3.20 AIR QUALITY

This section addresses potential impacts from the Proposed Action and Action Alternatives during construction, operation, and decommissioning. Emissions of air pollutants from the proposed Project would primarily be generated from the following activities: 1) construction of on- and off-ROW access roads, 2) construction of the support structure pad sites and structure erection, and 3) post-construction activities involved with the ongoing use and maintenance of the transmission line, substations, and corridor. The Project is located in Wyoming, Idaho, and Nevada, and as such the air quality regulations of each state are applicable to construction and operation[1].

3.20.1 Affected Environment

This section discusses those aspects of the environment that could be impacted by the Project. It starts with a discussion of the Analysis Area considered, identifies the issues that have driven the analysis, and characterizes the existing conditions across the Proposed Route in Wyoming and Idaho.

3.20.1.1 Analysis Area

The Analysis Area for purposes of the air quality assessment encompasses the geographic areas defined by applicable state air quality plans, federal General Conformity thresholds, and local requirements within the geographic areas crossed by the Proposed Route and Route Alternatives.

3.20.1.2 Issues to be Analyzed

The following air quality-related issues were brought up by the public during public scoping (Tetra Tech 2009a), were raised by federal and state agencies during scoping and agency discussions, or are issues that must be considered as stipulated in law or regulation:

- Would the proposed Project be inconsistent with the applicable air quality plans?
- What would be the effects on human health of any increase in airborne pollutants caused by the Project?
- Would the proposed Project generate emissions of air pollutants that would exceed established thresholds, or cause adverse impacts on air quality?
- Would the proposed Project cause or contribute to any violation of any state or federal ambient air quality standards?
- Would the proposed Project expose sensitive receptors to substantial pollutant concentrations?
- What would be the methods used to control dust?
- What would be the steps taken to minimize air quality impacts?

[1] A 7-mile segment of Alternative 7I is located on the Nevada side of the Idaho-Nevada border in Elko County.

- How much greenhouse gas (GHG) emissions would be associated with this Project, and what would be the effect of the Project on climate change?

3.20.1.3 Regulatory Framework

Federal Level

Separate procedures have been established for federal pre-construction review of certain large proposed projects in attainment areas versus non-attainment areas. Federal pre-construction review for affected sources located in attainment areas is formally called Prevention of Significant Deterioration; the review process is intended to prevent a new source from causing air quality to deteriorate beyond acceptable levels. Federal pre-construction review for affected sources located in non-attainment areas is commonly referred to as New Source Review.

The emission threshold for "major stationary sources" varies between PSD and New Source Review (NSR) according to the type of facility and the attainment status of the area. The emissions calculations discussed later in this section indicate that none of the Gateway Project facilities during construction are considered stationary sources, nor would they be large enough, subsequent to construction, to trigger PSD or NSR requirements. Further information on the determination of applicability of PSD and/or NSR is presented below.

Prevention of Significant Deterioration—PSD thresholds apply to emissions of attainment pollutants from stationary sources. The proposed construction of the transmission line, substation expansion, and related additions at associated aboveground facilities are not considered to be stationary sources, and as such they are not subject to the provisions of the PSD regulations.

Federal New Source Review (Non-attainment)—Federal NSR provisions apply to emissions of nonattainment pollutants from stationary sources. The proposed construction of the transmission line, substation expansion, and related additions are not considered to be stationary sources, and as such they are not subject to the provisions of the NSR regulations.

New Source Performance Standards—Currently, there are no New Source Performance Standards applicable to construction activities pertaining to transmission lines and substation expansion.

National Emission Standards for Hazardous Air Pollutants—Currently, there are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) applicable to construction activities pertaining to transmission lines and substation expansion.

Title V Operating Permits

Currently, there are no Title V regulations applicable to construction activities pertaining to transmission line and substation construction or expansion.

General Conformity

A federal agency must make a determination that permitting or approving an activity will conform to the state implementation plan in accordance with 40 CFR Part 93.150. A conformity determination is required for each pollutant when the total of direct and

indirect emissions caused by a federal action in a non-attainment area would equal or exceed threshold quantities specified in 40 CFR Parts 93.153(b) (1) and (2). The applicable conformity thresholds for the Project area are as follows:

- NSR – 100 tons per year for nitrogen oxides, carbon monoxide, volatile organic compounds, sulfur oxides, and particulate matter with a diameter of less than 10 microns (NO_x, CO, VOC, SO_x, and PM_{10}, respectively).
- PSD – 250 tons per year for NO_x, CO, VOC, SO_x, and PM_{10}.
- Title V – 100 tons per year for NO_x, CO, VOC, SO_x, and PM_{10}.
- Conformity Thresholds – 100 tons per year for NO_x, CO, VOC, SO_x, and PM_{10}.

Based upon the use of conservative emissions estimates, the emissions from the construction and operation of Gateway West, in the identified nonattainment areas, would be below the conformity thresholds; therefore, the Project would be exempt from performing a comprehensive conformity analysis.

State Level

Wyoming air emissions are regulated by the Wyoming Air Quality Standards and Regulations. Chapter 3 of the standards and regulations addresses emissions of particulates, NO_x, SO_x, CO, VOCs, hydrogen sulfide, and asbestos. This regulation also requires the control of fugitive dust generated during the construction phase.

Idaho air emissions are regulated by the IDAPA. IDAPA Chapter 58.01.01 presents the applicable regulations for criteria pollutants and fugitive dust control.

Nevada air emissions are regulated by the NRS 445B.100 through 445B.825, 486A.010 through 486A.180, and Nevada Administrative Code 445B.001 through 445B.899. Fugitive dust emissions from construction activities are regulated under Nevada Administrative Code Section 445B.22037.

Table 3.20-1 presents a summary of applicable regulations for each state.

Fugitive Dust Control

Sources, including construction projects, operating within Wyoming, Idaho, and Nevada are required to control fugitive dust emissions. Table 3.20-2 lists the fugitive dust regulations and control measures that apply to the Project.

Table 3.20-1. Regulatory Applicability Summary

General Regulatory Programs Applicable to the Gateway Project	Wyoming	Idaho	Nevada[4/]
New Source Review	No	No	No
Prevention of Significant Deterioration	No	No	No
NESHAPs – Title III	No	No	No
Title IV – Acid Rain	No	No	No
Title V – Part 70 Permits	No	No	No
General Permit Requirements[1/]	Yes	Yes	Yes
Dispersion Modeling	No	No	No
Impact Analysis	No	No	No
Fugitive Dust Mitigation Program	Yes[2/]	Yes[3/]	Yes[5/]

NESHAP = National Emissions Standards for Hazardous Air Pollutants

1/ Permits not required for construction activities or construction equipment use. Permits are not required for substation construction or operation. Permits may be required for the temporary siting and use of the portable concrete plants.

2/ Wyoming Air Regulations, Chapter 3, Section 2(f).

3/ Idaho Air Regulations, Sections 650 and 651.

4/ Included in table for the Nevada portion of Alternative 7I only.

5/ Nevada Air Regulations, Nevada Administrative Code Section 445B.22037.

Table 3.20-2. Fugitive Dust Regulations

Wyoming Regulations pursuant to Chapter 3, Section 2(f)
(f) Fugitive Dust. Sources operating within the State of Wyoming are required to control fugitive dust emissions. The following control measures or any equivalent method approved by the Division Administrator shall be considered appropriate for minimizing fugitive dust:
(i) Construction/Demolition Activities. (A) Any person engaged in clearing or leveling of land, earthmoving, excavation, or movement of trucks or construction equipment over access haul roads or cleared land shall take steps to minimize fugitive dust from such activities. Such control measures may include frequent watering and/or chemical stabilization. (B) Any person engaged in demolition activities including razing of homes, buildings, or other structures; or removing paving material from roads and/or parking areas shall take steps to minimize fugitive dust from such activities. Such control measures may include frequent watering and/or chemical stabilization. (C) Any person who is engaged in construction or demolition activities which tracks earth or other materials onto paved streets shall promptly remove such material by water or other means. (D) Any person engaged in sandblasting or similar operations shall take steps to minimize fugitive dust from such activities. Such control measures may include the installation and use of hood, fans and fabric filters to enclose and vent the handling of dusty materials.
***(ii) Handling and Transporting of Materials*.** (A) Any person owning, operating or maintaining a new or existing material storage, handling and/or hauling operation shall minimize fugitive dust from such an operation. Such control measures may include the application of asphalt, oil, water or suitable chemicals on unpaved roads, material stockpiles and other surfaces which can give rise to airborne dusts. Control measures for material handling may also include installation and use of hoods, fans and fabric filters to enclose and vent dusty materials. (B) When transporting materials likely to give rise to airborne dust, open bodied trucks shall be covered when in motion.

Table 3.20-2. Fugitive Dust Regulations (continued)

Idaho Regulations pursuant to Rules 650 and 651
650. RULES FOR CONTROL OF FUGITIVE DUST. The purpose of Sections 650 through 651 is to require that all reasonable precautions be taken to prevent the generation of fugitive dust. (5-1-94)
651. GENERAL RULES. All reasonable precautions shall be taken to prevent particulate matter from becoming airborne. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities, the proximity to mandatory Class I Federal Areas and atmospheric conditions which might affect the movement of particulate matter. Some of the reasonable precautions may include, but are not limited to, the following: (3-30-07)
01. Use of Water or Chemicals. Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land. (5-1-94)
02. Application of Dust Suppressants. Application, where practical, of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, material stockpiles, and other surfaces which can create dust. (5-1-94)
03. Use of Control Equipment. Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations. (5-1-94)
04. Covering of Trucks. Covering, when practical, open bodied trucks transporting materials likely to give rise to airborne dusts. (5-1-94)
05. Paving. Paving of roadways and their maintenance in a clean condition, where practical. (5-1-94)
06. Removal of Materials. Prompt removal of earth or other stored material from streets, where practical.

Nevada Regulations pursuant to Nevada Administrative Code 445B.22037
1. Apply for a surface disturbance permit pursuant to State of Nevada Department of Conservation and Environmental Resources, Division of Environmental Protection (NDEP) guidance. 2. Prepare a fugitive dust control plan pursuant to NDEP guidance. 3. Implement an ongoing program for fugitive dust control which relies upon Best Practical Methods as defined by NDEP/Bureau of Air Pollution Control. NDEP guidance documents: NDEP 2002, 2007

Permitting Exemptions for Portable Concrete Batch Plants

Wyoming – Chapter 6 of the Wyoming Air Quality Standards and Regulations does not contain any specific permitting exemptions applicable to portable concrete plants. Chapter 6, section (k) provides a general exemption based upon emissions rates and ambient impacts. Considering the remote location of the route and the emissions rate noted below, it would be reasonable to assume that the concrete batching activities may qualify for the Section (k) exemption in Wyoming. Additionally, the Wyoming Air Quality Standards and Regulations allow for the movement of portable sources which already have existing permits (Chapter 6, section (b)(ii). Any of the proposed portable batch plants which already have permits from the Wyoming Air Division under this provision would be allowed to utilize a "self issuance" permit to operate for new locations along the Wyoming portion of the route.

Idaho – IDAPA 58.01.01, sections 220 through 222, contain provisions for permit exemptions. The proposed portable concrete batch plants would in all likelihood meet the requirements for permit exemption under these provisions especially when considering that "fugitive emissions shall not be considered in determining whether a source meets the applicable exemption criteria unless required by federal law", per

Section 220, and fugitive emissions would be the predominant emissions from such plants.

Nevada – Any portable concrete plants planned for use on the 7-mile segment of Alternative 7I would most likely be required to contact NDEP and obtain a decision on any required stationary or portable source permits.

3.20.1.4 Methods

The methods used to estimate emissions from the construction and operations phases of the proposed Project are explained in detail in the Air Quality Technical Report found in the Administrative Record. These methods represent currently accepted techniques for deriving emissions estimates from construction and operations activities. These methods consider:

- Construction disturbance areas within the Proposed Action or Action Alternatives, i.e., access road construction and use during the construction phase, tower construction areas, and substation construction areas;
- Construction equipment exhaust emissions;
- Use of portable concrete batch plants during the construction phase;
- Vehicle exhaust emissions associated with construction worker travel and construction supply delivery along the routes;
- Use of unpaved access roads during the operations phase; and
- Vehicle emissions used for inspection and maintenance during the operations phase.

3.20.1.5 Existing Conditions

Climate

Wyoming

The regional climate of the Analysis Area is predominantly classified as continental with some areas in Wyoming classified as semi-arid. Surface wind direction and precipitation in the Project area vary significantly due to differences in geographical location and geographical features. Annual average wind speeds within the Analysis Area range from 7.7 to 12.9 miles per hour. Annual average wind directions are predominantly from the southwest, with fluctuations from the west and southeast. Highest annual average temperatures range from 50°F to 55°F, while the lowest annual average temperatures range from 31°F to 34.3°F, within the Analysis Area. Summer temperatures in southern Wyoming can rarely exceed 100°F but average July temperatures range between 85°F and 95°F. January is typically the coldest month with minimum average temperatures of approximately 5°F and 10°F. However, low temperatures below 0°F are not uncommon (Curtis and Grimes 2008). Annual average precipitation amounts range from 12.7 to 19.0 inches per year within the Analysis Area.

The climate of any area in Wyoming is largely determined by its latitude, altitude, and local topography. These factors influence weather system airflow patterns, temperature variations, precipitation, and humidity as they migrate eastward. Surface elevations

range from the summit of Gannett Peak in the Wind River Mountains, at 13,804 feet, to the Belle Fourche River Valley in the state's northeast corner, at 3,125 feet. This difference in elevation explains why areas in the northern part of the state at 4,400 feet have mean annual July temperatures of about 7°F higher than areas in the southwest corner of the state, at 6,800 feet. Wyoming is located deep in the interior of the North American continent, away from any moderating influence of oceans, resulting in long winters and mild summers. In winter, Wyoming is often beneath the jet stream, or north of it, which accounts for its frequent strong winds, blasts of arctic air and precipitation. In summer, the jet stream retreats northward over Canada, leaving the state's weather mild and pleasant. Generally, summer daytime temperatures display a range in the 70s and 80s. Ninety degree days are rare anywhere in the state, and daily temperatures over 100˚F are rarely experienced.

Idaho

Idaho lies entirely west of the Continental Divide. The northern part of the state averages lower in elevation than the much larger central and southern portions, where numerous mountain ranges from barriers to the free flow of air from all points of the compass. In the north the main barrier is the rugged chain of Bitterroot Mountains forming much of the boundary between Idaho and Montana. The extreme range of elevation in the state is from 738 feet of the confluence of the Clearwater and Snake Rivers to 12,655 feet at Mt. Borah in Custer County. Comprising rugged mountain ranges, canyons, high grassy valleys, arid plains, and fertile lowlands, the state reflects in its topography and vegetation a wide range of climates.

To a large extent, the source of moisture for precipitation in Idaho is the Pacific Ocean. In summer, there are some exceptions to this when moisture-laden air is brought in from the south at high levels to produce thunderstorm activity, particularly in the eastern part of Idaho. Sizeable areas in the Clearwater, Payette, and Boise River Basins receive an average of 40 to 50 inches per year, with a few points or small areas receiving in excess of 60 inches. Large areas including the northeastern valleys, much of the Upper Snake River Plains, Central Plains, and the lower elevations of the Southwestern Valleys receive less than 10 inches annually. Snowfall distribution is affected both by availability of moisture and by elevation. Annual snowfall totals in North Idaho have reached nearly 500 inches in the past. The major mountain ranges of the state accumulate a deep snow cover during the winter months, and the release of water from the melting snowpack in late spring furnishes irrigation water for more than 2 million acres, mainly within the Snake River Basin above Weiser.

Nevada

Nevada is located in the Basin and Range physiographic province and its topography consists mainly of north-south trending mountains separated by structurally controlled valleys. The eastern part has an average elevation of between 5,000 and 6,000 feet. The western part is between 3,800 and 5,000 feet, the lower limit being in the vicinity of Pyramid Lake and Carson Sink. The southern part is generally between 2,000 and 3,000 feet. From the lower elevations of the western portion there is a fairly rapid rise westward toward the summits of the Sierra Nevada. The southwestern part slopes down toward Death Valley, California; the southern portion slopes toward the channel of the Colorado River, which is less than 1,000 feet above sea level. The northeastern

part slopes toward the north, draining into the Snake River and thence into the Columbia River Basin.

Nevada has great climatic diversity, ranging from scorching lowland desert in the south to cool mountain forests in the north. Its varied and rugged topography, mountain ranges, and narrow valleys range in elevation from about 1,500 to more than 10,000 feet above sea level. Wide local variations of temperature and rainfall are common. The principal climatic features are bright sunshine; small annual precipitation (averaging 9 inches in the valleys and deserts); heavy snowfall in the higher mountains; clean, dry air; and exceptionally large daily ranges of temperature.

The mean annual temperatures vary from the middle 40s in the northeast to about 50°F in the west and central areas and to the middle 60s in the south. There is strong surface heating during the day and rapid nighttime cooling because of the dry air, resulting in wide daily ranges in temperature. Even after the hottest days, the nights are usually cool. The average range between the highest and the lowest daily temperatures is about 30°F to 35°F. Daily ranges are larger in summer than the winter. Extreme temperatures have ranged from 120°F to 50°F below zero. The prevailing winds are from the west. The average annual number of days with precipitation of 0.01 inch or more varies considerably; Las Vegas averages 23 days, Reno 49, Winnemucca 67, Ely 72, and Elko 78.

Air Quality

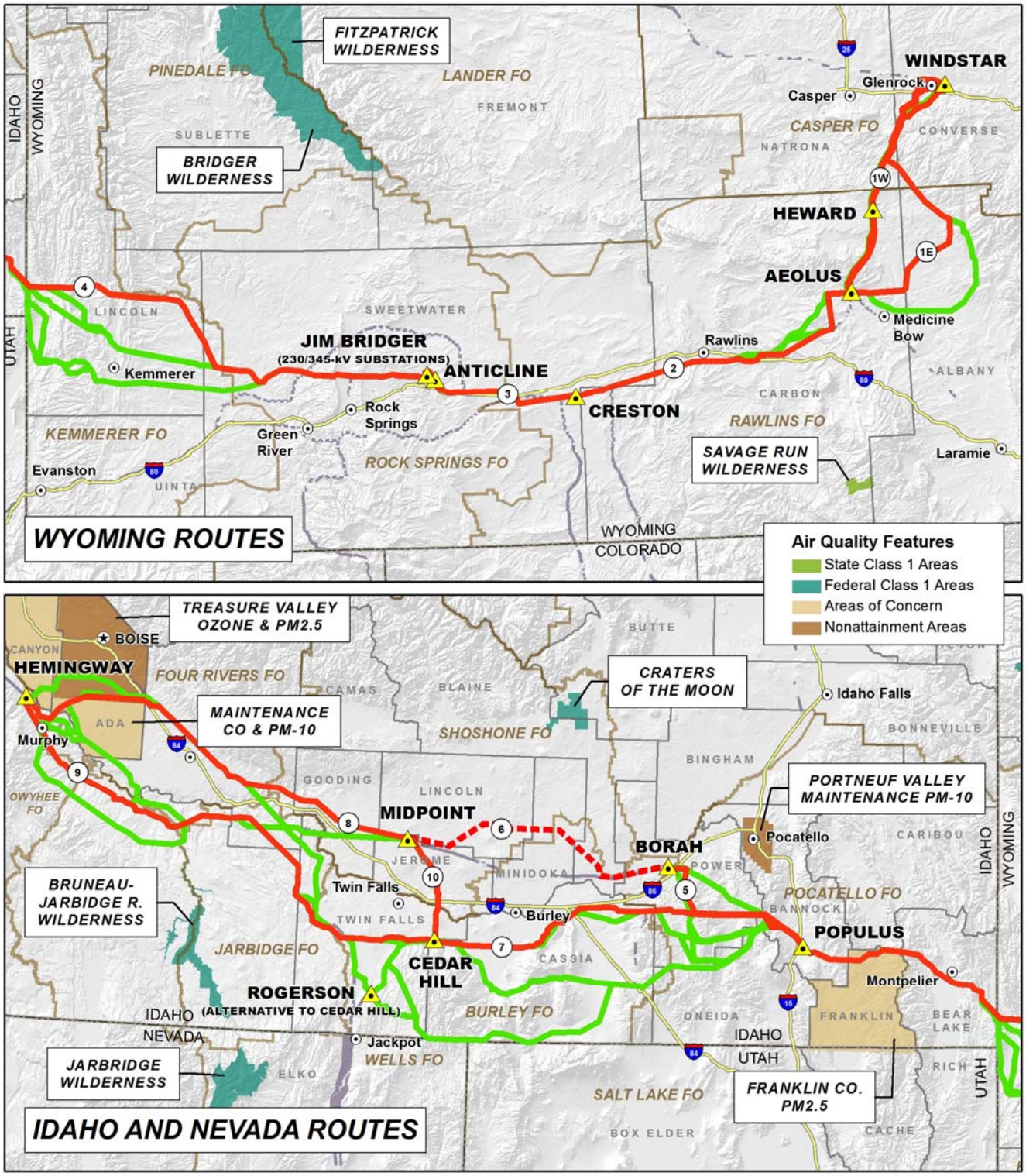
Federal and state air regulations are designed to ensure that ambient air quality, including background, existing, and new sources, are in compliance with the ambient standards. The USEPA has established National Ambient Air Quality Standards for criteria pollutants for the purpose of protecting human health (primary standards) and public welfare (secondary standards). These criteria pollutants are: nitrogen dioxide, CO, ozone, SO_2, lead, PM_{10}, and $PM_{2.5}$.

USEPA has designated all areas of the United States as “attainment,” “non-attainment,” or “unclassified” with respect to ambient air quality standards. Existing air quality in each of the states is generally good to excellent. Table 3.20-3 delineates the current federal and state-specific ambient air quality standards. Figure 3.20-1 shows the current locations of the Idaho and Wyoming nonattainment areas, and other areas of air quality concern. Idaho is in attainment with the exception of two PM_{10} nonattainment areas in the southeast corner of the state and the north Ada County CO and PM_{10} maintenance area. At present, there are no nonattainment areas in the State of Wyoming, although the WDEQ has proposed that an ozone nonattainment area be established in the Upper Green River Basin area (State of Wyoming 2009). Currently, there are no nonattainment or maintenance areas in the Elko County region of Nevada that would be affected by the construction of Alternative 7I. Each of the states in question has numerous Class I areas. Figure 3.20-1 shows the Class I area locations in Idaho and Wyoming. The closest Class I areas to the Project (both in Idaho) are: 1) the Craters of the Moon National Monument and Preserve area approximately 50 miles north of the route, and 2) the Sawtooth Class I area approximately 54 miles northeast of the route. The Jarbidge Wilderness Class I area in Nevada lies approximately 52 miles to the west-southwest of the 7-mile segment of Alternative 7I, which is on the south side of the Idaho-Nevada state border.

Table 3.20-3. Ambient Air Quality Standards

Pollutant	Averaging Time	Idaho Standards Concentration	Wyoming Standards Concentration	Nevada Standards Concentration	National Standards Concentration
Ozone	1 hour	0.12 ppm		0.12 ppm	
	8 hours		0.08 ppm		0.075 ppm (147 µg/m^3) (3-year average of annual 4th-highest daily maximum)
Carbon Monoxide	8 hours	9 ppm	9 ppm	9 ppm	9 ppm (10,000 ug/m^3)
	1 hour	35 ppm	35 ppm	35 ppm	35 ppm (40,000 ug/m^3)
Nitrogen Dioxide	Annual Average	0.05 ppm	0.05 ppm	0.053	0.053 ppm (100 µg/m^3)
	1 hour				
Sulfur Dioxide	Annual Average	80 µg/m^3	60 µg/m^3	80 µg/m^3	0.03 ppm (80 µg/m^3)
	24 hours	365 µg/m^3	260 µg/m^3	365 µg/m^3	0.14 ppm (365 µg/m^3)
	3 hours	1,300 µg/m^3	1,300 µg/m^3	1,300 µg/m^3	0.5 ppm (1,300 µg/m^3)
	1 hour				
PM_{10}	24 hours	150 µg/m^3	150 µg/m^3	150 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	50 µg/m^3	50 µg/m^3	50 µg/m^3	
$PM_{2.5}$	Annual Arithmetic Mean		15 µg/m^3		15 µg/m^3 (3-year average)
	24 hours		65 µg/m^3		35 µg/m^3 (3-year average of 98th percentiles)
Lead	Calendar Quarter	1.5 µg/m^3	1.5 µg/m^3	1.5 µg/m^3	1.5 µg/m^3

ppm = parts per million
µg/m^3 = micrograms per cubic meter


FITZPATRICK WILDERNESS
PINEDALE FO
LANDER FO
FREMONT
SUBLETTE
BRIDGER WILDERNESS
IDAHO
WYOMING
UTAH
LINCOLN
SWEETWATER
JIM BRIDGER
(230/345-kV SUBSTATIONS)
ANTICLINE
CRESTON
Kemmerer
Rock Springs
Green River
KEMMERER FO
ROCK SPRINGS FO
Evanston
UINTA
WINDSTAR
Glenrock
Casper
CASPER FO
NATRONA
CONVERSE
HEWARD
AEOLUS
Medicine Bow
Rawlins
CARBON
ALBANY
RAWLINS FO
SAVAGE RUN WILDERNESS
Laramie
WYOMING ROUTES
WYOMING
COLORADO
Air Quality Features
State Class 1 Areas
Federal Class 1 Areas
Areas of Concern
Nonattainment Areas
TREASURE VALLEY OZONE & PM2.5
BOISE
CANYON
HEMINGWAY
FOUR RIVERS FO
MAINTENANCE CO & PM-10
ADA
Murphy
OWYHEE FO
BUTTE
CAMAS
BLAINE
CRATERS OF THE MOON
SHOSHONE FO
Idaho Falls
BONNEVILLE
BINGHAM
GOODING
LINCOLN
MIDPOINT
PORTNEUF VALLEY MAINTENANCE PM-10
Pocatello
CARIBOU
BORAH
JEROME
MINIDOKA
POWER
Twin Falls
TWIN FALLS
Burley
POCATELLO FO
BANNOCK
BRUNEAU-JARBIDGE R. WILDERNESS
JARBIDGE FO
CEDAR HILL
CASSIA
POPULUS
Montpelier
ROGERSON
(ALTERNATIVE TO CEDAR HILL)
BURLEY FO
ONEIDA
FRANKLIN
BEAR LAKE
IDAHO
NEVADA
Jackpot
WELLS FO
IDAHO
UTAH
JARBRIDGE WILDERNESS
ELKO
SALT LAKE FO
FRANKLIN CO. PM2.5
RICH
BOX ELDER
CACHE
IDAHO AND NEVADA ROUTES
Route Features
Proposed Route
Feasible Alternative
Energize Existing 345kV line to 500kV
Project Features
Substation Location
West-Wide Energy Corridor
Segment Number
Administrative
City, Town
State Capital
County Boundary
State Boundary
Transportation
Interstate
airports
0 10 20 30 40
Miles
NATIONAL SYSTEM OF PUBLIC LANDS
Gateway West
Transmission Line Project
Idaho, Nevada, Wyoming
Air Quality Features
FIGURE 3.20-1

Greenhouse Gas Emissions

Preliminary GHG emissions inventories have been prepared for each state via a cooperative effort between the Center for Climate Strategies and the Departments of Environmental Quality for each state. These inventories do not represent reporting from all identified sectors, so the inventories most likely do not represent a complete analysis capture of GHG emissions for each state. Table 3.20-4 presents a summary of GHG (CO_2 equivalent or CO_2e) emissions data for each state for reporting years 2005 and 2010. The year 2010 data represent the inventory year closest to the beginning of construction for the proposed Project.

Table 3.20-4. GHG Summary by State (CO_2e)

State	2005 tons[1/]	2010 tons[1/]
Idaho	40,920,000	43,560,000
Wyoming	61,160,000	66,330,000

1/ Values converted from metric tons to short tons.
Sources: CCS 2007, 2008

3.20.2 Direct and Indirect Effects

This section is organized to present first construction, then operation, followed by the decommissioning effects from the Proposed Action. For both construction and operation, there are sections summarizing emissions of criteria pollutants (NO_x, CO, SO_X, VOCs, and $PM_{10}/PM_{2.5}$), and greenhouse gases (CO_2, methane [CH_4], and NO_x) for the Proposed Action. Route Alternatives and the comparable portion of the Proposed Route are analyzed in detail below in Section 3.20.2.3. There is a Design Variation involving use of two single-circuit structures proposed by the Proponents for Segments 2, 3, and 4 (see Section 2.2 for details), which is analyzed below in Section 3.20.2.4. The Proponents have also proposed a Schedule Variation, analyzed in Section 3.20.2.5, in which one of the two single circuits to be constructed in Segments 2, 3, and 4 and a portion of Segment 1W would be built on an extended schedule with construction beginning approximately 2.5 years after completion of the initial construction.

Mitigation measures or EPMs are presented in detail within this section only if it is the first time they have been discussed in Chapter 3; all other measures are referenced or summarized. A comprehensive list of all Proponent-proposed EPMs and Agency-required mitigation measures can be found in Table 2.7-1 of Chapter 2.

Plan Amendments

Proposed amendments are summarized in Table 2.2-1 of Chapter 2 and detailed in Appendices F and G. Amendments are needed to permit the Project to cross various areas of BLM-managed and NFS lands. Effects described for areas requiring an amendment in order for the Project to be built would only occur if the amendment were approved. Amendments that alter land management designations could change future use of these areas. No amendments specific to air quality are proposed for the Project and no impacts to air quality resulting from approving the amendments beyond the impacts of the project are anticipated.

3.20.2.1 No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed or operated. No Project-related impacts to air quality would occur.

3.20.2.2 Effects Common to All Action Alternatives

Construction Emissions

Construction activities for the Proposed Action would take place in the following sequence: site preparation/trenching; foundation work; installation of structures and conductors; and ROW/site restoration. The anticipated construction periods for the various components of the proposed Project are described in Section 2 of Appendix B. Construction would occur over a 1- to 2-year period depending on the transmission segment length. All segments would be completed within 5.42 years (65 months) of the start of construction (assuming the shortest construction period option). The Proponents are considering longer and/or phased schedules, which would show lower emissions on a tons per normalized year basis. These longer periods were not used as the basis for the analysis because use of the shorter construction period results in the most conservative estimates of emissions on a normalized year basis for comparison to the applicable conformity threshold levels. The construction activities that would generate emissions include land clearing, ground excavation, and cut and fill operations. These construction activities would occur 6 days per week for up to 12 hours per day during the construction periods. The intermittent and short-term emissions generated by these activities would include dust from soil disruption and combustion emissions from the construction equipment. Emissions associated with construction equipment include PM_{10}, $PM_{2.5}$, NO_x, CO, VOCs, SO_x, and small amounts of air toxics. These emissions could result in minor, temporary impacts on air quality in the vicinity of the Proposed Action construction. Table 3.20-5 lists the estimated emissions of these criteria pollutants that would be generated by construction of the Proposed Action facilities by segment.

Table 3.20-5. Estimated Emissions of Criteria Pollutants from Project Construction

Segment	~Length miles	PM_{10} (tons)[1/]	$PM_{2.5}$ (tons)[1/]	NO_x (tons)	CO (tons)	SO_x (tons)	VOC (tons)
Segment 1 (1E, 1W(a), 1W(c))	248	136.7	46.1	466.9	201.9	2.2	49.5
Segment 2	97	53.5	18.0	182.6	79.0	0.9	19.4
Segment 3	56	30.9	10.4	105.4	45.6	0.5	11.2
Segment 4 [In Wyoming]	136	75.0	25.3	256.0	110.7	1.2	27.1
Total Emissions in Wyoming		*296.1*	*99.8*	*1,010.9*	*437.2*	*4.8*	*107.2*
Segment 4 [In Idaho]	67	40.2	13.5	137.1	59.3	0.6	14.5
Segment 5	55	33.0	11.1	112.6	48.7	0.5	11.9
Segment 6							
Segment 7	118	70.7	23.8	241.5	104.4	1.1	25.6
Segment 8	131	78.5	26.4	268.1	115.9	1.3	28.4
Segment 9	162	97.1	32.7	331.6	143.4	1.6	35.1
Segment 10	33	19.8	6.7	67.5	29.2	0.3	7.2
Total Emissions in Idaho		*339.3*	*114.2*	*1,158.4*	*500.9*	*5.4*	*122.7*
Total Project Emissions [2/]		***635.4***	***214.0***	***2,169.3***	***938.1***	***10.2***	***229.9***

1/ PM_{10} and $PM_{2.5}$ include fugitive dust and equipment exhaust PM.

2/ Totals may not match other tables due to mileage multiplication and rounding.

Emissions from construction of the transmission line, substations, and regeneration facilities are not expected to cause or significantly contribute to a violation of an applicable ambient air quality standard or contribute substantially to an existing or projected air quality violation because the construction equipment would be operated on an as-needed basis during daylight hours only and the emissions from gasoline and

diesel engines would be minimized because the engines must be built to meet the standards for mobile sources established by the USEPA. Most of the construction equipment would be powered by diesel engines that would meet current USEPA emissions standards based upon engine size and date of manufacture, and Project-related vehicles and construction equipment would be required to use the new low sulfur diesel fuel as soon as it is commercially available. The Agencies have identified the following mitigation measures that would substantially reduce impact and recommend that the Proponents implement them Project-wide. The Proponents have agreed to incorporate these measures into their EPMs.

AIR-1 Minimize idling time for diesel equipment whenever possible.

AIR-2 Ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use.

AIR-3 Prohibit engine tampering to increase horsepower.

AIR-4 Reduce construction-related trips as feasible for workers and equipment, including trucks.

None of the above related construction activities are required to have stationary or indirect source permits by any of the affected states, and the activities are exempt from the major regulatory programs such as NSR, PSD, NESHAPs, Title IV, and Title V. The construction activities must, however, comply with the applicable state fugitive dust control requirements (including a surface disturbance permit from the State of Nevada) as outlined in Table 3.20-3.

Fugitive dust emissions (e.g., PM_{10}/$PM_{2.5}$) would depend on the moisture content and texture of the soils that would be disturbed. The construction emissions would vary from day to day depending on the level of activity, the specific operations, and prevailing weather. The Air Quality Technical Report presents the support data and methodologies used to estimate emissions from the construction phase. The Proponents have included the following EPM for dust control:

TR-2 Dust suppression techniques will be applied, such as watering construction areas or removing dirt tracked onto a paved road as necessary to prevent safety hazards or nuisances on access roads and in construction zones near residential and commercial areas and along major highways and interstates.

Operation Emissions

Operations-related emissions would be from the following types of sources and activities:

- Use of motor vehicles to transport inspection and maintenance personnel along the final route to perform inspection and maintenance as required; and
- Travel on the unpaved access roads during the inspection and maintenance related activities.

The Air Quality Technical Report presents the emissions estimation methodologies and support data for the operations phase.

Table 3.20-6 presents the estimated emissions from inspection and maintenance activities (operations phase). The total emissions estimates for all phases are presented in Table 3.20-7.

Table 3.20-6. Operations Emissions (Inspection/Maintenance)

VOC (ROG) (tons/yr)	CO (tons/yr)	NO_x (tons/yr)	SO_x (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	CO_2 (tons/yr)
0.075	0.81	0.09	0.0007	13.6	2.9	68.9

Table 3.20-7. Total Project Estimated Emissions

VOC (ROG) (tons/yr)	CO (tons/yr)	NO_x (tons/yr)	SO_x (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	CO_2 (tons/yr)
CONSTRUCTION[1/], Tons per Construction Period						
229.9	938.1	2,169.3	10.2	635.4	214	245,532
OPERATIONS, Tons per Year						
0.075	0.81	0.09	0.0007	13.6	2.9	68.9

1/ Includes helicopter emissions, which may or may not occur.

Greenhouse Gas Emissions Estimates

Emissions of GHGs such as CO_2, CH_4, and NO_x from the construction and operation of the transmission line are derived primarily from the fuel combustion sources involved in construction and operations. Support data for the GHG analysis herein were derived from the California Climate Action Registry *General Reporting Protocol, Version 3.1* (2009a), and *Power Generation /Electric Utility Reporting Protocol, Version 1.1* (2009b). The Air Quality Technical Report presents the emissions calculations, methodologies, and support data for the GHG emissions.

Emissions Summary by State

Route and construction data supplied by the Proponents indicate that approximately 53.4 percent of the construction emissions will occur in Idaho, with the remaining 46.6 percent occurring in Wyoming. Emissions for construction and operation are broken down for each state based on these approximated values in Table 3.20-8. Emissions for the 7-mile portion of Alternative 7I (in Nevada) are included in the various emissions breakdowns for Idaho and are not presented in the state summaries that follow as a separate item. The emissions from this alternative route are presented in Table 3.20-13.

Table 3.20-8. Emissions Breakdown by State

Pollutant	Wyoming	Idaho
Construction	***(Tons per Period)***	***(Tons per Period)***
NO_x	1,010.9	1,158.4
CO	437.2	500.9
VOC	107.1	122.8
SO_x	4.8	5.4
PM_{10}	296.1	339.3
$PM_{2.5}$	99.7	114.3
CO_2	114,418.0	131,114.0
Operation	***(Tons per Year)***	***(Tons per Year)***
NO_x	0.042	0.048
CO	0.38	0.43
VOC	0.035	0.04
SO_x	0.00033	0.00037
PM_{10}	6.34	7.27
$PM_{2.5}$	1.35	1.55
CO_2	32.1	36.8

Operations emissions are essentially *de minimus*. Table 3.20-9 presents the construction emissions on a yearly basis assuming the Proposed Action construction period is 65 months (5.42 years).

Table 3.20-9. Annualized Construction Emissions Breakdown by State

Pollutant	Wyoming Tons per Year	Idaho Tons per Year
NO_x	186.5	213.7
CO	80.7	92.4
VOC	19.8	22.7
SO_x	0.9	1.0
PM_{10}	54.6	62.6
$PM_{2.5}$	18.4	21.1
CO_2	21,110.0	24,191.0

Table 3.20-10 presents the construction emissions as derived from Table 3.20-7 on a per mile basis.

Table 3.20-10. Construction Period Emissions per Mile Basis

Pollutant	Wyoming Average Emissions (Tons per Mile[1/])	Idaho Average Emissions (Tons per Mile[1/])
NO_x	1.88	2.05
CO	0.81	0.88
VOC	0.199	0.22
SO_x	0.009	0.01
PM_{10}	0.55	0.60
$PM_{2.5}$	0.19	0.20
CO_2	213.1	231.7

1/ Assumes route mileage is 1,103: approximately 537 miles in Wyoming and approximately 566 miles in Idaho.

Table 3.20-11 presents the construction emissions as derived from Table 3.20-10 on a per mile per year basis.

Table 3.20-11. Construction Period Emissions per Mile per Year Basis

Pollutant	Wyoming Average Emissions (Tons per Mile per Year[1/])	Idaho Average Emissions (Tons per Mile per Year[1/])
NO_x	0.35	0.38
CO	0.15	0.16
VOC	0.037	0.041
SO_x	0.0017	0.0018
PM_{10}	0.10	0.11
$PM_{2.5}$	0.035	0.037
CO_2	39.32	42.75

1/ Assumes route mileage is 1,103: approximately 537 miles in Wyoming and approximately 566 miles in Idaho. Construction period for each state is noted above.

For purposes of conformity, the values in Table 3.20-11 can be used to estimate the emissions from construction activities that occur in any identified nonattainment or maintenance area along the route. The only Proposed Action locations within nonattainment or maintenance areas are as follows:

- Approximately 20 miles of the centerline of Segment 4, Bridger to Populus, crosses the Franklin County $PM_{2.5}$ Area of Concern.
- Approximately 40 miles of the centerline of Segment 8, Midpoint to Hemingway, crosses Canyon and Ada Counties, which contain the Treasure Valley Ozone and $PM_{2.5}$ Area of Concern, and the Ada County CO and PM_{10} Nonattainment (Maintenance) Area.
- None of the proposed or alternative routes pass through the ozone nonattainment area being proposed by the WDEQ for the Upper Green River Basin area. The nearest route point to the southern extent of the proposed nonattainment area is approximately 20 miles distant. The ozone nonattainment area would not be affected.

Table 3.20-12 presents the estimated annualized emissions for the above noted areas of concern for purposes of conformity comparison.

Table 3.20-12. Annualized Construction Emissions Estimates for Areas of Concern

Pollutant	Franklin County Area	Canyon/Ada County Area
NO_x	7.6 tons/year	15.2 tons/year
CO	3.2 tons/year	6.4 tons/year
VOC	0.82 ton/year	1.64 tons/year
SO_x	0.04 ton/year	0.08 ton/year
PM_{10}	2.2 tons/year	4.4 tons/year
$PM_{2.5}$	0.74 ton/year	1.48 tons/year

Values presented in Table 3.20-12 indicate that emissions in the nonattainment or maintenance areas of concern would not trigger the need for a conformity determination.

Decommissioning

Project facilities would be removed at the end of the operational life of the transmission line. Structures and foundations would be removed to below the ground surface level. Removal of Project structures following decommissioning would result in temporary impacts to air quality.

Decommissioning activities would not be expected to result in air emissions similar in magnitude to those associated with construction. The types and numbers of equipment used in demolition and removal of the substations and tower structures would be far less than those proposed for use during construction. Demolition and removal time frames would be significantly less than construction time frames, and surface disturbance activities during demolition and removal would be significantly less than those associated with initial construction.

3.20.2.3 Proposed Route and Alternatives

The Route Alternatives are subject to the same air quality regulatory requirements and air quality standards as the Proposed Route.

Table 3.20-13 presents the emissions increases and/or decreases associated with the Proposed Route and Alternatives. It should be noted that not all of the Route Alternatives would be chosen to replace the comparable portion of the Proposed Route.

3.20.2.4 Design Variation

A Design Variation is being considered that would consist of constructing two single-circuit lines in Segments 2 through 4 instead of a single double-circuit line (which is the design assessed above). The disturbance footprint of the two single-circuit towers is greater than that of the double-circuit tower, in part because the requested ROW would be wider, but also because helicopter-assisted construction could be implemented in these areas due to the lighter weight of the towers, which would require additional fly yards. The additional ROW space and the fly yards would cause additional temporary disturbance during construction. Across Segments 2, 3, and 4, the additional disturbance of the single-circuit tower alternative ranges from 25 to 30 percent greater than the comparable portions of the double-circuit tower disturbance under the proposed design. The two single circuits require more ground disturbance, but would be designed and constructed to the same standards as the Proposed Action.

Construction of the Design Variation along Segments 2, 3, and 4 instead of the single double-circuit Proposed Action would increase the area of disturbance and number of structures to be constructed, thereby increasing vehicle emissions and dust. No additional impacts that have not already been described would occur under the Design Variation.

The Design Variation would result in slightly more fugitive emissions from tower pad construction activities for each of the identified segments, i.e., an approximately 6.5 percent increase. However, it is currently estimated that the differences in construction equipment use rates and emissions between the Proposed Action and Design Variation would be insignificant. The Proposed Action would result in slightly lower fugitive emissions than the Design Variation. Equipment exhaust emissions are expected to be similar.

3.20.2.5 Structure Variation

The proposed guyed Structure Variation would add four guy wires about 140 feet long from a point about 100 feet up in each tower to four guy anchors spaced in a square around the tower (Appendix B, Figure B-6). This would not change the amount of disturbance during construction or operation appreciably. Therefore, there is no appreciable difference in impact on air quality from the use of this Structure Variation when compared to the use of self-supporting lattice towers.

3.20.2.6 Schedule Variation

The Schedule Variation uses the two single-circuit design variation described above but extends construction over a longer timeframe. Initially only one of the eventual two single-circuit lines would be constructed with the second to be constructed at a later

Table 3.20-13. Alternative Route Emissions (tons)

Segment	Route Designation	Miles	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_x	VOC	CO_2
1E	Proposed – Comparison Portion for Alternative 1E-A	17.6	9.70	3.27	33.13	14.33	0.16	3.51	3,750.0
	Alternative 1E-A	16.1	8.88	2.99	30.31	13.11	0.14	3.21	3,430.4
	Net Change	*-1.5*	*-0.83*	*-0.28*	*-2.82*	*-1.22*	*-0.01*	*-0.30*	*-319.6*
	Proposed – Comparison Portion for Alternative 1E-B	37.9	20.90	7.04	71.35	30.85	0.34	7.56	8,075.3
	Alternative 1E-B	59.3	32.70	11.01	111.63	48.27	0.52	11.83	12,635.0
	Net Change	*21.4*	*11.80*	*3.97*	*40.29*	*17.42*	*0.19*	*4.27*	*4,559.7*
	Proposed – Comparison Portion for Alternative 1E-C	75.4	41.57	14.00	141.94	61.38	0.67	15.04	16,065.4
	Alternative 1E-C	48.7	26.86	9.05	91.71	39.66	0.43	9.72	10,380.7
	Net Change	*-26.7*	*-14.71*	*-4.95*	*-50.22*	*-21.72*	*-0.24*	*-5.32*	*-5,684.7*
1W(a)	Proposed – Comparison Portion for Alternative 1W-A	28.8	15.88	5.35	54.22	23.45	0.25	5.75	6,136.4
	Alternative 1W-A	28.4	15.66	5.27	53.46	23.12	0.25	5.67	6,051.2
	Net Change	*-0.4*	*-0.22*	*-0.07*	*-0.75*	*-0.33*		*-0.08*	*-85.2*
2	Proposed – Comparison Portion for Alternative 2A	7.0	3.86	1.30	13.18	5.70	0.06	1.40	1,491.5
	Alternative 2A	6.2	3.42	1.15	11.67	5.05	0.05	1.24	1,321.0
	Net Change	*-0.8*	*-0.44*	*-0.15*	*-1.51*	*-0.65*	*-0.01*	*-0.16*	*-170.5*
	Proposed – Comparison Portion for Alternative 2B	28.4	15.66	5.27	53.46	23.12	0.25	5.67	6,051.2
	Alternative 2B	24.4	13.45	4.53	45.93	19.86	0.22	4.87	5,198.9
	Net Change	*-4.0*	*-2.21*	*-0.74*	*-7.53*	*-3.26*	*-0.04*	*-0.80*	*-852.3*
	Alternative 2C	28.8	15.88	5.35	54.22	23.45	0.25	5.75	6,136.4
	Net Change	*28.4*	*15.66*	*5.27*	*53.46*	*23.12*	*0.25*	*5.67*	*6,051.2*
4	Proposed – Comparison Portion for Alternative 4A	90.2	49.74	16.75	169.80	73.43	0.80	18.00	19,218.8
	Alternative 4A	85.2	46.98	15.82	160.39	69.36	0.75	17.00	18,153.5
	Net Change	*-5.0*	*-2.76*	*-0.93*	*-9.41*	*-4.07*	*-0.04*	*-1.00*	*-1,065.3*
	Proposed – Comparison Portion for Alternative 4B	90.2	49.74	16.75	169.80	73.43	0.80	18.00	19,218.8
	Alternative 4B	100.2	55.25	18.61	188.62	81.57	0.89	19.99	21,349.5
	Net Change	*10.0*	*5.51*	*1.86*	*18.82*	*8.14*	*0.09*	*2.00*	*2,130.7*
4	Proposed – Comparison Portion for Alternative 4C	90.2	49.74	16.75	169.80	73.43	0.80	18.00	19,218.8
	Alternative 4C	101.6	56.02	18.87	191.26	82.71	0.90	20.27	21,647.8
	Net Change	*11.4*	*6.29*	*2.12*	*21.46*	*9.28*	*0.10*	*2.27*	*2,429.0*
	Proposed – Comparison Portion for Alternative 4D	90.2	49.74	16.75	169.80	73.43	0.80	18.00	19,218.8
	Alternative 4D	100.8	55.58	18.72	189.75	82.06	0.89	20.11	21,477.3
	Net Change	*10.6*	*5.84*	*1.97*	*19.95*	*8.63*	*0.09*	*2.11*	*2,258.5*
	Proposed – Comparison Portion for Alternative 4E	90.2	49.74	16.75	169.80	73.43	0.80	18.00	19,218.8
	Alternative 4E	102.2	56.35	18.98	192.39	83.20	0.90	20.39	21,775.6
	Net Change	*12.0*	*6.62*	*2.23*	*22.59*	*9.77*	*0.11*	*2.39*	*2,556.8*

Table 3.20-13. Alternative Route Emissions (tons) (continued)

Segment	Route Designation	Miles	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_x	VOC	CO_2
4	Proposed – Comparison Portion for Alternative 4F	90.2	49.74	16.75	169.80	73.43	0.80	18.00	19,218.8
	Alternative 4F	87.5	48.25	16.25	164.72	71.23	0.77	17.46	18,643.5
	Net Change	*-2.7*	*-1.49*	*-0.50*	*-5.08*	*-2.20*	*-0.02*	*-0.54*	*-575.3*
5	Proposed – Comparison Portion for Alternative 5A	25.3	15.17	5.11	51.78	22.39	0.24	5.49	5,860.8
	Alternative 5A	33.7	20.20	6.80	68.97	29.83	0.32	7.31	7,806.6
	Net Change	*8.4*	*5.04*	*1.70*	*17.19*	*7.43*	*0.08*	*1.82*	*1,945.9*
	Proposed – Comparison Portion for Alternative 5B	25.3	15.17	5.11	51.78	22.39	0.24	5.49	5,860.8
	Alternative 5B	44.4	26.62	8.96	90.87	39.30	0.43	9.63	10,285.3
	Net Change	*19.1*	*11.45*	*3.86*	*39.09*	*16.90*	*0.18*	*4.14*	*4,424.5*
	Proposed – Comparison Portion for Alternative 5C	33.2	19.90	6.70	67.95	29.38	0.32	7.20	7,690.8
	Alternative 5C	26.1	15.65	5.27	53.42	23.10	0.25	5.66	6,046.1
	Net Change	*-7.1*	*-4.26*	*-1.43*	*-14.53*	*-6.28*	*-0.07*	*-1.54*	*-1,644.7*
	Proposed – Comparison Portion for Alternative 5D	19.4	11.63	3.92	39.71	17.17	0.19	4.21	4,494.0
	Alternative 5D	17.5	10.49	3.53	35.82	15.49	0.17	3.80	4,053.9
	Net Change	*-1.9*	*-1.14*	*-0.38*	*-3.89*	*-1.68*	*-0.02*	*-0.41*	*-440.1*
	Proposed – Comparison Portion for Alternative 5E	5.8	3.46	1.16	11.81	5.11	0.06	1.25	1,336.6
	Alternative 5E	5.3	3.17	1.07	10.83	4.68	0.05	1.15	1,225.4
	Net Change	*-0.5*	*-0.29*	*-0.10*	*-0.98*	*-0.42*		*-0.10*	*-111.2*
7	Proposed – Comparison Portion for Alternative 7AB	35.2	21.10	7.11	72.04	31.15	0.34	7.63	8,154.1
	Alternative 7A	38.0	22.78	7.67	77.77	33.63	0.37	8.24	8,802.7
	Net Change	*2.8*	*1.68*	*0.57*	*5.73*	*2.48*	*0.03*	*0.61*	*648.6*
	Proposed – Comparison Portion for Alternative 7AB	35.2	21.10	7.11	72.04	31.15	0.34	7.63	8,154.1
	Alternative 7B	46.4	27.82	9.37	94.96	41.07	0.45	10.06	10,748.6
	Net Change	*11.2*	*6.71*	*2.26*	*22.92*	*9.91*	*0.11*	*2.43*	*2,594.5*
	Proposed – Comparison Portion for Alternative 7C	20.1	12.05	4.06	41.14	17.79	0.19	4.36	4,656.2
	Alternative 7C	20.3	12.17	4.10	41.55	17.97	0.20	4.40	4,702.5
	Net Change	*0.2*	*0.12*	*0.04*	*0.41*	*0.18*		*0.04*	*46.3*
	Proposed – Comparison Portion for Alternative 7D	6.2	3.72	1.25	12.69	5.49	0.06	1.34	1,436.2
	Alternative 7D	6.8	4.08	1.37	13.92	6.02	0.07	1.47	1,575.2
	Net Change	*0.6*	*0.36*	*0.12*	*1.23*	*0.53*	*0.01*	*0.13*	*139.0*
	Proposed – Comparison Portion for Alternative 7E	3.8	2.28	0.77	7.78	3.36	0.04	0.82	880.3
	Alternative 7E	4.5	2.70	0.91	9.21	3.98	0.04	0.98	1,042.4
	Net Change	*0.7*	*0.42*	*0.14*	*1.43*	*0.62*	*0.01*	*0.15*	*162.2*

Table 3.20-13. Alternative Route Emissions (tons) (continued)

Segment	Route Designation	Miles	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_x	VOC	CO_2
7	Proposed – Comparison Portion for Alternative 7F	10.5	6.29	2.12	21.49	9.29	0.10	2.28	2,432.3
	Proposed – Comparison Portion for Alternative 7F	10.8	6.47	2.18	22.10	9.56	0.10	2.34	2,501.8
	Net Change	*0.3*	*0.18*	*0.06*	*0.61*	*0.27*		*0.07*	*69.5*
	Proposed – Comparison Portion for Alternative 7G	3.1	1.86	0.63	6.34	2.74	0.03	0.67	718.1
	Alternative 7G	3.2	1.92	0.65	6.55	2.83	0.03	0.69	741.3
	Net Change	*0.1*	*0.06*	*0.02*	*0.20*	*0.09*		*0.02*	*23.2*
	Proposed – Comparison Portion for Alternative 7H, 7I	118.1	70.80	23.84	241.71	104.53	1.14	25.62	27,357.9
	Alternative 7H	127.5	76.43	25.74	260.95	112.85	1.23	27.66	29,535.4
	Net Change	*9.4*	*5.64*	*1.90*	*19.24*	*8.32*	*0.09*	*2.04*	*2,177.5*
	Proposed – Comparison Portion for Alternative 7H, 7I	118.1	70.80	23.84	241.71	104.53	1.14	25.62	27,357.9
	Alternative 7I	173.4	103.95	35.01	354.89	153.47	1.67	37.61	40,168.2
	Net Change	*55.3*	*33.15*	*11.17*	*113.18*	*48.94*	*0.53*	*11.99*	*12,810.3*
	Proposed – Comparison Portion 7/9 for Alternative 7J[1/]	143.9	86.26	29.06	294.51	127.35	1.37	31.22	33,334.5
	Alternative 7J[1/]	202.1	121.15	40.81	413.63	178.85	1.93	43.85	46,816.5
	Net Change[1/]	*58.2*	*34.89*	*11.75*	*119.11*	*51.51*	*0.56*	*12.63*	*13,482.0*
8	Proposed – Comparison Portion for Alternative 8A	51.4	30.81	10.38	105.20	45.49	0.49	11.15	11,906.8
	Alternative 8A	53.6	32.13	10.82	109.70	47.44	0.52	11.63	12,416.5
	Net Change	*2.2*	*1.32*	*0.44*	*4.50*	*1.95*	*0.02*	*0.48*	*509.6*
	Proposed – Comparison Portion for Alternative 8B	45.3	27.16	9.15	92.71	40.09	0.44	9.83	10,493.8
	Alternative 8B	45.8	27.46	9.25	93.74	40.54	0.44	9.93	10,609.6
	Net Change	*0.5*	*0.30*	*0.10*	*1.02*	*0.44*		*0.11*	*115.8*
	Proposed – Comparison Portion for Alternative 8C	6.5	3.90	1.31	13.30	5.75	0.06	1.41	1,505.7
	Alternative 8C	6.4	3.84	1.29	13.10	5.66	0.06	1.39	1,482.6
	Net Change	*-0.1*	*-0.06*	*-0.02*	*-0.20*	*-0.09*		*-0.02*	*-23.2*
	Proposed – Comparison Portion for Alternative 8D	6.9	4.14	1.39	14.12	6.11	0.07	1.50	1,598.4
	Alternative 8D	8.1	4.86	1.64	16.58	7.17	0.08	1.76	1,876.4
	Net Change	*1.2*	*0.72*	*0.24*	*2.46*	*1.06*	*0.01*	*0.26*	*278.0*
	Proposed – Comparison Portion for Alternative 8E	6.95	4.17	1.40	14.23	6.15	0.07	1.51	1,610.9
	Alternative 8E	18.47	11.07	3.73	37.79	16.34	0.18	4.01	4,277.8
	Net Change	*11.51*	*6.90*	*2.32*	*23.56*	*10.19*	*0.11*	*2.50*	*2,666.9*
9	Proposed – Comparison Portion for Alternative 9A	7.8	4.68	1.57	15.96	6.90	0.08	1.69	1,806.9
	Alternative 9A	7.7	4.62	1.55	15.76	6.81	0.07	1.67	1,783.7
	Net Change	*-0.1*	*-0.06*	*-0.02*	*-0.20*	*-0.09*		*-0.02*	*-23.2*
	Proposed – Comparison Portion for Alternative 9B	49.5	29.67	9.99	101.31	43.81	0.48	10.74	11,466.7

Table 3.20-13. Alternative Route Emissions (tons) (continued)

Segment	Route Designation	Miles	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_x	VOC	CO_2
9 (cont.)	Alternative 9B	53.2	31.89	10.74	108.88	47.09	0.51	11.54	12,323.8
	Net Change	*3.7*	*2.22*	*0.75*	*7.57*	*3.27*	*0.04*	*0.80*	*857.1*
	Proposed – Comparison Portion for Alternative 9C	14.7	8.81	2.97	30.09	13.01	0.14	3.19	3,405.3
	Alternative 9C	15.3	9.17	3.09	31.31	13.54	0.15	3.32	3,544.3
	Net Change	*0.6*	*0.36*	*0.12*	*1.23*	*0.53*	*0.01*	*0.13*	*139.0*
	Proposed – Comparison Portion for Alternative 9D, 9E, 9F, 9G, 9H	57.2	34.29	11.55	117.07	50.63	0.55	12.41	1,3250.4
	Alternative 9D	58.4	35.01	11.79	119.52	51.69	0.56	12.67	1,3528.4
	Net Change	*1.2*	*0.72*	*0.24*	*2.46*	*1.06*	*0.01*	*0.26*	*278.0*
	Proposed – Comparison Portion for Alternative 9D, 9E, 9F, 9G, 9H	57.2	34.29	11.55	117.07	50.63	0.55	12.41	1,3250.4
	Alternative 9E	68.7	41.18	13.87	140.61	60.80	0.66	14.90	1,5914.4
	Net Change	*11.5*	*6.89*	*2.32*	*23.54*	*10.18*	*0.11*	*2.49*	*2,664.0*
	Proposed – Comparison Portion for Alternative 9D, 9E, 9F, 9G, 9H	57.2	34.29	11.55	117.07	50.63	0.55	12.41	1,3250.4
	Alternative 9F	62.90	37.71	12.70	128.74	55.67	0.60	13.65	14,571.7
	Net Change	*5.74*	*3.44*	*1.16*	*11.76*	*5.08*	*0.05*	*1.25*	*1,330.7*
	Proposed – Comparison Portion for Alternative 9D, 9E, 9F, 9G, 9H	57.2	34.29	11.55	117.07	50.63	0.55	12.41	1,3250.4
	Alternative 9G	56.43	33.83	11.40	115.50	49.94	0.54	12.24	13,072.7
	Net Change	*-0.73*	*-0.44*	*-0.15*	*-1.49*	*-0.64*	*-0.01*	*-0.16*	*-168.3*
	Proposed – Comparison Portion for Alternative 9D, 9E, 9F, 9G, 9H	57.2	34.29	11.55	117.07	50.63	0.55	12.41	1,3250.4
	Alternative 9H	60.96	36.54	12.31	124.76	53.95	0.58	13.23	14,121.4
	Net Change	*3.80*	*2.28*	*0.77*	*7.78*	*3.36*	*0.04*	*0.82*	*880.4*

1/ Alternative 7J connects with Segment 9 approximately 25.8 miles west of the proposed Cedar Hill Substation, which is the western terminus of Segment 7 and the beginning point for Segment 9. The table above compares 7J (202 miles) with the corresponding portion of Segment 7/9 (118.1 miles of Segment 7 and 25.8 miles of Segment 9, for a total of 143.9 miles). All other Segment 7 alternatives are compared to Segment 7 of the Proposed Route (118.1 miles) only.

date. The Schedule Variation proposes that the first single-circuit transmission line in Segments 2, 3, and 4 would be built as soon as a ROW grant is issued, but that the second line would not begin construction until late 2018. This would mean nearly 2 years between the end of construction for the first line and beginning of construction for the second line. Any staging areas and fly yards that had been used for the first stage would have been revegetated after construction was complete and would have to be cleared again. There would be two sets of construction disturbances adding movement, noise, and dust to the area of construction in two instances in any given area.

The basic emissions, in terms of amounts of fugitive dust and exhaust pollutants, would be essentially the same as under the Design Variation. The primary difference would be that the Schedule Variation construction emissions would be allocated over a period of approximately 96 months.

Additionally, the Schedule Variation would require multiple mobilizations (minimum of two) as compared to the Design Variation. Mobilization emissions have not been quantified here due to the inherent problems in defining and acquiring data about mobilization parameters. However, the Schedule Variation would have a slight increase in both fugitive and exhaust emissions due to mobilizations as compared to the Design Variation, but the difference is anticipated to be insignificant.

The Schedule Variation would result in some of the substations being constructed over a longer period of time as compared to the anticipated Proposed Action schedule of approximately 61 months. Substation construction fugitive emissions are based upon the acreage to be disturbed during construction, and as such, the only anticipated change as a result of the extended period would be that the same basic amount of fugitive emissions would be allocated out over a longer period of time. The amounts of equipment exhaust emissions associated with substation construction are not anticipated to change, but rather, they too would be allocated out over a longer period of time.

3.20.2.7 Proposed and Alternative Route Conclusions

Construction emissions are not anticipated to be significant in terms of ambient impacts to receptors along the Proposed Route, for the Proposed Action or the Design or Schedule Variations, due to the following:

- Implementation of the EPMs as listed in Section 3.20.2.2;
- Compliance with the Wyoming, Nevada, and Idaho fugitive dust rules per Table 3.20-2;
- Compliance with the construction EPMs per Appendix C;
- Short-term nature of the emissions at any single point along the construction corridor; and
- Overall remote locations of the corridor route and substation sites, i.e., the distances from these areas to population centers, either urban or rural.

Construction emissions data presented herein are estimated to reflect the anticipated worst-case emissions taking into account the action construction schedules. Table 3.20-14 presents a summary comparison of emissions for the Proposed Action, Design Variation, and Schedule Variation.

Table 3.20-14. Emissions Comparison for Proposed Action, Design Variation, and Schedule Variation for Segments 2 through 4

Segment Number	Option[1/]	Emissions[2/]	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_x	VOC
2	Proposed Action	Tons/period	53.5	18.0	182.6	79.0	0.9	19.4
		Tons/month	0.82	0.28	2.81	1.22	0.014	0.3
	Design Variation	Tons/period	54.3	18.3	182.6	79.0	0.9	19.4
		Tons/month	0.84	0.28	2.81	1.22	0.01	0.3
	Schedule Variation	Tons/period	54.3	18.3	182.6	79.0	0.9	19.4
		Tons/month	0.57	0.19	1.9	0.83	0.01	0.2
3	Proposed Action	Tons/period	30.9	10.4	105.4	45.6	0.5	11.2
		Tons/month	0.48	0.16	1.62	0.7	0.008	0.17
	Design Variation	Tons/period	31.4	10.6	105.4	45.6	0.5	11.2
		Tons/month	0.48	0.16	1.62	0.7	0.008	0.17
	Schedule Variation	Tons/period	31.4	10.6	105.4	45.6	0.5	11.2
		Tons/month	0.33	0.11	1.1	0.48	0.005	0.12
4	Proposed Action	Tons/period	115.2	38.8	393.1	170.0	1.8	41.6
		Tons/month	1.77	0.6	6.0	2.6	0.03	0.64
	Design Variation	Tons/period	116.9	39.4	393.1	170.0	1.8	41.6
		Tons/month	1.80	0.61	6.0	2.6	0.03	0.64
	Schedule Variation	Tons/period	116.9	39.4	393.1	170.0	1.8	41.6
		Tons/month	1.22	0.41	4.1	1.77	0.02	0.43

1/ The Proposed Action period is 65 months. The Design Variation period is 65 months. The Schedule Variation period is 96 months. Schedule variations longer than 96 months would result in lower annualized emissions, i.e., lower values than those presented in Table 3.20-9.

2/ Emissions data are derived from Table 3.20-5.

3.20.3 Conclusions

The following conclusions are derived from the analysis presented herein and the support data presented in the Air Quality Technical Report (in the Administrative Record):

- At the present time, there is no known phase or activity proposed to be conducted during the Project that is not consistent with current air quality plans in Idaho, Wyoming, or Nevada.
- Neither the construction nor operations phase of the proposed Project is expected to: (1) exceed state or federal general conformity thresholds, (2) cause any adverse impacts to air quality related values, (3) cause any adverse impact to air quality-related values in a federal Class I area or state wilderness area, or (4) exceed the PSD emissions thresholds of 250 tons per year of any attainment pollutant.
- Neither the construction nor operations phase of the proposed Project is expected to: (1) contribute to any new violation of any state or federal ambient air

quality standard in the Project area, (2) interfere with the maintenance or attainment of any state or federal ambient air quality standard in the Project area, (3) increase the frequency or severity of any existing violations of any state or federal ambient air quality standard in the Project area, or (4) delay the timely attainment of any standard, interim emission reduction, or other air quality milestone promulgated by the USEPA or state air quality agency.

- Considering the Proposed Route location, and the fact that the impacts from construction and/or operations would occur overwhelmingly within the right-of-way corridor, no sensitive receptor impacts are expected.
- Construction GHG emissions are expected to be both temporary and insignificant when compared to the preliminary statewide GHG inventories. Operations GHG emissions would be *de minimus* and insignificant.

3.20.4 Mitigation Measures

To minimize or avoid impacts on air quality, the Proponents have committed to EPMs that would be implemented Project-wide as outlined in this section and in Appendix C.

The following mitigation measures have been identified by the Agencies and are required on federally managed lands. The Proponents have agreed to incorporate these measures into their EPMs and apply them Project-wide.

AIR-1 Minimize idling time for diesel equipment whenever possible.

AIR-2 Ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use.

AIR-3 Prohibit engine tampering to increase horsepower.

AIR-4 Reduce construction-related trips as feasible for workers and equipment, including trucks.