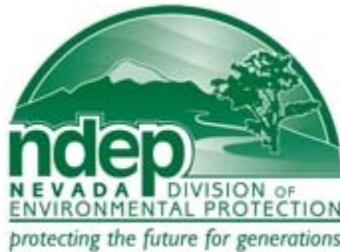


BARRICK GOLDSTRIKE MINES INC.

**P.O. Box 29
ELKO, NEVADA 89803**

**Class I (Title V) Air Quality Operating Permit - Minor Revision
Air Case 10AP0074**

Permit AP1041-0739.02



BY

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BUREAU OF AIR POLLUTION CONTROL**

SEPTEMBER 2009

1.0 INTRODUCTION

Barrick Goldstrike Mines Inc. (Barrick) submitted a Class I minor modification application on September 8, 2009, revised on September 17, 2009, for a minor revision to their existing Class I (Title V) air quality operating permit. The Nevada Division of Environmental Protection - Bureau of Air Pollution Control (BAPC) declared Barrick's permit minor revision application administratively complete on September 23, 2009. Pursuant to NAC 445B.3425(3)(b), a copy of the Minor Revision application is being sent to the Environmental Protection Agency for the required 45 day review. In this minor modification, Barrick proposes to add crushers to the coal feed circuits for roasters #1 and #2, System 17. Barrick is also proposing to add two new crushers to the existing metallurgical lab sample prep system, System 71. Additionally, Barrick is formalizing several notifications of change in this application.

The BAPC case log number for this application is 10AP0074. The facility consists of an open pit mine, two underground mines, and process facilities. Support facilities located on site but not owned by Barrick include the Air Liquide oxygen plant permitted under operating permit AP2813-0133.01.

Barrick's Goldstrike mine is located in the Lynn Mining District northeast Nevada, 27 miles north of Carlin, at the southern end of Elko County and the northern end of Eureka County. The facility operations are located approximately at the intersection of the Carlin Trend (northwest-southeast strike) and the Shoshone Belt (southwest-northeast strike). The principal operation is metal mining and the processing of gold ores.

1.1 PROPOSED MODIFICATIONS

A description of the complete Barrick operation was detailed with the previous permit renewal that was issued January 28, 2008.

1.1.1 System 17, Roaster Circuit: Roaster #1 and Roaster #2 Feed Process

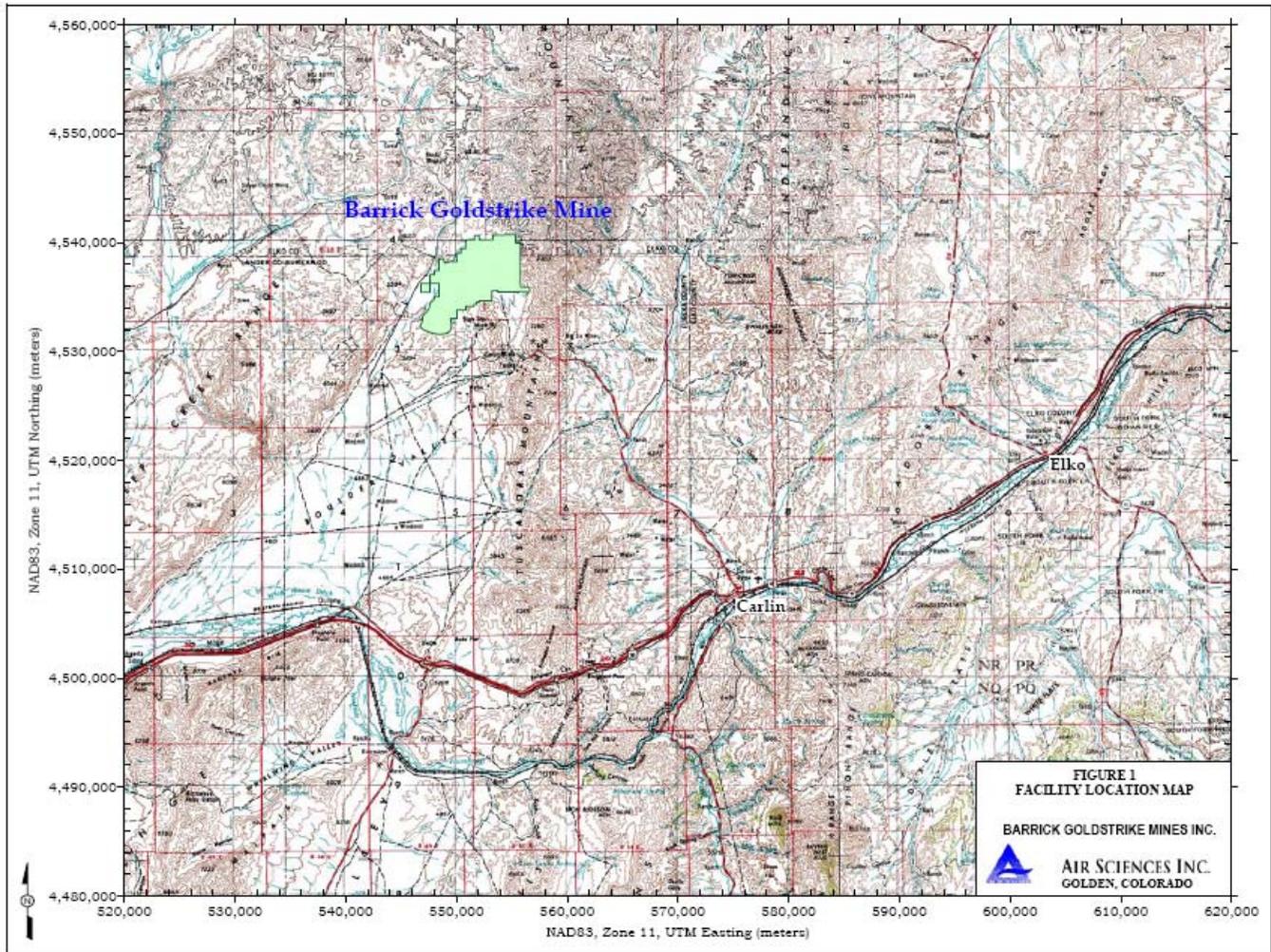
In this minor modification, Barrick proposes to add inline coal crushers in System 17 to maintain roaster operations and maximize gold recovery. Originally, the roaster circuit was designed to receive coal with a particle size of 3/8 inch. Due to cost and supply issues, Barrick now receives coal in the 1/2 to 3/4 inch range. Carbon not combusted in the roaster creates "preg robbing" in the carbon in leach circuit. In order to ensure complete combustion of the coal and reduce preg robbing, the crushers are being proposed. Each of the crushers have a maximum design capacity of 5 tons per hour (120 tons per day), which is below the applicability threshold of NSPS Subpart Y. The emissions will be ducted into the dust collection system which currently controls emissions from System 17.

1.1.2 System 71, Metallurgical Laboratory Sample Preparation

Two new crushers are being proposed for System 71, for metallurgical laboratory sample preparation. The crushers are one jaw crusher and one roll crusher. The emissions will be ducted into the dust collection system which currently controls emissions from System 71.

1.1.3 Notifications of Change

Barrick is also updating the Operating Permit to include the approved notifications of change for systems 75, 100 and 102. System 75 has the fuel oil tanks. This change was to correct the location of the two tanks, as they were listed incorrectly in the permit. The change for System 100, the Meikle Backfill/Cement Feed Plant, was related to the descriptions of two transfer points. No change in emissions resulted from this change. The change for System 102, the Rodeo Shotcrete Loadout Station likewise changed the descriptions of two transfer points. There was no change in emissions as a result of this change. All three Notifications of Change were properly submitted to BAPC and EPA Region 9. Copies of the notifications are included in the Minor Revision application.



2.0 APPLICABLE REQUIREMENTS

Applicable requirements are those regulatory requirements that apply to a stationary source or to emissions units contained within the stationary source. In Nevada's program, the regulations governing the emissions of air pollutants from which the applicable requirements originate are derived from four categories of regulations. These four categories consist of the requirements contained in the Nevada Revised Statutes (NRS), the Nevada Administrative Code (NAC), the Applicable State Implementation Plan (ASIP), and the Code of Federal Regulations (CFR, contained in various Parts within Title 40).

2.1 GENERALLY APPLICABLE REQUIREMENTS

Of the four categories of regulations governing emissions of air pollutants, there are many generally applicable requirements that apply to stationary sources and emission units located at a stationary source. A comprehensive summary of applicable permit requirements is contained in Sections I through V of the Title V air quality operating permit.

2.2 SPECIFIC APPLICABLE REQUIREMENTS

2.2.1 Nevada Revised Statutes

The Nevada Revised Statutes (NRS) is the statutory authority for the adoption and implementation of administrative regulations. The statutes relating to the control of air pollution are contained in NRS 445B.100 through 445B.640. The NRS specifies that the State Environmental Commission is the governing body given the power to adopt administrative regulations. Because the NRS is the enabling statutory authority, very few specific requirements are contained in the statutes. Rather, the NRS provides, generally, broad authority for the adoption and implementation of air pollution control regulations.

2.2.2 Nevada Administrative Code

The Nevada Administrative Code, (NAC), is a collection of administrative regulations that contain specific requirements relating to the control of air pollution. The State Environmental Commission adopts these regulations. The NAC requires that, where state regulations are more stringent in comparison to Federal regulations, the State regulations are applicable. The NAC sets forth, by rule, maximum emission standards for visible emissions (opacity), PM₁₀ and sulfur emitting processes. Other requirements are established for incinerators, storage tanks, odors and maximum concentrations of regulated air pollutants in the ambient air. Other NAC regulations specify the requirements for applying for and method of processing applications for operating permits. All of the equipment considered in this application must meet, at a minimum, the applicable standards and requirements set forth in the NAC. Specifically, the emission standards contained in NAC 445B.2203 for particulate matter, 445B.22047 for sulfur emissions, 445B.22017 for opacity, and 445B.22097 for the ambient air quality standards must not be exceeded.

2.2.3 Nevada Applicable State Implementation Plan (ASIP)

The Applicable State Implementation Plan (ASIP) is a document prepared by a State or Local air regulatory agency and required to submit to the U.S. EPA for approval. The Title I of the Clean Air Act is

the statutory authority for the U.S. EPA regulations that require a State to submit a SIP. The contents of the SIP are intended to show how a State, through the implementation and enforcement of the regulations contained in the SIP, will either show how attainment of the national ambient air quality standards (NAAQS) will be achieved or how a State will continue to maintain compliance with the NAAQS. Nevada's most recent ASIP approved by the U.S. EPA is based on State regulations codified in 1982 with revisions/approvals as recently as April 9, 2008. In general, the regulations contained in the ASIP closely parallel the current NAC regulations. However, because the ASIP is partly based on older air quality regulations (at this time), compliance with all of the current NAC regulatory requirements does not necessarily ensure compliance with the ASIP requirements. All of the equipment considered in this application must meet, at a minimum, the standards set forth in the ASIP. Specifically, the emission standards contained in ASIP NAC 445B.2203 for particulate matter from fuel burning equipment, 445B.22033 for particulate matter from sources not otherwise limited, 445B.22047 for sulfur emissions from fuel burning equipment, 445B.22017 for maximum opacity, and 445B.22097 for the ambient air quality standards must not be exceeded.

2.2.4 New Source Performance Standards (NSPS)

The U.S.EPA has promulgated maximum emission standards and monitoring / recordkeeping methods for selected source categories. These standards are contained in Title 40 of the CFR, Part 60, and are known as the New Source Performance Standards (NSPS). The above revisions were evaluated for Subpart Y and Subpart LL applicabilities. The addition of the coal crushers do not trigger Subpart Y applicability as the crushers are below the 200 ton per day applicability threshold (120 tons/day). The sample preparatory lab does not trigger Subpart LL applicability as the sample preparatory lab does not meet the definition of a metallic mineral processing plant.

2.2.5 40 C.F.R. Parts 61 and 63 National Emission Standards for Hazardous Air Pollutants

Parts 61 and 63 establish the National Emission Standards for Hazardous Air Pollutants (NESHAPS). There are no sources at the facility for which a standard has been established under these parts.

2.2.6 40 C.F.R. Parts 72 to 78 Acid Rain Exemption

The Barrick facility is exempt from the acid rain provisions under 40 C.F.R. Parts 72 to 78 because there are no units listed in Tables 1, 2, or 3 of §73.10 at the facility, and there are no utility units at the facility that serve a generator that produces electricity for sale.

2.2.7 40 CFR Part 52.21. Prevention of Significant Deterioration Regulations (PSD)

The U.S. EPA delegated implementation of the federal PSD regulations to the State of Nevada; and BAPC implements the federal PSD regulations through a delegation agreement with EPA. These regulations contained at 40 CFR Part 52.21 specify federally required permitting procedures for each "major stationary source". The PSD regulations define a "stationary source" as "any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act." A "building structure facility or installation" is defined as "all of the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement."

"Major" is defined as the potential to emit of a stationary source, which equals or exceeds a specified threshold (in tons per year) of any air pollutant regulated under the Clean Air Act (40 CFR 52.21(b)(1)). The first threshold is for a stationary source that emits or has the potential to emit 100 tons per year or more and is defined as one of 28 specific categories of sources (see 40 CFR 52.21(b)(1)(i)(a)). The other applicability threshold is for any other stationary source that emits or has the potential to emit 250 tons per year (see 40 CFR 52.21(b)(1)(i)(b)). As mentioned above, the SIC code for this facility is 1041. None of the 28 specific categories is representative of this facility. Major stationary source status therefore is classified at the 250 tons per year emission threshold for any pollutant regulated under the Clean Air Act for the Barrick facility.

2.2.7.1 Prevention of Significant Deterioration Determination

As discussed above, 40 CFR Part 52.21 specifies that Prevention of Significant Deterioration (PSD) review is required for any new major stationary source or any major modification. A major source is defined as any pollutant emitting activities, which belong to the same two digit Source Industry Classification (SIC), and:

1. Emit 100 tons/yr or more of a regulated air contaminant as one of the listed categories of sources listed in 40 CFR 52.21; or
2. Emits 250 tons/yr or more of a regulated air contaminant and belong to any other category sources.

Although this facility is not classified as one of the listed categories of sources, the facility-wide potential to emit of several regulated pollutants exceed 250 tons/yr. The facility is a major stationary source for PSD purposes. Barrick has submitted emission calculations as part of the minor revision application, which indicates that the potential annual emissions from this minor revision will not equal or exceed specified significant thresholds (in tons per year) of any air pollutant regulated under the Clean Air Act (40 CFR 52.21(b)(1)).

The NDEP-BAPC reviews each proposed modification and evaluates whether each modification should be aggregated. Barrick has evaluated previous applications as part of their application and has

determined that this modification is separate from previous applications. The BAPC agrees that the previous minor modifications over the last several years are distinct and separate from the proposed minor modification and their emissions should not be aggregated towards the PSD significant emissions thresholds.

Barrick also prepared a debottlenecking analysis related to the addition of the coal crushers to System 17. The coal crushers, as described above, are designed to ensure complete combustion of the coal, thus reducing the preg robbing effect of uncombusted coal. This does not lead to an increase of the amount of ore processed through the roasters and does not debottleneck ore processing. There will be no increase in the amount of ore processed through the roaster as a result of the addition of the coal crushers.

For the proposed minor modification, the new coal crushing system added to System 17 does not result in an increase in potential emissions, since all emissions are baghouse controlled. Barrick conservatively conducted an actual to potential emissions analysis and assumed that the baseline actual emissions from this system were zero. The potential emissions for System 17 is 4.4 tons/year of PM and PM₁₀. Therefore, the baseline actual to potential conservatively shows a 4.4 tons/year increase for the PSD analysis. Barrick conservatively estimated the PM_{2.5} will be less than or equal to the PM₁₀ annual emissions.

Likewise, Barrick used the same approach for the emissions increase for System 71, the sample preparation laboratory. The conservative emissions increase for System 71 is 2.8 tons/year of PM and PM₁₀ to the potential emissions for PSD analysis. Barrick conservatively estimated the PM_{2.5} will be less than or equal to the PM₁₀ annual emissions.

Barrick also conducted an evaluation for each of the notifications of change, using the same approach described above. The following tables are from Barrick's application.

Actual-to-Potential PSD Analysis			
Roaster Circuit: Roaster #1 and Roaster #2 Feed Process (System 17)			
	PM	PM₁₀	PM_{2.5}
Baseline Actual Emissions (tpy)¹	0.0	0.0	0.0
Potential Emissions (tpy)^{2,3}	4.4	4.4	< 4.4
Total Change in Emissions	4.4	4.4	< 4.4
PSD Thresholds	25	15	10

¹As a worse-case analysis, Baseline Actual Emissions are assumed to be zero.

²The potential emissions for System 17 are used in lieu of the Projected Actual Emissions per 40 CFR 52.21(b)(41)(ii)(d).

³System 17 does not have annual emission limits, however, given the hourly emission limit of 1.01 lbs/hr of PM and PM₁₀ and assuming 8,760 hours per year of operation for S2.208, the potential annual emissions for S2.208 could not exceed 4.42 tons/yr of PM and PM₁₀.

Actual-to-Potential PSD Analysis			
Metallurgical Laboratory Sample Preparation (System 71)			
	PM	PM₁₀	PM_{2.5}
Baseline Actual Emissions (tpy) ¹	0.0	0.0	0.0
Potential Emissions (tpy) ^{2,3}	2.8	2.8	< 2.8
Total Change in Emissions	2.8	2.8	< 2.8
PSD Thresholds	25	15	10

¹As a worse-case analysis, Baseline Actual Emissions are assumed to be zero.

²The potential emissions for System 71 are used in lieu of the Projected Actual Emissions per 40 CFR 52.21(b)(41)(ii)(d).

³System 71 does not have annual emission limits, however, given the hourly emission limit of 0.64 lbs/hr of PM and PM₁₀ and assuming 8,760 hours per year of operation for S2.067, the potential annual emissions for S2.067 could not exceed 2.8 tons/yr of PM and PM₁₀.

Actual-to-Potential PSD Analysis	
Fuel Storage Tanks (System 75 – S2.080 and S2.081)	
	VOC
Baseline Actual Emissions (tpy) ¹	0.000
Potential Emissions (tpy) ²	0.365
Total Change in Emissions	0.365
PSD Thresholds	40

¹As a worse-case analysis, Baseline Actual Emissions are assumed to be zero.

²The potential emissions for System 75 are used in lieu of the Projected Actual Emissions per 40 CFR 52.21(b)(41)(ii)(d).

Actual-to-Potential PSD Analysis			
Meikle Backfill/Cement Feed Plant Silo #3 (System 100)			
	PM	PM₁₀	PM_{2.5}
Baseline Actual Emissions (tpy) ¹	0.0	0.0	0.0
Potential Emissions (tpy) ² (System 100)	0.4	0.2	< 0.2
Total Change in Emissions	0.4	0.2	< 0.2
PSD Thresholds	25	15	10

¹As a worse-case analysis, Baseline Actual Emissions are assumed to be zero.

²The potential emissions for System 100 are used in lieu of the Projected Actual Emissions per 40 CFR 52.21(b)(41)(ii)(d).

Actual-to-Potential PSD Analysis			
Rodeo Shotcrete Loadout Station Silo #1 (System 102)			
	PM	PM₁₀	PM_{2.5}
Baseline Actual Emissions (tpy) ¹	0.0	0.0	0.0
Potential Emissions (tpy) ² (System 102)	0.3	0.2	< 0.2
Total Change in Emissions	0.3	0.2	< 0.2
PSD Thresholds	25	15	10

¹As a worse-case analysis, Baseline Actual Emissions are assumed to be zero.

²The potential emissions for System 102 are used in lieu of the Projected Actual Emissions per 40 CFR 52.21(b)(41)(ii)(d).

Minor Modification Actual to Potential PSD Analysis Totals

	PM	PM₁₀	PM_{2.5}	VOC
Baseline Actual Emissions (tons/year)	0.0	0.0	0.0	0
Potential Emissions (tons/year)	7.9	7.6	≤ 7.6	0.365
Change in Emissions (tons/year)	7.9	7.6	≤ 7.6	0.365
Total Change in Emissions (tons/year)	7.9	7.6	≤ 7.6	0.365
PSD Thresholds (tons/year)	25.0	15.0	10.0	40

As can be seen from the above tables, this modification, using a worst case actual to potential analysis, is less than the PSD significant emissions thresholds.

2.2.8 Compliance Assurance Monitoring (CAM)

The U.S. EPA has promulgated requirements for sources to provide detailed monitoring plans that will ensure compliance with all applicable requirements. These monitoring requirements are contained in 40 CFR Part 64. Section 64.2 specifies that these monitoring requirements apply to a "pollutant specific emission unit at a major source" if all of the following are satisfied:

- The unit is subject to an emission limitation or standard;
- The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- The unit has potential pre-control device (uncontrolled) emissions equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Because Barrick Goldstrike is subject to the NSPS requirements and is a major source, a CAM plan would be required for all emission units with a potential pre-control device (uncontrolled) emissions equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. No sources affected under this minor modification have a potential pre-control device (uncontrolled) emissions equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source, therefore a CAM plan is not required for the proposed minor modification.

2.2.9 New Applicable Requirements

In accordance with NAC 445.B.295.2 (h)(2), Barrick must comply in a timely manner with any new applicable requirement that becomes effective during the term of the operating permit.

3.0 EMISSIONS INVENTORY

3.1 ANNUAL REGULATED EMISSIONS

Summary of the Potential to Emit (Tons Per Year)

Facility-Wide	H ₂ S	PM	PM ₁₀	NO _x	SO ₂	CO	VOC
	81.9	443.6	400.5	400.8	248.4	363.7	238.4

There are no increases in potential emissions as a result of this application. The new crushers in Systems 17 and 71 are being controlled by existing baghouse dust collectors. There is no associated increase in potential emissions. The notifications of change, likewise, did not have associated increases in potential emissions. Therefore, since there are no increases in regulated potential emissions, this revision qualifies as a minor revision under Title V.

3.2 HAZARDOUS AIR POLLUTANT (HAP) EMISSIONS INVENTORY

An historical reference indicates a major source review for HAP's was completed in December 1999, and updated in the February 2000 Engineering Review by NDEP-BAPC. According to the reference, the quantification was performed using the NDEP approved methodology, *Recommended Methodology for Quantification of Fugitive Dust Metals Emissions from Mining Activities for Title V Applicability*. The reference reports that the fugitive dust metal emissions add up to less than 10 tons per year per HAP, and 25 tons per year of any combination of HAP's. As an update to this earlier work, Barrick has provided a current HAP Emissions Inventory Table - Potential HAP Emissions by Emission Type and Pollutant, confirming that the Barrick Facility is not a major source of HAP's.

4.0 AMBIENT AIR QUALITY IMPACT

The purpose of the air quality analysis is to demonstrate that the emissions from the process will not cause or contribute to a violation of any applicable Nevada and National Ambient Air Quality Standards (NAAQS). Nevada Administrative Code (NAC) 445B.310.1(b)(2) requires an air dispersion modeling analysis to be completed by the facility if a modification to an existing air permit is greater than 10 tons of a regulated air pollutant per year.

Since there are no increases in emissions due to this revision, the air dispersion modeling analysis performed by NDEP-BAPC staff in September 2008 still stands. That analysis is described below.

4.1 CLASSIFICATION OF AIR BASIN

The Barrick facility is located in the *Boulder Flat of the Humboldt River Basin*, Air Quality Hydrographic Basin Upper 61, Eureka County, Nevada. Basin 61U is currently classified as attainment for PM₁₀ and unclassified for all remaining criteria pollutants that have an ambient air quality standard. The unclassifiable designation has been developed due to lack of monitoring data available to properly classify an air basin, such as Basin 61U.

4.2 METHOD OF AIR QUALITY MODELING ANALYSIS

NDEP-BAPC staff performed the air dispersion modeling using Lakes Environmental (version 5.8.5) AERMOD (version 07026) for PM₁₀ emissions. The EPA approved AERMOD model was used to determine the 24-hour and annual PM₁₀ air quality impacts. AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

4.3 RESULTS

The AERMOD model results are summarized in the table below. PM₁₀ concentrations are from the updated modeling analysis based on the proposed minor modification. SO₂, NO_x, CO, and ozone concentrations are from a prior permit renewal. The modeled concentrations for all modeled pollutants are below the Nevada ambient air quality standards at the facility fence line. As a result, there will be no exceedences of ambient air quality standards at points accessible to the general public.

Table 5 Modleing Sumamry

NAAQS Primary Standard	Pollutant		Background Concentration	Point of Closest Public Access (w/background)
$\mu\text{g}/\text{m}^3$			$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
50.0 $\mu\text{g}/\text{m}^3$	PM ₁₀	Annual	28.3 $\mu\text{g}/\text{m}^3$	37.4 $\mu\text{g}/\text{m}^3$
150.0 $\mu\text{g}/\text{m}^3$		24-hour	28.3 $\mu\text{g}/\text{m}^3$	124.4 $\mu\text{g}/\text{m}^3$
100.0 $\mu\text{g}/\text{m}^3$	NO _x	Annual	19 $\mu\text{g}/\text{m}^3$	25.5 $\mu\text{g}/\text{m}^3$
1,300 $\mu\text{g}/\text{m}^3$	SO ₂	3-hour	3.0 $\mu\text{g}/\text{m}^3$	68.2 $\mu\text{g}/\text{m}^3$
365 $\mu\text{g}/\text{m}^3$		24-hour	3.0 $\mu\text{g}/\text{m}^3$	21.4 $\mu\text{g}/\text{m}^3$
80 $\mu\text{g}/\text{m}^3$		Annual	3.0 $\mu\text{g}/\text{m}^3$	5.5 $\mu\text{g}/\text{m}^3$
40,000 $\mu\text{g}/\text{m}^3$	CO	Annual	N/A	1,163.7 $\mu\text{g}/\text{m}^3$
10,000 $\mu\text{g}/\text{m}^3$		Annual	N/A	482.7 $\mu\text{g}/\text{m}^3$
235 $\mu\text{g}/\text{m}^3$	Ozone	Annual	104.2 $\mu\text{g}/\text{m}^3$	138.6 $\mu\text{g}/\text{m}^3$

5.0 SIGNIFICANT CHANGE DETERMINATION

Given the information provided by Barrick in the Class I minor modification application, the NDEP-BAPC determined that this minor modification will not result in a significant change in air quality at any location where the public is present on a regular basis. This determination is based on the fact that the minor modification is not anticipated to result in a significant increase in emissions. Also based on the location of the Barrick Goldstrike Mine, the presence of the public on a regular basis is very remote. Because this modification will not result in a significant change in the air quality, pursuant to NAC 445B.3395(8)(c) the provisions of NAC 445B.3395(6) and NAC 445B.3395(7), public notice provisions, do not apply.

Attachment 1

Minor Revision Application