

AIR QUALITY PERMIT

Issued to: Big Sky Coal Company
P.O. Box 97
Colstrip, MT 59323

Permit #1350-03
Administrative Amendment (AA)
Request Received: 08/13/03
Department Determination on AA Issued: 09/05/03
Permit Final:
AFS # 087-0009

An air quality permit, with conditions, is hereby granted to Big Sky Coal Company (Big Sky Coal) pursuant to Sections 75-2-204 and 211, of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

Big Sky Coal operates a surface coal mine about 6 miles south of Colstrip, Montana, referred to as the Big Sky Mine. The mine is located in Sections 23, 24, and 25, Township 1 North, Range 40 East and Sections 19, 20 21, 22, 27, 28, 29, 30, 31, 32, and 33, Township 1 North, Range 41 East, Rosebud County, Montana. A list of permitted equipment and activities is included in the permit analysis.

B. Current Permit Action

The Department of Environmental Quality (Department) received a letter from Big Sky Coal on August 13, 2003, requesting the termination of their ambient air monitoring program at the Big Sky Mine. The Department reviewed the request and supporting information relative to the Department's October 1998 Monitoring Requirements Guidance Statement. In a letter dated August 28, 2003, the Department approved the request to discontinue monitoring, effective September 30, 2003. This permit action removes the monitoring requirements from the permit and also updates the rule citations in the permit.

Section II: Conditions and Limitation

A. Emission Limitations

1. Maximum annual coal production shall be limited to 6.5 million tons per year. Any increase above this level may require a permit alteration (ARM 17.8.749).
2. Big Sky Coal shall not cause or authorize emissions to be discharged into the outdoor atmosphere that exhibit an opacity of 20 percent or greater averaged over 6-consecutive minutes (ARM 17.8.304 and ARM 17.8.308).
3. The following lists the required emission control technologies and techniques (ARM 17.8.752):
 - a. Primary and Secondary Crushers - water sprays.
 - b. Coal Conveyors and Transfer Points - enclosure.

- c. Open Coal Storage - contouring and watering as necessary with a maximum of 7 acres of storage.
- d. Crushed Coal Storage - 29,000 ton capacity covered slot storage facility.
- e. Haul and Access Roads - Application of chemical stabilization and/or watering as necessary with on-going grading to remove loose debris.
- f. Overburden and Coal Removal - Minimize fall distance.
- g. Overburden and Coal Blasting - conduct in such a manner as to prevent over-shooting and to minimize the area to be blasted.
- h. Disturbed Areas - Minimize area of disturbance and prompt revegetation.

B. Testing Requirements

- 1. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
- 2. The Department may require testing (ARM 17.8.105)

C. Operational Reporting Requirements

- 1. Big Sky Coal shall supply the Department with annual production information for all emission points, as required by the Department, in the annual emissions inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emissions inventory request. Information shall be in units as required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations. Big Sky Coal shall submit to the Department; annually by March 1st of each year, the amount of coal produced (tons/year). The information may be submitted along with the annual emission inventory (ARM 17.8.505).

- 2. Big Sky Coal shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, which would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).
- 3. All records compiled in accordance with this permit shall be maintained by Big Sky Coal as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to the Department upon request, and shall be available at the plant site for inspection by the Department (ARM 17.8.749).

Section III: General Conditions

- A. Inspection - The recipient shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if the recipient fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving the permittee of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401 *et seq.*, MCA.
- E. Appeals - Any person or persons who are jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit, setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.
- F. Permit Inspection - As required by ARM 17.8.755 Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Construction Commencement - Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked.
- H. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay by the permittee of an annual operation fee may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

Permit Analysis
Big Sky Coal Company
Permit #1350-03

I. Introduction/Process Description

A. Permitted Equipment

Big Sky Coal Company (Big Sky Coal) operates a coal mine with associated mining and coal processing and handling equipment. A complete list of permitted equipment and activities is included in Section IV of this permit analysis. The mine is located about 6 miles south of Colstrip, Montana in Sections 23, 24, and 25, Township 1 North, Range 40 East and Sections 19, 20 21, 22, 27, 28, 29, 30, 31, 32, and 33, Township 1 North, Range 41 East, Rosebud County, Montana.

B. Source Description

Area A of the Big Sky Mine was the original mining area. Mining and initial reclamation activities have been completed in that area. Current mining operations are in Area B (Lee Coulee).

Overburden is removed with draglines. Coal is removed with shovels and hauled with 120-150 ton bottom dump trucks. Topsoil is handled with scrapers or occasionally with trucks and front-end loaders. Final grading and topsoil removal/redistribution is accomplished with bulldozers, scrapers and graders. This is followed by revegetation with appropriate reclamation equipment.

The coal is hauled an average of 4.5 miles to the existing truck dump hopper in Area A, crushed, and conveyed to the existing 29,000 ton capacity covered slot storage facility. The slot storage is located adjacent to a railroad loop where the coal is loaded into 110-car unit trains for shipment to customers.

C. Permit History

The original permit (**#1350**) for the Big Sky Mine was issued to Peabody Coal on November 3, 1979.

Permit **#1350A** was issued on November 1, 1988, for the expansion of mining activities into Area B of the Big Sky Mine.

Permit **#1350-02** was an alteration to raise the maximum allowable coal production from 4 to 6.5 million tons per year. The permittee name was also changed from Peabody Coal to Big Sky Coal, a subsidiary of Peabody Coal. The application was received January 16, 1996, and additional information was submitted on May 15, 1996.

D. Current Permit Action

The Department of Environmental Quality (Department) received a letter from Big Sky Coal on August 13, 2003, requesting the termination of their ambient air monitoring program at the Big Sky Mine. The Department reviewed the request and supporting information relative to the October 1998 Monitoring Requirements Guidance Statement. In a letter dated August 28, 2003, the Department approved the request to discontinue monitoring, effective September 30, 2003. This permit action removes the monitoring requirements from the permit and also updates the rule citations in the permit. Permit **#1350-03** replaces Permit #1350-02.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Big Sky Coal shall comply with all requirements contained in the Montana Source Test Protocol and Procedures Manual including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.221 Ambient Air Quality Standard for Visibility
7. ARM 17.8.222 Ambient Air Quality Standard for Lead
8. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

Big Sky Coal shall comply with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged to an outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control fugitive dust emissions.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Processes. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.
6. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates by reference 40 Code of Federal regulations (CFR) 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40CFR 60. The coal processing facilities at the mine were in place prior to the applicability date of Subpart Y for Coal Preparation Facilities.
7. ARM 17.8.341 Emissions Standards for Hazardous Air Pollutants. This source shall comply with the standards and provisions of 40 CFR 61, as appropriate.

D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. Big Sky Coal shall submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. The current permit action is an administrative amendment and does not require a permit application fee.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. This operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. Big Sky Coal has the potential to emit more than 25 tons per year of PM₁₀; therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits—Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. This rule requires that a permit application be submitted prior to installation, alteration or use of a source. Big Sky Coal was not required to submit an application for the current permit action because it is an administrative action.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit

must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. A BACT review was not required for the current permit action because there are no new or modified sources permitted as part of this action.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Big Sky Coal of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications-- Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because it is not a listed source and does not have the potential to emit 250 tons per year or more of any air pollutant, excluding fugitive emissions.

G. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one Hazardous Air Pollutant (HAP), or PTE > 25 tons/year of a combination of any HAPs, or a lesser quantity as the Department may establish by rule;
 - c. PTE > 70 tons/year of PM-10 in a serious PM-10 nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. 1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #1350-03 for Big Sky Coal, the following conclusions were made:
 - a. The facility's PTE is less than 100 tons/year for any pollutant.
 - b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year of all HAPs.
 - c. This source is not located in a serious PM-10 nonattainment area.
 - d. This facility is not subject to any current NSPS.
 - e. This facility is not subject to any current NESHAP standards.
 - f. This source is not a Title IV affected source nor a solid waste combustion unit.
 - g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that Big Sky Coal is a minor source of emissions as defined under Title V.

III. BACT Determination

A BACT determination is required for each new or altered source for which a permit is required. Big Sky Coal shall install on the new or altered sources the maximum air pollution control capability that is technically practicable and economically feasible, except that the BACT shall be utilized. The current permit action is an administrative amendment and does not require BACT review.

IV. Emission Inventory

The following tables list the estimated PM-10 and gaseous emissions as shown in the last application based on the maximum production rate. The majority of these emissions are fugitive. The emission control measures listed were previously determined to represent BACT for this project as part of the initial permit reviews and are consistent with similar mining operations.

PM-10 Emissions Summary

Activity	PM-10 Emission Factor	Control Method	Control Efficiency	Max 24-Hour Emission Rate (lb/day)	Annual Average Emission Rate (tpy)
Topsoil Removal - Scraper	3.965 lb/VMT	None	--	97.3	14.8
Drilling Overburden	1.125 lbs/hole	enclosure	0	25.2	3.8
Blasting Overburden	37.5 lbs/blast	sequential detonation	0	14.1	2.1
Overburden Removal with dragline	0.012 lb/yd ³	minimize fall distance	0	691.6	105.2
Overburden Removal with Bulldozer	0.7528 lb/hr	none	--	18.1	1.1
Drilling Coal	0.165 lbs/hole	enclosure	0	16.1	2.4
Blasting Coal	26.25 lbs/blast	sequential detonation		22.8	3.5
Coal Removal w/Truck/Shovel	0.000295 lbs/ton 0.00101 lbs/ton (24-hr)	minimize fall distance		19.9	0.9
Truck Dump	0.000295 lbs/ton (ann) 0.00101 lbs/ton (24-hr)	minimize fall distance	0	19.9	0.9
Open Coal Storage	see text	none	--	121.5	0.4
Primary Crusher	0.009 lbs/ton	water sprays	90	17.7	2.7
Secondary Crusher	0.02 lbs/ton	water sprays	90	39.3	6.0
Conveyors	0.012 lbs/ton	enclosure	99	2.4	0.4
Train Loadout	0.0002 lbs/ton	none	--	3.9	0.6
Wind Erosion of Disturbed Areas	see text	prompt vegetation	0	121.5	0.4
Haul Roads	1.1659 lb/VMT	water/suppressant	80800	405.6	61.7
Access Roads	1.019lb/VMT	water/suppressant		134.0	20.4
Haul Road Repair - Grader	16 lbs/hour	watering		226.2	34.4
Total PM-10 Emissions - Point Sources (TPY) 9.6					
Total PM-10 Emissions - All Sources (TPY) 261.6					

Summary of Gaseous Pollutant Emissions

Pollutant	Activity	Annual Activity Rate	Units	Emission Factor	Units	Annual Average Emission Rate (tpy)
NOx	Blasting Overburden	4,169	tons ANFO	17	lbs/ton	35.4
NOx	Blasting Coal	1,006	tons ANFO	17	lbs/ton	8.6
NOx	Heavy-Duty Tailpipe	2,347,200	gallons diesel	286.10	lb/10 ³ gal	335.8
NOx	Light-Duty Vehicle Tailpipe	63,250	gallons gasoline	95.8	lb/10 ³ gal	3.0
TOTAL NOx EMISSIONS (TPY) 382.8						
CO	Blasting Overburden	4,169	tons ANFO	67	lbs/ton	139.7
CO	Blasting Coal	1,006	tons ANFO	67	lbs/ton	33.7
CO	Heavy-Duty Tailpipe	2,347,200	gallons diesel	123.46	lb/10 ³ gal	144.9
CO	Light-Duty Vehicle Tailpipe	63,250	gallons gasoline	3960	lb/10 ³ gal	125.2
TOTAL CO EMISSIONS (TPY) 443.5						
SO ₂	Blasting Overburden	4,169	tons ANFO	2	lbs/ton	4.2
SO ₂	Blasting Coal	1,006	tons ANFO	2	lbs/ton	1.0
SO ₂	Heavy-Duty Tailpipe	2,347,200	gallons diesel	31.10	lb/10 ³ gal	36.5
SO ₂	Light-Duty Vehicle Tailpipe	63,250	gallons gasoline	5.28	lb/10 ³ gal	0.2

Pollutant	Activity	Annual Activity Rate	Units	Emission Factor	Units	Annual Average Emission Rate (tpy)
TOTAL SO ₂ EMISSIONS (TPY) 41.8						
VOC	Heavy-Duty Tailpipe	2,347,200	gallons diesel	13.16	lb/10 ³ gal	15.4
VOC	Light-Duty Vehicle Tailpipe	63,250	gallons gasoline	130	lb/10 ³ gal	4.1
TOTAL VOC EMISSIONS (TPY) 19.6						

V. Existing Air Quality

Big Sky Coal has monitored particulate levels around the mine for many years. This data is on file with the Department. Current particulate levels are well below state and federal standards.

VI. Ambient Air Impact Analysis

As part of the last permit action, Big Sky Coal analyzed the project impacts using the Industrial Source Complex Short Term Model version 3 (ISCST3), an EPA regulatory model. This model uses a gaussian steady-state plume equation, which is modified according to the emission source. Pollutant concentrations are calculated from point, volume, and area sources in simple, intermediate, and complex terrain. Under simple terrain conditions, pollutant concentrations are estimated by the ISCST3 algorithm. The complex terrain algorithm is based on COMPLEX 1 which only applies to point and volume source emissions. Concentrations estimated at intermediate terrain are modeled by both simple and complex terrain algorithms and the higher estimations are selected. ISCST3 has a unique algorithm for below-grade open pits such as coal mines, which accounts for partial retention of particles. Escape fractions are calculated for each particle size category provided.

The estimated worse-case annual PM-10 emissions (year 2001) were primarily modeled as volume sources with one open pit source. The model input emission rates are provided in the application.

The open pit emissions included the topsoil removal, drilling and blasting overburden, overburden removal, drilling and blasting coal, coal removal, and wind erosion of the disturbed areas. The pit area was modeled as 658 meters by 1071 meters and 6.1 meters in depth. The total annual emissions were modeled as 134.2 tpy and 7.6E-06 g/s/m².

On-site surface meteorological data was collected for one year, 1994. The data was combined with the mixing height data obtained from Glasgow, Montana, for the same time period.

To identify the locations of high PM-10 concentrations by the model, receptors were placed on the permit boundary of the Big Sky Coal Mine at 100 meter intervals. Additional receptors were placed at 500 meter intervals in a grid system extending 5 kilometers in each direction beyond the boundary.

Due to the limited meteorological data, the predicted maximum annual and second highest 24-hour PM-10 concentrations were the design concentrations. The maximum predicted annual PM-10 concentration was 32.08 µg/m³. The second highest 24-hour concentration was 133.51 µg/m³. For background PM-10 values, monitoring data from a station located upwind from the mine were evaluated. During 1994, the annual average and second highest 24-hour PM-10 concentrations were 9.85 and 12.9 µg/m³, respectively. Adding these measurements to the predicted concentrations, the total estimated increase in PM-10 concentrations due to the Big Sky Coal Mine expansion is a maximum annual concentration of 41.93 µg/m³ and a maximum 24-

hour concentration of 146.41 $\mu\text{g}/\text{m}^3$. These concentrations are below the federal and Montana PM-10 annual and 24-hour standards.

Pollutant	Averaging Period	Modeled Conc. ($\mu\text{g}/\text{m}^3$)	Background Conc. ($\mu\text{g}/\text{m}^3$)	Total Conc. ($\mu\text{g}/\text{m}^3$)	Standards ($\mu\text{g}/\text{m}^3$)
PM-10	24-Hour	133.51	12.90	146.41	150.00
	Annual	32.08	9.85	41.93	50.00

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

An environmental assessment was not required for the current permit action because it is an administrative action.

Analysis Prepared by: Pat Driscoll

Date: August 27, 2003