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2.0 AIR QUALITY PROTECTION

2.1 INTRODUCTION

The Project will develop, establish and maintain an Air Quality Protection (AQP) Program. The purpose of the AQP Program is to establish the criteria and methodologies to manage air quality protection measures during the design, construction, and operation of the Project.

The Project will prepare a Air Quality Protection Plan (AQPP) that will serve as a guide to the implementation of the AQP Program through coordination with the Technical and other Environmental Protection Programs through all phases of the Project.

The Project will involve a variety of activities and facilities that will generate air emissions. These include construction equipment exhaust, diesel generators and incinerators at camps, dust from excavated soils, and road dust from transportation of materials equipment to the remote work sites along the Dalton Highway in northern Alaska. During operation, the compressor stations will exhaust combustion gases from the gas turbines into the atmosphere and may produce a visible vapor cloud during cold weather.

2.2 CRITERIA

Air quality criteria potentially applicable to the Alaska segment activities, and discussed in this document, include:

- Federal, state, and municipal government air quality laws and regulations pertaining to ambient air quality standards, pre-construction and operating approvals, equipment emission limitations, open burning, fugitive dust, and vehicle emissions.
- Air pollution episode regulations for the Fairbanks North Star Borough.

Air quality design criteria are established by governmental laws and regulations for both the construction phase (temporary facilities and construction equipment) and operations phase (permanent facilities) of the Alaska segment. Table 2-1 lists the pertinent air quality statutes, ordinances, regulations, and other air quality compliance requirements.

2.2.1 Federal Regulations

The Clean Air Act as amended authorizes federal air quality regulations potentially applicable to activities relating to the Alaska segment. Responsibility for certain federal air quality programs has been delegated to the Alaska Department of Environmental Conservation (see State Regulations, below)

Federal emission standards for stationary sources are the following:

- 40 CFR 60 – Standards of Performance for New Stationary Sources (commonly known as New Source Performance Standards or NSPS)
- 40 CFR 61 – National Emission Standards for Hazardous Air Pollutants (NESHAPS)

- 40 CFR 63 – National Emission Standards for Hazardous Air Pollutants by Source Categories (commonly known as maximum achievable control technologies or MACT standards)

NSPS, NESHAPS, and MACT standards establish air pollutant emission limitations or control technology requirements for certain types of new industrial equipment or processes. Standards that may apply to the proposed Alaska segment pipeline facilities include:

- NSPS Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
- NSPS Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
- NSPS Subpart I – Standards of Performance for Hot Mix Asphalt Facilities
- NSPS Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels
- NSPS Subpart GG – Standards of Performance for Stationary Gas Turbines
- NSPS Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants
- NESHAP Subpart E – National Emission Standard for Mercury
- MACT Subpart HHH – National Emission Standard for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities

Other applicable authorities that will be reviewed for the Project include:

- 18 CFR 380.12, “FERC’s Environmental Reports for Natural Gas Act Applications,” and FERC environmental policy guidelines thereunder;
- Federal Right-of-Way Grant for the Alaska Natural Gas Transportation System Alaska Segment, Serial No. F-24538 (December 1, 1980), as such may be updated and/or amended from time to time.
- Federal Energy Regulatory Commission conditional certificate of public convenience and necessity, issued on December 16, 1977, as such is finalized.

2.2.2 State Regulations

State air quality regulations pertaining to the Alaska segment are defined by the Alaska Air Quality Control (AQC) Regulations (18 AAC 50) under authority of the Alaska Air Quality Control Statutes (AS 46.14). These regulations establish Alaska ambient air quality standards (essentially identical to the national ambient air quality standards), prevention of significant deterioration (PSD) Class I areas within Alaska, state emission standards, fugitive dust, open burning, and ice fog requirements, and AQC construction and operating permit requirements. All applicable state and federal air quality requirements for stationary sources are identified and tracked through the ADEC’s construction or operating permit programs.

2.2.3 Air Quality Control Construction Permits

A construction permit is required for each pipeline facility consisting of sources that:

- Require an air contaminant control unit or system and are an industrial process with a design throughput greater than five tons per hour or a rated fuel consumption of 50 MMBtu/hr or greater.
- Have equipment with total combined fuel consumption rating of 100 MMBtu/hr or greater, and have incinerators with a total combined capacity of 1000 lbs/hr or more.
- Are PSD major facilities (250 tons per year (tpy) or more of a regulated air contaminant), are major sources of hazardous air pollutants (HAPs).

Construction permits may specify emission limitations and operating restrictions necessary to ensure compliance with applicable emission standards, ambient air quality standards, and other air quality requirements.

2.2.4 Air Quality Control Operating Permits

An operating permit is required for each pipeline facility that requires a construction permit and additionally for any other facilities consisting sources which:

- Are subject to NSPS, NESHAPs, or MACT standards
- Are Title V major facilities (100 tpy or more of a regulated air contaminant)

Operating permits specify the monitoring, record-keeping, and reporting requirements necessary to ensure compliance with applicable air quality requirements.

2.2.5 Fugitive Dust Control

For sections of the Alaska segment where an AQC construction permit is not required, there is still a general obligation to control fugitive dust. Alaska regulations require the following:

- Anyone who engages in an industrial activity or construction project, or who handles, transports, or stores bulk materials must take reasonable precautions to prevent particulate matter from being emitted into the ambient air.

2.2.6 Open Burn Approvals

For sections of the Alaska segment where an AQC construction permit is not required, an ADEC open burn approval will be required for any burn that yields black smoke. Open burn approvals impose conditions on the types of materials to be burned, method of burning, locations of the burn, and times when burning is permitted.

The Alaska Department of Natural Resources (ADNR), Division of Forestry, issues burning permits during the fire season of May through September in designated areas of the state. The permit may specify times and dates of burn, minimum number of persons and equipment available, and limits on the size and number of burns. Permitted burns are confined to areas with exposed mineral soil, gravel or rock, or must be surrounded by a firebreak. During periods of critical fire danger, certain areas may be closed to burning, smoking, or entry.

2.2.7 Local Regulations

The Fairbanks North Star Borough (FNSB) has ordinances that establish air quality criteria within the borough:

- Open burning of trees, brush, stumps, or construction debris in piles greater than 10 feet square is prohibited in designated urban and industrial areas. Open burning of putrescible waste, wire, wire insulation, and sheathing is prohibited in the entire borough. Open burning that reduces visibility to less than ¼ mile along a roadway is also prohibited.
- All open burning is prohibited within the City of Fairbanks and designated areas of the remainder of the borough from November 1 through February 28.
- Vehicles registered, principally located, or principally used within the borough must be inspected and maintained in accordance with the Fairbanks I/M program handbook. Certificates of inspection and windshield stickers are required.
- Employers or businesses with 275 or more parking spaces within the borough non-attainment area must provide electricity to parking lot electrical outlets between November 1 and March 31 whenever temperatures fall below 21°F. New parking lots of 275 spaces or more must have electrical outlets.

2.3 METHODOLOGIES

The Project will develop an Air Quality Protection Plan (AQPP) that defines the structure and functions of the AQP Program and presents the specific criteria and methodologies for protecting air quality. The Project will coordinate with the Alaska Department of Environmental Conservation (ADEC) and the Alaska Department of Natural Resources (ADNR) in the development of the AQPP.

The general methodologies for air quality protection are considered for each of the following topics:

- Pre-construction ambient air and meteorological monitoring and emissions modeling
- Construction camp equipment emissions, controls, and limitations
- Permanent facilities emissions, controls, and limitations
- Mobile and vehicular emissions during construction
- Mitigation of potential carbon monoxide and ice fog impacts on the Fairbanks urban area

- Open burning of waste materials during construction
- Construction-related fugitive dust
- Quality assurance

2.3.1 Federal and State Emission Standards

Applications for AQC construction and operating permits require demonstrations that emission sources can comply with federal and state emission standards. See 18 AAC 50.310(c)(4)(J) and 18 AAC 50.335(i)(1). The compliance demonstrations are generally one of the following:

- Manufacturers' guaranteed emission rates
- Manufacturers' estimated emission rates with a reasonable compliance margin
- Monitoring or source test data from identical or similar units
- Engineering calculations
- EPA published emission factors

All facility emission standards will be addressed through the permitting process. If compliance with applicable standards cannot be demonstrated during the permitting process or through approved post-construction methods, mitigation measures will be necessary. Potential mitigation measures that would be considered include:

- Changes in equipment type
- Revised combustion design
- Addition of air pollution control equipment
- Restrictions on fuel types
- In-use operating restrictions such as hours or fuel use limitations

Once a facility is constructed and operating, permits or regulations can require an actual demonstration of compliance with emission standards as a quality assurance measure. Methods for demonstrating actual compliance include:

- Engineering calculations based on operating data
- Sampling and analysis of stack gases
- Parametric emission monitors
- Continuous emission monitors

2.3.2 Ambient Air Quality Standards and Visibility Protection Areas

Applications for AQC construction permits require demonstrations that construction and operation of a facility will not interfere with attainment or maintenance of the ambient air quality standards or maximum allowable ambient concentrations. See 18 AAC 50.310(n). Additionally, for facilities in or near a nonattainment area, the applicant must demonstrate that ambient air

quality impacts from construction and operation of a facility will be insignificant. See 18 AAC 50.310(d)(2), (f), and (g). Furthermore, for PSD facilities, an applicant must provide an analysis of the impact of expected maximum emissions from the facility on visibility. See 18 AAC 50.310(d)(4).

Methods that will be employed to demonstrate compliance with air quality and visible emission standards are generally one or more of the following:

- Pre-construction ambient air and/or meteorological monitoring data
- Modeling of construction emissions, including applicable mobile sources
- Modeling of emissions from permanent facilities

Ambient monitoring, emissions modeling, or both will be used to demonstrate compliance with any potential carbon monoxide impacts in the Fairbanks urban area. During the permitting process, modeling compliance demonstrations will consider emissions as applicable from construction equipment, mobile sources, and permanent facilities.

If compliance with ambient standards or visibility protection areas cannot be demonstrated, mitigation measures will be identified and considered. Issues that affect air quality impacts and therefore provide opportunities for mitigation include:

- Facility emissions – reducing emissions reduces ambient impacts
- Stack characteristics – higher, vertical stack that avoid building downwash reduce impacts
- Land controlled by facility operator – more land reduces impacts at the fence line where the public has access
- Proximity of elevated terrain – nearby elevated terrain increases impacts
- Proximity of offsite sources – moving further away from offsite facilities reduce combined impacts
- Proximity of special air quality control areas – moving further away from special control areas (such as the Fairbanks non-attainment area) reduces project impacts on those areas

For quality assurance purposes, permits may require ambient monitoring during construction or after facility operation begins. This requirement is determined on a case-by-case basis depending on whether regulators are satisfied with the margin of compliance with air quality standards and the effectiveness of mitigation measures proposed.

2.3.3 Fugitive Dust Requirements

To address the general obligation to control fugitive dust, a fugitive dust control plan will be prepared for construction and, if necessary, operation of the Alaska segment. Mitigation measures for dust control may include:

- Minimizing total disturbed areas

- Applying water or approved chemical dust suppressants as needed on dirt roads, parking or staging areas, construction operations, or land clearing
- Establishing work practices that minimize dust generation such as limits on vehicle speeds on disturbed areas and minimizing drop distances during loading and unloading operations
- Using covers during transportation of dusty bulk materials
- Re-establishing suitable ground cover as soon as possible after construction is complete

Quality assurance for dust control plans will include ongoing worker awareness training and periodic visual surveys to ensure that dust does not become a safety hazard or nuisance to the public.

2.3.4 Open Burning Requirements

Open burning generally will not be used where alternative means of waste disposal are available. Alternatives that will be considered include:

- Recycling and reuse
- Backhaul to approved treatment or disposal facilities
- Incineration

Where alternatives are not available and open burning is required, any necessary approvals will be obtained in advance from ADEC and ADNR. Additionally, open burning will be conducted in accordance with applicable FNSB ordinances. The following mitigation measures will be considered for all open burning, whether a permit is required or not:

- Burn material will be kept as dry as possible through covering or dry storage
- Before igniting, noncombustible, grass, and peat will be separated to the greatest extent practicable
- There will be a natural or artificially induced draft
- Smoldering of combustibles will be minimized
- Burning will not occur during stagnant air conditions such as fog or temperature inversions
- Burns will be located such that winds help disperse smoke away from roads, work areas, and populated areas.

For quality assurance, a log will be kept of any calls or complaints from concerned citizens. Each call or inquiry will be reviewed to determine how best to address the concern, and open burning plans will be adjusted accordingly.

2.3.5 Ice Fog Requirements

Ice fog may be an issue for operation of compressor stations near roads or populated areas. The ADEC will address this issue during the permitting and any necessary operating restrictions or mitigation measures will be identified at that time. Mitigation measures that will be considered include minimization of plume water vapor and curtailment of operations. Quality will be assured through the ongoing monitoring required by the AQC operating permits and by reviewing complaint logs.

2.3.6 Fairbanks North Star Borough Requirements

In addition to complying with applicable open burning ordinances, FNSB will require compliance with its I/M program for motor vehicles and that electrical outlets in parking lots with more than 275 spaces are actively maintained and energized during cold weather. The AQPP will identify these requirements and ensure that they are addressed as vehicles are assigned to project construction or operation and as office, warehouse, or other project space is acquired. Quality assurance will be provided by periodic internal review and ongoing consultation with FNSB air quality staff.

2.4 FIGURES AND TABLES

Table 2-1 Sources of Air Quality Requirements

**Table 2-1
Sources of Air Quality Requirements**

Description	Citation	Responsible Agency
Clean Air Act as amended	42 USC 7401, et seq.	U.S. EPA
Federal emission standards for stationary sources	40 CFR 60, 61, 63	U.S. EPA
Stipulations to the Federal Grant for ANGTS	Right-of-Way Grant F-24538 ¹	U.S. DOI
Alaska Air Quality Control Statutes	AS 46.14	ADEC
Alaska Air Quality Control Regulations	18 AAC 50	ADEC
Ambient air quality standards and increments	18 AAC 50.010, 020	ADEC
Visibility protection areas	18 AAC 50.025	ADEC
State emission standards	18 AAC 50.040, 050, 055	ADEC
Fugitive dust requirements	18 AAC 50.045	ADEC
Open burning requirements	18 AAC 50.065	ADEC
Ice fog requirements	18 AAC 50.080	ADEC
Construction permit regulations	18 AAC 50.300, et seq.	ADEC
Operating permit regulations	18 AAC 50.335, et seq.	ADEC
Burning permit	11 AAC 95.410, et seq.	ADNR
Fairbanks air pollution ordinances	Ordinances 8.04, 8.18, 8.20	FNSB

Notes:

¹Federal Right-of-Way Grant for the Alaska Natural Gas Transportation System Alaska Segment, Serial No. F-24538 (December 1, 1980), as such may be updated and/or amended from time to time.