APPENDIX I

Air Quality

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Appendix I – Air Quality

Section 1 of this appendix discusses the air quality provisions implemented under the Clean Air Act that would not be applicable to the Donlin Gold Project. The emission units subject to New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPs) are listed in Appendix I, Table 1 by Emission Unit ID (Air Sciences, Inc. 2014a).

1. List of Regulations Found to be Inapplicable to Project

1.1 Major Nonattainment New Source Review Permits

Major Nonattainment New Source Review (NNSR) permits are required for major sources of air pollution that are either new or are being significantly modified[1] in a nonattainment area; and have the potential to emit (PTE)[2] more than threshold quantities of a criteria pollutant. Major NNSR permits require the Lowest Achievable Emissions Rate, emissions offsets, and public involvement.

None of the project's proposed stationary sources are located in a nonattainment area, so NNSR permitting would not apply. The Fairbanks and North Pole urban area is designated as nonattainment for $PM_{-2.5}$, but is located 366 miles from the project stationary sources located at the Mine Site. In addition, the nonattainment area is sufficiently distant from any stationary source that the project would not impact it. Potential impacts during construction of the pipeline are discussed under Section 1.4, Conformity, below.

1.2 Visibility and Other Special Protection Areas

In 1997, Alaska Department of Environmental Conservation (ADEC) adopted 18 AAC 50.025 that identified the following integral vistas and special protection areas, which exist in addition to mandatory Class I areas:

- Views of Mt. Deborah and Denali (formerly known as Mt. McKinley) as visibility special protection areas;
- The Mendenhall Valley in Juneau as a wood smoke control area; and
- Specific parts of Unalaska area (the land and water areas within a 3.4-mile radius of the intersection of 53°53'04" North latitude and 166°32'11" West longitude), and the St. Paul Islands as special protection areas for sulfur dioxide (shown in Figure 3.8-1).

The ADEC regulations contain provisions that specifically address these areas. For example, 18 AAC 50.056 prohibits open burning in the wood smoke control areas, and under 18 AAC 50 Article 5, additional minor permitting provisions may apply for sources in a sulfur dioxide special protection area (i.e., 18 AAC 50.502(c)(2)(B) and 18 AAC 50.542(a)(1)(B)). However, these special protection areas and integral vistas provisions do not apply because they would not be affected by the project.

[1] An NNSR significant (or major) modification is defined in 40 CFR 51.165. The thresholds are based on the change in the emissions rate; the emission rate trigger levels vary depending on the severity of the nonattainment area and the specific pollutant.

[2] As defined in 40 CFR 51.165, PTE means "the maximum capacity of a stationary source to emit a pollutant under its physical or operational design. Any physical or operational design limitation on the capacity of the source to emit a pollutant, including its air pollution control equipment and restrictions on hours of operation or material combusted, stored, or processes, shall be treated as part of its design only if the limitation or the effect it would have on emission is federally enforceable."

1.3 Best Available Retrofit Technology

In 2007, ADEC adopted Best Available Retrofit Technology (BART) provisions in 18 AAC 50.260. These provisions require emission sources to install BART controls on units constructed between 1962 and 1977, if the source may be reasonably expected to cause visibility impairment. These provisions include requirements to identify BART-eligible sources and make BART determinations. A BART determination is based on several factors, including the cost of compliance and the resulting degree of improvement in visibility.

BART provisions would not apply to the Donlin Gold Project because it would be built after 1977.

1.4 Conformity

Federal funding actions or other approvals in nonattainment and maintenance areas are subject to either Transportation Conformity Rule (40 CFR Part 93) requirements, which apply to certain types of transportation projects, or to General Conformity Rule (40 CFR Part 51 and 40 CFR Part 93) requirements, which can apply to other types of federal actions. A General Conformity Determination is required for federally sponsored or federally approved actions in nonattainment areas, or in certain maintenance areas, when the total direct and indirect net emissions of nonattainment pollutants (or their precursors) exceed specified thresholds (40 CFR 93.153). This regulation ensures federal actions conform to the State Implementation Plan (SIP) and ADEC attainment plans.

None of the proposed project components would be in a nonattainment or maintenance area, thus General Conformity would not apply. The closest emitting activity to any nonattainment area would be during construction of the pipeline, at a distance of 230 miles from the Fairbanks $PM_{-2.5}$ nonattainment area. This would be sufficiently distant that the project would not impact the nonattainment area.

1.5 Chemical Accident Prevention Provisions

Chemical accident prevention provisions, codified in 40 CFR Part 68, are federal regulations designed to prevent the release of extremely hazardous materials (including toxic, flammable, and/ or explosive substances), and minimize potential impacts should an accidental release occur. The regulations apply to releases into air as well as other types of releases, and contain a list of substances and threshold quantities for determining applicability to stationary sources. If a stationary source stores, handles, or processes one or more substances on the lists in a quantity equal to or greater than specified in the regulation, the facility must prepare and submit a Risk Management Plan (RMP).

Donlin Gold would not store, handle, or process one or more listed substances, and thus chemical accident prevention provisions are not applicable to the project (SRK 2013a).

1.6 Open Burning

Donlin Gold is not planning to conduct open burning. However, open burning may be conducted in isolated areas during project construction if the preferred option of backhauling is not reasonable (Rieser 2014a). Open burning is regulated by the ADEC under 18 AAC 50.065, and requires that 1) the material is kept as dry as possible through the use of a cover or dry storage; 2) before igniting the burn, non-combustibles are separated to the greatest extent practicable; 3) natural or artificially induced draft is present; 4) to the greatest extent practicable, combustibles are separated from grass or peat layer; and 5) combustibles are not allowed to smolder.

2. Emissions Units Subject to New Source Performance Standards/National Emission Standards for Hazardous Air Pollutants

The emission units subject to NSPS or NESHAPs are listed in Table 1 along with the basis for applicability.

Appendix I, Table 1: Emissions Units Subject to NSPS/NESHAPS

Emission Unit ID	Description	Basis for Applicability
Subject to 40 CFR Part 60, Subpart Dc		
33-BLR-001	Oxygen plant boiler	Applicable because these boilers are steam generating units that have a maximum design heat input capacity of 29 megaWatts (MW) (100 million British thermal units per hour [MMBru/hr] or less, but greater than or equal to 2.9 MW [10 MMBtu/hr]),for which construction commenced after June 9, 1989.
56-BLR-200	Carbon elution heater	
Subject to 40 CFR Part 60, Subpart LL		
11-BIN-100	Gyratory crusher dump pocket and rock breaker	Applicable because these emission units are part of a metallic mineral processing plant.
11-CRU-100	Gyratory crusher	
11-BIN-150	Surge pocket	
11-FEE-150	Apron feeder	
11-CVB-100	Gyratory crusher discharge conveyor	
14-CVB-200	Stockpile feed conveyor	
14-FEE-200, 210, 220, 230	Coarse ore reclaim apron feeders	
16-BIN-350	Pebble Crusher Feed Surge Bin	
16-FEE-550	Pebble Crusher Feeder No. 1	
16-FEE-560	Pebble Crusher Feeder No. 2	
16-FEE570	Pebble Bypass Feeder	
16-CRU-200, 300	Pebble crushers	
16-CVB-480	Pebble discharge conveyor	
Subject to 40 CFR Part 60, Subpart CCCC		
CWI	Camp waste incinerator	Applicable because this is a new (construction commenced after June 4, 2010) incinerator that is defined as a commercial and industrial solid waste incinerator (CISWI) unit (combusts solid waste as defined in 40 CFR Part 241).
Subject to 40 CFR Part 60, Subpart IIII		
W1 to 12	Power plant generators (12)	Applicable because, when operating on diesel, these are stationary compression ignition (CI) internal combustion engines (ICE) that commenced construction after July 11, 2005, are not fire pump engines, and were manufactured after April 1, 2006.
BEDG1 & 2	Black start generators (2)	
CEDG1 to 4	Emergency generators (2)	

Appendix I, Table 1: Emissions Units Subject to NSPS/NESHAPS

Emission Unit ID	Description	Basis for Applicability
FP1 to 3	Fire pumps (3)	Applicable because these are CI ICE that commenced construction after July 11, 2005, are fire pump engines, and were manufactured after July 1, 2006.
Subject to 40 CFR Part 60, Subpart JJJJ		
W1 to 12	Power plant generators (12)	Applicable because, when operating on natural gas, these are stationary spark ignition (SI) ICE that commenced construction after June 12, 2006, are greater than 500 horsepower, and were manufactured after July 1, 2007.
Subject to 40 CFR Part 60, Subpart LLLL		
SS1	Sewage sludge Incinerator	Applicable because this is a new sewage sludge incinerator (construction commenced after October 14, 2010).
Subject to 40 CFR Part 63, Subpart ZZZZ		
W1 to 12	Power plant generators (12)	Applicable because these are reciprocating ICE that operate at an area source of hazardous air pollutants.
BEDG1 & 2	Black start generators (2)	
CEDG1 to 4	Emergency generators (2)	
FP1 to 3	Fire pumps (3)	
Subject to 40 CFR Part 63, Subpart JJJJJJ		
Auxiliary SO_2 Burner	Auxiliary SO_2 Burner	Applicable because this is a new (commenced construction after June 4, 2010) industrial, commercial, or institutional boiler that operates at an area source of hazardous air pollutants.
Subject to 40 CFR Part 63, Subpart EEEEEEE		
17-AUT-101 & 201	Autoclaves	Applicable because the emission units are part of a gold mine ore processing and production facility.
56-KLN-100	Kiln	
37-EWN-100 to 400	Electrowinning cells	
19-VEZ-100	Retort	
19-FUR-100	Furnace	

Source: Air Sciences Inc. 2015a; Fernandez 2013c; Rieser 2015a.

3. Fugitive Dust Control Plan

4. Air Quality Impacts Analysis

5. References

Air Sciences Inc. 2015a. Technical Memorandum: Summary of Particulate Deposition Modeling – Donlin Gold Project Access Road. Prepared for Donlin Gold, LLC. Project Number 281-15, July 9, 2015.

Air Sciences Inc. 2015d. Fugitive Dust Control Plan, Donlin Gold Project, Alaska. Project No.281-15-2. October 2015.

Air Sciences, Inc. 2016. Air Quality Impacts Analysis Report, Donlin Gold Project, Alaska. Prepared for Donlin Gold, LLC. Project Number 281-14-2, 66 p. July 2014.

Fernandez, E. 2013c. Personal communication. Senior Environmental Coordinator. Donlin Gold. Response to RFAI #30. December 19, 2013. Bill Craig. URS.

Rieser, M. 2014a. Personal communication. Donlin Gold. Follow-up to question on Impacts Analysis. September 3, 2014. Sally Ryan. Cardno, Inc.

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SRK Consulting (US), Inc. 2013a. Plan of Operations - Volume VI Transportation Plan, Donlin Gold Project, Alaska, USA. February 2013. 58 pp.