<i>CEQ Environmental Justice Guidance Under the National Environmental Policy Act</i>
CFR	Code of Federal Regulations
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2e</sub>	Carbon Dioxide Equivalents
CO	Carbon Monoxides
Commission	Federal Energy Regulatory Commission
CWA	Clean Water Act
CWEJCs	Communities with Environmental Justice Concerns
dBA	A-weighted Decibels
DOE	U.S. Department of Energy
DPS	North Atlantic Distinct Population Segment

EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERP	Emergency Response Plan
ERPG	Emergency Response Planning Guidelines
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FR	Federal Register
GHG	Green House Gas
GMFMC	Gulf of Mexico Fishery Management Council
HAPs	Hazardous Air Pollutants
HDD	Horizontal Directional Drilling
HHRAP	Human Health Risk Assessment Protocol
HI	Hazard Index
HQ	Hazard Quotient
IHA	Incidental Harassment Authorization
IRIS	Integrated Risk Information System
L <sub>dn</sub>	Day-Night Sound Level
LFL	lower flammable limit
LIUNA	Laborers' International Union of North America
LNG	liquefied natural gas
MBCP	Migratory Bird Conservation Plan
MP	milepost
MTPA	million tonnes per annum
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NGA	Natural Gas Act

NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NO <sub>x</sub>	Nitrogen Oxides
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSA	Noise Sensitive Areas
OPP	Office of Public Participation
PEA	Programmatic Environmental Assessment
PHMSA	U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration
PIIA	Potential Incident Impact Area
PM <sub>2.5</sub>	Inhalable particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers
PM <sub>10</sub>	Inhalable particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
PPRTV <sub>s</sub>	Provisional Peer Reviewed Toxicity Values
<i>Promising Practices</i>	<i>Promising Practices for EJ Methodologies in NEPA Reviews</i>
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RB Pipeline	Rio Bravo Pipeline Company, LLC
RG LNG	Rio Grande LNG, LLC
RME	Resident Reasonable Maximum Exposed
RPT	rapid phase transition
SIL	Significant Impact Levels
SO <sub>2</sub>	Sulfur Dioxide
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
UFL	upper flammable limit
UIC	Underground Injection Control

URFs	Unit Risk Factors
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VLA	vehicle launch area
VOCs	Volatile Organic Compounds
WQC	Clean Water Act Section 401 Water Quality Certification

## EXECUTIVE SUMMARY

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On May 5, 2016, Rio Grande LNG, LLC (RG LNG) and Rio Bravo Pipeline Company, LLC (RB Pipeline), filed a joint application with the Federal Energy Regulatory Commission (Commission or FERC) for authorization pursuant to Sections 3(a) and 7(c) of the Natural Gas Act (NGA). RG LNG sought authorization to site, construct, and operate facilities necessary to liquefy and export natural gas along the Brownsville Ship Channel (BSC) in Cameron County, Texas (Rio Grande LNG Terminal or LNG terminal). RB Pipeline sought authorization to site, construct, operate, and maintain a new pipeline system (the Rio Bravo Pipeline or Pipeline System) and related facilities in Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties, Texas. RG LNG and RB Pipeline applications were assigned Docket Nos. CP16-454-000 and CP16-455-000, respectively.

On November 22, 2019, the Commission issued an *Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act* for RG LNG's Rio Grande LNG Terminal and RB Pipeline's Rio Bravo Pipeline, collectively referred to as the Rio Grande LNG Project (Project). On August 3, 2021, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit or court) remanded the 2019 order, holding that the Commission's National Environmental Policy Act (NEPA) analyses of the projects' impacts on climate change and communities with environmental justice concerns (CWEJC) were deficient, and thus, directed the Commission to also revisit its determinations of public interest and convenience under Sections 3 and 7 of the NGA.<sup>4</sup> While the *Vecinos* remand proceeding was ongoing, RG LNG proposed to add a carbon capture and sequestration (CCS) system to the terminal. Due to RG LNG's delay in responding to staff questions, the Commission suspended its environmental review of that proposal. On April 21, 2023, the Commission issued an order on remand and addressed the court's concerns. Environmental groups, nearby residents, and the City of Port Isabel appealed the Commission's decision.

On August 6, 2024, the D.C. Circuit issued an opinion vacating and remanding the Commission's April 21, 2023 *Order on Remand and Amending Section 7 Certificate* that approved the liquefied natural gas (LNG) terminal and pipeline project, including a pipeline amendment in FERC Docket No. CP20-481-000.<sup>5</sup> The court faulted the Commission for failing to issue a supplemental EIS in connection with its revised environmental justice analysis. Additionally, the court found that the Commission did not adequately explain why it excluded data from the Isla Blanca monitor that purportedly showed a potential National Ambient Air Quality Standards (NAAQS) exceedance for fine particulate matter during the study period. The court found that the CCS proposal needed to be considered as part of the Commission's environmental review of the Rio Grande terminal. The court went on to find that, even if the developer were to withdraw the CCS

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<sup>4</sup> *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021)

<sup>5</sup> *City of Port Isabel v. FERC*, 111 F.4th 1198 (D.C. Cir. 2024).

proposal, “the Commission must, at the very least, analyze the proposal as an alternative via a supplemental EIS before reauthorizing the Rio Grande terminal.”<sup>6</sup> On March 18, 2025, the court partially granted RG LNG’s and RB Pipeline’s petition for rehearing of its August 6, 2024 opinion and determined that vacatur was not appropriate because on balance “the seriousness of the [2023 Remand Order’s] deficiencies does not outweigh the disruptive effects of vacatur.”<sup>7</sup> Therefore, the court remanded the case to the Commission without vacatur. In previous orders, the Commission concluded that the Rio Grande LNG Project is not inconsistent with the public interest, and the Rio Bravo Pipeline Project is in the public convenience and necessity. On remand, the Commission will determine whether that is still the case.

This final supplemental EIS was prepared in accordance with the requirements of NEPA and the Commission’s implementing regulations under Title 18 of the Code of Federal Regulations, Part 380 (18 CFR pt. 380). The principal purpose in preparing this supplemental EIS is to respond to the court’s August 6, 2024 opinion. Also, the supplemental EIS addresses changes in species with special status, updates the discussion of Essential Fish Habitat (EFH), updates the cumulative impacts analysis, and updates the reliability and safety analysis as it pertains to emergency response plans and nexus with CWEJC.

## **PROPOSED ACTION**

The Rio Grande LNG Terminal would consist of five natural gas liquefaction trains, each with a nominal capacity of 5.4 MTPA; four LNG storage tanks; two LNG carrier loading berths; one 1,500-foot-diameter turning basin; LNG truck loading and unloading facilities with four loading bays; two natural gas liquids truck loading bays; and other administrative, maintenance, and support facilities. As amended, the Pipeline Project would include: a 2.4-mile-long header system; approximately 136 miles of parallel 48- and 42-inch-diameter mainline pipelines; one compressor station in Kleberg County, Texas with four 43,000-hp natural gas-fired turbine-driven compressors and two 55,000 electric driven compressors; four metering sites; and other appurtenant facilities.

## **PUBLIC INVOLVEMENT**

Section 1.3 of this supplemental EIS summarizes public involvement throughout the NEPA reviews for the Rio Grande LNG and Rio Bravo Pipeline Projects. Overall, from initial pre-filing in 2015 until the D.C. Circuit’s August 6, 2024 opinion, the Commission issued eight notices seeking public comment with a cumulative 217 days of open scoping/comment periods and held six scoping/comment sessions for the Project.

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<sup>6</sup> *Id.* at 1213.

<sup>7</sup> *City of Port Isabel v. FERC*, No. 23-1174 (D.C. Cir. Mar. 18, 2025).

On September 13, 2024, the FERC issued a *Notice of Intent to Prepare a Supplemental Environmental Impact Statement for the Proposed Rio Grande LNG Terminal and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Schedule for Environmental Review* (September 2024 NOI). On September 16, 2024, an errata notice was issued.<sup>8</sup> The notice was sent to 5,247 potentially interested parties including the environmental mailing list from the 2019 Final EIS and Amendment EAs<sup>9</sup> (i.e., federal, state, and local officials, agency representatives, conservation organizations, Native American Tribes, local libraries and newspapers in the project area, and “affected landowners” as defined in the Commission’s regulations at 18 CFR 157.6(d)(2); as updated to account for changes in agency personnel and elected officials). The September 2024 NOI established a 30-day public comment period for the submission of comments, concerns, and issues identified by the court’s August 6, 2024 opinion as requiring further analysis. We received about 80 comments in response to the September 2024 NOI, which were addressed in the draft supplemental EIS.

The draft supplemental EIS for the Project was issued for public review and comment on March 28, 2025, and the Notice of Availability was published in the *Federal Register* on April 4, 2025.<sup>10</sup> Copies of the Notice of Availability were sent 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 via first class mail (see appendix A of the draft supplemental EIS for the Project distribution list).

The notice established a closing date of May 19, 2025, for receiving comments on the draft supplemental EIS. In response to the draft supplemental EIS, we received comments from one federal agency, five non-governmental organizations, 78 individuals, and RG LNG and RB Pipeline. All comments on the draft supplemental EIS are addressed in appendix I and within the appropriate sections of this supplemental EIS. A Notice of Availability for this final supplemental EIS is being mailed to the agencies, individuals, and organizations listed in appendix A.

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<sup>8</sup> Errata to the September 13, 2024 Commission issued *Notice of Intent to Prepare a Supplemental Environmental Impact Statement for the Proposed Rio Grande LNG Terminal and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Schedule for Environmental Review* correcting the background information in the first paragraph. See FERC Accession No. 20240916-3080.

<sup>9</sup> Rio Grande LNG Project Final EIS, FERC Accession No. 20190426-3020; Rio Bravo Pipeline Project Amendment EA, FERC Accession No. 20201221-3012; Rio Bravo Pipeline Route Amendment EA, FERC Accession No. 20231114-3043.

<sup>10</sup> 90 Fed. Reg. 14,834. (Apr. 4, 2025)

## PROJECT IMPACTS

As noted above, this supplemental EIS focuses on the environmental justice,<sup>11</sup> air quality, and alternatives analyses required by the August 6, 2024 opinion. However, it also updates the consultation on species listed under the Endangered Species Act (ESA) and the discussion of EFH, updates the cumulative impact analysis, and updates the reliability and safety analysis as it pertains to emergency response plans. For all other environmental resources, our analysis and conclusions are unchanged from what was presented in the 2019 Final EIS and Amendment EAs.

Formal section 7 ESA consultation with the U.S. Fish and Wildlife Service (USFWS) was previously concluded in October 2019 with the issuance of a Biological Opinion, and later supplemented by informal consultation on the recently listed the eastern black rail. Informal section 7 ESA consultation with the National Marine Fisheries Service (NMFS) concluded in August 2019. However, since the issuance of the 2019 Final EIS and two Amendment EAs, there have been additional species listings by the USFWS; one species has been listed as threatened, four have been proposed for listing as endangered, and two have been proposed for listing as threatened under the ESA. Construction and operational activities for the Rio Grande LNG Project also overlap with the proposed critical habitat for two ESA listed species under NMFS' jurisdiction: proposed critical habitat for the green sea turtle affected by the LNG terminal and Rio Bravo Pipeline and proposed critical habitat for Rice's whale by vessel traffic for the LNG terminal. We determined that the projects are *not likely to jeopardize* the continued existence of four proposed endangered species and two proposed threatened species. We also determined that the projects are *not likely to result in adverse modification* to the proposed critical habitat designations. For the newly listed threatened species, we determined there would be *no effect* from the LNG terminal, while construction of the Rio Bravo Pipeline *may affect, but is not likely to adversely affect* this species. Informal ESA consultation is ongoing with the USFWS regarding the newly listed threatened species (Cactus ferruginous pygmy-owl) and we recommend that any Commission order authorizing the Rio Bravo Pipeline require that construction not begin until staff completes ESA consultation. We also requested that RB Pipeline file additional information during the draft supplemental EIS comment period to update state-listed species consultation and clarify mitigation measures as applicable. RB Pipeline provided an update on May 19, 2025 (refer to section 4.1.2).

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<sup>11</sup> The environmental justice section is included in this supplemental EIS to be consistent with the D.C. Circuit's August 6, 2024 decision. The court, in its March 18 Order on Petitions for Panel Rehearing, noted that two Executive Orders issued in January 2025 (i) revoked a 1994 Executive Order that "required federal agencies to identify and mitigate" impacts on environmental justice communities and (ii) prohibited agencies from "weigh[ing] any environmental considerations except those expressly provided by statute." Slip op. 8-9. The court stated that these legal developments "may alter the procedures the Commission must conduct on remand," slip op. 5, but left it to the Commission to decide the legal implications of the January 2025 Executive Orders on this proceeding. Slip op. 10. This is a legal question of first impression to be considered in the first instance by the Commission.

The Rio Grande LNG Terminal and the amended Rio Bravo Pipeline Project will have a range of impacts on the environment and individuals living in the vicinity of the project facilities, including communities with environmental justice concerns. Effects on communities with environmental justice concerns from construction and operation of the LNG terminal; Meter Stations HS1, HS2, HS3, and HS4; Contractor Yards 1, 2 and 3; and a majority of the 135-mile pipeline would be disproportionate and adverse because they would be predominately borne by those communities. We continue to conclude that cumulative impacts on visual resources would be potentially significant, when considered with other projects within the cumulative geographic scope for visual resources. We also continue to conclude that project-related impacts associated with wetlands, surface water, recreational and subsistence fishing, tourism, socioeconomics, traffic, and noise would be disproportionate and adverse, but less than significant. Regarding air quality effects on communities with environmental justice concerns, we conclude that impacts would be disproportionate and adverse, and we identify significant impacts on two discrete areas located directly north of the Terminal, specific to the annual National Ambient Air Quality Standard (NAAQS) for inhalable particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (PM<sub>2.5</sub>). However, there are no permanent residences or other usages in these areas in which annual levels of exposure could occur. In all other locations within the modeled area, air quality impacts on communities with environmental justice concerns would be less than significant.

RG LNG's air quality analysis demonstrates that the emission contributions of the Rio Grande LNG Terminal comply with the NAAQS and are not significant for modeled pollutants nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), inhalable particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM<sub>10</sub>), 24-hour PM<sub>2.5</sub>, and sulfur dioxide (SO<sub>2</sub>) and therefore result in no meaningful change to the ambient environment when combined with other Texas Commission on Environmental Quality (TCEQ)-inventoried emission sources in the area and ambient concentrations obtained from regional air quality monitoring stations, including the Isla Blanca monitor. Although the emissions contributions of the Rio Grande LNG Terminal exceed the significant impact levels (SILs)<sup>12</sup> for 1-hour and annual NO<sub>2</sub>, the terminal's NO<sub>2</sub> contributions, when combined with inventoried sources and ambient concentrations, the resulting concentrations fall under the NAAQS. For the annual PM<sub>2.5</sub> standard, the local ambient concentrations are above the existing NAAQS, and while the majority of the area is below SILs and not statistically significant, there are two discrete areas just north of the LNG terminal, within the Laguna Atascoca National Wildlife Refuge, where the cumulative model shows an exceedance of the annual PM<sub>2.5</sub> SIL, and thus we conclude air quality impacts in those areas would be significant. There are no permanent residences or other

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<sup>12</sup> SILs are defined concentrations of criteria pollutants in the ambient air, below which emissions are considered inconsequential in comparison to the NAAQS. SILs are used to determine appropriate modeling for analyzing emissions impacts. Concentrations above SIL levels do not indicate that NAAQS have been exceeded nor do they indicate a significant impact under NEPA. See *Transcon. Gas Pipe Line Co., LLC*, 187 FERC ¶ 61,024 (2024).

usages in these areas in which annual levels of exposure could occur, and the overall impact is below the secondary annual PM<sub>2.5</sub> NAAQS and the 24-hour PM<sub>2.5</sub> NAAQS. For the remainder of locations within the modeled area, the modeling demonstrates that RG LNG's emission contributions at any NAAQS exceedance location would be below the respective SILs and thus would not have a significant impact on regional air quality.

We also revisited the air quality modeling for RB Pipeline's Compressor Station 1 to consider potential ambient background changes since the 2020 Amendment EA and in light of updated census data as well as a recent change in the annual PM<sub>2.5</sub> NAAQS standard.<sup>13</sup> In the draft supplemental EIS, we identified an exceedance of the annual PM<sub>2.5</sub> standard that could indicate a potential significant impact to air quality. However, we requested RB Pipeline perform an updated air quality dispersion modeling for Compressor Station 1 and file that with the Commission during the draft supplemental EIS comment period, to account for additional refinements that may not have been included in the original modeling given that the standards have changed. On May 19, 2025, RB Pipeline submitted the results of an air dispersion modeling analysis for Compressor Station 1 that demonstrated that air quality impacts from Compressor Station 1 would not exceed the NAAQS. On July 1, 2025, RB Pipeline submitted additional revised modeling results for 24-hour and annual PM<sub>2.5</sub> for Compressor Station 1 that included additional support for revised emission factors and monitors. With this additional information, we conclude that Compressor Station 1 would not have a significant impact on local or regional air quality.

## **ALTERNATIVES CONSIDERED**

We assessed the No-Action Alternative, LNG Terminal Site Alternative, Pipeline Route Alternative, and CCS Alternative. Our updated analyses in this supplemental EIS did not identify any environmental factors that would lead us to recommend the no-action; however, the Commission will ultimately determine the project need and could choose the no-action alternative. We continue to conclude that the proposed location is the preferred alternative for the LNG terminal. We also evaluated a minor route alternative suggested by a commentor and conclude it does not result in a significant environmental advantage over the proposed route; therefore, we do not recommend it.

Regarding the CCS Alternative, given the inability to compel non-jurisdictional facilities to be constructed, the lack of permitting assurances, the estimated CCS project timelines not meeting the project needs, and the uncertainty in potential environmental impacts on other resources, we do not recommend that the Commission require RG LNG to implement CCS technology as a condition of any approval the Commission may issue.

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<sup>13</sup> On March 6, 2024, the U.S. Environmental Protection Agency published its final rule lowering the primary annual NAAQS for PM<sub>2.5</sub> to 9.0 micrograms per cubic meter ("µg/m<sup>3</sup>"). The new, more stringent standard replaces the prior primary annual PM<sub>2.5</sub> NAAQS of 12.0 µg/m<sup>3</sup>, which was established in 2012.

## CONCLUSIONS

Based on the analysis in the supplemental EIS, FERC staff continues to conclude that project impacts on communities with environmental justice concerns would be disproportionate and adverse because they would be predominately borne by the communities with environmental justice concerns identified and, specifically, communities in the areas near the Rio Grande LNG Terminal may experience significant cumulative visual impacts. Specific to air quality impacts, we clarify that the project's air quality impacts on communities with environmental justice concerns would also be disproportionate and adverse, and air quality impacts near RB Pipeline's Compressor Station 1 and the majority of the modeled area around the terminal would not be significant, while impacts would be significant in two locations north of the Rio Grande LNG Terminal for annual PM<sub>2.5</sub>. For all other resources, FERC staff continues to conclude that approval of the projects would result in less than significant impacts, with implementation of the environmental conditions set forth in the Commission's prior authorizations for the project,<sup>14</sup> and the additional mitigation measures recommended in the final supplemental EIS. Furthermore, staff does not recommend the CCS Alternative.

Our conclusions are stated in section 5.0 of the supplemental EIS. We recommend that all of the environmental and engineering conditions of the Commission's November 22, 2019, April 21, 2023, and May 23, 2024 Orders shall apply, if approved, and those conditions are therefore not repeated in the supplemental EIS. Finally, we recommend that any Commission order authorizing the Project include a condition requiring the completion of ESA consultation for the RB Pipeline, prior to construction.

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<sup>14</sup> The Commission's November 22, 2019 *Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act* and its April 23, 2023 *Order on Remand and Amending Section 7 Certificate* approved the LNG terminal and pipeline project, including a pipeline amendment in FERC Docket No. CP20-481-000. In addition, the Commission approved four discrete route adjustments to the Rio Bravo Pipeline Project in FERC Docket No. CP23-519-000 (*Order Amending Certificate* issued May 23, 2024).

# 1 INTRODUCTION

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On May 5, 2016, Rio Grande LNG, LLC (RG LNG) and Rio Bravo Pipeline Company, LLC (RB Pipeline) filed a joint application with the Federal Energy Regulatory Commission (FERC or Commission) for authorization and certification pursuant to sections 3(a) and 7(c) of the Natural Gas Act (NGA). In Docket No. CP16-454-000, RG LNG requested authorization under Section 3(a) of the NGA and Part 153 of the Commission’s regulations to site, construct, and operate facilities necessary to liquefy and export natural gas at a proposed site (the Rio Grande LNG Terminal or LNG terminal) along the Brownsville Ship Channel (BSC) in Cameron County, Texas. In Docket No. CP16-455-000, RB Pipeline requested a Certificate of Public Convenience and Necessity (Certificate) pursuant to section 7(c) of the NGA and Part 157 of the Commission’s regulations to site, construct, operate, and maintain a new pipeline system (the Rio Bravo Pipeline or Pipeline System) in Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties, Texas. The Rio Grande LNG Terminal and the Rio Bravo Pipeline are collectively referred to as the “Rio Grande LNG Project.” On November 22, 2019, the Commission issued an *Order Granting Authorizations Under Sections 3 and 7 of the Natural Gas Act* (2019 Authorization Order).<sup>15</sup>

On June 16, 2020, RB Pipeline filed the Rio Bravo Pipeline Project Amendment (2020 Project Amendment) application with the Commission (Docket No. CP20-481-000) pursuant to section 7(c) of the NGA to amend the Certificate. RB Pipeline requested authorization to modify its authorized Rio Bravo Pipeline Project to reduce the total number of compressor stations, eliminate certain measurement facilities, decrease the operating condition of its Header System pipeline, increase the length and operating conditions of the Pipelines 1 and 2, and increase the diameter of Pipeline 1.

On August 3, 2021, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit or court) remanded the 2019 Authorization Order, holding that the Commission’s National Environmental Policy Act (NEPA) analyses of the projects’ impacts on climate change and environmental justice communities were deficient, and thus, the Commission must also revisit its determinations of public interest and convenience under Sections 3 and 7 of the NGA.<sup>16</sup> On April 21, 2023, the Commission issued an *Order on Remand and Amending Section 7 Certificate*, which addressed the issues remanded to the Commission by the court in *Vecinos* and granted RB Pipeline’s proposed amendment to the Pipeline System in Docket No. CP20-481-000 (2023 Remand Order).<sup>17</sup> Environmental groups, nearby residents, and the City of Port Isabel appealed the Commission’s decision.

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<sup>15</sup> *Rio Grande LNG, LLC*, 169 FERC ¶ 61,131 (2019), *order on reh’g*, 170 FERC ¶ 61,046 (2020).

<sup>16</sup> *Vecinos para el Bienestar de la Comunidad Costera v. FERC*, 6 F.4th 1321 (D.C. Cir. 2021) (*Vecinos*).

<sup>17</sup> *Rio Grande LNG, LLC*, 183 FERC ¶ 61,046, *order on reh’g*, 185 FERC ¶ 61,080 (2023).

On November 17, 2021 RG LNG filed an amendment application to add a carbon capture and sequestration (CCS) system to the terminal. Due to RG LNG’s delay in responding to staff questions, the Commission suspended its environmental review of the proposal and issued a *Notice of Effectiveness of Withdrawal of Application to Amend Section 3 Authorization*.

On July 20, 2023, RB Pipeline filed an application for a Route Amendment with the Commission in Docket No. CP23-519-000. RB Pipeline sought to amend its certificate to make four route adjustments to the previously authorized pipeline alignment for the Rio Bravo Pipeline Project (the original application and amendments are referred to as the Pipeline Project).<sup>18</sup> On May 23, 2024, the Commission issued an *Order Amending Certificate* (2024 Route Amendment Order).<sup>19</sup>

On August 6, 2024, the D.C. Circuit issued an opinion vacating and remanding the 2023 Remand Order that granted the pipeline amendment in Docket No. CP20-481-000 and reaffirmed the Commission’s prior conclusions that the Rio Grande LNG Terminal was not inconsistent with the public interest under NGA section 3, and the Rio Bravo Pipeline, as amended, was required by the public convenience and necessity under NGA section 7.<sup>20</sup> The court faulted the Commission for failing to issue a supplemental environmental impact statement (EIS) in connection with the 2023 Remand Order’s revised environmental justice analysis. The court also found that the Commission did not adequately explain why it excluded data from the Isla Blanca monitor that purportedly showed a potential National Ambient Air Quality Standards (NAAQS) exceedance for fine particulate matter during the study period. The court found that the CCS proposal needed to be considered as part of the Commission’s environmental review of the Rio Grande LNG Terminal. The court explained that, even if the developer were to withdraw the CCS proposal, the Commission “must, at the very least, analyze the proposal as an alternative via a supplemental EIS before reauthorizing the Rio Grande terminal.”<sup>21</sup>

On March 18, 2025, the court partially granted RG LNG’s and RB Pipeline’s petition for panel rehearing of its August 6, 2024 opinion and determined that vacatur was not appropriate because on balance “the seriousness of the [2023 Remand Order’s] deficiencies does not outweigh the disruptive effects of vacatur.”<sup>22</sup> Therefore, the court remanded the case to the Commission without vacatur. We note that previous Commission orders have concluded that the Rio Grande LNG Project is not inconsistent with the public

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<sup>18</sup> For ease of reference, the Rio Bravo Pipeline Route Amendment EA considers the approved “Pipeline Project” to represent the currently approved iteration of the pipeline authorized by the Commission’s April 21, 2023 *Order on Remand and Amending Section 7 Certificate* as relates to Docket Nos. CP16-455-000/-002, and CP20-481-000. On October 27, 2023, the Commission issued its *Order Addressing Arguments Raised on Rehearing*, which sustained the April 21, 2023 Remand Order.

<sup>19</sup> See FERC Accession No. 20240523-3114.

<sup>20</sup> *City of Port Isabel v. FERC*, 111 F.4th 1198 (D.C. Cir. 2024).

<sup>21</sup> *Id.* at 1213.

<sup>22</sup> *City of Port Isabel v. FERC*, No. 23-1174 (D.C. Cir. Mar. 18, 2025).

interest, and the Rio Bravo Pipeline Project is in the public convenience and necessity. As part of the Commission’s consideration of these applications on remand, we prepared this final supplemental EIS to address the issues raised by the court in its August 6, 2024 opinion.<sup>23</sup>

## **1.1 PROJECT PURPOSE AND NEED**

The purpose of the Rio Grande LNG Project is to develop, own, operate, and maintain a natural gas pipeline system to access natural gas from the Agua Dulce Hub and an LNG export facility in south Texas to export 27 million tonnes per annum (MTPA) of LNG that provides an additional source of firm, long-term, and competitively priced LNG to the global market. The Rio Grande LNG Terminal Project purpose also includes providing LNG for truck transport and for fueling operations. Any exports would be consistent with authorizations from the U.S. Department of Energy (DOE).<sup>24</sup>

Under section 3 and 7 of the NGA, the Commission considers as part of its decision to authorize natural gas facilities, all factors bearing on the public interest. Specifically, regarding whether to authorize natural gas facilities under section 3 of the NGA used for importation or exportation, the Commission shall authorize the proposal unless it finds that the proposed facilities would not be consistent with the public interest. 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.

## **1.2 PURPOSE AND SCOPE OF THIS SUPPLEMENTAL EIS**

The Commission must issue a Remand Order under the NGA, taking into consideration the factors discussed in the court’s August 6, 2024 opinion. Based on its authority under the NGA, the Commission is the lead agency for preparation of this supplemental EIS in compliance with the requirements of NEPA and FERC regulations implementing NEPA (18 CFR pt. 380).

The purpose in preparing this supplemental EIS is to address the court’s August 6, 2024 opinion that FERC failed to issue a supplemental EIS to discuss impacts on communities with environmental justice concerns,<sup>25</sup> address why the Commission did not

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<sup>23</sup> This final supplemental EIS does not address the legal issues raised by the D.C. Circuit in its March 18, 2025 opinion. *See supra* note 11.

<sup>24</sup> See 2019 Final EIS table 1.5-1 for Federal and State permits and approvals.

<sup>25</sup> Executive Order 14148, *Initial Rescissions of Harmful Executive Orders and Actions*, 90 Fed. Reg. 8237 (Jan. 28, 2025) and Executive Order, 14173 *Ending Illegal Discrimination and Restoring Merit-Based Opportunity*, 90 Fed. Reg. 8633 (Jan. 31, 2025) revoked three executive orders pertaining to environmental justice, Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, 86

use data from a particular air quality monitor in the air analysis, and address a CCS proposal. The supplemental EIS also addresses changes in species with special status, discusses changes in essential fish habitat designations, updates the reliability and safety analysis as it pertains to emergency response plans and nexus with communities with environmental justice concerns (CWEJC), and updates the cumulative impacts analysis.

This supplemental EIS also presents our conclusions and recommended mitigation measures. For all other environmental resources, our analysis and conclusions are unchanged from what was presented in the April 26, 2019 final EIS for the Rio Grande LNG Project (2019 Final EIS) (CP16-454-000 and CP16-455-000); and December 21, 2020 Environmental Assessment (EA) for the Rio Bravo Pipeline Project Amendment (CP16-454-000, CP16-454-003, CP16-455-000, CP16-455-002, and CP20-481-000) and November 14, 2023 EA for the Rio Bravo Pipeline Route Amendment (CP23-519-000) (collectively referred to as Amendment EAs). Additionally, we have reviewed 2019 Final EIS and Amendment EAs for the passage of time and found them representatively accurate of environmental conditions except for those resource areas noted above and discussed throughout this supplemental EIS. The 2019 Final EIS and Amendment EAs are incorporated by reference in this supplemental EIS.<sup>26</sup> All of the conditions of the Commission's previous orders continue to apply, if approved, and are therefore not repeated in the supplemental EIS.

The vertical line in the margin identifies text that is new or modified in the final supplemental EIS and differs materially from corresponding text in the draft supplemental EIS. Changes were made to address comments from agencies and other stakeholders on the draft supplemental EIS.

### 1.3 PUBLIC REVIEW AND COMMENT

#### Pre-Filing Process and Scoping

On March 20, 2015, RG LNG and RB Pipeline filed a request with FERC to use our pre-filing review process. This request was approved on April 13, 2015, and pre-filing Docket No. PF15-20-000 was established in order to place information filed by RG LNG and RB Pipeline, documents issued by FERC, as well as comments from the public, agencies, tribes, organizations, and other stakeholders into the public record. The pre-filing

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Fed. Reg. 7009 (Jan, 25, 2021), Executive Order 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, 88 Fed. Reg. 25251 (Apr. 26, 2023), and Executive Order 12898, *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*, 59 Fed. Reg. 7629 (Feb. 16, 1994).

<sup>26</sup> Rio Grande LNG Project Final EIS, FERC Accession No. 20190426-3020; Rio Bravo Pipeline Project Amendment EA, FERC Accession No. 20201221-3012; Rio Bravo Pipeline Route Amendment EA, FERC Accession No. 20231114-3043.

review process provides opportunities for interested stakeholders to become involved early in project planning, facilitates interagency cooperation, and assists in the identification and resolution of issues prior to a formal application being filed with FERC.

RG LNG and RB Pipeline held open houses in Kingsville, Raymondville, and Brownsville on May 19, 20, and 21, 2015, respectively, to provide information to the public about the Rio Grande LNG Project. FERC staff participated in the open houses, describing the FERC process and providing those attending with information on how to file comments with FERC.

On July 23, 2015, FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Planned Rio Grande LNG Project and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings* (NOI). This notice was sent to about 720 interested parties including federal, state, and local officials; agency representatives; conservation organizations; Native American Tribes; local libraries and newspapers; and property owners in the vicinity of the planned Project. Publication of the NOI established a 30-day public scoping period for the submission of comments, concerns, and issues related to the environmental aspects of the Project.

FERC conducted three public scoping meetings to provide an opportunity for the public to learn more about the Rio Grande LNG Project and to participate in our analysis by providing written or oral comments on environmental issues to be included in the EIS. Each scoping meeting had representatives from FERC staff, RG LNG and RB Pipeline, as well as informational materials on the Project and the FERC process. Two of the scoping meetings were held along the RB Pipeline route in Raymondville (August 10, 2015) and Kingsville (August 13, 2015). Five individuals elected to provide oral comments at the Raymondville scoping meeting; a transcript of these comments is part of the public record for the Rio Grande LNG Project and is available for viewing on FERC internet website (<http://www.ferc.gov>). No oral comments were provided at the Kingsville scoping meeting.

A third scoping meeting was held in Port Isabel on August 11, 2015, near the site of the proposed Rio Grande LNG Terminal. As three LNG terminals had been proposed for our consideration along the BSC (the Rio Grande LNG Terminal, the Texas LNG Terminal [FERC Docket No. CP16-116-000], and the Annova LNG Terminal [FERC Docket No. CP16-480-000]), the Port Isabel scoping meeting included the applicants and informational materials for each of the three projects. The intent of the combined scoping meeting was to provide interested parties the opportunity to discuss, and provide comments for, all three projects in one venue. A total of 142 individuals elected to provide oral comments; the transcript of these comments is also available for viewing on the FERC internet website. All comments received at this scoping meeting were reviewed during preparation of the

EIS, and addressed as appropriate; however, each project was being individually assessed in a separate EIS.

On July 15, 2015, FERC staff met with representatives of the U.S. Army Corp of Engineers (USACE), National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS); and on August 12, 2015, FERC staff met with representatives of the Coast Guard, USFWS, National Park Service, and Texas Parks and Wildlife Department (TPWD) to discuss coordination of agency review, permit requirements, resource concerns, and each agency's interest in participating in our environmental review as a cooperating agency. Similar to the Port Isabel scoping meeting, these interagency meetings included discussions on each of the three planned or proposed LNG projects along the BSC. Additional calls, meetings, and site visits were also conducted prior to RG LNG and RB Pipeline filing their application, as well as bi-weekly calls between FERC, interested agencies, and representatives of RG LNG and RB Pipeline.

### **Draft and Final EIS**

On October 12, 2018, we issued a *Notice of Availability of the Draft Environmental Impact Statement for the Proposed Rio Grande LNG Project*. This notice, which was published in the *Federal Register*, listed the date and locations of public comment sessions and established a closing date of December 3, 2018, for receiving comments on the draft EIS. Copies of the notice were mailed to 3,253 stakeholders. The EPA noticed the draft EIS in the *Federal Register* on October 18, 2018.<sup>27</sup>

We held three public sessions in the Project area to solicit and receive comments on the draft EIS. These sessions were held on November 13, 14, and 15, 2018, in Kingsville, Raymondville, and Port Isabel, respectively. The sessions provided the public an opportunity to present oral comments to a court reporter on the environmental analysis described in the draft EIS. A total of 63 individuals provided oral comments. We also received 861 comment and form letters from federal agencies, companies/organizations, and individuals in response to the draft EIS. All comments received were included in the comment responses contained in appendix R of the final EIS. Transcripts from the public sessions, as well as written comment letters, were entered into the public record and are available for viewing on FERC's eLibrary website ([www.ferc.gov](http://www.ferc.gov)).<sup>28</sup>

On April 26, 2019, the final EIS was issued by the Commission and filed with the EPA. The Commission's *Notice of Availability* of the final EIS was mailed to agencies, individuals, companies/organizations, non-governmental organizations, and other parties identified in the distribution list provided as appendix A in the final EIS. The EPA's notice indicating that the final EIS was available for review was published in the *Federal Register*

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<sup>27</sup> 83 Fed. Reg. 52,828.

<sup>28</sup> See FERC Accession Nos. 20190102-4002, 20190102-4003, and 20190102-4005.

on May 2, 2019.<sup>29</sup> The final EIS addressed all substantive environmental comments submitted to the FERC or made at scoping sessions, interagency meetings, and public comment sessions on the draft EIS.

The Commission received comments on the final EIS from seven individuals, one state agency, one local municipality, and a group of environmental and local resident organizations. All substantive comments received on the final EIS were addressed in the 2019 Authorization Order.

FERC also provided an opportunity for comment during the preparation of its 2023 Remand Order. On September 30, 2022, the Commission issued a notice seeking public comments on RG LNG's responses to FERC's information requests. The notice stipulated that initial comments were due no later than October 21, 2022, and reply comments no later than November 4, 2022. These comments were addressed in the 2023 Remand Order.

### **Project Amendment EA**

On June 16, 2020, RB Pipeline filed an abbreviated application for an amendment ("Amendment Application") to the certificate of public convenience and necessity issued by the Commission to RB Pipeline by order dated November 22, 2019, in Docket No. CP16-455-000 for the Rio Bravo Pipeline Project.

On July 28, 2020, FERC issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Rio Bravo Pipeline Project Amendment and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to affected landowners; federal, state, and local officials; Native American Tribes; agency representatives; environmental and public interest groups; and local libraries and newspapers.

The Commission received 960 comment letters from interested public, local non-governmental groups, the City of South Padre Island, Texas Parks and Wildlife Department (TPWD), U.S. Fish and Wildlife Service (FWS), Texas State Historic Preservation Office (TX SHPO), and the U.S. Environmental Protection Agency, Region 6 (EPA). Many letters were received requesting a formal public scoping meeting for the Project Amendment. Staff considered the NOI issued to request comments as sufficient and commensurate for the limited scope of the proposed Project Amendment; therefore, a public scoping meeting was not scheduled. The EA addressed all substantive comments related to the Project Amendment. Issues identified that were not considered environmental considerations or were outside the scope of the EA process were summarized in a table and not addressed further in the EA.

The EA was issued for a 30-day comment period and placed into the public record on December 21, 2020. The Commission received approximately 400 comments primarily

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<sup>29</sup> 84 Fed. Reg. 18,836.

addressing issues related to our prior approval of the projects, which were outside the scope of the amendment proceeding. The Commission also received comments on the EA from seven individuals, Sierra Club, and Healthy Gulf, raising environmental and procedural concerns associated with the Amendment Project. All substantive comments were addressed in the 2023 Remand Order.

### **Route Amendment EA**

On July 20, 2023, RB Pipeline filed an abbreviated application for an amendment to the certificate of public convenience and necessity for the Rio Bravo Pipeline Project issued by the Commission to RB Pipeline in Docket No. CP16-455-000 by the 2019 Authorization Order and amended by the Commission Docket No. CP20-481-000 by the 2023 Remand Order.

On August 23, 2023, the Commission issued a *Notice of Scoping Period Requesting Comments on Environmental Issues for the proposed Rio Bravo Pipeline Route Amendment* (Scoping Notice). The Scoping Notice was sent to about 178 interested parties including affected landowners; federal, state, and local government agencies; elected officials; environmental and public interest groups; Native American Tribes; other interested parties; and local libraries and newspapers. Publication of the Scoping Notice established a 30-day public scoping period for the submission of comments, concerns, and issues related to the environmental aspects of the Route Amendment.

The Commission received approximately 74 comment letters (including over 60 form letters) from individuals, comment letters from the U.S. Environmental Protection Agency (EPA) and USFWS, and 4 requests for intervention, two of which contained comments. A majority of the comments focused on aspects that were not within the scope of the environmental review of the proposed Route Amendment. The EA addressed all substantive comments related to the Route Amendment. Issues identified that were not considered environmental considerations or were outside the scope of the EA process were summarized in a table and not addressed further in the EA.

The EA was issued for a 30-day comment period and placed into the public record on November 14, 2023. The Commission received 19 comments from individuals, RB Pipeline, and non-governmental organizations, including Save RGV from LNG, the South Texas Environmental Justice Network, and New Liberty Road Community Development Corporation. All comments were address in the 2024 Route Amendment Order.

### **Draft Supplemental EIS**

On September 13, 2024, FERC issued a *Notice of Intent to Prepare a Supplemental Environmental Impact Statement for the Proposed Rio Grande LNG Terminal and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Schedule for Environmental Review* (September 2024 NOI). The notice was sent to 5,247 potentially

interested parties including the environmental mailing list from the 2019 Final EIS and Amendment EAs (i.e., federal, state, and local officials, agency representatives, conservation organizations, Native American Tribes, local libraries and newspapers in the project area, and “affected landowners” as defined in the Commission’s regulations at 18 CFR 157.6(d)(2); as updated to account for changes in agency personnel and elected officials). In addition to these efforts, the Office of Public Participation (OPP) conducted supplemental outreach to community groups, community members, landowners, and other interested parties. On September 23, 2024, OPP mailed letters in English and Spanish that notified landowners and community members of the project comment period deadline. In addition, OPP provided educational brochures about the Commission in both English and Spanish. In Fall of 2024, OPP conducted a social media campaign regarding the rehearing and associated comment deadlines on Facebook, Instagram, and X.

Publication of the September 2024 NOI established a 30-day public comment period for the submission of comments, concerns, and issues related to the environmental impacts identified by the court’s August 6, 2024 opinion as requiring further analysis. We received about 80 comments. Specific comments regarding air quality, the CCS alternative, and environmental justice within the scope of our analysis are addressed in the respective resource sections of this supplemental EIS. The table below identifies categories of comments received in response to the September 2024 NOI that are outside the scope of this supplemental EIS and, as noted above, we have reviewed our previous environmental documents and found them representatively accurate of environmental conditions.

**Table 1-1: Comments Outside the Scope of the Supplemental EIS**

<b>Topic</b>	<b>Response</b>
<b>Coordination with Federal and State Agencies</b> (e.g., FERC and the Federal Aviation Administration need to coordinate all decisions; deny the project until effective oversight by TCEQ can be assured)	Staff’s analysis and conclusions have not changed from what was presented in sections 1.2 and 1.5 of the 2019 Final EIS.
<b>Water Resources</b> (e.g., impacts to water quality, groundwater, and wetlands; water shortages and restrictions; new assessment of water usage needed; wetland mitigation and restoration)	Staff’s analysis and conclusions have not changed from what was presented in sections 4.3 and 4.4 of the 2019 Final EIS.
<b>Biodiversity</b> (e.g., Rio Grande Valley is one of the most unique and biodiverse ecosystem in the United States)	Staff’s analysis and conclusions have not changed from what was presented in sections 4.3 to 4.7 of the 2019 Final EIS.
<b>Vegetation</b> (e.g., vegetation loss)	Staff’s analysis and conclusions have not changed from what was presented in section 4.5 of the 2019 Final EIS.
<b>Support for the Project</b> (e.g., project will improve pay, jobs, and local economy; prioritizes local community)	These comments are outside the scope for this supplemental EIS.
<b>Hiring</b> (e.g., analyze local hiring scenarios; encourage local hiring focused on CWEJCs; investigate applicant’s hiring practices; consider a community benefits agreement that formalizes local hiring and training commitments; include quality of jobs data; investigate anticipated wage and benefit levels; estimate number of full-time jobs)	Staff’s analysis and conclusions have not changed from what was presented in section 4.9 of the 2019 Final EIS.
<b>Compensation for Land Use</b> (e.g., landowners should receive usage fee; project approval will reduce amount of land that can be used for farming, decreasing revenue from land; pipeline applicant should buy insurance for landowners)	Staff’s analysis and conclusions have not changed from what was presented in section 4.8 of the 2019 Final EIS.
<b>Cultural Resources</b> (e.g., need to consult the Carrizo Comecrudo Tribe of Texas; conduct a new cultural survey)	Staff’s analysis and conclusions have not changed from what was presented in section 4.10 of the 2019 Final EIS.

<b>Table 1-1: Comments Outside the Scope of the Supplemental EIS</b>	
<b>Topic</b>	<b>Response</b>
with an independent consultant selected in consultation with and approved by the Tribe; Tribe members should be engaged as monitors during construction; Garcia Pasture listed on the National Register of Historic Places; concerned about the survival of tribal heritage; examine pipeline route for tribal ancestral sites; applicants and FERC are in violation of the United National Universal Declaration of the Rights of Indigenous Peoples)	
<b>Noise</b> (e.g., fishing and recreational areas should be considered Noise Sensitive Areas (NSAs); impacts on fish from noise and vibration at horizontal directional drilling (HDD) sites and from operation of meter station and LNG terminal; weekly noise data reports show noise levels during pile driving were at times lower than ambient conditions)	Staff’s analysis and conclusions have not changed from what was presented in section 4.11 of the 2019 Final EIS.
<b>Climate Change</b> (e.g., project will contribute to climate change; assess projected changes to frequency and severity of hurricanes and identify engineering solutions; assess projected range of sea level rise and potential for storm surge and erosion)	Staff’s analysis and conclusions have not changed from what was presented in section 4.13 of the 2019 Final EIS.
<b>Natural Gas Industry Impacts</b> (e.g., concerns about the negative impacts of natural gas production; project will increase natural gas extraction, liquefaction, and transport)	The environmental impacts resulting from the production of natural gas are generally neither caused by a proposed pipeline project nor are they reasonably foreseeable consequences of the Commission’s approval of an infrastructure project. Numerous production/upstream variables (gas sources, pipeline lengths, processing facilities, etc.) would make the analysis too speculative to permit any meaningful consideration.
<b>Public Interest</b> (e.g., projects are contrary to the public interest; provide a balancing of the benefits and adverse effects)	The Commission will ultimately determine in its Order if the Rio Grande LNG Terminal is not inconsistent with the public interest and the Rio Bravo Pipeline Project is in the public convenience and necessity.

South Texas Environmental Justice Network and several individuals commented that FERC should extend the NOI comment period to 90 days, that notice in local newspapers is not sufficient, that FERC should provide a public hearing, and that documents should include a Spanish translation. It is the Commission’s practice to consider all comments filed in natural gas infrastructure proceedings, even those filed after established deadlines, to the extent practicable without delaying Commission action. The draft supplemental EIS addressed all NOI comments within scope, including late-filed comments, therefore we found no reason to extend the NOI comment period. Regarding the request for public hearing, stakeholders were provided an opportunity to submit written comments in response to the September 2024 NOI, as is typical Commission practice for projects with a scope similar to this proceeding. No commenter alleges that they were denied an opportunity to comment on the September 2024 NOI or were unable to submit their comments in writing. Further, the public had an additional 45-day comment period to comment on the draft supplemental EIS. The notice was sent to local newspapers (The Brownsville Herald, The Monitor, Raymondville Chronicle & Willacy County News, Alice Echo-News Journal, and The Kingsville Record) and public libraries (Rio Hondo Public Library, Reber Memorial Library, Port Isabel Library, Robert J. Kleberg Public

Library, Brownsville Public Library - Main Branch, and Harlingen Public Library). As for requests related to Spanish translation of FERC documents, while we are not providing such translations in this proceeding, the Commission continues to consider how we can provide greater accessibility to our processes for non-English speaking populations.

We received several comments regarding the siting of the pipelines near sensitive receptors, the maximum depth of buried pipelines and distance of pipelines from buildings. As discussed in the 2019 Final EIS, the construction of the pipelines will be in compliance with the Department of Transportation's Pipeline and Hazardous Materials Safety Administration minimum federal safety standards in 49 CFR 192.

We received several comments regarding impacts from the nearby SpaceX rocket launch facility and impacts from hurricanes, storms, and flooding. In addition, we received several comments regarding public safety and failures leading to a release of LNG. These comments are outside the scope of this supplemental EIS. As noted above, our analysis and conclusions regarding these impacts are unchanged from what was presented in the 2019 Final EIS and Amendment EAs. Specifically, the 2019 Final EIS included two recommendations that the Commission adopted as conditions 46 and 131 in its 2019 Authorization Order. Condition 46 required RG LNG to develop and implement procedures to monitor rocket launch activity and to position onsite construction crews and plant personnel in areas that are unlikely to be impacted by rocket debris of a failed launch during initial moments of rocket launch activity from the Brownsville SpaceX facility. Condition 46 also required that RG LNG's procedures for positioning of onsite construction crews and plant personnel include reference to any guidance from the Federal Aviation Administration (FAA) to the public regarding anticipated SpaceX launches. RG LNG filed those procedures on September 30, 2019, for review and approval prior to initial site preparation, which Commission staff approved on March 6, 2020. RG LNG is also still subject to condition 131 that requires RG LNG to develop and implement procedures for plant personnel to monitor rocket launches from the SpaceX facility and to take mitigative actions before and after a rocket launch. After the April 20, 2023 rocket launch failure, RG LNG confirmed its facilities and personnel were outside of the launch hazard area identified by FAA and it followed its filed procedures that FERC approved. RG LNG also confirmed that a survey of the site was conducted and no debris from the spacecraft or associated objects were found on the site that would invalidate the reliance on launch hazard areas identified by FAA or that would warrant re-examination of the procedures. FERC staff confirmed that subsequent rocket launch failures also did not impact the RG LNG site. Existing conditions 46 and 131 would continue to apply.

The draft supplemental EIS for the Project was issued for public review and comment on March 28, 2025, filed with the EPA, and a Notice of Availability was published in the *Federal Register*.<sup>30</sup> The Notice of Availability also provided summary

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<sup>30</sup> 90 Fed. Reg. 14,834 (Apr. 4, 2025).

information regarding the draft supplemental EIS and requested the submission of all comments by May 19, 2025. The Notice of Availability was mailed to the environmental mailing list, which was included in appendix A of the draft supplemental EIS. Also, the draft supplemental EIS was made available on the FERC's website ([www.ferc.gov](http://www.ferc.gov)) and may be viewed and downloaded from the Environmental Documents page (<https://www.ferc.gov/industries/gas/enviro/eis.asp>).<sup>31</sup>

In response to the draft supplement EIS, FERC received comments from one federal agency, five non-governmental organizations, 78 individuals, RG LNG and RB Pipeline.

We received comments on the draft supplement EIS questioning whether FERC's impact analysis and conclusions should be unchanged from the 2019 Final EIS; since 2019, SpaceX has been further increasing significantly the thrust and flammable fuel load of the subsequent Starships/Super Heavy. The comment asserted that this would increase all impacts, including the size of the FAA launch hazard zone, the debris field, noise, shock waves and air pollutant emissions, and that a revised analysis is urgently needed so that other federal and state agencies as well as the public can comment on it. We also received comments concerned with SpaceX operating nearby and development of an emergency plan by all parties to protect the public. As stated in the 2019 Final EIS, the FAA is the regulating federal authority for the commercial space company SpaceX. The FAA's *Final Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas*, issued June 2022 (2022 PEA)<sup>32</sup> indicated "Tanks tests, wet dress rehearsals, static fire engine tests, and launches (suborbital and orbital) would require temporarily restricting public access in the vicinity of the vehicle launch area (VLA) and securing land and water areas as part of public safety requirements." The access restriction area is shown in figure 2-4 of the 2022 PEA and does not include the Rio Grande LNG Terminal. The 2022 PEA also explains that "A Starship/Super Heavy test operation or launch could result in a deviation from what is expected (referred to as an anomaly). An anomaly on the launch pad could cause a fire on the launch pad and/or an explosion that spreads debris." The 2022 PEA also states, "While anomalies are unexpected, as part of evaluating a launch license or permit application, the FAA evaluates SpaceX's debris analysis to ensure the hazard area is of sufficient size to ensure public safety." It continues to state, "In the event of an anomaly, SpaceX would evaluate the level of response based on the situation and notify the appropriate emergency personnel and land managing agencies according to the SpaceX Anomaly Response Plan. SpaceX would contact Cameron County Emergency Management and Brownsville Fire Department. The U.S. Coast Guard (USCG) would be contacted to report any impact to safety of waterways. SpaceX would also coordinate with

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<sup>31</sup> See FERC Accession No. 20250328-3003

<sup>32</sup> FAA, *Final Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas*, issued June 2022, [https://www.faa.gov/sites/faa.gov/files/2022-06/PEA\\_for\\_SpaceX\\_Starship\\_Super\\_Heavy\\_at\\_Boca\\_Chica\\_FINAL.pdf](https://www.faa.gov/sites/faa.gov/files/2022-06/PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica_FINAL.pdf), Accessed June 2025

the Cameron County judge, the Cameron County Commissioner, and the Cameron County Fire Marshal to provide information on the anomaly.” In addition, the FAA’s *Final Tiered Environmental Assessment for SpaceX Starship/Super Heavy Vehicle Increased Cadence at the SpaceX Boca Chica Launch Site in Cameron County, Texas*, issued April 2025, stated: “Noting that the 2022 PEA already contemplated the risks posed by orbital launches (i.e., Starship with the Super Heavy rocket attached) the only new consideration relates to the unexpected creation of a dust plume that affected communities when SpaceX conducted its first launch of Starship with the Super Heavy rocket attached on April 20, 2023, the effect of increased traffic, and the effect of increased noise.”<sup>33</sup> In addition, it states “While the number of orbital launches and landings authorized by the license would change, the spatial extent of impacts from each orbital launch/landing would generally be the same as in the 2022 PEA.” While the SpaceX impacts are outside of scope of the court’s remand and were already addressed in the 2019 Final EIS, in response to the comments, we note that our analysis and conclusion in the 2019 Final EIS remain unchanged as the public restricted areas for the SpaceX launch area continue to exclude the Rio Grande LNG Terminal and, even if that were to change, the 2019 Final EIS included specific conditions that address potential impacts from rocket launch failures on the Rio Grande LNG Terminal as well as emergency response plans for the Rio Grande LNG Terminal. Therefore, the analysis in the FAA’s 2022 PEA and Final Tiered Environmental Assessment for SpaceX Starship is consistent with the findings and conditions in the 2019 Final EIS.

All comments received related to environmental issues presented in the draft supplemental EIS are addressed in the appropriate sections of this EIS and appendix I.

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<sup>33</sup> FAA, *Final Tiered Environmental Assessment for SpaceX Starship/Super Heavy Vehicle Increased Cadence at the SpaceX Boca Chica Launch Site in Cameron County, Texas*, <https://www.faa.gov/media/94346>, Accessed June 2025

## 2 DESCRIPTION OF PROPOSED ACTION

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The Rio Grande LNG Terminal would consist of five natural gas liquefaction trains, each with a nominal capacity of 5.4 MTPA; four LNG storage tanks; two LNG carrier loading berths; one 1,500-foot-diameter turning basin; LNG truck loading and unloading facilities with four loading bays; two natural gas liquids truck loading bays; and other administrative, maintenance, and support facilities. As amended, the Pipeline Project would include: a 2.4-mile-long header system; approximately 136 miles of parallel 48- and 42-inch-diameter mainline pipelines; one compressor station in Kleberg County, Texas with four 43,000-hp natural gas-fired turbine-driven compressors and two 55,000 electric driven compressors; four metering sites; and other appurtenant facilities.

Based on the 2019 Final EIS, construction and installation of facilities for the projects would require temporary disturbance of about 3,633 acres of land. Following construction, the LNG terminal site and pipeline facilities would encompass about 2,149 acres. The remaining 1,484 acres would return to approximate pre-construction conditions and uses. Incorporation of the Rio Bravo Pipeline Amendment<sup>34</sup> would result in a decrease to the overall footprint of 48.2 acres of land, while the Rio Bravo Pipeline Route Amendment<sup>35</sup> would impact approximately an additional 123 acres of land during construction of the Rio Bravo Pipeline Project. Figures depicting the general location of the Rio Grande LNG Project and pipeline amendments are in appendix B.

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<sup>34</sup> See FERC Accession No. 20201221-3012.

<sup>35</sup> See FERC Accession No. 20231114-3043.

### **3 ALTERNATIVES**

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NEPA requires that federal agencies evaluate reasonable alternatives to a proposed major federal action. The 2019 Final EIS evaluated a number of alternatives for the projects, including the no-action alternative, system alternatives, LNG terminal site alternatives, LNG terminal site fill material supply access route alternatives, pipeline configuration and route alternatives, and aboveground facility site alternatives. The September 2024 NOI stated that the supplemental EIS would evaluate reasonable alternatives that are technically and economically feasible and meet the purpose and need for the proposed action. An alternative would be environmentally preferable if it offers a significant environmental advantage over the proposed action.

The September 2024 NOI identified two alternatives under consideration—the no-action alternative, meaning the project would not be implemented as proposed, and use of CCS technology. The September 2024 NOI further solicited public input regarding additional reasonable alternatives that would meet the project objectives, are technically and economically feasible, and avoid or lessen environmental impact.

This supplemental EIS includes our evaluation of the no-action alternative (as required by NEPA), a CCS system alternative (as required by the court’s August 6, 2024 opinion), and alternatives raised by responses to the September 2024 NOI.

In response to our September 2024 NOI, many commenters contend that the Rio Grande LNG terminal should not be constructed. We also received comments concerning the applicability of CCS technology, as well as the siting of the LNG terminal and routing of the Rio Bravo Pipeline. These are discussed below.

We note that previous Commission Orders have determined that the Rio Grande LNG and Rio Bravo Pipeline Projects are in the public interest, and the Commission will have to determine whether that is still the case. That decision will be based on the revised and updated analyses in this supplemental EIS, among other factors weighing on the public interest. This document does not make that decision.

#### **3.1 NO-ACTION ALTERNATIVE**

Under the no-action alternative, the Commission would not issue a Remand Order for the Rio Grande LNG terminal and associated Rio Bravo pipeline. One potential outcome is that the Projects would not be developed further; and the Projects’ objective of delivering natural gas to the terminal via pipeline and then liquefying and exporting natural gas to foreign markets would not be realized. Under that scenario, the pipeline would not be constructed. RB Pipeline has not yet requested to proceed with construction of the pipeline and no construction impacts have occurred; therefore, implementation of the no-action alternative could result in no construction-related impacts associated with the Rio Bravo Pipeline. RG LNG has begun development of the LNG terminal; therefore,

implementation of the no-action alternative would still result in the construction-related impacts that have already occurred at the terminal site. To date, RG LNG's construction activities at the terminal include: clearing and grading of the 750-acre site for development (except for an existing utility corridor) and the partial construction of terminal foundations, a levee, a marine offloading facility, structural steel, underground piping, spill containment trenches, stormwater ponds, portions of LNG storage tanks, and other infrastructure and site features.

If the no-action alternative were implemented, subsequent construction-related impacts identified in the 2019 Final EIS, amendment EAs, subsequent Commission Orders, and this supplemental EIS may not occur; that is, all of the impacts associated with the Rio Bravo Pipeline construction and future impacts associated with the LNG terminal construction may not occur. Further, all impacts associated with terminal and pipeline operation (e.g., air emissions, noise, traffic, certain visual resources, operational conflicts with land use, etc.) may not occur. The 2019 Final EIS found that the expenditures and permanent workforce associated with operation of the LNG terminal would result in positive, permanent impacts on the local economy. Implementing the no-action alternative could mean that the identified increase in local jobs, tax revenues, and capital investments would also not be realized.<sup>36</sup> However, due to potential future decisions made on a local level (e.g., by county commissions or local legislation), the exact amount or extent of future economic impact cannot be precisely determined.

The no-action alternative could cause potential end users to make different arrangements to obtain LNG from other sources or use other energy sources to compensate for the lack of natural gas that would otherwise be supplied by the Rio Grande LNG Project. Although it is speculative and beyond the scope of this analysis to predict what actions might be taken by policymakers or end users in response to the no-action alternative, it is possible that renewable (e.g., solar power), traditional energy sources (e.g., coal or fuel oil), or traditional long-term energy sources (e.g., nuclear power) could be used in lieu of the project's LNG. However, it is also possible that these energy sources could not be readily used in lieu of the LNG supplied by the Rio Grande LNG Terminal Project if the natural gas is being used for industrial feedstocks for production of other intermediates or products.

Our updated and revised analyses in this supplemental EIS did not identify any environmental factors that would lead us to recommend the no-action alternative. Based on the above, we have dismissed the no-action alternative as a reasonable alternative to meet the objectives of the project. The Commission will ultimately determine the project need and could choose the no-action alternative.

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<sup>36</sup> For example, according to the 2019 Final EIS, construction of the Rio Grande LNG Terminal would stimulate the economy through an estimated \$22.4 billion in direct expenditures by the project sponsor, and annual operating direct expenditures of \$2.1 billion; and by hiring over 1,500 local workers.



**Figure 3-1: September 2024 Aerial Photo of Rio Grande LNG Terminal Site from September Monthly Status Report filed October 15, 2024**

## 3.2 OTHER ALTERNATIVES

The FERC has established several key criteria to evaluate potential alternatives identified for a given project, and as mentioned above, the evaluation criteria for selecting potentially reasonable and environmentally preferable alternatives include whether they:

- are technically and economically feasible and practical;
- offer a significant environmental advantage over the proposed Projects; and
- meet the Projects' objectives;<sup>37</sup> specifically,
  - RG LNG constructing and operating an LNG terminal to export LNG to the global market (via marine vessels) and for domestic distribution (via trucks); and
  - RB Pipeline constructing and operating a proposed dual pipeline system as well as compression facilities to deliver natural gas to the Rio Grande LNG Terminal facilities for processing.

### 3.2.1 LNG Terminal Sites

The TPWD re-stated its position that alternatives to RG LNG's proposed site should be reevaluated in order to reduce impacts on wetlands and other unique habitats, such as lomas.<sup>38</sup> As stated above, the 2019 Final EIS evaluated over 10 site alternatives for the LNG terminal, including sites in other parts of the Texas Gulf Coast and along the BSC,<sup>39</sup> and concluded that none of the alternate sites evaluated provided an overall significant environmental advantage when compared to the proposed terminal site, nor could any of the sites fully satisfy the project's purpose and need. Further, the proposed site is currently under construction and has been effectively cleared of vegetation and graded for site preparation and certain site improvements and infrastructure have already been constructed or implemented. Therefore, requiring RG LNG to stop developing the current site and move to another, undisturbed site to start a new construction effort would result in new, additional environmental impacts. Therefore, we continue to conclude that the proposed location is the preferred alternative for the LNG terminal, and no additional re-evaluation of alternate sites and resource impacts is necessary.

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<sup>37</sup> A more detailed presentation of the project descriptions and objectives can be found in the 2019 Final EIS for the project. 2019 Final EIS at 2-1 to 2-17.

<sup>38</sup> Lomas are wind-formed clay dunes on or near the coast, often surrounded by flats containing dense patches of salt-tolerant shrub vegetation, coastal grasslands, or unvegetated wind-tidal flats.

<sup>39</sup> 2019 Final EIS at 3-15 to 3-22.

### 3.2.2 Pipeline Route Alternatives

Several commenters expressed concerns about the safety of the pipeline route including: distance to residences, schools, and hospitals; location of other structures in relation to the pipeline; pipeline depth of burial; and “high risk” related to corrosion and leaks. The 2019 Final EIS, as well as the Amendment EAs for the Rio Bravo Pipeline Project, evaluated the proposed route, including various iterations and revisions, and found the routing acceptable. All of the analyses considered safety of the pipeline, and staff concluded that due to adherence to federal safety standards, risk to public safety would be low. Since the publication of the 2019 Final EIS, RB Pipeline has revised its route in response to either landowner or other agency input.<sup>40</sup> As detailed in section 1 of this supplemental EIS, this has resulted in the Rio Bravo Pipeline Project being amended on two occasions, which have been thoroughly reviewed by FERC staff.

We received one comment related to a specific portion of the pipeline route near the commenter’s property. Ms. Eloara Cantu states that the proposed route is “just feet” from her home and on farmland between her home and a power line. Ms. Cantu recommends that the pipeline be rerouted to the “west side” of the power line, which would place it further from her residence. We asked RB Pipeline to assess the pipeline routing as described and consider rerouting the pipeline to the west of the power line, as requested by Ms. Cantu.

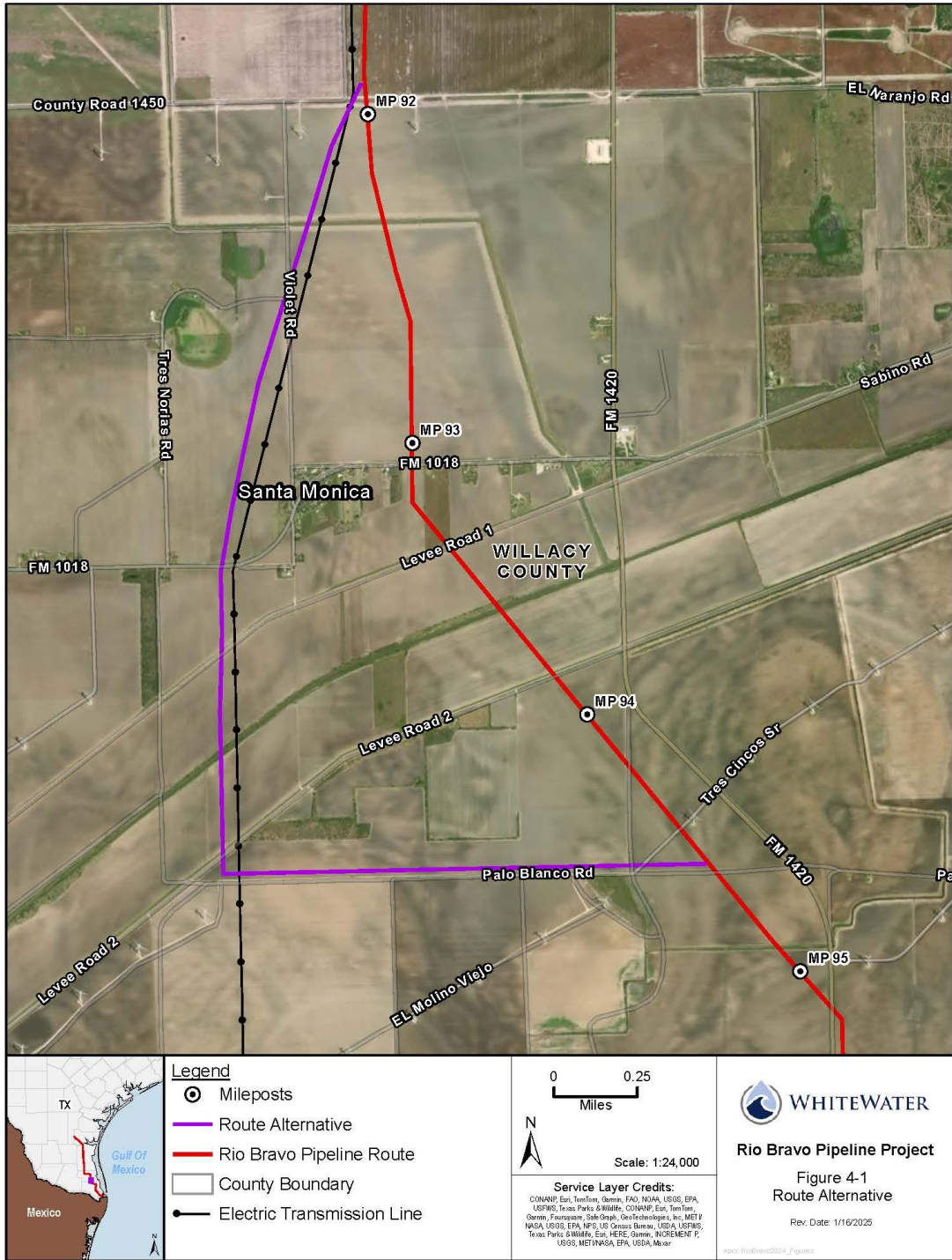
According to information filed by RB Pipeline,<sup>41</sup> and our review of the mapping (see Figures 3-2 and 3-3), the pipeline route as proposed would not cross Ms. Cantu’s property and that moving it to the west of the power line would actually place it on her property.

We asked RB Pipeline to evaluate a route alternative in response to Ms. Cantu’s comment and our comparison of resources between the two routes is presented below. This route alternative deviates from the previously certificated pipeline alignment at milepost 91.9 to head in a southwesterly direction for approximately 2.44 miles. It then turns in an easterly direction for approximately 1.45 miles paralleling the north side of Farm-to-Market (FM) Road 1005 and Palo Blanco Road before it rejoins the existing alignment. This route alternative would move the pipeline approximately 50 to 350 feet west of the high-voltage transmission line presumably referenced by Ms. Cantu. This alternative appears to result in the pipeline crossing Ms. Cantu’s property for approximately 0.45 mile, whereas RB Pipeline’s currently proposed route does not cross Ms. Cantu’s property.

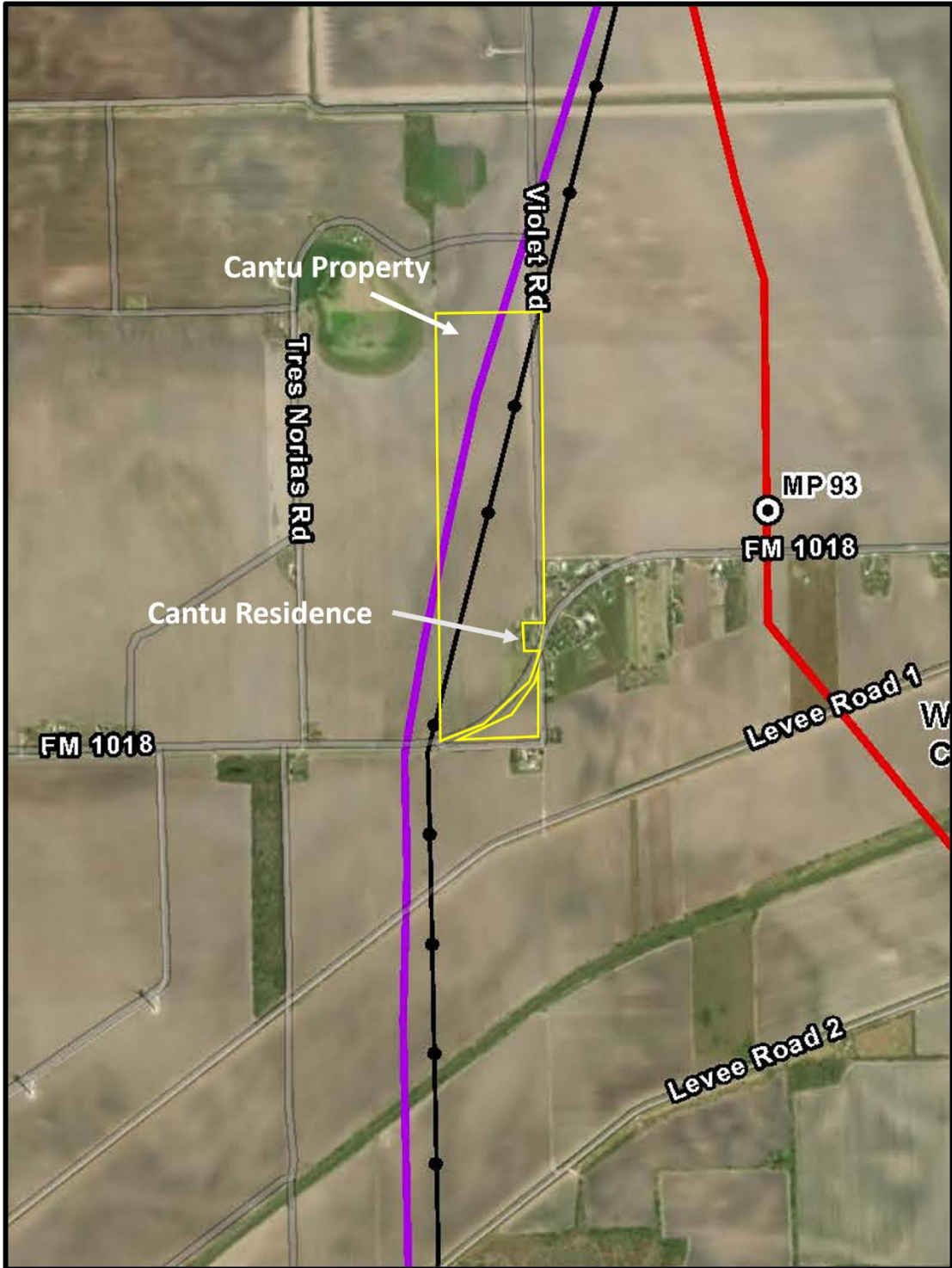
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<sup>40</sup> We also received a comment in support of the proposed route: “We also own farmland that is in the path of the proposed pipeline. We would like to see the projects completed on their currently approved path. The alternate path that has been proposed is not a good fit for our community.” Comments from Ovidio, Otilia, and Arnulfo Atkinson; FERC Accession No. 20241015-5477.

<sup>41</sup> Responses to staff’s December 20, 2024 environmental information request, filed December 30, 2024 and January 16, 2025. FERC Accession Nos. 20241230-5342 and 20250116-5173.



**Figure 3-2: Proposed Route and Cantu Alternative Route**



**Figure 3-3: Cantu Property Location**

Comparing both routes (table 3-1), the main difference is the amount of ground disturbance and permanent right-of-way required due to the longer length of the alternative route. The alternative route is collocated with existing utility rights-of-way, but both routes impact primarily agricultural land (over 97 percent). Neither route would impact wetlands, and neither comes within 50 feet of a residence. Both routes would cross two waterbodies. Given the comparison of the alternatives and that the pipeline as certificated does not cross the commenter’s property, we conclude that the alternate route does not result in a significant environmental advantage over the proposed route; therefore, we do not recommend it.

**Table 3-1: Comparison of Proposed Pipeline Route Segment and Cantu Alternative**

<b>Feature or Resource</b>	<b>Proposed Route</b>	<b>Alternative Route</b>
Length (miles)	2.66	3.89
Length collocated with existing road and utility right-of-way (miles)	0	2.44
Construction disturbance (acres)	32.2	47.1
Operational (permanent) right-of-way (acres)	16.1	23.6
Number of residences within 50 feet of construction disturbance	0	0
Number of waterbodies crossed	2	2

### 3.2.3 Carbon Capture and Sequestration

#### *Background*

On November 17, 2021, RG LNG filed an application with the Commission for a “limited amendment” to enable RG LNG to incorporate a CCS system into the design and operation of the LNG terminal.<sup>42</sup> A CCS system of the type contemplated by RG LNG is comprised of three primary components: 1) carbon capture equipment inside the LNG terminal site; 2) a carbon dioxide (CO<sub>2</sub>) transport pipeline; and 3) a Class VI injection well<sup>43</sup> to sequester the CO<sub>2</sub>.

RG LNG asserted in its application that incorporating the CCS system into the terminal would be done on a voluntary basis, and would allow for capture of “at least 90 percent” of the terminal’s CO<sub>2</sub> emissions, thereby providing foreign markets with a “significantly less carbon-intensive source of domestically produced LNG.”<sup>44</sup> This CCS process would remove CO<sub>2</sub> from both the feed gas to be liquefied at the LNG terminal as

<sup>42</sup> Rio Grande LNG application filing; Docket No. CP22-17-000; FERC Accession No. 20211117-5060.

<sup>43</sup> Class VI wells are defined by the U.S. Environmental Protection Agency (EPA) as those used to inject CO<sub>2</sub> into deep rock formations for long-term underground storage (i.e., geologic sequestration). See <https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-carbon-dioxide#ClassVIWell>.

<sup>44</sup> Transmittal letter to Rio Grande LNG’s November 17, 2021 application filing; Docket No. CP22-17-000; FERC Accession No. 20211117-5060.

well as the exhaust flue gas from the main refrigerant compressor gas turbines central to the liquefaction process.

In its CCS application, RG LNG stated that “[o]nce captured, the CO<sub>2</sub> will be transported via pipeline to an underground geologic formation permitted by the U.S. Environmental Protection Agency (EPA) and relevant Texas agencies via its underground injection control (UIC) Class VI permitting regime for geologic sequestration.”<sup>45</sup> However, RG LNG did not identify the location of such “geologic formation permitted by the EPA,” nor did RG LNG submit any *specific* information (e.g., routing, construction timing, or construction methods) regarding the pipeline routes or geologic formations that would transport and receive, respectively, the CO<sub>2</sub> for sequestration.<sup>46</sup>

It is important to note that only the CCS-related infrastructure that would have been constructed within the actual terminal site (e.g., heat exchangers, pumps, blowers; CO<sub>2</sub> absorber, dehydration, and compression systems; amine regenerator and reboiler; waste heat recovery unit) would be FERC-jurisdictional. All other CCS facilities, such as the sequestration geologic formation, and the CCS pipeline(s) and appurtenant infrastructure that would be outside the boundary of the LNG terminal, would not fall under Commission jurisdiction, but would be under the jurisdiction of other federal agencies, such as the EPA and the U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA), as well as the state of Texas.<sup>47</sup>

On April 14, 2023, the Commission issued a *Notice Suspending Environmental Review Schedule* for the CCS proposal. That notice stated that staff would continue to evaluate RG LNG’s CCS proposal, but because of the large number of staff data requests that had not received sufficient (or any) response from RG LNG, it would be impossible to complete the environmental review until the identified data deficiencies were rectified.

In its August 6, 2024 opinion, the court directed the Commission to analyze the CCS proposal as a connected action or as an alternative. Specifically, the court stated that even if RG LNG withdrew its CCS proposal, the Commission must analyze the CCS proposal as an alternative.

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<sup>45</sup> Rio Grande LNG application filing; p. 2.

<sup>46</sup> In its November 2021 application, Rio Grande LNG claimed that “geologic formations in south Texas are ideal for sequestration of CO<sub>2</sub>. In fact, there are several sequestration sites in very close proximity to the terminal site” and that the CCS pipelines would likely be “very short...fewer than 10 miles...” Rio Grande LNG later claimed (filing dated May 2022) that “all non-jurisdictional infrastructure required for sequestration of CO<sub>2</sub> is expected to reside within Cameron or immediately adjoining counties and will not cross the Texas state line.”

<sup>47</sup> See *Venture Global CP2 LNG, LLC*, 187 FERC ¶ 61,199, at P 21 (2024) (concluding “that the CCS facilities located within the terminal fence-line up to the entry point of the send-out pipeline are subject to the Commission’s jurisdiction under section 3(e) of the NGA”).

On August 20, 2024, RG LNG withdrew the CCS proposal. On September 10, 2024, the Commission issued a notice officially terminating the CCS proceeding.<sup>48</sup>

Consistent with the court’s opinion, we analyze RG LNG’s CCS proposal as an alternative in this supplemental EIS.

### *CCS Scoping Comments*

In preparation of this supplemental EIS, we received comments regarding CCS technology in general, as well as how it may apply to the Rio Grande LNG Terminal. Certain comments, such as those from Thomas Jaudzemis and Jim Chapman, president of the Friends of the Wildlife Corridor, supported the use of CCS technology. From Mr. Chapman:

While carbon capture would only be a partial, and in our opinion insufficient, solution, we urge FERC to look more [closely] at making that a requirement of [the Rio Grande LNG plant].... If FERC can determine that CCS is safe and feasible it should be required to be in place prior to initial operation.

Other commenters questioned RG LNG’s claims that it could reduce greenhouse gas (GHG) emissions by at least 90 percent; pointed out the “unproven” or “experimental” technology and cost of CCS systems and uncertainties in CCS permitting and monitoring; and questioned RG LNG’s subsequent withdrawal of its CCS application.<sup>49,50,51</sup> Commenters also note the “dangers” of CO<sub>2</sub> pipelines and potential impacts on groundwater, but state that “FERC must make any future LNG or CO<sub>2</sub> emitting industries implement a [CCS] plan prior to issuing a permit.”<sup>52</sup> Commenters also conclude that the Commission should not use the Rio Grande LNG Project to “test an unproven technology,” nor should the Commission approve the Project as it stands.

The Sierra Club commented<sup>53</sup> that FERC should address whether less costly “partial carbon capture” (e.g., pretreatment emissions) would be appropriate, and notes that if other LNG terminals in the same general area also join in to use CCS, there may be an “economy of scale” advantage. The Sierra Club concludes that it has concerns about the impacts of CCS (including of the CO<sub>2</sub> pipelines and sequestration well formations), but that other CCS technology may be more viable and must be considered in this supplemental EIS.

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<sup>48</sup> See FERC Accession No. 20240910-3042.

<sup>49</sup> Comments of Kenneth Saxon. FERC Accession No. 20241015-5396.

<sup>50</sup> Comments of Molly Smith. FERC Accession No. 20241016-5000.

<sup>51</sup> Comments of Mary Branch and of Save RGV. FERC Accession Nos. 20241015-5431 and 20241015-5198.

<sup>52</sup> Comments of Mary Branch. FERC Accession Nos. 20241015-5431.

<sup>53</sup> See FERC Accession No. 20241015-5531.

## *Alternatives Analysis*

NEPA requires agencies to analyze a “reasonable range of alternatives . . . that are technically and economically feasible, and meet the purpose and need for the proposed action.”<sup>54</sup> Further, agencies are guided by a “rule of reason” in identifying the reasonable alternatives that are technically and economically feasible and meet the purpose and need of a proposed action.<sup>55</sup> Alternatives that are speculative, vague, or lack evidence to support their relevance/efficacy may be eliminated from further review. Further, especially with regard to project-specific (as opposed to broad policy) reviews, there is no need for an agency to consider alternatives of speculative feasibility or alternatives that could be changed only after significant changes in governmental policy or legislation.<sup>56</sup>

We reviewed whether there had been any updates in CCS technology or the current CCS permitting timelines that would support RG LNG’s initial assertions that the LNG terminal’s carbon emissions could be lowered by at least 90 percent, and whether the carbon could be captured and sequestered “within 10 miles” of the LNG terminal site (or at least within the state of Texas). However, as discussed below, our research indicates that none of these factors appear to apply to the terminal Project.

### Permitting Challenges

According to the EPA,<sup>57</sup> a well used to inject CO<sub>2</sub> into deep rock formations for long-term geologic sequestration is called a “Class VI” well. Therefore, as discussed above, a CCS site would require a Class VI injection well and storage area. The site characterization requirements for the selection of a Class VI permit area are primarily geological suitability.<sup>58</sup> Other requirements for the permit involve an assessment of environmental impacts and use of safety best practices.<sup>59</sup> As of June 6, 2025, EPA approved eleven Class VI CCS storage/wells, at four sites in the United States – in Texas, Indiana, Illinois, and California.<sup>60</sup> There is one in Texas, a state where the EPA has primary

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<sup>54</sup> 42 USC 4332(2)(C)(iii).

<sup>55</sup> 86 Fed. Reg. 55,760 (October 7, 2021).

<sup>56</sup> *Natural Resources Defense Council v. Callaway*, 524 F.2d 79 (2d Cir. 1975).

<sup>57</sup> <https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-carbon-dioxide#ClassVIWell>.

<sup>58</sup> EPA, Class VI Wells Used for Geologic Sequestration of Carbon Dioxide, <https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-carbon-dioxide>, Accessed February 2025.

<sup>59</sup> *Ibid.*

<sup>60</sup> EPA, Current Class VI Projects Under Review at EPA, <https://www.epa.gov/uic/current-class-vi-projects-under-review-epa>, Accessed Feb 2025.

enforcement authority for the underground injection control program.<sup>61, 62</sup> According to the EPA’s Underground Injection Control (UIC) Class VI Permit Tracker, as of June 6, 2025, there are currently another 181 well applications at 62 projects under review. Of those 181 well applications, 62 well applications are at 18 projects in Texas.<sup>63</sup> None of the projects are in Cameron County, where the Rio Grande LNG terminal is located. Class VI well applications and locations in Texas are summarized in table 3-2 below and figure 3-4.

**Table 3-2: Pending EPA Class VI Permits in Texas**

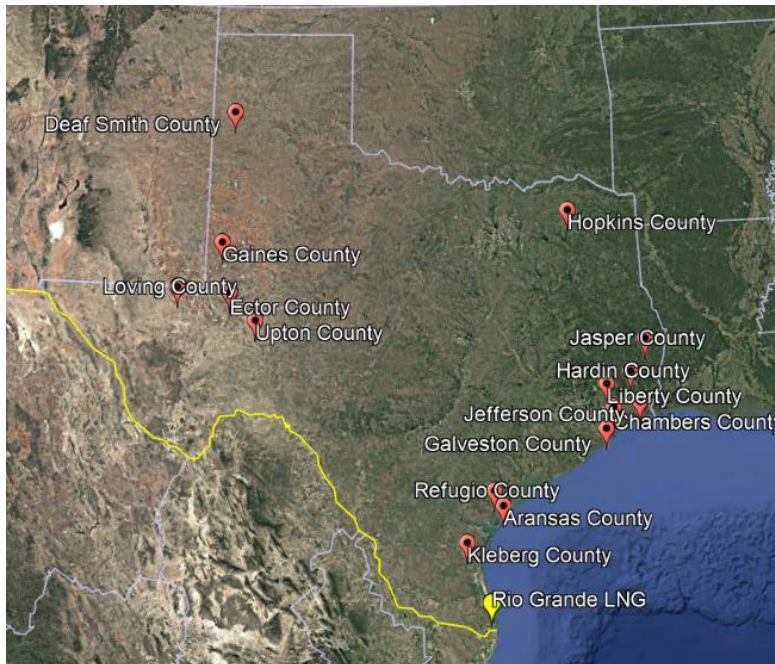
Project Name	County	EPA Application Date	EPA Issued or Estimated Permit Date	Distance from RG LNG (miles)
Brown Pelican	Ector	5/2/2022	4/7/2025 (issued)	510
Orchard	Gaines	1/31/2023	12/28/2025 (est.)	570
Jasper County Storage Facility	Jasper	6/28/2023	2/19/2026 (est.)	380
Dusek CCS #2	Upton	7/26/2023	5/6/2026 (est.)	470
Pineywoods CCS Hub	Liberty & Hardin	10/16/2023	1/11/2026 (est.)	330
West Bay	Galveston	12/14/2023	1/3/2026 (est.)	280
Whites Bayou	Liberty	1/31/2024	2/28/2026 (est.)	320
Texas Carbon Storage I	Deaf Smith	1/31/2024	2/12/2026 (est.)	700
Titan Carbon Sequestration	Jefferson	2/28/2024	3/18/2026 (est.)	320
Rose Carbon Capture and Storage Project	Jefferson	3/8/2024	4/2/2026 (est.)	320
Caliche Beaumont Sequestration Project	Jefferson	5/1/2024	5/22/2026 (est.)	320
Bayou Bend East	Jefferson	6/25/2024	7/11/2026 (est.)	320
ConocoPhillips Texas Gulf Coast CCS Refugio	Refugio & Aransas	7/23/2024	8/6/2026 (est.)	150
Loving CCS Hub Central Loving Facility	Loving	8/8/2024	9/3/2026 (est.)	560
**South Texas Sequestration Project (Kleberg Hub)	Kleberg	11/4/2024	6/19/2026 (est.)	100
Bluebonnet	Chambers	12/10/2024	7/7/2026 (est.)	300
Sunflower Carbon Storage	Jefferson	12/17/2024	1/13/2027 (est.)	320
Offshore North 1	Aransas	5/8/2025	not reported	150
Sugarberry CCS Hub	Hopkins	5/29/2025	not reported	500

\*\* Site evaluated in this supplemental EIS.

<sup>61</sup> Only four states have primary enforcement authority for Class VI storage/wells – North Dakota, Wyoming, Louisiana, and West Virginia. EPA, Primary Enforcement Authority for the Underground Injection Control Program, <https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program-0>, Accessed June 2025. Louisiana, which is the closest of the three states that currently have primacy has not issued any permits for Class VI wells. Federal Register, Final Rule by Environmental Protection Agency, <https://www.federalregister.gov/documents/2024/01/05/2024-00044/state-of-louisiana-underground-injection-control-program-class-vi-primacy>, Accessed February 2025. Louisiana Department of Energy and Natural Resources, [https://www.dnr.louisiana.gov/page/primacy\\_Class\\_VI\\_Carbon\\_Sequestration\\_Program](https://www.dnr.louisiana.gov/page/primacy_Class_VI_Carbon_Sequestration_Program), Accessed June 2025.

<sup>62</sup> We recognize that the EPA proposes to approve Texas’ request and application for primacy, or primary responsibility, in administering and permitting Class VI underground injection wells in the state under the Safe Drinking Water Act. Environmental Protection Agency, <https://www.epa.gov/newsreleases/epa-proposes-approve-texas-application-administer-class-vi-underground-injection-well>, Accessed June 2025.

<sup>63</sup> EPA, UIC Class VI Permit Tracker, <https://www.epa.gov/uic/current-class-vi-projects-under-review-epa>, Accessed Feb 2025.



**Figure 3-4: Pending EPA Class VI Permits in Texas**

Barring any upcoming development of permit applications closer to the Rio Grande LNG Terminal, the closest Class VI permit site is about 100 miles away in Kleberg County, Texas and is still in the permitting process.<sup>64</sup> Therefore, a CO<sub>2</sub> pipeline would need to be at least 100 miles to be able to reach the Kleberg Hub. And for a new site, based on prior permitting timeframes and estimated permitting timeframes on the EPA’s UIC Class VI Permit Tracker, it takes about 2 to 3 years for a Class VI well site to be permitted, which does not include permitting related to specific CCS pipeline take-away projects, which may further extend the permitting timeline.

Based on the above distances and timelines, our alternatives analysis focuses on the potential sequestration site in Kleberg County, approximately 100 miles from the Rio Grande LNG Terminal, as the next nearest site is an additional 50 miles from the terminal. The Kleberg County site has a sequestration rate of up to 30 million metric tonnes of CO<sub>2</sub> per year with a total capacity of 3 billion metric tonnes.<sup>65</sup> However, the sequestration project is described as supporting pulling and removing CO<sub>2</sub> from the atmosphere. Even if the Kleberg County well site is eventually permitted, the following assumptions would have to be met for the Kleberg County site to be technically and economically feasible for

<sup>64</sup> The EPA notes that this application is currently on an applicant-requested hold since May 2024, so the permitting timeline may be extended. Underground Injection Control (UIC) Class VI Permit Tracker: <https://www.epa.gov/uic/current-class-vi-projects-under-review-epa>.

<sup>65</sup> IPointFive, South Texas Direct Air Capture (DAC) Hub, <https://www.1pointfive.com/projects/south-texas-dac>. Accessed January 2025.

us to recommend that the Commission require RG LNG to implement this CCS system as part of the Rio Grande LNG Project:

- RG LNG would receive a permit from the State of Texas (and any others as applicable) to construct 100 miles or more of CCS CO<sub>2</sub> pipeline;
- there is sufficient sequestration well capacity available at the Kleberg Hub that is not already subscribed to accommodate the Rio Grande LNG Project's emissions; and
- it is economically feasible for RG LNG to incorporate CCS technology.

Another factor to consider is that unlike FERC-jurisdictional pipeline projects, where the Commission could compel route alternatives/deviations or specific construction methods in response to identified resource impacts or landowner input, any offsite CCS storage well and associated pipeline would be non-jurisdictional such that the Commission could not compel mitigation for any infrastructure or activities outside of the jurisdictional boundaries (i.e., within the confines of the Rio Grande LNG Terminal site). Further, the Union of Concerned Scientists cautions that:

“...the cost of transport increases significantly with distance, and thus should be minimized. As a result, the placement of capture sites relative to injection/storage sites is a key concern.... expanded gas transportation (pipeline) infrastructure would be required to accommodate the needed capacity. However, such infrastructure expansion would also result in significant environmental impacts incurred by the construction of pipelines. This would be especially serious if done in ecologically sensitive areas.”<sup>66</sup>

Based on a 100-foot-wide construction right-of-way, a pipeline running for 100 miles would disturb about 1,200 acres. Based on our experience reviewing applications for pipeline infrastructure, a pipeline from the terminal site to the Kleberg Hub would be longer than 100 miles. Because 100 miles is a direct line measurement and does not account for deviations to avoid landforms, environmental features, population centers, or other features; and because pipeline construction typically requires the use of extra workspace to cross certain habitats and features and contractor yards to stage equipment, we estimate that a CCS CO<sub>2</sub> pipeline connecting the Rio Grande LNG Terminal with a sequestration site in Kleberg County would disturb at least 1,500 acres. The State of Texas, or other applicable permitting authority, would determine and analyze the actual environmental impact and make decisions related to authorization, routing, and mitigation. The EPA's timing on its website for the final permit application for the Kleberg County sequestration well application is estimated as June 2026. The state permitting process for a new CO<sub>2</sub> pipeline is a separate process, with an unknown permitting timeframe.

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<sup>66</sup> Union of Concerned Scientists: Citizens and Scientists for Environmental Solutions; *Policy Context of Geologic Carbon Sequestration* (June 2018).

However, we estimate it could take between 1-2 years based on average pipeline permitting times for recent comparable intrastate pipelines in Texas.<sup>67</sup>

Therefore, while the potential Kleberg County sequestration project might be able to sequester and store CO<sub>2</sub> emissions from the Rio Grande LNG Project, the construction of at least 100 miles of pipeline across an unknown route and suite of resources, with unknown compressor or pump station designs and locations, results in too much uncertainty to precisely evaluate the range of potential environmental and safety impacts. But the addition of a pipeline and CCS facilities would increase land requirements and would increase potential impacts to other resources compared to the air emission impacts if the project is authorized without CCS and associated pipeline. Partial CCS systems may be even less advantageous than their more complete counterparts. For example, while partial CCS systems would decrease carbon air emission proportionally, we would not expect a proportional decrease in land requirements and other resource impacts. A partial CCS system would still need to be a pipeline routed to a Class VI CCS well site which we note above would still be at least 100 miles long.

Additionally, impacts at the Rio Grande LNG terminal may include additional noise impacts, as well as changing the air quality impacts. Although post-combustion CCS would capture CO<sub>2</sub> and small amounts of other pollutants, it changes the emission characteristics of the emitted pollutants (e.g., stack temperature of the emitted pollutants, emission concentration, and flow rate).

The next closest Class VI CCS well site would be approximately 150 miles away from the LNG terminal and environmental impacts (i.e., those associated with construction of the pipeline) would likely increase with respect to the Kleberg Hub. All other pending EPA permits are approximately 300 miles or more from the terminal site and would yield an even greater environmental impact than either of the other two sites.

### Technical and Economic Feasibility

There may be technical challenges with achieving RG LNG's stated anticipated carbon reduction goals of 95 percent. For example, some CCS pilot programs failed to meet their emission reduction goals of 33 percent.<sup>68</sup> In addition, due to the high cost of operating these facilities, some of these pilot programs ceased operations.<sup>69</sup>

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<sup>67</sup> Arbo, FERC Review of Pipelines is Costly in Both Time and Money, July 2022.

<sup>68</sup> <https://www.reuters.com/article/us-usa-energy-carbon-capture/problems-plagued-u-s-co2-capture-project-before-shutdown-document-idUSKCN2523K8>.

<sup>69</sup> <https://www.reuters.com/article/us-usa-energy-carbon-capture/problems-plagued-u-s-co2-capture-project-before-shutdown-document-idUSKCN2523K8>.

The Congressional Budget Office (CBO), *Carbon Capture and Storage in the United States*,<sup>70</sup> December 2023, reports “the cost of implementing CCS is likely to influence companies’ future decisions about using the technology” and “the availability of pipelines to transport CO<sub>2</sub> and underground capacity to store CO<sub>2</sub> will also affect the use of CCS.” The per ton cost of capturing CO<sub>2</sub> also varies and the report cited above estimates the cost to range approximately \$15 to \$25 per metric ton (in 2019 dollars) for natural gas processing and \$50 to \$100 per metric ton for power generation. The Rio Grande LNG Terminal’s largest source of emissions would be from the 10 gas turbines (2 turbines for each train and there are 5 trains) and are estimated to produce 4,332,698 tons per year of carbon dioxide equivalents (CO<sub>2</sub>e), of which 4,328,225 tons per year were CO<sub>2</sub> and 307 tons per year were other pollutants (e.g., nitrogen oxides [NO<sub>x</sub>], carbon monoxide [CO], etc.), and 95 percent of these CO<sub>2</sub> emissions were estimated by RG LNG to be able to be captured. Using the power generation cost estimates, this would add an estimated \$187,000,000 to \$373,000,000 (in 2019 dollars) in capital costs. The second largest source would be from the five thermal oxidizers that combust the CO<sub>2</sub> removed from the feed gas that is estimated to produce 1,927,060 tons per year of CO<sub>2</sub>e, of which 1,926,854 tons per year were CO<sub>2</sub> and 407 tons per year were other pollutants, and 100 percent of these CO<sub>2</sub> emissions were estimated by RG LNG to be able to be captured. Using the natural gas processing cost estimates, this would add an estimated \$26,200,000 to \$43,700,000 (in 2019 dollars) in capital costs. Combined, this would equate to approximately \$39 to \$76 per metric tonne.

The aforementioned CBO report estimates the cost to transport captured CO<sub>2</sub> ranges from \$2 to \$38 per metric ton, and storage costs would range from \$7 to \$11 per metric ton with the wide variability due to potential differences in transportation distance. For CO<sub>2</sub> captured from the gas turbine, this would add approximately \$7,460,000 to \$142,750,000 in transportation capital costs and \$26,110,000 to \$41,030,000 in storage capital costs. For CO<sub>2</sub> captured from the natural gas processing, this would add another \$3,500,000 to \$66,420,000 in transportation capital costs; and \$12,240,000 to \$19,230,000 in storage capital costs. Using these estimates, the total capital cost of using CCS for the gas turbine and natural gas processing would be estimated between \$262,030,000 and \$685,150,000. In total, this would equate to approximately \$48 to \$125 per metric tonne.

We note that these estimates differ from estimates used by other agencies when calculating the costs to capture, transport, and store CO<sub>2</sub>. For example, EPA, Power Sector Modeling Platform 2023 Using Integrated Planning Model<sup>71</sup>, estimates capture costs to be approximately \$1,200 to \$1,600 per kilowatt (kW) for a natural gas combined cycle power plant. For the 560,000 kW proposed load at the Rio Grande LNG Terminal, this would equate to approximately \$670,000,000 to \$890,000,000, which is significantly higher than

<sup>70</sup> Congressional Budget Office, *Carbon Capture and Storage in the United States*, December 13, 2023, <https://www.cbo.gov/publication/59345>, Accessed February 2025.

<sup>71</sup> EPA, Documentation for 2023 Reference Case for EPA’s Power Sector Modeling Platform 2023 Using IPM, April 25, 2024. Accessed February 2025.

our estimates above, and would equate to \$180 to \$240 per metric tonne. The EPA also estimates natural gas transmission pipelines to cost an estimated \$243,000 per inch-mile (in 2022 dollars), which would be similar costs expected of CO<sub>2</sub> pipelines. For a 30-inch-to 42-inch-diameter 100-mile to 125-mile long pipeline, this would equate to \$729,000,000 to \$1,280,000,000 (in 2022 dollars), which is also significantly higher than the CBO estimates by up to two orders of magnitude, and would equate to \$133 to \$233 per metric tonne. In addition, the EPA estimates storage based on \$230 per foot for drilling depth per injection well and the number of injection wells. For a 6,000-foot measured drilling depth and four injection wells, this would equate to \$5,520,000, which is significantly lower than the CBO estimates, and would equate to \$1 per metric tonne. In total, the estimated capital costs using EPA's modeling platform are \$1,410,000,000 to \$2,177,270,000 (in 2022 dollars) for the power generation of the Project, or approximately \$257 to \$397 per metric tonne, which does not include the natural gas processing stream routed to the thermal oxidizer CO<sub>2</sub> or any added operating and maintenance costs. The cost of the natural gas processing stream routed to the thermal oxidizer CO<sub>2</sub> would be expected to be less, but the transportation and storage costs would still be expected to be similar and the transport would constitute the majority of the cost given the considerable distance between storage and captured emissions.

RG LNG announced the overall capital costs to be an estimated \$18.4 billion dollars for Phase 1 (Trains 1-3) of the Project and an estimated \$6.0 to \$6.2 billion for Train 4.<sup>72,73</sup> Using similar estimates for Train 5 capital costs, the total capital costs when adding the CCS using either the CBO report or the EPA estimates would increase the total capital costs by a range of approximately \$289,000,000 to \$2,172,000,000, or by approximately 1 to 7 percent, which could make the Project no longer economically feasible at the upper end of the estimates and at the lower end may make the project less cost competitive unless purchasers of the supply are willing to pay for these added costs to reduce emissions and/or other financial incentives or subsidies (e.g., taxes, tax credits, etc.) offset the added costs. For example, according to the Congressional Research Service, the Internal Revenue Code Section 45Q provides for equipment placed in service after December 31, 2022, and construction beginning prior to January 1, 2033, a tax credit of \$17 per metric ton of CO<sub>2</sub> that increases to \$85 for facilities that pay prevailing wages during construction phase and during the first 12 years of operation and meet registered apprenticeship requirements. For the power generation, this would equate to a tax credit of approximately \$63,410,000 to \$317,060,000 and for the natural gas processing would equate to approximately \$29,720,000 to 148,580,000 and total of approximately \$93,130,000 to \$465,650,000. This could potentially offset all of the costs if using the

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<sup>72</sup> NextDecade, NextDecade Announces Positive Final Investment Decision on Rio Grande LNG Phase 1, <https://investors.next-decade.com/news-releases/news-release-details/nextdecade-announces-positive-final-investment-decision-rio>, July 2023.

<sup>73</sup> Bechtel, NextDecade Executes EPC Contract with Bechtel for Train 4 at the Rio Grande LNG Facility, <https://www.bechtel.com/press-releases/nextdecade-executes-epc-contract-with-bechtel-for-train-4-at-the-rio-grande-lng-facility/>, August 2024.

lower range of CBO estimates and upper range of 45Q tax credits if the facility already meeting all wage and apprenticeship requirements, or could potentially offset only 4.3 to 21.4 percent of the CCS capital costs if using the EPA estimates. This would potentially result an increase of total capital costs up to approximately \$2,084,140,000, or approximately 7 percent of total capital costs. Therefore, it is unknown whether CCS could be economically feasible. If it is not, requiring it could ultimately result in the project not being built. If it is not built, as mentioned above in the discussion of the no-action alternative, it is uncertain and speculative whether other energy sources could replace this source and whether those replacement sources would provide better or worse resource impacts.

We received comments on the draft supplemental EIS that RG LNG estimated the cost for the CCS to be \$57 per metric tonne, before financing costs, which is near the lower range of the CBO estimates provided. RG LNG also reported the expected cost to be \$74 per metric tonne, including financing costs.<sup>74</sup> However, we note that this was an estimate in a presentation, for which the basis or derivation was not provided. Moreover, the RG LNG estimates were within the estimated ranges above. We also note that RG LNG withdrew the CCS project application because the “Project is not sufficiently developed to allow Commission review to continue.”<sup>75</sup> This suggests that it may not have been developed enough to provide the requested deliverables that are common in front-end engineering design and, therefore, the estimates may be reflective of pre- front-end engineering design, which has greater uncertainty in cost estimates. The lack of development may also support that the CCS project was not economically feasible to sufficiently develop the information requested.

However, even if a CCS project is or becomes economically feasible, FERC would not have the ability to compel non-jurisdictional facilities to be constructed, would not have any permitting assurances it could rely upon to assure such non-jurisdictional facilities would be constructed, would not have any assurances the estimated CCS project timelines would meet the project needs, and there would be uncertainty as to whether the potential environmental impacts on other resources would increase environmental impacts (outside of reducing GHG emissions). Therefore, we cannot conclude it would be economically feasible as an alternative, meet the project timing needs, offer a significant environmental advantage, or would be environmentally preferable. Given these uncertainties, we do not recommend that the Commission require RG LNG to implement CCS technology as a condition of any approval it may issue.

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<sup>74</sup> NextDecade, <https://www.next-decade.com/wp-content/uploads/2022/01/NextDecade-Corporation-February-2022-Final.1.pdf>, Accessed June 2025.

<sup>75</sup> See FERC Accession No. 20240820-5125.

## 4 ENVIRONMENTAL ANALYSIS

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### 4.1 WILDLIFE

Three commenters mentioned pollution to nearby national wildlife refuges and detrimental effects on a national wildlife corridor.<sup>76</sup> Two other commenters refer to the flora and fauna of the Rio Grande Valley ecosystem.<sup>77</sup> For this supplemental EIS, the acreages of impacted vegetation or changes in land use remain the same as what was analyzed in the 2019 Final EIS and Amendment EAs. Therefore, we determine that there would be no additional impacts on vegetative or general wildlife resources, including specially managed areas and sensitive habitats beyond those already addressed in the 2019 Final EIS sections 4.5.4 and 4.6.1.

#### *Migratory birds*

A review of U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation results for the Project identified changes to the list of potential Birds of Conservation Concern (BCC) affected in the Project area from the list of bird species presented in appendix K of the 2019 Final EIS.

In comparison with the list of BCC evaluated in the 2019 Final EIS, the Information for Planning and Consultation results indicated a total of 14 newly identified BCC potentially present in the Project area. Of the 16 species evaluated in the 2019 Final EIS for the LNG Terminal, four are no longer potentially affected; and for the Rio Bravo Pipeline, 19 species retained BCC status (i.e., 24 species are no longer considered BCC). As cautioned by USFWS in the discussion for their 2021 report on BCC, lists between years may use different methodologies, which would limit any conclusions from changes in species, even though the process to generate the 2008 report (data used in the 2019 Final EIS) is most similar to the 2021 assessment (USFWS 2021). Five of the 14 newly identified species were included in the Migratory Bird Conservation Plans (MBCPs) for RG LNG and RB Pipeline and were evaluated in the 2019 Final EIS. Habitat requirements for the remaining nine species share similar characteristics to habitat evaluated for species in the 2019 final EIS. Thus, we expect that previously discussed impacts from the Project on BCC are applicable to the 14 newly identified species.

One commenter mentioned noise and light pollution impacts from the Project on migratory birds and butterflies; three commenters referred to the Project location in migratory corridors/flyways.<sup>78</sup> These comments are outside of the scope of the supplemental EIS, and, impacts on migratory birds from light pollution, noise pollution on wildlife in special managed areas, and construction and operation impacts on wildlife

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<sup>76</sup> See FERC Accession Nos. 20241015-5437, 20241016-5100, and 20241017-5001.

<sup>77</sup> See FERC Accession Nos. 20241007-5002 and 20241007-5004.

<sup>78</sup> See FERC Accession Nos. 20241007-5002, 20241007-5004, 20241015-5322, and 20241021-0003.

corridors, flyways, and pollinators are addressed in sections 4.6.1.3 and 4.6.1.4 of the 2019 Final EIS. As recommended in the 2019 Final EIS, Environmental Condition 23 of the Authorization Order required RG LNG and RB Pipeline to complete consultation with the USFWS and TPWD regarding their respective MBCP and receive approval before implementation. Documentation of review by USFWS and TPWD of the Project's MBCPs (July 2019 version for RG LNG and August 2019 version for RB Pipeline), and subsequent approval was submitted on November 25, 2019.<sup>79</sup>

On November 6, 2024, in response to RG LNG's October 17, 2024 request for re-initiation of informal consultation under section 7 of the Endangered Species Act (ESA) (see section 4.1.2 for additional discussion on section 7 ESA consultation), the USFWS provided several recommendations to minimize impacts during construction on species protected under the Migratory Bird Treaty Act. These are "conducting bird surveys no more than five days prior to ground disturbing activities or mechanical clearing of brush and trees that occur between March 15 and September 15 ... [and] leaving a buffer of vegetation  $\geq$  100 feet around songbird nests detected until young have fledged or the nest is abandoned." USFWS also specified that bird surveys should encompass birds, nests, and eggs, and that the recommended vegetative buffer for water birds or raptors is 0.5 mile.<sup>80</sup> These recommendations represent specific guidance on the timing of clearance surveys for migratory birds when construction activities occur during the migratory bird breeding season. Clearance surveys were listed as one of the avoidance, minimization, and mitigation options in RG LNG's July 2019 MBCP Revision 1 for the LNG Terminal site, which was agreed upon by USFWS on August 28, 2019, and TPWD on August 29, 2019.

Environmental Condition 4 of the Commission's 2024 Route Amendment Order for the RB Pipeline Project stated "[p]rior to construction, RB Pipeline shall file with the Secretary completed consultations with the USFWS related to impacts on migratory birds, addressing discrepancies (e.g., timing of nest surveys, construction buffers, nighttime work) between the approved MBCP for the RB Pipeline Project and the USFWS' August 23, 2023 comments for the Route Amendment Project." RB Pipeline provided documentation of USFWS's approval of RB Pipeline's MBCP, dated February 15, 2024.<sup>81</sup>

The construction and operational workspace for the Project remains unchanged from what was previously authorized and certificated. Therefore, despite changes in potential BCC present in the Project area, there would be no significant changes in impacts on migratory bird species beyond those already discussed in the 2019 Final EIS or the Amendment EAs.

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<sup>79</sup> See FERC Accession No. 20191125-5026 (Privileged file).

<sup>80</sup> See FERC Accession No. 20241107-5073.

<sup>81</sup> See FERC Accession No. 20241021-5190.

#### 4.1.1 Fisheries and Aquatic Resources

National Oceanic Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) completed review of the revised Essential Fish Habitat (EFH) assessment for the Project in its entirety (LNG terminal and pipeline), which was submitted by FERC on February 15, 2019. NMFS concurred with FERC's determination that the Project would have minor, short-term, and highly localized impacts to open-water EFH; thus, concluding EFH consultation.<sup>82</sup>

On June 2021, the Gulf of Mexico Fishery Management Council (GMFMC) issued a draft document indicating its intent to complete a five-year review of EFH information per the Magnuson-Stevens Act in 50 CFR 600.815(a); the previous 5-year review was completed in December 2016. The purpose of the draft fishery management plan amendment is for the GMFMC and NMFS "to incorporate new habitat life-history functional relationships into existing EFH identification and descriptions, which will better inform the consultations on actions that may adversely affect EFH..." (GMFMC and NMFS 2021). An update in fishery management plans for shrimp, reef fish, coastal migratory pelagics, spiny lobster, coral, and red drum EFH was proposed. The EFH amendment to modify all Gulf fishery management plans is still under development.

One proposed route adjustment previously evaluated in the RB Pipeline Route Amendment EA in Docket No. CP23-519-000 was the crossing of Bahia Grande Channel at MP 135.2. This is an EFH waterbody and would be crossed using the horizontal directional drill method thus, avoiding direct impacts on EFH. As evaluated in the Amendment EA, the proposed crossing of the Bahia Grande Channel is in the area previously reviewed by NMFS in the approved EFH Assessment dated February 2019.<sup>83</sup> The Amendment EA concluded that overall there would be a reduction in impacts on aquatic resources through the use of HDD. It noted that the change in pipeline route would result in impact on approximately 3.1 acres of open water being impacted that was not evaluated by NMFS, but the reduction in the width required for the waterbody crossing would result in an estimated 84-acre reduction of impacts on aquatic resources during construction, including EFH.<sup>84</sup>

One commenter remarked on the effects of dredging on marine mammals, highlighting dolphins<sup>85</sup>; while another commenter was concerned about the clam and seagrass populations in Bahia Grande, the need for hydrodynamic modeling to assess dredging effects of suspended solids on aquatic resources, and applicability of an Incidental

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<sup>82</sup> 2019 Final EIS; section 4.6.3.

<sup>83</sup> Figure 1D, page 75 of 82, of the RB Pipeline Route Amendment EA (CP23-519) as compared with figure 3-1 of the Essential Fish Habitat Assessment – Revision 3.

<sup>84</sup> RB Pipeline Route Amendment EA; section 4.1.

<sup>85</sup> See FERC Accession No. 20241015-5367.

Take Authorization.<sup>86</sup> A discussion on the impacts of dredging and pile driving on aquatic resources is in section 4.6.2.2 of the 2019 Final EIS, while noise pollution impacts on marine mammals from pile driving is in section 4.7.3 of the 2019 Final EIS.

On January 15, 2025, NMFS – Office of Protected Resources reissued the initial incidental harassment authorization (IHA), which expired on June 31, 2021, specifically for three species protected under the Marine Mammal Protection Act. Rio Grande LNG requested a reissuance of the incidental harassment (e.g., take) authorization for the common bottlenose dolphin, Atlantic spotted dolphin, and the rough-tooth dolphin for the construction of the LNG terminal with effective dates from January 15, 2025 to January 14, 2026. This authorization is only applicable to potential take of these three dolphin species, and the reissuance is only to update the effective dates of the initial IHA (i.e., no changes to anticipated effects on affected species; no changes to authorized take numbers; no changes to monitoring, mitigation, or reporting requirements) (NOAA Fisheries 2024). Additional environmental analyses, such as hydrodynamic modeling, are beyond the scope of the supplemental EIS. Moreover, the resources such analyses would examine—the availability and use of water resources (surface and groundwater)—are under the jurisdiction of local and regional entities (Brownsville Public Utility Board; groundwater conservation districts boards) as well as state and federal resource agencies (e.g., Texas Water Development Board and USACE).

Another individual was concerned about the impact of the LNG Terminal and associated vessel traffic on water quality of the BSC to support a viable shrimp population.<sup>87</sup> Section 4.6.2 of the 2019 Final EIS discusses the effects of dredging and vessel traffic from the Project on these resources, while section 4.6.3 describes the characteristics of the manmade BSC, which precludes habitat suitability for managed species, such as shrimp.

As part of its construction of the Project, RG LNG has initiated dredging operations in the BSC; thereby, removing shallow habitat. The majority of impacts on EFH associated with the Project would be short-term, as estuarine water column habitat would remain following the completion of construction activities. Further, RG LNG would be required to mitigate for unavoidable impacts on tidal flats serving as EFH as part of its section 404 Clean Water Act permit. Based on the short-term and temporary nature of the majority of EFH impacts, with the exception of converting shallow water habitat to deep water habitat, we have determined that the Project would have short-term, minor impacts on open-water EFH.

In December 2024, RG LNG and RB Pipeline contacted NMFS – Office of Habitat Conservation to confirm that further EFH consultation is not needed at this time. As of the issuance of this final supplemental EIS, NMFS has not responded with confirmation that

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<sup>86</sup> See Accession No. 20241017-5101.

<sup>87</sup> See Accession No. 20241015-5437.

no further consultation is necessary. FERC staff will continue communications with NMFS to complete any EFH consultation obligations it may identify.

#### 4.1.2 Species of Special Status

##### *Federally Listed Species*

Analysis of the Projects' effects to federally listed species can be found in section 4.7 of the 2019 Final EIS and sections 4.4 and 4.3 of the Amendment EAs (CP20-481-000 and CP23-519-000, respectively). Formal consultation under section 7 of the ESA was completed with the USFWS on October 1, 2019, with the issuance of a Biological Opinion.<sup>88</sup> Informal consultation with NMFS concluded on August 8, 2019.<sup>89</sup> NMFS concurred with FERC's *may affect, but not likely to adversely* determination for 12 listed species and designated critical habitat LOGG-S-2, Gulf of Mexico *Sargassum*, for the loggerhead sea turtle (*Caretta caretta*). After completion of the formal consultation with USFWS, the eastern black rail (*Laterallus jamaicensis jamaicensis*) was federally listed as threatened, staff initiated informal consultation.<sup>90</sup> USFWS concurred with FERC's determination that the Project *may affect, but not likely to adversely affect* the eastern black rail;<sup>91</sup> thereby concluding section 7 informal consultation. The Proposed Action remains the same as previously analyzed and would not result in changes to the effects to federally listed species previously evaluated in the 2019 Final EIS and Amendment EAs; therefore, no additional discussion of these species is needed.<sup>92</sup>

Three commenters expressed concerns about the impacts of LNG projects in the Rio Grande area, in addition to the Project's LNG terminal on the federally endangered ocelot, Rice's whale, Kemp's ridley sea turtle, and northern aplomado falcon, and the federally threatened piping plover.<sup>93</sup> A discussion about the specific effects of the LNG terminal on these species are in the 2019 Final EIS, section 4.7. These species were included in the formal section 7 ESA consultation with the USFWS, which concluded with the issuance of a Biological Opinion. Section 4.3 of the RB Pipeline Route Amendment EA, in addition to section 4.7.1.4 of the 2019 Final EIS, provided further details on measures RB Pipeline would implement to reduce effects of the pipeline on the ocelot. One commenter

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<sup>88</sup> See FERC Accession No. 20191002-5102. Biological Opinion (consultation number 02ETTX0-2019-F-0372) for the ocelot, Gulf coast jaguarundi, northern aplomado falcon, West Indian manatee, red knot, piping plover and its critical habitat, whooping crane, black lace cactus, slender rush-pea, and five sea turtles and its nesting habitat (Kemp's ridley, loggerhead, green, leatherback, and hawksbill).

<sup>89</sup> See FERC Accession No. 20190822-4001. Informal consultation concluded for five sea turtles (green, Kemp's ridley, leatherback, loggerhead, and hawksbill), giant manta ray, and six whales (North Atlantic right, blue, fin, sei, sperm, and Bryde's).

<sup>90</sup> 85 FR 63764.

<sup>91</sup> See FERC Accession No. 20210126-5007.

<sup>92</sup> Refer to table 4.7-1 of the 2019 Final EIS for the list of federally listed species affected by the Project.

<sup>93</sup> See FERC Accession Nos. 20241016-5100, 20241017-5001, and 20241021-0003.

mentioned the impact of the Project on the threatened interior least tern.<sup>94</sup> On January 13, 2021, the USFWS delisted the interior least tern from the federal list of endangered and threatened wildlife; thus, removing prohibitions and protections of the ESA for this species.<sup>95</sup>

Since the issuance of the 2019 Final EIS and two Amendment EAs, one species has been listed as threatened (cactus ferruginous pygmy-owl [*Glaucidium brasilianum cactorum*]<sup>96</sup> and four species have been proposed for listing as endangered : tricolored bat (*Perimyotis subflavus*),<sup>97</sup> Mexican fawnsfoot (*Truncilla cognata*), Salina mucket (*Potamilus metnecktayi*),<sup>98</sup> and Antillean manatee (*Trichechus manatus manatus*).<sup>99</sup> Two additional species have been proposed for listing as threatened under section 4(d) of the ESA: monarch butterfly (*Danaus plexippus*)<sup>100</sup> and Florida manatee (*Trichechus manatus latirostris*).<sup>101</sup> Construction and operational activities for the Project also overlap with the proposed critical habitat for two listed species: the endangered Rice’s whale (*Balaenoptera ricei*) and threatened North Atlantic Distinct Population Segment (DPS) of the green sea turtle (*Chelonia mydas*).<sup>102, 103</sup>

Table C-1 in appendix C presents our determination of effects for these species and proposed critical habitat.

#### *Rio Grande LNG Terminal Project*

RG LNG determined that the LNG terminal portion of the Project, in addition to associated offsite storage and parking lot in Port Isabel, would have *no effect* on the threatened cactus ferruginous pygmy owl and the three proposed endangered species. On October 17, 2024, RG LNG requested re-initiation of informal consultation for these four species, and on November 6, 2024, the USFWS stated that by making a determination, RG

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<sup>94</sup> See FERC Accession No. 20241021-0003.

<sup>95</sup> 86 FR 2564.

<sup>96</sup> 88 FR 46910 (August 21, 2023).

<sup>97</sup> 87 FR 56381 (September 14, 2022).

<sup>98</sup> 88 FR 47952 (July 25, 2023).

<sup>99</sup> 90 FR 3131 (January 14, 2025).

<sup>100</sup> 89 FR 100662 (December 12, 2024).

<sup>101</sup> 90 FR 3131 (January 14, 2025); USFWS proposed to list two subspecies of the West Indian manatee (*Trichechus manatus*) as two species requiring protection under the ESA: Antillean manatee as proposed endangered due to habitat and Florida manatee as proposed threatened. If approved, the West Indian manatee would be removed from the Federal List of Endangered and Threatened Wildlife.

<sup>102</sup> On July 24, 2023, NMFS proposed to designate critical habitat for the endangered Rice’s whale (88 FR 47453)

<sup>103</sup> On July 19, 2023, NMFS proposed to designate critical habitat for the threatened green sea turtle (88 FR 46576).

LNG has complied with section 7(a)(2) of ESA.<sup>104</sup> We concur with the no effect finding and consider ESA section 7 consultation complete for species under USFWS jurisdiction.

The LNG terminal site is already cleared of vegetation and previously disturbed and barren ground for the Port Isabel and Port of Brownsville offsite parking and storage areas provide limited suitable habitat for foraging monarch butterflies. Additionally, the revegetation plan in the 2019 Final EIS stated that monarch butterfly-friendly species would be incorporated into the seed mix, as possible; therefore, we determine that the LNG portion of the Project has *no effect* on the monarch butterfly.

Section 4.7.1.2 of the 2019 Final EIS discussed the habitat requirements, life stages, potential impacts from the LNG terminal and shipping routes on the West Indian manatee, and proposed avoidance and mitigation measures. In the Biological Opinion, dated October 1, 2019, the USFWS concurred with FERC’s determination of *may affect, but not likely to adversely affect* the West Indian manatee, along with other listed species, for the Project. The West Indian manatee is protected additionally under the Marine Mammal Protection Act, regarding “take” of marine mammals in U.S. waters. Based on the geography and habitat range, the proposed threatened Florida manatee (formerly West Indian manatee) is likely the species in the Project area rather than the Antillean manatee (proposed endangered). Although there is a possibility of an encounter, sighting records suggest individuals of either subspecies are very rare in the Project’s LNG terminal and vessel transit routes. We expect that impacts from the Project on the West Indian manatee—as evaluated in section 4.7.1.2 of the final EIS and commitment to environmental condition 26 in the Authorization Order, and as applicable, the 2023 Remand Order—to be the same for the Florida and Antillean manatee. Therefore, we conclude that the Project *is not likely to jeopardize* the continued existence of the Florida or Antillean manatee.

For marine species and habitat under NMFS jurisdiction, no species have been proposed for federal listing or have been listed since formal consultation was completed for the Project on August 8, 2019. Shipping channels used by vessels to/from the LNG terminal may overlap with the proposed critical habitat for Rice’s whale and the green sea turtle. Although data for vessel traffic from 2021 – 2023 depict an increase of 95 percent from estimates in the 2019 Final EIS, which was based on vessel calls using 2012 – 2014 data, the estimated number of vessel trips during construction and operation of the LNG terminal are expected to be similar to levels analyzed in the 2019 Final EIS. Based on the higher traffic volume, proportionally, vessel traffic is estimated to represent a 9 percent contribution to total vessel activity in the BSC during construction and a 15 percent increase during operation. Therefore, RG LNG determined that vessel traffic during construction and operation is *not likely to result in adverse modification* to the proposed

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<sup>104</sup> No effect determinations do not require USFWS concurrence. To assist in compliance with section 7 of the ESA, RG LNG, acting as the FERC’s non-federal representative for the Rio Grande LNG Project (18 CFR 380.13), coordinated with the USFWS.

critical habitat for Rice’s whale or green sea turtle. We agree. . Under 50 CFR 402.10, if the project is not likely to jeopardize the continued existence of the proposed listed species and/or is not likely to destroy or adversely modify proposed critical habitat, conference is not necessary and no consultation is required unless the proposed critical habitat is listed.

### *Rio Bravo Pipeline Project*

RB Pipeline received approval from the USFWS for its tricolored bat survey protocol on February 15, 2024. For the cactus ferruginous pygmy-owl, RB Pipeline submitted documentation that survey approval is pending as of March 24, 2024.<sup>105</sup> Thus, informal consultation is ongoing. As of the date of this final supplemental EIS, and according to RB Pipeline, tricolored bat surveys and informal consultation with the USFWS are ongoing.<sup>106</sup> A condition of the Commission’s 2024 Route Amendment Order required RB Pipeline to provide the information necessary for staff to complete consultation with the USFWS on the tricolored bat, and that condition would continue to apply to the Project, if authorized by the Commission. Based on the absence of suitable habitat for the proposed endangered Mexican fawnsfoot, Salina mucket, and Antillean manatee, we determined that the Rio Bravo Pipeline would have *no effect* on these species.

Milkweed, an obligate host plant for larva and nectar source for adult monarch butterflies, is typically found along roadsides, pastures, and other light-shade to full-sun areas, such as utility rights-of-way, alongside other flowering plant species. Construction and operation of the Rio Bravo Pipeline would affect areas with suitable habitat for breeding and migrating monarch butterflies. As stated in sections 4.6.1.4 and 5.1.6 of the 2019 Final EIS and section 4.3 of the RB Pipeline Route Amendment EA, RB Pipeline, in consultation with the Natural Resources Conservation Service, developed seed mixes that include region-specific flowering plant species that can serve as food sources for migrating monarch butterflies. RB Pipeline would use these monarch butterfly-friendly seed mixes during revegetation, as possible. Therefore, we conclude that the Rio Bravo Pipeline *is not likely to jeopardize* the continued existence of the monarch butterfly.

We conclude that the Rio Bravo Pipeline would have *no effect* on the proposed critical habitat for Rice’s whale *and not likely to adversely modify* the proposed critical habitat for the green sea turtle based on limited suitable habitat in or overlapping essential features of the proposed critical habitat near Bahia Grande Channel that would be crossed by the pipeline. RB Pipeline would conduct this crossing by the horizontal directional drilling (HDD) method; thereby, avoiding direct impacts on the proposed critical habitat.

Proposed species do not require consultation with the Services. However, the action agency can request a conference with the Services regarding potential impacts and mitigation for a proposed species. We determined that the Rio Bravo Pipeline *is not likely*

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<sup>105</sup> See FERC Accession No. 20241021-5190.

<sup>106</sup> See FERC Accession No. 20241202-5276.

to jeopardize the continued existence of the proposed endangered tricolored bat and two proposed threatened species (monarch butterfly and Florida manatee). We also determined that the Rio Bravo Pipeline is *not likely to result in adverse modification* to the proposed critical habitat designation for the threatened green sea turtle. Therefore, an informal conference would not be necessary.

If any of the proposed species becomes listed or proposed critical habitat becomes designated during construction of the Rio Bravo Pipeline, FERC staff would complete section 7 consultation with NMFS and USFWS.

ESA consultation is ongoing for the Rio Bravo Pipeline for the cactus ferruginous pygmy-owl; therefore, **we recommend the following measure be included as a condition of the Commission's Order:**

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

#### *State-listed species*

Since the issuance of the 2019 Final EIS and Amendment EAs, TPWD updated the lists of endangered and threatened state species in March 2020. Table C-2 in appendix C presents the state-listed species that were not previously evaluated for the Projects (Rio Grande LNG Terminal and Rio Bravo Pipeline) and the Projects' impacts on those species.

We received five comments regarding the state-threatened Texas tortoise (*Gopherus berlandieri*).<sup>107</sup> Commenters are concerned about the lack of data sharing and status of a Texas tortoise translocation program that began in 2022, in addition to habitat loss. Other commenters mentioned other state-listed reptiles, such as the Texas indigo snake and Texas horned lizard. All three species were addressed in the 2019 Final EIS section 4.7.2. Regarding the concern about the lack of data sharing, FERC staff has no jurisdiction or control over TPWD's species reporting and data management.

On October 17, 2024, RG LNG contacted TPWD for concurrence of no impact on the stated-listed species that were added to TPWD's Cameron County List of Rare Species since the issuance of the 2019 Final EIS. The Rio Grande LNG facility and two associated

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<sup>107</sup> See FERC Accession Nos. 20241015-5198, 20241016-5002, 20241015-5367, 20241015-5430, and 20241015-5432.

offsite temporary storage and parking areas in Port Isabel and Brownsville are in Cameron County. On November 22, 2024, RB Pipeline submitted a similar letter to TPWD requesting review of the proposed pipeline route in Cameron, Willacy, Kenedy, Kleberg, and Jim Wells Counties for species listed by the state since the 2019 Final EIS.

In response to RG LNG's request, TPWD stated that no significant adverse impacts to state-protected species (rare, threatened, or endangered) are anticipated for the LNG Terminal and the associated offsite area in Port Isabel as these two sites have already been cleared of vegetation and highly disturbed.<sup>108</sup> For the associated Brownsville offsite parking and storage location, TPWD indicated a verified record of Texas tortoise in the vicinity. Due to the potential presence of Texas tortoise near the Brownsville site, TPWD provided a set of recommendations to minimize and avoid impacts on this state-threatened species specifically for the Brownsville offsite parking and storage area. Recommended avoidance and mitigation measures include pre-construction surveys, preferred vegetation clearing windows, exclusion fencing methodology, speed limits, and relocation of tortoise individuals, as appropriate. On January 27, 2025, in response to TPWD, RG LNG stated that they "... will continue to adhere to for work at the Brownsville Offsite Parking and Storage Area."<sup>109</sup>

As of the draft supplemental EIS issuance, TPWD had not provided a response to RB Pipeline's letter requesting review of the proposed pipeline route for species listed by the state since the 2019 Final EIS. Thus, in the draft supplemental EIS, we requested that RB Pipeline file an update with the Secretary regarding its consultation with the TPWD regarding state-listed species, and identify measures, if any, that RB Pipeline would implement to reduce impacts on state-listed species.

On May 19, 2025, RB Pipeline submitted documentation indicating that TPWD reviewed the Updated Request for Comment / Project Review, dated November 22, 2024, for the Rio Bravo Pipeline.<sup>110</sup> TPWD did not have comments on RB Pipeline's determination of effects on the newly added state-listed species that were not previously evaluated in the 2019 Final EIS.<sup>111</sup> Therefore, we determine that no significant impacts from the Rio Bravo Pipeline are expected for the species listed in Texas since the 2019 Final EIS.

## 4.2 AIR QUALITY

The term air quality refers to the relative concentrations of pollutants in the ambient air. Air quality would be affected by construction and operation of the Project. Although

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<sup>108</sup> See FERC Accession No. 20250127-5223.

<sup>109</sup> *Id.*

<sup>110</sup> See FERC Accession No. 20250519-5153.

<sup>111</sup> See FERC Accession No. 20241202-5276 for RB Pipeline's effect determinations for the 18 species on the state threatened and endangered species list.

air emissions would be generated by operation of equipment and vehicles during construction of the Project facilities, most air emissions associated with the Projects would result from the operation of the Rio Grande LNG Terminal and the Rio Bravo Pipeline Compressor Station 1 (Compressor Station 1). The 2019 Final EIS, 2020 Project Amendment EA, and 2023 Remand Order address the impacts of direct construction emissions and the court's opinion did not take issue with that analysis.<sup>112</sup> As such, direct construction emissions of the Rio Grande LNG Terminal and the Rio Bravo Pipeline will not be further addressed and the analysis here is limited to the impacts of operational air emissions from the Rio Grande LNG Terminal, emissions from Compressor Station 1, and minor emissions from operation of the Rio Bravo Pipeline.

The Rio Grande LNG Terminal, currently under construction, is along the BSC in Cameron County, Texas. The proposed Project facilities are on the flat Coastal Plain in the southeastern corner of Texas. The general climate of the region is classified as humid subtropical with a strong maritime character. The climate is influenced to a large degree by the proximity of the Gulf of America.<sup>113</sup>

Combustion and fugitive emissions resulting from the use of fossil fuels, such as natural gas, produce criteria air pollutants, such as oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and inhalable particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (PM<sub>2.5</sub>), and inhalable particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM<sub>10</sub>). Combustion of fossil fuels also produces volatile organic compounds (VOCs), a large group of organic chemicals that have a relatively high vapor pressure at room temperature. VOCs react with NO<sub>x</sub>, typically on warm summer days, to form ozone. Other byproducts of combustion are GHGs<sup>114</sup> and hazardous air pollutants (HAPs). HAPs are chemicals known to cause cancer and other serious health impacts. The 2019 Final EIS identifies the estimated GHG and HAP emissions potentially resulting from operation of the Rio Grande LNG Terminal,<sup>115</sup> and a Human Health Inhalation Risk Assessment is included in section 4.4.3.

Other pollutants, not produced by combustion, are fugitive dust and fugitive emissions. Fugitive dust is a mix of PM<sub>2.5</sub>, PM<sub>10</sub>, and larger particles entrained in the atmosphere by moving vehicles during maintenance, dust from wind erosion or work areas still undergoing restoration. Fugitive emissions predominantly include leaks of natural gas,

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<sup>112</sup> 2019 Final EIS section 4.11.1.3 at 4-270. Includes estimated construction emissions associated with the no longer proposed booster compressor stations and Compressor Station 3. The Amendment EA and 2023 Remand Order update the Project's construction emission estimates to exclude these components.

<sup>113</sup> 2019 Final EIS section 4.11.1.1 at 4-244.

<sup>114</sup> The EPA has defined air pollution to also include the mix of six directly emitted and long-lived GHGs: CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs occur in the atmosphere both naturally and because of human activities, such as the burning of fossil fuels. The primary GHGs produced by fossil fuel combustion are CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.

<sup>115</sup> 2019 Final EIS section 4.11.1.3 at 4-270.

resulting in the release of methane (a GHG) as well as additional trace constituents including VOCs from pipes, and other equipment at aboveground facilities.

#### **4.2.1 Air Quality Permits and Regulations**

The Project would be potentially subject to a variety of federal and state regulations pertaining to the operation of the Rio Grande LNG Terminal and Compressor Station 1. The Clean Air Act (CAA), 42 USC 7401 et seq., and 40 CFR Parts 50 through 99 are the basic federal statutes and regulations governing air pollution in the United States.

##### New Source Review/Prevention of Significant Deterioration

Federal preconstruction review for sources in nonattainment areas is referred to as Nonattainment New Source Review, while federal preconstruction review for sources in attainment areas is referred to as Prevention of Significant Deterioration (PSD). The review process aids in preventing new sources and modifications to existing systems from causing existing air quality to deteriorate beyond acceptable levels. A source is classified as PSD major if it has the potential to emit (PTE) more than 100 tons per year (tpy) of a pollutant regulated under the CAA and it is listed in one of the 28 named source categories in Section 169 of the CAA, or if it has the PTE more than 250 tpy and is not listed in one of the 28 named source categories in Section 169 of the CAA. Sources that exceed the major source threshold are then subject to a PSD review. Emissions from the Terminal would be above the PSD major source thresholds for CO, NO<sub>x</sub>, VOC, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO<sub>2e</sub>. If a source is subject to PSD review for one regulated pollutant, the source is also subject to PSD review for all other pollutants causing a significant increase in emissions level.<sup>116</sup> For this reason, the Rio Grande LNG Terminal would be subject to PSD review. Compressor Station 1 would be a minor PSD source and not subject to PSD review.

##### Title V Operating Permit

The required elements of Title V operating permit programs are outlined in 40 CFR 70 and 40 CFR 71. Title V operating permits may be referred to as “Part 70” or “Part 71” permits, or as Title V permits. A Title V permit should list all air pollution requirements that apply to the source, including emissions limits and monitoring, recordkeeping, and reporting requirements. Regulations also require that the permittee annually report the compliance status of its source with respect to permit conditions to the corresponding regulatory agency. A Title V major source, as defined in 40 CFR 70.2, is a source or group of stationary sources (including new and existing sources) within a contiguous area and under common control, emitting or with the PTE criteria pollutants or HAPs above the criteria pollutant threshold values. The Title V major source threshold is 100 tpy for any

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<sup>116</sup> Significant emission rates for criteria pollutants are 100 tpy for CO; 40 tpy for NO<sub>x</sub>, VOC, and SO<sub>2</sub>; 25 tpy for total suspended particulates; 15 tpy for PM<sub>10</sub> and 10 tpy for [direct] PM<sub>2.5</sub> and noncriteria pollutants; 10 tpy for H<sub>2</sub>S; 7 tpy for sulfuric acid mist; and 75,000 tpy for CO<sub>2e</sub>.

of the criteria pollutants, 10 tpy for any single HAP, and 25 tpy for any combination of HAPs. Both the Rio Grande LNG Terminal and the Compressor Station 1 would be subject to Title V permitting requirements.

#### National Emissions Standards for Hazardous Air Pollutants

Major source thresholds for National Emissions Standards for Hazardous Air Pollutants (NESHAPs) are 10 tons per year (tpy) of any single HAP or 25 tpy of total HAPs. The LNG Terminal would be a major source of HAPs, as potential total emissions of HAPs would be greater than 25 tpy, and emissions of individual HAPs would have the potential to exceed 10 tpy. The Rio Grande LNG Terminal would be subject to the following NESHAP regulations: Subpart A – General Provisions, Subpart YYYYY – NESHAP for Stationary Combustion Turbines, and Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines.

#### Texas Air Quality Requirements

The Rio Grande LNG Terminal would be subject to the state standards outlined in Title 30 of the Texas Administrative Code (TAC). The applicable regulations include 30 TAC Chapter 101, Subchapter A; 30 TAC Chapter 111; 30 TAC Chapter 112; 30 TAC Chapter 116, Subchapter B; 30 TAC Chapter 118; and 30 TAC Chapter 122.

### **4.2.2 Operational Air Quality Impact Analysis**

#### Rio Grande LNG Terminal

Air quality modeling analysis was previously completed for both the 2019 Final EIS<sup>117</sup> and the 2020 Project Amendment EA, including a PSD Screening Analysis, NAAQS Analysis, and PSD Increment Analysis for stationary sources at the Rio Grande LNG Terminal in accordance with the TCEQ's permitting requirements delegated under the CAA. In addition to the modeling required by the TCEQ, FERC requested that the requisite modeling for the LNG Terminal include the mobile LNG carrier and support vessel emissions. The PSD Screening Analysis included a Significance Analysis, Area of Impact Analysis, and Pre-construction Monitoring Analysis.

In general, a Significance Analysis considers the emissions associated with only the proposed Project (in this case, the Rio Grande LNG Terminal, LNG mobile emissions, and Compressor Station 1) to determine if operation of these facilities would exceed the significant impact levels (SIL)<sup>118</sup> to determine if any predicted concentrations from the

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<sup>117</sup> 2019 Final EIS at 4-465

<sup>118</sup> SILs are defined concentrations of criteria pollutants in the ambient air, below which emissions are considered inconsequential in comparison to the NAAQS. SILs are used to determine appropriate modeling for analyzing emissions impacts. Concentrations above SIL levels do not indicate that NAAQS have been exceeded nor do they

Project at any receptor locations could potentially result in ambient concentrations that cause or contribute to exceedances of the NAAQS.

If the Significance Analysis reveals that modeled ground-level concentrations for a particular pollutant and averaging period are greater than the applicable SIL, a “full” or cumulative impact analysis, which considers emissions from regional sources within the Area of Impact (also known as the Radius of Impact), is performed.<sup>119</sup>

For any pollutant that exceeds the SIL, a cumulative modeling assessment that includes emissions of nearby stationary sources within the Area of Impact is also required for the Project. If this cumulative modeling assessment indicates any potential exceedances of the NAAQS, the contribution of the Project at the points of exceedance is again compared to the SIL to determine if the Project would substantially contribute to the exceedance. If the Project contribution exceeds the SIL, then the facility is deemed to cause or contribute to an exceedance of the NAAQS.

In the 2019 Final EIS, we analyzed the impacts from the Rio Grande LNG Terminal and the initial Significance Analysis determined that 1-hour and annual NO<sub>2</sub> and 24-hour and annual PM<sub>2.5</sub> would exceed the respective SILs.<sup>120</sup> Subsequent cumulative modeling for the TCEQ showed that the Rio Grande LNG Terminal would not exceed the NAAQS. However, the TCEQ modeling results do not include mobile sources; therefore, we conducted a cumulative analysis including the emissions for the two LNG terminals proposed along the BSC.

We assessed the air dispersion modeling results provided for the Rio Grande LNG, Texas LNG, and Annova LNG Terminals and used these models to estimate the cumulative air emissions during concurrent operation at all three facilities.<sup>121</sup> In the 2019 Final EIS, the Significance modeling and the cumulative modeling for the Rio Grande LNG Terminal did not indicate any exceedances of relevant thresholds with exception of 1-hour NO<sub>2</sub>. Although an exceedance of the NAAQS and SILs occurred, the exceedance occurred between the Rio Grande LNG Terminal and the Texas LNG Terminal. The 2019 Final EIS concluded that it was unlikely that people may be exposed to the NO<sub>2</sub> concentrations above the 1-hour NAAQS, which would occur on property within the Port of Brownsville and thus, would not result in significant air quality impacts.<sup>122</sup> We note that since the 2019 Final EIS, the Annova LNG Terminal project has been canceled.

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indicate a significant impact under NEPA, when performing the initial Significance Analysis modeling. *See Transcon. Gas Pipe Line Co., LLC*, 187 FERC ¶ 61,024 (2024).

<sup>119</sup> Although the Area of Impact (aka Radius of Impact) is the furthest distance at which a pollutant’s SIL is exceeded, for the Rio Grande LNG Terminal the Area of Impact/Radius of Impact used was 50 kilometers (31 miles).

<sup>120</sup> 2019 Final EIS at 4-266

<sup>121</sup> 2019 Final EIS at 4-474

<sup>122</sup> 2019 Final EIS at 4-475

In addition, because the Rio Grande LNG Terminal is a major source of NO<sub>x</sub> and VOC emissions, which are precursors to ozone, the potential ozone impact of the LNG Terminal was analyzed in the 2019 Final EIS.<sup>123</sup> RG LNG conducted photochemical modeling to determine the potential 8-hour ozone impact from LNG Terminal operations using the Comprehensive Air Quality Model with Extensions (CAMx) in accordance with the EPA's July 2015 Draft Single Source Ozone Guidance. RG LNG also assessed potential ozone impacts in accordance with the two-step screening process established by the TCEQ. The results in the 2019 Final EIS and in the 2023 Remand Order for the 2019 Final EIS<sup>124</sup>, we determined that facility and cumulative ozone impacts would not be significant.

In order to be responsive to the court's August 6, 2024 opinion, we updated the air quality analysis, including air quality modeling for the Rio Grande LNG Terminal. A summary of the air quality analysis for Compressor Station 1 can be found within the 2020 Project Amendment EA<sup>125</sup> and is summarized and updated below.

FERC staff requested that RG LNG revise the American Meteorological Society/EPA Regulatory Model (AERMOD) air quality modeling to ensure that the LNG Terminal would not cause or contribute any violation of the NAAQS, including NO<sub>2</sub> and PM<sub>2.5</sub> and would not result in significant cumulative air quality impacts.<sup>126</sup> The RG LNG Project Air Dispersion Modeling Report (Modeling Report) was filed on January 21, 2025, in Response to our data request and prepared by RG LNG's contractor SLR International Corporation. The air quality modeling is discussed further below. We also requested that RG LNG update the inventory of sources included in the air quality model as new facilities may have been built or planned since the final EIS. We also requested that RG LNG perform an impact analysis for ozone.

The updated modeling inventory included emissions from the Rio Grande LNG Terminal itself, certain LNG ship emissions, the Texas LNG Terminal,<sup>127</sup> as well as the regional offsite sources within a 50-kilometer radius of the terminal (RG LNG, 2025). The regional inventory of sources was obtained by RG LNG by submitting an Air Permits Allowable Database Modeling Retrieval Request Form to the TCEQ Information Resource

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<sup>123</sup> 2019 Final EIS at 4-268

<sup>124</sup> 2023 Remand Order at p150

<sup>125</sup> 2020 Amendment EA at 26

<sup>126</sup> *Rio Grande LNG, LLC*, Environmental Information Request #5, January 24, 2025

<sup>127</sup> The Texas LNG Terminal, proposed by Texas LNG Brownsville LLC (Texas LNG) on the Brownsville Ship Channel adjacent to and northeast of the Rio Grande LNG Terminal in Cameron County, Texas, would convert domestically produced natural gas into up to 4 million tons per annum (MTPA) of LNG for storage and export, and would consist of: two natural gas liquefaction trains, each with a nominal capacity of 2.0 MTPA; two LNG storage tanks; a single LNG carrier berth; mooring and loading facilities; and other appurtenant facilities. Due to the close proximity of these two facilities, RG LNG and Texas LNG shared stationary and mobile source inventory data for the respective facilities, including mobile ship operating scenarios, in order to ensure consistency in the air quality modeling performed for both facilities.

Division (IRD). Further site-specific refinements<sup>128</sup> were made to several inventory sources. To ensure consistent modeling results for the Rio Grande LNG Terminal and Texas LNG Terminal due to their close proximity, Texas LNG provided RG LNG the identification and specific placement of emission rates and associated stack parameters for the Texas LNG stationary and mobile ship sources; including three operating scenarios for the mobile ship sources associated with maneuvering, hoteling, and loading within the Texas LNG moored safety zone. In addition to the inventory provided by TCEQ and Texas LNG, the cumulative modeling analysis for the Rio Grande LNG Terminal included sources from the nearby SpaceX facility in Boca Chica, such as natural gas turbines and a paint booth operation as specified in a Permit By Rule application for these facilities. RG LNG updated missing source parameters for these SpaceX facilities using a similar source from other facilities.

We also requested that RG LNG update and provide justification for the use of each air quality monitor used for the air quality modeling analysis. Specifically, we requested information on data from the Isla Blanca monitor (EPA Air Quality System ID 480612004). EPA has guidance for evaluating each monitor to ensure its representative of the area. This is detailed in 40 CFR 51, Appendix W and in its Draft Guidance.<sup>129</sup> This also includes information on how to determine the appropriate monitor if there are multiple monitors in the area. A detailed discussion of monitors for each NAAQS pollutant is discussed in the SLR modeling report.<sup>130</sup> The inclusion of these sources ensures that the cumulative concentrations reflect realistic conditions and align with the EPA's regulatory requirements for cumulative modeling.

The Modeling Report describes the air dispersion modeling analysis that was used to calculate impacts for the criteria pollutants of CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> as well as various HAPs. The modeling analysis follows guidance from the EPA<sup>131</sup> and the TCEQ.<sup>132</sup> RG LNG used the current version of AERMOD modeling system, the EPA-preferred and TCEQ recommended regulatory modeling system. Current versions of the AERMOD model and pre-processors were used including AERMOD version 23132, AERMAP version 18081, and BPIPFRM version 04274. Additional information on the specifics of the air dispersion modeling assumptions and methodology can be found in section 3.0 of the Modeling Report. We note that cumulative modeling is not generally required for pollutants where the initial modeling does not exceed the SIL. However, RG LNG

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<sup>128</sup> RG LNG applied site-specific refinements to several sources in the regional inventory to account for parameters found to be missing in TCEQ's source inventory. These refinements included filling in data gaps for the emissions from certain equipment or processes associated with these sources using parameters obtained from similar equipment or processes.

<sup>129</sup> Developing Background Concentrations For Use in Modeling Demonstrations, EPA, October 2023

<sup>130</sup> SLR Modeling Report, January 21, 2025, Section 5.1.2.1 Monitor Selection Basis

<sup>131</sup> User's Guide for AMS/EPA Regulatory Model – AERMOD (USEPA 2023a), AERMOD Implementation Guide (AIG, USEPA 2023b), Guideline on Air Quality Models [published as 40 CFR 51, Appendix W] (USEPA 2017).

<sup>132</sup> Air Quality Modeling Guidelines APDG 6232 (TCEQ 2024).

provided a cumulative modeling analysis for all criteria pollutants (except lead). The total modeled concentration of PM<sub>10</sub> and PM<sub>2.5</sub> also include contributions related to the secondary formation of PM estimated using EPA-approved methodology (EPA 2024f).

For the 24-hour and annual PM<sub>2.5</sub> NAAQS, the Isla Blanca monitor (ID: 48-061-2004), located 11 kilometers northeast of the Rio Grande LNG Terminal site, was used to determine background concentrations. The monitor's certified design value of 30.0 µg/m<sup>3</sup> was used for 24-hr PM<sub>2.5</sub>, consistent with the statistical form of the 24-hour NAAQS, which is based on the 3-year average of the annual 98<sup>th</sup> percentile 24-hour concentrations. For the annual PM<sub>2.5</sub> NAAQS, the design value of 10.9 µg/m<sup>3</sup> was used, also from the Isla Blanca monitor. The Isla Blanca monitor, which provided the PM<sub>2.5</sub> design value concentrations for the cumulative impact air modeling analysis presented in the final EIS,<sup>133</sup> is the closest available monitor with a valid 2023 design value. Another nearby monitor, the Brownsville monitor, was determined invalid by the EPA in the 2023 Design Value Report for PM<sub>2.5</sub> because it did not meet the necessary data completeness requirements<sup>134</sup> due to its relocation on April 5, 2023.<sup>135</sup> However, we are including the information from the combined Brownsville monitoring locations for context.

Different mobile ship modeling scenarios were developed for the Rio Grande LNG Terminal's operation. For the short-term averaging periods (1-hour, 3-hour, 8-hour, and 24-hour), emissions of the maximum hourly emissions for each mobile ship operating activity (maneuvering, loading, and hoteling) were calculated. Modeling for the annual averaging period included annualized emissions from all operating scenarios.

Table 4.1 below summarizes the results of RG LNG's cumulative modeling for all ship modeling scenarios including background data obtained from the Isla Blanca and Brownsville air monitoring stations, as well as other monitoring stations.

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<sup>133</sup> 2019 Final EIS at 4-247.

<sup>134</sup> The Brownsville monitoring site location was moved in April 2023 from 344 Porter Drive approximately 1 mile northwest to 85 East 6th Street. This move invalidates the 2023 monitoring data under EPA's ambient monitoring guidance and the relocated Brownsville monitor has not yet existed at its present location for a time sufficient to establish new design value concentrations for 24-hour and annual PM<sub>2.5</sub>. However, as noted, RG LNG provided data showing the combined monitoring data at the Brownsville locations.

<sup>135</sup> For RG LNG's prior modeling effort, the results of which were included in the 2023 Remand Order, annual and 24-hour design concentrations obtained from the Brownsville monitor for years 2019 through 2021 met data completeness requirements; therefore, the results as presented within the 2023 Remand Order appropriately used the correct Monitor. See: *Rio Grande LNG, LLC Supplemental Information related to FERC Environmental Information Request of January 6, 2023*, Air Dispersion Modeling Report, SLR Report 121.02124.00006, filed January 27, 2023 in Docket No. CP16-454-000.

Table 4-1: Rio Grande LNG Terminal Cumulative Impact Analysis							
Pollutant	Averaging Period	Rio Grande LNG Contribution µg/m <sup>3</sup>	Offsite Contribution µg/m <sup>3</sup>	Ambient Background µg/m <sup>3</sup>	Secondary Impacts µg/m <sup>3</sup>	Total Concentration <sup>a</sup> µg/m <sup>3</sup>	NAAQS µg/m <sup>3</sup>
CO	1-hour	0.023	3,294	3,206	--	6,500	40,000
	8-hour	0.020	2,821	1,260	--	4,081	10,000
NO <sub>2</sub>	1-hour	133.81	0.17	47.0	--	180.98	188
	Annual	1.9	0.1	5.6	--	7.6	100
PM <sub>10</sub>	24-hour	0.0009	58.12	43.0	--	101.12	150
SO <sub>2</sub>	1-hour	1.39	96.2	7.9	--	105.5	196
	3-hour	0.0022	83.38	10.2	--	93.58	1,300
Ozone	8-hour	--	-	57 ppb <sup>b</sup>	1.75 ppb	58.75 ppb	70 ppb
<b>PM<sub>2.5</sub> Analysis Brownsville Monitor<sup>c</sup> (Combined data)</b>							
PM <sub>2.5</sub>	24-hour	0.084	13.66	24.5	0.37	38.61	35
	Annual	0.0073 <sup>d</sup>	2.17	8.3	0.026	10.5	9
<b>PM<sub>2.5</sub> Analysis Isla Blanca Monitor</b>							
PM <sub>2.5</sub>	24-hour	0.084	13.66	30.0	0.37	44.11	35
	Annual	0.0073 <sup>d</sup>	2.17	10.9	0.026	13.1	9
<p>a: The total concentration is the sum of the Rio Grande LNG Contribution, Offsite Contribution, Ambient background, and the secondary impacts (where applicable)</p> <p>b: parts per billion. Ozone monitor located in Harlingen, Texas (AQA ID: 48-061-1023) approximately 31 miles northwest of the Terminal.</p> <p>c: The Combined monitoring data is the most recent validated 3-year design concentration for the Brownsville monitoring site is based on the calendar years 2020 – 2022 as well as the 2023 monitoring data. The Brownsville monitoring site location was moved in April 2023 from 344 Porter Drive approximately 1 mile northwest to 85 East 6<sup>th</sup> Street, thus invalidating the 2023 monitoring data period under EPA’s ambient monitoring guidance. However, its included here for context.</p> <p>d: Maximum impact from the facility at the highest NAAQS exceedance location. We note that the highest concentration attributable to the facility (not reflected in this table) is just north of the terminal where concentrations exceed the annual PM<sub>2.5</sub> SIL.</p>							

The EPA document *Guidance for Ozone and Fine Particulate Matter Permit Modeling* (EPA 2022) was used by RG LNG to develop an evaluation of the potential impacts of Project related VOC, SO<sub>2</sub>, and NO<sub>x</sub> emissions on the secondary formation of Ozone and PM<sub>2.5</sub>. Project emissions were assessed using the information provided in the EPA document *Clarification on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool Under the PSD Permitting Program* (EPA 2024).

For the ozone cumulative analysis, the secondary impact shown in Table 4-1 is summed with the ozone monitor concentration from a representative monitor and then compared to the 8-hour NAAQS of 70 parts per billion (ppb). According to the EPA 2023 Design Value Report for ozone, the 2023 design value is 57 ppb. The project related ozone secondary impact is 1.75 ppb. If this impact is added to the monitor concentration, the

overall concentration would still be lower than the ozone NAAQS of 70 ppb, showing that the Project does not cause or contribute to a violation of the ozone NAAQS.

In assessing PM<sub>2.5</sub>, the EPA's updated SILs, which are based on the statistical variability of the ambient air quality, were used to evaluate the significance of modeled cumulative concentrations. In 2018, the EPA developed a statistical variability approach for defining the SIL for PM<sub>2.5</sub> that distinguishes a modeled cumulative concentration from the natural variability in air quality that already occurs.<sup>136</sup> If the modeled concentration is below this SIL value, then the modeled cumulative design value<sup>137</sup> is likely to already occur under current ambient conditions, and hence, the modeled design value is not considered to result in a statistically significant, or meaningful, change to the air quality in the area (EPA 2018). Very minor contributions, like those from the Rio Grande LNG Terminal that are below the SILs, are appropriately classified as statistically insignificant,<sup>138</sup> meaning that they do not result in a meaningful change in the ambient environment.

The results in table 4.2 indicate that the facility and cumulative impacts would be below the NAAQS apart from the cumulative impacts from PM<sub>2.5</sub>. While not officially in nonattainment of the NAAQS,<sup>139</sup> the two nearest monitors show the ambient concentration<sup>140</sup> of annual and 24-hour PM<sub>2.5</sub> exceeding the NAAQS. With the ambient background being in excess of the NAAQS, any amount of emissions would add to the existing poor air quality. The modeling shows that the PM<sub>2.5</sub> NAAQS are exceeded regardless of the monitor used for both 24-hour PM<sub>2.5</sub> and annual PM<sub>2.5</sub>. The maximum annual PM<sub>2.5</sub> contribution from the Rio Grande LNG Terminal at the highest NAAQS exceedance location is 0.0073 µg/m<sup>3</sup>, well below the SIL of 0.13 µg/m<sup>3</sup>. For the 24-hour PM<sub>2.5</sub> NAAQS, the project's maximum modeled contribution is 0.084 µg/m<sup>3</sup>, compared to the SIL of 1.2 µg/m<sup>3</sup> (EPA 2024b). The majority of criteria pollutant emission impacts from Rio Grande LNG Terminal impacts are below the NAAQS, and at locations where estimated impacts are above the NAAQS, the impacts from the facility are estimated to be

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<sup>136</sup> Technical Basis for the EPA's Development of the Significant Impact Thresholds for PM<sub>2.5</sub> and Ozone. [https://www.epa.gov/sites/default/files/2018-04/documents/ozone\\_pm2.5\\_sils\\_technical\\_document\\_final\\_4-17-18.pdf](https://www.epa.gov/sites/default/files/2018-04/documents/ozone_pm2.5_sils_technical_document_final_4-17-18.pdf)

<sup>137</sup> A design value is a statistic that describes the air quality status of a given location relative to the level of the National Ambient Air Quality Standards. Design values use the statistical form of each NAAQS. Design values are typically used to designate and classify nonattainment areas, as well as to assess progress towards meeting the NAAQS.

<sup>138</sup> "Statistical insignificance" is a mathematical term. Modeled pollutants from the Rio Grande LNG Terminal having concentrations falling under the SIL fall within the day-to-day variability of ambient air concentrations recorded by the air monitoring station. Therefore, the emission contributions of the LNG terminal have no statistically significant effect on the regional background concentrations of those pollutants.

<sup>139</sup> Texas proposes to designate Cameron County in Attainment with the Annual PM<sub>2.5</sub> NAAQS with the statement that any monitor exceedance is due to international emissions. Attachment A and C of *TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, AGENDA ITEM REQUEST for Approval of the 2024 Annual PM<sub>2.5</sub> NAAQS State Designations*, November 26, 2024

<sup>140</sup> Ambient concentration as "Design Value" to compare to the NAAQS.

below the PSD significance criteria at 40 CFR 51.165(b)(2)<sup>141</sup>. However, as noted in comments on the draft supplemental EIS filed by Sierra Club, South Texas Environmental Justice Network, and RG LNG, the LNG terminal modeling does show annual PM<sub>2.5</sub> SIL exceedances in two small areas just north of the LNG terminal in the Laguna Atascosa National Wildlife Refuge.

We note that the local background is above the existing NAAQS for the annual PM<sub>2.5</sub> standard, and while the majority of the area is below SIL, RG LNG's modeling identifies a maximum concentration of 0.19 µg/m<sup>3</sup> in two small areas just north of the LNG terminal, within the Laguna Atascosa National Wildlife Refuge, which exceeds the annual PM<sub>2.5</sub> SIL of 0.13 µg/m<sup>3</sup>.<sup>142</sup> Thus, we conclude air quality impacts would be significant in these areas. However, the impact is below the secondary annual PM<sub>2.5</sub> NAAQS<sup>143</sup> and the 24-hour PM<sub>2.5</sub> NAAQS. As it is within a National Wildlife Refuge, there is limited human presence, and no permanent residences or other usages in which annual levels of exposure are likely to occur. Because the impacts are estimated to be below the secondary annual PM<sub>2.5</sub> NAAQS, there would be no significant impacts on the Laguna Atascosa National Wildlife Refuge in terms of visibility and the natural environment.<sup>144</sup> For the remainder of locations within the modeled area, the modeling demonstrates that RG LNG's emission contributions at any NAAQS exceedance location would be below the respective SILs and thus would not have a significant impact on regional air quality.

The EPA recommended that the supplemental EIS provide a detailed discussion of ambient air conditions, NAAQS, and criteria pollutant nonattainment areas in the vicinity of the Project; estimate emissions of criteria air pollutants and HAPs from the Project and discuss the timeframe for release of these emissions over the lifespan of the project; estimate emissions from potential construction activities, and mitigation measures to minimize these emissions; consider air quality / visibility impacts on federal Class I areas identified in 40 CFR 81 Subpart D; specify all emission sources by pollutant from mobile sources (on and off-road), stationary sources including portable and temporary emission units, fugitive emission sources, area sources, and ground disturbance, and identification of appropriate mitigation measures; and include a draft Construction Emissions Mitigation Plan, including all applicable local, state, and federal requirements, and incorporate this

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<sup>141</sup> 40 CFR 51.165(b)(2) “major source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard.”

<sup>142</sup> Accession No 20250121-5211, RG LNG January 21, 2025 Air Dispersion Modeling Report, Appendix 16.1, Appendix E, Figure Titled Annual PM<sub>2.5</sub> Significant Impact Area

<sup>143</sup> Secondary NAAQS standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. See <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

<sup>144</sup> Review of the Secondary National Ambient Air Quality Standards for Oxides of Nitrogen, Oxides of Sulfur, and Particulate Matter, 40CFR Part 50, EPA, FR 105692, Vol. 89, No. 248, December 27, 2024

Plan into the Project order. The scope of the supplemental EIS is limited to issues identified by the court’s August 6, 2024 opinion requiring further analysis as detailed in section 1.0.

To be responsive to the court’s August 6, 2024 opinion, we included additional information regarding the air quality monitors used for the air quality dispersion modeling, and we are providing the results of staff’s Risk Assessment for emissions of HAPS from the Rio Grande LNG Terminal in section 4.2.3. The 2019 Final EIS addressed the topical categories of comments summarized above as much as these comments were raised during the scoping period prior to the 2019 draft EIS, following issuance of the 2019 draft EIS, and following issuance of the 2019 Final EIS for the Project, as well as comments addressed during review of the project’s subsequent amendments and the 2023 Remand Order.<sup>145</sup> Environmental Condition 144 within Appendix A of the 2023 Remand Order requires that RG LNG prepare a Project Ambient Air Quality Monitoring and Mitigation Plan.<sup>146</sup>

Sierra Club; Private Citizen, Inc. & Private Equity Stakeholder Project; LIUNA; Save RGV; Carrizo Comecrudo Tribe; and several individuals raised general concerns about climate change and the Project’s GHG emissions, some citing the LNG process GHG footprint relative to coal extraction and use; the impact of air pollution from the LNG facility on health and cancer risk; cumulative impacts of air pollution; the need for air quality monitoring to assess cumulative impacts particularly on CWEJCs; general air quality impacts on CWEJCs; the potential impacts of SpaceX operations on the Project facility and operations; and assertions that the Project’s permits should be “denied” if CCS is not incorporated into the Rio Grande LNG Terminal’s design.

Above, we discuss the results of an updated cumulative dispersion modeling analysis responsive to the court’s August 6, 2024 opinion which included the Rio Grande LNG Terminal, and an updated inventory of other industrial facilities in the area, including Texas LNG and SpaceX. An updated discussion of the potential impacts on air quality on CWEJC in the Project area responsive to the court’s August 6, 2024 opinion is provided in section 4.3.1.3, below. Staff’s Risk Analysis of HAP emissions is provided below. The scope of the final supplemental EIS is limited to issues identified by the court’s August 6, 2024 opinion requiring further analysis as detailed in section 1.0; a discussion of climate change and GHG emissions associated with the Project’s construction and operation is provided in the 2019 Final EIS,<sup>147</sup> 2020 Project Amendment EA,<sup>148</sup> 2023 Remand Order,<sup>149</sup>

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<sup>145</sup> *Rio Bravo Pipeline Project Amendment Environmental Assessment*, issued December 21, 2020 in Docket No. CP20-481-000, and *Rio Bravo Pipeline Route Amendment Environmental Assessment*, issued November 14, 2023 in Docket No. CP23-519-000; *Order on Remand and Amending Section 7 Certificate*, Issued April 21, 2023 in Docket Nos. CP16-454-003, CP16-454-000, CP16-455-000, CP16-455-002, and CP20-481-000.

<sup>146</sup> April 2023 Remand Order at A-5.

<sup>147</sup> 2019 Final EIS section 4.13.2.9 at 4-479 to 4-482.

<sup>148</sup> Amendment EA at 25-29 and 44-47.

<sup>149</sup> *Order on Remand and Amending Section 7 Certificate*, issued April 21, 2023 in Docket Nos. CP16-454-003, CP16-454-000, CP16-455-000, CP16-455-002, and CP20-481-000.

and May 23, 2024 Route Amendment order.<sup>150</sup> An alternative analysis of the CCS feasibility as applied to the Project’s operation is provided in section 3.2.3.

Regarding air monitoring, we received comments indicating the Brownsville ambient air monitor is located upwind, rather than downwind, of the Rio Grande LNG Terminal; and whether monitors may be installed closer to the Rio Grande LNG Terminal and Texas LNG Terminal. Ambient air monitors are selected based on their ability to capture ambient concentrations of air pollutants that do not double-count emissions from the modeled source or other stationary sources within the regional inventory of modeled sources. Therefore, installing an air monitor closer to the Rio Grande LNG Terminal and Texas LNG Terminal would necessarily disqualify those monitors for ambient air monitoring data gathering purposes. Selection of ambient air monitoring stations that exclude emissions from the modeled source, including data obtained from the Isla Blanca air monitoring station and other air monitoring stations identified in RG LNG’s Air Dispersion Modeling Report (RG LNG 2025), are consistent with modeling guidance found in 40 CFR 51, Appendix W, which states “Background air quality should not include the ambient impacts of the project source under consideration.”

We received comments related to TCEQ’s permitting process, its relation to NAAQS compliance, and related air dispersion modeling requirements. This NEPA document does not serve as an air permitting review, which is conducted independently by each state’s permitting authority (TCEQ) as delegated under the CAA. Therefore, any decisions TCEQ makes related to source permitting requirements are not within FERC’s purview and outside the scope of this supplemental EIS.

We received comments related to the potential of the construction and operation of the Rio Grande LNG Terminal to result in NAAQS violations; the potential for the Project to harm nearby communities even if the Project’s emissions do not cause a NAAQS exceedance; the need to inform sensitive groups and individuals when air quality is “unhealthy”; and a general claim that the number of “unhealthy” days has increased where the Isla Blanca monitor is located. Construction emissions would not change from the emission impacts identified in previous environmental documents. In addition, during concurrent construction, commissioning and operation, we are recommending that RG LNG monitor certain pollutants near the RG LNG Terminal (see section 4.1.5.3). As summarized above, the emissions from operation of the Rio Grande LNG Terminal would not result in significant increases in the ambient background concentrations of criteria pollutants in relation to the NAAQS.

We received comments related to GHGs, including U.S. participation in the Paris Agreement; the use of social cost of carbon in NEPA analyses; and the need to assess indirect impacts of upstream and downstream Project-related activities, including GHG

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<sup>150</sup> *Order Amending Certificate*, issued May 23, 2024 in Docket No. CP23-519-000.

emissions. GHG quantification and analysis, and related policy initiatives, are outside the scope of this supplemental EIS.

### Hazardous Air Pollutants

We conducted a human health inhalation risk assessment (Risk Assessment) in accordance with the U.S. Environmental Protection Agency's (EPA's) 2005 Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (HHRAP; EPA, 2005) to evaluate the potential for short- and long-term health effects due to inhalation exposure to HAPs as a result of Project related emissions. The Human Health Risk Assessment Protocol (HHRAP) incorporates risk assessment guidance and methods from the EPA, as well as the experience EPA has gained through conducting and reviewing combustion risk assessments, to provide a comprehensive method of assessing human health risk from combustion emissions. It provides a standardized methodology for conducting combustion risk assessments. The HHRAP provides modeled estimates of individual risk for the theoretical Resident Reasonable Maximum Exposed (RME) adult and child receptor associated with direct exposures to potential emission exposure.

Rio Grande LNG Project modeled Project HAP emissions using EPA's Aerodynamic Modeling System (AMS)/EPA Regulatory Model (AERMOD), the EPA-preferred program for short-range (up to 50 kilometers) regulatory air dispersion modeling (EPA, 2014a), as was performed for the NAAQS modeling. The HAPS air quality modeling provides the estimated 1-hour and annual maximum concentrations for 30 HAPs identified in the CAA permit. FERC staff calculated chemical-specific intakes from inhalation exposure for both adult and child receptors. This methodology uses theoretically possible exposures from estimated emissions, not actual exposures, and is designed to conservatively estimate individual exposures.

In accordance with the HHRAP, a hierarchical approach was used to select chronic toxicity criteria for the HAPs evaluated in this human health risk assessment. Cancer and noncancer toxicity values, in order of preference, were obtained according to the EPA's revised hierarchy of toxicological sources of information (EPA, 2003). The hierarchy was updated to reflect the EPA's use of the best science available on which to base risk assessments. This approach was selected to ensure that the most up-to-date information was used. The recommended toxicity value hierarchy is as follows:

Tier 1- EPA's Integrated Risk Information System (IRIS) (EPA, 2015a). Toxicity values from IRIS are given first priority. These toxicity values have achieved full intra-agency consensus and have undergone external peer-review. The toxicity values in IRIS represent the EPA's scientific position regarding the toxicity of chemicals based on the data available at the time of the review.

Tier 2- EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) – The Office of Research and Development/National Center for Environmental Assessment/Superfund

Health Risk Technical Support Center develops PPRTVs on a chemical-specific basis when requested by EPA's Superfund program. Provisional values were obtained from the most recent EPA Regional Screening Level Table (EPA, 2015b).

Tier 3- Other Toxicity Values – Tier 3 includes additional EPA and non-EPA sources of toxicity information. Priority was given to those sources of information that are the most current, the basis for which is transparent and publicly available, and which have been peer reviewed. Tier 3 values include toxicity values obtained from California EPA (CalEPA), Agency for Toxic Substances and Disease Registry's (ATSDR's) Minimum Risk Levels, and toxicity values obtained from Health Effects Assessment Summary Tables (EPA, 1997).

The HAPs included in the Risk Assessment exhibit a combination of potential carcinogenic and/or non-carcinogenic effects. Potential cancer risks were evaluated using inhalation unit risk factors (URFs) expressed in terms of risk per concentration for inhalation exposures (i.e., risk per  $\mu\text{g}/\text{m}^3$  or  $(\mu\text{g}/\text{m}^3)^{-1}$ ). The URF is the upper-bound excess lifetime cancer risk estimated to result from continuous, lifetime exposure to a constituent at a concentration of  $1 \mu\text{g}/\text{m}^3$  in air.

Non-carcinogenic effects from exposures were evaluated using inhalation reference concentrations (RfCs) expressed in units of  $\text{mg}/\text{m}^3$ . Reference concentrations have been determined by the EPA and other state or health agencies to be an air concentration to which the most sensitive individual can be exposed without a risk for non-cancer health effects. It can be derived from a No Observable Adverse Effect Level, Lowest Observable Adverse Effect Level, or benchmark concentration, with uncertainty factors generally applied to reflect limitations of the data used (e.g., extrapolation of animal exposure to human, use of the Lowest Observable Adverse Effect Level instead of a No Observable Adverse Effect Level, extrapolation of short-term exposure to long-term exposure, sensitive individuals, and strength of the database).

The Adult Resident RME receptor was assumed to be an individual exposed to the modeled maximum annual concentration at the property line for 24 hours per day, 350 days per year for 30 years. A Child Resident RME receptor was assumed to be exposed to the same modeled maximum annual concentration for 24 hours per day, 350 days per year for 6 years. These conservative assumptions are in accordance with the 2005 HHRAP Guidance (EPA, 2005).

The results of the quantitative risk analysis are usually presented in two forms. In the case of human health effects associated with exposure to potential carcinogenic constituents, risk estimates are expressed as the lifetime probability of additional cancer risk associated with the given RME exposure.

The individual cancer risks are summed across chemicals to calculate a total excess lifetime cancer risk for each RME receptor. To evaluate potential carcinogenic risks, the

EPA generally uses a risk range of 0.0001 (1 in 10,000) to 0.000001 (1 in 1,000,000) (EPA, 1990). The risk level of 1 in 10,000 indicates a 1 in 10,000 chance of developing cancer due to lifetime exposure to a substance. Lifetime exposure to a substance with a cancer risk of 1 in 10,000 would increase one's current chance of cancer from all causes (which is currently a 0.5 (1 in 2) chance for males and a 0.33 (1 in 3) chance for females (American Cancer Society, 2014)) by 0.0001.

For chronic and acute non-cancer inhalation exposure to emissions from each HAP, the potential for adverse effects were estimated by comparing the Exposure Concentration for each HAP to the HAP-specific toxicity factor. This HAP-specific comparison is known as the Hazard Quotient (HQ).

For determining whether non-cancer health effects may be a concern, the chronic hazard quotient (HQ) is used. The HQs are then summed across individual chemicals to calculate a hazard index (HI) for each RME receptor. The HQ represents a ratio. For example, a HQ of 0.25 means that the estimated exposure dose is 25 percent of the RfC.

In order to evaluate the potential for chronic non-cancer health effects, the EPA generally uses a benchmark hazard index/quotient of 1.0. Chronic non-cancer HIs for each receptor were obtained by adding all HAP-specific HQs regardless of target organ potentially affected or type of health effect. HIs were then compared to the EPA non-cancer benchmark of 1.0. Because RfCs incorporate uncertainty factors designed to provide a margin of safety, a HI above 1 does not necessarily suggest a likelihood of adverse effects and only indicates that a potential may exist for adverse health effects. A non-cancer HI less than 1, however, suggests that exposures are likely to be without an appreciable risk of non-cancer effects during a lifetime. In other words, a hazard index below 1.0 is considered "safe" with a margin of error. It is important to emphasize that the level of concern does not increase linearly as the non-cancer HI value increases.<sup>151</sup>

Table 4-2 presents a summary of the results from chronic exposure to the potential emissions from the Project and shows that, except for the adult cancer risk, the individual HAP cancer risks emissions would be below EPA's lower bound risk level. The chronic cancer risk for the adult and child Resident RME receptor due to the facility would be 2.11E-06 (2 in 1,000,000) and 4.2E-07 (4 in 10,000,000) respectively.

No individual HAP has an estimated adult or child resident inhalation cancer risk above EPA's lower bound risk of 1-in-1 million (1E-06). The total cancer risks summed across all HAPs are below the EPA's target of 1-in-100,000 (1E-05) for a single facility. This 1-in-100,000 individual facility risk management objective is ten times more stringent than the highest cancer risk that EPA deems acceptable (1 in 10,000) to account for

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<sup>151</sup> U.S. Environmental Protection Agency. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A) Interim Final. Washington, DC: Office of Emergency and Remedial Response. EPA/540/1-89/002. December 1989

potential exposure to background levels of air contaminants. Therefore, this facility risk management objective addresses the potential for cumulative risk (i.e., risk associated with multiple HAPs and other sources in the area). Therefore, the Project represents a 0.8% and 0.16% increase in adult and child cancer risk due to HAPs respectively. The non-cancer HQ for the adult and child Resident RME receptor would be 0.146, which is below the benchmark HI of 1.0. Therefore, we conclude that risk from inhalation of HAPS from the RG LNG Project would not be significant.

**Table 4-2: Chronic Inhalation Risk Assessment Results**

<b>Pollutant</b>	<b>Cancer Risk (Adult)</b>	<b>Cancer Risk (Child)</b>	<b>Chronic Non-Cancer HQ (Adult and Child)</b>
1,3-Butadiene	2.84E-09	5.67E-10	1.1E-04
Acetaldehyde	2.1E-08	4.2E-09	2.5E-03
Acrolein	NA	NA	2.88E-02
Benzene	3.38E-07	6.76E-08	1.20E-02
Benzo(a)anthracene	1.36E-08	2.71E-09	NA
Benzo(a)pyrene	3.18E-08	6.36E-09	6.18E-02
Benzo(b)fluoranthene	2.40E-08	4.79E-09	NA
Benzo[g,h,i]perylene	NA	NA	NA
Benzo(k)fluoranthene	4.52E-09	9.04E-10	NA
Chrysene	3.35E-09	6.69E-10	NA
Dibenzo(a,h)anthracene	5.92E-08	1.18E-08	NA
Dichlorobenzene	5.42E-10	1.08E-10	1.44E-07
Ethyl Benzene	1.79E-08	3.58E-09	1.67E-05
Fluoranthene	8.77E-08	1.75E-08	NA
Fluorene	NA	NA	NA
Formaldehyde	5.92E-07	1.18E-07	1.79E-02
Hexane	NA	NA	1.13E-03
Indeno(1,2,3cd)pyrene	9.04E-09	1.81E-09	NA
Naphthalene	8.75E-07	1.75E-07	2.00E-02
2-methylnaphthalene	NA	NA	NA
Polychlorinated Biphenyls	8.10E-10	1.62E-10	NA
Phenanthrene	NA	NA	NA
Propylene Oxide	2.40E-08	4.80E-09	5.05E-04
Pyrene	NA	NA	NA
Toluene	NA	NA	2.59E-05
2,2,4- Trimethylpentane	NA	NA	NA
Xylenes	NA	NA	8.91E-04
<b>Facility Total</b>	2.11E-06	4.21E-07	1.46E-01
<b>Background</b>	2.0E-05	2.0E-05	NA
<b>Total</b>	2.0E-05	2.0E-05	0.146

Table 4-2: Chronic Inhalation Risk Assessment Results			
Pollutant	Cancer Risk (Adult)	Cancer Risk (Child)	Chronic Non-Cancer HQ (Adult and Child)

Notes:  
 \* EPA's Integrated Risk Information System URF or California EPA Reference Exposure Level RfC for naphthalene used  
 NA = Not applicable. URF or RfC was not available, and these compounds do not contribute to the calculated risk.

### 4.2.3 Rio Bravo Pipeline Compressor Station

The Compressor Station 1 was analyzed in the 2020 Project Amendment EA. Compressor Station 1 would be constructed at MP 0.0 in Kleberg County and would receive feed gas from the Header System. Compressor Station 1 would include four 43,000-hp natural fired turbine-driven compressors, two 55,000-hp electric-motor-driven compressor, one natural gas-fired fuel heater, and two natural gas-fired backup generators, and other ancillary facilities. Lube oil coolers, turbine exhaust systems, turbine air intake systems, and unit control panels would be included with the new turbine compressor units. Emissions would also result from fugitive losses associated with piping components, such as valves and seals.

Compressor Station 1 would not have the potential to emit 250 tpy of any regulated criteria pollutants, and would not be subject to the PSD permitting requirements. Estimated potential emissions for the modified Compressor Station 1 is expected to exceed the 100 tpy threshold for both NO<sub>x</sub> and CO, and would be subject to the Title V Operating Permit Program. For new sources, applications for Title V permits are due prior to commencing operation. RB Pipeline plans to submit the Title V permit applications for modified Compressor Station 1 prior to commencing operations. In addition, Compressor Station 1 is in an area classified as in attainment for all criteria pollutants; therefore, a General Conformity determination is not required.

Emissions from Compressor Station 1 would not change from the potential to emit indicated in the 2020 Project Amendment EA.<sup>152</sup> The electric motor-driven compressors would not have any associated combustion emissions and thus would not be a major source of air emissions. The four natural gas-driven turbines would have a simple cycle design and would utilize an oxidation catalyst to control CO, VOC, and organic HAP emissions. Emissions from separators with normal operation emissions would be controlled by the ground flare. All separator emissions not controlled by the ground flare would be gas releases that would occur as part of maintenance, startup, and shutdown activities, including, but not limited to, compressor blowdowns, pigging and purging. The low-

<sup>152</sup> 2020 Project Amendment Table 5, page 27 of the EA.

pressure ground flare would control emissions from normal operation gas releases, such as compressor seal leakage, emission from three separator vessels, pipeline liquid storage tank, and pipeline liquid truck loading operations. As such, the ground flare would result in emission from the combustion of the controlled operations' waste gas, as well as combustion emission from the pilot.

A preliminary NAAQS analysis was performed for CO, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> in comparison to the NAAQS for modified Compressor Station 1. The air dispersion modeling was completed for the natural gas-fired turbines, the emergency generators, the flair, and fuel gas heater, as these are the combustion sources at the proposed compressor station. The modeling was completed consistent with the TCEQ's methodology. The resulting modeled concentrations are added to a representative background monitor concentration for each pollutant and averaging period. The cumulative impacts are less than the NAAQS for all pollutants. Further, the facility's impacts decrease significantly at a relatively short distance from the proposed site location. The worst-case Radius of Impact across all pollutants impacts is about 1 kilometer. As identified in 2020 Project Amendment EA, the modeled impacts with included background concentrations would not cause a NAAQS exceedance.<sup>153</sup>

To be responsive to the court's August 6, 2024 opinion, we revisited the air quality modeling done for Compressor Station 1 to consider if the ambient background changed significantly in the area and thus may cause NAAQS exceedances. It should be noted that for minor PSD sources, cumulative air quality modeling is not typically required.

In response to environmental recommendation 4 in the draft supplemental EIS, on May 19, 2025, RB Pipeline filed an updated air quality dispersion modeling analysis for proposed Compressor Station 1 for 24-hour and annual PM<sub>2.5</sub>. In the updated analysis, the current EPA Design values were obtained from the appropriate regional air quality monitors and used to update the ambient air quality background concentrations used in the air quality dispersion modeling. Additionally, RB Pipeline updated the emission factors used to estimate potential emission rates of PM<sub>2.5</sub> from the Compressor Station 1. The results of RB Pipeline's updated analysis are presented in table 4-3, below.

The historical USEPA AP-42 PM<sub>2.5</sub> emission factors that RB Pipeline used for the calculation of emission rate<sup>154</sup> of Compressor Station 1 used extremely conservative assumptions about the PM<sub>2.5</sub> emission rate for natural gas combustion sources, including sources similar to the proposed natural gas-fired turbine at Compressor Station 1. USEPA's more recent estimates<sup>155</sup> as applied to the proposed turbine at Compressor

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<sup>153</sup> 2020 Project Amendment EA, Table 6 at 28

<sup>154</sup> 2020 Project Amendment EA, Table 5 at 27

<sup>155</sup> Huntley, R., Env'tl. Prot. Agency, "NG\_process\_gas\_LPG\_PM\_factors" Available at [https://www.epa.gov/sites/default/files/2018-11/natgas\\_proccas\\_lpg\\_pm\\_efs\\_not\\_ap42\\_032012\\_revisions.xlsx](https://www.epa.gov/sites/default/files/2018-11/natgas_proccas_lpg_pm_efs_not_ap42_032012_revisions.xlsx)

Station 1, used as the basis of RB Pipeline’s updated modeling analysis, have been accepted by TCEQ<sup>156</sup> as the basis of potential emission rate limits set within air quality operating permits issued for similar sources. Further, documentation included with USEPA’s updated emission factors indicates that USEPA has found these factors, estimated using a “condensable PM test method,” are more representative of natural gas combustion sources. EPA’s documentation indicates that prior estimates of PM<sub>2.5</sub> emission rates for natural gas combustion sources included in its AP-42 emission factor guidance documents were “off by a factor of 10 or 20.”<sup>157</sup> On the basis of EPA’s determination that the updated emission factor for PM<sub>2.5</sub> is more representative of natural gas-fired combustion sources, TCEQ’s adoption and acceptance of this emission factor in permit approvals for similar sources, we accept RB Pipeline’s updated modeling that incorporates what we understand to be a more refined estimate of PM<sub>2.5</sub> emissions applied to the operation of Compressor Station 1.

RB Pipeline’s air quality dispersion analysis demonstrates that the impacts from Compressor Station 1 would not exceed any of the NAAQS. Further the air quality dispersion analysis showed that facility-only impacts of 24-hour and annual PM<sub>2.5</sub> would not exceed the respective SILs at any offsite points. RB Pipeline’s updated analysis demonstrates that operation of Compressor Station 1 would not cause or contribute to a violation of the 24-hour PM<sub>2.5</sub> NAAQS at any offsite locations including nearby residences. Thus, we conclude that there would be no significant air quality impacts from operation of Compressor Station 1.

**Table 4-3: Updated Modeled Air Quality Impacts for Compressor Station 1**

Pollutant	Averaging Period	Compressor Station Contribution (µg/m3)	SIL (µg/m3)	Ambient Background Concentration (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
CO	1-hour	2,467		3,205 a/	5,672	40,000
	8-hour	1,764		1,259 a/	3,073	10,000
NO <sub>2</sub>	1-hour	46.2		47 b/	93.2	188
	annual	12.2		7.5 c/	19.7	100
PM <sub>10</sub>	24-hour	13.2		43 d/	56.2	150
PM <sub>2.5</sub>	24-hour	0.193	1.2	24 e/	24.2	35
	annual	0.040	0.13	8.4 e/	8.4	9
SO <sub>2</sub>	1-hour	21.9		7.86 f/	29.8	196

a. 2022-2023 Design Value, AQS ID 484790016, West End Washington Street, Laredo, TX.

b. 2021-2023 Design Value, AQS ID 482551070, 1100b East Main Avenue, Karnes County, TX

<sup>156</sup> See, e.g., permits issued by TCEQ under Permit by Rule Registration Nos. 177719, 177720, and 177721, accessible on TCEQ’s Records Online database found at:

[https://records.tceq.texas.gov/cs/idcplg?IdcService=TCEQ\\_SEARCH](https://records.tceq.texas.gov/cs/idcplg?IdcService=TCEQ_SEARCH)

<sup>157</sup> Huntley, R., Env’tl. Prot. Agency, “NG\_process\_gas\_LPG\_PM\_factors” Available at:

[https://www.epa.gov/sites/default/files/2018-11/natgas\\_procgas\\_lpg\\_pm\\_efs\\_not\\_ap42\\_032012\\_revisions.xlsx](https://www.epa.gov/sites/default/files/2018-11/natgas_procgas_lpg_pm_efs_not_ap42_032012_revisions.xlsx) at “Read Me” note.

- c. 2023 Design Value, AQS ID 482551070, 1100b East Main Avenue, Karnes County, TX.
- d. H2H for years 2021-2023, AQS ID 483550034, Dona Park, 5707 Up River Rd, Nueces County, TX. Data obtained from TCEQ's TAMIS Database (<https://www17.tceq.texas.gov/tamis/index.cfm>)
- e. 2021-2023 Design Value, AQS ID 483550034, Dona Park, 5707 Up River Rd, Nueces County, TX.
- f. 2021-2023 Design Value, AQS ID 483550025, Corpus Christi West , Corpus Christi, TX

## 4.3 SOCIOECONOMICS

### 4.3.1 Environmental Justice

This section provides information required to comply with the court's August 6, 2024 opinion, which as described above, found that we failed to issue a supplemental EIS in connection with the revised environmental justice analysis included in the 2023 Remand Order.<sup>158</sup> Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The term community with environmental justice concerns (CWEJCs) includes communities that have been historically marginalized and overburdened by pollution, including minority populations, low-income populations, or indigenous peoples.<sup>159</sup>

Commission staff used Promising Practices for EJ Methodologies in NEPA Reviews (*Promising Practices*)<sup>160</sup> which provides methodologies for conducting environmental justice analyses throughout the NEPA process for this Project. Consistent with Council on Environmental Quality (CEQ)<sup>161</sup> and EPA<sup>162</sup> guidance and recommendations, the Commission's methodology for assessing environmental justice

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<sup>158</sup> Executive Order 14148, *Initial Rescissions of Harmful Executive Orders and Actions*, 90 Fed. Reg. 8237 (Jan. 28, 2025) and Executive Order, 14173 *Ending Illegal Discrimination and Restoring Merit-Based Opportunity*, 90 Fed. Reg. 8633 (Jan. 31, 2025) revoked three executive orders pertaining to environmental justice, Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, 86 Fed.Reg. 7009 (Jan. 25, 2021), Executive Order 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, 88 Fed. Reg. 25251 (Apr. 26, 2023) and Executive Order 12898, *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*, 59 Fed. Reg. 7629 (Feb. 16, 1994).

<sup>159</sup> 18 CFR § 380.2(f).

<sup>160</sup> EPA, 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](https://www.epa.gov/sites/default/-files/2016-08/documents/nepa_promising_practices_document_2016.pdf).

<sup>161</sup> CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act* (Dec. 1997) (CEQ's *Environmental Justice Guidance*), <https://ceq.doe.gov/docs/ceq-regulations-and-guidance/regs/ej/justice.pdf>. CEQ offers recommendations on how federal agencies can provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices. There were multiple opportunities for public involvement during the Commission's environmental review processes. See e.g. On September 13, 2024, FERC issued a *Notice of Intent to Prepare a Supplemental Environmental Impact Statement for the Proposed Rio Grande LNG Terminal and Rio Bravo Pipeline Project, Request for Comments on Environmental Issues, and Schedule for Environmental Review*.

<sup>162</sup> See generally Promising Practices.

effects considers: (1) whether communities with environmental justice concerns exist in the project area; (2) whether effects on communities with environmental justice concerns are disproportionate and adverse and also, whether effects would be significant; and (3) possible mitigation measures.

#### **4.3.1.1 Meaningful Engagement and Public Involvement**

The *CEQ Environmental Justice Guidance* and *Promising Practices* recommend that federal agencies provide opportunities for effective community participation in the NEPA decision-making process by: identifying potential effects and mitigation measures in consultation with affected communities; improving accessibility of public meetings, crucial documents, and notices and using adaptive approaches to potential barriers to effective participation.<sup>163</sup> They also recommend using adaptive approaches to overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation in the decision-making processes of federal agencies.

As discussed in section 1.3, *Public Review and Comment* of this supplemental EIS, there have been opportunities for public involvement during the Commission's environmental review process. FERC received several comments stating public notice of the project was inadequate. FERC issued a *Notice of Intent to Prepare a Supplemental Environmental Impact Statement and Request for Comments on Environmental Issues, and Schedule for Environmental Review* (NOI) on September 13, 2024, which was published in the *Federal Register* on September 20, 2024.<sup>164</sup> Issuance of the NOI opened a 30-day formal scoping period that expired on October 15, 2024. The NOI was mailed to the parties on FERC's environmental mailing list, which included federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American Tribes; other interested parties; and local libraries and newspapers. This list also includes all affected landowners (as defined in the Commission's regulations) who are potential right-of-way grantors, whose property may be used temporarily for project purposes, or who own homes within certain distances of aboveground facilities, and anyone who submits comments on the project and includes a mailing address with their comments. Commission staff will update the environmental mailing list as the analysis proceeds to ensure that Commission notices related to this environmental review are sent to all individuals, organizations, and government entities interested in and/or potentially affected by the projects.

Between February 2018 to September 2024, RG LNG conducted public outreach efforts which included stakeholder in-person meetings, discussions, and events. RG LNG provided engagement opportunities to environmental justice stakeholders including 11 community-based organizations, 4 conservation and environmental organizations, 25

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<sup>163</sup> See CEQ's *Environmental Justice Guidance*.

<sup>164</sup> See 89 FR 77129.

business groups, 3 healthcare centers, 10 indigenous groups, and 13 educational institutions, in addition to providing project materials at local events (e.g., charity runs, leadership conferences, and festivals).<sup>165</sup>

FERC received several comments regarding providing Spanish language translation. Public outreach efforts by Rio Grande over the course of the project have included efforts to communicate with both English and Spanish-speaking groups. Open houses, scoping meetings, and public comment meetings were announced in both English and Spanish. Spanish language interpreters were present at the meetings, and Spanish translation of all meeting materials were made available.<sup>166</sup> RG LNG promoted open house events in the newspaper and social media in both English and Spanish.<sup>167</sup> All members of the RG LNG community relations team are fully bilingual in English and Spanish and engage with stakeholders in both languages.<sup>168</sup> As for requests related to Spanish translation of FERC documents, while we are not providing such translations in this proceeding, the Commission continues to consider how we can provide greater accessibility to our processes for non-English speaking populations.

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](http://www.ferc.gov)). Anyone may comment to FERC about the Project, either in writing or electronically. All substantive environmental comments received in response to the September 2024 NOI prior to issuance of this supplemental EIS have been addressed within this document.

The Office of Public Participation (OPP) provides members of the public, including community organizations, 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 public are encouraged to contact OPP directly at 202-502-6595 or [OPP@ferc.gov](mailto:OPP@ferc.gov) for further information.

On September 23, 2024, the OPP notified affected landowners and concerned citizens via a letter that FERC is seeking public comment on issues identified by the court's August 6, 2024 opinion for further analysis. OPP provided in this communication the deadline for comments and various educational brochures. OPP also coordinated a social

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<sup>165</sup> See Attachment 14-1, Accession Number 20241021-5177.

<sup>166</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 13.

<sup>167</sup> *Id.*

<sup>168</sup> *Id.*

media campaign in Fall 2024 to notify interested constituents of the rehearing and associated deadlines on social media outlets Facebook, Instagram, and X.

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. Further, FERC staff has consistently emphasized that all comments, whether mailed in or submitted electronically, receive equal weight by FERC staff for consideration in the supplemental EIS.

In response to the NOI, FERC received comments related to environmental justice from the Carrizo Comecrudo Tribe of Texas; Public Citizens, Inc. and Private Equity Stakeholder Project; Laborers' International Union of North America; Save RGV; Sierra Club, South Texas Environmental Justice Network and the Carrizo Comecrudo Tribe of Texas (Sierra Club et al); Friends of the Wildlife, and several individuals. The Carrizo Comecrudo Tribe of Texas commented that impacts on CWEJCs related to commercial fishing, shrimping, beach and nature tourism, wetlands, recreational and subsistence fishing, tourism, road and marine traffic, noise, safety, air quality, and visual resources must be analyzed (addressed in the following sections). Tyson Slocum of Public Citizens, Inc. and Alissa Schafer of Private Equity Stakeholder Project requested a thorough review of environmental justice (addressed in the following sections). The Laborers' International Union of North America (LIUNA) stated they wanted an evaluation of how the Project prioritizes the hiring of local workers from affected CWEJCs, the anticipated wage and benefit levels for workers, the owner's track record of hiring from environmental justice communities, an evaluation of job training programs targeting CWEJCs, and an evaluation of induced economic impacts of different local hiring scenarios on CWEJCs. They also requested that the Supplemental EIS include more detailed information on the specific environmental justice communities that would be impacted by the terminal and pipeline projects. These comments are addressed throughout this section. Save RGV provided comments on evaluating the entire 50-kilometer radii around the LNG facilities (addressed in the following sections). All impacts on CWEJCs are described in section 4.3.1.3 below. The Sierra Club et al. commented on the environmental justice process and content. They requested the supplemental EIS thoroughly explain project impacts from the 2019 EISs to today and make the discussion, complete, succinct, and clear to the public and CWEJCs. Sierra Club also suggested clarifying FERC's definition of disproportionate and adverse impacts on environmental justice communities, as well as clarifying whether air quality impacts were disproportionate and adverse. They also stated the supplemental EIS needs to address environmental justice through the lens of air pollution specifically, regardless of whether FERC concludes that air pollution will have a significant or insignificant impact in general. Friends of the Wildlife requested FERC take a closer and cumulative look at environmental justice impacts. These comments are addressed in the following sections.

Comments from individuals requested cumulative impact analysis including potential impacts on minority and low-income populations from diversion of tax dollars;

pollution; impacts on lands of social and cultural value; safety risk from infrastructure; operations; ship traffic and closure of jetties; and access to natural resources. Comments were also received related to environmental justice impacts on public water supply, fishing, tourism, and air quality. These are addressed in the following sections.

#### 4.3.1.2 Identification of CWEJCs

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 supplemental EIS 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 Cameron, Jim Wells, Kleberg, Nueces, and Willacy Counties, Texas as the comparable reference communities to ensure that affected CWEJCs are properly identified. A reference community may vary according to the characteristics of the particular project and the surrounding communities.

For this supplemental EIS, we used the U.S. Census American Community Survey<sup>169</sup> File# B03002 as the source for race and ethnicity data and File# B17017 as the source for poverty data at the census block group level. According to the current U.S. Census Bureau information, minority and low-income populations exist within the Project area, as discussed further below and depicted in appendix D, tables 1 through 3.

#### *Rio Grande LNG Terminal Project*

#### **Rio Grande LNG Terminal**

For the Rio Grande LNG Terminal, we determined that a 50-kilometer radius around the Rio Grande LNG Terminal site is the appropriate unit of geographic analysis for assessing project impacts on CWEJCs. The petitioners in *City of Port Isabel* claimed that the Commission's choice of a 50-kilometer radius was arbitrary. The 50-kilometer radius for the LNG terminal was chosen as it represents a conservative estimate of the furthest

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<sup>169</sup> This is an update to the data presented in the 2023 Remand Order. U.S. Census Bureau, American Community Survey 2023 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>.

possible extent of impacts, the most distant of which would be associated with air quality impacts.<sup>170</sup> With respect to the Rio Grande LNG Terminal, the air modeling indicates that the radius of impact (i.e., the distance at which a criteria pollutant falls below the defined significant impact level<sup>171</sup>) is approximately 12.8 kilometers.<sup>172</sup> Air emissions may further disperse outside this radius of impact; however, beyond the radius of impact, air emissions from the Rio Grande LNG Terminal would not contribute to adverse ambient air quality impacts.

Commission staff identified 286 environmental justice block groups (out of 293 total block groups) within a 50-kilometer radius of the LNG facility site. Of those 286 block groups, 140 have a minority population that either exceeds 50 percent or is meaningfully greater than their respective counties, three have a low-income population that is equal to or greater than their respective counties, and 143 have both a minority population and a low-income population that exceed the respective thresholds.<sup>173</sup> The Rio Grande LNG Terminal is in a CWEJC.

### **Brownsville and Port Isabel Offsite Parking and Storage Areas**

RG LNG has identified two locations in Cameron County that would be used for temporary offsite parking and storage which are located in CWEJCs (see appendix D, figure 3). Commission staff determined that a 1-mile radius around the Brownsville and Port Isabel sites is the appropriate unit of geographic analysis for assessing the facilities' impacts on CWEJCs given the likely concentration of air quality, noise, visual, and traffic impacts. Commission staff has determined that the temporary impacts related to noise, visual, traffic, and air emissions from the offsite parking locations would be localized such that a radius greater than one mile is not warranted. A 1-mile radius for each of the two offsite parking locations represents a conservative estimate of the extent of effects on CWEJCs, the furthest of which would be associated with traffic impacts. Based on an updated traffic impact analysis,<sup>174</sup> the roadway level of service would remain unchanged at all locations on SH 48 within one mile of the parking facilities;<sup>175</sup> therefore, we conclude a 1-mile radius is sufficient for analysis of impacts.

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<sup>170</sup> Fifty kilometers is the maximum distance used by the EPA for cumulative air modeling for major stationary sources under its Prevention of Significant Deterioration (PSD) air permitting requirements. 40 C.F.R. § 51, app. W (2022), and is generally considered to be the maximum distance that can be accommodated by the assumptions inherent in EPA preferred refined steady-state Gaussian plume air modeling program AERMOD.

<sup>171</sup> A modeled result predicting that a proposed source's maximum impact will be below the corresponding significant impact level value may generally be considered to be a sufficient demonstration that the proposed source will not cause or contribute to a violation of the applicable National Ambient Air Quality Standard or Prevention of Significant Deterioration increment.

<sup>172</sup> RG LNG January 27, 2023 Environmental Information Request Response at 26.

<sup>173</sup> App. D at tbl. 1.

<sup>174</sup> RG LNG March 13, 2019 Filing (Traffic Impact Analysis Update).

<sup>175</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 9-12.

For the Brownsville offsite parking/storage location, Commission staff identified two environmental justice block groups within a 1-mile radius of the site. Of those block groups, both have a minority population and a low-income population that exceed the respective thresholds. For the Port Isabel offsite parking/storage location, Commission staff identified four environmental justice block groups within a 1-mile radius of the site. Of those block groups, two are considered CWEJCs based on the minority threshold, and two have both a minority population and a low-income population that exceed the respective thresholds.<sup>176</sup> Both offsite parking/storage areas are in CWEJCs.

### *Rio Bravo Pipeline Project*

#### **Compressor Station 1**

For the Rio Bravo Pipeline Project, Commission staff established a 50-kilometer radius around Compressor Station 1, in Kleberg County, as the appropriate unit of geographic analysis for assessing project effects, including on CWEJCs. A 50-kilometer radius for Compressor Station 1 represents a conservative estimate of the furthest extent of likely construction and operational effects on CWEJCs, the furthest of which, as described below, would be associated with noise, estimated to not exceed one mile<sup>177</sup> and air quality, for which the furthest radius of impact for air quality is approximately 0.6 mile (1 kilometer for this facility).<sup>178</sup> Air emissions may further disperse outside this radius of impact; however, beyond the radius of impact, air emissions from Compressor Station 1<sup>179</sup> would not contribute to adverse ambient air quality impacts.<sup>180</sup>

Commission staff identified 89 environmental justice block groups within 50 kilometers of Compressor Station 1. Of those 89 environmental justice block groups, 40 have a minority population that either exceeds 50 percent or is meaningfully greater than their respective counties, one has a low-income population that exceeds the threshold, and

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<sup>176</sup> App. D at tbl. 3.

<sup>177</sup> The Guidance Manual for Environmental Report preparation requires an acoustical analysis identifying noise impacts from each new or modified compressor station within 1 mile of the compressor station. Commission Guidance Manual for Environmental Report Preparation for Applications Filed Under the Natural Gas Act at 4-132. The nearest noise sensitive area, a hunting lodge, is 5.5 miles to the west of Compressor Station 1. Amendment Application, Volume I at app. 2.B (Rio Bravo Compressor Station, Kleberg County, Texas: Results of an Updated Acoustical Analysis of the new Natural Gas Compressor Station associated with the Amended Rio Bravo Pipeline Project). Compressor Station's noise contribution at one mile would be approximately 42 A-weighted decibels (dBA), and would remain in compliance with the Commission's day-night sound level requirement of 55 dBA. Authorization Order, 169 FERC ¶ 61,131 at Env't Condition No. 38.

<sup>178</sup> Amendment Application, Volume I at 17 (Operation Impacts). In addition to emissions levels, factors that determine the radius of impact for a particular facility include the surrounding topography, atmospheric patterns, stack height, and the temperature and velocity of the flue gas.

<sup>179</sup> The modified Compressor Station 1 would consist of four 43,000-horsepower natural gas-driven turbines, two 55,000-horsepower electric motor-driven compressor units, one natural gas-driven fuel heater, and two natural gas-fired backup generators, and other ancillary facilities.

<sup>180</sup> Enbridge Rio Bravo Pipeline Company, LLC Environmental Report, Volume I, Section 2.1.5.2.3 Operational Impacts, *Revised FEIS Table 4.11.1-17 Summary of Air Dispersion Modeling at Compressor Station 1 and Comparison to NAAQS*.

49 have both a minority population and a low-income population that exceed the respective thresholds.<sup>181</sup> Compressor Station 1 is located in a CWEJC (see appendix D, figure 27).

### **Meter Stations**

For the three meter stations located in Kleberg County (Meter Stations HS1, HS2, and HS3), the Meter Station HS4 located in Jim Wells County, and the meter station located at the LNG Terminal site, a 1-mile radius around the meter station sites is sufficient given construction and operational effects on CWEJCs. Commission staff determined that a 1-mile radius for the meter stations represents a conservative estimate of the furthest extent of effects on CWEJCs, the furthest of which would be associated with noise impacts.<sup>182</sup>

For Meter Stations HS1, HS2, and HS3 in Kleberg County, Commission staff identified one environmental justice block group (Census Tract 201.02, Block Group 2) within a 1-mile radius of the sites (based on the minority threshold). Meter Station HS4, in Jim Wells County, is located within a CWEJC (Census Tract 9502.02, Block Group 2). The one block group identified within the radius of analysis for Meter Station HS4 has a minority population that either exceeds 50 percent or is meaningfully greater than Jim Wells County.<sup>183</sup> For the meter station located at the terminal facility (Census Tract 142.02, Block Group 2) in Cameron County, Commission staff identified two environmental justice block group (Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2) within a 1-mile radius of the sites (based on the minority and low income thresholds). All meter stations are in CWEJCs (see appendix D, figures 27 through 30).

### **Contractor Yards**

For the three contractor yards associated with the Rio Bravo Pipeline Project, Commission staff determined that a 1-mile radius around the project sites is sufficient given construction and operational impacts on CWEJCs. A 1-mile radius for the contractor yards represents a conservative estimate of the furthest extent of impacts on CWEJCs, the furthest of which would be associated with traffic impacts.

Contractor Yards 1, 2, and 3 are proposed for use by RB Pipeline during construction only and are located within CWEJCs (Census Tract 9503, Block Group 1, Census Tract 9501, Block Group 1, and Census Tract 144.01, Block Group 1, respectively) (see appendix D, Figures 31 to 33). For the Contractor Yard 1, Commission staff identified four CWEJC block groups within a 1-mile radius of the site (three based on both the minority threshold and 1 based on both the low income and minority thresholds). For the Contractor Yard 2, Commission staff identified one environmental justice block groups

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<sup>181</sup> See app. D at tbl. 2.

<sup>182</sup> 2019 Final EIS at 4-301.

<sup>183</sup> See app. D at tbl. 3.

within a 1-mile radius of the site (based on the minority threshold). For the Contractor Yard 3, Commission staff identified seven environmental justice block groups within a 1-mile radius of the site (five based on the minority threshold and 2 based on both the low income and minority thresholds).

### **Pipeline**

For the approximately 136-mile-long dual pipeline and 2.4-mile-long header system, Commission staff identified the census block groups crossed by the pipelines as the appropriate units of geographic analysis for assessing the facilities' impacts on CWEJCs because impacts related to noise, visual, traffic, and air emissions from construction and operation of the pipelines would be localized such that an expanded radius is not warranted.

For the Pipeline System, we identified 13 environmental justice block groups crossed by the pipelines. Of those 13 environmental justice block groups, seven have a minority population that either exceeds 50 percent or is meaningfully greater than their respective counties and 6 have both a minority population and a low-income population that exceed the respective thresholds.<sup>184</sup> Therefore, portions of the pipeline are in CWEJCs.

#### **4.3.1.3 Effects on CWEJCs**

*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*, 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.<sup>185</sup> The Sierra Club et al. requested clarification on FERC's definition of disproportionate and adverse impacts on environmental justice communities. As stated above, the Commission's methodology for assessing environmental justice effects considers: (1) whether communities with environmental justice concerns exist in the project area; (2) whether effects on communities with environmental justice concerns are disproportionate and adverse and also whether effects would be significant; and (3) possible mitigation measures. *Promising Practices* provides that agencies can consider any of a number of conditions in a disproportionate and adverse effect determination and the presence of any of those factors could indicate a potential disproportionate and adverse

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<sup>184</sup> See app. D at tbl. 3.

<sup>185</sup> 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 EPA 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.

effect. For this Project, a disproportionate and adverse effect on a CWEJC means the adverse effect is predominantly borne by such population. FERC determines and evaluates the number of environmental justice block groups compared to non-environmental justice block groups within the area of review to determine if adverse effects could be predominantly borne by CWEJCs. Other relevant considerations include the location of Project facilities and the Project's human health and environmental impacts on identified CWEJCs, including direct, indirect and cumulative effects.

As previously described, project work within the identified CWEJCs includes the Rio Grande LNG Terminal, and portions of the Rio Bravo Pipeline Project including Compressor Station 1, Meter Stations HS1, HS2, HS3, HS4, and the meter station at the Rio Grande LNG Terminal, Contractor Yards 1, 2, and 3 and certain segments of the approximately 135-mile pipeline (see appendix D, figures 12 through 26).

Impacts on the natural and human environment from construction and operation of Project facilities are identified and discussed throughout this document as well as in the 2019 Final EIS and Amendment EAs. Factors that could affect CWEJCs include wetland impacts; recreational and subsistence fishing, tourism, visual impacts; socioeconomic impacts, including road and marine traffic impacts and increased demand for temporary housing and public services; air and noise impacts from construction and operation; and safety. Potentially adverse environmental effects on surrounding communities associated with the Project, including CWEJCs, would be minimized and/or mitigated. In general, the magnitude and intensity of these impacts would be greater for individuals and residences closest to the Project's facilities and would diminish with distance. Affected CWEJCs vary depending on the resource analyzed. For example, air quality and visual impacts may extend farther than noise or fishing impacts. Impacts on specific CWEJCSs are addressed in the individual resource sections as applicable. Environmental justice concerns are not present for other resource areas such as geology, wildlife, or cultural resources due to the minimal overall impact the Project would have on these resources. Further, no wetland, surface water, or recreational fishing impacts are associated with the meter stations or contractor yards.

## **Wetlands**

### *Rio Grande LNG Terminal Project*

The total impacted wetland area during both construction and operation for the Rio Grande LNG Terminal (182.4 acres) represents about 0.28 percent of the approximately 65,495 acres of wetlands contained within the HUC-12<sup>186</sup> watershed, in which the project is located.<sup>187</sup> The loss of wetland habitat, and the subsequent decrease in wetland benefits (i.e., shoreline and habitat protection for a variety of plant and animal species that can be

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<sup>186</sup> Bahia Grande-BSC Hydrologic Unit Code (HUC)-12 watershed.

<sup>187</sup> 2019 Final EIS at 4-429.

used for recreation and/or sustenance, and education opportunities), could affect CWEJCs near the project, particularly the communities located near the LNG terminal in Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, and Census Tract 123.04, Block Group 4.<sup>188</sup> We note that RG LNG is required to obtain applicable Army Corps permits<sup>189</sup> for permanent loss of wetland habitat and implement any mitigation measures required by the Army Corps for that loss.<sup>190</sup> All wetlands mitigation for the LNG terminal facilities would take place in the same watershed as the project,<sup>191</sup> located within the Miradores Mitigation site (approximately 11 miles north of the terminal) and the Loma Ecological Preserve (one mile south of the terminal).<sup>192</sup> Based on the implementation of these mitigation measures, impacts on wetlands during construction and operation of the LNG terminal would be minimized and would not have a significant impact on CWEJCs.

### *Rio Bravo Pipeline Project*

The total impacted wetland area for the pipeline facilities (143.5 acres during construction and 105.3 acres during operation) represents about 0.22 percent during construction and 0.16 percent during operation of the approximately 65,495 acres of wetlands contained within the HUC-12<sup>193</sup> watershed, in which the Rio Bravo Pipeline Project is located.<sup>194</sup> The loss of wetland habitat, and the subsequent decrease in wetland benefits (i.e., shoreline and habitat protection for a variety of plant and animal species that can be used for recreation and/or sustenance, and education opportunities), could affect CWEJCs near the Rio Bravo pipeline facilities. Rio Bravo would be required to implement the conditions of its CWA section 404 permit and section 401 water quality certification to mitigate for wetland impacts. As previously stated, all mitigation for the pipeline's facilities would take place in the same watersheds,<sup>195</sup> within the Miradores Mitigation site (approximately 11 miles north of the terminal) and the Loma Ecological Preserve (one mile south of the terminal).<sup>196</sup> Based on the implementation of these mitigation measures, impacts on wetlands during construction and operation would be minimized and would not have a significant impact on CWEJCs.

## **Commercial, Recreational, and Subsistence Fishing**

### *Rio Grande LNG Terminal Project*

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<sup>188</sup> App. D Fig. 1 to 11.

<sup>189</sup> The original section 404 permit was approved on Feb 21, 2020. Permit modifications are currently under review. See Accession Number 20241021-5177.

<sup>190</sup> 2019 Final EIS at 4-61.

<sup>191</sup> RG LNG September 27, 2021 Filing.

<sup>192</sup> 2019 Final EIS at 4-68.

<sup>193</sup> Bahia Grande-BSC Hydrologic Unit Code HUC12 watershed.

<sup>194</sup> 2019 Final EIS at 4-429.

<sup>195</sup> RG LNG September 27, 2021 Filing.

<sup>196</sup> 2019 Final EIS at 4-68.

Public scoping comments expressed concern for impacts on commercial fisheries from construction and operation of the LNG Terminal and their impact on CWEJCs.<sup>197</sup> Most of the commercial fishing in the area is based on offshore shrimping and fishing; however, some commercial fishing occurs in the Lower Laguna Madre System.<sup>198</sup> Commercial fishing in the Lower Laguna Madre and nearby bays is dominated by bait fisheries (including shrimp) and black drum. In addition, trawlers harvest bait shrimp from the BSC. The Port of Brownsville Fishing Harbor, about 4.8 miles west of the LNG Terminal site, houses up to 500 fishing vessels. A smaller number of bay shrimping vessels (about 50) dock in the Port Isabel region. During construction, barge deliveries would increase traffic in the BSC. Fishing boats would avoid cargo ships and barges making deliveries to the LNG Terminal during construction in a manner similar to the way they currently maneuver around commercial deep-draft ships and barge traffic into and out of the Port. Dredging would occur within the boundaries of the BSC, which would temporarily reduce the area of the BSC available for vessel transit, but would not preclude vessel transit due to the width of the navigable waterway. Vessel operators would have the ability to safely navigate and avoid construction activities. Use of dredging vessels, tugs, and barges would be coordinated with the BND, Coast Guard, and the Pilots Association. Impacts on marine transportation due to dredging would be limited to Stage 1 of construction, impacts would be temporary and minor.<sup>199</sup>

During operation, about 6 LNG carriers would call on the LNG Terminal per week. Due to potential safety/security zone exclusions, shrimping and other fishing vessels would likely not be permitted to pass an LNG carrier transiting the BSC or maneuvering in the turning basin; however, the exact navigation protocol would be determined by the Coast Guard. The estimated delay for fishing vessels during inbound LNG carrier transits would be about 3 hours.<sup>200</sup> Fishing vessels could follow behind outbound LNG carriers, as long as they traveled at an approved distance from the LNG carrier. The Project would result in direct, minor impacts on commercial fishery vessel operators resulting from delays during LNG carrier transit.<sup>201</sup> Given the demographics in the area, vessel operators, fisherman, and shrimpers may be from CWEJCs. Due to the minor overall impacts on commercial fishing during construction and operation, we conclude that impacts on CWEJCs would not be significant.

Recreational and subsistence fishing activities could also be affected by construction and operation of the LNG terminal due to increased noise, restrictions on fishing in the immediate vicinity of the LNG terminal, and LNG and barge vessel traffic.<sup>202</sup> Given that a majority of the communities within the study area are considered CWEJCs,

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<sup>197</sup> Accession numbers 20241011-5017, 20241015-5266, and 20241015-5322.

<sup>198</sup> 2019 Final EIS at 4-221

<sup>199</sup> *Id.*

<sup>200</sup> *Id.* at 4-222

<sup>201</sup> *Id.* at 4-222

<sup>202</sup> *Id.* at 4-219 to 4-220.

recreational and subsistence fishing users of the area waterbodies likely include individuals from CWEJCs, particularly the communities in nearby Census Tract 142.02, Block Group 2; Census Tract 127, Block Group 2; and Census Tract 123.04, Block Group 4. About 1.5 miles of the 17-mile-long shoreline of the channel would be developed for the LNG terminal site.<sup>203</sup> Construction activities at the LNG terminal would not restrict fishing access to bays in the project area or the Gulf of America. Fishing along the eastern bank of the Bahia Grande Channel on the LNG terminal site would be prohibited during construction.<sup>204</sup> Nevertheless, fishing opportunities would still exist along the remainder of the undeveloped channel shoreline, as well as in nearby public areas, including the south end of Bahia Grande.<sup>205</sup> Permanent impacts on recreational and subsistence fishing by individuals from CWEJCs may occur due to the loss of available fishing areas from operation of the marine facilities and LNG carrier traffic. Therefore, we conclude that recreational and subsistence fishing impacts on CWEJCs associated with construction and operation of the LNG terminal would occur, but due to the overall size of the waterway and available recreational and subsistence fishing opportunities in the area, impacts would not be significant.

### *Rio Bravo Pipeline Project*

Fish are not harvested commercially in the inland rivers and streams crossed by the RB Pipeline. No commercial fisheries impacts on CWEJCs are anticipated as a result of construction or operation of the pipeline facilities.

Regarding recreational and subsistence fishing, the Rio Bravo Pipeline, sights and sounds from the pipeline construction activities may be a nuisance to people fishing in the project vicinity, including at the Zapata boat launch, but construction would not prohibit visitors from using these areas.<sup>206</sup> In general, impacts on recreational fishing would be temporary and limited to the period of active construction, which typically would last several days to several weeks in any one area, with the exception of the Zapata boat launch, which would be crossed by an HDD that could last up to 10 weeks.<sup>207</sup> Known or designated fishing areas are not known to occur in the inland river and streams that are crossed by the pipeline facilities. Therefore, we conclude that due to the temporary nature of impacts associated with pipeline construction and the limited adverse impact on recreational and subsistence fishing in general, recreational and subsistence fishing impacts on CWEJCs associated with construction and operation of the pipeline project would not be significant.

## **Tourism**

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<sup>203</sup> *Id.* at 4-237.

<sup>204</sup> *Id.* at 4-219.

<sup>205</sup> *Id.* at 4-237.

<sup>206</sup> *Id.* at 4-220.

<sup>207</sup> *Id.*

### *Rio Grande LNG Terminal Project*

Construction and operation of the Rio Grande LNG Terminal could impact local tourism relating to beach and water-front activities; visiting state, local, and national parks; or wildlife viewing. Construction and operation of the LNG terminal site would impact local tourism due to the potential increase in noise, changes in the visual landscape (including additional vessels and increased sedimentation in the BSC), and increased traffic along SH-48.<sup>208</sup> Although some visual and noise impacts may be experienced by beachgoers, bird-watchers, tour-operators, and other visitors, those impacts are expected to occur only in the immediate vicinity of the LNG terminal site.<sup>209</sup> Given the extent of tourism areas (including birding watching areas, National Wildlife Refuges, National Historic Landmarks, and beaches) and the distance between the recreational portions of the areas and the LNG terminal site, we do not expect that either construction or operation would significantly impact tourism at these locations.<sup>210</sup> Waterborne tourism (e.g., fishing, charter, and tour boats), in portions of South Bay, the Zapata boat launch, and within the Bahia Grande would likely experience moderate increases in ambient noise during certain construction activities at the LNG terminal. These tourism impacts could cause some visitors from CWEJCs to choose to vacation elsewhere or alter their recreation activities to destinations in the region that are further from the project sites.<sup>211</sup> Although changes to the visitation patterns immediately adjacent to the LNG terminal could occur, they would not likely change the total number of visits to the general project area. These potential changes in visitation patterns could also impact individuals from CWEJCs should they be employed by the tourism industry. In addition, boaters in the BSC and potentially the Brazos Santiago Pass may experience minor impacts resulting from potential delays in launching fishing, charter, and tour boats during periods of LNG carrier transit.<sup>212</sup>

Given the number of tourism opportunities in the project area, tourists from CWEJCs may go to other sites so that visitation patterns may change, but the number of visits to the project area would likely not change. Given the availability of recreational opportunities further from the facility sites, a decrease in visits is not anticipated;<sup>213</sup> therefore, we conclude that impacts on CWEJCs associated with tourism (e.g., loss of use, revenue or jobs related to tourism) would not be significant.

### *Rio Bravo Pipeline Project*

Recreational areas that draw nature-oriented tourists would be crossed by the pipelines, including the Great Texas Coastal Birding Trails, King Ranch, a National

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<sup>208</sup> *Id.* at 4-216.

<sup>209</sup> *Id.*

<sup>210</sup> *Id.* at 4-214 to 4-219.

<sup>211</sup> *Id.* at 4-467.

<sup>212</sup> *Id.* at 4-216.

<sup>213</sup> *Id.* at 4-218 to 4-219.

Historic Landmark, the Zapata boat launch, and Brownsville Navigation District land subject to a wildlife crossing conservation easement.<sup>214</sup> The Lower Rio Grande Valley and Laguna Atascosa National Wildlife Refuges would be less than 0.25 mile from the pipeline project.<sup>215</sup> Although pipeline construction would not prohibit visitors from using recreational areas, sights and sounds of pipeline construction activities may be a nuisance to visiting tourists, and could generally interfere with or diminish the quality of their experience by affecting wildlife movement.<sup>216</sup>

Given the number of tourism opportunities in the project area, tourists may go to other sites so that visitation patterns may change, but the number of visits to the project area would likely not. Given the duration of construction and availability of recreational opportunities further from the pipeline facility sites, a decrease in visits would not be anticipated;<sup>217</sup> therefore, we conclude that impacts on CWEJCs associated with tourism (e.g., loss of revenue or jobs related to tourism) would not be significant.

## **Socioeconomics**

### *Rio Grande LNG Terminal Project*

The LIUNA stated they wanted an evaluation of how the Project prioritizes the hiring of local workers from the affected CWEJCs, the anticipated wage and benefit levels for workers, the owner's track record of hiring from CWEJCs, an evaluation of job training programs targeting CWEJCs, and an evaluation of induced economic impacts of different local hiring scenarios on CWEJCs. Construction of the Rio Grande LNG Terminal would require an average monthly construction workforce of 2,950 workers (peak of 5,225 workers) over the 7-year construction period; RG LNG anticipates that a portion of these workers would be hired locally and the remainder would be non-local.<sup>218</sup> During construction of the LNG Terminal, about 30 percent of the peak workforce would be hired locally (up to 1,568 workers of the 5,225 total workers hired from Cameron, Hidalgo, and Willacy Counties) and given the demographics of the area would likely include individuals from CWEJCs.

Construction of the LNG Terminal would stimulate the economy through an estimated \$20.2 billion in direct expenditures by RG LNG. Of the 20.2 billion, about \$3.2 billion would be direct expenditures for materials, a portion of which may be regionally or locally sourced. Specific to the LNG Terminal, RG LNG estimates that a percentage of the \$1.9 billion construction payroll (direct and indirect/support labor) would be spent locally by both local and non-local workers for the purchase of housing, food, gasoline,

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<sup>214</sup> *Id.* at 4-218.

<sup>215</sup> *Id.*

<sup>216</sup> *Id.*

<sup>217</sup> *Id.* at 4-218 to 4-219.

<sup>218</sup> *Id.* at 4-207 to 4-208.

and other goods, services, and entertainment in the vicinity of the LNG Terminal site.<sup>219</sup> Typically, construction activities increase economic activity within an area in several ways:

- a direct effect – hiring of local construction workers and purchases of goods and services from local businesses;
- an indirect effect – the additional demand for goods and services, such as replacing inventory from the firms that sell goods and services directly to a project or to workers and their families; and
- an induced effect – the spending of disposable income by the construction workers at local businesses, which in turn order new inventory from their suppliers.

The increase in economic activity resulting from direct, indirect, and induced effects of the LNG Terminal would result in a positive economic impact on the local economy. RG LNG’s economic consultant, The Perryman Group, estimated that the production of goods and services associated with construction of the LNG Terminal would amount to \$31.7 billion dollars in total economic impact across the United States, \$22.1 billion of which would be in Texas and \$5.6 billion in Cameron County. We conclude that the expenditures and permanent workforce associated with construction of the LNG Terminal would result in positive, permanent impacts on the local economy<sup>220</sup> including the economy in CWEJCs.

Anticipated operational direct expenditures for the LNG Terminal would be \$1.9 billion annually. RG LNG anticipates that a 270-person operational staff for the LNG Terminal would result in an annual payroll of \$24.3 million. The annual direct, indirect, and induced expenditures during full operation of the Rio Grande LNG Project (including the LNG Terminal and the pipeline facilities) are estimated to result in economic impacts of about \$2.3 billion across the United States, \$2.1 billion of which would be in Texas (\$1.4 billion in Cameron County).<sup>221</sup> We conclude that the expenditures and permanent workforce associated with operation of the LNG Terminal would result in positive, permanent impacts on the local economy including in CWEJCs.

Due to the forecasted number of jobs that would be created during construction and operation of the Project, in response to requests to hire workers from local communities, and specifically from CWEJCs, RG LNG has coordinated with local training organizations and school districts to provide seminars and career talks to discuss future career opportunities for the Project. In addition, RG LNG has included career development guidance on their Project-specific website that provides links to various career development organizations. RG LNG anticipates hiring a number of unskilled or semi-skilled workers that would be trained on the job through the National Center for

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<sup>219</sup> *Id.* at 4-212.

<sup>220</sup> *Id.* at 4-213

<sup>221</sup> *Id.* at 4-213

Construction Education and Research System. Further, RG LNG discussed and identified partnership opportunities with local high schools, colleges, and career and technical education programs; engaged in development of partnerships to offer pipefitting training and certification programs for local workforce needs; participated in local job fairs; participated in high school and college conferences and roundtables to share information about career development in engineering; and provided presentations and educational opportunities for local colleges/high schools, and continuing education programs with employment opportunity tabling.

During the estimated 7-year construction period, the temporary influx of workers/contractors into the area could increase the demand for community services, such as schools, police enforcement, and medical care.<sup>222</sup> RG LNG anticipates that approximately 108 non-local workers would be employed at the LNG terminal during operation. This addition of 108 families would represent a negligible increase in the local population.<sup>223</sup> During operation, the permanent increase of 108 people and their families would also increase the demand for community services. The increased need for public services and school enrollment to support non-local workers and their families for the Rio Grande LNG Project and other projects would be spread across the socioeconomic geographic scope; therefore, impacts on community services would be less than significant.<sup>224</sup>

The temporary influx of workers/contractors into the area could increase the demand for housing during construction and operation.<sup>225</sup> Based on the number of available rental units and motels/hotels in Project area, it is anticipated that there would be sufficient housing available for the anticipated peak Project workforce for the Rio Grande LNG Project as well as the new permanent workforce during operation; thus, impacts on the local housing market would be less than significant.<sup>226</sup> Therefore, we conclude that the socioeconomic impacts on CWEJCs, due to an increased demand for community services and housing, would be less than significant.

### *Rio Bravo Pipeline Project*

Construction of the Rio Bravo Pipeline facilities would require an average workforce of between 760 and 1,240 workers and a peak of 1,500 workers over two, non-consecutive 12-month periods, of which a majority would be non-local.<sup>227</sup> About 10 percent of the workers would be hired locally from Jim Wells, Kleberg, Kenedy, Willacy, and Cameron Counties. During construction of the Rio Bravo Pipeline, the temporary

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<sup>222</sup> *Id.* at 4-226 to 227.

<sup>223</sup> *Id.* at 4-227.

<sup>224</sup> *Id.*

<sup>225</sup> *Id.* at 4-226 to 227.

<sup>226</sup> *Id.* at 4-225.

<sup>227</sup> *Id.* at 4-209.

influx of workers/contractors into the area could increase the demand for community services, such as schools, police enforcement, and medical care as well as housing.<sup>228</sup> For the pipeline facilities, 20 new permanent positions would be added during operation, which would represent a negligible increase in the local population.<sup>229</sup> During operation, the permanent influx of workers during operation would also slightly increase the demand for community services. Therefore, we conclude that the socioeconomic impacts on CWEJCs, due to an increased demand for community services<sup>230</sup> and housing,<sup>231</sup> would be less than significant.

## Water

### *Rio Grande LNG Terminal Project*

We received several comments regarding the drought conditions and the impact on water availability and specifically the impact to CWEJCs. In coordination with the Texas Water Development Board (TWDB), the Brownsville Public Utilities Board (BPUB) is responsible for management of water supplies in the Brownsville municipal area, including the Rio Grande LNG Terminal and Rio Bravo Pipeline in most of Cameron County. BPUB is a member of Region M's Water Planning Group, tasked with the preparation of a regional water plan. TWPD issued the Draft 2026 Regional Water Plans, which includes reports on water supply, water management, and water demand projections.<sup>232</sup> Section 4.3 of the draft plan states that the region's demand distribution is heavily concentrated in Cameron and Hidalgo Counties and in the Laredo area in Webb County. According to BPUB's Water Conservation and Drought Contingency Plan, which was released in April 2024, BPUB has a combined treatment capacity of 49.3 million gallons per day. Current supplies are estimated to be less than the 2030 demands for municipalities. In some cases, this indicates that drought-year demands exceed normal supplies, and that need is regularly met by short-term contracts for water. However, table 4-3 in section 4.3.2 of the draft plan indicates that the BPUB has a surplus for decades 2030 – 2080.

The BPUB released its 2025 Water Strategy<sup>233</sup> which outlines its strategies on securing water availability, improving water quality, fostering economic growth, and promoting environmental sustainability, including the potential to construct a new Brackish Groundwater Treatment Facility. Given the BPUB's ability to meet water demand in the near term and its projected surplus from 2030 – 2080, we assume that the

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<sup>228</sup> *Id.* at 4-226 to 227.

<sup>229</sup> *Id.* at 4-227.

<sup>230</sup> *Id.*

<sup>231</sup> *Id.* at 4-225.

<sup>232</sup> Texas Water Development Board, <https://www.twdb.texas.gov/waterplanning/rwp/plans/2026/index.asp#region-m>, Accessed June 2025.

<sup>233</sup> Brownsville Public Utilities Board, <https://www.brownsville-pub.com/utility-services/water-wastewater/2025-bpub-water-strategy/>, Accessed June 2025.

BPUB would be able to meet the water demands of the LNG terminal; therefore, we conclude that impacts on CWEJCs associated with water availability would not be significant.

## **Road Traffic**

### *Rio Grande LNG Terminal Project*

We received comments requesting that road traffic impacts on CWEJCs be addressed. Area residents may be affected by traffic delays during construction of the Rio Grande LNG Terminal.<sup>234</sup> As 286 of the 293 block groups are considered CWEJCs, the increased traffic and related effects would impact individuals from CWEJCs. Up to 5,225 workers would be present onsite during construction of the LNG terminal; Rio Grande has estimated that 4,600 roundtrips (9,200 individual transits) per day would occur between the LNG terminal site and worker housing/parking areas.<sup>235</sup> Vehicular traffic associated with these workers would result in considerable increases in local traffic, specifically along SH-48, which has an estimated 12,000 to 17,000 vehicles per day and a capacity of 40,000 vehicles per day.<sup>236</sup> These impacts would most likely affect CWEJCs near the LNG terminal site, such as Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, and Census Tract 123.04, Block Group 4. Nevertheless, traffic levels would remain well within the capacity of the SH-48 roadway.<sup>237</sup>

RG LNG's proposed use of the Port of Brownsville Temporary Storage/Parking Area (Census Tract 142.02, Block Group 2) and Port Isabel Temporary Storage Area (Census Tract 123.04, Block Group 4) would reduce traffic to the LNG terminal, and traffic levels would continue to remain well within the capacity of SH-48.<sup>238</sup> In addition, RG LNG has coordinated with the Texas Department of Transportation and agreed to implement the following mitigation measures: add an additional left-turn lane on westbound SH-48 at its intersections with SH-100 and at each LNG terminal driveway; optimize traffic signal timing at the intersection of SH-48 and SH-100; provide an acceleration and deceleration lane at each LNG terminal driveway intersection; provide temporary traffic signals at each LNG terminal driveway; create median openings across from LNG terminal driveway 1; create a temporary median opening on SH-48 across from any temporary offsite parking site, including the proposed Port of Brownsville temporary storage/parking area, and install a temporary traffic signal; schedule deliveries of construction materials to avoid the expected arrival and departure of the workforce; and stagger shifts to avoid all workers arriving and leaving at the same time, if congestion

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<sup>234</sup> 2019 Final EIS. at 4-237.

<sup>235</sup> *Id.* at 4-228.

<sup>236</sup> *Id.*

<sup>237</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 8-12.

<sup>238</sup> *Id.*

occurs at the LNG terminal driveways.<sup>239</sup> Additionally, RG LNG proposed to hire off-duty police officers to direct traffic during peak commuting hours and install roadway warning signs to notify travelers of construction activities.<sup>240</sup> Based on these mitigation measures, and given the maintenance of Level of Service<sup>241</sup> (LOS) C or better with the implementation of mitigation measures, we conclude that the traffic impacts on CWEJCs associated with construction of the LNG terminal would be less than significant.

RG LNG has indicated that it does not plan to use the Brownsville and Port Isabel offsite parking/storage locations until use of its onsite parking and storage areas become limited, which it anticipates to occur near the start of construction of Liquefaction Train 4.<sup>242</sup> At this point, RG LNG states that personnel will use the Brownsville offsite parking location and be bused to the LNG terminal, resulting in a maximum of 150 bus roundtrips per day (7.1 miles each way).<sup>243</sup> The nearest residence to this offsite location is over three miles away (southwest of the offsite location).<sup>244</sup> Traffic to and from this offsite location to the LNG terminal would use SH-48 and not pass any residences.<sup>245</sup>

When onsite parking areas become limited, approximately 50 of the 150 bus roundtrips per day are expected from the Port Isabel location.<sup>246</sup> In addition, when onsite storage areas become limited, approximately 50 material truck roundtrips per day are expected from this offsite location.<sup>247</sup> The nearest residence within a CWEJC is approximately 0.3 miles northwest of this offsite location.<sup>248</sup> RG LNG's use of this offsite location is consistent with current traffic, as it is within an industrial area of Port Isabel and large material trucks regularly transit in and out of the area.<sup>249</sup> While travelers along SH-48 may experience additional adverse impacts associated with traffic delays, traffic levels

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<sup>239</sup> *Id.* at 11.

<sup>240</sup> *Id.*

<sup>241</sup> Level of Service is a qualitative measure of traffic flow. There are six levels of service ranging from A to F. LOS A represents the best conditions and LOS F represents the worst conditions. LOS "A" to "C" is considered acceptable. See Texas Department of Transportation, *Traffic and Safety Analysis Procedures Manual*, <https://onlinemanuals.txdot.gov/TxDOTOnlineManuals/txdotmanuals/tsp/tsp.pdf> (June 2024); see also Rio Grande March 13, 2019 Filing at 4.

<sup>242</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 12.

<sup>243</sup> *Id.*

<sup>244</sup> RG LNG August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request at 17.

<sup>245</sup> *Id.*

<sup>246</sup> *Id.*

<sup>247</sup> *Id.*

<sup>248</sup> RG LNG August 22, 2022 Response to Commission staff's August 16, 2022 Environmental Information Request at 17.

<sup>249</sup> *Id.*

would maintain a LOS C or better and, accordingly, we conclude that those impacts on CWEJCs will be less than significant.<sup>250</sup>

Operation of the LNG Terminal would result in an average of 300 roundtrips to the site per day associated with worker commutes and truck deliveries. SH-48 would continue to provide ample capacity with this increase in traffic.<sup>251</sup> We have determined that operation of the Rio Grande LNG Terminal would have permanent but negligible impacts on roadway transportation. Therefore, traffic impacts on CWEJCs near the LNG terminal site (Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, and Census Tract 123.04, Block Group 4) during operation would be less than significant.

### *Rio Bravo Pipeline Project*

Construction of the Rio Bravo Pipeline facilities, including Compressor Station 1, Meter Stations HS1, HS2, HS3, HS4, and the meter station at the LNG Terminal, and the contractor yards, may temporarily affect roadway traffic due to increased vehicle traffic associated with construction workforce commutes and the delivery of equipment and materials to the construction work area,<sup>252</sup> which would occur in numerous CWEJCs.<sup>253</sup> To minimize impacts on traffic, RB Pipeline would provide adequate parking for workers to ensure that parking on the shoulders of major roads is avoided and install warning signs on roadways to notify travelers of construction activities.<sup>254</sup> RB Pipeline will also file traffic mitigation procedures, developed in consultation with applicable transportation authorities, to maintain a LOS of C or better on roadways proposed for use during construction of the pipeline project.<sup>255</sup> If traffic congestion occurs during construction, RB Pipeline may implement additional measures, including, but not limited to, scheduling truck deliveries between peak commuting times, re-routing truck traffic to avoid busy roadways, and installing temporary traffic signals.<sup>256</sup> Given RB Pipeline's proposed mitigation measures and the maintenance of LOS C or better, we conclude that the traffic impacts on CWEJCs associated with construction of the pipeline project would be less than significant. Only a small number of permanent workers would be hired to operate the Rio Bravo Pipeline facilities and no measurable traffic increase would take place during operation.<sup>257</sup> Therefore, traffic impacts on CWEJCs associated with operation of the pipeline project would be less than significant.

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<sup>250</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 12.

<sup>251</sup> 2019 Final EIS at 4-229.

<sup>252</sup> *Id.* at 4-230.

<sup>253</sup> *See app. E* at tbls. 2 & 3.

<sup>254</sup> 2019 Final EIS at 4-230.

<sup>255</sup> *Id.*

<sup>256</sup> *Id.*

<sup>257</sup> *Id.*

## **Marine Traffic**

### *Rio Grande LNG Terminal Project*

Over the seven year construction period for the Rio Grande LNG Terminal, RG LNG anticipates about 880 barge deliveries for the LNG terminal site, with marine deliveries at the highest level during the first five years of construction (approximately 15 times per month).<sup>258</sup> Although these additional trips would represent an increase of about 9 percent<sup>259</sup> in current barge traffic, they would not result in significant impacts on the channel, as the barges would not block small vessel traffic, the pilots and the Brownsville Harbor Master would manage commercial vessel traffic, and the additional vessels would not result in an exceedance of the channel's traffic capacity.<sup>260</sup> Therefore, we conclude that users of the channel from CWEJCs would not be significantly impacted by marine traffic during construction.

During operation, permanent increases in marine traffic within the BSC would occur as the addition of six LNG carriers per week would double the current volume of large vessel traffic within the BSC; however, the U.S. Coast Guard has determined that the waterway is suitable for project use.<sup>261</sup> Based on RG LNG's anticipated number of port calls and its navigation simulation study, RG LNG determined that LNG carriers calling at the LNG Terminal would be transiting in the BSC for a combined duration of 30 hours per week (about 18 percent of the week). These additional trips would represent an increase of about 15 percent in current barge traffic.<sup>262</sup> This increase in marine traffic would likely result in additional delays for commercial fishing and recreational vessels that need to transit the BSC to reach the Gulf of America or fishing destinations in the Laguna Madre. Given the demographics in the area, these vessels may be operated or used by individuals from CWEJCs. Based on RG LNG's anticipated number of port calls and its navigation simulation study, RG LNG determined that LNG carriers calling at the LNG Terminal would be transiting in the BSC for a combined duration of 30 hours per week (about 18 percent of the week).<sup>263</sup> Based on the Coast Guard's LOR for the Project, the increase in large vessel traffic, and the potential to preclude vessel traffic 30 hours per week, we have determined that operation of the LNG Terminal would result in a permanent and moderate increase in marine traffic within the BSC.<sup>264</sup> Therefore, we conclude that recreational

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<sup>258</sup> *Id.* at 4-231.

<sup>259</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 14.

<sup>260</sup> 2019 Final EIS at 4-231.

<sup>261</sup> *Id.* at ES-11.

<sup>262</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 14.

<sup>263</sup> 2019 Final EIS at 4-231.

<sup>264</sup> *Id.* at 4-232.

boaters and fishers, which given the demographics of the area include individuals from CWEJCs, would not experience significant impacts on marine traffic.

### *Rio Bravo Pipeline Project*

As the proposed pipelines would cross marine waterways via HDD, no impacts on marine transportation would result from construction or operation of the pipeline facilities.

## **Visual Impacts**

### *Rio Grande LNG Terminal Project*

Impacts on visual resources may occur during construction of the Rio Grande LNG Terminal when large equipment, excavation activities, spoil piles, and construction materials are visible to local residents and visitors, including individuals from CWEJCs,<sup>265</sup> particularly the nearby communities in Census Tract 142.02, Block Group 2; Census Tract 127, Block Group 2; and Census Tract 123.04, Block Group 4.

Impacts on visual resources would also occur during operation to the extent that facilities or portions of facilities and their lighting are visible to residents and visitors.<sup>266</sup> The existing viewshed of the proposed LNG terminal site includes predominately open land with scrub-shrub vegetation with the BSC and SH-48 framing the southern and northern site boundaries.<sup>267</sup> The Port of Brownsville and the BSC support the movement of domestic and foreign products, which included about 7.6 million metric tons of cargo with over 1,050 vessel-calls in 2014.<sup>268</sup> As such, the movement of these vessels contributes to the characterization of the existing viewshed.<sup>269</sup> Visual receptors in the vicinity of the LNG terminal site would include individuals from CWEJCs, particularly the communities located nearby in Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, and Census Tract 123.04, Block Group 4, including recreational and commercial users of the BSC, motorists on SH 48, and visitors to the Laguna Atascosa National Wildlife Refuge, and other nearby recreation areas.<sup>270</sup> The closest residential areas to the LNG terminal within a CWEJC are about 2.2 miles from the Rio Grande LNG Terminal lease boundary. Given the LNG terminal site's proximity to residential areas, it would be possible to see the LNG terminal from some vantage points in Port Isabel and Laguna Heights, in particular elevated sites such as the Port Isabel Lighthouse; however, the

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<sup>265</sup> *Id.* at 4-198.

<sup>266</sup> *Id.*

<sup>267</sup> *Id.*

<sup>268</sup> *Id.*

<sup>269</sup> *Id.*

<sup>270</sup> *Id.* at 4-198 to 4-199.

distance to the LNG terminal site limits its visibility and as such it would not be a prominent feature in the viewshed for these residences.<sup>271</sup>

RG LNG has developed mitigation measures that would reduce day and nighttime visibility of the LNG terminal's aboveground facilities, including the selection of grey tank coloring, horticultural plantings, and the construction of a levee that would obstruct most construction activities and low-to-ground operational facilities from view.<sup>272</sup> RG LNG would also implement several light reduction techniques, including limiting the amount of outdoor lighting installed, dimming lights at night, and directing lights downward.<sup>273</sup> Based on the location of the LNG terminal and RG LNG's mitigation measures, we conclude that the LNG terminal project would not result in a significant impact on visual resources for residents and visitors in the immediate vicinity of the proposed LNG terminal site,<sup>274</sup> which would include individuals from CWEJCs.

The Brownsville and Port Isabel storage areas would be in areas of heavy industry.<sup>275</sup> As such, visual receptors in the vicinity of these storage areas would include workers and visitors at nearby industrial/commercial facilities and motorists on nearby roadways.<sup>276</sup> The closest residential areas are about three miles from the Brownsville site and 0.3 mile from the Port Isabel site. Based on the location of the storage areas at existing industrial sites and distance to residential areas, we conclude that impacts on visual receptors, including any individuals from CWEJCs, would be less than significant.<sup>277</sup>

### *Rio Bravo Pipeline Project*

#### Compressor Station 1

Visual impacts on CWEJCs are not anticipated from construction and operation of Compressor Station 1. Based on the proximity to Highway 281 (over 4 miles away), it is unlikely that these facilities would be visible to passing motorists within the CWEJC.<sup>278</sup> Additionally, Compressor Station 1 would not be visible from the closest sensitive receptor within a CWEJC, approximately 5.5 miles away. Therefore, no visual impacts on CWEJCs are anticipated.

#### Meter Stations

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<sup>271</sup> *Id.* at 4-199.

<sup>272</sup> *Id.*

<sup>273</sup> *Id.* at 4-199 to 4-200.

<sup>274</sup> *Id.* at 4-202.

<sup>275</sup> *Id.* at 4-199.

<sup>276</sup> *Id.*

<sup>277</sup> *Id.*

<sup>278</sup> *Id.* at 4-204.

As previously mentioned, RB Pipeline will construct and operate five meter stations within CWEJCs. Three (meter station HS1, HS2, and HS3) will be along the pipeline within a mile of Compressor Station 1 in Kleberg County, Texas, one (meter station HS4) will be along the pipeline in Jim Wells County, Texas (see appendix E, Figures 27 to 30), and one meter station will be located at the LNG Terminal in Cameron County, Texas. The three meter stations in Kleberg County and the meter station in Jim Wells County will be constructed on large parcels of land containing numerous easements for oil and gas pipelines. The closest residences are over a mile away for all meter stations. The meter station at the LNG Terminal will be a gas custody transfer meter station. The meter station collocated at the Rio Grande LNG Terminal will be part of the terminal viewshed and not a predominant feature on the LNG terminal site. Given the distance to the closest visual receptors within CWEJCs and the small scale of the meter stations, no visual impacts on CWEJCs from construction or operation of these facilities are anticipated.

### Contractor Yards

RB Pipeline's three construction contractor yards are in CWEJCs, and the closest residences to Contractor Yard 1 (189 feet north) may experience a change in viewshed during construction, which would be temporary lasting the duration of construction. Increased worker activity, construction equipment, and contractor yard lights may be visible from nearby residences during construction. Given the temporary nature of construction and no operational impacts associated with the contractor yards, visual impacts on CWEJCs would be less than significant. No visual impacts on CWEJCs are anticipated for Contractor Yards 2 and 3 (2,065 feet south and 3,044 feet south, respectively) due to the distance from those residences.

## Pipeline

RB Pipeline will construct and operate its pipeline facilities across large parcels of land consisting mostly of open land used for ranching and grazing, as well as agricultural land,<sup>279</sup> which are partially within CWEJCs. This land also contains numerous easements for oil and gas pipelines, including at least 50 known foreign pipelines that would be crossed by the proposed pipeline project.<sup>280</sup> As a result, the existing viewshed is characterized, in part, by existing infrastructure associated with these systems. Vegetation cover is generally limited at these locations; however, these areas include large tracts of land in a rural setting with no residences within sight. Visual receptors along the pipeline system route would include motorists, including those from CWEJCs, on nearby roadways who may be able to view construction workers and equipment, as well as the compressor and meter stations themselves during operation; however, their view would be short in duration.

We conclude that construction of the Rio Bravo Pipeline Project would result in short-term, not significant localized visual impacts during construction and a permanent but less than significant impact during operation.

## Air Quality

### *Rio Grande LNG Terminal Project*

Emissions from construction of the Rio Grande LNG Terminal are anticipated to result from operation of construction equipment, operation of the onsite concrete batch plants, deliveries of supplies by barge and truck, worker commutes, and land disturbance. Fugitive dust emissions would include contributions from general site construction work (acreage impacted), earth-moving fugitive dust emissions (quantity of soil moved), and unpaved road travel (distance of travel and weight of vehicles). Fugitive dust would be produced primarily during the site preparation activities, when the site would be cleared of debris, leveled, and graded, including at proposed offsite facilities.<sup>281</sup> Construction emissions from the LNG terminal, when considered with background concentrations, combined with staged emissions impacts from commissioning, start-up, and operations of the LNG terminal, would add to the ambient concentrations of criteria pollutants and HAPs, including ambient concentrations that exceed the recently updated PM<sub>2.5</sub> NAAQS in the LNG terminal's vicinity for the duration of the terminal's construction years, including when these emissions are taking place concurrently. Emissions from construction tend to be variable, depending primarily on the number, type, horsepower, and manufacture date of equipment, as well as the phase of construction. Construction emissions typically have

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<sup>279</sup> *Id.* at 4-203.

<sup>280</sup> *Id.*

<sup>281</sup> 2019 Final EIS at 4-256 & 4-257; *Order on Remand and Amending Section 7 Certificate* issued April 21, 2023 at 66-67.

a greater nearby impact due to the lower height of the exhaust, and the ground level emission from dust (as PM<sub>2.5</sub> and PM<sub>10</sub>). Therefore, emissions from construction of the Rio Grande LNG Terminal would be highly localized and have the largest impact within a short radius around the LNG terminal construction footprint, but would disperse at further distances.<sup>282</sup> Because pollutant concentrations decrease with distance, the dispersal of RG LNG's construction emissions at the distance of the nearest residences in CWEJCs (approximately 2.2 miles away) should not result in adverse impacts on air quality; however, construction emissions could be elevated at recreational areas near the LNG terminal site, such as the Laguna Atascosa National Wildlife Refuge, which has a border 211 feet north of the LNG terminal.<sup>283</sup>

RG LNG will implement the following measures to minimize construction combustion emissions: use bus transportation where feasible for worker commutes, limit engine idling of heavy equipment to less than five minutes to the extent practicable, use recent models of construction equipment, and conduct regular inspections and emissions testing of construction vehicles. Fugitive dust emissions will be minimized by RG LNG through implementation of the *Fugitive Dust Control Plan* developed for the LNG terminal.<sup>284</sup> Nevertheless, these fugitive dust emissions may still have an adverse impact and may add to evaluated levels of PM<sub>2.5</sub> and PM<sub>10</sub> during periods where terminal construction, commissioning, and operation are concurrent. Additionally, commissioning activities are not steady-state operations and they can have an increased emission intensity during start up.<sup>285</sup>

To ensure that these emissions of concurrent construction, commissioning and operational emissions do not cause significant air quality impacts; the Commission included a condition to monitor emissions in its 2023 Remand Order. Prior to commissioning, RG LNG is required to prepare and file a *Project Ambient Air Quality Mitigation and Monitoring Plan* for reducing the air quality impacts of overlapping construction, commissioning, and terminal operations. Such plan could include measures such as revising construction and commissioning schedules to reduce impacts. RG LNG must also include how it will monitor 1-hour NO<sub>2</sub>, 24-hour PM<sub>10</sub>, and 24-hour PM<sub>2.5</sub> during this period. The plan must describe the site selection process for installing air quality monitors and include procedures for data management and reporting.<sup>286</sup> RG LNG would obtain, and install the monitors as indicated in the Plan. Based on the addition of a *Project Ambient Air Quality Mitigation and Monitoring Plan*, as specified in Environmental Condition 144 in Appendix A of the 2023 Remand Order, we continue to conclude that air

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<sup>282</sup> *Order on Remand and Amending Section 7 Certificate* issued April 21, 2023 at 66-67.

<sup>283</sup> 2019 Final EIS at 4-98; *Order on Remand and Amending Section 7 Certificate* issued April 21, 2023 at 67.

<sup>284</sup> 2019 Final EIS at 4-258 & 4-271; *Order on Remand and Amending Section 7 Certificate* issued April 21, 2023 at 67.

<sup>285</sup> *Order on Remand and Amending Section 7 Certificate* issued April 21, 2023 at 67.

<sup>286</sup> *Order on Remand and Amending Section 7 Certificate* issued April 21, 2023 at A-5.

quality impacts on CWEJCs during construction of the Rio Grande LNG Terminal would be less than significant.<sup>287</sup>

Operation of the Rio Grande LNG Terminal would not cause, or significantly contribute to, an exceedance of the NAAQS, for modeled pollutants CO, NO<sub>2</sub>, PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and SO<sub>2</sub>, and this conclusion remains unchanged from our findings in the 2019 Final EIS.<sup>288</sup> During operation, our conclusions also remain unchanged for the above-referenced modeled pollutants that the Rio Grande LNG Terminal would have minor impacts on the local and regional air quality, but would not result in regionally significant impacts on air quality.<sup>289</sup> However, based on modeling, we identify significant air quality impacts on two discrete areas located directly north of the LNG terminal, specific to the annual PM<sub>2.5</sub> NAAQS. Although we conclude that air quality impacts would be significant in these two discrete areas, they are located within the Laguna Atascosa National Wildlife Refuge and there are no permanent residences or other usages in these areas in which annual levels of exposure could occur. In all other locations within the modeled area, air quality impacts on CWEJCs would be less than significant.

We received comments expressing concerns about air quality impacts on CWEJCS, including the existing ambient concentrations of air pollutants that commentors state are at “unhealthy” levels based on data obtained from the nearby Brownsville and Isla Blanca monitoring stations.

We acknowledge that air quality in the vicinity of the Rio Grande LNG Terminal site has recently and for many years been determined to be increasingly degraded due to fine particulate matter concentrations that exceed EPA’s NAAQS standards for 24-hour and annual PM<sub>2.5</sub>. As some commentors note, these existing ambient PM<sub>2.5</sub> concentrations come from a variety of existing manmade sources (agricultural burning, industrial operations, SpaceX launch activities, and transportation-related pollution), as well as natural sources including intermittent Saharan dust and other fugitive dust, some of which contains fine particles, generated by a multitude of other ongoing earth-disturbing activities region-wide. Further, we acknowledge, as discussed in detail in section 4.4, that the addition of emissions attributable to operation of the Rio Grande LNG Terminal would incrementally add to existing ambient concentrations in the region. However, as explained in section 4.2.2, with the exception of annual PM<sub>2.5</sub>, the emission impacts attributable to the Rio Grande LNG Terminal would either result in no meaningful change to the ambient environment, or otherwise fall below the NAAQS and the low levels of impacts are not expected to have a discernable effect on existing ambient concentrations locally, within CWEJCs, nor regionally within the greater Cameron County airshed. Additionally, in section 4.2.2 we identify that the cumulative air quality modeling would not exceed the NAAQS except for 24-hour PM<sub>2.5</sub> and annual PM<sub>2.5</sub>. In the case of 24-hour PM<sub>2.5</sub>, the

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<sup>287</sup> *Order on Remand and Amending Section 7 Certificate* issued April 21, 2023 at 68.

<sup>288</sup> 2019 Final EIS at 4-270.

<sup>289</sup> 2019 Final EIS at 4-270.

impact attributable to the RG LNG Terminal would not exceed the respective SIL,<sup>290</sup> the as well as the PSD threshold for areas above the NAAQS in 40 CFR51.165(b)(2). For annual PM<sub>2.5</sub>, the cumulative modeling identifies annual PM<sub>2.5</sub> SIL exceedances in two small areas just north of the LNG terminal in the Laguna Atascosa National Wildlife Refuge; however, there are no permanent residences or other usages in which annual levels of exposure could occur. Therefore, we conclude that operation of the Rio Grande LNG Terminal could result in significant air quality impacts on CWEJCs specific to the two discrete areas located adjacent and north of the terminal; however, for all other areas, the Rio Grande LNG Terminal would not meaningfully change the air quality impacts on CJEWCs above the current air quality impacts attributable to other pre-existing pollution sources in the region.

As described in section 4.2.3, we conducted a human health risk assessment to evaluate the potential for short- and long-term health effects due to exposure to hazardous air pollutants (HAP) emissions. No individual HAP has an estimated adult or child resident inhalation cancer risk above EPA's lower bound risk of 1-in-1 million (1E-06). The total cancer risks summed across all HAPs are below the EPA's target of 1-in-100,000 (1E-05) for a single facility. This 1-in-100,000 individual facility risk management objective is ten times more stringent than the highest cancer risk that EPA deems acceptable (1 in 10,000) to account for potential exposure to background levels of air contaminants. Therefore, this facility risk management objective addresses the potential for cumulative risk (i.e., risk associated with multiple HAPs and other sources in the area). Therefore, the Project represents a 0.8% and 0.16% increase in adult and child cancer risk due to HAPs respectively. The non-cancer HQ for the adult and child Resident RME receptor would be 0.146, which is below the benchmark HI of 1.0. Therefore, we conclude that health risk from inhalation of HAPS from the RG LNG Project would not be significant.

Therefore, based on the foregoing analysis we conclude construction and operational air quality impacts on CWEJCs from construction and operation of the Rio Grande LNG Terminal would be less than significant.

#### *Rio Bravo Pipeline Project*

Construction of the Rio Bravo Pipeline would result in impacts on air quality.<sup>291</sup> Construction emissions are anticipated from operation of construction equipment, deliveries of supplies, worker commutes, and land disturbance. Fugitive dust emissions would include contributions from general site construction work (acreage impacted), earth-moving fugitive dust emissions (quantity of soil moved), and unpaved road travel (distance of travel and weight of vehicles). Fugitive dust would be produced primarily during the site preparation activities, when the site would be cleared of debris, leveled, and graded,

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<sup>290</sup> Supplement to the Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program, EPA 2024

<sup>291</sup> *Id.* at 4-255 to 4-279.

including at proposed offsite facilities.<sup>292</sup> Construction emissions from the pipeline and Compressor Station 1 were disclosed in the 2020 Amendment Project EA and are unchanged from previous estimates.<sup>293</sup>

As detailed in the 2020 Amendment Project EA, the increase in diameter of Pipeline 1 would not result in additional construction emissions from those identified in the final EIS.<sup>294</sup> Given the transient nature of pipeline construction, we conclude that CWEJCs would not experience significant air quality impacts during construction of the pipeline facilities. Additionally, construction of Compressor Station 1 and the meter stations would have minor impacts on local air quality during the construction period, in CWEJCs, as there are no residences within 1 mile.

A discussion of operation emissions from Compressor Station 1 is detailed in section 4.2.2. RB Pipeline submitted a revised air quality dispersion modeling analysis which demonstrated that air quality impacts from Compressor Station 1 would not exceed the NAAQS.

Operational emissions associated with Meter Stations HS1, HS2, HS3, HS4, and the meter station at the LNG Terminal would be due to fugitive emissions (natural gas venting) and would result in minimal criteria pollutant emissions. Operational emissions associated with these facilities would have no impact on the ambient concentrations of any criteria pollutant or HAP. The three contractor yards would not be used during operation. Therefore, we conclude that operation emissions associated with Meter Stations HS1, HS2, HS3, HS4, and the meter station located at the LNG Terminal, would not result in a significant impact on air quality in CWEJCs.

## **Noise**

### *Rio Grande LNG Terminal Project*

Noise levels above ambient conditions, attributable to 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 receptors.<sup>295</sup> The closest noise sensitive areas (NSA) to the Rio Grande LNG Terminal within CWEJCs are: NSA 1, a residence, about 4.3 miles southeast of the center of the LNG terminal site (Census Tract 127 Block Group 2); NSA 2, Port Isabel High School, which is adjacent to the Laguna Heights residential area, about 3.7 miles northeast of the center of the LNG

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<sup>292</sup> *Id.* at 4-256 to 4-257.

<sup>293</sup> 2020 Rio Bravo Pipeline Amendment at 25.

<sup>294</sup> Amendment Project EA at 25.

<sup>295</sup> 2019 Final EIS at 4-282.

terminal site (Census Tract 123.04, Block Group 4); and NSA 3, residences in Port Isabel, about 3.7 miles northeast of the LNG terminal site (Census Tract 123.04 Block Group 4).<sup>296</sup>

Based on the construction noise estimates provided by RG LNG, the maximum noise levels generated by construction activities would increase the existing ambient daytime noise levels at the nearest NSAs by 0.2 to 5.4 dB; however, with the exception of construction at NSA 2, combined ambient and construction sound levels would not exceed a day-night sound level ( $L_{dn}$ ) threshold of 55 A-weighted decibels (dBA).<sup>297</sup> The 2019 Final EIS included a recommendation (which was included as a mandatory condition of the Authorization Order) to address the potential for pile-driving activities to exceed the 55 dBA  $L_{dn}$  threshold at the NSAs.<sup>298</sup> As documented in RG LNG's Weekly Noise Data Reports filed since October 2023, noise contributions from pile driving activities have either not been detectable or resulted in at most faintly audible noise impacts over ambient background noise levels at the nearest NSAs. We conclude that impacts on nearby residents within CWEJCs would continue to be less than significant during construction of the LNG terminal.<sup>299</sup>

Operational noise associated with the LNG terminal would be generated continuously and would increase noise levels over ambient between 0.1 and 0.4 dB at the closest NSAs.<sup>300</sup> The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear; and 10 dBA is perceived as a doubling of noise.<sup>301</sup> Based on these estimates, the noise generated by the operation of the LNG terminal is not likely to exceed the 3 dBA threshold for human perception of noise change at nearby NSAs within CWEJCs. In addition, Environmental Conditions 35, 36, and 37 in the 2019 Authorization Order require RG LNG to meet sound level requirements. Therefore, considering RG LNG's estimate that operation of the LNG terminal will not result in a perceptible increase in sound levels at the nearest NSAs and given the requirements in the 2019 Authorization Order for measurement of operational sound levels, we conclude that the project would not result in significant noise impacts on local residents and the surrounding communities,<sup>302</sup> including CWEJCs.

As a result of the use of the Brownsville and Port Isabel offsite locations, individuals from CWEJCs may experience increases in vehicle-associated noise (loud engines and horns). Given the distance to residential areas (three miles from the Brownsville site and

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<sup>296</sup> *Id.* at 4-197.

<sup>297</sup> *Id.* at 4-292.

<sup>298</sup> 2019 Final EIS at 4-292.

<sup>299</sup> *Id.*

<sup>300</sup> *Id.* at 4-293.

<sup>301</sup> See Bies and Hansen, *Engineering Noise Control: Theory and Practice* at tbl. 2.1 (1988), <https://www.semanticscholar.org/paper/ENGINEERING-NOISE-CONTROL%3A-Theory-and-Practice-Bies-Hansen/23a7741e61d5b42d7da770b857054a50f1380648> (last visited March 2023).

<sup>302</sup> *Id.* at 4-296.

0.3 mile from the Port Isabel site), we conclude that impacts on local residents, including any individuals from CWEJCs, would be less than significant.

### *Rio Bravo Pipeline Project*

There are no residences or other NSAs within 1 mile of any of the meter stations or Compressor Station 1.<sup>303</sup> Therefore, we conclude that no construction or operational noise impacts on residences within CWEJCs would be anticipated from these facilities, as any noise increase would not likely be perceptible at these distances.<sup>304</sup>

Sound levels resulting from construction equipment at the contractor yards would vary over time and would depend upon the number and types of equipment operating, the level of operation, and the distance between sources and receptors.<sup>305</sup> Construction equipment would be operated on an as-needed basis, and CWEJCs near the construction contractor yard areas may experience an increase in perceptible noise, but the effect would be temporary and local.<sup>306</sup> The closest residences to Contractor Yard 1 (189 feet north) within a CWEJC (see appendix E, figure 31) may experience noise during construction, which would be temporary lasting the duration of construction. No noise impacts are anticipated for Contractor Yards 2 and 3 due to the distance to the closest residences within CWEJCs (2,065 feet south and 3,044 feet south, respectively) (see appendix D, figures 32 and 33).

Sound levels resulting from construction of Rio Bravo Pipeline Project facilities would vary over time and would depend upon the number and types of equipment operating, the level of operation, and the distance between sources and receptors.<sup>307</sup> Construction equipment would be operated on an as-needed basis, and CWEJCs near the construction areas may experience an increase in perceptible noise, but the effect would be temporary and local.<sup>308</sup> Sound from construction activities near CWEJCs along the dual pipeline system route could be either intermittent or continuous, but would occur over a limited duration (up to 10 weeks at any one location); with construction near residences limited to the shortest timeframe possible to safely install the facilities.<sup>309</sup> RB Pipeline conducted an HDD acoustical impact assessment, which found that sound levels for 24-hour HDD operations would exceed our noise criterion of an  $L_{dn}$  of 55 dBA at NSAs near seven proposed HDDs at mileposts 82.0 (1 and 1.4 miles away), 92.0 (0.8 and 0.9 mile away), 93.0 (0.2 and 0.2 mile away), 99.8 (0.5 and 0.6 miles away), 101.2 (0.2 and 0.5 mile away), 102.0 (0.5 and 0.9 mile away), and 118.7 (0.7 and 0.8 mile away) within

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<sup>303</sup> *Id.* at 4-301.

<sup>304</sup> *Id.*

<sup>305</sup> *Id.* at 4-296.

<sup>306</sup> *Id.*

<sup>307</sup> *Id.* at 4-296.

<sup>308</sup> *Id.*

<sup>309</sup> *Id.*

CWEJCs. RB Pipeline will implement the following mitigation at HDD locations to reduce noise to below our noise criterion of an  $L_{dn}$  of 55 dBA at NSAs: use of temporary sound barriers around the HDD workspace and use of sound barriers or an acoustical enclosure around the drilling mud cleaning system. RB Pipeline will also offer temporary housing to residents in the vicinity of HDD operation. In addition, RB Pipeline is required as a condition of the 2019 Authorization Order<sup>310</sup> to prepare a noise mitigation plan prior to construction for each HDD where noise could exceed the Commission's noise criterion at the NSAs. Prior to any approval of the plans, Commission staff will ensure that the plan proposes all reasonable efforts to limit the noise contribution from the above HDDs to no more than an  $L_{dn}$  of 55 dBA at the NSAs and ensure that the plan is implemented during construction.

With RB Pipeline's implementation of an HDD noise mitigation plan and based on our findings summarized above, we conclude that noise impacts from construction and operation of the Rio Grande LNG Project would not be significant in CWEJCs.

### **Reliability and Safety**

Commission staff reexamined, in the 2023 Remand Order, the potential impacts along the LNG marine vessel transit route and at the LNG terminal, which is included in appendix E of this order. Environmental Conditions 53 and 54 from the 2019 Authorization Order related to the Emergency Response Plan and the Cost Sharing Plan were modified in the 2023 Remand Order to further mitigate potential offsite risks.<sup>311</sup> In comments on the supplemental draft EIS, RG LNG commented that the timing language in Environmental Conditions 53 and 54 were updated from the 2023 Remand Order and this change was not explained. The supplemental draft EIS updated the timing of Environmental Conditions 53 and 54 in an effort to account for current construction status of the Rio Grande LNG project which has received approvals to construct the final design and to reflect the language in the Natural Gas Act.<sup>312</sup> However, given that Rio Grande LNG has filed several versions of the ERP prior to initial site preparation and prior to construction of final design, which have been reviewed and approved under delegated authority by Commission staff, and continues to file 3-month progress updates in compliance with those conditions, Environmental Conditions 53 and 54 from the 2023 Remand Order will not be modified. We have also updated appendix E to reflect the conclusion that these conditions will not be modified and will remain the same as the 2023 Remand Order.

Commission staff determined that the risk (i.e., likelihood and consequence) of accidental and intentional events would be less than significant with implementation of the previously adopted safety and security conditions of the 2019 Authorization Order and the

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<sup>310</sup> Condition 37 of the 2019 Authorization Order.

<sup>311</sup> See 2023 Remand Order, 183 FERC ¶ 61,046 at P 156.

<sup>312</sup> 15 U.S.C. § 717b-1(e).

modified Emergency Response Plan and Cost Sharing Plan (addressed in appendix E). The analysis and conclusions in the 2023 Remand Order remain the same; we updated the census data to identify impacted communities.

As described in the 2023 Remand Order, the likelihood of incidents and hazards described in the 2019 Final EIS are extremely low due to the mitigation required by regulations and Environmental Conditions. However, potential impacts from these hazards could impact onsite personnel and offsite public.<sup>313</sup> An incident can result in various potential hazards, but the type and extent of the hazard will depend on the material released, the storage and process conditions, and the volumes and durations released. Additional details related to effects and risk of accidental and intentional events related to Low Temperature, Rapid Phase Transitions, Vapor Dispersion, Flammable Vapor Ignition and Fires, Overpressures are provided in appendix E.

### *LNG Facilities*

Commission staff evaluated a range of releases to evaluate the potential impacts on populations and infrastructure within the vicinity of the plant, including CWEJCs. Impacts would vary based on the initiating event and subsequent release characteristics (e.g., size, location, direction, process conditions, etc.), hazard (i.e., vapor dispersion, overpressures, fires, BLEVE and pressure vessel bursts), weather conditions, and surrounding terrain. Distances to radiant heat from fires produced by accidental and intentional acts could impact onsite personnel or offsite public. The 2019 Authorization Order requires spill containment systems to limit pool spread and vaporization, which limit the extent of the radiant heat from pool fires to onsite and reduces the dispersion distances to flammable vapors.

The only offsite infrastructure areas that could be impacted by radiant heat from a fire would be a portion of Texas SH-48, the Texas LNG Terminal facility, and associated infrastructure but would not impact nearby communities (see appendix E). While unignited vapor dispersion from a catastrophic failure of an LNG storage tank is extremely unlikely, if it occurred, it could extend farther offsite and could impact the following critical infrastructure: commercial areas including the Port Isabel-San Benito Navigation District and the SpaceX assembly facility; numerous local government buildings, including the Port Isabel Police Department, Cameron County Precinct 1 Constable's Office, Port Isabel City Fire Department, Cameron County Tax Assessor-Collector Office, Port Isabel City Hall, and Port Isabel City Social Worker Office; two health care facilities, including the Port Isabel Health Clinic and the Luna Medical Clinic; and several major roadways, including

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<sup>313</sup> Specific distances of potential impacts from incidents at an LNG terminal have not been provided at this time to try and balance the potential security interests in releasing such information. Specific distances for various hazards described would be provided in emergency response plans for reference and use by emergency responders. Further, potential hazards have been described and potential impacts to communities are disclosed to balance the importance of public disclosure and transparency on the balance of potentially releasing information that has not been previously released and could be used by intentional actors.

the Queen Isabel Causeway, Texas State Highway 100, and Texas State Highway 48. Several communities within the extent of the unignited vapor release from a catastrophic failure of one of the LNG storage tanks could include CWEJCs; multiple residential homes and apartment complexes; several schools, including Garriga Elementary School, Derry Elementary School, Port Isabel Junior High School, and Port Isabel High School; several child-care facilities, including the Little Learners Academy, Esperanza B. Garza Head Start, and Beacon Bay Head Start; hotels; and places of worship.

#### *LNG Marine Vessel Route*

As stated in Sandia National Laboratories Report, *Guidance on Risk Analysis and Safety Implications of a Large LNG Spill Over Water*, Zone 1 represents “risks and consequences of an LNG spill could be significant and have severe negative impacts” and radiant heat demarked by this zone “poses a severe public safety and property hazard, and can damage or significantly disrupt critical infrastructure;” Zone 2 represents where radiant heat “transitions to less severe hazard levels to public safety and property” and the consequence of an accidental LNG spill are reduced and risk reduction and mitigation approaches and strategies can be less extensive;” and Zone 3 represents “risks and consequences to people and property of an accidental LNG spill over water are minimal” and radiant heat “poses minimal risks to public safety and property.” The report differentiates between accidental (e.g., the collision or grounding of a vessel resulting in an LNG spill) and intentional events (e.g., an intentional act by an individual or group to try and cause a breach or other destructive action of the vessel). The areas, including a description of the infrastructure and communities, impacted by the three different hazard zones for an LNG spill over water were provided for accidental and intentional events in the 2019 Final EIS.<sup>314</sup>

#### *Potential Effects on People with Access and Functional Needs and CWEJC*

Commission staff identified nine census block groups along the LNG marine vessel transit route and at the LNG terminal, eight of which are CWEJCs.<sup>315</sup> We also identified the potential impacts to people with access and functional needs as defined in NFPA 1660. Commission staff performed an independent analysis of potential safety impacts on CWEJCs using conservative, worst-case distances in the modeling assumptions, which is included in appendix E. Commission staff identified people with potential access and functional needs within the Potential Incident Impact Area Zones. Table E-1 (appendix E)

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<sup>314</sup> 2019 Final EIS 4-308, 4-317, 4-323.

<sup>315</sup> The eight environmental justice block groups along the LNG marine vessel transit route and at the LNG terminal include: Census Tract 123.04, Block Group 2; Census Tract 123.04, Block Group 4; Census Tract 127, Block Group 2; Census Tract 142.01, Block Group 1; Census Tract 142.02, Block Group 2; Census Tract 123.04, Block Group 1; Census Tract 123.04, Block Group 3; and Census Tract 142.02, Block Group 2. **See Section 4.3.1.2.**

details the resultant percentages of people with potential access and functional needs based on 2018-2022 U.S. Census Bureau, American Community Survey (ACS).

As described above, there have been no changes to the conclusions of the previously incorporated analyses set forth in the 2023 Remand Order and in appendix E. Environmental Conditions 53 and 54 from the 2019 Authorization Order related to the ERP and CSP were modified, as detailed in appendix E, to further mitigate potential offsite risks to all affected populations, including CWEJCs, and accordingly Commission staff have determined that the risk of accidental and intentional events on CWEJCs would be less than significant.

#### **4.3.1.4 Environmental Justice Effect Mitigation**

As described in *Promising Practices*, when an agency identifies potential adverse impacts it may wish to evaluate practicable mitigating measures. RG LNG and RB Pipeline have committed to several minimization and mitigation measures to reduce impacts related to project construction and operations. These mitigation measures are detailed throughout the previous sections as well as in the 2019 Final EIS, Amendment EAs, 2019 Authorization Order, and 2023 Remand Order.

As described above and in Air Quality, section 4.3.1.4, one mitigation measure specific to environmental justice requires RG LNG, prior to commissioning the project, to file with the Commission a *Project Ambient Air Quality Mitigation and Monitoring Plan* for particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) and nitrogen oxide (NO<sub>2</sub>) for periods when construction, commissioning and start-up, and operation of the project occur simultaneously to ensure impacts are less than significant on individuals recreating near the LNG Terminal. Also as discussed above, we identify a significant air quality impact for two areas adjacent and north of the terminal due to an exceedance of the annual PM<sub>2.5</sub> NAAQS and SIL. Due to limited geographic extent of the modeled SIL exceedance area, the highly conservative nature of the modeling, the fact that no residences exist in these areas, and annual levels of exposure are highly unlikely to occur, no further mitigation is recommended.

Following construction, temporary workspaces associated with installation of the Pipeline System, would be restored in accordance with the Rio Grande LNG Project Project-Specific *Upland Erosion Control, Revegetation, and Maintenance Plan* and *Wetland and Waterbody Construction and Mitigation Procedures*. Areas disturbed by construction would be graded to match original contours and surrounding drainage patterns, except at those locations where permanent changes in drainage would be required to prevent scour, erosion, or potential exposure of the pipeline. Disturbed areas would be restored in accordance with Rio Grande LNG Project *Project-Specific Upland Erosion Control, Revegetation, and Maintenance Plan* and Rio Grande LNG Project Project-Specific *Wetland and Waterbody Construction and Mitigation Procedures*, in addition to

other federal, state, and local permit requirements. Furthermore, FERC staff would maintain compliance oversight of the Projects throughout construction and restoration.

#### **4.3.1.5 Determination of Disproportionate and Adverse Effects on CWEJCs**

As described in the 2019 Final EIS and in the above analysis, the Rio Grande LNG Terminal and the Rio Bravo Pipeline will have a range of effects on the environment and individuals living in the vicinity of the project facilities, including CWEJCs. For the Rio Grande LNG Terminal, out of 293 block groups within a 50-kilometer radius 286 block groups were considered CWEJCs. The closest environmental justice block groups are Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2, and Census Tract 123.04, Block Group 4. For the Brownsville offsite parking location, Commission staff identified two environmental justice block groups within a 1-mile radius of the site. For the Port Isabel offsite parking location, Commission staff identified four environmental justice block groups within a 1-mile radius of the site.

For the Rio Bravo Pipeline, we identified 13 environmental justice block groups crossed by the pipeline. Compressor Station 1 is located in an environmental justice block group (Census Tract 201.02, Block Group 2). Commission staff identified 89 environmental justice block groups within a 50-kilometer radius of the site. Meter Stations HS1, HS2, and HS3 in Kleberg County, are located in a CWEJC (Census Tract 201.02, Block Group 2) based on the minority threshold. The one block group identified within the radius of analysis for Meter Stations HS1, HS2, and HS3 has a minority population that either exceeds 50 percent or is meaningfully greater than Kleberg County. Meter Station HS4, in Jim Wells County, is located within a CWEJC (Census Tract 9502.02, Block Group 2). The one block group identified within the radius of analysis for Meter Station HS4 has a minority population that either exceeds 50 percent or is meaningfully greater than Jim Wells County. Contractor Yards 1, 2, and 3 are located within a CWEJC (Census Tract 9503, Block Group 1, Census Tract 9501, Block Group 1, and Census Tract 144.01, Block Group 1, respectively). For the meter station located at the terminal facility (Census Tract 142.02, Block Group 2) in Cameron County, Commission staff identified two environmental justice block group (Census Tract 142.02, Block Group 2 and Census Tract 127, Block Group 2) within a 1-mile radius of the sites (based on the minority and low-income thresholds).

Based on the foregoing analysis, we find that all effects on CWEJCs from construction and operation of the Rio Grande LNG Terminal, Meter Stations HS1, HS2, HS3, HS4, and the meter station at the Rio Grande LNG Terminal, Contractor Yards 1, 2 and 3, and a majority of the 135-mile pipeline, would be disproportionate and adverse because they would be predominately borne by CWEJCs. Impacts would be predominately borne by CWEJCs because, as stated above, a majority of the census block groups within the areas of review are considered CWEJCs. Petitioners stated that FERC failed to make a concrete conclusion about whether air quality impacts were disproportionate and adverse;

we clarify that air quality impacts would be disproportionate and adverse; however, we conclude that air quality impacts would not be significant, with the exception of significant impacts on two locations north of the Rio Grande LNG Terminal for annual PM<sub>2.5</sub>. Emissions modeling for the remainder of Project areas confirms that impacts on CWEJCs would not be significant.

In addition, we conclude that CWEJCs within the Rio Grande LNG Terminal area may experience significant cumulative visual impacts (see section 4.4) when considered with other potential projects in the viewshed. Project-related impacts associated with wetlands, surface water, recreational and subsistence fishing, tourism, socioeconomics, traffic, visual resources, and noise would be less than significant.

#### **4.4 CUMULATIVE IMPACTS**

In accordance with NEPA and FERC policy, we evaluated the potential for cumulative impacts of the Project on the environment. Cumulative impacts are considered impacts that result from the incremental effects of the Project when added to other past, present, or reasonably foreseeable future actions, regardless of the agency or party undertaking such actions. Cumulative impacts generally refer to effects that are additive or synergistic in nature and result from the construction of multiple projects in the same vicinity and time frame. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over an overlapping period of time. In general, small-scale projects with minimal impacts of short duration do not significantly contribute to cumulative impacts.

Inclusion of other projects in the analysis is based on identification of impacts on environmental resources from other projects that would directly or indirectly result in similar effects as the proposed Project. The cumulative impacts analysis includes those past, present, and reasonably foreseeable projects meeting the following three criteria:

- impact a resource potentially affected by the proposed Project;
- impact that resource within all or part of the time span encompassed by the proposed or reasonably expected construction and operation schedule of the proposed Project; and
- impact that resource within all or part of the same geographic area affected by the proposed Project. The geographic area considered varies depending on the resource being discussed, which is the general area in which the projects could contribute to cumulative impacts on that particular resource (geographic scope of analysis).

A geographic scope was identified for each specific environmental resource that would be affected by the Project, as described in table 4-4.

<b>Environmental Resource</b>	<b>Geographic Scope</b>
Aquatic Resources	HUC-12 watershed – impacts on surface water within the HUC-12 watershed could contribute to downstream impacts on aquatic organisms and their habitats.
Special Status Species	HUC-12 watershed – impacts within the HUC-12 watershed could contribute to impacts on threatened and endangered species and their habitat within the watershed. For marine species, impacts on marine/estuarine waterbodies in the HUC-12 watershed and established shipping channels used by LNG carriers are also within the geographic scope.
Environmental Justice	Affected environmental justice block groups.
Air Quality – Construction	Within 0.5 mile of the proposed pipeline facilities, including Compressor Station 1; and within 1.0 mile of the LNG Terminal, because construction emissions are highly localized.
Air Quality – Operations	Within 31 miles of the proposed LNG Terminal and Compressor Station 1

### **Potential Cumulative Impacts by Resources**

RG LNG and RB Pipeline identified other projects for their respective portion of the Project for consideration in the cumulative impacts analysis for the supplemental EIS.<sup>316</sup> The following sections address the potential cumulative impacts of the activities identified within the geographic scope on specific environmental resources, as identified in table 4.13.1-2 of the 2019 Final EIS and newly identified projects that are listed in table F-1 in appendix F. This supplemental EIS updates the cumulative impacts of projects planned, under construction, developed, or in operation, concurrent or with overlapping timeframes, as the construction of the LNG terminal and pipeline. Projects that were included and already discussed in detail in the 2019 Final EIS are not reexamined and will not be discussed. Reasonably foreseeable projects considered are discussed in relation to their respective geographic scope and environmental resource affected for the LNG terminal and pipeline. The geographic scope used for aquatic resources, species of special status is hydrologic unit code (HUC) 12 sub-watershed and includes projects listed in table F-2 in appendix F.

We received comments to include Jupiter MLP refinery, Sunoco tank farm, Motus Energy, Element Fuels, and Essential Fuels in the cumulative impact analysis. Sunoco tank farm, Motus Energy and Element Fuels are included in the analysis; however, Jupiter MLP is no longer a project and Essential Fuels does not have a project in Texas.

<sup>316</sup> Refer to Rio Grande’s and Rio Bravo’s response to Environmental Information Request dated September 30, 2024 and November 15, 2024.

#### 4.4.1 Aquatic Resources and Special Status Species

##### *Rio Grande LNG Terminal Project*

Of the 24 projects identified by RG LNG, eight were not previously discussed in the 2019 Final EIS, of which only three were in the same HUC-12 geographic scope as the LNG Terminal. Construction and operation of the LNG Terminal would be solely in the HUC-12 sub-watershed BSC – Frontal Laguna Madre (121102080900). The SpaceX Starship / Super Heavy Launch Vehicle Program (SpaceX) project was under construction during the 2019 Final EIS and is now operational; Port of Brownsville Business Park has ongoing construction; and the Ternium Marine Terminal has an anticipated construction timeframe in 2025/2026. Two other projects (U.S. 77 / I-69 and Route 281 Connector transportation activities), in the same HUC-12, have an unknown timeframe.

##### 4.4.1.1 LNG Terminal Aquatic Resources

We received several comments regarding freshwater availability and use of treated water for the Project. Additionally, three commenters stated that a cumulative assessment of the use of freshwater for industrial operations be conducted.<sup>317</sup> These comments are out of the scope of the supplemental EIS. We also do not have information regarding the water usage for the other projects not under FERC jurisdiction. The 2019 Final EIS provided the freshwater volumes needed and the impacts of the Project on groundwater and surface water supplies. We do not anticipate a change in the freshwater required for the LNG terminal currently under construction. Brownsville Public Utilities Board (BPUB) stated that 50 million gallons of water are treated daily for public usage (BPUB 2024). According to section 4.3.1.2 in the 2019 Final EIS, an estimated 3.1 million gallons per month would be used during the construction and approximately 3.7 million gallons per month during operation of the LNG terminal.

Surface water quality may temporarily decrease at certain locations (waterbody crossings), and across a broader area during rain events from surface water runoff (stormwater discharge). Disturbance to stream bed and bank surfaces and surface water runoff from multiple sources would increase turbidity, nutrient and pollutant levels, and downstream sedimentation, leading to potential impacts on aquatic biota. Consequences of lower water quality include mortality of aquatic biota (e.g., plankton that serves as food sources for higher trophic level organisms) and fish from insufficient food and low dissolved oxygen levels from eutrophication.

Construction and operation of the Port of Brownsville Business Park and Ternium Marine Terminal would increase impervious surfaces, which would affect floodplain storage capacity. Based on information provided by RG LNG, an estimated 285 acres of land would be affected—no project size was provided for the SpaceX project—with the

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<sup>317</sup> See FERC Accession Nos. 20241015-5367, 20241015-5430, and 20241015-5430.

majority of the affected acreage assumed to be a conversion to impervious surfaces. Operation of all these facilities, along with the LNG terminal, could reduce the capacity of the HUC-12 sub-watershed to infiltrate and retain precipitation, especially during periods of extreme events, and overland flow. All of these factors would affect EFH for managed species: a reduction in groundwater recharge, weather events, such as drought conditions that may affect surface water quality, and in turn the aquatic habitat for managed fish species.

Upon review of the information provided by RG LNG,<sup>318</sup> and evaluation of these other projects using the USGS's National Hydrography Dataset, we determined that no other waterbodies, aside from the BSC, would be affected.

In summary, with adherence to these federal and state permits and regulations, we determined that impacts from construction activities for the Port of Brownsville Business Park and Ternium Marine Terminal, along with the operation of the SpaceX project, all concurrent with the construction of the LNG Terminal in the BSC – Frontal Laguna Madre HUC-12, would have permanent cumulative effects on water resources, but would not contribute to significant changes to aquatic resources or fisheries.

#### **4.4.1.2 LNG Terminal Special Status Species**

Both the Port of Brownsville Business Park and Ternium Marine Terminal projects are farther inland than the LNG Terminal, although still within the developed/industrial BSC corridor with limited available vegetation suitable for wildlife (e.g., lawns) and wildlife potentially present are adapted to a human environment (e.g., house sparrows, squirrels, raccoons). The SpaceX project is approximately 5.5 miles southeast of the LNG terminal and is separated by Boca Chica Wildlife Refuge. As indicated by RG LNG, all three projects are required to conduct ESA Section 7 consultation with USFWS for potential impacts on federally listed species. The Ternium Marine Terminal and SpaceX projects also required consultation for species under NMFS jurisdiction.

ESA Section 7 consultation is complete for the Port of Brownsville Business Park and SpaceX, while consultation with the Services is ongoing for the Ternium Marine Terminal. In accordance with ESA Section 7, the Services (USFWS and NMFS), in their review of proposed actions to base their determination for effects on a listed or proposed species, would conduct a cumulative impact analysis. We expect that all other projects, requiring consultation with the Services would be considered in their cumulative analysis of the effect of the action. Thus, we determine that construction and operation of the RG LNG terminal, if conducted in the same or overlapping timeframe, with the 21 other projects in the HUC-12, would have cumulative impacts on federally listed and proposed species.

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<sup>318</sup> See FERC Accession No. 20241021-5177.

One commenter stated that cumulative impacts from the Project and Texas LNG on the state-listed threatened Texas tortoise (*Gopherus berlandieri*), as well as other wildlife, should be reviewed.<sup>319</sup> Texas LNG was included in 2019 Final EIS cumulative impact analysis. As stated in the 2019 Final EIS, RB Pipeline would implement TPWD’s Texas Tortoise best management practices to lower Project’s effects on this reptile. We expect that TPWD would recommend or include similar conservation measures to complete their review of other projects, which also may impact state-listed species, such as the Texas tortoise. Therefore, we determined that cumulative impacts from these three identified additional projects, on top of eight project in the HUC-12 would not contribute to significant impacts on the Texas tortoise or other newly listed threatened and endangered species.

#### *Rio Bravo Pipeline Project*

##### **4.4.1.3 Pipeline Aquatic Resources**

For the proposed pipeline RB Pipeline provided a list of projects, which were not evaluated in the cumulative impact analysis in the 2019 Final EIS. Most of the projects identified by RB Pipeline are related to transportation (19), followed by renewable facilities (4), commercial development (3), terminals (2), and water improvement projects (2). Only those projects, which are in the same HUC-12 geographic scope as the pipeline, are considered for cumulative impacts (table F-2 in appendix F). The two water improvement projects (nutrient /nonpoint source pollution monitoring studies) will not be discussed as both have been concluded (2021 and 2023). Monitoring studies have temporary, localized, and non-intrusive effects on water resources; and thus, they would not contribute to cumulative impacts.

Construction of multiple transportation projects along with the pipeline may have additive effects on aquatic resources, primarily from stormwater runoff, and particularly if there are waterbodies or wetlands in the vicinity. Most of the transportation projects are categorized as preventative maintenance (e.g., re-surfacing of impervious surfaces); four are designated as safety improvements, which may include some vegetation clearing in wetlands, which may result in erosion and sediment deposits in waterbodies with fish. Some of the transportation projects cross over waterbodies and appear to be in proximity to wetlands; however, these projects would be in existing transportation corridors. According to NMFS’s EFH mapper, Arroyo Colorado may have EFH for shrimp, coastal migratory pelagic resources (mackerel), red drum, and reef fish. Preventive maintenance transportation projects for FM 1420, FM 2925, and FM 1847 that may cross the EFH in Arroyo Colorado; while activities related to State Highway (SH) 28 and SH-48 projects in the BSC – Frontal Laguna Madre HUC-12 may be potentially require EFH consultation with NMFS. We have no jurisdiction over these transportation projects; we expect that NMFS in their review of transportation projects in potential EFH would indicate the

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<sup>319</sup> Accession number 20141015-5430.

appropriate mitigation measures, including time-of-year restrictions to limit the impact on these species' EFH. Cumulative impacts on EFH would depend on various factors, including the magnitude, duration of the projects, waterbody hydrological conditions, and suitability of the waterbody for specific life stages for managed fisheries.

All four renewable facilities; two commercial developments have been in operation since 2021, with the third (Port of Brownsville Business Park) currently under development. The two terminals (Ternium and Texas LNG projects) would be required to complete EFH consultation with NMFS before construction, anticipated in 2026 and 2024, respectively. Therefore, we determine that cumulative impacts on EFH and aquatic resources from the Rio Bravo Pipeline combined with construction of transportation improvements and operation of commercial developments and terminals to not be significant.

#### **4.4.1.4 Pipeline Special Status Species**

Vegetation clearing for renewable energy and commercial facilities—and transportation projects to a limited extent—within the same timeframe as the construction of the pipeline would affect wildlife and special status species in the HUC-12. Concurrent vegetation clearing and construction of multiple aboveground facilities would increase noise and light pollution stressors for local fauna and may lead to a reduction in reproductive and foraging success for wildlife species, especially if multiple projects are under construction during the breeding season. Removal of native vegetation, particularly from previously undisturbed wetlands or riparian habitat, would result in habitat loss and possibly population declines for migratory birds, as well as any threatened and endangered species in the HUC-12.

As stated in the 2019 Final EIS and Amendment EAs, the pipeline and all other identified projects in the HUC-12 geographic scope are required to consult with the applicable federal, state, and local jurisdictions. All projects, which received state and federal permits, are required to comply with permit conditions, best management practices, and other stipulations. According to RB Pipeline, all four renewable energy facilities (wind farms) are currently in operation; with two of them (La Chalupa and Las Majadas) having completed ESA Section 7 consultations. While no information was provided for the two wind farms constructed by RWE Clean Energy, L.L.C. or commercial facilities (two Walmart stores), we expect that these projects would adhere to state and local permits and regulations. Lastly, the Titan Fuel Terminal is already in operation and would not result in additional removal of vegetation and habitat loss for wildlife in the area. Operation of these facilities, combined with other projects evaluated in the 2019 Final EIS and Amendment EAs, may have additive impacts on wildlife in the HUC-12 from removal of habitat. Although RB Pipeline did not provide acreage of wildlife habitat affected or vegetation type converted by these other projects, given that these facilities are situated in a region surrounded by agricultural fields with routine disturbance and consequently,

limited suitable habitat available for most federally and state-listed species (i.e., low probability of encounter), we anticipate that cumulative impacts on species with special status to not be significant.

## **4.4.2 Socioeconomics**

### **4.4.2.1 Environmental Justice**

Based on the scope of the Rio Grande LNG Project and our analysis of the Project's impacts on the environment as described throughout this supplemental EIS, we have determined Project-related impacts on wetlands, recreational and subsistence fishing, visual resources, tourism, socioeconomics, road and marine traffic, noise, and air quality may adversely affect the identified CWEJCs (see Appendix F, table F-1). Therefore, cumulative impacts on CWEJCs could occur for these resources.

#### **Wetlands**

##### *Rio Grande LNG Terminal Project*

Of the 24 projects provided by RG LNG, eight were not previously discussed in the final EIS, of which only three were in the same HUC-12 geographic scope as the LNG Terminal (see appendix F, table F-1).<sup>320</sup> Construction and operation of the LNG Terminal would be solely in the HUC-12 sub-watershed BSC – Frontal Laguna Madre (121102080900). The SpaceX Starship / Super Heavy Launch Vehicle Program (SpaceX) project was under construction during the final EIS and is now operational; Port of Brownsville Business Park has ongoing construction; and the Ternium Marine Terminal has an anticipated construction timeframe in 2025/2026. Two other projects (U.S. 77 / I-69 and Route 281 Connector transportation activities), in the same HUC-12, have an unknown timeframe. The LNG terminal and other projects are in the HUC-12 that encompasses the lower stretch of the Rio Grande River are connected to the Gulf of America; thus, the low-lying region has substantial land mass classified as wetlands by USFWS National Wetlands Inventory. These projects would contribute incrementally and cumulatively when added to the impacts from the Rio Grande LNG Terminal. All projects and activities would be required to comply with the CWA by avoiding, minimizing, or mitigating wetland impacts. Therefore, while the proposed LNG Terminal would contribute to cumulative impacts on wetlands, along with other projects in the area, this impact would not be significant.<sup>321</sup>

CWEJCs in the study area would experience cumulative impacts on wetlands from the Project along with additional impacts from the projects within the cumulative geographic scope for wetlands described above. Impacts on CWEJCs from the loss of

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<sup>320</sup> Appendix F, Table F-1.

<sup>321</sup> 2019 FEIS 4-430.

wetland habitat would include a reduction in shoreline and habitat protection for a variety of plant and animal species that can be used for recreation and/or sustenance, and education opportunities. However, as previously discussed, impacts will be appropriately mitigated and cumulative impacts with the addition of the project would be less than significant.<sup>322</sup> Because all impacts would be appropriately mitigated, we further conclude that the overall cumulative wetland impacts on CWEJCs from construction and operation of the Rio Grande LNG Terminal would be less than significant.

### *Rio Bravo Pipeline Project*

Of the 44 projects provided by RB Pipeline, 30 were not evaluated in the cumulative impact analysis for wetlands in the 2019 Final EIS (table F-2 in appendix F). Of these 30 other projects, only the Ternium Marine Terminal were indicated as potentially affecting wetlands and requiring a CWA 404 permits. RB Pipeline did not indicate that any of the projects conducted by the Texas Department of Transportation would affect wetlands. LDEQ may have state-specific conditions for these projects. The proposed pipeline facilities would contribute little to long-term cumulative impacts on wetlands and waterbodies because a majority of the potential impacts would be temporary and short-term.<sup>323</sup> All projects would likely follow BMPs similar to those proposed by RB Pipeline so as to minimize impacts on waterbodies and avoid or minimize impacts on wetlands in accordance with Section 404 of the CWA. Other FERC-regulated projects would be required to adhere to our Procedures, with approved deviations, which minimize impacts on wetlands. In addition, all projects affecting wetlands would be subject to the permitting and mitigation requirements of the COE.<sup>324</sup> Therefore, most of the impacts on wetlands would be of short duration. Consequently, the cumulative effect on wetland and waterbody resources from the proposed Rio Bravo Pipeline in combination with other projects would be temporary and minor.<sup>325</sup>

CWEJCs in the study area would experience cumulative impacts on wetlands from the Project along with additional impacts from the projects within the cumulative geographic scope for wetlands described above. Impacts on CWEJCs would be similar to those for LNG Terminal and would include a reduction in habitat protection for a variety of plant and animal species that can be used for recreation and/or sustenance, and education opportunities. However, as previously discussed, all impacts will be appropriately mitigated and cumulative impacts with the addition of the project would be less than significant. Because all impacts would be appropriately mitigated, we further conclude that the overall cumulative wetland impacts on CWEJCs from construction and operation of the Rio Bravo Pipeline would be less than significant.

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<sup>322</sup> *Id.* at 4-430.

<sup>323</sup> *Id.* at 4-430.

<sup>324</sup> *Id.* at 4-431

<sup>325</sup> *Id.* at 4-431

## **Commercial, Recreational, and Subsistence Fishing**

### *Rio Grande LNG Terminal Project*

The Sunoco Tank Farm, Motus Energy Project, Ternium Marine Terminal Project, Palo Alto Yard Expansion, SpaceX Starship Super Heavy Project, Queen Isabella Causeway Project (see table F-1 in appendix F), in addition to those projects analyzed in the 2019 Final EIS,<sup>326</sup> particularly Texas LNG, would contribute to cumulative impacts on commercial, recreational and subsistence fishing. Rio Grande LNG Project is not anticipated to result in significant impacts on commercial, recreational, and subsistence fishing. The concurrent operation of the LNG projects, Motus Energy, and Port of Ternium Marine Terminal Project, along with other projects within the geographic scope, would result in an increase in vessel traffic transiting the BSC annually. This increase would likely result in additional delays for commercial fishing and recreational vessels that need to transit the BSC to reach the Gulf of America or fishing destinations in the Laguna Madre. Overall, we anticipate that cumulative impacts on commercial, recreational, and subsistence fishing would be permanent and moderate.<sup>327</sup>

CWEJCs in the study area would experience cumulative impacts on fishing, including commercial, recreational, and subsistence fishing due to LNG vessel traffic along with additional impacts from other projects within the cumulative geographic scope for commercial, recreational, and subsistence fishing. Due to the overall size of the waterway and additional available commercial, recreational, and subsistence fishing opportunities in the area, we conclude that the cumulative recreational and subsistence fishing impacts on CWEJCs would be less than significant.

### *Rio Bravo Pipeline Project*

There are no new present or foreseeable future projects within the geographic scope of the Project. Projects analyzed in the 2019 Final EIS,<sup>328</sup> would contribute to cumulative impacts on recreational and subsistence fishing. CWEJCs in the study area would experience cumulative impacts on fishing, including recreational and subsistence fishing, due to sights and sounds from the pipeline construction activities, which may be a nuisance to people fishing in the project vicinity, including at the Zapata boat launch, along with additional impacts from the project within the cumulative geographic scope for recreational and subsistence fishing. Construction of these facilities would not prohibit visitors from using these areas.<sup>329</sup> In general, impacts of construction of the Pipeline System on recreational fishing would be temporary and limited to the period of active construction, which typically would last several days to several weeks in any one area, with the exception

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<sup>326</sup> *Id.* at 4-456 to 4-458.

<sup>327</sup> *Id.* at 4-467.

<sup>328</sup> *Id.* at 4-456 to 4-458.

<sup>329</sup> *Id.* at 4-220.

of the Zapata boat launch, which would be crossed by an HDD that could last up to 10 weeks.<sup>330</sup> Known or designated fishing areas are not known to occur in the inland river and streams that are crossed by the pipeline facilities. Due to the temporary nature of impacts associated with pipeline construction and the limited adverse cumulative recreational and subsistence fishing impacts, we conclude that the cumulative recreational and subsistence fishing impacts on CWEJCs would be less than significant. There would be no cumulative commercial fishing impacts on CWEJCs.

## **Visual Impacts**

### *Rio Grande LNG Terminal Project*

The Sunoco Tank Farm, Motus Energy Project, Port of Brownsville Business Park, Element Fuels Complex, Ternium Marine Terminal Project, Palo Alto Yard Expansion, SpaceX Starship Super Heavy Project, and Queen Isabella Causeway Project (see table F-1 in appendix F), in addition to those projects analyzed in the 2019 Final EIS<sup>331</sup>, particularly Texas LNG, would contribute to cumulative visual impacts. The physical facilities of the Rio Grande LNG Terminal would result in permanent and moderate changes in the existing viewshed for people when they are near the terminal,<sup>332</sup> along with additional impacts from the projects within the cumulative geographic scope for visual resources. Those affected include individuals from CWEJCs recreating near the Rio Grande LNG Terminal (e.g., Laguna Atascosa National Wildlife Refuges) as well as passersby traveling on SH-48. The 2019 Final EIS concluded because the Texas LNG Terminal has the potential to result in significant visual impacts, that cumulative impacts on visual resources from the Rio Grande LNG Terminal, when considered with other projects, would be potentially significant.<sup>333</sup> The physical facilities of the LNG terminal and the aboveground facilities associated with the pipeline project would result in a permanent and moderate changes in the existing viewshed for nearby visual receptors,<sup>334</sup> including those from CWEJCs. In addition, the Texas LNG Terminal site, which is immediately adjacent to the Rio Grande LNG Terminal site, has the potential to result in significant visual impacts.<sup>335</sup> We continue to conclude that cumulative impacts on visual resources, when considered with other projects within the cumulative geographic scope for visual resources, would be potentially significant.<sup>336</sup>

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<sup>330</sup> *Id.*

<sup>331</sup> *Id.* at 4-456 to 4-458.

<sup>332</sup> *Id.* at 4-459.

<sup>333</sup> *Id.*

<sup>334</sup> *Id.*

<sup>335</sup> *Id.*

<sup>336</sup> We continue to reach this conclusion notwithstanding the fact that the cancelled Annova LNG project is no longer included in the cumulative analysis.

### *Rio Bravo Pipeline Project*

There are no new projects within the visual geographic scope of the Rio Bravo Pipeline. Construction of the Pipeline System would contribute to cumulative impacts on the viewshed along with additional impacts from the project within the cumulative geographic scope for visual resources (see appendix F, table F-1). Cumulative impacts would generally be temporary to short-term in nature.<sup>337</sup> Given the lack of visual receptors in the vicinity of aboveground facilities associated with the pipeline project, their contribution to cumulative visual impacts would be permanent, but minor.<sup>338</sup> Following construction, the areas associated with the Pipeline System would be restored in accordance with the project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Procedures.<sup>339</sup> We conclude that overall potential significant cumulative visual resources impacts on CWEJCs would occur, along with additional impacts from the projects within the cumulative geographic scope for visual;<sup>340</sup> however, the Rio Bravo Pipeline's contribution to these impacts would be less than significant.<sup>341</sup>

### **Tourism Impacts**

#### *Rio Grande LNG Terminal Project*

The Ternium Marine Terminal Project (see table F-1 in appendix F), in addition to those projects analyzed in the 2019 Final EIS,<sup>342</sup> particularly Texas LNG, would contribute to cumulative impacts on tourism. Cumulative impacts on tourism would likely occur as a result of cumulative impacts on recreation areas, visual resources, and traffic, all of which are discussed in this section. Many visitors to the Brownsville-Harlingen MSA participate in beach activities.<sup>343</sup> As the beach is directed away from the LNG terminals, this activity is not likely to be affected by the projects. However, it would be speculative to predict how the addition of the LNG projects would affect individual values and decisions of whether to visit Cameron County. However, as previously discussed, the LNG projects are anticipated to have a significant cumulative impact on visual resources from some recreational areas including the Laguna Atascosa NWR.<sup>344</sup> Although the land proposed to be developed for the LNG projects is zoned for industrial use, the concurrent construction and operation of large industrial facilities as well as the associated non-jurisdictional facilities and the yet to be constructed Port of Brownsville Projects would result in some

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<sup>337</sup> *Id.* at 4-459.

<sup>338</sup> *Id.*

<sup>339</sup> The Plan and Procedures are a set of construction and mitigation measures developed to minimize the potential environmental impacts of the construction of pipeline projects.

<sup>340</sup> Appendix F, Table F-1.

<sup>341</sup> 2019 Final EIS at 4-459.

<sup>342</sup> *Id.* at 4-456 to 4-458.

<sup>343</sup> *Id.* at 4-466.

<sup>344</sup> *Id.* at 4-466.

amount of change of the character of the landscape.<sup>345</sup> The concurrent operation of the LNG projects would result in an increase in vessel traffic transiting the BSC annually. This increase would likely result in additional delays for recreational vessels that need to transit the BSC to reach the Gulf of America or fishing destinations in the Laguna Madre (fishing is discussed further above). Overall, we anticipate that cumulative impacts on tourism would be permanent and moderate.<sup>346</sup>

CWEJCs in the study area would experience cumulative impacts on tourism from the LNG Terminal<sup>347</sup> along with additional impacts from the projects within the cumulative geographic scope for tourism. These tourism impacts could cause some visitors from CWEJCs to choose to vacation elsewhere or alter their recreation activities to destinations in the region that are further from the project sites. These potential changes in visitation patterns could also impact individuals from CWEJCs should they be employed by the tourism industry. However, as previously described, tourism impacts with the addition of the project would be less than significant.<sup>348</sup> Given the availability of recreational opportunities further from the LNG Terminal site, we further conclude that the overall cumulative tourism impacts on CWEJCs would be less than significant.

#### *Rio Bravo Pipeline Project*

There aren't any new present or foreseeable future projects within the geographic scope of the Project. Projects analyzed in the 2019 Final EIS,<sup>349</sup> would contribute to cumulative impacts on tourism. Impacts of construction of the Rio Bravo Pipeline on nature-oriented tourism sites would be temporary and limited to the period of active construction, which typically would last several days to several weeks in any one area.<sup>350</sup> Operational impacts, including the permanent conversion of aboveground facility sites to industrial/commercial land, would result in negligible impacts on tourism based on their placement outside of main tourism areas.<sup>351</sup> Construction or ongoing restoration of these projects at the same time as, and at locations proximal to, the Rio Bravo Pipeline would result in temporary cumulative impacts on the recreation and special use areas due to increased noise and dust, and limited access. However, given that pipeline construction would be temporary in any one area, cumulative impacts would be short-term.<sup>352</sup>

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<sup>345</sup> *Id.* at 4-467.

<sup>346</sup> *Id.* at 4-467.

<sup>347</sup> *Id.*

<sup>348</sup> *Id.*

<sup>349</sup> *Id.* at 4-456 to 4-458.

<sup>350</sup> *Id.* at 4-467.

<sup>351</sup> *Id.*

<sup>352</sup> *Id.*

Therefore, the pipeline facilities would not contribute to significant cumulative impacts on tourism.<sup>353</sup>

As previously described, CWEJCs in the study area would experience cumulative impacts on tourism from the Rio Bravo Pipeline<sup>354</sup> along with additional impacts from the projects within the cumulative geographic scope for tourism. Impacts with the addition of the Pipeline System would be less than significant.<sup>355</sup> Given the distance from main tourism areas, and the availability of recreational opportunities further from the facility sites, we further conclude that the overall cumulative tourism impacts on CWEJCs would be less than significant.

### **Socioeconomic Impacts**

#### *Rio Grande LNG Terminal Project*

The Sunoco Tank Farm, Motus Energy Project, Port of Brownsville Business Park, La Chalupa Wind Farm Extension of Palmas Altas Wind Farm, Element Fuels Complex, Ternium Marine Terminal Project, Palo Alto Yard Expansion, Restoration of Freshwater Flows in Laguna Larga-Laguna Atascosa National Wildlife Refuge, SpaceX Starship Super Heavy Project, Queen Isabella Causeway Project, and various road projects (see table F-1 in appendix F), in addition to those projects analyzed in the 2019 Final EIS,<sup>356</sup> particularly Texas LNG, would contribute to cumulative impacts on socioeconomics. Based on the number of available rental units and motels/hotels in Project area, it is anticipated that there would be sufficient housing available for the anticipated peak Project workforce for the Rio Grande LNG Project when cumulatively considered with the Texas LNG<sup>357</sup> and the other projects within the geographic scope. While Texas LNG may be constructed concurrently with the proposed Project, and non-local workers for these projects are expected to find housing in similar areas, and specifically Cameron County, the county has sufficient temporary housing to accommodate the influx of workers. Similarly, the increased need for public services and school enrollment to support non-local workers and their families for the Rio Grande LNG Project and other projects would be spread across the geographic scope. Further, with the expected increase in local taxes and government revenue associated with the proposed projects, we conclude that cumulative impacts on available housing and public services during construction of the LNG Terminal would be temporary and minor.<sup>358</sup> Operation of the Project would require

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<sup>353</sup> *Id.*

<sup>354</sup> *Id.*

<sup>355</sup> *Id.*

<sup>356</sup> *Id.* at 4-456 to 4-458.

<sup>357</sup> *Id.* at 4-463.

<sup>358</sup> *Id.*

128 new full-time workers and would, with other projects in the vicinity, contribute to minor cumulative impacts on housing resources and public services.<sup>359</sup>

CWEJCs in the study area would experience cumulative impacts on socioeconomic resources from the LNG Terminal, as previously described, along with additional impacts from the projects within the cumulative geographic scope for socioeconomic resources. Given that community facilities would continue to operate adequately and the availability of housing units in the affected area, we further conclude that the cumulative socioeconomic impacts on CWEJCs from construction and operation of the Rio Grande LNG Terminal would be less than significant.

### *Rio Bravo Pipeline Project*

The Sunoco Tank Farm, Motus Energy Project, Port of Brownsville Business Park, La Chalupa Wind Farm Extension of Palmas Altas Wind Farm, Element Fuels Complex, Ternium Marine Terminal Project, Palo Alto Yard Expansion, Restoration of Freshwater Flows in Laguna Larga, in Laguna Atascosa National Wildlife Refuge, SpaceX Starship Super Heavy Project, Queen Isabella Causeway Project, and various road projects (see table F-1 in appendix F), in addition to those projects analyzed in the 2019 Final EIS,<sup>360</sup> would contribute to cumulative impacts on socioeconomics. The influx of non-local workers would affect the availability of housing in Jim Wells, Kleberg, Kenedy, Willacy, Cameron, and Hidalgo Counties.<sup>361</sup> There is an adequate amount of vacant temporary housing in the geographic scope. However, with concurrent construction of larger projects identified in table F-2 in appendix F, transient housing could be limited and non-local workers unable to find acceptable housing in these counties would be forced to obtain housing in neighboring counties such as Brooks and Starr Counties resulting in longer commutes. The cumulative impact on local housing may result in increased rental rates and housing shortages for lodging if all of the proposed and planned projects are implemented according to the expected timeframes. This would adversely affect those seeking housing, particularly individuals in CWEJCs. As described above for the LNG Terminal, the combined construction workforces of projects would increase the need for some public services; the need for those services would generally be spread throughout the counties that house the workforce. Given only a small population increase, the Pipeline System's contribution to the cumulative impact on medical and emergency services in the geographic scope during construction would likely be occasional and minor.<sup>362</sup> As discussed for the LNG Terminal, some workers may bring their families, increasing enrollment at local schools. However, given construction of the Rio Bravo Pipeline would occur over a 12-month period and be separated by an 18-month gap, it unlikely that the

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<sup>359</sup> *Id.*

<sup>360</sup> *Id.* at 4-456 to 4-458.

<sup>361</sup> *Id.* at 4-462.

<sup>362</sup> *Id.* at 4-463.

non-local workers would be accompanied by family members. Therefore, cumulative impacts on schools from construction of RB Pipeline's facilities would be negligible.<sup>363</sup>

CWEJCs in the study area would experience cumulative impacts on socioeconomic resources from the Rio Bravo Pipeline, as previously described, along with additional impacts from the projects within the cumulative geographic scope for socioeconomic resources. Impacts with the addition of the project would be less than significant.<sup>364</sup> Given that community facilities would continue to operate adequately and the availability of housing units in the affected area, we further conclude that the cumulative socioeconomic impacts on CWEJCs from construction and operation of the Rio Bravo Pipeline would be less than significant.

## **Water**

### *Rio Grande LNG Terminal Project*

The Sunoco Tank Farm, Motus Energy Project, Port of Brownsville Business Park, La Chalupa Wind Farm Extension of Palmas Altas Wind Farm, Element Fuels Complex, Ternium Marine Terminal Project, Palo Alto Yard Expansion, Restoration of Freshwater Flows in Laguna Larga-Laguna Atascosa National Wildlife Refuge, SpaceX Starship Super Heavy Project, Queen Isabella Causeway Project, and various road projects (see table F-1 in appendix F), in addition to those projects listed in the 2019 Final EIS,<sup>365</sup> would contribute to cumulative impacts on water. Construction of the proposed Project and other projects, if they were to occur simultaneously, would contribute to a moderate impact to water availability based on the current data.<sup>366</sup>

CWEJCs in the study area would experience cumulative impacts associated with water availability. The BPUB is currently encouraging all its customers to implement the recommended water conservation methods to minimize impacts on water. However, the BPUB in their 2025 Water Strategy<sup>367</sup> plan has outlined the steps the board is taking to ensure that there would be water available for the projected population growth and expanding industries. Therefore, we conclude that the overall cumulative water impact on CWEJCs from construction and operations of the Rio Grande LNG project would be less than significant.

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<sup>363</sup> *Id.*

<sup>364</sup> *Id.*

<sup>365</sup> *Id.* at 4-396 to 4-409.

<sup>366</sup> Texas Water Development Board, <https://www.twdb.texas.gov/waterplanning/rwp/plans/index.asp>, Accessed June 2025.

<sup>367</sup> Brownsville Public Utilities Board, <https://www.brownsville-pub.com/utility-services/water-wastewater/2025-bpub-water-strategy/>, Accessed June 2025.

## **Road Traffic Impacts**

### *Rio Grande LNG Terminal Project*

The Sunoco Tank Farm, Motus Energy Project, Port of Brownsville Business Park, La Chalupa Wind Farm Extension of Palmas Altas Wind Farm, Element Fuels Complex, Ternium Marine Terminal Project, Palo Alto Yard Expansion, Restoration of Freshwater Flows in Laguna Larga-Laguna Atascosa National Wildlife Refuge, SpaceX Starship Super Heavy Project, Queen Isabella Causeway Project, and various road projects (see table F-1 in appendix F), in addition to those projects analyzed in the 2019 Final EIS,<sup>368</sup> particularly Texas LNG, would contribute to cumulative impacts on road traffic. Based on the results of the commissioned studies for the proposed Project and other LNG terminal projects, in conjunction with RG LNG's proposed roadway improvements, the Rio Grande LNG Project and other projects would contribute to a moderate cumulative impact on roadways during the 7-year construction period.<sup>369</sup> The greatest cumulative impacts would occur during concurrent construction of the Rio Grande LNG and Texas LNG terminals. Project-related construction traffic would not lead to LOS D or worse on road segments or at intersections along SH 48.<sup>370</sup> Rio Grande has and will continue to implement the mitigation measures to minimize traffic impacts.<sup>371</sup> The proposed Project would contribute to a permanent, but negligible impact on roadway transportation during operations with the Texas LNG Project, since the operational traffic associated with the projects will be within the capacity of existing roadways.<sup>372</sup>

CWEJCs in the study area would experience cumulative impacts associated with road traffic from the LNG Terminal, as previously described, along with additional impacts from the projects within the cumulative geographic scope for traffic. Cumulative impacts on road traffic with the addition of the project would be less than significant.<sup>373</sup> Impacts on CWEJCs would be as described above. We conclude that the overall cumulative road traffic impacts on CWEJCs from construction and operation of the Rio Grande LNG project would be less than significant.

### *Rio Bravo Pipeline Project*

The Sunoco Tank Farm, Motus Energy Project, Port of Brownsville Business Park, La Chalupa Wind Farm Extension of Palmas Altas Wind Farm, Element Fuels Complex, Ternium Marine Terminal Project, Palo Alto Yard Expansion, Restoration of Freshwater

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<sup>368</sup> *Id.* at 4-456 to 4-458.

<sup>369</sup> *Id.* at 4-465.

<sup>370</sup> RG LNG October 21, 2024 Response to Commission staff's September 30, 2024 Environmental Information Request at 12.

<sup>371</sup> *Id.* at 11.

<sup>372</sup> 2019 Final EIS at 4-465.

<sup>373</sup> *Id.*

Flows in Laguna Larga-Laguna Atascosa National Wildlife Refuge, SpaceX Starship Super Heavy Project, Queen Isabella Causeway Project, and various road projects (see table F-1 in appendix F), in addition to those projects analyzed in the 2019 Final EIS,<sup>374</sup> particularly Texas LNG, would contribute to cumulative impacts on road traffic. Construction of the Pipeline System could result in temporary impacts on road traffic in some areas and could contribute to cumulative traffic, parking, and transit impacts if other projects are scheduled to take place at the same time and in the same area.<sup>375</sup> Rio Bravo Pipeline has stated that it would provide adequate parking for workers to ensure that parking on the shoulders of major roads is avoided and install warning signs on roadways to notify travelers of construction activities.<sup>376</sup> If traffic congestion occurs during construction, Rio Bravo Pipeline would consider implementing additional measures, including, but not limited to, scheduling truck deliveries between peak commuting times, rerouting truck traffic to avoid busy roadways, and implementing temporary traffic signals. The addition of traffic associated with construction personnel commuting to and from the right-of-way could also contribute to cumulative regional traffic congestion. However, any cumulative traffic impacts would be temporary and short-term.<sup>377</sup> Workers associated with the Rio Bravo Pipeline would generally commute to and from the pipeline right-of-way, contractor yards, or aboveground facility sites during off-peak traffic hours (e.g., before 7:00 a.m. and after 6:00 p.m.). It is unlikely that other projects listed in appendix F, table F-1 would have similar commuting schedules or reach peak traffic conditions simultaneously.

CWEJCs in the study area would experience cumulative impacts associated with traffic from the Rio Bravo Pipeline, as described above, along with additional impacts from the projects within the cumulative geographic scope for traffic. Cumulative impacts on road traffic would be less than significant.<sup>378</sup> We further conclude that the overall cumulative traffic impacts on CWEJCs from construction and operation of the Rio Bravo Pipeline would be less than significant.

### **Marine Traffic Impacts**

#### *Rio Grande LNG Terminal Project*

An individual commented that cumulative impacts considering ship traffic and closure of jetties is needed to ensure adequate analysis of environmental justice concerns to access to natural resources and to minimize impacts. The Ternium Marine Terminal Project (see table F-1 in appendix F), in addition to those projects analyzed in the 2019

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<sup>374</sup> *Id.* at 4-456 to 4-458.

<sup>375</sup> *Id.* at 4-464.

<sup>376</sup> *Id.* at 4-465.

<sup>377</sup> *Id.*

<sup>378</sup> *Id.*

Final EIS,<sup>379</sup> particularly Texas LNG, would contribute to cumulative impacts on marine traffic. RG LNG estimates that 880 barge deliveries would occur during the 7-year construction period for the Rio Grande LNG Terminal to supplement truck transport of construction materials. Similarly, Texas LNG Projects would include 109 deliveries.<sup>380</sup> Construction of the Rio Grande LNG Terminal and other projects are likely to temporarily increase barge and support vessel traffic in the BSC. Concurrent construction would likely result in a cumulative impact on vessel traffic in the waterway, primarily by increasing vessel travel times due to congestion.<sup>381</sup>

During operations, about 312 LNG carriers would call on the Rio Grande LNG Terminal per year; about 74 LNG carriers per year would call on the Texas LNG Terminal.<sup>382</sup> During operations, LNG carriers calling on the Rio Grande LNG Terminal and other LNG facilities along the BSC vessels would have moving security zones that would preclude other vessels from transiting the waterway. Mandates for prior notice of expected arrivals would minimize impacts on other vessels. As a result, we conclude that there would be a moderate cumulative impact on vessel traffic in the BSC during construction and operation of the Project.<sup>383</sup>

CWEJCs in the study area would experience cumulative impacts associated with marine traffic from the LNG Terminal, as previously described, along with additional impacts from the projects within the cumulative geographic scope. Cumulative impacts on marine traffic would be less than significant.<sup>384</sup> We conclude that the overall cumulative marine traffic impacts on CWEJCs from construction and operation of the Rio Grande LNG Terminal would be less than significant.

#### *Rio Bravo Pipeline Project*

No cumulative marine traffic impacts on CWEJCs are anticipated for the Rio Bravo Pipeline.

### **Air Quality Impacts**

#### *Rio Grande LNG Terminal Project*

Emissions from overlapping construction and operation of the Rio Grande LNG Project would likely be greatest during years 2 and 3 of construction.<sup>385</sup> However, the cumulative impact would be less than analyzed in the final EIS, and less likely to result in

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<sup>379</sup> *Id.* at 4-456 to 4-458.

<sup>380</sup> *Id.* at 4-465.

<sup>381</sup> *Id.* at 4-466.

<sup>382</sup> *Id.* at 4-465.

<sup>383</sup> *Id.* at 4-466.

<sup>384</sup> *Id.*

<sup>385</sup> *Id.* at 4-471 to 4-473.

a NAAQS exceedance in the immediate vicinity of the Rio Grande LNG Terminal during these construction years<sup>386</sup> due to Annova LNG's subsequent withdrawal of its application, and the elimination of Compressor Station 3 as part of the Project modifications analyzed in the Amendment EA. With the exception of annual PM<sub>2.5</sub>, we find that operation of the Rio Grande LNG Terminal would not cause a statistically significant ambient air impact in comparison to the NAAQS, and the facilities de minimis contribution along with concurrent operations associated with other modeled projects within the geographic scope for air quality are not expected to result in a NAAQS exceedance.<sup>387</sup> For annual PM<sub>2.5</sub>, the local ambient concentrations are above the existing NAAQS, and while the majority of the area is below SILs and not statistically significant, there are two discrete areas just north of the LNG terminal, within the Laguna Atascoca National Wildlife Refuge, where the cumulative model shows an exceedance of the annual PM<sub>2.5</sub> SIL, and thus we conclude air quality impacts in those areas would be significant. There are no permanent residences or other usages in these areas in which annual levels of exposure could occur, and the overall impact is below the secondary annual PM<sub>2.5</sub> NAAQS and the 24-hour PM<sub>2.5</sub> NAAQS.

We conducted a Risk Assessment in accordance with the EPA's HHRAP guidance to evaluate the potential for short- and long-term health effects due to inhalation exposure to HAPs as a result of Project related emissions. The results indicated that no individual HAP has an estimated adult or child resident inhalation cancer risk above EPA's lower bound risk of 1-in-1 million (1E-06). The total cancer risks summed across all HAPs are below the EPA's target of 1-in-100,000 (1E-05) for a single facility. This 1-in-100,000 individual facility risk management objective is ten times more stringent than the highest cancer risk that EPA deems acceptable (1 in 10,000) to account for potential exposure to background levels of air contaminants. Therefore, this facility risk management objective addresses the potential for cumulative risk (i.e., risk associated with multiple HAPs and other sources in the area). Therefore, the Project represents a 0.8% and 0.16% increase in adult and child cancer risk due to HAPs respectively. The non-cancer HQ for the adult and child Resident RME receptor would be 0.146, which is below the benchmark HI of 1.0. Therefore, we conclude that risk from inhalation of HAPS from the RG LNG Project would not be significant.

CWEJCs in the study area would experience cumulative impacts on air quality due to impacts previously discussed<sup>388</sup> along with additional impacts from the projects within the cumulative geographic scope for air quality (see appendix F, table F-1). Cumulative impacts would be significant for annual PM<sub>2.5</sub> in the two discrete areas identified north of and adjacent to the terminal, where no residences exist; however, for the remainder of the modeled pollutants and areas within the geographic scope, cumulative air quality impacts

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<sup>386</sup> *Id.* 5-15.

<sup>387</sup> *Id.* at 4-478 to 4-479; Amendment EA at 28.

<sup>388</sup> *Id.* at 4-479; Amendment EA at 41-44.

on CWEJCs from construction and operation of the Rio Grande LNG Terminal would be less than significant.

#### *Rio Bravo Pipeline Project*

No projects are within the geographic scope of the Rio Bravo Pipeline's operational emission sources; therefore, no cumulative air quality emissions would result.

### **Noise Impacts**

#### *Rio Grande LNG Terminal Project*

CWEJCs in the study area would experience cumulative impacts associated with noise from the Rio Grande LNG Terminal, along with additional impacts from the projects within the cumulative geographic scope for noise, particularly cumulative impacts related to construction of the Texas LNG Terminal (see appendix F, table F-1).<sup>389</sup> The construction and operation of the Rio Grande LNG Terminal and Texas LNG Terminal would not result in significant noise impacts on local residents and the surrounding communities, including CWEJCs. Regarding nighttime construction noise, the only 24-hour construction proposed at the Rio Grande LNG Terminal would be dredging, the estimated sound level from dredging associated with the Rio Grande LNG Terminal at the nearest NSAs would be below existing ambient sound levels, and noise associated with dredging activities is not expected to be perceptible.<sup>390</sup> The 2019 Final EIS determined that the predicted sound level impacts for simultaneous operation of the LNG projects (Rio Grande LNG and Texas LNG) are much lower than the construction impacts, with potential cumulative sound level increases between 0.3 and 1.5 dBA L<sub>dn</sub> at NSAs, resulting in a negligible to minor cumulative impact. Noise from intermittent Space X launches would add to overall noise within the region.<sup>391</sup> We conclude that the overall cumulative noise impacts on CWEJCs from construction and operation of the Rio Grande LNG Terminal would be less than significant.

#### *Rio Bravo Pipeline Project*

The 2019 Final EIS concluded that CWEJCs in the study area would experience cumulative impacts related to noise from the Rio Bravo Pipeline, as previously described, along with additional impacts from the projects within the cumulative geographic scope

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<sup>389</sup> Appendix F, Table F-1.

<sup>390</sup> We note that the final EIS found that the Annova LNG Project's nighttime pile-driving would result in significantly higher noise levels resulting in significant cumulative noise impacts if the Annova LNG Project was constructed concurrent with the Rio Grande LNG Terminal's nighttime dredging activities. Nevertheless, as noted above, the authorization for the Annova LNG Project has been vacated, and the Rio Grande LNG Terminal's contribution to cumulative nighttime construction noise would be negligible.

<sup>391</sup> Appendix D - Launch Noise Modeling Report, SpaceX Texas Launch Site Environmental Impact Statement, FAA, 2014

for noise (see appendix F, table F-1).<sup>392</sup> These project impacts are further described in section 4.8.7. Impacts from the addition of the project would be less than significant.<sup>393</sup> We conclude that overall cumulative noise impacts on CWEJCs from construction and operation of the Rio Bravo Pipeline would be less than significant.

#### 4.4.3 Air Quality

The geographic scope for assessment of cumulative impacts on air quality during construction of the proposed Rio Grande LNG Project is the area within 0.5 mile of the proposed pipeline facilities and within 1.0 mile of the LNG Terminal, because construction emissions would be highly localized (see table 4-4).

The projects within the geographic scope for the Project identified in the cumulative impacts table in appendix F that have not previously been incorporated into the cumulative impacts analysis within the final EIS include: the US 77 / I-69 highway construction project; Port of Brownville Business Park; the 281 Connector Project; the Ternium Marine Terminal Project; 10 roadway preventative maintenance and rehab – seal coat projects (State Highway 285; FM 3142; State Highway 186; FM 498; FM 1420; FM 2925; FM 1847; FM 106; FM 510, and State Highway 100); and one highway safety improvement project (FM 3069). As concluded in the 2019 Final EIS, construction of the Rio Bravo Pipeline, with other projects in the geographic scope, would contribute to minor, temporary impacts on air quality.<sup>394</sup> Of these projects, the US 77 / I-69 project and the 10 roadway preventative maintenance projects are likely to have the greatest potential to result in cumulative air impact when combined with concurrent Rio Bravo Pipeline construction. Currently underway, the US 77 / I-69 project may be completed over a three-year period depending on funding availability (MyRGV 2024), and the 10 roadway preventative maintenance projects would occur over 4 years.

The Rio Bravo Pipeline's construction would utilize various numbers and types of equipment at each stage of construction along the pipeline's construction right-of-way, and emissions produced from the equipment and activities would be temporary and local as construction proceeds along the right-of-way.<sup>395</sup> Cumulative air quality impacts may occur from concurrent construction of the Rio Bravo Pipeline and other identified projects would be temporary, minor, localized, and only occur at times when these project activities are taking place within the geographic scope. Therefore, we do not expect that construction emission from these additional projects combined with the Rio Bravo Pipeline construction emissions, would change the conclusions of cumulative air quality construction impacts as

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<sup>392</sup> Appendix F, Table F-1.

<sup>393</sup> 2019 Final EIS at 4-494 to 4-495.

<sup>394</sup> 2019 Final EIS at 4-474.

<sup>395</sup> 2019 Final EIS at 4-296.

stated in the 2019 Final EIS; that construction would not have a significant cumulative impact.

There would be no projects within the geographic scope of the Rio Grande LNG Terminal's construction. As mentioned in section 4.3.1.3, a large portion<sup>396</sup> of the construction activities have been completed for the Rio Grande LNG Terminal. Currently, background concentrations of particulate matter are above the annual PM<sub>2.5</sub> NAAQS so any additional large sources of PM emissions have the potential to have adverse effects. However, considering this and the lack of construction of additional facilities in the area, as well as our previous condition in the 2023 Remand Order that the RG LNG would need to monitor emissions during overlapping construction, commissioning and operations,<sup>397</sup> our conclusion stands that there would be no significant cumulative impacts from construction.

No projects are within the geographic scope of the Rio Bravo Pipeline's operation. Cumulative impacts from Compressor Station 1 were identified in the 2020 Amendment Project and the emissions from Compressor Station 1 would not cause or contribute to contribute to exceedances of the NAAQS.

As stated in the 2019 Final EIS, operational air emissions from the Rio Grande LNG Project would contribute to permanent cumulative impacts when considered with other projects in the geographic scope, and would be required to comply with applicable air quality regulations.<sup>398</sup> As concluded in section 4.2 above, a cumulative air impact modeling analysis for the Rio Grande LNG Terminal indicates that the modeled emissions of criteria pollutants from operation of the terminal at maximum emission rates, when added to the ambient background concentration data obtained from the Isla Blanca air quality monitoring station and other TCEQ-inventoried emission sources in the terminal's area, would either result in no meaningful change to the ambient environment, or otherwise fall below the NAAQS for all modeled criteria pollutants except PM<sub>2.5</sub>. Therefore, these impacts would not be significant. As further concluded in section 4.2 for 24-hour PM<sub>2.5</sub>, although the existing background concentrations in the local area exceed the NAAQS, the Rio Grande LNG Terminal's modeled contribution to 24-hour PM<sub>2.5</sub> concentrations are below the SIL and the PSD regulation thresholds under 40 CFR51.165(b)(2) and thus

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<sup>396</sup> As documented in Rio Grande LNG's October 31, 2022 status report, construction of the Rio Grande LNG Terminal began in October 2022; therefore, it is likely that estimated emissions for construction years 1 and 2 in table 4.11.1-4 of the final EIS have already occurred as of the date of issuance of this supplemental EIS.

<sup>397</sup> We note that subsequent to the issuance of the final EIS, the application for the Annova LNG Terminal, included in the final EIS's assessment of cumulative air quality impact, was withdrawn. In addition, as part of the Amendment EA, Rio Bravo eliminated Compressor Station 3, within the Rio Grande LNG Terminal's footprint, from the pipeline's design. Further, as noted, although much of the construction of the Rio Grande LNG Terminal has already completed, construction of the Texas LNG Terminal has not yet commenced. Therefore, for these reasons, the cumulative air quality impact that may occur during overlapping construction, commissioning, and operations of the Rio Grande LNG Terminal would likely be less than evaluated in the final EIS.

<sup>398</sup> 2019 Final EIS at 4-479.

would not result in meaningful increases of ambient air 24-hour PM<sub>2.5</sub> concentrations and would not be significant. For annual PM<sub>2.5</sub>, the existing background concentrations in the local area exceed the NAAQS from pre-existing sources reflected in data collected by the Isla Blanca monitoring station as well as other offsite emission sources in the TCEQ emission inventory, and the facility contributions would exceed the SIL in two locations north of the terminal, and thus impacts would be significant in these limited areas. For the remainder of locations within the cumulative model, RG LNG's emission contributions to annual PM<sub>2.5</sub> at any NAAQS exceedance location would be below the respective SIL and thus would not have a significant impact on regional air quality.

We received comments noting air quality is at “dangerous” EPA Air Quality Index AQI levels, and particulate matter from SpaceX launch and re-launch debris, sugar cane burning, and Saharan dust is of concern. We note that the sources identified by these commenters contribute to overall background concentrations recorded by ambient air monitors, and are therefore captured by the ambient background concentrations included in the cumulative air impact modeling analysis presented in section 4.2, above.

### Conclusion

Construction and operation of the of the Rio Grande LNG Terminal in combination with sources within the geographic scope described above would not result in a significant cumulative impact on regional air quality for modeled pollutants NO<sub>2</sub>, CO, PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and SO<sub>2</sub>. For the annual PM<sub>2.5</sub> standard, the local ambient concentrations are above the existing NAAQS, and while the majority of the area is below SILs and not statistically significant, there are two discrete areas just north of the LNG terminal where the cumulative model shows an exceedance of the annual PM<sub>2.5</sub> SIL, and thus we conclude air quality impacts in those areas would be significant.

## 5 CONCLUSIONS AND RECOMMENDATIONS

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### 5.1 CONCLUSIONS OF THE ENVIRONMENTAL ANALYSIS

The conclusions and recommendations in this supplemental EIS are those of the FERC environmental staff. Our determinations are based on our review of information filed by RG LNG and RB Pipeline, and further developed from data requests, scoping comments, and literature research.

Based on the analysis in the supplemental EIS, FERC staff continues to conclude that Project impacts on CWEJCs from construction and operation of the LNG terminal, Meter Stations HS1, HS2, HS3, HS4, and the meter station at the LNG Terminal, Contractor Yards 1, 2 and 3, and a majority of the 135-mile pipeline, would be disproportionate and adverse because impacts would be predominately borne by the CWEJCs. Furthermore, CWEJCs in the areas near the Rio Grande LNG Terminal may experience significant cumulative visual impacts. Specific to air quality impacts, we clarify that the Project's air quality impacts on CWEJCs would also be disproportionate and adverse; however, RG LNG's air quality analysis demonstrates that air quality impacts near the Rio Grande LNG Terminal would not be significant, with the exception of two discrete areas just north of the LNG terminal where the cumulative model shows an exceedance of the annual PM<sub>2.5</sub> SIL, and thus we conclude air quality impacts in those areas would be significant. For the remainder of criteria pollutants and locations, the project's modeled emissions combined with other TCEQ-inventoried emission sources in the area and ambient concentrations obtained from the Isla Blanca monitor and other air quality monitors would be either below the NAAQS or result in no meaningful change to the ambient environment, falling within the day-to-day variability of existing concentrations recorded by the monitors. Specific to air quality impacts from the Rio Bravo Pipeline, we received revised air quality dispersion modeling that shows that impacts from Compressor Station 1 would not exceed the NAAQS. Therefore, air quality impacts on CWEJCs from operation of Compressor Station 1 would be less than significant. We continue to conclude that project-related impacts on CWEJCs associated with wetlands, surface water, recreational and subsistence fishing, tourism, socioeconomics, traffic, and noise would be less than significant.

The supplemental EIS also updates ESA consultation to account for ESA species newly listed since the issuance of the 2019 Final EIS and two Amendment EAs. We recommend that any Commission order authorizing the Rio Bravo Pipeline require that construction not begin until staff completes ESA consultation. We requested that RG LNG and RB Pipeline file additional information during the draft supplemental EIS comment period to update state-listed species consultation and clarify mitigation measures for the Texas tortoise. In their comments on the draft supplemental EIS, RG LNG clarified that section 4.1.2 already noted their communication with TPWD and agreement to mitigation measures recommended by TPWD. Nonetheless, RG LNG states that "Rio Grande will continue to adhere to the TPWD recommendations regarding the Texas tortoise at the

Brownsville offsite parking and storage location.” In addition, RB Pipeline submitted documentation, dated May 12, 2025, indicating that TPWD has no issues and agrees with the species determinations listed in RB Pipeline’s November 22, 2024 Updated Request for Comment, due to an update of state-listed species since the issuance of the 2019 Final EIS. TPWD indicated concurrence with RB Pipeline’s no effect determination for 16 state-listed species and no significant impacts for two threatened species.

For all other resources, FERC staff continues to conclude that approval of the Projects would result in less than significant impacts, with implementation of the environmental conditions set forth in the Commission’s prior authorizations for the project, and the additional mitigation measures recommended below.

Finally, staff does not recommend the CCS Alternative. We have determined that RG LNG and RB Pipeline’s proposed Project, as modified by our recommended mitigation measures, is the preferred alternative than can meet the Project objectives.

## 5.2 FERC STAFF RECOMMENDED MITIGATION

If the Commission reauthorizes the Rio Grande LNG Project, we recommend that the following measures be included as specific conditions in the Commission’s Order. We have determined that these measures would further mitigate the environmental impacts associated with the construction and operation of the Rio Grande LNG Project. We recommend that all applicable conditions of the Commission’s 2019 Authorization Order, 2023 Remand Order, and 2024 Route Amendment Order shall apply to the Project, if approved, and therefore we are not repeating those conditions here. In particular, we note Environmental Condition 53 regarding Emergency Response Plans and Environmental Condition 54 regarding an updated Cost Sharing Plan were modified in the 2023 Remand Order and we recommend those conditions continue to apply to the Project, if approved.

1. RG LNG and RB Pipeline shall comply with all conditions of the Commission’s 2019 Authorization Order, 2023 Remand Order, and 2024 Route Amendment Order.
2. RB Pipeline shall **not begin** construction activities **until**:
  - a. FERC staff receives comments from the USFWS regarding the proposed action;
  - b. FERC staff completes ESA consultation with the USFWS; and
  - c. RB Pipeline has received written notification from the Director of OEP, or the Director’s designee, that construction or use of mitigation may begin.