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April 14, 2014

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Submitted via email

Re: Preliminary Decision to Approve Minor Permit Application for Usibelli Coal Mine, Inc.
Wishbone Hill Mining and Processing Operations, Air Quality Control Minor Permit
AQ1227MSS04

Dear Mr. Simpson:

Trustees for Alaska submits the following comments on behalf of the Castle Mountain Coalition (“CMC”), Alaska Center for the Environment (“ACE”), Cook Inletkeeper, the Alaska Coalition Against Toxics (“ACAT”), and the Sierra Club (collectively “Commenters”) on the Alaska Department of Environmental Conservation’s (“DEC”) preliminary decision to approve Usibelli Coal Mine, Inc.’s (“Usibelli”) application for Air Quality Control Minor Permit AQ1227MSS04 (“Proposed Permit”). Commenters also submit and incorporate by reference the technical evaluation and comments prepared by AMI Environmental (Appendix A) regarding the Proposed Permit, as well as those prepared regarding the previous permit applications by Dr. Sahu (Appendix B), by AMI Environmental (Appendix C), and by Commenters themselves (Appendix D).

CMC is a nonprofit community organization based in Chickaloon, Alaska that seeks to promote and preserve the ecological integrity, economic sustainability, and quality of life within the Matanuska River watershed. ACE is the largest locally-founded nonprofit conservation organization in Alaska and advocates for Alaskans’ quality of life by protecting wild places, fostering sustainable communities, and promoting recreational opportunities on behalf of over 6,000 Alaskan members. Cook Inletkeeper is a nonprofit public interest research and advocacy organization whose mission is to protect Alaska’s Cook Inlet watershed and the life it sustains.

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ACAT is a statewide nonprofit public interest environmental health and justice research and advocacy organization established in 1997 that conducts community-based research, provides educational programs, technical assistance, and training. ACAT's mission is to assure justice by advocating for environmental and community health. ACAT believes that everyone has the right to clean air, clean water, and toxic-free food. The Sierra Club is the nation's oldest and largest grassroots nonprofit organization working to explore, enjoy, and protect the planet, with approximately 1,400 members in Alaska, some of whom reside in the Mat-Su Valley.

Commenters commend DEC for correcting numerous deficiencies identified by Commenters in two previous permit applications. However, numerous problems continue to plague the ambient air modeling prepared by Usibelli, which underestimates the impacts of the proposed project to the ambient air quality. Until these problems are remedied, DEC cannot conclude that the permit complies with the statutory and regulatory requirements. The permitting analysis also fails to ensure that the proposed project will operate at minor source levels. DEC should, therefore, deny the permit application.

I. THE PERMIT APPLICATION AND TECHNICAL ANALYSIS UNDERESTIMATE THE POTENTIAL EMISSIONS OF THE PROPOSED PROJECT.

DEC cannot approve the proposed minor source permit. The potential emissions of the proposed project have again been underestimated and must be amended. Correction of this underestimation will likely result in the source having a potential to emit ("PTE") above the major source threshold.¹ The U.S. Environmental Protection Agency ("EPA") defines "potential to emit" as:

[T]he maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable.²

The term "federally enforceable" means "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency."³ Therefore, a proposed facility that

¹ PM₁₀ emissions exceed the Prevention of Significant Deterioration ("PSD") permit threshold of 250 tons per year ("tpy") when operations from coal mining are included. See Appendix A at 4.

² 40 C.F.R. § 52.24(f)(3).

³ Appendix F at 12–24 — U.S. EPA, OFFICE OF AIR QUALITY PLANNING AND STANDARDS &

is physically capable of emitting major levels of the relevant pollutant is to be considered a major emitting facility under the Clean Air Act (“CAA”) “unless there are legally and practicably enforceable mechanisms in place to make certain that the emissions remain below the relevant levels.”⁴ Because it remains unclear — due to flaws in the analysis — whether the source has the potential to emit air pollutants at major source levels, DEC must subject the source to major source permitting requirements or include enforceable conditions to limit emissions.

A. The Projected Emissions for the Engine and Heaters are Flawed.

The projected emissions of the diesel engine and heaters are based on 8,760 hours of operation per year to show compliance at “maximum practical operations.”⁵ Because these projections were below the PSD threshold of 250 tpy and operating permit threshold of 100 tpy for NO_x, CO, SO₂, PM₁₀, PM_{2.5}, and volatile organic compounds (“VOC”), DEC is not imposing any restrictions on these emission units.⁶ However, to prevent the proposed project from becoming a major source after a minor source permit has issued in light of the flaws identified below, the minor source permit must impose enforceable emission limitations on each source, including continuous emissions monitoring system (“CEMS”) monitoring and reporting, that apply during all phases of operation.

The projected emissions from the diesel engine were based on information provided by the manufacturer.⁷ That data does not account for startups and shutdowns or operation in cold temperatures.⁸ The projected actual emissions must include both “fugitive emissions to the extent quantifiable *and emissions associated with startups, shutdowns, and malfunctions.*”⁹ The

OFFICE OF REGULATORY ENFORCEMENT, INTERIM POLICY ON FEDERAL ENFORCEABILITY OF LIMITATIONS ON POTENTIAL TO EMIT 3–4 (1996), *also available at* <http://www.epa.gov/ttn/oarpg/t5/memoranda/pte122.pdf>.

⁴ *Weiler v. Chatham Forest Prods.*, 392 F.3d 532, 535 (2nd Cir. 2004).

⁵ ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, TECHNICAL ANALYSIS REPORT FOR AIR QUALITY CONTROL MINOR PERMIT AQ1227MSS04 TAR 8 (March 4, 2014) [TAR].

⁶ TAR at 10.

⁷ TAR at 8.

⁸ Appendix F at 1 — Caterpillar, C18 Diesel Oilfield Generator Set Information Sheet (“[Emissions d]ata shown is based on steady state operating conditions of 77 [degrees] F, 28.42 in. HG and number 2 diesel fuel with 35 [degree] API and LHV of 18,390 btu/lb.”), *also available at* <http://catoilandgas.cat.com/cda/files/854120/7/10.7.09+Drilling+Onshore+C18+LEHW7450-01.pdf>.

⁹ 18 AAC 50.502(e)(2) (emphasis added).

projected emissions from the engine and heaters must account for anticipated startups and shutdowns (e.g., for maintenance purposes, and for the number of times loss of highline power can be anticipated, requiring startup, operation, and shutdown of the diesel engine).

The Permit Application continues to appear to have an error regarding the type of diesel engine that will be used. The Emission Unit (“EU”) Information indicates that Emission Unit 1 is a Caterpillar Model C-18 900-hp engine.¹⁰ The maximum power for the C18 ACERT engine is 800 hp and not the 900 hp listed in Usibelli’s permit application.¹¹ Thus, it is not clear which engine will really be used as Emission Unit 1, making the emissions calculations unreliable and rendering confirmation of the vendor emission rates exceedingly difficult.¹²

The emission calculations fail to account for the engine’s deterioration curve and associated increases in emissions, and the permitting materials do not evaluate what happens to NO₂ emissions from EU 1 after 8,000 hours of operation or, alternatively, include a permit condition that limits the use of EU 1 to 8,000 hours.¹³ Emissions may increase greatly after the engine has operated longer than the time period evaluated by the vendor.¹⁴ Typically, engine emissions deteriorate with use, resulting in higher emissions as time progresses. The California Air Resources Board certifies engines of the C18 family of Caterpillar engines and certifies that the useful life of this engine family is 8,000 hours. Thus, all emissions data are valid for a maximum of 8,000 hours of operation. But the permit application does not state whether the engine will be used for only 8,000 hours and then be replaced, or if Usibelli plans on using the same engine for a longer period. Using the emissions data for a time period exceeding 8,000 hours is inappropriate because actual emissions will depend on the deterioration curve for this engine beyond 8,000 hours. Emissions beyond the initial 8,000 hours may be much greater than currently predicted. This is not accounted for and must be corrected. If this information is not available, the proper solution is to require a CEMS to monitor emissions. Without an

¹⁰ Usibelli Coal Mine, Inc., Application for An Air Quality Control Minor Permit for the Wishbone Hill Coal Mining and Processing Operation, Attachment B: Emission Unit Information and Emission Summary Forms at 1.

¹¹ See Appendix F — CAT, Industrial Diesel Engines-Lesser Regulated & Non-Regulated, C18 ACERT, *also available at* http://www.cat.com/en_US/products/new/power-systems/industrial-oem/industrial-diesel-engines-lesser-regulated-non-regulated/18396700.html (last visited April 8, 2014).

¹² See Appendix B at 2, 16.

¹³ See *id.* at 2–3, 16–17.

¹⁴ *Id.*

enforceable permit condition that requires the replacement of the engine after 8,000 hours of use or the modeling of emissions after that time period, the permit does not ensure that the source will remain below 250 tons per year of NO₂ emissions.¹⁵

Simply estimating that emissions will be below permitting thresholds is insufficient, especially because DEC failed to confirm vendor emissions data or evaluate it in light of actual operating conditions on-site to account for variables such as temperature, altitude, or humidity.¹⁶ These factors can dramatically affect emissions from diesel engines to the point where EU 1 may have the potential to emit NO_x over the major source threshold of 250 tons per year.¹⁷ To prevent this, the permit should impose enforceable limits to keep emissions below the threshold level and require CEMS to monitor the actual emissions.

B. The Permit Does Not Clearly Limit SO₂ Emissions Below the Major Source Threshold.

Permit Condition 17 limits EU 1 and 2 emissions of SO₂ to 500 ppm over a 3-hour average.¹⁸ It is unclear, however, how this translates into tons per year and, as a result, it is unclear how this emission limit relates to the emissions threshold for major source permitting. Additionally, the permit fails to impose any monitoring to ensure compliance with this 500 ppm emission limit.¹⁹ Also, the TAR calculates the potential to emit based on 15 ppmw, even though the permit limits SO₂ emissions from EU 1 and 2 to 500 ppm and even though calculating SO₂ emissions is only required if the sulfur content of the fuel is 0.75 percent sulfur by weight. The permit must either limit SO₂ emissions from EU 1 and 2 to 15 ppm and require a SO₂ CEMS or at least quarterly stack testing to ensure compliance with that limit, or recalculate the emissions based on the actual permit limitations.

C. The Analysis Underestimates NO_x Emissions and the Total Project NO_x Emissions Exceed the Operating Permit Threshold of 100 Tons per Year.

The AERMOD modeling omitted NO_x emissions from mobile equipment (EUs 29–36), including overburden hauling, coal truck hauling on-site, and equipment on access roads. The

¹⁵ *Id.* at 19.

¹⁶ *See* Appendix B at 17–18.

¹⁷ *Id.*

¹⁸ DEC Air Quality Control Minor Permit, Permit AQ1227MSS04 — Preliminary at 14 (March 4, 2014) [Proposed Permit].

¹⁹ *See id.*

modeling included these sources for the analysis of PM₁₀ emissions but excluded them for the analysis of NO_x emissions.²⁰ The model should be rerun with these sources included for NO_x. Inclusion of those sources indicates that the total emissions of NO_x from the Project will exceed 100 tpy.²¹ While mobile sources may not be required by law to be included in the operating permit determination, exceeding 100 tpy of NO_x emissions still poses hazards to human health that the agency should act to prevent.

The analysis further underestimated NO_x emissions by using low NO₂/NO_x in-stack ratios. The modeling used in-stack ratios of 0.1 for the diesel generator and heaters and 0.036 for blasting. These ratios are not based on source testing done with sources identical to those to be used by Usibelli. Without identical source-testing, EPA recommends the use of a default ratio of 0.5, which would result in higher estimated NO₂ impacts.²²

The analysis may have also underestimated NO_x emissions by using the Ozone Limiting Method (“OLM”) rather than the Plume Volume Molar Ratio Method (“PVMRM”). OLM can substantially underestimate NO₂ 1-hour impacts.²³ DEC’s own consultant concluded that “Overall the PVMRM option appears to provide a more realistic treatment of the conversion of NO_x to NO₂ as a function distance downwind from the source than OLM.”²⁴ Because of this, 1-hour NO₂ impacts should also be analyzed using PVMRM.

Furthermore, Usibelli underestimated the 1-hour NO₂ emissions by “averag[ing] the daily blast emission rate over the 12-hour operating period.”²⁵ This averaging fails to capture the maximum 1-hour NO₂ emissions because it uses only 1/12 of the potential emission rather than the maximum emission of NO₂ over a 1-hour period. This severely underestimates 1-hour NO₂ emissions and fails to ensure compliance with Alaska ambient air quality standards (“AAAQS”).

²⁰ Appendix A at 6.

²¹ Appendix A at 4.

²² See Appendix A at 6.

²³ See Appendix A at 6.

²⁴ Appendix A, Attachment 2 — MACTEC, FINAL REPORT, SENSITIVITY ANALYSIS OF PVMRM AND OLM IN AERMOD 55 (2004), *also available at*

http://www.epa.gov/scram001/7thconf/aermod/pvmrm_sens.pdf.

²⁵ TAR, Appendix B at 10.

II. THE PERMIT APPLICATION AND TECHNICAL ANALYSIS DO NOT ENSURE THAT THE PROPOSED OPERATIONS WILL NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF ALASKA’S AMBIENT AIR QUALITY STANDARDS.

The proposed project will severely impact the ambient air quality and will likely cause or contribute to a violation of the AAAQS. Numerous problems continue to plague the modeling of the impacts to ambient air quality. These issues would be largely resolved by requiring Usibelli to either collect new on-site data (via installation of an Automated Surface Observing System (“ASOS”) station) or to use ASOS station data from the Palmer Municipal Airport from the previous five years. Correcting these inaccuracies will likely show that the proposed project will violate the AAAQS.

A. The Meteorological Data Used in the Analysis is Stale and Should Be Replaced with Newly-Collected Site-Specific Data.

The modeling continues to rely on meteorological data collected almost twenty-five years ago. The EPA Guideline on Air Quality Models (“Guideline”) requires “enough meteorological data to ensure that worst-case meteorological conditions are adequately represented in the model results.”²⁶ DEC notes that the Guideline imposes “no age restrictions on a data set” and that seasonal variations “can be a larger factor in air quality assessment than the climatic variations that may occur over time.”²⁷ DEC includes no analysis of whether the 1990 data is “temporally representative.” This is problematic because data collected between 1949 and 1999 indicates that the weather in 1990 was highly unusual. According to the Western Regional Climate Center, 99 inches of snow fell in the Matanuska Valley in 1990.²⁸ The mean amount of snow fall in the Matanuska Valley over a fifty year period (1949–1999) was 51.9 inches per year.²⁹ Also, 1990 had some of the lowest recorded temperatures over the same time period.³⁰ Relying on such anomalous weather conditions for the modeling of ambient air quality impacts does not

²⁶ U.S. Environmental Protection Agency, Guideline on Air Quality Models (“Guideline”), 40 C.F.R. pt. 51, Appendix W, § 8.3.1.1(a).

²⁷ TAR, Appendix B at 4.

²⁸ Appendix F at 9 — Matanuska Valley 16, Alaska, Period of Record General Climate Summary — Precipitation, *also available at* <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?akmatv> (last visited April 8, 2014).

²⁹ *Id.*

³⁰ *Id.* at 11 — Matanuska Valley 16, Alaska — Period of Record General Climate Summary — Temperature, *also available at* <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?akmatv> (last visited on April 8, 2014).

ensure that the results reflect worst-case conditions or even typical conditions at the site, and fails to comply with the Guideline.³¹ DEC's acceptance of the almost twenty-five-year-old data runs afoul of the Guideline, and DEC failed to explain how this stale data is representative of typical meteorological conditions at the project site.³²

The Guideline states a strong preference for five years of data that is truly representative of conditions at the site.³³ Allowing an applicant to pick one year of data that is over twenty years old does not “ensure that worst-case meteorological conditions are adequately represented” or that even “typical” meteorological conditions are represented.

B. PM₁₀ Emissions Continue to be Underestimated Because the Model Ignores Hours with Low Wind Speeds.

The use of the 1990 dataset to model ambient air quality impacts underestimates the impacts of PM₁₀ emissions because of the way AERMOD deals with “calms” (i.e., wind speeds of less than 3 knots): it ignores hours with low wind speeds. For hours with wind speeds less than 1 meter/second (“m/s”), the model treats the conditions as absolutely calm and ignores the PM₁₀ emissions completely.³⁴ However, for low-level sources associated with surface coal mining, maximum PM₁₀ impacts occur near the Project under low wind speed.³⁵ High concentrations of particulate matter can result from wind speeds of less than 1 m/s that affect the ambient air beyond the project boundary. The 1990 on-site meteorological data contains 2,401 calm hours (27.4% of the possible 8,760 hours of the year) where the model assigns a PM₁₀

³¹ See 40 C.F.R. pt. 51, Appendix W, § 8.3.a (“The meteorological data used as input to a dispersion model should be selected on the basis of spatial and climatological (temporal) representativeness as well as the ability of the individual parameters selected to characterize the transport and dispersion conditions in the area of concern.”).

³² While the dataset from the Palmer Municipal Airport's ASOS weather station may not be perfectly representative of the meteorological conditions at the project site, the data would be better because it would provide five years of recent, complete data. The modeling would be more accurate than using one year of incomplete data that is almost twenty-five years old.

³³ 40 C.F.R. pt. 51, Appendix W, § 8.3.1.2(a) (“Five years of representative meteorological data should be used when estimating concentrations with an air quality model. Consecutive years from the most recent, readily available 5-year period are preferred.”).

³⁴ The AERMOD model also does not calculate PM₁₀ concentrations for missing hours; 664 hours were missing from the 1990 data. See Appendix A at 5.

³⁵ See Appendix A at 5.

concentration of zero despite impacts to ambient air quality often being the most significant during these low wind speeds.³⁶

EPA recognized this problem and recently changed the model to better account for “calms.” However, this updated model requires wind speed measurements from an ASOS station that are recorded on a 1- to 2-minute interval. Those measurements are then entered into AERMINUTE and then processed through AERMET and AERMOD. Because the 1990 dataset was not ASOS data taken on a 1- to 2-minute interval, it does not include the air quality during calms and the modeling significantly underestimates ambient air quality impacts.

During a previous commenting period on a prior version of this permit, Commenters employed a modeling expert to run AERMOD using meteorological surface data from the Palmer Municipal Airport and upper-air data from the Anchorage International Airport from 2006–2010, the most recent dataset available at that time, to better understand the potential for impacts to ambient air quality.³⁷ This data was collected by an ASOS station and contains 1-minute wind data designed to reduce problems in the modeling with “calms” and, therefore, improve the accuracy of the model’s predictions. The entire five-year dataset from 2006–2010 included only 1,403 hours of “calms.” The 1990 dataset contains 2,401 hours of “calms.” Therefore, the 1990 data was anomalous and the 2006–2010 dataset is more representative of actual conditions, as contemplated by the EPA when it revised the modeling procedures to address the problems with modeling “calms.”

Using the 2006–2010 data to predict PM₁₀ impacts from the Project demonstrates that the operation will cause violations of the AAAQS. Maximum 24-hour concentrations predicted by the AERMOD model range from 231.8 µg/m³ in 2007 conditions to 287.5 µg/m³ in 2009 conditions. The second highest concentrations range from 176.8 µg/m³ in 2006 conditions to 223.9 µg/m³ based on 2008 conditions. Even without including background concentrations, all of these predicted maximum and second-highest concentrations significantly exceed the AAAQS for PM₁₀ of 150 µg/m³. The second-highest concentration of 223.9 µg/m³ in 2008 is the 6th highest concentration for the five-year period; combined with a background concentration of 28.5 µg/m³, the predicted concentration of 272.4 µg/m³ far exceeds the AAAQS of 150 µg/m³.³⁸

³⁶ Appendix A at 5.

³⁷ See Appendix C at 14–16.

³⁸ See *id.*

Therefore, when using the latest version of AERMOD with data that more accurately deals with “calms,” the Project will in all likelihood violate the AAAQS and DEC cannot issue the permit.³⁹

DEC has argued that meteorological surface data from the Palmer Municipal Airport ASOS station would be unrepresentative of conditions at Wishbone Hill.⁴⁰ But given the problems with the 1990 dataset (the age of the data, the unusual weather year, and the inability of the dataset to take advantage of EPA’s solution to modeling air impacts during “calm” periods, and an excessive number of “calm” periods compared to other years) and the ability of the dataset from the Palmer Municipal Airport to resolve many of these issues, DEC should either use the Palmer Municipal Airport ASOS station data and impose permit conditions to bring the estimated PM₁₀ impacts below the AAAQS, collect one year of on-site data using an ASOS station to resolve the current problems with the 1990 dataset, or fill in the missing hours and calm hours with linearly interpolated data or reset with the minimum wind speed of the model (1 m/s).⁴¹

C. The Permitting Materials Fail to Explain Why the On-Site Data Collected in 1991 was Not Used in the Modeling.

The Guideline requires the use of all available site-specific data.⁴² Usibelli’s predecessor collected meteorological data from October 1988 through October 1991.⁴³ But Usibelli only used data from one year of the four that were collected in its permit application materials. DEC asserts that Usibelli’s predecessor only submitted the October 1988 through December 1990 data, and that data was lost due to high wind and power loss during the first year of monitoring.⁴⁴ DEC states that only the 1990 data met the requirements of Section 8.3 of the Guideline, but offers no explanation as to why the 1991 data failed to meet those requirements.⁴⁵ In the previous TAR, DEC asserted that it had never received the 1991 data, but that is inaccurate. DEC had access to and obtained the 1991 data when evaluating the earlier permit application.⁴⁶

³⁹ See 18 AAC 50.542(f)(1)(B).

⁴⁰ DEC, Response to Comments for Minor Permit AQ1227MSS02 at 10 (Aug. 18, 2011).

⁴¹ Appendix A at 5.

⁴² 40 C.F.R. 51, Appendix W, § 7.2.1.1(e) (“As long a period of record as possible should be used in making estimates to determine design values and PSD increments. If more than 1 year of site specific data is available, it should be used.”).

⁴³ TAR, Appendix B at 3.

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ See Appendix E at 1, Email from Al Trbovich, SLR Consulting, to Sean Lowther, Alan

DEC should evaluate the 1991 data for quality control and potential inclusion in the modeling.⁴⁷ And, if the data is not properly included, explain to the public why the data does not meet the quality assurance requirements of the Guideline.

D. The Applicant Improperly Used Particle Deposition When Modeling the Impacts of PM₁₀ Emissions.

Project emissions for PM₁₀ were calculated using emission factors that are adjusted for PM₁₀.⁴⁸ Particle deposition is not normally simulated for either PM₁₀ or PM_{2.5} as its effects are negligible for small particles.⁴⁹ Particle deposition is used for particles larger than PM₁₀, such as PM₃₀, where emissions are calculated for total suspended particulates (“TSP”). However, using large mass fractions for PM₃₀ and particle deposition for strictly PM₁₀ emissions can largely underestimate the impacts of PM₁₀ emissions. In other words, it is incorrect to use particle deposition when modeling PM₁₀ emissions, and doing so leads to significant underestimations of PM₁₀ impacts. The model here should be rerun with particle deposition turned off to accurately predict PM₁₀ impacts.

E. The Analysis Fails to Account for Nearby Sources of Air Pollution.

Both Usibelli and DEC declined to do a cumulative impact analysis of other nearby sources, claiming that none existed. The assumption that no nearby sources exist is erroneous. The nearby Jonesville Mine has a permit from the Alaska Department of Natural Resources to conduct surface coal mining, including re-mining tailings piles. This nearby coal mining activity will in all likelihood contribute to local PM₁₀ concentrations.⁵⁰ The cumulative impact of the

Schuler re: Wishbone Hill (July 28, 2011 9:42 AM) (“The meteorological data reports for the first three quarters of 1991 are attached.”).

⁴⁷ See 40 C.F.R. pt. 51, Appendix W, § 8.3.1.2(b) (“The use of 5 years of NWS meteorological data or at least 1 year of site specific data is required. If one year or more (including partial years), up to five years, of site specific data is available, these data are preferred for use in air quality analyses.”).

⁴⁸ Appendix A at 4.

⁴⁹ See Appendix A at 4 (“Since project emissions are already calculated as PM₁₀, it is customary to model PM₁₀ emissions without particle deposition. Particle deposition is important for large particles and frequently modeled for particles with diameter larger than 10 microns. Thus, it is not necessary to model particle deposition, and *doing so only underestimates project impacts.*) (emphasis added).

⁵⁰ The Jonesville Mine is not currently active but, to Commenters’ current knowledge, have the required mining permits to commence operations.

proposed project and the Jonesville Mine should be analyzed prior to permit issuance to ensure compliance with the AAAQS.

III. THE FUGITIVE DUST CONTROL PLAN IS INADEQUATE.

The Fugitive Dust Control Plan only calls for active dust suppression controls on roads.⁵¹ This should be expanded to include other open mine areas where revegetation has not yet occurred or is not expected to occur (e.g., on the stockpiles) to reduce fugitive dust.

The Fugitive Dust Control Plan should be further refined to specify the observation period. The test method to be applied — Reference Method 22 — states that the minimum observation period is six minutes.⁵² The Plan should state whether Usibelli must apply this minimum observation period or a longer period, as the “observation period [needs to be] of sufficient length to meet the requirements for determining compliance with the emission standard in the applicable subpart of the regulations.”⁵³

DEC incorrectly accepts Usibelli’s contention that the Fugitive Dust Control Plan will reduce emissions by 80%, up from a 50% reduction claimed in previous permit applications. Neither DEC nor Usibelli offer any support for why 80% is a realistic reduction in fugitive emissions from the plan.⁵⁴ Neither has done any modeling to predict the efficacy of the control measures or otherwise verify that 80% reductions will be achieved by the plan. This is particularly concerning because the currently proposed Fugitive Dust Control Plan largely mirrors previous versions.

⁵¹ See Proposed Permit at 43–44. The Proposed Permit states that active dust controls will be used at the coal preparation plant, but fails to state what those controls would be. See *id.* at 44.

⁵² 40 C.F.R. pt. 60, Appendix A-7, § 11.4.2.

⁵³ *Id.*

⁵⁴ See TAR at 9 (“The application used AP-42 emission factors to calculate fugitive emissions associated with topsoil operations (EU ID 3) and mobile equipment (EU IDs 29 through 36), *along with an 80 percent emissions reduction* to account for wet suppression or other control techniques. To achieve this control, the Department has imposed fugitive dust control permit conditions requiring frequent visible emissions monitoring (and record keeping and reporting), and application of wet suppression or other emissions reduction techniques in affected areas.”) (emphasis added); see also TAR, Appendix B at 9 (“UCM also applied an 80 percent control efficiency for topsoil removal and road-related travel activities (i.e., EUs 3 and 29 through 36). This is an acceptable control efficiency based on AP-42 for regular application of dust suppressants.”)

IV. THE PUBLIC ACCESS CONTROL PLAN CONTINUES TO FAIL TO PHYSICALLY EXCLUDE THE PUBLIC FROM NON-AMBIENT AIR.

The Public Access Control Plan is still insufficient. Unless Usibelli physically excludes the public from the mine area, the air quality within the project boundary must meet the AAAQS. EPA regulations define “ambient air” as “that portion of the atmosphere, external to buildings, to which the general public has access.”⁵⁵ The EPA’s longstanding interpretation of this regulation is that to not qualify as ambient air, public access must be precluded by a fence or other physical barrier.⁵⁶

The Public Access Control Plan fails to require physical barriers to areas that are not considered ambient air. Natural barriers such as cliffs may be sufficient to preclude public access. However, the Public Access Control Plan also relies on vegetative barriers.⁵⁷ Vegetation such as thick devils club is not sufficient. Such vegetation may serve as a physical barrier in the late summer, but it fails to provide any barrier for much of the rest of the year.⁵⁸ Also, the Public Access Control Plan and DEC’s Ambient Assessment fail to explain how a berm will be adequate to physically exclude the public from the trail that follows ROW 52715 or how a culvert will physically exclude the public from the trail.⁵⁹ DEC must require Usibelli to either fence the entire ambient air boundary where natural topographic barriers such as cliffs do not physically exclude the public, or to re-evaluate impacts to the ambient air from which the public is not physically excluded.

V. USIBELLI SHOULD BE REQUIRED TO MONITOR METEOROLOGICAL CONDITIONS AND PM₁₀ AND PM_{2.5} EMISSIONS.

DEC has removed the requirement from a previous proposed permit that Usibelli install a meteorological station and a PM₁₀ monitoring station. Commenters request that these permit conditions be included in the final permit. Commenters also reiterate their previous comments that the meteorological station should be at least ten meters high, which is the typical height of a

⁵⁵ 40 C.F.R. § 50.1(e).

⁵⁶ See Appendix F at 31–34 — U.S. EPA, Office of Air Quality Planning and Standards. Memo re: Receptor Locations in Ambient Air. January 21, 1986, *also available at* http://www.epa.gov/scram001/guidan_ce/mch/ama4/txt.

⁵⁷ See TAR, Appendix B at 15; Proposed Permit at 36–37.

⁵⁸ See, e.g., Appendix G (photographs of the Wishbone Hill area, showing how vegetation does not serve as a physical barrier).

⁵⁹ See TAR, Appendix B at 15; Proposed Permit at 37.

meteorological tower and is generally regarded as necessary to reduce the effects of nearby objects and the ground on measurements and to ensure that the information gathered is accurate and useful.⁶⁰ Commenters also reiterate that the placement of PM₁₀ monitoring stations should be required, and addressed in the permit in a way that allows the public an opportunity to evaluate and participate in the decision of where this equipment will be located.⁶¹ Commenters encourage DEC to require multiple PM₁₀ monitoring stations to ensure that emissions remain below the AAAQS along the entire ambient air boundary. To adequately monitor health impacts, Commenters believe that the monitoring stations should also record measurements of PM_{2.5}.

VI. BOTH DEC AND USIBELLI FAILED TO ANALYZE A NUMBER OF IMPORTANT POTENTIAL IMPACTS TO AIR QUALITY.

A. The Analysis Failed to Analyze Ozone Impacts.

Project ozone impacts have not been addressed. NO_x and VOC are known ozone precursors, reacting to sunlight to form ozone.⁶² The project will emit both NO_x and VOC, but no analysis has been conducted to evaluate the ozone impacts. This addition of ozone levels to the region may interfere with the attainment or maintenance of the ozone standard.⁶³

B. The Analysis Failed to Completely Quantify PM_{2.5} Emissions from the Project.

PM_{2.5} emissions have not been completely quantified.⁶⁴ The analysis failed to include PM_{2.5} emissions from sources other than the diesel engine, heaters, and the coal preparation and processing plant. The analysis also failed to account for secondary PM_{2.5} formation associated with the project's NO_x and VOC emissions. The permit application should include an analysis of the PM_{2.5} 24-hour and annual impacts from all project sources.

C. The Analysis Failed to Analyze Impacts to Visibility.

The project will emit significant amounts of NO_x and PM₁₀. Both of these pollutants are known to reduce visibility. However, no modeling has been performed to evaluate how these

⁶⁰ See Appendix D at 26.

⁶¹ *Id.*

⁶² Appendix A at 8.

⁶³ Appendix A at 8.

⁶⁴ See Appendix A at 7.

emissions will affect visibility. EPA's VISCREEN model should be used to analyze should analyze these impacts.⁶⁵

VII. DEC MUST ENSURE THAT THE PROPOSED OPERATION DOES NOT EMIT POLLUTANTS THAT ENDANGER HUMAN HEALTH OR WELFARE.

DEC must deny an application if construction and operation of a source will result in a violation of the AAAQS.⁶⁶ While Alaska's minor source permitting rules do not require modeling of numerous pollutants of concern to Commenters, DEC may require an applicant, subject to 18 AAC 50.502(b), to provide an ambient air quality assessment for any pollutant.⁶⁷ Furthermore, DEC regulations prohibit "any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property."⁶⁸ Given the close proximity of residences and communities to the site and the significant public concerns regarding the Wishbone Hill Coal Mine, DEC should require Usibelli to model potential 24-hour PM_{2.5} emissions from the entire Project.⁶⁹ Additionally, Commenters request that DEC require the following data collection and analysis be done prior to issuing the permit, as recommended by the Alaska Department of Health and Social Services in its Draft Health Impact Assessment for the Proposed Coal Mine at Wishbone Hill ("Draft HIA")⁷⁰ as important for protecting public health:

- Obtaining or modeling for site-specific PM_{2.5} emissions.
- A modeled receptor grid that extends beyond the proposed project fence line to a distance sufficient for evaluating exposures to residential areas. This model receptor grid should include a plot plan of the concentration gradients.
- Estimating tail-pipe PM_{2.5} emissions from mobile sources. This would be a sub-part of the overall PM_{2.5} assessment that the HIA team desires.
- Modeling off-site deposition of potential fugitive dust emissions.⁷¹

⁶⁵ Appendix A at 8.

⁶⁶ See 18 AAC 50.542(f)(1)(B).

⁶⁷ 18 AAC 50.540(c)(2)(D).

⁶⁸ 18 AAC 50.110.

⁶⁹ Commenters commend DEC for requiring Usibelli to model potential 1-hour NO₂ and annual PM_{2.5} emissions, as requested in Commenters' letter on the previous proposed permit, but — as noted above — this analysis should be redone to include emissions from the entire Project.

⁷⁰ To Commenters' knowledge, the Draft HIA has not yet been finalized.

⁷¹ Appendix F at 35 — NEWFIELDS COMPANIES, DRAFT HEALTH IMPACT ASSESSMENT FOR

The Draft HIA emphasizes that PM₁₀, PM_{2.5}, and diesel engine exhaust are likely the most significant threats to public health from air quality impacts from the proposed project.⁷²

Furthermore, the maximum 1-hour NO₂ impacts from project-only emissions exceed the 1-hour national ambient air quality standards (“NAAQS”) and AAAQS and, therefore, pose a threat to human health.⁷³ DEC and Enviroplan’s modeling results show a maximum 1-hour NO₂ concentration of 210.9 µg/m³. This does not account for other sources, only those caused by the Project. With a background of 37.6 µg/m³, maximum total concentration is 249 µg/m³. This exceeds the 1-hour NAAQS and AAAQS of 188 µg/m³. These emissions will endanger human health and DEC should impose enforceable emission limits to prevent these exceedances. Additionally, the eighth highest maximum concentration for 1-hour NO₂ impacts is 181 µg/m³. That is only 8 µg/m³ below the AAAQS of 188 µg/m³. As discussed above, the modeled impact of 1-hour NO₂ impacts has been underestimated, so it is likely that the eighth highest maximum concentration exceeds the AAAQS.⁷⁴

VIII. DEC HAS SIGNIFICANTLY IMPROVED THE PROPOSED PERMIT.

While the permit still contains major flaw and is inadequate, Commenters appreciate that DEC has strengthened the proposed permit in many ways. DEC has included stronger monitoring requirements, accounted for NO_x from blasting, assumed that overburden hauling would occur for each day of the modeling, limited blasting to once per day through imposition of a permit condition, modeled 1-hour NO₂ and annual PM_{2.5} emissions, updated the Fugitive Dust Plan to include variables Commenters’ requested, applied the controlled maximum hourly emission rate for topsoil removal over all hours of modeling (rather than an annualized emission rate), and prohibited the change or modification of the permit without following applicable

PROPOSED COAL MINE AT WISHBONE HILL, MATANUSKA-SUSITNA BOROUGH ALASKA, PREPARED FOR THE ALASKA DEPARTMENT OF HEALTH AND SOCIAL SERVICES 70. (draft March 5, 2012), *also available at* <http://www.epi.hss.state.ak.us/hia/WishboneHillDraftHIA.pdf>.

⁷² *Id.* at 91, 97 (“High levels of PM have long been recognized as harmful to human health. More recently, acute (short-term) and chronic (long-term) exposures to much lower levels have been consistently associated with increased human mortality and morbidity, especially from cardiopulmonary diseases, including lung cancer”) (citations omitted), 106 (“The relationship between diesel exhaust exposure and risk of lung cancer has been a public health concern for several decades. More recently, there has been concern that exposure to diesel exhaust also may enhance allergic sensitization and cause or exacerbate asthma.”) (citations omitted).

⁷³ See Appendix A at 7.

⁷⁴ See Appendix A at 7.

regulations. These are key improvements in the permit that Commenters commend DEC for including and recommend that they be included in any final permit issued after DEC addresses the additional remaining shortcomings Commenters have identified.

IX. CONCLUSION

DEC should deny the permit application until the flaws identified above are resolved to ensure compliance with the AAAQS and to prevent the source from emitting at major source levels.

Sincerely,

/s K. Strong
Katie Strong
Staff Attorney

Enclosures:

Appendix A — AMI Comments, with 5 Attachments

Appendix B — Previously Filed Comments by Sahu Comments, with 3 Attachments

Appendix C — Previously Filed Comments by AMI

Appendix D — Previously Filed Comments by Commenters

Appendix E — DEC Files

Appendix F — Selected Cited Sources

Appendix G — Photographs of Project Area