

September 23, 2005

Matthew DeBurle
Supervisor, Permitting Branch
Nevada Bureau of Air Pollution Control
333 W. Nye Lane
Carson City, Nevada 89706

Re: Proposed Renewal of Title V Operating Permit for Barrick Goldstrike

Dear Mr. DeBurle:

We have reviewed the Bureau of Air Pollution Control's (BAPC) proposed title V permit renewal for Barrick Goldstrike, which we received on August 16, 2005. As you know, during our review we identified significant flaws in permit provisions concerning Compliance Assurance Monitoring (CAM), periodic monitoring, streamlining, and permit shields that are serious enough to warrant a formal EPA objection. After discussions with you and your staff, and BAPC's discussions with Barrick, all parties have agreed that the best course of action is for BAPC to withdraw the proposed permit, and work to address the deficiencies before the permit is resubmitted to EPA for another 45-day review period. BAPC formalized its withdrawal request in a letter to Region 9 dated September 16, 2005.

We have enclosed our detailed comments on the draft permit. Enclosure A describes deficiencies in the permit that must be corrected before the permit is re-submitted for EPA review. Enclosure B contains our comments and suggestions for improving the permit and the administrative record.

We are committed to working with BAPC and Barrick to resolve the issues we have identified as expeditiously as possible. Please contact Roger Kohn at (415) 972-3973 or kohn.roger@epa.gov if you have any questions concerning our comments.

Sincerely,

original signed by Gerardo Rios

Gerardo C. Rios
Chief, Permits Office
Air Division

Enclosures

cc: Stephen Lang, Barrick

Enclosure A

Compliance Assurance Monitoring

The Compliance Assurance Monitoring (“CAM”) rule, codified in 40 C.F.R. Part 64, targets title V sources with large emission units that rely on add-on control devices to comply with applicable requirements. The underlying principle, as stated in the preamble, is “to assure that the control measures, once installed or otherwise employed, are properly operated and maintained so that they do not deteriorate to the point where the owner or operator fails to remain in compliance with applicable requirements” (62 FR 54902, 10/22/97). Under the CAM approach, sources are responsible for proposing a CAM plan to the permitting authority that provides a reasonable assurance of compliance to provide a basis for certifying compliance with applicable requirements for pollutant-specific emission units (“PSEU”) with add-on control devices.

The CAM monitoring design criteria, set forth in §64.3, require sources to select representative control device operating parameters, and propose and justify indicator ranges for each parameter for inclusion in the title V permit. Example of parameters include temperature for an afterburner or regenerative thermal oxidizer, flow and pressure drop for a particulate matter scrubber, and electrical voltages for an electrostatic precipitator. Part 64 defines departures from indicator ranges established in permits as “excursions” that must be reported to permitting authorities and may trigger a Quality Improvement Plan (§64.8) if a source’s response to a pattern of excursions is inadequate.

1. Part 64 requires sources to justify their proposed CAM monitoring criteria with data obtained from source testing and states that “Such data may be supplemented, if desired, by engineering assessments and manufacturer’s recommendations to justify the indicator ranges (or, if applicable, the procedures for establishing such indicator ranges)” (§64.4(c)(1)). Barrick’s original CAM plan, submitted to BAPC in November 2002 as a supplement to its renewal application, identified parameters but did not propose any specific indicator range values (with the exception of the presence of visible emissions). Barrick’s proposal has sections entitled “Rationale for Selection of Indicator Ranges” that discuss the indicator ranges in a generic fashion, without reference to specific ranges or any justification for their selection. Instead, the Barrick CAM plan merely makes repeated references to manufacturer’s recommended operating ranges and operation and maintenance (O&M) manuals.

In response to a BAPC request prompted by feedback on the draft permit from EPA Region 9, Barrick supplemented its CAM plan with an additional submittal to BAPC dated August 4, 2005. This submittal does propose indicator ranges, but still does not include any justifications for the proposed ranges as required by Part 64. BAPC’s statement of basis supporting the proposed permit is also silent regarding justifications for the indicator ranges. In addition, the ranges proposed by Barrick are very wide and appear to be either the maximum operating ranges of the devices or large subsets of those ranges, and not levels which have been demonstrated to assure that individual PSEUs will be in compliance with applicable requirements. For

example, Barrick proposes identical pressure drop ranges (1.5 to 11 inches H₂O) for seven of the eight baghouses subject to CAM, regardless of which system they are used in or their volumetric flow rate rating. Similarly, the proposed indicator ranges for the selective catalytic reduction (“SCR) system for the boiler in system 5 (catalyst temperature and ammonia flow rate) appear too broad to provide any indication of control device performance.

Barrick’s own “Responsibility Report,” posted on the company’s website, states that “In 2004 we had seven short-term excursions of our particulate matter or sulphur dioxide air permit limits. Adjustment of our pollution control devices corrected the problems.” The glossary in the document defines “excursion” as “a short-term breach of one or more permitted water discharge or air emission limits.” Barrick’s report does not specify the emission units, the causes of the excess emissions, or the specific nature of the corrective actions it took. But the company’s admission of its need to adjust control devices last year to assure on-going compliance underscores the need for a CAM plan and title V permit that require meaningful Part 64 control device parameter monitoring.

To address this potential objection issue, BAPC must require that Barrick submit a revised CAM plan. The revised plan must propose indicator ranges and contain justifications for each range based on source test data and, at Barrick’s discretion, engineering assessments and manufacturer’s recommendations. For parameters that have a direct, if not linear, relationship to the regulated pollutant, such as pressure drop or water flow on a scrubber, we believe the selected indicator ranges should not vary from the values measured during the most recent source test by more than 10%.

EPA recognizes that BAPC wants to issue the permit renewal soon, and might not want to wait for Barrick to submit a revised CAM plan. If BAPC chooses to issue the permit before Barrick has submitted a revised CAM plan, in accordance with §64.6(e)(1) and (2), the permit must contain both monitoring that satisfies the requirements of §70.6(a)(3)(i)(B) and a compliance schedule that requires Barrick to submit a revised CAM plan not more than 180 days after permit issuance. In this scenario, BAPC would reopen the permit to add the Part 64 monitoring following receipt and evaluation of the revised CAM plan.

2. Barrick’s CAM plan and BAPC’s proposed permit specify the use of a CO Continuous Emissions Monitoring System (“CEMS”) as the CAM indicator for VOC emissions from the thermal oxidizer for Roasters 1 and 2 in system 18¹. EPA’s fact sheet for thermal oxidizers states that VOC destruction efficiencies depend on several factors, including chamber temperature². While CO monitoring may provide a general indicator of the completeness of combustion of CO to CO₂ in the thermal oxidizer, it cannot provide assurance that the thermal oxidizer will achieve the VOC

¹ We note that Barrick proposed the use of a CO CEMS for CAM for VOC from the thermal oxidizer, but did not propose an indicator range of CO emissions that it believes assures proper operation of the thermal oxidizer.

² The fact sheet is available on the internet at: <http://www.epa.gov/ttn/catc/dir1/fthermal.pdf>

destruction efficiency it is designed to provide. CO monitoring may yield data that indicates that most VOCs are being destroyed, but it is not a reliable method of determining if the thermal oxidizer is oxidizing a sufficient amount of VOCs. Since these VOCs are coming from a combustion process, a great variety of VOCs (higher hydrocarbons) can be formed, depending on combustion conditions. Some of these are likely to be VOCs that do not oxidize as easily as CO. Since thermal oxidizers must monitor temperature in order to determine when more or less natural gas should be added to the combustion process, it should be easy for Barrick to set a minimum operating temperature and monitor it on a regular basis.

The final permit that BAPC issues must specify a minimum temperature for thermal oxidizer operation and require monitoring of both temperature and volumetric flow rate for the roasters. Since system 18 is a “large” PSEU under Part 64 (post-control VOC potential to emit is above the title V major source threshold), the permit must require Barrick to measure and record temperature every 15 minutes (§64.3(b)(4)(ii)). The minimum temperature should be based on source test data and be justified in the revised CAM plan to be submitted by Barrick. (see discussion in #1 above).

3. The permit requires Barrick to perform weekly visible emissions surveys of systems 15B and 16B, which have baghouses subject to CAM and which each have a post-control potential to emit of 55 tpy of particulate matter (approximately 5500 tpy of pre-control emissions). Part 64 requires a minimum data collection frequency of once per 24 hours (§64.3(b)(4)(ii)). While the permit does require Barrick to conduct and record pressure drop readings on a daily basis, the daily monitoring for emission units with such high pre-control emissions of particulate matter should also include visual emissions surveys. EPA’s CAM Technical Guidance Document includes two examples of baghouses that are observed daily³.

Many title V permits around the country require permittees to conduct daily visible emission surveys on large sources of particulate matter. For example, the Title V permits for three mining sources in Wyoming contain CAM provisions that require the permittees to conduct daily visible emissions surveys of emission units controlled by baghouses⁴. In addition, many permits require daily visible emission surveys even when CAM does not apply. At least two orders signed by the EPA Administrator, in response to petitions to object to Title V permits, require the permitting authority to add daily visible emissions surveys to the permits. For instance, in the order granting in part the petitioner’s request that EPA object to the issuance of a Title V permit by the New York State Department of Environmental Conservation (“NYSDEC”) to Sirmos Division of Bromante Corp., the Administrator ordered NYSDEC to, at a minimum, revise the Sirmos permit to require a daily visible inspections to detect the presence of visible emissions and to require that any time visible emissions are observed a Method 9 test should be performed.”

³ See pages 20 and 36 of the CAM Technical Guidance Document posted on EPA’s website at: <http://www.epa.gov/ttn/emc/cam/ap-a8-15.pdf>

⁴ Eagle Butte Mine, Cordero Rojo Complex, and Caballo Mine

Given the size of the baghouses in systems 15B and 16B and the very high tonnage of particulate matter being captured by the baghouses in these systems, BAPC must revise the permit to require daily visible emission surveys of these systems.

4. The permit has a condition repeated throughout the permit for PSEUs subject to CAM that allows Barrick to “notify the Director within 15 days of implementing any change to an indicator range and will provide an explanation for the change including any relevant documentation.” BAPC must delete this condition because Part 64 does not allow this. In general, any change to a CAM indicator range in a title V permit requires a permit revision.

There are provisions in Part 64 that allow permitting authorities to include replicable procedures for determining indicator ranges in the permit, in lieu of the actual ranges. This may be necessary in certain cases, e.g., if an applicant is installing new equipment to comply with CAM and the indicator ranges cannot be determined prior to permit issuance, or if there is a genuine need for the indicator ranges to change over time. The preamble to the CAM rule (page 54928) provides an example of such a permit condition: “The incinerator will be maintained at a temperature at or above a temperature which is 50 degrees Fahrenheit lower than the baseline temperature recorded during the most recent performance test.” Writing such replicable procedures for determining CAM indicator ranges into title V permits can be useful if needed, although it does place extra burdens on the permit writer to craft appropriate conditions and on the source to maintain and provide the data used as the basis for the indicator range change.

Neither Barrick nor BAPC has justified the need for the indicator ranges in the permit to be revised over time. But even if there is such a need, indicator ranges can only be revised via permit revisions or very specific replicable procedures described in the permit. Under no circumstances may an owner or operator revise CAM indicator ranges without using either of these methods, and then inform the permitting authority of the changes after the fact.

Periodic Monitoring

The proposed permit lacks periodic monitoring to assure several emission units will be in compliance with applicable requirements. Part 70 states that “Where the applicable requirement does not require periodic monitoring or testing, the permit shall contain periodic monitoring sufficient to yield reliable data from the relevant time periods that is representative of the source's compliance with the permit” (40 C.F.R. §70.6(a)(3)(i)(B)). This provision is based on Sections 503 and 504 of the Clean Air Act, which require that Part 70 permits contain “conditions as are necessary to assure compliance with applicable requirements,” and “monitoring, compliance certification, and reporting requirements to assure compliance with the permit terms and conditions.”

5. The proposed permit requires source testing only once per permit term, in the fifth year. This testing frequency is applied throughout the permit, regardless of an emission unit's potential to emit or the likelihood of problems arising in a particular type of control device.

Certain types of control devices are more prone to deterioration than others, and should therefore be source tested on a regular basis. Several emission units at Barrick have sufficiently high pre-control potential to emit that they are subject to CAM and rely on control devices to comply with applicable requirements. All types of emission units can develop leaks in the exhaust prior to the control device, causing part of the exhaust stream to be uncontrolled. In SCR systems, the ability of the catalyst to react with the NO_x decreases over time; and electrical problems with emission measurements can occur and compromise feedback for ammonia injection. Control efficiency of venturi wet scrubbers can decrease if pressure decreases over time .

The only way that BAPC and Barrick can assure such controls are working properly is to conduct annual source testing. Testing these emission units only once per permit term will not assure the reliability of the controls and compliance with the emission limits in the permit, or provide Barrick with data to use as the basis for the annual compliance certifications required by the permit. BAPC must revise the permit to require annual source testing for the following emission units and pollutants:

<u>System</u>	<u>Pollutant(s)</u>	<u>Type of Control</u>
18	PM, NO _x , SO ₂	venturi wet scrubbers, SCR, SO ₂ scrubber, wet ESP
5	NO _x	SCR
66	PM	venturi wet scrubbers
61	PM	venturi wet scrubbers
19	PM	venturi wet scrubbers

6. Barrick's current (initial) title V permit requires annual source testing, but allows less frequent testing under certain circumstances if compliance has been demonstrated. If BAPC deems a test frequency of once per permit term appropriate for any systems not listed in issue #5 above, the permit must include provisions that require at least one source test every five years. This will assure that any emission unit that has had one or more recent source tests waived by BAPC cannot go six or seven years without being tested.
7. For emission units subject to CAM that use baghouses to comply with particulate matter emission limits, the permit does not contain sufficient monitoring for the federally enforceable 20% opacity limit because it does not require any baghouse inspection provisions. Such on-going monitoring is necessary to assure that the baghouses are operating properly and to identify and replace any bags with tears or

holes. Large baghouses at title V sources such as those used in Barrick systems 15B and 16B, each of which have a post-control potential to emit of 55 tpy of particulate matter, should be inspected on a monthly basis. Smaller baghouses could be inspected less frequently (quarterly, semi-annually, or annually), depending on their volumetric flow rates. BAPC must revise the permit to require monthly baghouse inspections for systems 15B and 16B, and some regular inspection schedule for baghouses in systems 9, 11, 13, 17, 27, and 96. The permit should also require Barrick to maintain a log of these inspections, record inspection dates and the nature of any maintenance tasks performed.

8. The permit has a condition repeated throughout the permit that requires Barrick to conduct a Method 9 test “if visible emissions *appear* to exceed the opacity limit.” This opacity monitoring language is not enforceable as a practical matter because the Method 9-triggering criteria is subjective, and is insufficiently protective because it would only trigger Method 9 testing if an instantaneous opacity reading appeared to be above the regulatory limit. This language must be deleted and replaced by language that specifies objective criteria for triggering Method 9 tests.

For emission units where no visible emissions are present unless there is a problem (e.g., emission units controlled by baghouses), the permit could require that the presence of *any* visible emissions triggers a Method 9 test. For processes where a low level of opacity is frequently present and it is not appropriate for the presence of *any* visible emissions to trigger a Method 9 test, BAPC must establish an adequate monitoring frequency for these sources using Method 9 tests. The need for regular Method 9 tests is even greater for fugitive emission sources with New Source Performance Standards (“NSPS”) opacity limits of 10% that may routinely have visible emissions. There are several such systems at Barrick: 10, 14, 49, 50, 62, 64, 65, 88, 95, 96, and 97. For these systems, BAPC must revise the permit to specify Method 9 test frequencies based on the size of the system, and margins of compliance of each system.

Streamlining and Permit Shields

9. The permit streamlines several instances of multiple overlapping applicable requirements, and grants permit shields for three State Implementation Plan (“SIP”) rules (NAC 445.732, Industrial Sources; NAC 445.731, Particulate Matter - Fuel Burning Equipment; and Article 8.2, Sulfur Emissions - Fuel Burning Equipment). The permit refers to the streamlining demonstration in Barrick’s application, but BAPC does not provide a streamlining demonstration in its statement of basis or an evaluation of the adequacy of Barrick’s proposal. The application contains a demonstration that does not meet the streamlining requirements set forth in EPA guidance (“White Paper Number 2 for Improved Implementation of the Part 70 Operating Permit Program”). The Barrick document lists the emission limits, but does not address monitoring or compliance demonstration provisions, or propose one set of streamlined permit conditions. In addition, permit shields are being granted on

the basis of the streamlining of multiple applicable requirements. Thus for both reasons, BAPC must address streamlining in its statement of basis.

10. The statement of basis does not address the permit shields that BAPC is granting for the three SIP rules. EPA has consistently held that permit shields, if granted, must be justified in the statement of basis supporting the proposed title V permit. Region 9 has made this point in correspondence to California air agencies⁵. In addition, in a January 7, 2002 Federal Register Notice of Deficiency (NOD) for the State of Texas part 70 program, EPA said “a statement of basis should include, but is not limited to, a description of the facility, a discussion of any operational flexibility that will be utilized at the facility, *the basis for applying the permit shield*, any federal regulatory applicability determinations, and the rationale for the monitoring methods selected.” (emphasis added). The EPA Administrator has also held that permitting authorities must address permit shields in statements of basis. In an Order granting in part a petition to object to the title V permit for the Los Medanos Energy Center in Pittsburgh, CA, the Administrator said that a statement of basis “should highlight elements that EPA and the public would find important to review. Rather than restating the permit, it should list anything that deviates from a straight recitation of requirements. The statement of basis should highlight items such as the *permit shield*, streamlined conditions, or any monitoring that is required under 40 C.F.R. 70.6(a)(3)(i)(B)... Thus, it should include a discussion of the decision-making that went into the development of the title V permit and provide the permitting authority, the public, and EPA a record of the applicability and technical issues surrounding the issuance of the permit” (emphasis added)⁶. When BAPC re-proposes the permit, the statement of basis must discuss the permit shields and explain the basis for granting the shield for each emission unit that has shielded SIP requirements.

⁵ 2/19/99 letter to California Air Pollution Control Officers Association (“CAPCOA”). Copy available upon request.

⁶ Page 10. The final Order is available on the internet at <http://www.epa.gov/region07/programs/artd/air/title5/petitiondb/petitiondb2000.htm> (in “2001 Petitions” category).

Enclosure B

1. In response to concerns raised by citizens during the public comment period for the draft permit, EPA has attempted to determine once again whether Barrick has ever made a major modification that should have triggered review under the Prevention of Significant Deterioration (PSD) pre-construction review program. After reviewing BAPC's statement of basis, our records of past permitting actions, and Barrick's title V permit renewal application, we are still not able to make a determination based on the information provided by BAPC. BAPC's statement of basis confirms that Barrick is a major PSD source, but does not identify the year and nature of the modification that made Barrick a major source. Barrick's application cites permit dates and potential to emit for each system at the mine. However, since we find evidence that these systems existed prior to the cited permit dates, we assume the dates cited by Barrick are not the actual dates that construction of the various systems was authorized.

To address citizen and EPA concerns regarding PSD applicability, we urge BAPC to clarify the administrative record by revising its statement of basis to include a detailed permitting history of the facility. The history should state when Barrick became a major PSD source, and document the dates and increases in potential to emit of all subsequent modifications that authorized emission increases. If Barrick has never triggered PSD review, BAPC should be able to determine and demonstrate whether or not Barrick has made a major modification since becoming a major PSD source. BAPC should pay special attention to modifications that authorized increases in particulate matter or PM₁₀, since Barrick has many sources of these pollutants, which have low PSD thresholds (25 and 15 tons per year, respectively). The permitting history should also clarify that the modification(s) that authorized the installation of the autoclaves, which have high hydrogen sulfide emissions, took place before Barrick became a major PSD source⁷.

2. When 40 C.F.R. Part 64 was promulgated, 40 C.F.R. Part 70 was revised. One of the changes was to §70.6(c)(5)(iii), which now requires that annual compliance certifications "identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion or exceedance as defined under part 64 of this chapter occurred." We recommend that condition V.E. of the general conditions of the Barrick permit (and the corresponding conditions of all permits issued in the future to sources with emission units subject to CAM) be revised to include this requirement.
3. The permit requires Barrick to note in a contemporaneous log if a visual emissions assessment could not be conducted due to an emission unit not operating or poor weather conditions. However, the permit does not require Barrick to maintain a log of its visual emissions surveys. BAPC should add provisions to the permit to

⁷ The PSD significance level for hydrogen sulfide is 10 tpy. System 66 consists of six autoclaves with a potential to emit of 81 tpy of hydrogen sulfide. EPA presumes that these autoclaves were installed before Barrick became a major PSD source, and that therefore the 10 tpy PSD significance level was not relevant.

require Barrick to maintain opacity monitoring logs in which it records and maintains the following information: the date and time of the observation, the name of the observer, the emission unit ID number, a statement of whether visible emissions were detected, and if so, whether they were observed continuously or intermittently, and the result of the Method 9 test, if triggered. Without such record-keeping, Barrick will lack data to rely on to certify compliance with opacity limits in its annual compliance certifications, and BAPC will not have any means of evaluating opacity patterns at the mine.

4. The permit requires Barrick to conduct annual visual emissions surveys of the 10 diesel-fired generators. While this frequency may be appropriate for these emission units since they burn fuel with very low sulfur content, which significantly reduces particulate emissions, we recommend that the permit require a Method 9 test instead of an instantaneous visual emission survey.
5. The permit indicates that the New Source Performance Standard ("NSPS) for Nonmetallic Mineral Processing Plants, Subpart OOO, applies to portions of systems 49, 50, 88, 95, and 96. However, the applicability of Subpart OOO is not addressed in BAPC's statement of basis. BAPC should add such a discussion to the statement of basis.
6. We have the following observations about the citations of origin and authority in the permit:
 - a. There are no citations to Part 64 for CAM monitoring conditions. Such citations should be added to the permit to clarify the origin of the CAM monitoring requirements.
 - b. This permit and other BAPC permits have citations that refer to "NAC 445B.305 (Federally Enforceable Part 70 Program)" as the authority for many of the emission limits contained in the permit. Nevada Administrative Code (NAC) 445B.305 provides generally for BAPC to impose more stringent emission limits than otherwise would be required under the applicable air quality regulations as a condition of approval of an operating permit. This permit renewal and other BAPC permits would be improved if, in addition to the citation to NAC 445B.305, it identified the underlying permitting action (by date and permit number), prohibitory rule, or other CAA requirement for which the Department has exercised its discretion in imposing a more stringent limit.