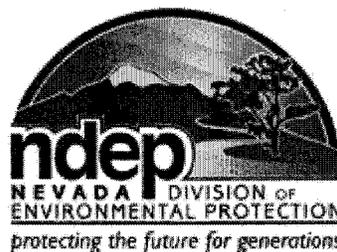


BARRICK GOLDSTRIKE MINES INC.

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

**Class I (Title V) Air Quality Operating Permit - Minor Revision
Air Case 09AP0082**

Permit AP1041-0739.02



BY

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DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR POLLUTION CONTROL**

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1.0 INTRODUCTION

Barrick Goldstrike Mines Inc. (Barrick) submitted a Class I minor modification application on September 8, 2008, 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 16, 2008. Pursuant to NAC 445B.3425(3)(b), a copy of the Minor Revision application was sent to the Environmental Protection Agency on September 24, 2008. In this minor modification, Barrick proposes to change the description for System 97 from "Intermediate Crushing System (Mill #1)" to "Intermediate Crushing System (Mill #1 & #2)"; change the screen description for PF1.459 and PF1.460 (System 97) from double-deck screen to multi-deck screen; remove the 3 minute opacity requirement for System 97; replace the initial compliance demonstration in Section VI.DC.4 for PF1.483 through PF1.485 (System 103A) from 40 CFR Part 60 Subpart OOO requirements to 40 CFR Part 60 Subpart LL requirements (System 103A is subject to Subpart LL and not Subpart OOO); and add a new crushing plant to the permit, System 107, emission units PF1.486 through PF1.490. The new crushing plant will allow for flexibility in crushing operations in the event that the SAG mill becomes inoperable. PM emission limits will increase by 8.10 tons per year, PM₁₀ emission limits will increase by 3.11 tons per year, and PM_{2.5} emissions are conservatively estimated at the 3.11 tons per year estimate of PM₁₀ for PSD applicability purposes.

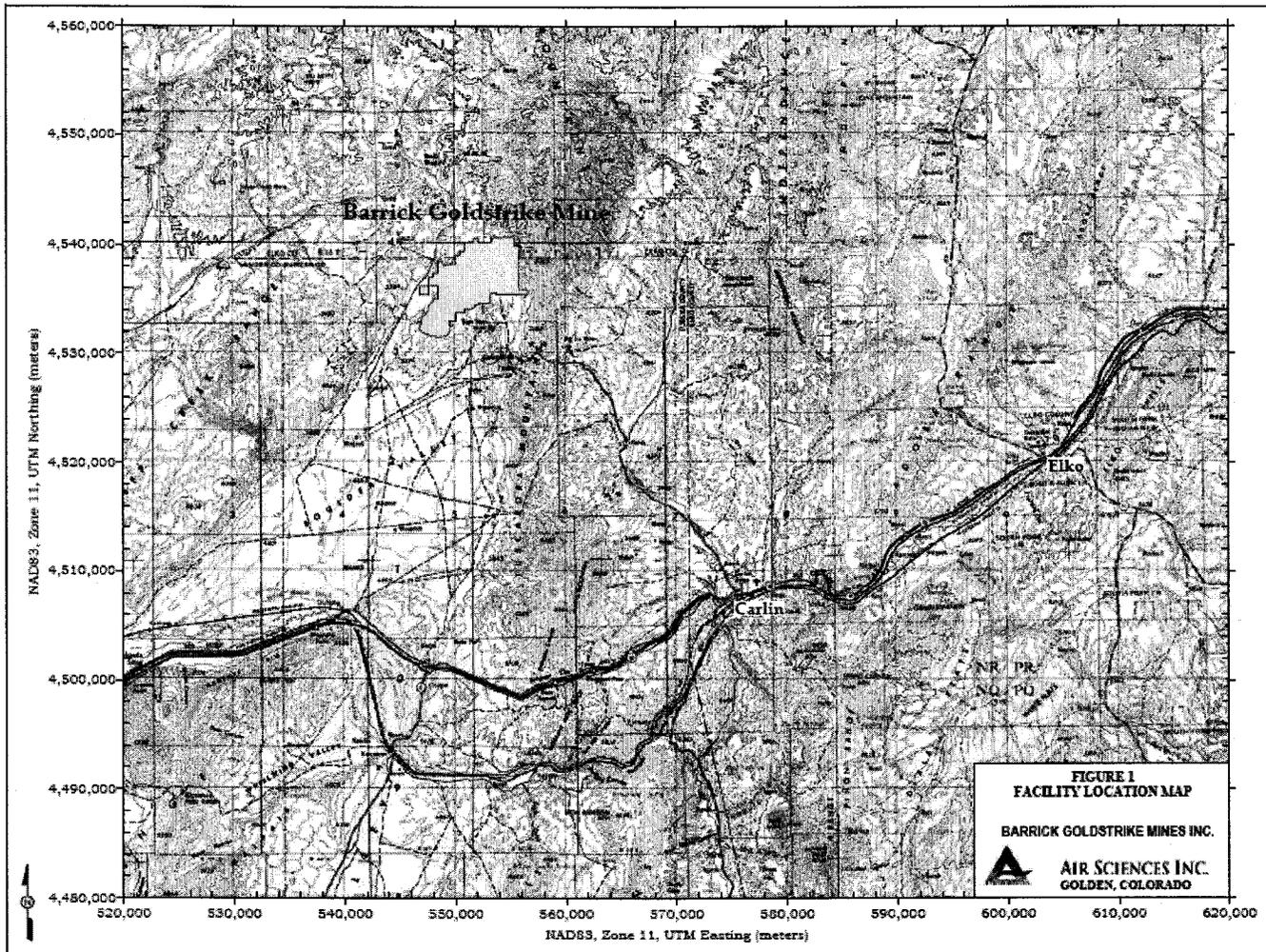
The BAPC case log number for this application is 09AP0082. The facility consists of an open pit mine, two underground mines, and process facilities. Support facilities located on site but not owned by Barrick include the Air Liquide oxygen plant permitted under operating permit AP2813-0133.01.

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.

In this minor modification, Barrick proposes to change the description for System 97 from "Intermediate Crushing System (Mill #1)" to "Intermediate Crushing System (Mill #1 & #2)"; change the screen description for PF1.459 and PF1.460 (System 97) from double-deck screen to multi-deck screen; remove the 3 minute opacity requirement for System 97; replace the initial compliance demonstration in Section VI.DC.4 for PF1.483 through PF1.485 (System 103A) from 40 CFR Part 60 Subpart OOO requirements to 40 CFR Part 60 Subpart LL requirements (System 103A is subject to Subpart LL and not Subpart OOO); and add a new crushing plant to the permit, System 107, emission units PF1.486 through PF1.490.



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1.1.1 System 97 – Intermediate Crushing System (Mill #1 & #2)

Barrick proposes to change the description for System 97 from “Intermediate Crushing System (Mill #1)” to “Intermediate Crushing System (Mill #1 & #2)”; change the screen description for PF1.459 and PF1.460 (System 97) from double-deck screen to multi-deck screen; and remove the 3 minute opacity requirement for System 97. No increase to the existing throughput limits, design capacity, or emission limits is required or requested for the permit revision to System 97.

1.1.2 System 103A – Ore Fines Feed System

Barrick proposes to replace the initial compliance demonstration in Section VI.DC.4 for PF1.483 through PF1.485 (System 103A) from 40 CFR Part 60 Subpart OOO requirements to 40 CFR Part 60 Subpart LL requirements (System 103A is subject to Subpart LL and not Subpart OOO). No increase to the existing throughput limits, design capacity, or emission limits is required or requested for this permit revision to System 103A.

1.1.3 System 107 – Additional Equipment for Intermediate Crushing System (Mill #1 & #2)

Barrick proposes to add a new crushing plant to the permit, System 107, emission units PF1.486 through PF1.490. The new crushing plant will provide additional ore size reduction capabilities in the event that it becomes necessary to bypass the SAG mill due to equipment breakdowns. The new crushing plant will consist of three conveyors, a cone crusher, and a multi-deck screen. Throughputs will be limited to 500 tons/hour. The new crushing plant will be allowed to operate 24 hours/day. Particulate emissions from the conveyor transfers and screen will be controlled with pneumatic water sprays. Particulate emissions from the cone crusher will be controlled with enclosures. Emission estimates were determined based on BAPC guidance. PM emission limits will increase by 8.10 tons per year and PM₁₀ emission limits will increase by 3.11 tons per year as a result of the addition of System 107. PM_{2.5} emissions are not limited in the permit. PM_{2.5} is estimated at the 3.11 tons per year estimate of PM₁₀ for PSD applicability purposes only.

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).

Barrick has chosen to conduct a streamline analysis for many of the applicable requirements under the NAC and SIP. A streamline analysis is conducted by the applicant and demonstrates that the permitted limits will comply with the various allowable limits set by the NAC and SIP. A streamline analysis for the new crushing plant was conducted in Barrick's proposed minor modification application. A copy of the streamline analysis for the existing permitted emission units may be seen in Barrick's most recent Title V permit renewal application.

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

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.

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.

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, 445B.22047 for sulfur emissions, 445B.22017 for maximum opacity, and 445B.22097 for the ambient air quality standards must not be exceeded.

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). A change in applicability for System 103A was made from Subpart OOO to Subpart LL.

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

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.

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.

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.

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)). Specific emissions increases may be observed in Table 1.

The NDEP-BAPC reviews each proposed modification and evaluates whether each modification should be aggregated. In a letter dated September 3, 2008, Barrick explains that there have been several minor modifications to their Class I Air Quality Operating Permit No. AP1041-0739 in the last several years. The minor modifications included addressing backfill operations, the addition of a fuel oil storage tank, the addition of a mobile boiler, refinements to the control technology for System 12, the addition of a roaster ore fines feed system, approval to process additional roaster feed materials, and the addition of an autoclave mixing tank.

For the proposed minor modification, the new crushing plant, System 107, adds 8.1 tons/year of PM and 3.1 tons/year of 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. The total particulate changes in annual emissions are well below the PSD thresholds, Table 1.

In order to confirm that the significant thresholds have not been exceeded, the NDEP-BAPC is requiring that Barrick monitor, record, and report the throughput of all materials processed in the new crushing plant.

The NDEP-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 thresholds.

Table 1: Actual to Potential PSD Analysis

	PM	PM₁₀	PM_{2.5}
System 107 – New Crushing Plant			
Baseline Actual Emissions (tons/year)	0.0		0.0
Potential Emissions (tons/year)	8.1	3.1	≤ 3.1
Change in Emissions (tons/year)	8.1	3.1	≤ 3.1
Total Change in Emissions (tons/year)	8.1	3.1	≤ 3.1
PSD Thresholds (tons/year)	25.0	15.0	10.0

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.

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

Table 2. Summary of the Existing Facility's Potential to Emit (Tons Per Year)

Facility-Wide (Pre - Minor Revision)	H ₂ S	PM	PM ₁₀	NO _x	SO ₂	CO	VOC
	81.9	435.5	397.4	400.8	248.4	363.7	238.4

Table 3. Summary of the Anticipated Minor Revision Increase (Tons Per Year)

MINOR REVISION INCREASE, PTE	H ₂ S	PM	PM ₁₀	NO _x	SO ₂	CO	VOC
		N/A	8.1	3.1	N/A	N/A	N/A

Table 4. Summary of the Potential to Emit (Tons Per Year)

Facility-Wide (Post - Minor Revision)	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

The emissions increase presented in Table 3 are anticipated increases due to the addition of the new crushing plant, System 107.

A summary of the potential to emit emission inventory for this minor revision application was completed and is provided in Attachment 1.

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. Barrick's proposed minor modification is below the 10 ton limit that would require Barrick to perform the air dispersion analysis.

The air dispersion modeling analysis was performed by NDEP-BAPC staff on September 16/17, 2008. The modeling parameters for the existing emission sources from the last Barrick permit minor modification (issued June 30, 2008) was updated to account for the particulate emissions from the proposed new crushing plant. Only PM₁₀ was modeled under the proposed minor modification.

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 Table 4. PM₁₀ concentrations are from the updated modeling analysis based on the proposed minor modification. SO₂, NO_x, CO, and ozone concentrations are from the last permit renewal. The modeled concentrations for all modeled pollutants are below the Nevada ambient air quality standards at the facility fenceline. As a result, there will be no exceedances of ambient air quality standards at points accessible to the general public. The modeling input/output data are included in Attachment 2.

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 Emissions Inventory

**TABLE 1
POTENTIAL PARTICULATE EMISSIONS OF NEW EMISSION UNITS**

Source No.	Source Description	Material	Process Rate (ton/hr)	Process Rate (ton/yr)	PM Emission Factor (Mill 1 & 2)	PM Emission Factor	PM10 Emission Factor	Emission Factor Units	Control Technology	Control Efficiency (%)	PM Calculated Emissions (lb/hr)	PM10 Calculated Emissions (lb/hr)	PM Calculated Emissions (ton/yr)	PM10 Calculated Emissions (ton/yr)	Emission Factor Reference				
PF1 486	conveyor transfer	ore	500	4,380,000	0.0020	0.00084	lb/ton	pneum. spray	95%	0.050	0.050	0.024	0.219	0.103	AP-42 Page 13.2.4-4, Rev. 11/06, 8 mph, 3.5% moist.				
PF1 487	conveyor transfer	ore	500	4,380,000	0.0020	0.00084	lb/ton	pneum. spray	95%	0.050	0.050	0.024	0.219	0.103	AP-42 Page 13.2.4-4, Rev. 11/06, 8 mph, 3.5% moist.				
PF1 488	cone crusher	ore	500	4,380,000	0.0012	0.00054	lb/ton	enclosure	0%*	0.800	0.270	2.628	1.183	1.183	AP-42, Table 11.19.2-2, Rev. 8/04 (tertiary crush., controlled).				
PF1 489	conveyor transfer	ore	500	4,380,000	0.0020	0.00084	lb/ton	pneum. spray	95%	0.050	0.050	0.024	0.219	0.103	AP-42 Page 13.2.4-4, Rev. 11/06, 8 mph, 3.5% moist.				
PF1 490	multi-deck screen	ore	500	4,380,000	0.0022	0.00074	lb/ton	pneum. spray	0%*	1.100	0.370	4.818	1.621	1.621	AP-42, Table 11.19.2-2, Rev. 8/04 (screening, controlled).				
Total															1.850	0.712	8.103	3.713	

* The control efficiency is already accounted for in the emission factor.