AIR QUALITY PERMIT

Issued to: Western Energy Company
404 N. 31st
Billings, MT 59101

Permit # 1483
Date Recd: 3/28/80
Date Filed: 9/25/80
Date Issued: 10/22/80

SECTION I: Permitted Facilities

An air quality permit is hereby granted to the above named permittee, hereinafter referred to as recipient, pursuant to Section 72-2-204 and 211, MCA, as amended, and Sub-Chapter 11, PERMIT, CONSTRUCTION AND OPERATION OF AIR CONTAMINANT SOURCES, ARM 16.8.1101 through 16.8.1118 as amended, for the following:

A. One surface coal mine and extraction facilities comprised of areas A, B & E which shall produce an estimated 13,000,000 tons of coal annually. Total estimated coal production for the life of the various mine areas of A, B & E is 42,000,000, 67,000,000, and 11,500,000 tons respectively. Maximum annual disturbance has been estimated to be 457 acres for areas A, B, & E.

B. Coal handling facilities as identified below and located at areas A and E.

1. Truck dump with hopper areas A & E.

2. Primary crushers (2) Area A 1250 tons/hr each and one 1250 ton/hr at Area E.

3. The secondary crusher at Area E handles approximately 30% of the primary crushed coal which is either used by Colstrip Units 1 and 2 or shipped to the Corette plant at Billings, Montana. Area A secondary crusher(s) capacity should be approximately the same as that specified for area E, however, the coal from these areas is shipped to out of state customers.

4. Partially enclosed coal conveyor system (areas A, B & E).

5. Coal tipple at Area A.

6. One open coal storage pile of crushed coal at area A encompassing approximately 3.5 acres and containing an estimated maximum 96,000 tons.

7. Train loadout facilities with retractable chute located at areas A & E respectively. Area A capacity is 4000 tons/hr and area E is 1250 tons/hr.

C. Necessary Auxiliaries

Draglines, trucks, shovels, front-end loader, graders, scrapers, mobile units, auxiliary and storage facilities, etc., as applicable.

SECTION II: Limitations and conditions

A. Recipient shall install a coal dust suppression system or equivalent, at the truck dump, the acceptability and implementation of which shall be worked out with Air Quality Bureau (AQB) by February 1, 1981.

B. The recipient shall apply chemical stabilizer to all permanent haul roads. A report on the success of this program shall be made to the AQB on May 1, 1981. In addition, water sprinkling shall supplement stabilization when necessary.

C. Recipient shall not cause visible emissions of greater than twenty (20) percent opacity to be discharged into the atmopshere from any coal handling, conveying, crushing, processing, storing or loading system averaged over six consecutive minutes a specified by Rule 16.8.1404, Subchapter 14.

D. Recipient shall comply with all other applicable state, federal or local regulations.

E. A contingency plan for controlling coal dust emissions emanating from the area A stacking facility shall be presented to the AQB by April 1, 1982, with a date for full implementation should the interim control strategy of hooding the stacker prove ineffective in controlling said coal dust.

F. Uncrushed coal piles in all areas (A-B, & E) shall be contoured or shaped as necessary in order to minimize wind erosion.

G. Exposed areas shall be re-vegetated as soon as practical or as required by the Department of State Lands Reclamation Division.

H. Coal conveyor belts at all transfer points (Area E & A) shall be enclosed except as necessary to allow maintenance. Said construction shall commence as soon as possible.

I. Recipient shall maintain and operate its mine according to the "Minewide Dust Control Management Plan" except as required otherwise by the above conditions.

J. Train loadout shall continue as presently employed unless Department inspections indicate a problem.

K. The county road shall be treated with dehydrated oil or equivalent for a distance of approximately four mile west of Highway 39.

L. Should coal production from areas A, B & E exceed 13,000,000 tons annually bymore than five (5) percent Western Energy shall apply for a permit modification provided acceptable modeling also indicates a corresponding increase. In no event shall this condition supersede ARM 16.8.1113.

M. Recipient shall monitor the effectiveness of the control techniques employed utilizing both the high volume sampler and dust fall jar. The Department will analyze the new data so generated to determine effectiveness of the new permit requirements.

N. Except as otherwise specified, all proposals, information and statements in the application and subsequent permit information requested by the AQB are by reference made conditions of this permit.

SECTION III: Monitoring and Reporting

A. Recipient shall provide quarterly reports to the Department within forty-five days of the quarter's end. The first report shall be due in the AQB office no later than May 15, 1981. The report shall include all necessary information to determine compliance or progress with the stated conditions of Section II, including, but not limited to, amount of coal mined, maximum amount of disturbed area, and such other information that may be necessary to determine mine impacts on ambient air.

B. The present sampling sites are acceptable. Any future site selection or present site change shall be made only after consultation with and approval by the AQB.

1. Sampling shall be performed on the same frequency as is presently employed, pending a more complete assessment of the mine impacts. That frequency is now once every six days, and follows the AQB six day schedule.

2. Follow EPA quality assurance practices in Appendices A, B, and E (44 FR 27558-604).

3. Reporting

   a. Supply the Air Quality Bureau with all TSP daily values and hourly meteorological parameters such as surface wind speed and direction (ten meter tower), temperature and evaporation. The data shall be submitted on magnetic tape or cards in SAROAD (EPA) format. Also, a quarterly wind rose will be necessary. Said data shall be forwarded to the Air Quality Bureau within 45 days past each calendar quarter. The TSP data must include precision and accuracy information as specified in the May 10, 1979 Federal Register and subsequent changes thereof. TSP color coded information can be submitted with the annual report. Since Western Energy now submits data on a monthly basis to the Department of State Lands (DSL) an agreement on the new quarterly reporting frequency will be worked out to avoid conflicts between the two Departments.

   b. With the first quarterly report required by item a above, the recipient shall supply the Air Quality Bureau with a set of four color 35 mm prints or equivalent, looking at each sampler from the north, south, east, and west directions with brief documentation on each. This item shall be discussed with the AQB before implementation.

c. In light of the new enforceable Montana Ambient Air quality Standards, Western Energy will be required to submit data reflecting the annual arithmetic TSP mean in addition to the geometric mean. The submission of the arithmetic mean data shall continue until resolution of pending lawsuits on this matter.

d. Quarterly report should ideally summarize the data, develop meteorological correlations, show trends, list violations (if any), discuss control measures for meeting all ambient air standards (if necessary). These reports should be submitted to the Air Quality Bureau within 45 days following quarter end.

4. Auditing

The Air Quality Bureau or its consultant will audit the particulate and meteorological monitors at unspecified times throughout the sampling year. A report will be forwarded to the Company within thirty days of the field or performance audits.

SECTION IV: Duration

This permit shall be valid from date of issuance until completion of mining as specified in the application.

SECTION V: General

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, 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

Specific listing of requirements, limitations, and conditions contained herein does not relieve the applicant from compliance with all applicable statutes and administrative regulations including amendments thereto, nor waive the right of the Department to require compliance with all applicable statutes and administrative regulations, incuding amendments thereto.

D. Enforcement

Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 74-2-401 MCA.

E. Appeals

Any person or persons who are jointly or severally adversely affected by the Department's decision may request, within fifteen (15) days after the Department renders its decision, upon affidavit, setting forth the grounds therefore, a hearing before the 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 fifteen (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.

Permit Application Analysis
Western Energy Co, (WECO)
Application #1483

I. Introduction: The Western Energy Company (WECO) has applied for an Air Permit for their coal mining activities in area A, B and E at Colstrip, Montana. The coal from areas A & B will be processed by facilities in area A and the coal from area E will be processed by the facilities in area E.

The date of the original application was March 28, 1980; however, certain deficiencies were observed. Generally, the following items of concern were not addressed or the explanations were incomplete:

1. Actual area of disturbance;
2. Ambient data;
3. Particle size analysis;
4. Water injection (drilling);
5. Clean-up time table;
6. Control strategies;
7. Best Management Practices;
8. Emission factor use;
9. Emission calculations, climatic factors, etc.

Permit deficiences were initially addressed in a letter to WECO on April 25, 1980.

On June 25, 1980, WECO responded to the letter of deficiency. However, the Bureau was not completely satisfied with the responses and telephoned the company to talk over problems and proposals created by the responses plus other concerns.

On August 18, 1980, WECO met with the department representatives and at that time submitted proposals concerning dust suppression techniques, mine management plans, and a proposal for hooding the coal tipple at the point of discharge on the crushed coal pile at area A. Further information was relayed on September 10, 1980. Again, the Bureau was not completely satisfied and on September 25, 1980, the Air Quality Bureau sent a letter to WECO concerning proposed emission factors to be used for modeling purposes. WECO rejected the emission factors proposed by the Bureau in a letter dated October 1, 1980 and states their reasons for doing so. In an attempt to quantify impacts by modeling means the Department (Bureau) opted to do their own modeling which delayed the issuing of the permit. It is important to note that the Bureau did not notify the applicant in writing as to the status of the permit application. Normally, a letter is sent to the applicant advising him of the completeness of his application and a date when the permit was deemed complete.

II. Project Description: The Western Energy Company plans to produce from the areas of A, B & E an estimated maximum 13,000,000 tons of coal annually. The total anticipated coal production for the life of the various mine areas A, B & E is an estimated 42,000,000, 67,000,000 and 11,500,000 tons respectively. The estimated annual exposed area for areas A, B & E is 457 acres.

III. APPLICABLE REGULATIONS

The Western Energy Coal Company is required under Subchapter 11, Permits, Construction and Operation of Air Contaminant Sources, ARM 16.8.1101 thru 16.8.1118 to obtain an air quality permit since their potential particulate emissions are greater than 25 tons per year.

Emissions point sources within the mine are also subject to various state emission rules, Subchapter 14, including ARM 16.8.1403 Particulate Matter, Industrial Process, ARM 16.8.1401, Particulate Matter Airborne, and ARM 16.8.1404, Visible Air Contaminants, Restrictions.

IV. DEPARTMENT REVIEW OF THE APPLICATION

A. General

Review of coal mines cannot be performed adequately utilizing conventional technic therefore the Department has adopted a basic philosophy which is reflected by a staten in the State Implementation Plan (SIP).

> "Attempts by several groups, including EPA to develop computer models to relate mine emissions to ambient air quality have been rather unsuccessful. As previously mentioned, difficulties determining emission rates and behavior, in the air of the emitted particulates are prime among the causes. Thus, there is no adequate technique available to demonstrate that the standards will be attained"...."Progress towards the standard will be documented by ambient sampling and implementation of control programs."

The Department continues this philosophy, but recognizes that some evaluation must made. Therefore, estimation and prediction as well as monitoring plus requiring the in technology control remain prime tools of the agency.

B. Procedures

The affected coal mining area is Class II and has attainment status for the follow pollutants: carbon monoxide, hydrocarbons, ozone and sulfur dioxide. However, the Colstrip area has been designated as non-attainment for particulates.

The Department also has a non-degradation policy which would require Western Energy Company to install the best technology and techniques to control any predicted emissions.

C. Discussion

1. Data Handling - Before a permit analysis is performed, the following data must be supplied by the source in question.

   1. 24-hour average TSP data.
   2. Running geometric mean for the previous 12 months.
   3. Running arithmetic mean for the previous 12 months.
   4. Emission factors.
   5. Emission rates based on estimated production levels.
   6. Estimated production rates.

These data are then tabulated in an attempt to establish trends.

The ambient particulate data from July 1978 to August 1980 were tabulated with highest 24-hour reading, a running geometric mean to reflect any federal primary annual violations and a running arithmetic mean to reflect any state primary annual violations.

Permit analysis also includes an evaluation of control methods or techniques presently being employed.

Increasing the amount of coal mined will produce a corresponding increase in particulate emissions, at least according to the school of thought now employed by regulatory agencies. Therefore, any coal production increase theoretically raises the level of pollutants in an area. Since the emission factors in this case are tied to the coal production, any increase in particulate emissions would require a permit modification.

2. Emission Rates - Table 1 summarizes the estimated emission uncontrolled for the mobile sources at the mine site.

Table 1 has been prepared totally by the Air Quality Bureau (AQB) and deals with pollutants related to mobile sources. The emission rates were taken from the AP 42 publications.

Table 1

	Mobile source Emission Est. (Ton/year)					
	CO	SO_2	HC	NOx	Ald	Particulates
Heavy Equipment	133.8	46.8	45	786	11.6	26.6
Light Duty Equip.	*	—	—	—	—	—

*The light duty equipment was deemed non-significant by WECO and therefore the information necessary for the Department to make an estimate was not supplied.

D. Air Quality Review

WECO operates six high volume particulate samplers in and around their mine site. They have added five additional samplers in 1980 and the additional data were not used in the analysis. The tabulation of the data is in 3, 3a and 3b.

As mentioned previously, the Colstrip area has been designated as nonattainment for primary particulates based upon data obtained from non-government monitors and other sources in the Colstrip area. A nonattainment area is defined as an area that does not presently meet federal, state, or local air quality standards. Federal and state ambient air quality standards are shown for comparison in Table 2.

Presently the operations at Colstrip are being conducted under the state's offset policy. In general, this offset policy requires WECO to reduce the total suspended particulates (TSP) of the area before any new source of TSP can be permitted.

The two 350-megawatt power plants and other coal mines operating at Colstrip are the primary producers of airborne particulates and other emissions. Other sources of suspended particulates include: agricultural plowing, burning, and harvesting; industrial processing, vehicular traffic on unimproved roads, landfills, and possibly open-burning dumps.

An analysis of the data in tables 3, 3a, 3b indicates that emissions have increased in 1980 over 1979 levels.

Table 2

Ambient Air Standards

Federal	Primary 24 hour	260 ug/m^3
	Secondary 24-hour	150 ug/m^3
	Primary Annual Geometric Mean	75 ug/m^3
	Secondary Annual Geometric Mean	60 ug/m^3
Montana	Primary 24-hour	200 ug/m^3
	Primary annual arithmetic mean	75 ug/m^3

TABLE 3

TSP
Highest 24-hour ug/m^3

Site	1	2	3	4	5	6
July 1979	122	162	239	534	162	212
August	113	94	395	857	134	276
September	204	141	567	1143	300	138
October	193	108	280	1825	105	188
November	706	466	916	4430	147	310
December	186	477	491	2050	117	78
January 1980	407	1146	1135	6585	115	532
February	46	155	591	1330	31	376
March	74	66	77	284	56	57
April	118	667	529	2657	135	255
May	159	114	279	386	113	255
June	81	129	237	497	142	259
July	70	100	283	700	75	259
August	100	119	171	760	72	160

TABLE 3a

TSP Data Summary for MECO
Annual Arithmetic mean (ug/m^3)

Site	1	2	3	4	5	6
July 1979	76.1	64.8	168.2	286.1	37.99	80.9
August	68.6	59.9	166.6	352.4	37.8	83.1
September	72.3	60.5	188.2	393.3	46.1	84.3
October	76.8	60.1	196.2	450.5	50.2	86.0
November	91.0	63.6	209.95	551.6	49.6	90.7
December	81.4	73.5	220.8	613.3	52.6	90.6
January 1980	85.98	110.3	267.9	782.9	55.2	114.4
February	85.38	111.7	271.5	784.1	55.5	115.7
March	83.7	111.1	253.1	786.5	55.8	113.7
April	85.5	124.5	260.4	819.6	58.2	120.2
May	90.1	128.5	260.7	808.7	60.6	125.2
June	88.3	130.2	264.2	809.3	61.1	129.4
July	88.7	129.2	261.9	815.3	59.9	133.2
August	82.6	132.1	253.3	789.95	58.3	130.8

TABLE 3b
TSP Data Summary for WECo
Annual Geometric Mean (ug/m^3)

Site	1	2	3	4	5	6
July 1979	52.3	47.31	122.2	156.6	23.6	61.5
August	48.5	44.67	120.4	179.2	23.7	60.0
September	50.87	48.81	133.1	226.7	26.69	62.1
October	54.0	45.08	141.3	270.7	29.31	63.5
November	54.07	44.90	148.96	293.6	29.21	66.08
December	58.43	50.62	163.1	356.73	33.61	67.69
January 1980	43.71	58.07	167.4	407.37	35.81	76.09
February	53.91	59.10	167.1	417.5	36.58	76.62
March	51.24	57.30	148.7	432.2	37.04	71.22
April	53.26	61.19	149.7	440.3	38.64	74.56
May	56.79	65.23	152.3	415.1	40.21	77.76
June	57.55	67.97	155.4	412.1	41.26	79.11
July	55.91	67.02	152.7	418.9	40.74	82.96
August	56.38	70.01	146.7	390.6	39.24	84.77

V. Control Technology Review

The following summarizes the Air Quality Bureau's evaluation of control technology practiced and proposed by the Western Energy facility.

1. Coal Conveyors - The coal conveyors are above ground, and enclosed partially. WECO estimates the control efficiency of 90 percent. The AQB feels that 75 percent is more in order as a conservative estimate. The conveyors qualify as Reasonable Available Control Technology (RACT).

2. Truck Dump -The coal dumps through a grizzly that is partially enclosed. Since there are no additional air pollution controls to evaluate, no technology is qualified.

3. Primary and Secondary Crushers - The primary coal crusher is only partially enclosed and has no control efficiency established by WECO. The secondary coal crushing is totally enclosed and is considered BACT.

4. Coal Open Storage - The crushed coal at WECO is stored on an open pile at area A-B and E. The company has minimized stacker fall distance and activity on the pile. There is no control efficiency established for this practice nor any technology to qualify.

5. Train Loadout - An underground reclaimer and a retractable chute on train loadout. This control practice is RACT.

6. Coal Removal - The control on the coal removal is basically obtained by minimizing fall distance into haul trucks. This is considered a "best management practice" since no additional control measures are utilized.

7. Coal open Storage (uncrushed)- At WECO there are two uncrushed surge piles, one in Area A-B and one in Area E that are used to store coal. The activity on piles is minimized and is considered RACT.

8. Overburden Removal Dragline - WECO uses "Best Management Practice" by minimizing the fall distance of overburden (where applicable). This practice is considered BACT according to the EPA interim policy paper (Ref. 1, p. 16).

9. Overburden removal Scrapers - WECO uses water on haul roads and active stripping areas. The control efficiency on this procedure is 50 percent and is considered RACT.

10. Top Soil and Overburden Piles - Top soil is removed to storage areas and the overburden is then handled in such as way as to allow WECO maximum reserve recovery and also refill the pit as they go. No technology to qualify.

11. Coal and Overburden Haul Roads - The practice of watering temporary haul roads that WECO is utilizing is considered RACT. The permanent haul roads are chemically treated with calcium chloride and this practice is considered BACT.

12. Coal and OverBurden Blasting - The blasting is performed in such a manner as to prevent overshooting in addition to minimizing the area to be blasted and is considered RACT, although it may also be BACT.

13. Haul Road Maintenance - Debris from haul roads, such as coal, rock, soil and other dust forming debris are removed on a timely basis (quarterly road maintenance plan). Similar removal of debris will be done more frequently th each quarter as the need may dictate. The Department feels that this practice reflects "best management techniques."

TABLE 4

Allowable Emissions
Area A-B

Source	AQB Maximum Estimated #/hour	WECO Maximum Estimated #/hour	Maximum Allowable #/hr
Truck Dump	29.6 (1)	2.28 (1)	
Primary crusher	21.9 (1)	10.96 (1)	90.1(a)
Secondary crusher	1.97(2)	0.13 (6)	
Conveyors	54.8 (4)	21.9 (2)	
Stacker	219.2 (1)	0.55 (3)	
Train Loadout	0.23(5)	0.23 (5)	
Total	327.7	36.05	90.1

Area E

Truck Dump	8.45(1)	1.59 (1)	
Primary crusher	6.30(1)	3.15 (1)	80.6(b)
Secondary crusher	0.57(2)	0.038(6)	
Conveyors	15.7 (4)	6.30 (2)	
Stacker	0.32(1)	0.16 (3)	
Train Loadout	0.02(5)	0.023(5)	
Total	31.36	11.26	80.5(a)

(1) 0% control
(2) 90% control
(3) 50% control
(4) 75% control
(5) 95% control
(6) 99% control

Maximum operation conditions = P
1250 ton/hr Area E
2500 ton/hr area A-B
Allowable emission-$E=55xP^{0.11-40}$

Area A-B:
$E = 55x(2500)^{0.1}$
$E = 90.1$ #/hr
Area E: $E = 55x(1250)^{0.1}$
$E = 80.6$ #/hr

(a) Allowable emission of the entire process were based on the throughput of the primary crusher at A-B.

(b) Allowable emissions of the entire process were based on the throughput of the primary crusher at Area E.

Based on the Department's proposed conditions in Section II: Limitations and Conditions, it is believed that compliance at the various coal facilities will be achieved once those conditions are met. However, the Department recognizes that due to the conflicting nature of the differing emission factors utilized by both the applicant and DHES, actual compliance status may be unknown at the present time.

Table 5
Emission Factors

	WECO	AOB	Reference
Scraper Operations	0.38#/yd^3	0.38#/yd^3	(1)
Drilling Overburden	1.5#/hole	1.5#/hole	(1)
Blasting Overburden	14.2#/blast	85.3#/blast	(1)
Overburden Removal			
(dragline)	0.003#/yd^3	0.053#/yd^3	(1)
(scrapers)	0.38#/yd^3	0.38#/yd^3	(1)
Exposed Areas	3.02 ton/acre yr	* 0.59 ton/acre yr	(1)
Haul Roads			
(chem. stabilizer)	0.99#/vmt	0.66#/vmt	(2)
(H_2O)	3.30#/vmt	2.19#/vmt	(2)
(uncontrolled)	6.60#/vmt	4.38#/vmt	(2)(5)(6)
Access Roads			
(chemical stab)	0.99#/vmt	0.657#/vmt	(2)
Drilling Coal	0.22#/blast	0.22#/blast	(1)
Blasting Coal	25.1#/blast	78.1#/blast	(1)
Coal removal	0.002#/ton	0.014#/ton	(1)
Coal dumping	0.005#/ton	0.027#/ton	(1)
Coal storage	1.6 u#/acre hr	1.6 u#/acre hr	(1)
Primary crushers	0.01#/ton	0.02#/ton	(1)
Secondary crushers	0.04#/ton	0.06#/ton	(1)
Coal conveyor	0.02#/ton	0.02#/ton	(1)
Coal stacking**(area A-3)	0.001#/ton	0.2 #/ton	(1)
Coal stacking (area 3		0.001#/ton	(3)
Coal storage (active)	1.6 u#/acre hr	1.6 u/3 acre hr	(1)
Train loadout	0.0002#/ton	0.002#/ton	(4)

(1) EPA Interim Policy Paper, Feb. 2, 1980
(2) Wyoming Emission Factors for Fugitive Dust Emissions, Jan. 24, 1979
(3) "Fugitive Emissions from Coal-Fired Power Plants," Bechtel Natl. Inc. Page 8
(4) EPA 908/1-78-003 "Survy of Fugitive Dust from Coal Mines" by PEDCo, Feb. 1978
(5) Compilation of Air Pollution Emission Factors AP-42
(6) Development of Emission Factors for Fugitive Dust Sources, EPA-450/3-74-037, June, 1974.

*Universal soil loss equation assume clay loam soil type.
**Emission factor that WECo uses is based on a stacker such that might be used at a power plant and the stacker at A-3 is just a conveyor dump off and will be treated as an uncontrolled transfer point.

TABLE 6

Emission Inventory
Emission T/yr*

OPERATION	Potential (UNCONTROLLED) Area A t/yr	Area B t/yr	Area E t/yr	TOTAL t/yr	% Control EEF	(CONTROLLED) Area A t/yr	Area B t/yr	Area E t/yr	TOTA t/yr
Scraper	(174)	(205)	(81)	(460)	0	174	205	81	460
Drilling Overburden	(3.17)	(4.36)	(2.67)	(10.12)	0	3.17	4.36	2.67	10.
Blasting Overburden	(0.83)	(1.14)	(0.70)	(2.6)	0	0.83	1.14	0.70	2.6
Overburden Removal									
(Dragline)	(24)	(24)	(24)	(72)	0	24	24	24	72
(scrapers)	(236)	(495)	(361)	(1092)	50	118	247.5	180.5	547
Exposed Areas	(446.7)	(625.4)	(307.1)	(1379.2)	85	67.0	93.8	46.1	206
Haul Roads									
(Chemical)	(800)	(733)	(302.7)	(1836.7)	85	120	110	45.5	275
(H_2O)	(136.8)	(134)	(49)	(320)	50	68.4	67	24.5	160
Access Road				(558)	85				83.
Drilling coal	(1.1)	(1.5)	(0.7)	(3.3)	0	1.1	1.5	0.7	3.3
Blasting coal	(5.4)	(7.2)	(3.4)	(16.0)	0	5.4	7.2	3.4	16.0
Coal removal dragline	(4)	(5.6)	(2.8)	(12.4)	0	4	5.6	2.8	12.
Coal dumping	(10)	(14)	(7.0)	(31)	0	10	14	7.0	31
Coal storage pile	(59)		(59)	(118)	0	59		59	118
Coal crusher primary	(48)		(13.8)	(61.8)	0	48		13.8	61.
Coal crusher secondary	(58)		(16.5)	(74)	99	0.58		0.165	0.7
Coal conveyors	(960)		(276)	(1234)	90	96		27.6	123.
Coal stacking	(4.8)		(1.38)	(6.2)	50	2.4		0.69	3.1
Coal storage (active)	(59.1)		—	(59.1)	0	59.1		—	59.
Train Load	(20)		2.0	(22.0)	95	1		0.1	1.1
				(7368.5 t/yr)					2243.8

*Western Energy's Tabulation

TABLE 7

Emission Inventory
Emissions T/Yr**

OPERATION	(UNCONTROLLED) Area A t/yr	Area B t/yr	Area E t/yr	TOTAL t/yr	%Control Eff.	CONTROLLED Area A t/yr	Area B t/yr	Area E t/yr	TOTA t/yr
Scraper	(174)	(205)	(81)	(460)	0	174	205	81	460
Drilling Overburden	(3.2)	(4.4)	(2.7)	(10.2)	0	3.2	4.4	2.7	10.2
Blasting Overburden	(4.9)	(6.9)	(4.2)	(16)	0	4.9	6.9	4.2	16
Overburden Removal									
(dragline)	(424)	(424)	(424)	(1272)	0	424	424	424	1272
(scrapers)	(236)	(495)	(361)	(1092)	50	118	248	181	548
Exposed areas	(87.3)	(122)	(60)	(269.3)	85	13	18	9	40
Haul Roads									
(chemical)	(531)	(488)	(201)	(1220)	85	80	74	30	184
(H_2O)	(90)	(88)	(34)	(212)	50	45	44	17	106
Access Road (chemical)	—	—	—	—(370)	85	—	—	—	56
Drilling coal	(1.1)	(1.5)	(0.7)	(3.3)	0	1.1	1.5	0.7	
Blasting coal	(16.8)	(22.3)	(10.5)	(49.6)	0	16.8	22.3	10.5	
Coal removal	(28)	(39.2)	(12.3)	(79.5)	0	28	39.2	12.3	79.5
Coal dumping	(54)	(75.6)	(37)	(166.7)	0	54	75.6	37	166.7
Coal Storage		(59)	(59)	(118)	0		59	59	118
Coal crusher primary		(96)	(27.6)	(123.6)	0		96	27.6	123.6
Coal crusher secondary		(86.4)	(24.8)	(111.2)	90		8.64	2.48	11.1
Coal conveyers		(960)	(275)	(1234)	75		240	68.8	308.8
Coal stacking(b)		(960)	(1.37)	(1235)	0	960	4.8	1.38	6.1
Coal storage (active)		(59.1)		(59.1)	0		59.1		59.1
Train load		(20)	(2.0)	(22.0)	95		1	0.1	1.1
				(7850 t/yr)					4583 t

**Emissions derived from emission factors suggested by the Air Quality Bureau
(b) Emissions from area E stacker were calculated from Reff. (3) page 16.

Discussion of the Emission Factors for Table 5

1. Blasting Overburden - The AQB feels that the 14.2 #/blast that WECO used is not indicative enough to be deemed worst case emissions and therefore the AQB has substituted a factor of 85.3 #/blast as referenced in Table 5. The derivation of emission factors as mentioned previously is controversial at best.

2. Overburden Removal Dragline - An emission factor of 0.053 #/yd^3 has been used by the AQB.

3. Exposed areas - A universal soil loss equation assumes a soil type of dayloam and is referenced in table 5. The factor stated by WECo is not used because the AQB feels the estimate may be high.

4. Haul and Access Roads - The emission factors used by WECO are higher than the AQB factors which may be more reflective.

5. Blasting Coal - Again, in overburden blasting WECO used a lower emission factor whereas the AQB used a factor that reflects the "worst case" situation. The AQB feels that the emission factor of 78.1 #/blast should be used.

6. Coal Removal - The AQB has used an emission factor of 0.014 #/ton.

7. Coal Dumping - The AQB feels that 0.025 #/ton is a more realistic emission factor.

8. Primary Crusher - The AQB uses 0.02 #/ton as referenced in Table 2.

9. Secondary Crushers - The AQB believes that a control factor of 90% is more indicative.

10. Conveyors - The Air Quality Bureau disagrees with the control efficiency of 90% used by WECO due to the fact that the conveyor belts are only partially covered. If the conveyors were covered in such a manner that wind would not stir up particulate matter and allow worker's in for maintenance with the bottom open for safety reasons, AQB would look at 90%, but until this is accomplished 75% is estimated for control.

11. Scraper operation - Emission factors acceptable

12. Overburden Removal Scrapers - Emission factors acceptable

13. Drilling coal - Emission factors are acceptable

14. Coal storage - Emission factors are acceptable

15. Coal stacking - The Air Quality Bureau feels that the stacker at Area A-B does not meet the criteria of a stacker as set forth by WECO reference (3) page 16 of this analysis. Therefore, the 0.2 #/ton emisson factor has been used to estimate potential emissions from coal piling of crushed coal. This factor is from the EPA Interim Policy Paper for conveyor transfer points without controls. The stacker emission factor of 0.001 #/ton used by Western Energy in area E is acceptable. Hopefully in the near future more accurate emission factors for coal piled can be developed.

16. Train Loadout - Emission factors are acceptable.