

BEFORE THE
ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

FILED
JUN 26 2003
Terri A. Lorenzon, Director
Environmental Quality Council

IN THE MATTER OF OBJECTIONS BY)
THE POWDER RIVER BASIN RESOURCE)
COUNCIL TO THE AMENDMENT OF THE)
RAG EAGLE BUTTE MINING PERMIT,)
PERMIT NO. 428-T3, TFN 3 4/159)

DOCKET NO. 00-4802

**FINDINGS OF FACT, CONCLUSIONS OF LAW,
AND ORDER**

This matter came before the Environmental Quality Council (EQC) for hearing on August 29 and 30, and October 22, 23, and 24, 2002. EQC members Nick J. Bettas, Thomas Dunn, Lisa Lindemann, Robert Rawlings, Jason Shogren, and Olin D. Sims were present for the August 29 and 30 hearing, with Lisa Lindemann serving as hearing examiner. Lisa Lindemann thereafter resigned from the Council and John Morris was appointed to complete her term. EQC members Nick J. Bettas, Thomas Dunn, John Morris, Robert Rawlings, Jason Shogren, and Olin D. Sims were present for the October 22, 23, and 24 hearing, with EQC attorney Terri A. Lorenzon acting as hearing examiner. EQC Chair Wendy Hutchinson recused herself from this case. The Powder River Basin Resource Council (PRBRC) was represented by Sarah A. Klahn of White & Jankowski. RAG Coal West, Inc. (RAG), was represented by Edward W. Harris of Holland & Hart LLP. The Department of Environmental Quality (DEQ) was represented by John S. Burbridge, Assistant Attorney General.

On January 17, 2003, the EQC, having considered the record and being fully advised in the premises, held a public meeting and reached the following decision.

FINDINGS OF FACT

1. RAG owns and operates the Eagle Butte Mine (Eagle Butte), located in Campbell County, in Wyoming's Powder River Basin. Eagle Butte operates under Permit No. 428-T3, issued by the Land Quality Division (LQD) of DEQ.

2. In May of 2000, Eagle Butte applied to the LQD to amend Permit No. 428-T3 by adding land directly south of the existing permit boundary. The additional lands are referred to as the Southwest Extension. The LQD reviewed the application and deemed it complete, and notice of the proposed amendment was published in Wyoming newspapers.

3. During the public notice and comment period, the PRBRC filed an objection to the proposed permit. Karla Oksanen, Carol Roe, and Roxanne Andresen also filed objections, but later stated that they were being represented by the PRBRC in this matter. The PRBRC's objection, in brief, was that the proposed permit conditions were inadequate to protect the public health and safety from nitrogen oxides (NO_x) produced by blasting at Eagle Butte.

4. Dennis Hemmer, DEQ Director, held an informal conference on the PRBRC objections, pursuant to Wyo. Stat. § 35-11-406(k). In his decision, dated October 9, 2000, Mr. Hemmer directed that the permit amendment be issued with the condition that "No overburden blasting shall occur in the area added by the amendment

when the wind is blowing in the direction of the residences immediately south of the mine.”

5. RAG appealed the DEQ Director’s decision by filing a petition for review with the EQC on November 6, 2000, leading to this proceeding.

6. On January 17, 2001, RAG filed a Motion for Temporary Relief seeking release from the permit conditions placed on blasting at Eagle Butte Mine. An Order granting temporary relief was issued on May 4, 2001 and a corrected Order was issued on June 21, 2001. The parties stipulated to an extension of this order on September 18, 2002 with the addition of several conditions.

7. The EQC issued an order on October 11, 2002 incorporating the terms of the September 2002 stipulation. The following provisions were implemented so the hearing could be delayed until a study of NO_x emissions at the Black Thunder Mine in the Powder River Basin was completed.

- a. RAG Eagle Butte Mine can blast, regardless of wind direction, up to 5,000 (five thousand) feet of the residences and businesses, located in the SE ¼ of Section 32, Township 51N. Range 72W., and the East ½ of Section 5 Township 50N. Range 72W., West of RAG’s Southwest Extension area.
- b. The Mine can blast, regardless of wind direction, up to 5000 (five thousand) feet of the residences and businesses on Hannum Road, located in the SW ¼ and SE ¼ of Section 4, Township 50N. Range 72W., South of RAG’s Southwest Extension area; and
- c. Blasting could occur within 5,000 (five thousand) feet if the wind is blowing away from the residences and businesses listed above.

- d. If the above restrictions prevents RAG from conducting blasting for more than one consecutive day, then on the second and subsequent days, RAG may conduct overburden blasting at the Eagle Butte Mine, even if the blast is within 5,000 feet of any residences or businesses to the south or west of the mine site and the wind is blowing toward such residences or businesses, if: (a) RAG notifies DEQ, as it is currently done, when blasting must be conducted to avoid “sleeping holes”, (b) RAG uses the same low-NO_x blasting techniques it currently uses when blasting within 1100 feet of any public highway; and (c) RAG notifies the Powder River Basin Resource Council, or its designated parties, that such blasting will occur, by calling the telephone number or numbers provided by the PRBRC. RAG shall keep records of when such calls were made, and indicating whether a person answered, a message was left, or there was no answer.
- e. RAG will continue: (a) blocking the highway and monitoring for NO_x emissions; and (b) using low-NO_x blasting techniques when blasting within 1100 feet of any public highway.

8. Eagle Butte Mine is located approximately three and one half miles north of Gillette, Wyoming. It has neighbors to the west and south. From the proposed boundary of the mining operations in the Southwest extension, a building at the Campbell County Airport is 1636 feet to the west, a residence (Fundenberg residence) is 1714 feet to the west, a business operation known as Innovative Mining is 2036 feet to the southwest, and a trailer park (the Hoy Trailer Park) is 2410 feet to the south.

9. Surface coal mines in the Powder River Basin, including Eagle Butte, use blasting to loosen overburden so it can be removed from over the coal. Overburden blasting produces NO_x as a result of incomplete combustion of the blasting agent. Amounts and concentrations of NO_x produced by blasts depend upon a number of factors, including the amount of blasting agent used, geologic conditions, and moisture. Moisture appears to have a greater impact on the blasting agent if it spends a longer time in place in the holes. For that reason, the practice of “sleeping holes,” or loading holes but not setting off the blast until the next day, can increase the emissions of NO_x .

10. Eagle Butte follows certain operational techniques, sometimes called “low NO_x practices,” in an effort to reduce NO_x emissions from blasting. These practices are required in some locations in the northern part of the mining operation.

11. NO_x , particularly nitrogen dioxide (NO_2), is a toxic gas that can be harmful to humans, depending upon concentration and length of exposure. It is emitted from many sources, including vehicle engines, train engines, compressor engines, power plants, residential natural gas or liquid petroleum fired cook stoves and furnaces, and cigarettes, in addition to blasting. Neither the federal Environmental Protection Agency (EPA) nor the DEQ has ever established a short-term ambient air quality standard for NO_x or NO_2 , and monitoring in the Powder River Basin shows that ambient levels of NO_2 are well below the longer term annual standard established by the EPA and DEQ.

12. A study of NO_2 emissions was conducted by members of the mining industry in the Powder River Basin, including RAG, on the order of the Director of DEQ, Dennis Hemmer. The report from this study is called “Development of Safe Setback Distances for Blasting Activities at the Black Thunder Mine” (the Black Thunder Study)

and this report was entered into evidence without objection. The study monitored concentrations of NO₂ emissions from blasting and modeled their behavior at the Black Thunder Mine. It was conducted pursuant to protocols reviewed and approved by DEQ, which protocols had been subject to review and comment by the PRBRC and the EPA.

13. The Black Thunder study was not complete, and therefore not considered, when Mr. Hemmer made the decision which is the subject of this proceeding.

14. The principal authors of the Black Thunder Study testified to the protocol and the conclusions of the study. They also presented supplemental information on monitoring and modeling at other surface coal mines, including Eagle Butte, conducted both before and after the Black Thunder Study. The supplemental data demonstrated that the conclusions of the Black Thunder Study also applied to other Powder River Basin surface coal mines, including Eagle Butte.

15. The Black Thunder Study represents the only data that has been collected on NO₂ emissions from blasting at surface coal mines in the Powder River Basin.

16. The Black Thunder Study and supplemental modeling and monitoring data were critically examined by the expert witnesses, and there was considerable discussion concerning the conclusions of the study. Criticism was accurate that the study did not include data collected under relatively stable atmospheric conditions known as Stability Class E and Stability Class F.

17. Relying on the Black Thunder Study, a review of existing studies of the health impacts of NO_x, and a review of current NO_x standards for federal or state agencies, expert testimony supported the conclusion that a 10-minute exposure to 5 parts per million (ppm) of NO₂ is protective of even sensitive subsets of the normal population

if the exposure frequency is one to three times per year. Expert testimony that criticized this standard opined that a 10-minute exposure to anything more than 0.5 parts per million of NO₂ was detrimental.

18. Combining the monitoring and modeling data with the toxicology information, the Black Thunder Study concluded that harmful exposures to NO₂ emissions from blasting would be prevented if blasts were kept a certain distance away from potential receptors, that distance varying with the size of the blast. Calculating this safe setback distance began with the modeled distance at which NO₂ concentrations would not exceed 5 parts per million under unfavorable wind conditions. Based on professional judgment, the calculation then added 1000 feet to reach the recommended set back distance, an addition aimed at increasing the margin of safety. The safe setback distance recommended in the Black Thunder Study is calculated by the formula: $0.0017s + 1000 = d$, where "s" is the size of the blast in pounds of explosives used, and "d" is the distance in feet of the recommended safe setback distance. Thus, for example, for a blast of 100,000 pounds, the safe setback distance would be 1170 feet ($0.0017 \times 100,000 + 1000 = 1170$).

19. Based on the safe setback distance recommended in the Black Thunder Study, RAG proposed to limit blasting at Eagle Butte to 100,000 pounds of explosive. The safe setback distance for blasts of that size is 1170 feet, while the building nearest to Eagle Butte mining operations is 1636 feet away. RAG asserted that a condition limiting blasts to 100,000 pounds would implement the recommendations of the Black Thunder Study, with an additional margin of safety, making other permit conditions unnecessary.

The PRBRC did not offer a safe setback distance but it did not agree with the RAG proposal.

20. Testimony from lay witnesses who live in the vicinity of Eagle Butte Mine expressed their concern with the predictions for blasting emissions from the mine and their concern with the health and safety of those who live in or travel through the area south and west of Eagle Butte Mine.

21. Past EQC decisions have set limits on blasting at Eagle Butte Mine to minimize the impact of NO_x emissions on nearby residents and those who travel on Highway 14-16. Most recently, in 1999, the EQC limited blasting to 1100 feet or more from designated points on Highway 14-16 regardless of wind direction. Blasting within 1100 feet of the Rawhide subdivision, a housing area north of the area under consideration here, regardless of wind direction, was not allowed. In The Matter of Objections to the Application for a Permit Revision for Amax Coal West, Inc., Eagle Butte Mine, TRN 3 5/183, Docket No. 2947-98.

CONCLUSIONS OF LAW

1. The EQC has jurisdiction over the subject matter and the parties to this proceeding.

2. Wyo. Stat. § 35-11-415(b)(xi)(C) requires the operator of a mining operation permitted by LQD to “Limit the types of explosives and detonating equipment, the size, timing and frequency of blasts based on the physical conditions of the site so as to prevent . . . injury to persons.”

3. The EQC does not have authority to establish a new ambient standard for NO_x emissions that result from blasting in a contested case proceeding as standards must

be set following the procedures required for adoption of rules and regulations. However, establishing permit conditions that prevent injury to persons may indirectly incorporate notions of safe levels of NOx exposure, and these permit conditions may be expressed as limitations on types of explosives and detonating equipment, and on the size, timing, and frequency of blasts.

4. RAG met its burden of demonstrating that the decision of DEQ Director Dennis Hemmer should not be affirmed. This condition is too lenient, because it applies only when the wind is blowing south, while there are also neighbors and potential receptors to the west of Eagle Butte. It is also too stringent, because it includes no distance limitation on the blasting prohibition.

5. The witnesses who testified as experts had the knowledge, skill, experience, training, and education to qualify them to give their opinions in this matter. However, the EQC is not bound to accept any expert's opinion as conclusive. Where expert opinions sharply differ, it is the prerogative and duty of the EQC to evaluate and compare the experts' opinions, assess their demeanor and credibility, and assign them the appropriate weight in reaching a decision.

6. The Environmental Quality Act, Wyo. Stat. § 35-11-112(b)(iv) grants the EQC authority to conduct hearings in cases contesting permits, and Wyo. Stat. § 35-11-112(c)(ii) provides authority to modify permits. The EQC conducts de novo hearings pursuant to the DEQ Rules of Practice and Procedure, the Wyoming Rules of Evidence, and the Wyoming Rules of Civil Procedure.

7. The Black Thunder Study was introduced into evidence, without objection, and it was relevant and material to the issue before the EQC.

8. The Black Thunder Study presents data on blasting emissions for the first time, and the data is useful. However, the expert testimony regarding the conclusions of this study, the debate among the experts regarding the appropriate interpretation of previous studies of NO_x exposure, and the debate regarding the application of NO_x standards adopted for use by other governmental agencies, clearly demonstrates that scientists are in disagreement on safe, short-term exposure limits for NO_x. In particular, there is disagreement about such limits where exposure may result from a blast at a surface coal mine and the resulting blast cloud is released in an uncontrolled environment.

9. The evidence does not support establishment of a short term NO_x exposure limit of 5 ppm or 0.5 ppm for 10 minutes at a set distance from receptors. Additional study of this problem is necessary before setting such a limit.

10. Based on the evidence presented in this matter and the applicable legal standard, the EQC concludes that overburden blasting throughout the area of the Eagle Butte Mine known as the Southwest Extension should be limited to 100,000 pounds of explosive per blast. Further, overburden blasting should be prohibited when the area of the mine is experiencing Stability Classes E and F atmospheric conditions, as determined by a protocol approved by the DEQ.

11. Based on the evidence presented in this matter and the applicable legal standard, the EQC concludes that overburden blasting within 2,500 feet of the residences or businesses to the south and west of the mine site should be subject to the following conditions: (a) Blast size should be limited to 50,000 pounds; (b) Blasts must be conducted using the low NO_x techniques already required of RAG when blasting within

1,100 feet of any public highway; (c) No blasting may be conducted within 2,500 feet of any residence or business to the south or west of the mine site when the wind is blowing toward such residence or business; (d) If the preceding restriction prevents RAG from conducting blasting for more than one consecutive day, then on the second and subsequent days, RAG may conduct blasting, even if the blast is within 2,500 feet of any residence or business to the south or west of the mine site and the wind is blowing toward such residence or business if: (i) RAG notifies DEQ as currently required by the permit to avoid “sleeping holes;” and (ii) RAG notifies parties or businesses who request such notification, pursuant to a protocol approved by the DEQ.

IT IS THEREFORE ORDERED that DEQ shall approve RAG’s application to amend Permit No. 428-T3 by adding lands directly south of the existing permit boundary.

IT IS FURTHER ORDERED that this permit approval shall be modified to include the following conditions, the first two of which were agreed to by RAG, and the third imposed by this decision:


1. Overburden blasting within the area known as the Southwest Extension shall be limited to 100,000 pounds of blasting agent.

2. Overburden blasting in the area known as the Southwest Extension shall not be conducted when the area is experiencing Stability Classes E and F atmospheric conditions, as determined by a protocol approved by the DEQ.

3. Overburden blasting within 2,500 feet of the residences or businesses to the south and west of the mine site shall be conducted only under the following conditions: (a) Blast size shall be limited to 50,000 pounds; (b) Blasts must be conducted using the low NO_x techniques already required of RAG when blasting within 1,100 feet

of any public highway; (c) No blasting shall be conducted within 2,500 feet of any residence or business to the south or west of the mine site when the wind is blowing toward such residence or business; (d) If the preceding restriction prevents RAG from conducting blasting for more than one consecutive day, then on the second and subsequent days, RAG may conduct blasting, even if the blast is within 2,500 feet of any residence or business to the south or west of the mine site and the wind is blowing toward such residence or business if: (i) RAG notifies DEQ as currently required by the permit to avoid "sleeping holes;" and (ii) RAG notifies parties or businesses who request such notification, pursuant to a protocol approved by the DEQ.

Dated this 26th day of June, 2003.



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