



THE STATE  
of **ALASKA**  
GOVERNOR SEAN PARNELL

**Department of Environmental  
Conservation**

DIVISION OF AIR QUALITY  
Director's Office

410 Willoughby Avenue, Suite 303  
PO Box 111800  
Juneau, AK 99811-1800  
Main: 907-465-5100  
Toll free: 866-241-2805  
fax: 907-465-5129  
<http://dec.alaska.gov/air/index.htm>

**CERTIFIED MAIL: 7014 0510 0001 9932 7524**  
**Return Receipt Requested**

September 8, 2014

Ms. Lisa Wade  
Chickaloon Village Traditional Council  
PO Box 1105  
Chickaloon, AK 99674

Subject: Informal Review for Air Quality Minor Permit AQ1227MSS04 for Usibelli Coal Mine Inc. Wishbone Hill Facility

Dear Ms. Wade:

I have completed my informal review of the minor permit (Permit No. AQ1227MSS04) issued on June 6, 2014 to Usibelli Coal Mine Inc. for the Wishbone Hill Coal Mining & Processing Operation, which you requested June 25, 2014 with the assistance of Earthjustice, on behalf of the Chickaloon Village Traditional Council (CVTC). For this review, I have considered your June 25, 2014 request for informal review and the supporting information provided, the additional information provided by letter on August 22, 2014, the permit (AQ1227MSS04), the Technical Analysis Report, the Response to Comment, Environmental Protection Agency (EPA) modeling guidance, and additional information provided by the Division's permit staff. This letter presents my analysis and final decision on the items in your request.

**Issues Raised:**

In the informal review request, the requestors raise three issues of concern and requests that the permit decision be reopened to address these concerns. The issues raised by the requestors are summarized as follows:

1. The Alaska Department of Environmental Conservation (ADEC) failed to consult meaningfully with Chickaloon Village Traditional Council.
2. The nitrogen dioxide (NO<sub>2</sub>) modeling analysis upon which the air permit is based is inadequate.
3. The ambient air quality boundary upon which the air permit is based is improper because ADEC has not demonstrated that Usibelli has the authority and ability to exclude the public, nor should Usibelli exclude the public from this area.

Each issue raised will be addressed individually in the analysis, findings and decisions that follow.

**1. Tribal Consultation**

CVTC asserts in the informal review request that the Department failed to consult meaningfully with the tribe and that this failure constitutes a violation of the United Nation's Declaration on the Rights of Indigenous Peoples and is contrary to the State's Policy under Administrative Order No. 186 (Sept. 29, 2000) "to work on a government-to-

government basis with Alaska's sovereign Tribes." In their request, CVTC acknowledges and appreciates the opportunity to participate in the public review process, but argues they were entitled to government-to-government consultation to ensure their interests were fully considered prior to public release of the draft air permit.

**Analysis:**

The concern raised by CVTC is a legal matter, for which I have sought guidance from staff in the Attorney General's office. With respect to violations of the United Nation's Declaration on the Rights of Indigenous Peoples, I am informed that this is not a legally binding document. The United States has stated that while it supports the Declaration, it regards the Declaration as "not legally binding or a statement of current international law."<sup>1</sup> Rather the Declaration "expresses aspirations of the United States," which "this country seeks to achieve within the structure of the U.S. Constitution, laws, and international obligations, while also seeking, where appropriate, to improve our laws and policies."<sup>2</sup> Since the Declaration is aspirational and not legally binding, claims based on a violation of the Declaration have no merit.

CVTC also alleges that the Department violated State of Alaska Administrative Order No. 186.<sup>3</sup> Among other things, Administrative Order No. 186 declares that: it is the commitment and policy of the State of Alaska, consistent with the Constitutions of the United States and the State of Alaska, to work on a government-to-government basis with Alaska's sovereign Tribes, which deserve the recognition and respect accorded to other governments.<sup>4</sup> Under 18 AAC 50.542(d), the Air Permit Program is required to provide timely public notice of a preliminary decision to approve or deny an application for a minor air permit. They must also allow at least 30 days for the public to submit comments on the Department's preliminary decision before issuing a final decision. A review of the permit records show that persons potentially affected by the permit, including CVTC, have been given an opportunity to review and comment on the permit. Administrative Order No. 186 does not require any additional tribal input on the Department's proposed air permits.

**Decision:**

I find that CVTC has been afforded the opportunity to participate in meaningful public review and comment on the draft minor air permit decision as required by 18 AAC 50.542(d). The tribal council has made comments, which were considered by the Air Permit Program, and has been afforded the opportunity for further review of the permit decision as established in state regulations and statute. As a result, I have determined that the Air Permit Program acted in accordance with the applicable state air permitting regulations pertaining to public review and there is no need to rescind and reopen Minor Air Permit # AQ1227MSS04 in response to the legal issues related to tribal consultation raised by the requestors.

**2. NO<sub>2</sub> Modeling Analysis**

In the informal review request, CVTC asks that the Department reconsider its decision to allow reliance on the Ozone Limiting Method (OLM) to estimate nitrogen oxide (NO<sub>x</sub>) emissions and to consider an alternate modeling approach relying on the Plume Volume Molar Ratio Method (PVMRM). In suggesting the need for an alternate modeling approach, the requestors assert that the use of the OLM method may have improperly underestimated the 1-hour nitrogen dioxide (NO<sub>2</sub>) impacts of the Wishbone Hill operation and that modeling impacts using the PVMRM approach may indicate that violations of the ambient air quality standards will occur.

The requestors also challenge the Air Permit Program staff's response to their comments during public review, stating "ADEC faulted the study ADEC itself commissioned for not comparing modeling results to monitoring data." They further state that the Program's response overlooks the fact that the applicant "must demonstrate compliance, not

---

1 <http://www.state.gov/documents/organization/153223.pdf> at 1.

2 *Id.*

3 <http://www.gov.state.ak.us/admin-orders/186.html>

4 *Id.*

public commenters, and that non-interference with AAAQS” (Alaska Ambient Air Quality Standards) “is demonstrated by use of modeling, since monitoring a source’s emissions before the source is constructed is clearly impossible.” The requestors further assert that the Department has not met its obligation to ensure that Wishbone Hill’s emissions will not be injurious to human health or welfare. They therefore request that the permit be reopened in order to model 1-hour NO<sub>2</sub> impacts using the alternative model, PVMRM.

**Analysis:**

The requestors assert that a department sponsored model sensitivity analysis dated September 2004, shows that OLM may underestimate 1-hour NO<sub>2</sub> impacts compared to PVMRM. The requestors further assert that because OLM may underestimate impacts, and because the predicted maximum impact in the permit is so close to the level of the 1-hour ambient air quality standard for NO<sub>2</sub>, that the Department must take measures to ensure compliance through the use of the alternate PVMRM modeling approach. Beyond these assertions, the requestors have not provided any other, more specific arguments that would further distinguish between the benefits or dis-benefits of the two screening model approaches (OLM and PVMRM) for this particular permit action.

Air Permit Program staff prepared additional information related to the requestor’s assertions, which were presented in a memorandum dated July 10, 2014 (enclosed). In reviewing this memorandum as well as the permit records and EPA modeling guidelines and memoranda, I found that there are a number of points relevant to the review of this request and the assertions made by the requestors.

The Air Permit Program staff memorandum indicates that EPA has developed several screening-level approaches for estimating NO<sub>2</sub> concentrations. Section 2.2 of Appendix W of 40 CFR 51 (*Guideline on Air Quality Models*), indicates that screening techniques “provide conservative estimates of the air quality impact”. EPA has further categorized these approaches into “tiers”. The first tier provides the simplest approach, but also the most conservative results. The third tier requires more effort, but tends to provide less conservative results (i.e., the technique overestimates by a smaller factor).

In the permitting process, Usibelli Coal Mine, Inc. (UCM) used the OLM approach to estimate their annual average and 1-hour NO<sub>2</sub> impacts. EPA lists OLM in Section 5.2.4 of the *Guideline on Air Quality Models* (Guideline) as a “Tier 3” screening method for estimating annual average impacts. PVMRM is not presently included in the Guideline under any tier. It may only be considered on a case-specific basis under the Section 3.2 “alternative” modeling techniques. Alternative modeling techniques require pre-approval from the EPA regional office. EPA has not yet incorporated any of the 1-hour NO<sub>2</sub> modeling techniques into the Guideline, although they have issued two memoranda to describe possible modeling techniques. These memoranda are entitled: *Guidance Concerning the Implementation of the 1-hour NO<sub>2</sub> NAAQS for the Prevention of Significant Deterioration Program* (June 29, 2010); and *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard* (March 1, 2011).

With respect to the September 2004 DEC report titled, *Sensitivity Analysis of PVMRM and OLM in AERMOD*, Air Permit Program staff noted that the requestors built their argument on two points from the report. The requestors noted that PVMRM provided a larger maximum 1-hour NO<sub>2</sub> concentration in a “multiple-source scenario” than OLM. They also noted that MACTEC stated in the Summary and Conclusions section: “Overall the PVMRM option appears to provide a *more realistic* treatment of the conversion of NO<sub>x</sub> to NO<sub>2</sub> as a function of distance downwind from the source than OLM or the other NO<sub>2</sub> screening options” (emphasis added). The requestors concluded based on these two points that OLM is an “inadequate model” and thus, Usibelli failed to demonstrate non-interference with the maintenance of the 1-hour NO<sub>2</sub> AAAQS. Air Permit Program staff indicated that they believed the requestors overlooked a number of key items in making their conclusions and may have lost some of the context surrounding the statement in the Summary and Conclusions section as described in the July 10<sup>th</sup> memorandum.

Section 3.2.2b of the EPA Guideline states, “An alternative model should be evaluated from both a theoretical and a performance perspective before it is selected for use.” The 2004 DEC model sensitivity analysis was one step of this

multi-step process. MACTEC conducted the “next step” (comparison of the PVMRM results to measured concentrations) in 2005. EPA updated the model to real data comparison in March 2011 and concluded that:

- “These preliminary model evaluation results also serve to highlight a point worth emphasizing, which is that the PVMRM option in AERMOD is not inherently superior to the OLM option for purposes of estimating cumulative ambient NO<sub>2</sub> concentrations.” (p. 7)
- “The PVMRM algorithm as currently implemented may also have a tendency to overestimate the conversion of NO to NO<sub>2</sub> for low-level plumes” (p. 7)

Based on the additional analysis of OLM and PVMRM by EPA, it is not clear that PVMRM is a superior approach to OLM. Further, there is no indication that any of the modeling options listed by EPA, including OLM, underestimate actual air quality impacts.

In reviewing the additional information received from the Air Permit Program staff, it was further noted that an extremely conservative modeling approach was used by the applicant in estimating their NO<sub>2</sub> impacts. Staff indicated that the maximum 1-hour NO<sub>2</sub> impacts for the operation were predominately associated with blasting. In their analysis, the permit applicant assumed the blasts only occur at the same worst-case location for each day of the three-year averaging period and that each blast happens during the worst-case meteorological condition that occurs on that day. Staff explained that this approach leads to an unrealistically large estimate of the high, eighth-high, and daily maximum 1-hour NO<sub>2</sub> impacts. In addition, the modeling approach is also conservative in how it treats the blasting activities. Blasts are near instantaneous events and the AERMOD model treats these short term events as if they persist for an entire hour. This also leads to a likely overestimation of impacts and further supports the conservative nature of the modeling approach used to demonstrate compliance with the ambient air quality standards.

In reviewing the permit records, I found that the ambient modeling using OLM resulted in a prediction of 185 µg/m<sup>3</sup> for total 1-hour NO<sub>2</sub> impact in comparison to the ambient air quality standard of 188 µg/m<sup>3</sup>. This estimated impact is the result of the conservative modeling approach described above that likely overestimates impacts. Permit applicants often use extremely conservative approaches to demonstrate compliance in the simplest manner possible.

### **Decision:**

Given the EPA guidance related to these two modeling approaches, the additional analysis of OLM and PVMRM approaches conducted by EPA, the conservative nature of screening level modeling under all approaches, and the conservative aspects of the OLM modeling approach used by the applicant in estimating ambient air quality impacts using the OLM approach, I find that the modeling approach used by the applicant to estimate 1-hour ambient NO<sub>2</sub> impacts adequately ensures compliance with the relevant ambient air quality standard for this permit. As a result, I find that no further ambient air quality modeling using the PVMRM approach is required and that no changes are warranted to the minor air permit as a result of this request.

### **3. Ambient Air Quality Boundary**

The requestors allege that the ambient air quality boundary indicated in the minor air permit is improper because the Department has not demonstrated that Usibelli has the authority and ability to exclude the public from the area on which the permit is based. The requestors further argue that, even if Usibelli has the authority to exclude the public from areas within the ambient air quality boundary, the permit is flawed because the barriers included in the permit are inadequate to prevent access to ensure public health protection.

### **Analysis:**

The requestors raise two issues with respect to the ambient air quality boundary. The first issue is whether Usibelli has the authority to exclude the public from the area that lies within the ambient air quality boundary. This issue relates to leases that Usibelli has secured for the Wishbone Hill mining project. The permit area for the proposed mine lies within state coal leases ADL 32144 and ADL 309947, state surface leases ADL 225305 and ADL 224865,

and an October 26, 2010 land lease for an access/coal haul road to the proposed mine from the Mat-Su Borough. The Air Permit Program staff indicated that they must rely on the land manager's interpretation of their lease agreements to determine whether Usibelli has the authority to preclude public access. Because the air permit relies on a defined ambient air quality boundary, Usibelli must implement a public access control plan to ensure the exclusion of the public from this area and Usibelli has indicated that it can do so under its leases. Should the leasing agencies determine that Usibelli does not have this authority, revisions would be needed to the air permit to ensure that areas accessible to the public meet the applicable Alaska ambient air quality standards.

The second issue raised is whether there are adequate physical barriers to prevent public access within the ambient air quality boundary. The requestors note that the Department is requiring a fence along the southern edge of the boundary and that the northwestern boundary appears to have substantial natural barriers. The concern appears to remain about accessibility through the eastern boundary. The requestors argue that the topography along the eastern boundary is relatively uniform and that local vegetation may not be effective in precluding access. In responding to comments on the draft permit, the Air Permit Program re-examined Usibelli's Public Access Control Plan and required additional fencing in some areas. In reviewing the permit record and the topography in the area, it seems clear that provisions were included in the permit to prevent access near identified existing trail crossings into the ambient air boundary. There is less written documentation on the remaining areas where local vegetation would be relied upon as a physical barrier to entry. Air Permit staff did visit the site in 2011 and believes that there are areas where vegetation does provide an adequate barrier.

**Decision:**

Given the facts and issues raised about accessibility along the eastern boundary and the apparent lack of substantive terrain features in some areas, it is difficult to determine from the permit record whether the local vegetation along the eastern portion of the boundary is an adequate barrier to prevent public access. It is critical that the permit be well documented and clear with respect to the public access controls along the eastern boundary to ensure that public health is protected. In addition to the question of physical barriers, the issue raised regarding Usibelli's authority to preclude public access within the ambient air quality boundary under the applicable leases could be further clarified and documented in the permit record. Therefore, I remand the portion of Permit Condition #18 related to the Public Access Control Plan back to the Air Permit Program for the purpose of further review and documentation of Usibelli's authority and the physical barriers used in the minor air permit to prevent public access for the eastern portion of the ambient air boundary. Should further review of the ambient air boundary and public access control plan result in a determination that additional access controls are needed to prevent public access within the boundary, the Air Permit staff shall amend the permit conditions and supporting documents as appropriate to reflect that determination.

**Administrative Appeal Rights:**

This letter comprises the Department's final decision under 18 AAC 15.185. You may seek an adjudicatory hearing regarding this decision under 18 AAC 15.200 by serving a request upon the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800 within 30 days of this decision. If a hearing is not requested in writing within 30 days, the right to appeal is waived.

Sincerely,



Alice Edwards, Director  
Division of Air Quality

Enclosure: July 10, 2014 Air Permit Program Memorandum

cc: John Kuterbach, ADEC/APP, Juneau  
Zeena Siddeek, ADEC/APP, Juneau  
Robert Brown, UCM

Gary Mendivil, ADEC/Commissioner's Office  
John Treptow, Attorney General's Office

# MEMORANDUM

State of Alaska

Department of Environmental Conservation  
Division of Air Quality

TO Alice Edwards  
Director, Division of AQ

THRU

DATE July 10, 2014

FILE NO AQ1227MSS04

PHONE (907) 465-5303  
FAX (907) 465-5129

FROM Fathima Siddeek *F. Z. S.*  
Supervisor, Permits Section, APP  
(Juneau)

SUBJECT: Response to Earth Justice Informal  
Appeal of Minor Permit  
AQ1227MSS04

I am providing the following counter-argument to the informal appeal of Minor Permit AQ1227MSS04 (*Development of Coal Mining Operations at the Wishbone Hill Coal Mining and Processing Operation*) submitted by Earth Justice. Earth Justice submitted the appeal on behalf of Chickaloon Village Traditional Council (CVTC). CVTC's contested terms or conditions with the Minor Permit are as follows: (1) ADEC failed to consult meaningfully with Chickaloon Village Traditional Council, (2) the nitrogen dioxide (NO<sub>2</sub>) modeling analysis upon which the Permit is based is inadequate, and (3) the ambient air quality boundary upon which the Permit is based is improper because ADEC has not demonstrated that Usibelli has the authority and ability to exclude the public, nor should Usibelli exclude the public from this area.

## 1) Consultation Concern

CVTC argues that Air Quality Control Minor Permit AQ1227MSS04 issued to Usibelli Coal Mine, Inc. for the Wishbone Hill Coal Mining and Processing Operation is unlawful because ADEC allegedly failed "to consult meaningfully with CVTC regarding the impacts of the Mine" supposedly in violation of (1) the United Nation's Declaration on the Rights of Indigenous Peoples; and (2) State policy "to work on a government-to-government basis with Alaska's sovereign Tribes." These claims have no legal merit.

- The United Nation's Declaration on the Rights of Indigenous Peoples, is not a legally binding document. The United States has stated that while it supports the Declaration, it regards the Declaration as "not legally binding or a statement of current international law."<sup>1</sup> Rather, the Declaration "expresses aspirations of the United States," which "this country seeks to achieve within the structure of the U.S. Constitution, laws, and international obligations, while also seeking, where appropriate, to improve our laws and policies."<sup>2</sup> Since the Declaration is aspirational and not legally binding, claims based on a violation of the Declaration have no merit.

---

1 <http://www.state.gov/documents/organization/153223.pdf> at 1.  
2 *Id.*

CVTC also alleges that ADEC violated State of Alaska Administrative Order No. 186.<sup>3</sup> Among other things, Administrative Order No. 186 declares that:

it is the commitment and policy of the State of Alaska, consistent with the Constitutions of the United States and the State of Alaska, to work on a government-to-government basis with Alaska's sovereign Tribes, which deserve the recognition and respect accorded to other governments.<sup>4</sup>

- Under 18 AAC 50.542(d), ADEC is required to provide timely public notice of a preliminary decision to approve or deny an application for a minor air permit. ADEC must also allow at least 30 days for the public to submit comments on ADEC's preliminary decision before ADEC issues a final decision. Persons potentially affected by the permit—including CVTC—have been given an opportunity to review and comment on the permit. Administrative Order No. 186 does not require any additional tribal input on ADEC's proposed permits.

## 2) NO<sub>2</sub> Modeling Concern

CVTC asked ADEC to reopen the permit “in order to model 1-hour NO<sub>2</sub> emissions using the more conservative and realistic [Plume Volume Molar Ratio Method (PVMRM)].” The request should be denied since the presented basis is inconsistent with current findings from the U.S. Environmental Protection Agency (EPA).

### **Background**

NO<sub>2</sub> is a complex air pollutant. The ambient concentrations depend on the quantity of nitric oxide (NO) and NO<sub>2</sub> directly emitted to the air, the amount of NO that converts to NO<sub>2</sub> in the atmosphere due to certain chemical reactions, and the amount of NO<sub>2</sub> that is converted back to NO due to other atmospheric reactions.

EPA has developed several screening-level approaches for estimating NO<sub>2</sub> concentrations. As described in Section 2.2 of Appendix W of 40 CFR 51 (*Guideline on Air Quality Models*), screening techniques “provide conservative estimates of the air quality impact”. EPA has further categorized these approaches into “tiers”. The first tier provides the simplest approach, but also the most conservative results. The third tier requires more effort, but tends to provide less conservative results (i.e., the technique overestimates by a smaller factor).

Usibelli used OLM to estimate their annual average and 1-hour NO<sub>2</sub> impacts. EPA lists OLM in Section 5.2.4 of the *Guideline on Air Quality Models* (Guideline) as a “Tier 3” screening method for estimating annual average impacts. PVMRM is not presently included in the Guideline under any tier. It may only be considered on a case-specific basis under the Section 3.2 “alternative” modeling techniques – which requires pre-approval from the applicable EPA regional office. EPA has not yet incorporated any of the 1-hour NO<sub>2</sub> modeling techniques into the Guideline,

---

3 <http://www.gov.state.ak.us/admin-orders/186.html>

4 *Id.*

although they have issued two memoranda to describe possible modeling techniques. These memoranda are entitled: *Guidance Concerning the Implementation of the 1-hour NO<sub>2</sub> NAAQS for the Prevention of Significant Deterioration Program* (June 29, 2010); and *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO<sub>2</sub> National Ambient Air Quality Standard* (March 1, 2011).

### CVTC's Argument

CVTC built their argument around a 2004 model sensitivity analysis conducted for ADEC by MACTEC Federal Programs, Inc. (MACTEC). CVTC noted that MACTEC stated in the Summary and Conclusions section that PVMRM “appears to provide a more realistic treatment of the conversion of NO<sub>x</sub> to NO<sub>2</sub> as a function of distance downwind from the source than OLM”. CVTC also noted that PVMRM provided a larger maximum 1-hour NO<sub>2</sub> concentration in a “multiple emission unit” scenario than OLM. They concluded:

Because the OLM predicted the 1-hour NO<sub>2</sub> impact to be 185 [micrograms per cubic meter (μg/m<sup>3</sup>)] and the AAAQS is 188 μg/m<sup>3</sup>, using the PVMRM likely would demonstrate that Wishbone Hill will interfere with the attainment of [the Alaska Ambient Air Quality Standards (AAAQS)]. Having used an inadequate model, Usibelli failed to demonstrate non-interference with maintenance of the 1-hour AAAQS, as required by 18 AAC 50.540(c)(2).

CVTC also challenged ADEC's response to their previous comments. They stated, “ADEC faulted the study ADEC itself commissioned for not comparing modeling results to monitoring data.” They further stated “non-interference with AAAQS is demonstrated by use of modeling, since monitoring a source's emissions before the source is constructed is clearly impossible.”

### Discussion

CVTC's comments indicate a misunderstanding of how modeling algorithms are developed, as well as ADEC's response to their previous comments. CVTC overlooked the following:

- Section 3.2.2b of the Guideline states, “An alternative model should be evaluated from both a theoretical and a performance perspective before it is selected for use.”
- The 2004 sensitivity analysis was one step of this multi-step process
  - The “more realistic” statement must be read within the context of the report (i.e., a comparison of modeling theories)
  - The “appears to provide” phrase in the sentence quoted by CVTC clearly shows that subsequent information could alter the “more realistic” finding
  - The study provides useful information but should not be used as the sole basis for determining which technique is best
- Performance evaluations typically include a statistical comparison of the modeling results with an ambient data set to provide a general “proof” that the model properly works<sup>5</sup>

---

<sup>5</sup> Applicants do not need to provide a model to ambient data comparison for modeling techniques listed in the Guideline, since EPA has already conducted or provided that comparison. For example, EPA posted the following report in support of AERMOD: [http://www.epa.gov/ttn/scram/7thconf/aermod/aermod\\_mep.pdf](http://www.epa.gov/ttn/scram/7thconf/aermod/aermod_mep.pdf).

- ADEC did not ask the commenters to provide ambient data in order to demonstrate compliance at Wishbone, but to support the claim that OLM underpredicts air quality impacts in general
- MACTEC conducted the “next step” in the multi-step evaluation (comparison of the PVMRM results to measured concentrations) in 2005
  - The results of MACTEC’s performance evaluation may be found on EPA’s web-site (see [http://www.epa.gov/ttn/scram/7thconf/aermod/pvmrm\\_bias\\_eval.pdf](http://www.epa.gov/ttn/scram/7thconf/aermod/pvmrm_bias_eval.pdf))
- EPA updated the model to real data comparison in March 2011 (see [http://www.epa.gov/ttn/scram/guidance/clarification/Additional Clarifications Appendix W Hourly-NO2-NAAQS FINAL 03-01-2011.pdf](http://www.epa.gov/ttn/scram/guidance/clarification/Additional_Clarifications_Appendix_W_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf))
  - EPA concluded:
    - “These preliminary model evaluation results also serve to highlight a point worth emphasizing, which is that the PVMRM option in AERMOD is not inherently superior to the OLM option for purposes of estimating cumulative ambient NO<sub>2</sub> concentrations” (pg. 7)
    - “The PVMRM algorithm as currently implemented may also have a tendency to overestimate the conversion of NO to NO<sub>2</sub> for low-level plumes” (pg. 7)<sup>6</sup>

It is not readily clear whether, or to what degree, the low-level concern raised by EPA could affect the Wishbone modeling results if PVMRM were used. That would take more time to sort through than what is available within the response period for informal appeals. However, it is clear that PVMRM is not “inherently superior” and that there is no indication that any of the NO<sub>2</sub> modeling options listed by EPA, including OLM, underestimate actual air quality impacts.

It’s also important to note that Usibelli used an extremely conservative approach for estimating their NO<sub>2</sub> impacts. The maximum 1-hour NO<sub>2</sub> impact at Wishbone is predominately associated with blasting. As stated in the Response to Comment (RTC) document, Usibelli assumed the blasts only occur at the same worst-case location for each day of the three-year averaging period; and that each blast happens during the worst-case meteorological condition that occurs on that day. This approach leads to an unrealistically large estimate of the high eighth-high, daily maximum 1-hour NO<sub>2</sub> impact.<sup>7</sup>

Usibelli’s approach is conservative in another aspect as well. Blasts are near instantaneous events. However, AERMOD treats these short-term events as if they persist for an entire hour.

---

<sup>6</sup> The full quote reads: “The PVMRM algorithm as currently implemented may also have a tendency to overestimate the conversion of NO to NO<sub>2</sub> for low-level plumes by overstating the amount of ozone available for the conversion due to the manner in which the plume volume is calculated. The plume volume calculation in PVMRM does not account for the fact that the vertical extent of the plume based on the vertical dispersion coefficient may extend below ground for low-level plumes.” In lay terms, EPA found a scenario where PVMRM uses an unrealistic approach for estimating NO<sub>2</sub> concentrations (it assumes the plume extends into the ground).

<sup>7</sup> The 1-hour NO<sub>2</sub> ambient standard is violated when the three-year average of the 98<sup>th</sup>-percentil of the daily maximum 1-hour NO<sub>2</sub> concentration exceeds 100 parts per billion (188 micrograms per cubic meter). The high eighth-high of the daily maximum 1-hour concentration is equivalent to the 98<sup>th</sup>-percentil of the daily maximum 1-hour concentration when modeling with a full year of meteorological data.

There is no method currently available for taking a more realistic approach for characterizing and simulating blast emissions in a new source review analysis. This limitation likely leads to overstated impacts.

There is no reason to reject Usibelli's NO<sub>2</sub> analysis. In summary:

- Usibelli used a conservative approach for characterizing the blasting emissions,
- AERMOD uses a conservative approach for simulating near instantaneous events (such as blasting),
- EPA has found that PVMRM is not inherently better than OLM,
- There is no evidence that OLM underestimates actual NO<sub>2</sub> impacts
- Usibelli's input to the OLM method is consistent with EPA requirements and EPA Region 10 has approved the use of OLM for this air quality modeling evaluation, and
- There is reason to believe that PVMRM could further overstate the NO<sub>2</sub> impacts from Wishbone.

### 3) Ambient Air Quality Boundary Concern

CTVC notes that in response to public comments ADEC claimed that "[Usibelli] provided evidence that indicates they have legal authority to preclude public access within their [ambient air quality boundary]." ADEC, however, has not furnished this evidence nor even described what the evidence consists of, making it difficult to determine whether Usibelli actually has such authority.

- The permit area for the proposed mine lies within state coal lease ADL 32144 and ADL 309947, state surface lease ADL 225305 and ADL 224865, and an October 26, 2010 land lease for an access/coal haul road to the proposed mine from the Mat-Su borough.

APP staff must rely on the land manager's interpretation of their lease agreements with Usibelli, to determine whether Usibelli has the authority to preclude public access.

CVTC also contests that even if Usibelli has the authority to exclude the public from the mine area, the proposed natural barriers for doing so (such as terrain features, elevation change, and vegetation) are inadequate to ensure that public health is protected by prevention of access.

- Based on the lease agreement information provided by Usibelli, APP staff determined that installing a fence along the eastern mine boundary was unnecessary in the preliminary decision, however a fence could further help to ensure that public safety is protected.