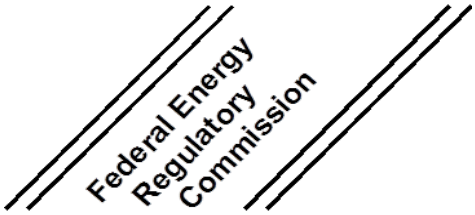

Office of
Energy Projects

May 2019

Columbia Gas Transmission, LLC **Docket No. CP19-51-000**

Virginia Natural Gas Suffolk No. 3 Meter Station Expansion Project

Environmental Assessment

Washington, DC 20426

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TECHNICAL ABBREVIATIONS AND ACRONYMS

APE	area of potential effects
AQCRs	Air quality control regions
ATWS	additional temporary workspace
CAA	Clean Air Act
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CH_4	Methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Columbia	Columbia Gas Transmission, LLC
Commission	Federal Energy Regulatory Commission
dBA	A-weighted decibel
DOI	Department of Interior
DOT	U.S. Department of Transportation
EA	environmental assessment
ECS	Environmental Construction Standards
EI	environmental inspector
EPA	U.S. Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
ESA	Endangered Species Act
ºF	Fahrenheit
FERC	Federal Energy Regulatory Commission
GHG	greenhouse gas
GWP	global warming potential
HAPs	hazardous air pollutants
Ldn	day-night sound level
Leq	equivalent sound level
MP	milepost
MSHCP	Multi-Species Habitat Conservation Plan
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act
NHPA	National Historic Preservation Act
NLEB	northern long-eared bat
No.	Number
NO_x	nitrogen oxides
NOI	*Notice of Intent to Prepare an Environmental Assessment for the Proposed Virginia Natural Gas Suffolk No. 3 Meter Station Expansion Project*

NRHP	National Register of Historic Places
NSAs	noise sensitive areas
OEP	Office of Energy Projects
PEM	palustrine emergent
Pipeline	natural gas pipeline
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
Project	Virginia Natural Gas Suffolk No. 3 Meter Station Expansion Project
PUB	unconsolidated bottom wetland
RCW	red cockaded woodpecker
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure Plan
tpy	ton per year
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VNG	Virginia Natural Gas
VOC	volatile organic compound

A. PROPOSED ACTION

The Federal Energy Regulatory Commission (Commission or FERC) staff has prepared this environmental assessment (EA) to assess the environmental impacts of the Virginia Natural Gas (VNG) Suffolk No. 3 Meter Station Expansion Project (Project) proposed by Columbia Gas Transmission, LLC (Columbia) in Docket CP19-51-000. We[1] prepared this EA in compliance with the National Environmental Policy Act (NEPA) according to the regulations issued by the Council on Environmental Quality (CEQ) at Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508 (40 CFR 1500-1508) and the Commission's regulations at 18 CFR 380.

1.0 Introduction

On January 17, 2019, Columbia filed an application with FERC for authorization and a Certificate of Public Convenience and Necessity (Certificate) under Sections 7(b) and 7(c) of the Natural Gas Act (NGA) to abandon its existing facilities at the current VNG Suffolk No. 3 Meter Station and construct and operate new facilities in Suffolk, Virginia.

FERC is the lead federal agency for the Project and for the preparation of this EA, as described in 40 CFR 1501.5. The principal purposes for preparing this EA are to:

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

2.0 Purpose and Need

Columbia states its purpose of the proposed Project is to realign and increase the current maximum daily delivery obligations of natural gas from 3.73 million cubic feet per day to 12 million cubic feet per day between various points of delivery on the Columbia system in southeastern Virginia. Columbia states that the Project would meet the market demand on its system by providing an additional point of delivery and operational flexibility. Columbia would design the proposed facilities for a maximum allowable operating pressure of 600 pounds per square inch gauge, which is consistent with the supply pressure of Columbia's existing VM-107 and VM-108 pipeline system. Upon completion of the new meter station facilities, Columbia would abandon the existing meter station.

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

Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment would not negatively affect the present or future public convenience and necessity.

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 technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

3.0 Scope of the Environmental Assessment

As the lead federal agency for the Project, FERC is required to comply with Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA). These statutes have been considered in the preparation of this EA. The Commission will use this document to consider the environmental impacts that could result if it authorizes the Project. In addition to FERC, other federal, state, and local agencies may use this EA for issuing permits for all or part of the proposed Project. Permits and approvals for the Project are discussed in section A.8.

The topics addressed in this EA include geology, soils, groundwater, wildlife, vegetation, species of special concern, cultural resources, air quality, noise, land use, visual resources, socioeconomics, reliability and safety, and cumulative impacts. This EA describes the affected environment as it currently exists and the environmental consequences of the proposed Project, and compares the Project's potential impact with that of various alternatives. This EA also presents our recommended mitigation measures.

4.0 Public Comment

On February 28, 2019, the Commission issued *a Notice of Intent to Prepare an Environmental Assessment for the Proposed VNG Suffolk No. 3 Meter Station Expansion Project and Request for Comments on Environmental Issues* (NOI). The NOI was published in the Federal Register and mailed to federal, state, and local officials; Native American tribes; agency representatives; potentially affected landowners; environmental groups; and local libraries. In response to the NOI, the Commission received comment letters from the Delaware Nation of Oklahoma, the United States Environmental Protection Agency (EPA), the Virginia Department of Conservation and Recreation (VDCR), and the Virginia Department of Environmental Quality (VDEQ).

The Delaware Nation of Oklahoma comments concerned cultural resources (see section B.7). The VDEQ provided a summary of the agency's role in NEPA project

scoping and agency involvement, document submission instructions, and information on database assistance. Because the VDEQ comments were general, and not Project-specific, these comments are not addressed further in this EA. The VDCR provided information obtained from its Biotics Data System and the Virginia Department of Game and Inland Fisheries wildlife database that pertain to the proposed Project, including the presence of one state-listed animal in the Project vicinity (see section B.4.3.2). The VDCR also indicated that, due to the scope of the Project, they did not anticipate adverse effects to natural heritage resources in the area and that there are no State Natural Area Preserves in the Project vicinity.

The EPA outlined issues and impacts that should be addressed in the EA, including purpose and need; alternatives analysis; natural resources; land requirements; aquatic resources; Clean Water Act Section 404 process overview and scoping; water quality; source water and drinking water; impaired waters, Clean Water Act Section 401 certification, and total maximum daily load; wildlife, biological, and forest resources; pollinator habitat; land and recreation; hazardous materials; air resources; environmental justice and sensitive receptors; and secondary and cumulative impacts. All substantive comments are addressed in the relevant sections within this EA.

5.0 Proposed Facilities

The proposed Project involves the installation of new meter station facilities at a new site acquired by Columbia that would replace an existing meter station in Suffolk, Virginia. An overview map of the Project is provided on figure 1 below. Columbia proposes the installation, replacement, and removal of the following facilities:

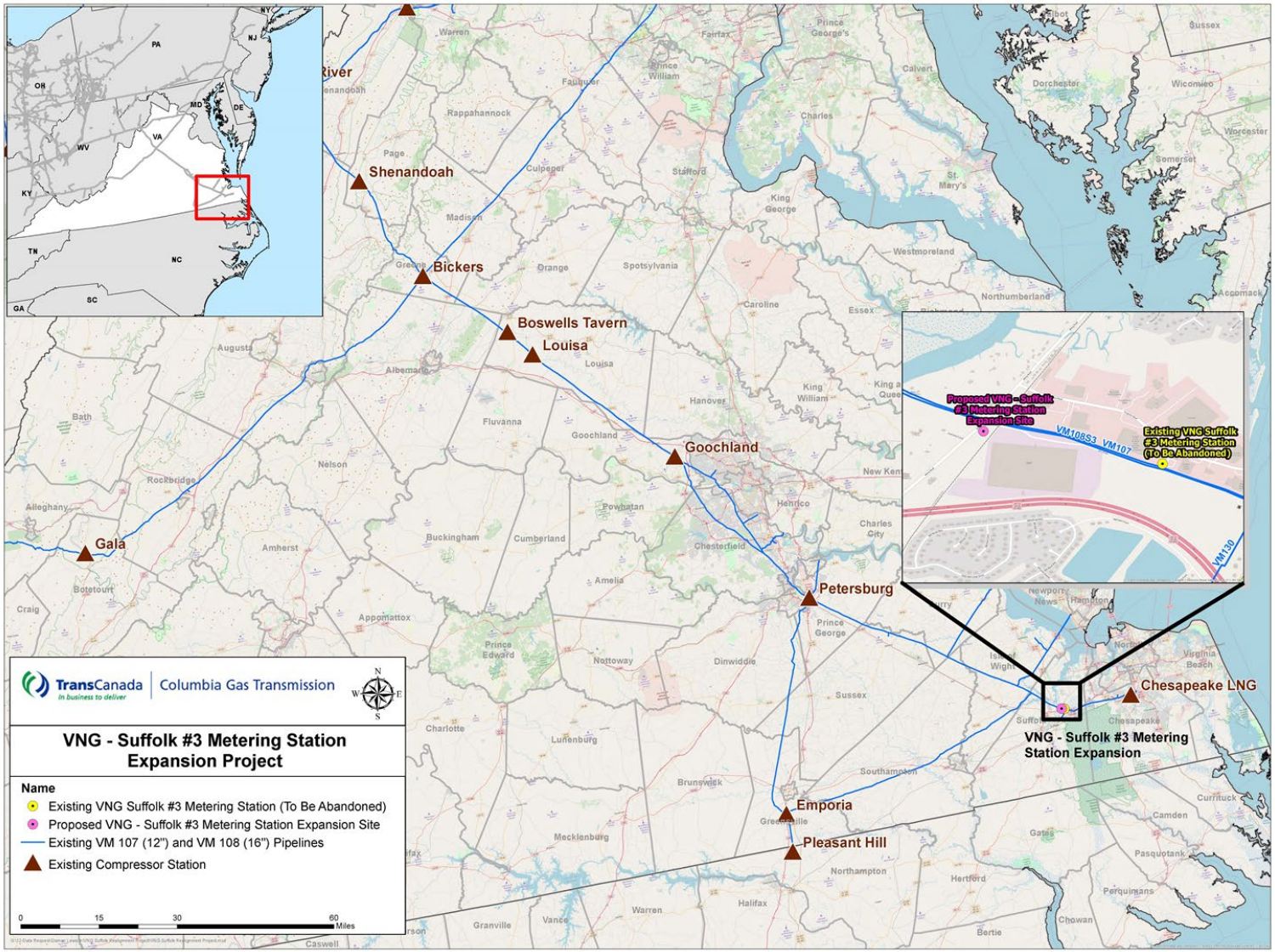
New Meter Station

- installation of a 6-inch tie-in and aboveground valve on Lines VM-107 and VM-108 at milepost (MP) 152.3;
- installation of about 280 feet of 6-inch-diameter inlet piping; and
- installation of metering facilities including one filter separator, a Remote Terminal Unit/Chromatograph Electronic Gas Measurement Building, one meter skid with one 4-inch ultrasonic meter run, one 3-inch rotary meter and a 6- inch by-pass, one flow control skid with one 4-inch flow control valve with a 6-inch by-pass, and other appurtenant facilities.

Existing Meter Station

- removal of existing meter facilities including a 4-inch meter run with by-pass, two 2-inch regulator runs with by-pass, a Remote Terminal Unit, and a control building at MP 152.8 on Lines VM-107 and VM-108;

Figure 1. Project Overview Map



- removal of all inlet piping and aboveground appurtenant facilities;
- replacement of one 2-inch tap and tap valve on Line VM-107 with straight 12-inch-diameter pipe and on Line VM-108 with straight 16-inch-diameter pipe; and
- abandonment in place of the existing 2-inch inlet pipe within the Genesee & Wyoming Railroad right-of-way.

The new meter station would be within new right-of-way adjacent to the existing Lines VM-107 and VM-108 right-of-way. The ground surface of the new meter station would be covered with gravel. New inlet piping would be co-located in the existing Lines VM-107 and VM-108 right-of-way for 102 feet with a 10-foot offset from the nearest pipeline. Columbia would also install a cathodic protection system within the workspace of the new meter station; therefore, no additional land would be required for the installation of the system.

All work associated with abandonment would occur within the existing maintained right-of-way and the existing meter station footprint.

Columbia proposes to use one existing permanent access road and construct one new permanent access road to provide access during construction and operation of the proposed Project. Columbia would also use additional temporary workspace (ATWS) at select locations in the Project area based on site-specific conditions, including road crossings, utility crossovers, specialized construction techniques, and wetland/waterbody crossings that warrant the use of additional space to construct the facility in a safe manner. Columbia would not utilize any off-site contractor staging areas.

6.0 Land Requirements

The land requirements for the proposed Project totals approximately 2.1 acres. This includes about 0.3 acre at the existing VNG Suffolk Meter Station No. 3. The new meter station facilities would occupy 1.0 acre during operation, all within Columbia's property. Columbia would construct the 280-foot-long, 6-inch-diameter pipeline using a 160-foot-wide right-of-way (to allow room for tie-ins) and would maintain a 50-foot-wide right-of-way during operations. Following construction, Columbia would restore the land affected during construction to preconstruction contours, except for permanent roads and the new aboveground facilities needed for operations. See section B.5 (Land Use) for more information.

7.0 Construction Procedures

7.1. Construction Schedule

Columbia anticipates that construction activities would begin at the new meter station in April 2020 subject to the receipt of necessary permits and approvals. Columbia also anticipates that all facilities would be placed in service in July 2020. Abandonment of the existing meter station would commence in September 2020 and completed in November 2020.

7.2. Construction, Operation, and Maintenance Procedures

Columbia would design, construct, test, operate, and maintain the proposed facilities to conform with or exceed federal, state, and local requirements, including the U.S. Department of Transportation's (DOT) Minimum Safety Standards in 49 CFR 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*, and 18 CFR 380.15, *Siting and Maintenance Requirements*.

Columbia proposes to construct the new facilities using primarily industry-standard construction methods. Columbia would mark construction boundaries, clear vegetation, install exclusion fencing and erosion control devices, grade, excavate, construct and install new aboveground facilities and inlet piping, clean up, and restore the disturbed areas. Prior to placing the meter station in service, Columbia would conduct hydrostatic testing to verify that the system is free of leaks.

Abandonment of the existing facilities would involve removing grade taps and valves and replacing with straight pipe, capping and abandoning inlet piping, removing all aboveground facilities associated with the existing meter station, clean up, and restoration.

In addition to standard construction methods, Columbia would use special construction techniques where necessary due to site-specific conditions. These specialized techniques would be used when constructing across wetlands, waterbodies, utility crossings, and roads and railroads.

During construction, abandonment, and restoration activities for the proposed Project, Columbia would implement the measures contained in its Environmental Construction Standards (ECS). The ECS describes the general measures that Columbia would use to protect environmental resources and to minimize potential impacts. The ECS includes all of the requirements of FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), with one modification from section IV.B.1 described in the wetlands section below. Columbia would also comply with Project

permit conditions, Columbia's best management practices, and with the Project's Erosion and Sediment Control Plan (ESCP), Invasive Species Management Plan, Unanticipated Discovery Plan for Paleontological Resources, Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains, and Spill Prevention Control and Countermeasure Plan (SPCC Plan).

Columbia would employ at least one Environmental Inspector (EI) to oversee and document environmental compliance during construction. Columbia would inform all Project-related construction personnel of the EI's authority and receive job-appropriate environmental training prior to beginning work. An EI would be present throughout all phases of construction and serve as the onsite lead on environmental compliance.

8.0 Permits, Approvals, and Regulatory Consultations

Table 1 below provides a list of federal and state permits and approvals for the proposed Project, as well as any responses received to date. Columbia would be responsible for obtaining all permits and approvals required for the Project regardless of their listing in the table.

Table 1
Federal and State Permits and Approvals

Agency	Permit/Approval/ Consultation	Submittal/Consultation Initiated Date (Anticipated)	Approval Date (Anticipated)
Federal			
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity	January 17, 2019	Pending
U.S. Department of Army Corps (USACE), Norfolk District, Virginia-Eastern Section	Section 404 of the Clean Water Act	N/A[1]	N/A[1]
U.S. Fish and Wildlife Service, Virginia Field Office	Section 7 of the Endangered Species Act	July 2018	July 2018
U.S. Fish and Wildlife Service, Virginia Field Office	Migratory Bird Treaty Act and Bald Eagle Consultation	December 14, 2018	January 2019
State			
Virginia Department of Historic Resources	Section 106 of the NHPA Consultation	July 5, 2018	September 25, 2018
Virginia Department of Environmental Quality	Coastal Zone Management Act, 1972, Title 7, Chapter 70	June 28, 2018	September 26, 2018

[1] Columbia states the Project would fall below the pre-construction notification threshold for Nationwide Permit 12.

9.0 Non-jurisdictional Facilities

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

The proposed Project would connect with VNG's existing distribution system within the new meter station, which would require VNG to install a below-ground 8-inch gas main, valve, and tap fitting to connect to its existing pipeline outside of the meter station. VNG would also install above and below-ground piping to/from the equipment within the new meter station. All installation would be below-ground with a manhole cover flush with the surrounding grade to operate the valve.

Additionally, the existing meter station contains non-jurisdictional facilities associated with the abandonment of VNG's existing distribution system which includes a regulation skid, pilot heater, odorant tank, odorant injection, metering building, 8-inch main valve, and associated appurtenances. Activities associated with the abandonment of VNG's facilities would be consistent with Columbia's abandonment procedures.

VNG's construction and abandonment activities would occur within the workspaces identified for the proposed Project; therefore, no additional environmental impacts are anticipated to abandon the VNG system.

B. ENVIRONMENTAL ANALYSIS

This analysis generally describes temporary, short-term, long-term, and permanent impacts and effects caused by the Project's construction and operation. A temporary effect generally occurs during construction with the resource returning to pre-construction condition immediately after restoration or within a few months. A short-term effect could continue for up to three years following construction. Long-term effects would last more than three years, but the affected resource would eventually recover to pre-construction conditions. A permanent effect would result from an activity that modifies a resource to the extent that it would not return to pre-construction conditions during the life of the Project. In the following sections, we address direct and indirect effects collectively, by resource. There would be no impact on the following resources:

- national or state wild or scenic rivers, fisheries, or essential fish habitat;
- prime farmland;
- recreation or scenic places; or
- state parks, national trails, nature preserves, wilderness areas, or registered landmarks.

These resources will not be discussed further in this EA. Section B.9 of this EA analyzes the Project's contribution to cumulative impacts.

1.0 Geology

The topography of the Project area is generally flat with elevations of approximately 17 to 24 feet above mean sea level. No bedrock was encountered during geotechnical investigations performed in July 2018 (Terracon, 2018). Therefore, we consider it unlikely that blasting would be required during construction activities.

1.1. Mineral Resources

No active quarries, mines, or mine spoil areas were identified within 1 mile of the Project. One apparent inactive sand and gravel pit was identified 1,250 and 2,400 feet southeast of the proposed Project. No identified oil or gas wells, industrial minerals, metallic resources, or geothermal wells are within the City of Suffolk (Virginia Department of Mines, Minerals, and Energy, 2015). Therefore, we conclude there would not be a significant impact on mineral resources.

1.2. Geologic Hazards

Geologic hazards are natural physical conditions that can, when present, result in damage to land and structures or injury to people. Review of available data showed that

the proposed Project is not characterized by seismic hazards (including soil liquefaction), volcanic conditions, surface faults, subsidence and karst conditions, or susceptible to landslides; thus, the Project would not be affected by these hazards.

According to the Federal Emergency Management Agency Flood Panel Map 5101560118E, the Project is in an area determined to be outside the 0.2 percent annual chance floodplain (Other Areas - Zone X). Therefore, we conclude that there would not be a significant impact from flooding on Project construction or operation. Additionally, the proposed Project would be designed to the necessary engineering standards and applicable federal, state, and local regulations. Columbia would implement measures in its ECS and ESCP to mitigate against erosion due to potential flooding. Such measures include the use of compost filter socks, reinforced silt fence, temporary lined gravel construction entrances, and erosion control blankets.

1.3. Paleontology

No known significant fossil locations were identified within the Project area based on a review of known paleontological sites. If unique or significant fossil specimens are discovered during excavation activities, Columbia would cease construction activities and consult with the appropriate county or state paleontological specialist. Columbia would also implement measures described in its Unanticipated Discovery Plan for Paleontological Resources. We have reviewed this plan and find it acceptable. Thus, we conclude that significant paleontological resources are unlikely to be affected by construction or operation of the Project.

Given the geologic conditions within the Project area, and the relatively small Project footprint, we conclude that the overall effect of the proposed Project on topography and geology would be minor, and significant adverse effects on geological resources are not anticipated. Likewise, we do not anticipate that Project facilities would be compromised due to seismicity, ground rupture, soil liquefaction, subsidence or karst conditions, flooding, or landslides; and that the proposed facilities would not result in significant impact on geologic or paleontological resources.

2.0 Soils

Information regarding the soil types and characteristics occurring in the Project area was obtained from the Natural Resources Conservation Service Soil Survey Geographic database, which provides detailed information useful for natural resource planning and management.

Construction activities such as clearing, grading, excavation, backfilling, heavy equipment traffic, and restoration activities could result in adverse impacts on soils. Clearing would remove protective vegetation cover and would expose soils to the effects

of wind, sun, and precipitation, which could increase soil erosion and the transport of sediment to sensitive areas, such as waterbodies or dry washes (also referred to as ephemeral washes). Grading and equipment traffic could compact soil, reducing porosity and percolation rates, which could result in increased runoff potential. Columbia would follow its ECS and ESCP to minimize impacts on soils.

An Environmental Data Resources, Inc. database search report was acquired for the Project areas. The EPA Region 3 commented that FERC should identify federal- and state-listed contaminated/hazardous sites in the Project area. Two sites within 0.25 mile of the new meter station were identified with areas of possible soil contamination: QVC Suffolk, Inc. and Wahlstrom, Deborah & Mark. However, based on the "closed" statuses, the types of releases, and/or the distance from the Project, it is unlikely that contaminated soil associated with these sites would be encountered during construction of the proposed Project.

Soil contamination from equipment spills and/or leakage of fuels, lubricants, and coolants could impact soils. Columbia would implement the measures in its SPCC Plan, which include, but are not limited to:

- spill prevention and response training for construction personnel;
- regular inspection of construction equipment for leaks;
- secondary containment for storage of fuels, oils, hazardous materials, and equipment;
- collection and disposal procedures for wastes generated during equipment maintenance; and
- standard procedures for excavation and offsite disposal of any soils contaminated by spillage.

We reviewed the SPCC plan and find it adequate to address the storage and transfer of fuels and hazardous materials as well as the response to be taken in the event of a spill. Adherence with Columbia's SPCC Plan would adequately minimize impacts on soils from inadvertent releases or spills during construction of Project facilities.

Columbia would mitigate soil erosion through temporary erosion and sediment control measures and implementation of permanent measures in accordance with its ECS and ESCP. Given the Project area's soil characteristics, limited area of disturbance, and the impact minimization and mitigation measures described in Columbia's mitigation plans, we conclude that soils would not be significantly affected by Project construction or operation.

3.0 Water Resources and Wetlands

3.1. Groundwater Resources

The proposed Project is underlain by eight aquifers, including the Potomac, Virginia Beach, Peedee, Aquia, Piney Point, St. Marys, Yorktown-Eastover, and surficial (United States Geological Survey, 2006).

The EPA Region 3 commented that FERC should address Project activities in or near source water or drinking water supply locations (including wellhead protection areas, springs, water wells, and aquifers). Under Section 1424(e) of the Safe Drinking Water Act, the EPA defines a sole or principal source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer, and for which there are no other reasonably available alternative drinking water source(s) that could physically, legally, and economically supply all those who depend on the aquifer for drinking water should the aquifer become contaminated. The proposed Project is not within a sole-source aquifer (EPA, 2018).

No wellhead protection areas or groundwater management areas have been identified in the vicinity of the proposed Project (VDEQ, 2018). Based on a literature review and field surveys, no seeps or springs nor public or private groundwater wells are within 150 feet of the Project. Therefore, we conclude that these resources would not be impacted by construction.

3.1.1. Groundwater Contamination

The EPA Region 3 commented that FERC should identify federal- and state-listed contaminated/hazardous sites in the Project area. The EPA also commented that FERC should identify potential contaminants which could impact groundwater as a result of Project activities. As discussed above in section B.2 (Soils), two sites within 0.25 mile of the new meter station were identified with areas of possible soil contamination. However, according to information available from the VDEQ, no groundwater contamination has been identified in relation to the listed sites.

Impacts on groundwater resources would be mitigated through temporary erosion and sediment control measures and implementation of permanent measures in accordance with Columbia's ESCP, ECS, and SPCC Plan. Given the impact minimization and mitigation measures described in these plans and limited area of disturbance, we conclude that groundwater would not be significantly affected by Project construction and operation.

3.2. Surface Water and Wetlands

Surface water resources within the proposed Project area are within the Cedar Lake Watershed. The EPA Region 3 commented that FERC should identify any impaired waters, and impacts and mitigation measures for all affected waterbodies by the Project. No waterbodies would occur within 100 feet of Project workspaces; therefore, we conclude the proposed Project would not impact waterbodies.

One palustrine emergent (PEM) wetland (Wetland B) and one palustrine unconsolidated bottom (PUB) wetland (Wetland D1) were delineated within the Project area, and are shown in table 2. PEM wetlands are characterized by erect, rooted herbaceous vegetation and PUB wetlands are characterized by the lack of large stable surfaces for plant and animal attachment (Cowardin et al., 1979). The EPA Region 3 commented that FERC should identify the acreage of impacts, conversion, and mitigation measures for all affected wetlands by the Project, which are addressed below.

Table 2
Wetlands Crossed by the Project

Wetland	Classification	Crossing Method/ Workspace Type	Area of Construction Impact (acres)[1]	Area of Operation Impact (acres)[1]
Wetland D1	PUB	Proposed permanent culvert / PAR-001	0.03	>0.01
Wetland B	PEM	Open cut/permanent existing right-of-way	>0.01	0.00

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1 Less than 0.01 acre of PUB wetlands would be converted to industrial land to support PAR-001.

Columbia requests a modification from the FERC Procedures (VI.B.1). Access to the new meter station from PAR-001 would require a culverted crossing of one PUB wetland (Wetland D1). Wetland D1 spans the length of the proposed meter station; therefore, impacts on PUB wetlands are unavoidable. Temporary construction activities would result in 0.03 acre of temporary impacts and less than 0.01 acre of permanent impacts on this wetland. Temporary erosion controls would be installed and maintained in accordance with Columbia's ECS, ESCP, and SPCC Plan.

Wetland B would be crossed using the open cut method. The top 12 inches of soil would be removed and stockpiled separately from the remaining excavated material.

During construction, heavy machinery used for construction and transport of building materials and other necessary equipment can cause compaction and rutting of soils. Soil compaction can inhibit seed germination and increase the potential for runoff and siltation. To reduce compaction and rutting, construction equipment would work off equipment mats or timber riprap in wetlands that are not excessively saturated.

Clearing and grading of wetlands, trenching, backfilling, and trench dewatering can affect wetlands through the alteration of wetland vegetation and hydrology, loss or change to wildlife habitat, erosion and sedimentation, and accidental spills of fuels and lubricants. Impacts on herbaceous wetlands would be temporary as revegetation is expected within one to three years.

Project operation would require Columbia to periodically remove woody species from PUB wetlands to facilitate post-construction monitoring and inspections of the maintained Project right-of-way. Columbia would maintain a cleared 10-foot-wide corridor within the permanent right-of-way centered on the proposed 6-inch-diameter pipeline as frequently as necessary to maintain an herbaceous state, to facilitate periodic corrosion and leak detection surveys.

Columbia's ECS and SPCC would limit potential impacts associated with the release of fuels, lubricants, or other potentially toxic materials used during construction. Refueling and storage of hazardous materials would be prohibited within 100 feet of wetlands during construction, unless otherwise reviewed and approved by the EI.

Based on the limited area of disturbance and Columbia's proposed mitigation measures, we conclude that impacts on wetlands would be mostly temporary, minimized to the extent practical, and would not be significant.

Hydrostatic Test Water

Columbia would use approximately 2,360 gallons of water to hydrostatically test the new meter station. Water would be drawn from a municipal source and discharged into a well-vegetated upland area to an energy dissipation device in order to minimize erosion in accordance with all federal, state, and local permit requirements regarding water discharges. Therefore, we conclude that hydrostatic testing would not result in any significant impacts.

4.0 Vegetation, Wildlife, and Threatened and Endangered Species

4.1. Vegetation

Existing vegetation within the proposed Project area includes herbaceous upland, upland shrub, forested land, and herbaceous wetland. Project construction would temporarily disturb a total of 2.1 acres of vegetation, and permanently disturb 1.0 acre for operation. Table 3 identifies the vegetation communities impacted by the proposed Project.

Table 3 Vegetation Communities Affected by Construction and Operation of the Project (acres)														
	Industrial/ Commercial		Upland Herbaceous		Upland Shrub		Forest		PEM Wetland		PUB Wetland		Total[a]	
	Con[b]	Op[c]	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op
Total	0.6	0.1	<0.1	0.0	0.1	0.0	1.4	1.0	<0.1	0.0	<0.1	<0.1	**2.1**	**1.0**

[a] The numbers in this table have been rounded for presentation purposes. Therefore, the totals may not reflect the sum of the addends.
[b] Construction impacts for the Project.
[c] Operational impacts for the Project.

The EPA Region 3 commented that FERC should identify the acreage of impacts, conversion, and mitigation measures for all affected vegetation by the proposed Project. The EPA also recommended that FERC describe how temporary disturbed areas would be restored after Project construction, and that a vegetative management plan be prepared.

Industrial/commercial lands consist of maintained vegetation for existing right-of-way. Shrub and herbaceous uplands provides a vegetative community of grasses and herbaceous plants habitat. Forested land consists of red maple, loblolly pine, sweet gum, tulip poplar, black willow, soft rush, poison ivy, Muscadine grape, Virginia creeper, and common greenbrier. Wetlands were discussed above.

Construction activities include clearing of surface vegetation and grading the ground surface within the designated construction work area. Indirect impacts from this activity may include increased exposure to elements such as wind, sun, and precipitation, which could alter plant viability. Plants not adapted to different environmental conditions may not survive, while some plants may experience increased growth due to altered exposure.

During operation, Columbia would maintain the pipeline right-of-way with routine vegetation maintenance in accordance with the requirements identified in its ECS.

The recovery of vegetation in disturbed areas would vary by vegetation type. Shrub and herbaceous uplands would revert to pre-construction conditions relatively quickly (within one or two growing seasons) following construction. The impact on forested areas within the temporary right-of-way would be long-term due to the length of time necessary to re-establish mature trees. A total of 0.9 acre of forest would be permanently converted to herbaceous vegetation in the right-of-way; ongoing maintenance during operation would preclude the re-establishment of trees. All temporary workspaces would be allowed to revegetate naturally. Furthermore, 0.1 acre of herbaceous upland would be allowed to revegetate after abandonment activities.

Columbia would stabilize and reseed the disturbed areas in accordance with its ECS and ESCP, which is consistent with our Plan, along with the Virginia Erosion and Sediment Control Handbook and any permit requirements.

The EPA Region 3 recommended that FERC should explore the feasibility of using pollinator promoting seed mixtures for reclamation of disturbed areas associated with Project construction. Columbia would use a seed mix developed in consultation with the Natural Resources Conservation Service or local soil conservation service, which generally includes some vegetation species used by pollinators. The ground surface of the new meter station would be covered with gravel and would not be capable of supporting pollinator habitat.

Columbia would maintain a 10- to 15-foot buffer around the southern and eastern portions of the fenced meter station lot in herbaceous cover during operation of the new meter station to allow for safe evacuation in the case of an emergency. The remaining portions of the ATWS would be allowed to revegetate to pre-construction conditions. Depending on the specific species established, the ATWS would have some limited use from pollinators. Given the minimal amount of disturbance, any effects would be negligible.

Given the limited disturbed area, lack of sensitive vegetation types, and Columbia's commitment to restoring areas affected by construction to the extent practicable, we conclude that the proposed Project's impacts on vegetation would not be significant.

4.2. Wildlife

Industrial/commercial lands often provide habitat for small mammals and birds that take shelter in man-made dwellings or scavenge trash or other unnatural food sources from human occupation. Forest habitat includes deciduous, coniferous, and mixed forest types. Forests typically provide nesting and feeding habitat for species that require canopy cover or leaf litter for shelter and food. Open, herbaceous habitats provide cover for many small mammal species, cover for ground- dwelling birds, and feeding areas for insects, songbirds, and raptors. Wetlands are ecologically significant ecosystems that provide habitat for various mammal, bird, reptile, and amphibian species.

During construction, noise and increased activity in work areas could result in temporary, indirect wildlife impacts, such as displacement and abandoning reproductive efforts. Direct mortality to smaller mammals, reptiles, and amphibians that are less mobile, or which take refuge underground in the work area could also occur during Project construction and maintenance activities. Although temporary impacts on wildlife species may occur during construction, there is abundant similar habitat adjacent to the Project area and Columbia would restore many of these wildlife habitats to present

conditions after construction. Given the limited scope of the proposed Project and the minimal temporary and permanent impacts on wildlife habitat, we conclude that construction and operation of the Project would not significantly affect the distribution or regional abundance of wildlife species in the Project area.

4.2.1. Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (16 United States Code sections 703-711), which prohibits the taking of any migratory bird, or a part, nest, or eggs of any such bird, except under the terms of a valid permit issued pursuant to federal regulations. Bald and Golden Eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 United States Code sections 668-668d). Executive Order No. 13186 (66 Federal Register 3853), directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse effects on migratory birds through enhanced collaboration with the U.S. Fish and Wildlife Service (USFWS). Executive Order No. 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors and that particular focus should be given to addressing population-level impacts. On March 30, 2011, the USFWS and the Commission entered into a Memorandum of Understanding that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies.

The Project would be constructed within the Southeastern Coastal Plain Region for migratory birds. Construction, operation, and maintenance of the proposed Project could result in impacts on migratory birds. Potential impacts on nesting migratory bird species include direct impacts on nesting birds; noise generated during construction which could disturb nesting birds, if present; and loss of wooded habitat, including temporary removal of vegetation, which could cause nesting species to relocate to other suitable habitats. Columbia has designed the Project to minimize potential impacts on migratory birds, including:

- maximizing the use of the existing, non-forested Columbia pipeline right-of-way as construction workspace;
- adherence to the measures outlined in Columbia's ECS; and
- conducting routine vegetation maintenance mowing outside the migratory bird nesting season (April 15 to August 1).

Columbia proposes 1.4 acres of forest clearing within the migratory bird nesting window (April 15 to August 1), and submitted a request for comments to the USFWS Virginia Field Office in December 2018. While construction of the proposed Project may result in the mortality of individual nests and eggs, adult birds would escape the construction activities and may rebuild nests in the surrounding habitat. Given the

limited area of disturbance and Columbia's commitment to the measures identified above, we conclude that no population level effects would occur on migratory birds and impacts on migratory birds would be temporary and not significant.

4.3. Threatened, Endangered, and Special Status Species

4.3.1. Federally Listed Species

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

Columbia and the USFWS have developed a Multi-Species Habitat Conservation Plan (MSHCP; January 1, 2014) in order to streamline federally listed species consultations. The Project occurs entirely within lands as described and covered in the MSHCP. The MSHCP identified the northern long-eared bat (NLEB; threatened) as a federally listed species that could occur in the Project area. Columbia proposes 1.4 acres of forest clearing; however, it would follow the mitigation measures outlined in the MSHCP to avoid and minimize adverse impacts on the NLEB. In order to comply with the avoidance and minimization measures from its MSHCP, Columbia would:

- clear trees between June 1 and August;
- educate operators, employees, and contractors on the biology of the NLEB, activities that may affect bat behavior, and ways to avoid and minimize these effects;
- strictly control contaminants, including but not limited to oils, solvents, and smoke from brush piles, as provided for in the ECS and ESCP, so the quality, quantity, and timing of prey resources are not affected;
- implement and strictly adhere to sediment and erosion control measures;
- ensure restoration of pre-existing topographic contours after any ground disturbance;

- restore native vegetation (where possible) as specified in the ECS upon completion of work within suitable summer habitat and known or presumed occupied spring staging and fall swarming habitat; and
- site equipment servicing and maintenance areas at least 300 feet from streambeds, sinkholes, fissures, or areas draining into sinkholes, fissures, or other karst features.

With these avoidance measures, we conclude the proposed Project is *not likely to adversely affect* the NLEB, and no additional consultation is required for the Project under Section 7 of the ESA for this species.

Columbia conducted an Information for Planning and Consultation review on December 13, 2018, which identified the red cockaded woodpecker (RCW; endangered) as potentially occurring near the Project. The vegetation onsite consists of mixed hardwood and pine early growth successional forest, and the RCW prefers mature (greater than 60 years) pine dominated forests. Given that this habitat is not present, we conclude the proposed Project would have *no effect* on the RCW, and no additional consultation is required for the Project under Section 7 of the Endangered Species Act for this species.

4.3.2. State-Listed Species

The VDCR identified the canebrake rattlesnake which could occur within 2 miles of the proposed Project. The canebrake rattlesnake's preferred habitat is mature hardwood forest containing numerous logs and a layer of leaves and humus. The new meter station site lacks mature hardwood forest and consists of early successional forest that consists of loblolly pine, red maple, and sweetgum. Additionally, the lack of oak trees limits the likelihood for successful hunting of its natural prey, specifically the gray squirrel, which is their primary food source.

Columbia would also implement any conservation measures that are required by USFWS, VDCR, or Virginia Department of Game and Inland Fisheries to protect, restore, and enhance habitat areas along the Project.

Due to the lack of suitable habitat within the Project area, Columbia's commitment to implement the measures in our Plan to restore disturbed areas, we conclude the proposed Project would not affect state-listed species.

5.0 Land Use and Visual Resources

5.1. Land Use

Land use categories identified in the Project area are comprised of forested and industrial/commercial lands. Forested lands in the Project area typically consist of deciduous dominant and mixed forest types, along with forested wetlands that would be impacted by construction and operation of the new permanent right-of-way and the ATWS for both the new and existing meter stations. Industrial/commercial lands include the existing meter station property, as well as Wilroy Road; QVC Drive; and the Genesse and Wyoming and Norfolk, Franklin, and Danville Railroads. A summary of the land use categories and impacts by the proposed Project is provided in table 4.

Table 4
Land Use Impacts for the Project (Acres) [a]

Workspace	Industrial/Commercial[b]		Forest		Total	
	Construction[c]	Operation	Construction[c]	Operation	Construction[c]	Operation
New Meter Station						
Existing Permanent Right-of-Way	0.1	0.0	0.0	0.0	**0.1**	**0.0**
New Permanent Right- of-Way	0.1	0.1	0.8	0.8	**0.9**	**0.9**
Permanent Access Roads	0.01	0.01	0.1	0.1	**0.1**	**0.1**
ATWS	0.2	0.0	0.5	0.0	**0.7**	**0.0**
Subtotal New Meter Station:	0.4	0.1	1.4	0.9	**1.8**	**1.0**
Existing Meter Station						
Existing Permanent Right-of-Way	0.6	0.0	0.0	0.0	**0.6**	**0.0**
Permanent Access Roads	0.1	0.0	0.0	0.0	**0.1**	**0.0**
ATWS	0.04	0.0	0.01	0.0	**0.05**	**0.0**
Subtotal Existing Meter Station:	0.3	0.0	0.01	0.0	**0.3**	**0.0**
Total:	**0.7**	**0.1**	**1.4**	**0.9**	**2.1**	**1.0**

a The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.
b Industrial/commercial includes scrub, herbaceous, and wetlands from vegetation.
c Land affected during construction includes both temporary and permanent work areas.

As previously stated in section A.6., Project construction and operation would disturb approximately 2.1 acres of land, of which 1.0 acre would be permanently impacted by operation of the new meter station.

Columbia would implement the procedures outlined in its ECS to minimize impacts and to restore the Project area following construction. All temporary workspaces would be restored to pre-construction conditions. Due to Columbia's commitment to restore temporary workspace and the minimal permanent impact, we conclude that the Project would not have a significant impact on land use.

5.2. Residential Areas

Based on review of aerial photography and field surveys, there are no residences within 50 feet of the proposed Project workspace. There is one structure, a water tower, approximately 40 feet west of the Project workspace for the existing meter station. Columbia would avoid this structure during construction activities. There are no buildings within 50 feet of the Project workspace for the proposed new meter station.

5.3. Coastal Zone Management Areas

Construction and operation of the proposed Project is subject to Virginia's Coastal Zone Consistency Review. Columbia initiated consultation with the VDEQ on June 28, 2018 for compliance with the Coastal Zone Management Act. The VDEQ completed its review of the Federal Consistency Certification on September 26, 2018.

5.4. Visual Resources

Impacts from the new meter station construction would include the removal of existing vegetation and exposure of soils, as well as earthwork and grading scars associated with heavy equipment. Visual impacts could result from the removal of large trees that have intrinsic aesthetic value; the removal and/or alteration of vegetation that currently provides a visual barrier; or landform changes that introduce contrasts in visual scale, spatial characteristics, form, line, color, or texture. Duration of visual impacts would be shortest in areas consisting of non-woody vegetation, such as the industrial/commercial areas, where the re-establishment of vegetation following construction would occur generally within three years.

Removal of the existing meter station would visually open up the area surrounding that portion of the Project. There are commercial buildings of equal or greater height surrounding the proposed meter station site; therefore, the proposed meter station would be visually consistent with the surrounding area.

The only visually-sensitive resource identified in the Project area is the historic Norfolk and Western Railway line. In a letter dated September 24, 2018, the Virginia State Historic Preservation Officer (SHPO) indicated that historic properties located within the area of potential effects (APE) would not be adversely affected by the proposed Project as long as a wooded buffer would be maintained along Wilroy Road

(see section B.7 for further information on cultural resources). As such, no impacts on the Norfolk and Western Railway line are anticipated.

We conclude that because the visual impacts from Project construction would be temporary and the permanent visual impacts from the proposed meter station on nearby structures would be minimal and consistent with the existing industrial setting, visual impacts from the proposed Project would not be significant.

6.0 Socioeconomics

Analysis of socioeconomic impacts is required for projects involving significant aboveground facilities, such as large new compressor stations, which are not part of this Project. However, we received comments from the EPA stating that environmental justice concerns should be analyzed and discussed in the EA. The following addresses the EPA's comment.

EPA's environmental justice policies are directed, in part, by Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations,* which requires federal agencies to consider if impacts on human health or the environment would be disproportionately high and adverse for minority and low income populations in the surrounding community resulting from the programs, policies, or activities of federal agencies. The EPA's Federal Interagency Working Group on Environmental Justice and NEPA Committee's publication entitled *Promising Practices for EJ Methodologies in NEPA Reviews* (EPA, 2016) provides methodologies for conducting environmental justice analyses and were used in the analysis for this EA. Items considered in the evaluation of environmental justice include human health or environmental hazards, the natural physical environment, and associated social, economic, and cultural factors.

According to the CEQ environmental justice guidance under NEPA (CEQ, 1997) and EPA's *Promising Practices for EJ Methodologies in NEPA Reviews* (EPA, 2016), minorities are those groups that include American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Minority populations are defined where either; (a) the minority population of the affected area exceeds 50 percent or, (b) the minority population of the affected area is meaningfully greater (10 percent greater) than the minority population percentage in the general population or other appropriate unit of geographic analysis. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Low-income populations are populations where households have an annual household income below the poverty threshold, which is currently $25,750 for a family of four (Health and Human Services, 2019). Table 5 provides a summary of the minority or low-income percentage of census tracts within 1.0 mile of the proposed Project.

Table 5 Minority Populations and Poverty Levels in the Vicinity of the Proposed Facility										
State/County/ Census Tract/ Block Group	**White, not Hispanic or Latino**	**African-American**	**Hispanic or Latino**	**Asian**	**American Indian and Alaskan Native**	**Native Hawaiian and Pacific Islander**	**Two or More Races**	**Minority Populations**	**Children under the age of 17**	**Families Below Poverty**
Virginia	62.6	19.2	9.0	6.2	0.3	0.1	3.5	37.4	22.3	7.8
Suffolk City	49.7	41.8	4.0	1.6	0.2	0.0	3.7	50.3	24.9	9.2
Census Tract 754.02	51.1	34.4	10.2	2.2	0.0	0.0	4.1	48.9	28.7	2.3
Census Tract 755.01	48.7	44.4	2.3	1.2	0.5	0.2	3.3	51.3	27.7	21.1
Census Tract 755.02	49.7	42.8	4.1	0.2	0.0	0.0	3.1	50.3	25.0	15.1

Two of the census tracts within 1 mile of the proposed Project have a minority population that exceeds the 50 percent minority threshold. Therefore, a "minority population" as defined by CEQ and EPA guidance exists within the Project area. An additional census tract has a minority population of 48.9 percent, which does not meet the meaningfully greater threshold nor does it meet the 50 percent threshold. However, given how close this percentage is to the 50 percent threshold, we consider this to be a minority population as well. One census tract within 1 mile of the Project has a higher percentage of people (more than 10 percent greater) below the poverty level than both the state and city (U.S. Census 2015). Therefore, a low income population also exists within the study area.

Based on EPA comments, we also investigated the percentage of children 17 years of age or younger. The percentage of children 17 years of age or younger ranges from 25.0 to 28.7 percent in census tracts within 1.0 mile of in the proposed Project in Suffolk, Virginia. These percentages are comparable with the state of Virginia (22.3 percent) and Suffolk City (24.9 percent). We also located schools and daycares within 1.0 mile of the proposed Project. One school was identified about 1.0 mile south and one daycare was identified about 0.3 mile west of the Project area.

Impacts on the natural and human environment from the abandonment of the old meter station and the construction and operation of new Project facilities are identified and discussed throughout this document. The Project would be constructed in an area containing land predominately classified as industrial/commercial land. As discussed in section B.5.4, the new meter station would be consistent with the surrounding industrial setting and therefore visual impacts would be less than significant on the natural environment. Area residents may also be temporarily affected by traffic delays during construction and abandonment activities associated with the proposed Project. However, these impacts would be temporary, only lasting the duration (e.g., 16 weeks for construction and 12 weeks for abandonment) of the Project. Potential pollution emissions from the proposed Project, when considered with background concentrations, would be below the National Ambient Air Quality Standards (NAAQS), which are designated to protect public health and impacts would not be significant (see section B.8.1 for a discussion of air quality impacts). Temporary construction impacts on residences and businesses in proximity to construction work areas could include noise. Noise levels resulting from construction would vary over time and would depend upon the number and type of equipment operating, the level of operation, and the distance between sources and receptors. Alternatively, operational noise associated with the new meter station would be ongoing; however, Columbia would be required to comply with federal noise regulations. With Columbia's proposed mitigation measures, the proposed Project would not result in significant noise impacts on local residents and the surrounding communities (see section B.8.2 for a detailed noise discussion).

As described throughout this document, potentially adverse environmental effects on surrounding communities associated with the Project, including environmental justice communities, would be minimized and/or mitigated, as applicable, and would not be significant. Based on our analysis, we conclude that although low income and minority populations exist within the Project area, the proposed Project would not result in disproportionately high and adverse environmental or human health impacts on vulnerable populations (such as children) and would not have a disproportionately high and adverse impact on environmental justice populations within the study area.

7.0 Cultural Resources

In addition to accounting for impacts on cultural resources under NEPA, Section 106 of the NHPA, as amended, requires FERC to take into account the effects of its undertakings on historic properties listed, or eligible for listing on the National Register of Historic Places (NRHP),[2] and to afford the Advisory Council on Historic Preservation an opportunity to comment. Columbia, as a non-federal party, is assisting FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

7.1. Area of Potential Effects

The APE is the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). Columbia defined the Project APE as the proposed Project area, along with a 100-foot-wide survey corridor for proposed access roads, proposed workspaces, aboveground facilities, and cathodic protection areas. The APE totals approximately 4.4 acres, which includes all areas of potential direct and indirect effects from abandonment, construction, and operation of the proposed Project. Due to the area's topography, vegetation, and commercial development, which combine to limit views to and from the Project area, the APE is sufficient to account for all the potential direct and indirect effects to historic properties by the proposed Project.

7.2. Cultural Resources Investigations

In an effort to identify historic properties within the Project APE and to account for any effects to those properties by the proposed Project, Columbia conducted a cultural resources investigation which included background research, a Phase I archaeological survey, and a historic architectural survey (Tyrer and Muir 2019). No previously

[2] In accordance with 36 CFR 800.16(l)(1), a historic property is any prehistoric or historic district, site, building, structure, object, or property of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization, included in, or eligible for inclusion in, the NRHP. This term includes artifacts, records, and remains that are related to and located within such properties. Cultural resources are those properties that have not been evaluated for NRHP eligibility.

recorded archaeological resources were identified during Columbia's background research of the Project area. One previously recorded historic architectural resource, the 1863 Suffolk II Civil War battlefield (Site 133-5039) and one newly identified historic architectural property, the Norfolk and Western Railway line (Site 133-5610), are within the Project APE.

The Phase I archaeological survey covered the entire Project APE and consisted of pedestrian transects, supplemented with systematic shovel testing at 15-25 meter intervals. Because the Project area falls within the boundaries of the Suffolk II Civil War battlefield, Columbia also conducted a metal detection survey of 25-foot intervals within the APE. No new archaeological sites were identified within the APE during the survey, nor were any subsurface feature or cultural materials associated with the battlefield.

Columbia conducted the historic architectural survey to identify architectural resources 45 years of age or older within the Project APE. The architectural field survey was limited to the exterior inspection of buildings and structures visible from the public right-of-way. The field survey included a visual assessment, site walkover, and photographic documentation of historic architectural resources in the Project APE. The Norfolk and Western Railway line (Site 133-5610) was recorded and photographed. No aboveground features associated with the Suffolk II Civil War battlefield are within the Project APE. No other historic architectural resources were identified during the survey.

The Suffolk II Civil War battlefield (circa 1863) had been previously recommended eligible for inclusion in the NRHP. However, no intact aboveground or subsurface features associated with the battlefield were identified in the Project APE. Furthermore, the landscape has been significantly altered in the Project vicinity with infrastructure, and residential and commercial development, diminishing the integrity of setting, feeling, and association of the battlefield landscape. Nevertheless, as the site is considered potentially eligible for the NRHP, the proposed Project would not adversely affect the battlefield.

The Norfolk and Western Railway line, which originally dates to the late nineteenth to early twentieth century, has been expanded to include multiple lines since its original construction. Because of this expansion, little remains of the original Norfolk and Western Railway line period beyond the alignment. As such, Columbia recommended that this resource is not eligible for listing in the NRHP.[3]

On July 5, 2018, Columbia submitted the cultural resources investigation report to the Virginia SHPO requesting review and concurrence with their recommendations. In an email dated September 24, 2018, the SHPO concluded that the historic properties

[3] Although Columbia submitted the NRHP eligibility recommendation for the Norfolk and Western Railway line to the SHPO, the SHPO did not comment on the recommendation.

within the Project APE would not be adversely affected by the proposed undertaking provided that a wooded buffer is substantially maintained along Wilroy Road. The report and the consultation documentation with the SHPO was subsequently provided to FERC. We concur with the SHPO's assessment that no adverse effects to historic properties would occur if a wooded buffer is maintained along Wilroy Road.

Columbia committed on May 8, 2019 to maintain the 30-foot-wide wooded buffer until the City of Suffolk installs a waterline, which would remove 15 feet of the wooded buffer. The SHPO suggested that a 15-foot wooded screen supplemented with evergreen foundation plantings along Wilroy Road would be an adequate vegetative screen. Therefore, after installation of the waterline, Columbia would supplement the wooded buffer with evergreens in accordance with the SHPO's suggestion.

7.3. Tribal Consultation

Columbia contacted the following Native American tribes regarding the proposed Project: Pamunkey Indian Tribe and Delaware Nation of Oklahoma. On January 9, 2019, Columbia sent notification letters to the tribes with information regarding the proposed Project and to request that the tribes communicate any concerns they may have with potential impacts on traditional cultural properties and historic properties. To date, Columbia has not received any responses from the tribes.

FERC sent the Project NOI to these same tribes. In a letter dated April 11, 2019, the Delaware Nation indicated that the location of the proposed Project does not endanger cultural or religious sites of interest to the Delaware Nation. The tribe also requested that they be contacted within 24 hours if archaeological sites or artifacts are inadvertently discovered during Project construction. FERC has not received any additional correspondence from the tribes.

7.4. Unanticipated Discoveries Plan

Columbia developed a Project-specific plan titled: *Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains*, which outlines the procedures to follow, in accordance with state and federal laws, in the event that unanticipated cultural resources or human remains are discovered during construction of the Project, including consultation with FERC, the SHPO, and tribes regarding discoveries. The plan was submitted to FERC and the Virginia SHPO. FERC requested minor revisions to the plan. Columbia provided a revised plan which we find acceptable.

7.5. Compliance with the National Historic Preservation Act

FERC has completed its compliance requirements with Section 106 of the NHPA for the proposed Project.

8.0 Air Quality and Noise

8.1. Air Quality

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

The EPA comments that certain issues related to air quality be included in the EA, such as construction and operation impacts on air quality, significant concentration of hazardous air pollutants (HAP), and the protection of public health. These concerns are addressed in the subsections below, where applicable. The EPA also requested that baseline air quality data and a map of locations and elevation of air quality and meteorological data be included in the EA. While FERC staff typically provide this information in our environmental analysis where stationary sources (i.e., compressor stations) are proposed and air quality modeling is completed, because this Project involves the replacement of an existing meter station and increases in operational emissions would be minimal, FERC staff determined that based on the limited scope and air quality impacts of the proposed Project, these were not warranted and therefore not included in our analysis.

8.1.1. Existing Environment

The Project area is within the City of Suffolk, Virginia. The climate in the Project area is generally characterized as a humid subtropical zone. The region has a mean temperature of 59.7 degrees Fahrenheit (ºF), with an average summer temperature that ranges in the 70s and 80s ºF and an average winter temperature that ranges in the 30s to 50s ºF. Average precipitation is 49.5 inches per year, with well-distributed rainfall throughout the year (U.S. Climate Data, 2019).

Ambient air quality is protected by the Clean Air Act (CAA) of 1970, as amended in 1977 and 1990. The EPA oversees the implementation of the CAA and establishes NAAQS to protect human health and welfare.[4] NAAQS have been developed for seven "criteria air pollutants," including nitrogen dioxide, carbon monoxide (CO), ozone, sulfur dioxide (SO_2), particulate matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), and lead, and include levels for short-term (acute) and long-term

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

(chronic) exposures. The NAAQS include two standards, primary and secondary. Primary standards establish limits that are considered to be protective of human health and welfare, including sensitive populations, such as children, the elderly, and asthmatics. Secondary standards set limits to protect public welfare, including protection against reduced visibility and damage to crops, vegetation, animals, and buildings (EPA, 2018). Although ozone is a criteria air pollutant, it is not emitted into the atmosphere directly from an emissions source; rather, it develops as a result of a chemical reaction between nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight. Therefore, NO_x and VOCs are referred to as ozone precursors and are regulated to control the potential for ozone formation. Additional pollutants, such HAP, are emitted during fossil fuel combustion.

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

Air quality control regions (AQCR) are areas established by the EPA and local agencies for air quality planning purposes, in which State Implementation Plans describe how the NAAQS would be achieved and maintained. The AQCRs are intra- and interstate regions (such as large metropolitan areas) where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. The Project is within the Hampton Roads Intrastate AQCR. The City of Suffolk is designated as attainment or unclassifiable for all criteria pollutants.

Greenhouse gases (GHG) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. Carbon dioxide is the primary GHG emitted during fossil-fuel combustion, while smaller amounts of methane and nitrous oxide (N_2O) are GHGs that are also emitted. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHGs under the CAA. The primary GHGs that would be emitted by the proposed Project are carbon dioxide (CO_2), methane, and N_2O. During construction and operation of the Project, these GHGs would be emitted from construction equipment, as well as from fugitive methane leaks at the meter station during Project operation.

Emissions of GHGs are typically quantified and regulated in units of carbon dioxide equivalents (CO_2e). The CO_2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the

more that gas contributes to climate change in comparison to CO_2. Thus, CO_2 has a GWP of 1, methane has a GWP of 25, and N_2O has a GWP of 298.[5]

8.1.2. Regulatory Requirements

Due to the limited quantity of operational emissions generated during Project operation, and because the Project is in an attainment area, there are no provisions of the CAA that are applicable to the Project at the federal level. The estimated potential operational emissions for the Project are discussed in section 8.1.5 below.

8.1.3. State Air Regulations

Standard for Fugitive Dust/Emissions

Fugitive dust and emissions are regulated by Title 9 Virginia Administrative Code, 5-50-90. These requirements generally mandate that reasonable precautions should be taken to prevent particulate matter from becoming airborne during construction, modification, or operation of stationary sources or facilities. Columbia would be required to comply with these requirements during construction of the Project.

8.1.4. Construction Emissions Impacts and Mitigation

Project construction would result in temporary, localized emissions that would last the duration of construction activities (i.e., about 16 weeks). Heavy equipment, trucks, delivery vehicles, and construction workers commuting to and from work areas would generate exhaust emissions through the use of diesel or gasoline engines.

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

Columbia estimated construction emissions based on the fuel type and anticipated frequency, duration, capacity, and levels of use of various types of construction equipment. Construction emissions were estimated using 40 CFR 1039.101, Subpart C of Part 98, and AP-42: *Compilation of Air Emission Factors* (EPA, 2018). Table 6 below provides the total Project construction emissions. Flaring is not anticipated as part of the Project.

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

Table 6 Construction Emissions for the Project (tons per construction duration)								
County	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**	**HAPS**	**CO_{2e}**
Heavy Equipment Operation	0.2	2.0	<0.1	<0.1	<0.1	0.1	<0.1	400
Construction Fugitives	-	-	50	7	<0.1-	-	-	-
Total Project Emissions	**0.2**	**2.0**	**50.1**	**7.1**	**<0.1**	**0.1**	**<0.1**	**400**

Construction emissions shown in table 6 are not expected to result in a degradation of ambient air quality standards or an exceedance of the NAAQS. Columbia would minimize construction exhaust emissions by operating equipment on an as-needed basis and by using ultra-low sulphur diesel in construction equipment. In order to mitigate and minimize fugitive dust, Columbia has committed to using water trucks to wet disturbed surfaces, as needed, to minimize dust generation during construction activities.

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

8.1.5. Operational Emissions Impacts and Mitigation

Operation of the proposed Project would not result in any stationary source emissions. However, the Project would result in minor operational emissions due to fugitive natural gas emissions at the proposed new meter station. Fugitive emissions are minor leaks that would occur at various piping components, valves, fittings, and aboveground equipment. Although Columbia did not estimate fugitive emissions during Project operation, based on similar projects, FERC staff conservatively estimates that operation of the Project would result in 0.01 ton per year (tpy) of VOCs, 1,598 tpy of CO_2e, and 0.5 tpy of total HAPs. Because there are no stationary source emissions proposed for the Project, and based on the limited quantity of fugitive emissions during Project operation, we conclude the proposed Project would not cause or significantly contribute to a degradation of ambient air quality or result in an exceedance of the NAAQS.

8.2. Noise

Noise is generally defined as sound with intensity greater than the ambient or background sound pressure level. Construction and operation of the Project would affect overall noise levels in the Project area. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures that relate the time-varying quality of environmental noise to its

known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, the L_{dn} is the L_{eq} plus a 10 decibel on the A-weighted scale (dBA) penalty added to account for people's greater sensitivity to nighttime sound levels (typically considered between the hours of 10:00 p.m. and 7:00 a.m.). The A-weighted scale is used to assess noise impacts because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA, 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise (Bies and Hansen, 1988).

8.2.1. Federal Noise Regulations

In 1974, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA, 1974). This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate the potential noise impacts from the Project at noise sensitive areas (NSAs). NSAs are defined as homes, schools, churches, or any location where people reside or gather. FERC requires that the noise attributable to any new compressor engine or modifications during full load operation not exceed an L_{dn} of 55 dBA at any NSAs. This requirement is typically applied to meter stations as well. Due to the 10 dBA nighttime penalty added prior to the logarithmic calculation of the L_{dn}, for a facility to meet the 55 dBA L_{dn} limit, it must be designed such that actual constant noise levels on a 24-hour basis do not exceed 48.6 dBA L_{eq} at any NSA.

8.2.2. State and Local Noise Regulations

The City of Suffolk has a noise ordinance that establishes maximum allowable sound levels at the receiving property line. Because these sound levels are less stringent than FERC's sound level requirement, Columbia will meet these sound levels through compliance with FERC's noise standards.

8.2.3. Construction Noise Impacts and Mitigation

Noise would be generated during construction of the proposed Project. Construction activities in any one area could last from several days to several weeks on an intermittent basis. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and local. Columbia anticipates that construction noise level impacts would range from 50.1 to 62.5

dBA L_{dn} at the closest NSAs (which are 600 to 1,500 feet away). Columbia would conduct all construction activities between the hours of 7:00 am to 7:00 pm, Monday through Saturday. Additionally, Columbia stated it would develop a Noise Mitigation Plan prior to construction to identify mitigation measures to reduce sound levels at nearby NSAs. Based on the temporary nature of construction and the limited scope of the proposed Project, we conclude that Project construction would not result in significant noise impacts on residents or the surrounding communities.

8.2.4. Operational Noise Impacts and Mitigation

The new meter station would generate noise on a semi-continuous basis when in operation. Noise impacts associated with the operation of meter station would be limited to the vicinity of the facility. Columbia measured existing daytime and nighttime noise levels at the proposed meter station site, and estimated the noise impacts at nearby NSAs associated with operation of the new meter station. The results of this analysis are outlined in table 7 below.

Table 7
Noise Analysis for the New Meter Station

NSA	Type	Distance and Direction from Facility	Existing Ambient Sound Levels (dBA L_{dn})	Predicted Sound Level Contribution from Meter Station (dBA L_{dn})	Total Sound Level after Project Completion(dBA L_{dn})	Predicted Change in L_{dn} (dBA)
NSA 1	residences	850 feet north	58.7	38.6	58.7	0
NSA 2	residences	1,150 feet southwest	61.0	35.2	61.0	0

In order to reduce noise impacts on nearby NSAs, Columbia's noise consultant recommended the installation of several noise control measures at the new meter station. However, because some noise-generating components of the meter station are owned by VNG rather than Columbia, Columbia has not committed to installing specific noise control measures. Because the predicted sound level contribution from the meter station is well below our noise requirements, we believe that minor variations in noise control measures would not have a significant impact on the meter stations overall sound levels.

The results of the noise analysis above indicates that the noise attributable to operation of the meter station would be below our requirement of 55 dBA L_{dn}. Additionally, Columbia anticipates that there would be no increase in noise levels near the meter station during operation. Therefore, we conclude that operation of the proposed new meter station would not result in significant noise impacts on residents or the surrounding communities.

9.0 Reliability and Safety

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

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

9.1. Safety Standards

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

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

9.2. Emergencies

The DOT Pipeline Safety Regulations require operators to develop and follow a written integrity management program that contains all the elements described in 49 CFR 192.911 and addresses the risks on each transmission pipeline segment. The rule

establishes an integrity management program which applies to all high consequence areas. The DOT has published rules that define high consequence areas where a gas pipeline accident could do considerable harm to people and their property in a high-density population area and requires an integrity management program to minimize the potential for an accident.

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

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

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

10.0 Cumulative Impacts

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

This cumulative effects analysis generally follows a method set forth in relevant CEQ and EPA guidance and focuses on potential impacts from the proposed Project on resource areas or issues where the incremental contribution would be potentially

significant when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

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

The EA analyzed the Project's impacts on geology and soils; water resources; vegetation and wildlife; land use and visual resources; socioeconomics; cultural resources; and air quality and noise. We determined there would be no impacts on socioeconomics; therefore, this resource is not considered further in this cumulative impact analysis. Similarly, we determined that the Project impacts on geology, soils, water resources and wetlands, cultural resources, visual resources, and air quality and noise during operation would not be sufficient to cause cumulative impacts. The resources considered in the cumulative impact analysis for the proposed Project include vegetation and wildlife, land use, and air quality and noise during construction. The geographic scope used to assess cumulative impacts for each resource are discussed below in table 8.

Table 8
Geographic Scope of Cumulative Impacts Analysis

Resource	Geographic Scope
Vegetation and Wildlife	Nansemond River – Cedar Lake Watershed (HUC 12:020802080105)
Land Use	1 mile radius
Noise – Construction	0.25 mile radius
Air Quality – Construction	0.25 mile radius

The Hydrologic Unit Code (HUC) 12 watershed level was used in the cumulative analysis of vegetation and wildlife to establish a spatial extent for the analysis of additional projects contributing to cumulative impacts. Impacts on land use would be restricted to the Project area and the immediate surrounding vicinity, but large enough to capture trends (e.g. forest fragmentation) as part of the cumulative impact analysis; thus, the geographic scope for land use is a 1-mile radius around the Project area. As the proposed Project would not result in any perceptible change in operational air or noise emissions, our geographic scope was limited to consider effects on these resources during construction activity only. Therefore, the geographic scope for cumulative impacts on air quality and noise is 0.25 mile from construction activities.

10.1. Projects Identified within the Geographic Scope

An evaluation was performed to identify past, present, and reasonably foreseeable future projects within the resource-specific geographic scopes. In this analysis, we consider the impacts of past projects as part of the affected environment (environmental baseline) which was described and evaluated in the preceding analysis. However, present effects of past actions that are relevant and useful are also considered. Table 9 shows the projects that were identified within the geographic scope of the project that could have potential cumulative impacts.

10.2. Potential Cumulative Impact on Specific Resources within the Project Area

This section analyzes the cumulative impacts on the following resources in the Project area: vegetation and wildlife; land use; and air quality and noise during construction activities.

10.2.1. Vegetation and Wildlife

Historic land use, construction, and development practices have permanently impacted native vegetation communities in the Project area. There is no unique, sensitive, or protected vegetation in the vicinity of the Project area.

Overlapping construction schedules would result in greater area and duration of vegetation disturbance. Much of the vegetation impacts associated with the Project would be temporary; however, the construction of the new meter station would permanently convert 1 acre of forested land to industrial/commercial and open land. All other impacted areas would be allowed to revert to prior uses following construction, which would minimize cumulative impacts. Acreage of impacts for the projects listed in table 9 are currently unavailable. However, due to the abundance of similar habitats within the geographic scope, cumulative impacts on vegetation/wildlife habitat as a result of the proposed Project and projects listed in table 9 are anticipated to be minor.

Increased development and loss of vegetation and wildlife habitat within the geographic scope, including the Chesapeake Project, Route 58/Holland Road Improvements, Atlantic Coast Project, South Quay Bridge Replacement, Stratford Solar Center Energy Facility Project, and the proposed Project would cause wildlife to either adapt to new conditions (in the case of generalist species) or relocate to undisturbed suitable habitat. Displacement of wildlife could result in additional stress and increased competition in available habitats. In addition, direct mortality of less mobile species may occur as a result of development activities.

Table 9 Past, Present, and Reasonably Foreseeable Projects Considered in the Cumulative Impacts Analysis for Proposed Project					
Project Name	**Project Type**	**Closest Distance and Direction**	**Description**	**Status of Project**	**Potentially Affected Resources**
City of Chesapeake Water Line Reroute Project	Municipal - Construction	Approximately 0.25 mile south, west, southwest, and southeast of the Project.	Construction of a 1.0 million gallon ground storage tank and pump station in the Red Top area of the City of Suffolk and installation of approximately 47,000 linear feet of 36-inch-diameter raw water transmission main to convey water from the tank and pump station site to the Lake Gaston Water Treatment Plant in the City of Chesapeake.	Project began in late 2011 with an anticipated construction end date in 2019.	Wildlife, Vegetation, Land Use, Air Quality and Noise during Construction
Route 58/Holland Road Improvements	Municipal - Construction	Approximately 6.5 miles southwest of the Project	The 3.1–mile-long road widening project would provide an additional travel lane both east and west bound from Route 58/13/32 bypass to approximately 0.7 mile west of Manning Bridge Road. There would be an intersection and traffic signal upgrades. The project would also include a separated bikeway or multi-use path to accommodate pedestrians and bicyclists along the corridor. The City of Suffolk would administer all roles with state oversight.	Project to begin Summer 2021	Wildlife and Vegetation
Atlantic Coast Project (FERC docket Nos. CP15-554-000, CP15-554-001), and CP15-555-000)	Private - Development	Approximately 1.5 miles north of the Project	Construction of 519 miles of 42-and 36-inch-diameter natural gas pipeline in West Virginia, Virginia, and North Carolina; 84.6 miles of 20-and 16-inch-diamter natural gas pipeline in Virginia and North Carolina; three new compressor stations in Virginia and North Carolina; and nine meter stations.	Project certificated for construction in 2018. Construction expected to resume 2019-2020.	Wildlife and Vegetation
Stratford Solar Center Energy Facility	Private - Development	Approximately 10 miles southwest of the Project	Develop a solar energy facility at 1070 Hosier Road and 2013 White Marsh Road.	Unknown	Wildlife and Vegetation
South Quay Bridge Replacement (Route 189)	Municipal – Development	Approximately 22 miles southwest of the Project	Replacement of the existing bridge with a new bridge that has a 35-foot-tall clearance. The roadway would consist of two 11-foot-wide lanes and 6-foot-wide shoulders. Due to the higher elevation of the new bridge, improvement of 1,016 feet of approach roadway would also be required.	Summer 2020	Wildlife and Vegetation

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

While the other planned projects have the potential to impact these resources, the Project would not contribute significantly to cumulative impacts on vegetation and wildlife resources within the geographic scope of the Project.

10.2.2. Land Use

Much of the land use impacts associated with the proposed Project would be temporary; however, the construction of the new meter station on presently forested land and the removal of the existing meter station would be permanent. The Project would permanently convert about 1 acre of forested land to industrial/commercial and open land. All other impacted areas would be allowed to revert to prior uses following construction, which would minimize cumulative impacts.

The proposed Project along with those listed in table 9 would result in some visual impacts, but the degree of the Project's contribution to cumulative impacts in conjunction with these other projects would be highly variable. Cumulative impacts for visual resources are dependent on the line of sight of the observer; the proximity of the projects to one another, the timing of their observation; and the types of facilities that are being observed. As such, the cumulative impacts to visual resources are anticipated to be minor.

The Chesapeake Project is the only identified project within the geographic scope for land use; however, its distance from Columbia's Project (0.25 mile) would minimize any likelihood for cumulative visual impacts with the meter station. The Chesapeake Project would impact land use, including short-term impacts during construction, and long-term and permanent impacts as a result of permanent structures or easements likely resulting in the conversion of other land use types to industrial facilities. However, the proposed Project would not result in significant cumulative impacts on land use in the Project area.

10.2.3. Air Quality and Noise

Construction of the Project would result in short-term impacts on air quality and noise in the vicinity of the Project, as discussed in section B.7. Construction of the Chesapeake Project would overlap in geographic scope with the proposed Project; therefore, the Chesapeake project, in addition to the proposed Project may result in

cumulative impacts on air quality and noise during construction. Construction of these projects would involve the use of heavy equipment that would generate noise and emissions of air pollutants and fugitive dust. Construction equipment would result in increased noise levels in the project vicinity and short-term emissions that would be highly localized, temporary, and intermittent. To minimize fugitive dust, Columbia would water disturbed surfaces during construction. Because watering access roads and construction areas is a common construction best management practice, the Chesapeake Project may also implement similar dust control measures to minimize fugitive dust generation. To minimize noise levels during construction, Columbia would conduct all construction activities between the hours of 7:00 am and 7:00 pm. Based on the mitigation measures proposed by Columbia, and the temporary and localized impacts of construction, the Project would not result in significant cumulative impacts on air quality or noise during construction.

C. ALTERNATIVES

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

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

1.0. No Action Alternative

Under the no-action alternative, Columbia would not construct the Project; therefore, no environmental impacts would occur. However, Columbia would be unable to meet the natural gas needs of its customers by enhancing the reliability of its distribution system in the Virginia area. It is reasonable to assume that the customers would identify alternative measures to meet their natural gas needs that would also result in some level of environmental impact. Based on the minor impacts identified for the proposed Project, the alternative of the customers seeking another mechanism is likely to result in additional environmental impact and not likely to provide a significant environmental advantage. Further, the no-action alternative would not meet the objective of the Project. Therefore, we did not consider it further.

2.0. System Alternatives

System alternatives would make use of existing, modified, or planned pipeline systems or projects to meet the objectives of the project. Use of a system alternative would make it unnecessary to construct all or part of the proposed Project, though some modifications or additions to the existing or planned systems may be required. Such modifications or additions could result in environmental impacts; however, we have not identified any system alternatives that could meet the Project purpose.

3.0. Site Alternatives

Our review of the proposed Project found that environmental impacts associated with the new meter station have been minimized. No environmental issues have been identified at the proposed site, and we did not receive any site-specific comments or concerns from stakeholders regarding meter station site alternatives, nor did we receive any requests from stakeholders for such an evaluation. We conclude that the proposed site is acceptable and no further analysis of site alternatives is warranted.

4.0. Conclusion

We reviewed alternatives to Columbia's proposal based on our independent analysis. No system or site facility alternatives were identified that would provide a significant environmental advantage of the Project design. Therefore, we conclude that the proposed action is the preferred alternative that can meet the Project's objectives.

D. CONCLUSIONS AND RECOMMENDATIONS

Based upon the analysis in this EA, we have determined that if Columbia constructs and operates the proposed facilities in accordance with its application, supplements, Project-specific plans, and the staff's recommended mitigation measures below, approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission Order contain a finding of no significant impact and the following mitigation measures be included as conditions of any authorization and Certificate the Commission may issue to Columbia.

1. Columbia shall follow the construction procedures and mitigation measures described in its application and supplements, including responses to staff data requests and as identified in the EA, unless modified by the Order. Columbia must:

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

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

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

3. **Prior to any construction**, Columbia shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel would be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

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

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

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

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

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

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

6. **Within 60 days of the acceptance of the Certificate and before abandonment or construction begins**, Columbia shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Columbia must file revisions to the plan as schedules change. The plan shall identify:

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

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

7. Columbia shall employ at least one EI. The EI(s) shall be:

   a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
   b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
   c. empowered to order correction of acts that violate the environmental

conditions of the Order, and any other authorizing document;

d. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

e. responsible for maintaining status reports.

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

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

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

10. Columbia must receive written authorization from the Director of OEP **before placing the Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

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

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

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