BEFORE THE BOARD OF HEALTH AND ENVIRONMENTAL SCIENCES
OF THE STATE OF MONTANA

In the Matter of Compliance of McElroy and Wilkens, Inc., Kalispell, Montana, with 40 CFR 50.6, National Ambient Air Quality Standard for Particulate Matter and ARM 16.8.821, Montana Ambient Air Quality Standard for PM-10	STIPULATION

The Department of Health and Environmental Sciences ("Department"), and McElroy and Wilkens, Inc. ("Mc&W"), hereby stipulate and agree to all the following Paragraphs 1-18 inclusive, including the exhibits as referenced below, in regard to the above-captioned matter and present the same for consideration and adoption by the Board of Health and Environmental Sciences ("Board"):

A. BACKGROUND:

1. On July 1, 1987, the United States Environmental Protection Agency ("EPA") promulgated national ambient air quality standards for particulate matter (measured in the ambient air as PM-10, or particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers) ("particulate matter NAAQS"). The annual standard of 50 micrograms per cubic meter (annual arithmetic mean), and the 24-hour standard of 150 micrograms per cubic meter (24-hour average concentration), were promulgated by EPA pursuant to Section 109 of the Federal Clean Air Act, 42 U.S.C. 7401, et seq., as

amended by the Clean Air Act Amendments of 1990 ("Act").

2. Section 110 of the Act requires each state to submit an implementation plan for the control of each air pollutant for which a national ambient air quality standard has been promulgated. Since a standard has been promulgated for particulate matter, the State of Montana is required to submit an implementation plan for particulate matter to EPA.

3. Section 75-2-202, MCA, requires the Board to establish ambient air quality standards for the state. Sections 75-2-111(3) and 75-2-401, MCA, empower the Board to issue orders upon a hearing before the Board concerning compliance with national and state ambient air quality standards.

4. On April 29, 1988, the Board adopted state ambient air quality standards for PM-10, including an annual standard of 50 micrograms per cubic meter (annual arithmetic mean), and a 24-hour standard of 150 micrograms per cubic meter (24-hour average concentration). ARM 16.8.821 ("PM-10 MAAQS").

5. On August 7, 1987, the Kalispell area was designated as a Group I area by EPA. 52 Fed. Reg. 29383. Pursuant to the Federal Clean Air Act of all Group I areas, including Kalispell, are designated by operation of law to be in nonattainment for the particulate matter NAAQS. 42 U.S.C. 7407(d)(4)(B), as amended. Further, the Act designated the Kalispell area as a "moderate" PM-10 nonattainment area. 42 U.S.C. 7513(a), as amended. For areas designated as "moderate", the state was required to submit to EPA an implementa-

tion plan no later than one year from enactment of November 15, 1990 amendments to the Act. 42 U.S.C. 7513a(a)(2). The area encompassed in the moderate nonattainment designation (hereafter "Kalispell nonattainment area") generally includes the City of Kalispell and that portion of Flathead County within the vicinity of the boundaries of the City of Kalispell. A map of the Kalispell nonattainment area is attached to the Stipulation as Exhibit A and by this reference is incorporated herein in its entirety as part of this document.

6. Results of air quality sampling and monitoring from 1986 through 1991 have demonstrated violations within the Kalispell nonattainment area of the 24-hour standard contained in both the particulate matter NAAQS and the PM-10 NAAQS.

7. On November 25, 1991, Governor Stephens submitted to EPA an implementation plan for Kalispell, Montana, demonstrating attainment of the particulate matter NAAQS. The implementation plan relied upon the receptor modeling technique known as chemical mass balance (CMB) to identify the major emission sources contributing to noncompliance. The implementation plan consisted of an emission control plan that controlled fugitive dusts emissions from roads, parking lots, construction and demolition project, and barren ground.

8. On April 29, 1992, EPA notified Governor Stephens that the Kalispell implementation plan could be conditionally approved if certain deficiencies were corrected. A major

deficiency identified by EPA was that the emission limitations set for industrial sources (or in some cases for industrial sources where there was no emission limitation set at all) could result in significant emission increases above the emission levels occurring during the source apportionment modeling study (CMB). Furthermore, such potential emissions increases were not accounted for in the particulate matter NAAQS demonstration of attainment.

9. On June 15, 1992, Governor Stephens submitted a letter to EPA committing to additional analysis utilizing dispersion modeling technique on the Kalispell area industrial sources. If the dispersion modeling indicted that a source significantly impacted the nonattainment area, the Governor further committed to developing new emission limitations on the Kalispell area industrial sources which would demonstrate attainment of the particulate matter NAAQS.

10. The department has determined that emission limitations applicable to Mc&W were in some cases nonexistent (no permit requirements) or significantly higher than actual emissions during the CMB modeling study.

11. Dispersion modeling analysis has been conducted by the department for the Kalispell nonattainment area. The dispersion modeling incorporates the allowable emission rates from the sources of PM-10 emissions in the Kalispell nonattainment area to determine the extent of their respective contributions to the ambient levels of PM-10. Based upon the

results of this modeling, the PM-10 emissions from Mc&W were identified as a significant contributor to ambient levels of PM-10 in the Kalispell nonattainment area. Furthermore, both parties agree that based upon these modeling results, revised emission limitation for Mc&W are necessary to demonstrate compliance with the particulate matter NAAQS. The department has performed additional modeling using revised emission rates for Mc&W and other sources in the Kalispell area to determine the level of emissions which achieves the particulate matter NAAQS. Based upon these modeling results, both parties agree that revised emission limitation must be imposed upon Mc&W.

B. BINDING EFFECT

12. The parties to this Stipulation agree that any such emission limitations placed on Mc&W must be enforceable by both the department and EPA. To this end, the parties have negotiated specific limitations and conditions that are to be applicable to Mc&W. The specific conditions which comprise these limitations are contained in Exhibit B to this Stipulation (entitled "Emission Limitations and Conditions, McElroy and Wilkens, Inc.") which is attached hereto and by this reference is incorporated herein in its entirety as part of this document.

13. Both parties understand and agree that if EPA finds the Kalispell implementation plan incomplete or disapproves

it or if future violations of the particulate matter NAAQS or PM-10 standard MAAQS occur, this Stipulation may be renegotiated and made enforceable through an associated Board Order or simply superseded by a subsequent order of the Board upon notice of hearing.

14. The Board is the state agency that is primarily responsible for the development and implementation of the State Implementation Plan under the Federal Clean Air Act. Under Sections 75-2-101, et seq., the Board is required to protect public health and welfare by limiting the levels and concentrations of air pollutants within the state and such responsibility includes the adoption of emission standards (Section 75-2-203, MCA) and the issuance of orders (Sections 75-2-111(3), 75-2-401, MCA) to effectuate compliance with national and state ambient air quality standards.

15. The parties to this Stipulation agree that upon finding the limitations and conditions contained in Exhibit B to this Stipulation to be necessary for the Kalispell non-attainment area to meet the particulate matter NAAQS and the PM-10 MAAQS, the Board has jurisdiction to require the imposition of such limitations and conditions, and may adopt the same as enforceable measures applicable to McAW.

16. The conditions and limitations contained in Exhibit B to this Stipulation are consistent with the provisions of the Montana Clean Air Act, Title 75, Chapter 2, MCA, and rules promulgated pursuant to statute.

17. Any obligations in this Stipulation and attached Exhibit B that are more stringent than conditions set forth in the permit issued to the air source/party to this agreement (if issued), supersede the less stringent permit conditions.

18. Accordingly, the parties to this Stipulation agree that it would be consistent with the terms and intent of this Stipulation for the Board to issue an Order which requires the imposition of the terms in this Stipulation and the limitations and conditions contained in Exhibit B of this Stipulation, and adopts the same as enforceable measures applicable to McEW .

McELROY & WILKENS, INC.

BY _____

BY _____
Attorney

DATE 9/15/93

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

BY _____
Robert J. Robinson
Director

BY _____
Timothy R. Baker
Attorney

DATE 9/15/93

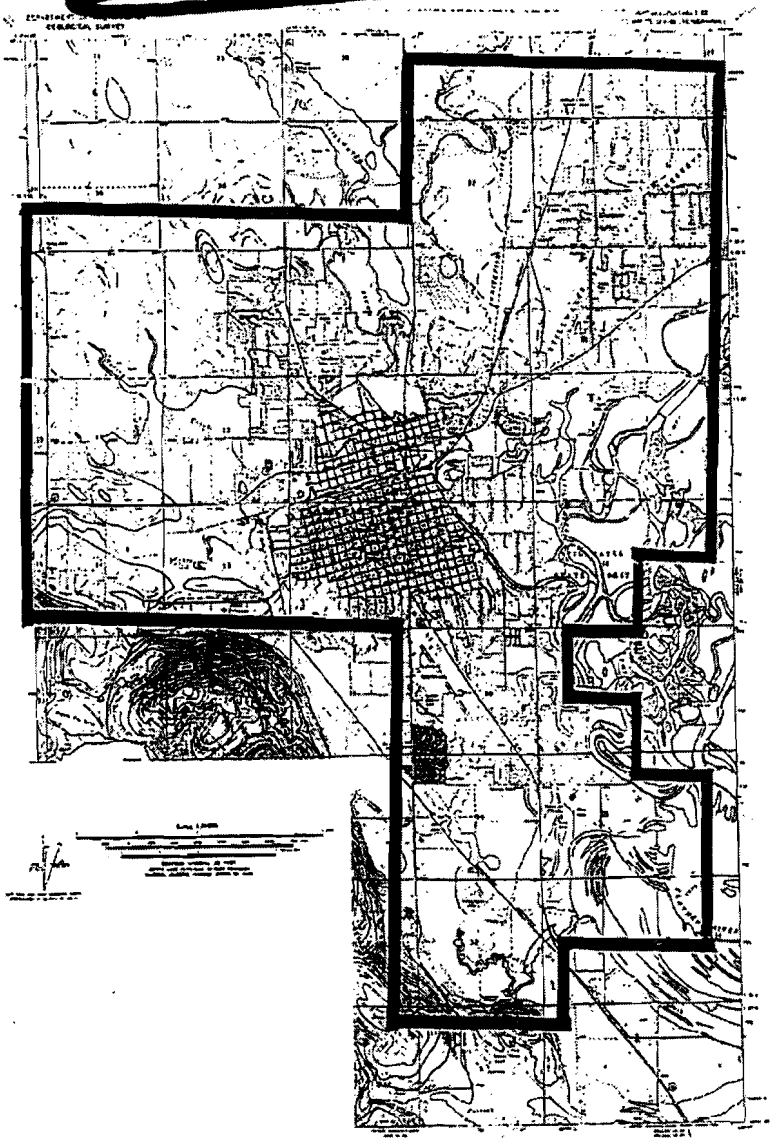

EXHIBIT B
EMISSION LIMITATIONS AND CONDITIONS

McElroy and Wilken, Inc.
P.O. Box 35
Kalispell, MT 59901

The above-named company is hereinafter referred to as "Mc & W."

SECTION I: Affected Facilities

A. Plant Location: Mc & W's concrete batch plant is located at NW¼, SW¼, Section 2, Township 28 North, Range 21 West, Flathead County, Montana. The mailing address of the facility is P.O. Box 35, Kalispell, MT 59901.

B. Affected Equipment

1. A 1976 Ross stationary concrete batch plant (125 cu.yds/hr). Particulate emissions are to be controlled by three (3) fabric filter vents, one on each of the three cement silos;

2. One stationary conveyor;

3. Four (4) sand/aggregate storage bins;

4. One gravel washing plant.

5. Local access road located north of facilities. This road extends from Whitefish Stage Road (west end) to the BN railroad tracks (east end). The length of the road is approximately one half (½) mile long.

SECTION II: Limitations and Conditions

A. Emission Control Requirements

1. Mc & W shall operate and maintain the fabric filter vents and all other emission control equipment and utilize all techniques specified in this stipulation to provide the maximum air pollution control for which they were designed.

2. Mc & W shall treat all unpaved portions of the haul roads and the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the 5% opacity[1] limitation. (RACT)

3. Mc & W shall not operate the gravel washing plant in a dry screening mode.

[1] Opacity shall be determined according to 40 CFR Part 60, Appendix A, Method 9 Visual Determination of Opacity of Emissions from Stationary Sources or CEMs.

B. Emission Limitations

Mc & W shall not cause or authorize to be discharged into the atmosphere:

1. Any vent emission which exhibits greater than 20% opacity[1] averaged over six (6) consecutive minutes. (RACT)

2. Any fugitive emission from any truck loading or unloading which exhibit greater than 10% opacity[1] averaged over six (6) consecutive minutes. (RACT)

3. Any fugitive emissions from any transferring operations which exhibit greater than 10% opacity[1] averaged over six (6) consecutive minutes. (RACT)

4. Any fugitive emissions from the haul roads, plant area, or local access road which exhibit greater than 5% opacity[1] averaged over six (6) consecutive minutes. (RACT)

C. Emissions Monitoring

1. Mc & W shall inspect and keep record of repairs for the fabric filter vents on the cement silo every six (6) months of operation so as to ensure that each such collector is operating at optimum efficiency as recommended by the manufacturer.

2. The records compiled in accordance with this section shall be maintained by Mc & W as a permanent business record for at least two years and shall be available at the plant site for inspection by the duly authorized representative of the department.

D. Operational Reporting Requirement:

Mc & W will provide the department with a production report by March 1 for the previous calendar year production. The report is to contain the following information:

1. Total amount of concrete produced, in cubic yards;
2. Annual total of sand, in tons;
3. Annual total of cement, in tons;
4. Annual total of aggregate, in tons;
5. Hours of operation;
6. Fugitive dust information consisting of a listing of all plant vehicles including the following for each vehicle type:

[1] Opacity shall be determined according to 40 CFR Part 60, Appendix A, Method 9 Visual Determination of Opacity of Emissions from Stationary Sources or CEMs.

a. Total number of vehicles;
b. Vehicle type;
c. Vehicle weight, loaded;
d. Vehicle weight, unloaded;
e. Number of tires on vehicle;
f. Average trip length;
g. Number of trips per day;
h. Average vehicle speed; and
i. Area of activity.

7. Fugitive dust control for haul roads and general plant area:

a. Hours of operation of water trucks.
b. Application schedule for chemical dust suppressant if applicable.

E. The department may require additional emissions testing on sources in the plant per ARM 16.8.704 Testing Requirements.

F. Mc & W must maintain a copy of the air quality stipulation at the Kalispell site and make that copy available for inspection by department personnel upon request.

G. Mc & W shall comply with all other applicable state, federal, and local laws and regulations.

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 stipulation.

B. 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, including amendments thereto.

C. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for penalties.

Analysis of Conditions
McElroy and Wilken, Inc.

I. Introduction/Process Description

A. Affected Equipment

McElroy and Wilken, Inc. operates a 1976 Ross stationary concrete batch plant with three (3) fabric filter vents, one on each of the three cement silos. Mc & W's concrete batch plant is located at NW¼, Section 8, Township 28 North, Range 21 West, Flathead County, Montana. The mailing address of the facility is P.O. Box 35, Kalispell, MT 59901.

This concrete batching plant produces concrete for use in commercial and residential construction projects in the Kalispell area.

II. Applicable Rules and Regulations

A. ARM 16.8, Subchapter 8, Ambient Air Quality, including but not limited to: ARM 16.8.821 Ambient Air Quality Standards for PM-10. This section states that no person may cause or contribute to concentrations of PM-10 in the ambient air which exceed the set standards. (See Section V)

B. ARM 16.8, Subchapter 9, Prevention of Significant Deterioration - This facility is not a PSD source since this facility is not a listed source and the potential to emit is below 250 tons per year of any pollutant.

C. ARM 16.8, Subchapter 14, Emission Standards, including but not limited to:

1. ARM 16.8.1401 Particulate Matter, Airborne. This section requires reasonable precautions for fugitive emissions sources and Reasonably Available Control Technology (RACT) for existing fugitive sources located in a nonattainment area. The department, in consultation with EPA, has determined that the use of chemical stabilization or paving on major haul roads will satisfy these requirements.

2. ARM 16.8.1403 Particulate Matter, Industrial Process. This section states that no person shall cause, allow, or permit to be discharged into the outdoor atmosphere from any operation, process, or activity, particulate matter in excess of the amount determined by using the following equation:

Allowable Emissions = 55 (256 tons/hr)^{11} - 40 = 61.22 lbs/hr.

The estimated total particulate emissions from the cement silos are 0.048 lbs/hr, therefore the source is in compliance.

3. ARM 16.8.1404 Visible Air Contaminants. This section requires an opacity limitation of 20% for all stacks or vents. The requirements of

this stipulation supersede this rule because they are more stringent or they are equivalent.

III. RACM/RACT Determination

Under section 189(a)(1)(C) of the amended Clean Air Act of 1990, moderate area State Implementation Plans (SIP's) must contain "reasonably available control measures" (RACM) for the control of PM-10 emissions. RACM for stationary sources is the application of reasonably available control technology (RACT). Since the Kalispell area has been designated as a nonattainment for PM-10 by EPA, RACT must be applied to those stationary sources which cause or contribute to the nonattainment area.

A RACT determination is required for:

A. Process Particulate Vent Emissions

Mc & W currently controls particulate vent emissions with a fabric filter having an estimated efficiency of 99.35%. High efficiency fabric filters are the highest efficiency particulate control system for a source of this type. Since Mc & W is currently using this option, no other options need be considered. The department has determined that the fabric filter control system will constitute RACT in this case. The department has also determined that an opacity of 20% will constitute RACT for all vent emissions with fabric filter control.

B. Material Transfer Fugitive Emissions

RACT for material transfer points for sources of this type has been determined by the department to be the use of washed product; or water or chemical stabilization so as to maintain compliance with a 10% opacity limitation.

C. Fugitive Road Dust Emissions

RACT for fugitive road dust emissions for sources of this type has been determined by the department to be the use of water or chemical stabilization so as to maintain compliance with a 5% opacity limitation.

IV. Emission Inventory

Concrete Batch Plant

Annual Emission Rates (Potential)

Source	TSP	PM-10	NOX	VOC	CO	SOX
	Tons/Year					
Cement Handling Emissions	0.21	0.11				
Batch Bin Loading of Cement/Sand/Aggregate	22.45	11.22				
Mixer Loading of Cement/Sand/Aggregate	44.90	22.45				
Transfer: Sand/Aggregate to Elevated Bins	44.90	22.45				
Plant Yard - Fugitives	0.15	0.06				
Local Access Road	47.30	17.03				
Total Emissions	159.90	73.31	0.00	0.00	0.00	0.00

Daily Emission Rates (Potential) *

Source	TSP	PM-10	NOX	VOC	CO	SOX
	lbs/day					
Cement Handling Emissions	1.16	0.58				
Batch Bin Loading of Cement/Sand/Aggregate	123.00	61.50				
Mixer Loading of Cement/Sand/Aggregate	246.00	123.00				
Transfer: Sand/Aggregate to Elevated Bins	246.00	123.00				
Plant Yard Fugitives (Daily)	1.31	0.47				
Local Access Road (Daily)	402.57	144.92				
Total Emissions	1020.04	453.48	0.00	0.00	0.00	0.00

* Based on a 24 hour day.

Cement Handling Emissions

Process Rate: 31 tons/hr (Maximum Production Rate)
Hours of operation: 8760 hr/yr

TSP Emissions:

Emission Factor: 0.24 lbs/ton (AFSSCC 3-05-011-07, page 122)
Control Efficiency: 99.35% (Fabric Filter)
Calculations: 0.24 lbs/ton * 31 tons/hr = 7.44 lbs/hr
7.44 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 32.59 tons/yr
32.59 tons/yr * (1.00 - 0.9935) = 0.21 tons/yr

PM-10 Emissions:

Emission Factor: 0.12 lbs/ton (AFSSCC 3-05-011-07, page 122)
Control Efficiency: 99.35% (Fabric Filter)
Calculations: 0.120 lbs/ton * 31 tons/hr = 3.72 lbs/hr
3.72 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 16.29 tons/yr
16.29 tons/yr * (1.00 - 0.9935) = 0.11 tons/yr

Batch Bin Loading of Cement/Sand/Aggregate

Process Rate: 125 cu.yds/hr (Maximum Production Rate)
Hours of operation: 8760 hr/yr

TSP Emissions:

Emission Factor: 0.02 lbs/ton (AFSSCC 3-05-011-08, page 122)
Control Efficiency: 0%
Calculations: 0.02 lbs/ton * 125 cu.yds/hr * 2.05 tons/cu.yd = 5.13 lbs/hr
5.13 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 22.45 tons/yr
22.45 tons/yr * (1.00 - 0.000) = 22.45 tons/yr

PM-10 Emissions:

Emission Factor: 0.01 lbs/ton (AFSSCC 3-05-011-08, page 122)
Control Efficiency: 0%
Calculations: 0.01 lbs/ton * 125 cu.yds/hr * 2.05 tons/cu.yd = 2.56 lbs/hr
2.56 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 11.22 tons/yr
11.22 tons/yr * (1.00 - 0.000) = 11.22 tons/yr

Mixer Loading of Cement/Sand/Aggregate

Process Rate: 125 cu.yds/hr (Maximum Production Rate)
Hours of operation: 8760 hr/yr

TSP Emissions:

Emission Factor: 0.04 lbs/ton (AFSSCC 3-05-011-09, page 122)
Control Efficiency: 0%
Calculations: 0.04 lbs/ton * 125 cu.yds/hr * 2.05 tons/cu.yd = 10.25 lbs/hr
10.25 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 44.90 tons/yr
44.90 tons/yr * (1.00 - 0.000) = 44.90 tons/yr

PM-10 Emissions:

Emission Factor: 0.02 lbs/ton (AFSSCC 3-05-011-09, page 122)
Control Efficiency: 0%
Calculations: 0.02 lbs/ton * 125 cu.yds/hr * 2.05 tons/cu.yd = 5.13 lbs/hr
5.13 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 22.45 tons/yr
22.45 tons/yr * (1.00 - 0.000) = 22.45 tons/yr

Transfer: Sand/Aggregate to Elevated Bins

Process Rate: 125 cu.yds/hr (Maximum Production Rate)
Hours of operation: 8760 hr/yr

TSP Emissions:

Emission Factor: 0.04 lbs/ton (AFSSCC 3-05-011-06, page 122)
Control Efficiency: 0%
Calculations: 0.04 lbs/ton * 125 cu.yds/hr * 2.05 tons/cu.yd = 10.25 lbs/hr
10.25 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 44.90 tons/yr
44.90 tons/yr * (1.00 - 0.000) = 44.90 tons/yr

PM-10 Emissions:

Emission Factor: 0.02 lbs/ton (AFSSCC 3-05-011-06, page 122)
Control Efficiency: 0%
Calculations: 0.020 lbs/ton * 125 cu.yds/hr * 2.05 tons/cu.yd = 5.13 lbs/hr
5.13 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 22.45 tons/yr
22.45 tons/yr * (1.00 - 0.000) = 22.45 tons/yr

Plant Yard - Fugitives

Operating Hours: 8760 Hours/Yr
Vehicle Miles Traveled: 346 VMT/Yr
Control Efficiency is 50% for watering.

TSP Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR

Where:

E= TSP Emission Factor in Lbs/Vehicle Mile Traveled (VMT)	
k= Particle sizing constant for TSP	1.0
s= Silt Content in percent	8.7 %
S= Average Speed of vehicles in mph	5.0 mph
W= Average weight of vehicles in Tons	20.8 Tons
w= Average number of wheels on vehicles	4 wheels

PR= Precipitation Ratio based on the following:
130 Days with more than .01" of Precipitation
PR= (365 days - 130 days)/365 Days = 0.6438

TSP Emissions:
TSP Emission Factor 1.78 Lbs/VMT

E(TSP)= (346 VMT/Yr)(1.78 Lbs/VMT)(0.5)
E(TSP)= 308 Lbs/Yr or 0.15 Tons/Yr

PM10 Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR

Where:

E= PM10 Emission Factor in Lbs/Vehicle Mile Traveled (VMT)	
k= Particle sizing constant for PM10	0.36
s= Silt Content in percent	8.7 %
S= Average Speed of vehicles in mph	5.0 mph
W= Average weight of vehicles in Tons	20.8 Tons
w= Average number of wheels on vehicles	4 wheels

PR= Precipitation Ratio based on the following:
130 Days with more than .01" of Precipitation
PR= (365 days - 130 days)/365 Days = 0.6438

PM10 Emissions:

PM10 Emission Factor: 0.64 Lbs/VMT

E(PM10)= (346 VMT/Yr)(0.64 Lbs/VMT)(0.5)
E(PM10)= 111 Lbs/Yr or 0.06 Tons/Yr

Plant Yard - Fugitives (Daily)

Operating Hours: 8760 Hours/Yr
Vehicle Miles Traveled: 346 VMT/Yr
Control Efficiency is 50% for watering.

TSP Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR
Where:
E= TSP Emission factor in Lbs/Vehicle Mile Traveled (VMT)
k= Particle sizing constant for TSP 1.0
s= Silt Content in percent 8.7 %
S= Average Speed of vehicles in mph 5.0 mph
W= Average weight of vehicles in Tons 20.8 Tons
w= Average number of wheels on vehicles 4 wheels
PR= Assumes no precipitation 1.0000

TSP Emissions:

TSP Emission Factor= 2.77 Lbs/VMT

E(TSP)= (346 VMT/Yr)(2.77 Lbs/VMT)(0.5)
E(TSP)= 478 Lbs/Yr or 0.24 Tons/Yr or 1.31 lbs/day

PM10 Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR
Where:
E= PM10 Emission factor in Lbs/Vehicle Mile Traveled (VMT)
k= Particle sizing constant for PM10 0.36
s= Silt Content in percent 8.7 %
S= Average Speed of vehicles in mph 5.0 mph
W= Average weight of vehicles in Tons 20.8 Tons
w= Average number of wheels on vehicles 4 wheels
PR= Assumes no precipitation 1.0000

PM10 Emissions:

PM10 Emission Factor: 1.00 Lbs/VMT

E(PM10)= (346 VMT/Yr)(1.00 Lbs/VMT)(0.5)
E(PM10)= 172 Lbs/Yr or 0.09 Tons/Yr or 0.47 lbs/day

Local Access Road

Operating Hours: 8760 Hours/Yr
Vehicle Miles Traveled: 91250 VMT/Yr
Control Efficiency is 50% for watering.

TSP Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR
Where:
E= TSP Emission Factor in Lbs/Vehicle Mile Traveled (VMT)
k= Particle sizing constant for TSP 1.0
s= Silt Content in percent 8.7 %
S= Average Speed of vehicles in mph 30.0 mph
W= Average weight of vehicles in Tons 2.0 Tons
w= Average number of wheels on vehicles 4 wheels
PR= Precipitation Ratio based on the following:
130 Days with more than .01" of Precipitation
PR= (365 days - 130 days)/365 Days = 0.6438

TSP Emissions:

TSP Emission Factor: 2.07 Lbs/VMT

E(TSP)= (91250 VMT/Yr)(2.07 Lbs/VMT)(0.5)
E(TSP)= 94603 Lbs/Yr or 47.30 Tons/Yr

PM10 Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR

Where:

E= PM10 Emission Factor in Lbs/Vehicle Mile Traveled (VMT)	
k= Particle sizing constant for PM10	0.36
s= Silt Content in percent	8.7 %
S= Average Speed of vehicles in mph	30.0 mph
W= Average weight of vehicles in Tons	2.0 Tons
w= Average number of wheels on vehicles	4 wheels
PR= Precipitation Ratio based on the following:	

130 Days with more than .01" of Precipitation
PR= (365 days - 130 days)/365 Days = 0.6438

PM10 Emissions:

PM10 Emission Factor: 0.75 Lbs/VMT

E(PM10)= (91250 VMT/Yr)(0.75 Lbs/VMT)(0.5)
E(PM10)= 34057 Lbs/Yr or 17.03 Tons/Yr

Local Access Road (Daily)

Operating Hours: 8760 Hours/Yr
Vehicle Miles Traveled: 91250 VMT/Yr
Control Efficiency is 50% for watering.

TSP Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR

Where:

E= TSP Emission Factor in Lbs/Vehicle Mile Traveled (VMT)	
k= Particle sizing constant for TSP	1.0
s= Silt Content in percent	8.7 %
S= Average Speed of vehicles in mph	30.0 mph
W= Average weight of vehicles in Tons	2.0 Tons
w= Average number of wheels on vehicles	4 wheels
PR= Assumes no precipitation	1.00

TSP Emissions:

TSP Emission Factor: 3.22 Lbs/VMT

E(TSP)= (91250 VMT/Yr)(3.22 Lbs/VMT)(0.5)
E(TSP)= 146936 Lbs/Yr or 73.47 Tons/Yr or 402.57 lbs/day

PM10 Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR

Where:

E= PM10 Emission Factor in Lbs/Vehicle Mile Traveled (VMT)	
k= Particle sizing constant for PM10	0.36
s= Silt Content in percent	8.7 %
S= Average Speed of vehicles in mph	30.0 mph
W= Average weight of vehicles in Tons	2.0 Tons
w= Average number of wheels on vehicles	4 wheels
PR= Assumes no precipitation	1.00

PM10 Emissions:

PM10 Emission factor: 1.16 Lbs/VMT

E(PM10)= (57250 VMT/Yr)(1.16 Lbs/VMT)(0.5)
E(PM10)= 52897 Lbs/Yr or 26.45 Tons/Yr or 144.92 Lbs/day

V Existing Air Quality and Impacts

On July 1, 1987 the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (PM-10). Due to exceedances of the national standards for PM-10, the city of Kalispell and the nearby Evergreen area have been designated by EPA as nonattainment for PM-10. As a result of this designation, EPA required the Department of Health and Environmental Sciences and the Flathead City-County Health Department to submit the Kalispell PM-10 State Implementation Plan (SIP) to EPA in November, 1991. The SIP consisted of an emission control plan that controlled fugitive dust emissions from roads, parking lots, construction, and demolition, since technical studies determined these sources to be the major contributors of PM-10 emissions.

Receptor modeling (a model which identifies contributors based on actual area and industrial emissions and ambient data) was originally used to demonstrate attainment of the federal PM-10 standards in the SIP. The EPA is now requiring the department to use a dispersion model (a model which incorporates allowable emission rates from facilities) to assure that attainment can still be demonstrated if individual sources are operating at their maximum allowable emission rates.

After an analysis, the department determined that emission limitations applicable to the Mc & W facility were in some cases nonexistent (no permit required) or several times higher than actual emissions (ARM 16.8.1403). Dispersion modelling conducted using emissions from the Mc & W facility at its potential to emit (emissions associated with maximum design capacity or as limited by ARM 16.8.1403) indicated that the facility contributed significantly to the PM-10 concentrations in the Kalispell nonattainment area.

In order to demonstrate compliance (through dispersion modeling) with the PM-10 NAAQS in the Kalispell nonattainment area, it is necessary to reduce or establish new emission limitations for the Mc & W facility. The new emission limitations in this document, in conjunction with similar limitations on other Kalispell area facilities, demonstrates through dispersion modeling that compliance with the NAAQS for PM-10 will be attained. These reductions in allowable emissions will be enforced through a signed stipulation.

With the proper utilization of existing control equipment and reasonable control techniques (watering or application of dust suppressant) for haul road dust the MC & W facility should be able to operate at maximum design rates and remain in compliance with the stipulated emission limitations.

Kalispell and Evergreen Nonattainment Boundaries

The area is bounded by lines from UTM Coordinate 700000mE, 5347000mN, east to 704000mE, 5346000mN, south to 704000mE, 5341000mN, west to 703000mE, 5341000mN, south to 703000mE, 5340000mN, west to 702000mE, 5340000mN, south to 702000mE, 5339000mN, east to 703000mE, 5339000N, south to 703000mE, 5338000mN, east to 704000mE, 5338000mN, south to 704000mE, 5336000mN, west to 702000mE, 5336000mN, west to 702000mE, 5336000mN, south to 702000mE, 5335000mN, west to 700000mE, 5335000mN, north to 700000mE, 5340000mN, west to 695000mE, 5340000mN, north to 695000mE, 5345000mN, east to 700000mE, 5345000mN, north to 700000mE, 5347000mN.

VII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Protection Act, was completed for this project. A copy is attached.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Air Quality Bureau
Cogswell Building, Helena, Montana 59620
(406) 444-3454

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Project or Application: McElroy and Wilken, Inc., Air Quality Stipulation for Kalispell SIP.

Description of Project: A concrete batching plant with a maximum design rate of 125 cubic yards per hour. This concrete batching plant produces concrete for use in commercial and residential construction projects in the Kalispell area.

Benefits and Purpose of Proposal: On July 1, 1987 the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (PM-10). Due to exceedances of the national standards for PM-10, the city of Kalispell and the nearby Evergreen area have been designated by EPA as nonattainment for PM-10. As a result of this designation, EPA required the Department of Health and Environmental Sciences and the Flathead City-County Health Department to submit the Kalispell PM-10 State Implementation Plan (SIP) to EPA in November, 1991. The stipulation identifies the emission sources and makes enforceable emission limitations and the operation of control equipment and techniques which when considered with similar limitations on other Kalispell area sources will achieve the PM-10 NAAQS.

Description and analysis of reasonable alternatives whenever alternatives are reasonably available and prudent to consider: No reasonable alternatives are available.

A listing and appropriate evaluation of mitigation, stipulations and other controls enforceable by the agency or another government agency: A list of enforceable conditions and an analysis of conditions are contained in a signed stipulation.

Recommendation: An EIS is not required.

If an EIS is needed, and if appropriate, explain the reasons for preparing the EA

If an EIS is not required, explain why the EA is an appropriate level of analysis: The emissions from this plant will not change. This action makes the control equipment and control techniques at the plant enforceable and assures that the emissions from this facility when considered with similar emission limitations at other sources will attain the PM-10 NAAQS.

Other groups or agencies contacted or which may have overlapping jurisdiction: None

Individuals or groups contributing to this EA: Department of Health and Environmental Sciences, Air Quality Bureau

EA prepared by: Michael Glavin

Date: July 22, 1993

Potential Impact on Physical Environment

		Major	Moderate	Minor	None	Unknown	Comments Attached
1	Terrestrial and Aquatic Life and Habitats				X		
2	Water Quality, Quantity and Distribution				X		
3	Geology and Soil Quality, Stability and Moisture				X		
4	Vegetation Cover, Quantity and Quality				X		
5	Aesthetics				X		
6	Air Quality			X			
7	Unique Endangered, Fragile or Limited Environmental Resource					X	
8	Demands on Environmental Resource of Water, Air and Energy				X		
9	Historical and Archaeological Sites					X	
10	Cumulative and Secondary Impacts			X			

Potential Impact on Human Environment

		Major	Moderate	Minor	None	Unknown	Comments Attached
1	Social Structures and Mores				X		
2	Cultural Uniqueness and Diversity				X		
3	Local and State Tax Base and Tax Revenue				X		
4	Agricultural or Industrial Production				X		
5	Human Health				X		
6	Access to and Quality of Recreational and Wilderness Activities				X		
7	Quantity and Distribution of Employment				X		
8	Distribution of Population				X		
9	Demands for Government Services				X		
10	Industrial and Commercial Activity				X		
11	Locally Adopted Environmental Plans and Goals			X			
12	Cumulative and Secondary Impacts				X		

EXHIBIT B
EMISSION LIMITATIONS AND CONDITIONS

McElroy and Wilken, Inc.
P.O. Box 35
Kalispell, MT 59901

The above-named company is hereinafter referred to as "Mc & W."

SECTION I: Affected Facilities

A. Plant Location: Mc & W's two gravel crushers are located at SW¼, NW¼, Section 2, Township 28 North, Range 21 West, Flathead County, Montana. The mailing address of the facility is P.O. Box 35, Kalispell, MT 59901.

B. Equipment

1. A portable 1988 Baromac Impact Crusher (225 TPH), Model Mark II, Serial #764-385 with screen.

2. A portable 1986 XHD Hombolt Wedzg (300 TPH), Model B, Serial #462-012 with screen.

Section II: Conditions

A. Operational

1. All visible emissions from the crusher plants are limited to 15% opacity[1]. (ARM 16.8.1423)

2. Mc & W shall not cause or authorize to be discharged into the atmosphere from other equipment such as screens or transfer points any visible emissions that exhibit opacity[1] of 10%. (ARM 16.8.1423)

3. Mc & W shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property any visible fugitive emissions that exhibit opacity[1] of 5% or greater. (RACT)

4. Mc & W shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water/and or chemical dust suppressant as necessary to maintain compliance with the 5% opacity limitation. (RACT)

5. Water spray bars are required as necessary. If fugitive emissions are greater than 10% opacity. (ARM 16.8.1423)

[1] Opacity shall be determined according to 40 CFR, Part 60, Appendix A, Method 9 Visual Determination of Opacity of Emissions from Stationary Sources.

6. The portable 1988 Euromac Impact Crusher, Model Mark II, Serial #764-385 is limited to the following:

   a. Production rate of 225 tons/hour.

   b. Daily hours of operation of 24 hours/day.

   c. Annual hours of operation of 4050 hours/year.

7. The portable 1986 KHD Humbolt Wedag, Model B, Serial #462-012 is limited to the following:

   a. Production rate of 300 tons/hour.

   b. Daily hours of operation of 24 hours/day.

   c. Annual hours of operation of 4050 hours/year.

8. Total particulate emissions from this crusher in conjunction with total particulate emissions from any additional equipment at any individual site shall be less than 250 tons/year.

9. Mc & W shall operate and maintain all emission control equipment and utilize all techniques specified in this stipulation to provide the maximum air pollution control for which they were designed.

B. Reporting Requirements

1. If this crushing plant is moved to another location, a Notice of Intent to Transfer Location of Air Quality Stipulation must be published in a newspaper of general circulation in the area to which the transfer is to be made. This notice must be published at least 15 days prior to the move. Proof of publication and a change of location form must be submitted to the Montana Department of Health and Environmental Sciences, Air Quality Bureau (AQB), prior to the move. These forms are available from the AQB.

2. Mc & W shall maintain on-site records showing daily hours of operation and daily production rates for the last 12 months. These records shall be available for inspection by the department and must be submitted to the department upon request.

3. Mc & W shall retain daily production numbers for a minimum of five (5) years.

4. Mc & W shall provide an annual report identifying any days in which the hours of operation, or the process rates in Section II.A. are exceeded. The report shall be submitted by March 1 of each year.

5. Annual production information shall be submitted to the AQB by March 1 of the following calendar year. The information shall include:

   a) Tons of gravel crushed in each crusher.

   b) Tons of gravel bulk loaded.

   c) Hours of operation of each crusher.

   d) Gallons of diesel used in each generator.

   e) Fugitive dust information consisting of a listing of all plant vehicles including the following for each vehicle type:

      i) Number of vehicles;
      ii) Vehicle type;
      iii) Vehicle weight, loaded;
      iv) Vehicle weight, unloaded;
      v) Number of tires on vehicle;
      vi) Average trip length;
      vii) Number of trips per day;
      viii) Average vehicle speed;
      ix) Area of activity; and
      x) Vehicle fuel usage (gasoline or diesel) annual total.

   f) Fugitive dust control for haul roads and general plant area:

      i. Hours of operation of water trucks
      ii. Application schedule for chemical dust suppressant if applicable.

C. The AQB may modify the conditions of this stipulation based on local conditions of any future site. These factors may include but are not limited to local terrain, meteorological conditions, proximity to residences, predicted ambient impacts which would cause or contribute to violations of a NAAQS or PSD increment, etc.

D. The department may require additional emissions testing on sources of emissions per ARM 16.8.704, Testing Requirements.

E. Mc & W must maintain a copy of the air quality stipulation at the Kalispell ready mix site and make that copy available for inspection by department personnel upon request.

F. Mc & W shall comply with all other applicable state, federal, and local laws and regulations.

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 stipulation.

B. 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, including amendments thereto.

C. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for penalties.

Analysis of Conditions
McElroy and Wilken, Inc.

I. Introduction

A. Affected Equipment

A Portable 1988 Baromac Impact Crusher, Model Mark II, Serial #764-385 and a 1986 KHD Humbolt Wedag, Model B, Serial #462-012.

B. Process Description

This plant crushes gravel for use in construction, repair, and maintenance of roads and highways. The maximum process rate of the 1988 Baromac Impact Crusher is 225 tons/hour. The maximum process rate of the 1986 KHD Humbolt Wedag is 300 tons/hour.

Mc & W operates two (2) gravel pits in the Kalispell nonattainment area. They move their two gravel crushers between these pits in order to crush gravel for use in construction, repair, and maintenance of roads and highways. The Ross concrete batch plant is permanently located at the Mc & W Main Pit #2. In 1991 Mc & W moved their existing 1986 KHD Humbolt Wedag (300 TPH) to the Flathead River Bridge Pit #1 and at that time added the 1988 Baromac Impact Crusher (225 TPH). Mc & W's two gravel pit locations within the Kalispell nonattainment area are:

Flathead River Bridge Pit #1. (NW¼, Sec 2, T28N, R21W, Flathead County)
Mc & W Main Pit #2. (NW¼, Sec 8, T28N, R21W, Flathead County)

If this crushing plant is moved to another location, including Mc & W Main Pit #2, a Notice of Intent to Transfer Location of Air Quality Stipulation must be published in a newspaper of general circulation in the area to which the transfer is to be made as required in Section II.B.1. Any such transfer will be subject to department review as described in Section II.C.

II. Applicable Rules and Regulations

A. ARM 16.8, Subchapter 8, Ambient Air Quality, including but not limited to: ARM 16.8.821 Ambient Air Quality Standard for PM-10. This section states that no person may cause or contribute to concentrations of PM-10 in the ambient air which exceed the set standards. (See Section V)

B. ARM 16.8, Subchapter 9, Prevention of Significant Deterioration - This facility is not a PSD source since this facility is not a listed source and the potential to emit is below 250 tons per year of any pollutant.

C. 16.8 Subchapter 14, Emission Standards, including but not limited to:

1. ARM 16.8.1401 Particulate Matter, Airborne. This section requires reasonable precautions for fugitive emissions sources and Reasonably Available Control Technology (RACT) for existing fugitive sources located in a nonattainment area. The department, in consultation with EPA, has

determined that the use of chemical stabilization or paving on major haul roads will satisfy these requirements.

2. ARM 16.8.1403 Particulate Matter, Industrial Process. This section states that no person shall cause, allow, or permit to be discharged into the outdoor atmosphere from any operation, process, or activity, particulate matter in excess of the amount determined by using the following equation:

   Allowable Emissions = 55 (225 tons/hr)$^{.11}$ - 40 = 59.79 lbs/hr.
   Allowable Emissions = 55 (300 tons/hr)$^{.11}$ - 40 = 63.00 lbs/hr.

   The estimated total particulate matter emissions for the two gravel crushers are 31.50 lbs/hr and 42.00 lbs/hr, respectively, therefore the sources are in compliance.

3. ARM 16.8.1404 Visible Air Contaminants. This section requires an opacity limitation of 20% from all stacks constructed or altered since November 23, 1968. This rule is superseded by ARM 16.8.1423 (NSPS).

4. ARM 16.8.1423 Standards of Performance for New Stationary Sources (NSPS). The crusher plants were constructed in 1986 and 1988, respectively, so NSPS (40 CFR Part 60, general provisions, and Subpart OOO Non-Metallic Mineral Processing Plants) applies to both crushers. NSPS requirements are 15% opacity limitation for the crusher and 10% opacity for all other equipment such as screens or transfer points.

BACT/RACT Determination

Under section 189(a)(1)(C) of the amended Clean Air Act of 1990, moderate area State Implementation Plans (SIP's) must contain "reasonably available control measures" (RACM) for the control of PM-10 emissions. RACM for stationary sources is the application of reasonably available control technology (RACT). Since the Kalispell area has been designated as a nonattainment for PM-10 by EPA, RACT must be applied to those stationary sources which cause or contribute to the nonattainment area.

A. Crusher and Material Transfer Emissions

A BACT analysis was conducted at the time of the original permit application #2716-00, and a determination had been made for controlling TSP and PM-10 emissions. The department has determined that BACT for this source is the application of water sprays as necessary to maintain compliance with the 15% opacity limitation for the crusher and 10% opacity for all other equipment such as screens or transfer points.

The BACT determination made for this source is considered to met the RACT requirements since BACT is more stringent than RACT.

E. Fugitive Road Dust Emissions

RACT for fugitive road dust emissions for sources of this type has been determined by the department to be the use of water or chemical stabilization so as to maintain compliance with a 5% opacity limitation.

Emission Inventory

Two Portable Gravel Crushers
with Screening Plant

Annual Emission Rates (Allowable) *

Source	TSP	PM-10	NOX	VOC	CO	SO2
	Tons/Year					
1528 Baromac Impact Crusher	63.79	11.39				
Cummins Engine Model VTA28-G1	0.29	0.29	4.07	0.32	0.83	0.37
Baromac Screen	36.45	27.34				
1526 KHD Humbolt Wedag Crusher	85.05	15.19				
Caterpillar Generator	0.29	0.29	4.07	0.32	0.83	0.37
KHD Humbolt Screen	45.69	35.45				
Material Transfer	15.42	3.40				
Pile Forming: Stacker	49.30	31.89				
Bulk Loading	10.63	1.38				
Haul Roads	0.69	0.11				
Total	330.31	127.63	8.14	0.65	1.66	0.74

* Based on operating 4050 hours/year.

Daily Emission Rates (Allowable) **

Source	TSP	PM-10	NOX	VOC	CO	SO2
	lbs/day					
1528 Baromac Impact Crusher	756.00	135.00				
Cummins Engine Model VTA28-G1	3.43	3.43	48.24	3.84	10.42	4.39
Baromac Screen	432.00	324.00				
1526 KHD Humbolt Wedag Crusher	1008.00	180.00				
Caterpillar Generator	3.43	3.43	48.24	3.84	10.42	4.39
KHD Humbolt Screen	576.00	432.00				
Material Transfer	182.70	40.32				
Pile Forming: Stacker	819.00	378.00				
Bulk Loading	126.00	15.12				
Haul Roads (Daily)	5.91	0.94				
Total	3912.48	1512.25	96.48	7.68	20.85	8.78

** Based on a 24 hour day.

1528 Baromac Impact Crusher

Process Rate: 225 tons/hr (Maximum Process Rate)
Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.28 lbs/ton (AP-42, 8.19.2-1)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Materials)
Calculations: 0.28 lbs/ton * 225 tons/hr = 63.00 lbs/hr
63.00 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 127.58 tons/yr
127.58 tons/yr * (1.00 - 0.50) = 63.79 tons/yr
63.00 lbs/hr * 24 hr/day * (1.00 - 0.50) = 756.00 lbs/day

PM-10 Emissions:

Emission Factor: 0.05 lbs/ton (Ratio between TSP and PM-10 from AP42)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Materials)
Calculations: 0.050 lbs/ton * 225 tons/hr = 11.25 lbs/hr
11.25 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 22.78 tons/yr
22.78 tons/yr * (1.00 - 0.50) = 11.39 tons/yr
11.25 lbs/hr * 24 hr/day * (1.00 - 0.50) = 135.00 lbs/day

Cummins Engine Model VTA28-G1

Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions

Emission Factor: 0.143 lbs/hr (AP-42, 3.3.2)
Calculations: 0.143 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.29 tons/yr
0.143 lbs/hr * 24 hr/day = 3.43 lbs/day

PM-10 Emissions:

Emission Factor: 0.143 lbs/hr (AP-42, 3.3.2)
Calculations: 0.143 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.29 tons/yr
0.143 lbs/hr * 24 hr/day = 3.43 lbs/day

NOx Emissions:

Emission Factor: 2.01 lbs/hr (AP-42, 3.3.2)
Calculations: 2.01 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 4.07 tons/yr
2.010 lbs/hr * 24 hr/day = 48.24 lbs/day

VOC Emissions:

Emission Factor: 0.160 lbs/hr (AP-42, 3.3.2)
Calculations: 0.160 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.32 tons/yr
0.160 lbs/hr * 24 hr/day = 3.84 lbs/day

CO Emissions:

Emission Factor: 0.434 lbs/hr (AP-42, 3.3.2)
Calculations: 0.434 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.88 tons/yr
0.434 lbs/hr * 24 hr/day = 10.42 lbs/day

SOx Emissions:

Emission Factor: 0.133 lbs/hr (AP-42, 3.3.2)
Calculations: 0.133 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.27 tons/yr
0.133 lbs/hr * 24 hr/day = 3.19 lbs/day

Baromac Screen

Process Rate: 225 tons/hr (Maximum Process Rate)
Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.16 lbs/ton (AP-42, 8.19.1-1)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.16 lbs/ton * 225 tons/hr = 36.00 lbs/hr
36.00 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 72.9 tons/yr
72.90 tons/yr * (1.00 - 0.50) = 36.45 tons/yr
36.00 lbs/hr * 24 hr/day * (1.00 - 0.50) = 432.00 lbs/day

PM-10 Emissions:

Emission Factor: 0.12 lbs/ton (AP-42, 8.19.1-1)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.120 lbs/ton * 225 tons/hr = 27.00 lbs/hr
27.00 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 54.68 tons/yr
54.68 tons/yr * (1.00 - 0.50) = 27.34 tons/yr
27.00 lbs/hr * 24 hr/day * (1.00 - 0.50) = 324.00 lbs/day

1986 KHD Humbolt Wedag Crusher

Process Rate: 350 tons/hr (Maximum Process Rate)
Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.28 lbs/ton (AP-42, 8.19.2-1)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.28 lbs/ton * 300 tons/hr = 84.00 lbs/hr
84.00 lbs/hr * 4050 hr/yr* 0.0005 tons/lb = 170.1 tons/yr
170.10 tons/yr * (1.00 - 0.50) = 85.05 tons/yr
84.00 lbs/hr * 24 hr/day * (1.00 - 0.50) = 1008.00 lbs/day

PM-10 Emissions:

Emission Factor: 0.05 lbs/ton (AP-42, 8.19.2-1)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.050 lbs/ton * 300 tons/hr = 15.00 lbs/hr
15.00 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 30.38 tons/yr
30.38 tons/yr * (1.00 - 0.50) = 15.19 tons/yr
15.00 lbs/hr * 24 hr/day * (1.00 - 0.50) = 180.00 lbs/day

Caterpillar Generator

Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.143 lbs/hr (AP-42, 3.3.2)
Calculations: 0.143 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.29 tons/yr
0.143 lbs/hr * 24 hr/day = 3.43 lbs/day

PM-10 Emissions:

Emission Factor: 0.143 lbs/hr (AP-42, 3.3.2)
Calculations: 0.143 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.29 tons/yr
0.143 lbs/hr * 24 hr/day = 3.43 lbs/day

NOx Emissions:

Emission Factor: 2.01 lbs/hr (AP-42, 3.3.2)
Calculations: 2.01 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 4.07 tons/yr
2.010 lbs/hr * 24 hr/day = 48.24 lbs/day

VOC Emissions:

Emission Factor: 0.160 lbs/hr (AP-42, 3.3.2)
Calculations: 0.160 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.32 tons/yr
0.160 lbs/hr * 24 hr/day = 3.84 lbs/day

CO Emissions:

Emission Factor: 0.434 lbs/hr (AP-42, 3.3.2)
Calculations: 0.434 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.88 tons/yr
0.434 lbs/hr * 24 hr/day = 10.42 lbs/day

SOx Emissions:

Emission Factor: 0.133 lbs/hr (AP-42, 3.3.2)
Calculations: 0.133 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 0.27 tons/yr
0.133 lbs/hr * 24 hr/day = 3.19 lbs/day

EMO Humbolt Screen

Process Rate: 300 tons/hr (Maximum Process Rate)
Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.16 lbs/ton (AP-42, 8.19.1-1)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.16 lbs/ton * 300 tons/hr = 48.00 lbs/hr
48.00 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 97.20 tons/yr
97.20 tons/yr * (1.00 - 0.50) = 48.60 tons/yr
48.00 lbs/hr * 24 hr/day * (1.00 - 0.50) = 576.00 lbs/day

PM-10 Emissions:

Emission Factor: 0.12 lbs/ton (AP-42, 8.19.1-1)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.12 lbs/ton * 300 tons/hr = 36.00 lbs/hr
36.00 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 72.90 tons/yr
72.90 tons/yr * (1.00 - 0.50) = 36.45 tons/yr
36.00 lbs/hr * 24 hr/day * (1.00 - 0.50) = 432.00 lbs/day

Material Transfer

Process Rate: 525 tons/hr (Maximum Process Rate)
Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.029 lbs/ton (AFSSCC, 3-05-025-03)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.03 lbs/ton * 525 tons/hr = 15.23 lbs/hr
15.23 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 30.83 tons/yr
30.83 tons/yr * (1.00 - 0.50) = 15.42 tons/yr
15.23 lbs/hr * 24 hr/day * (1.00 - 0.50) = 182.70 lbs/day

PM-10 Emissions:

Emission Factor: 0.006 lbs/ton (AFSSCC, 3-05-025-03)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.006 lbs/ton * 525 tons/hr = 3.36 lbs/hr
3.36 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 6.80 tons/yr
6.80 tons/yr * (1.00 - 0.50) = 3.40 tons/yr
3.36 lbs/hr * 24 hr/day * (1.00 - 0.50) = 40.32 lbs/day

Pile Forming: Stacker

Process Rate: 525 tons/hr (Maximum Process Rate)
Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.13 lbs/ton (AFSSCC, 3-05-025-05)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.13 lbs/ton * 525 tons/hr = 68.25 lbs/hr
68.25 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 138.21 tons/yr
138.21 tons/yr * (1.00 - 0.50) = 69.10 tons/yr
68.25 lbs/hr * 24 hr/day * (1.00 - 0.50) = 819.00 lbs/day

PM-10 Emissions:

Emission Factor: 0.06 lbs/ton (AFSSCC, 3-05-025-05)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.060 lbs/ton * 525 tons/hr = 31.50 lbs/hr
31.50 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 63.79 tons/yr
63.79 tons/yr * (1.00 - 0.50) = 31.89 tons/yr
31.50 lbs/hr * 24 hr/day * (1.00 - 0.50) = 378.00 lbs/day

Bulk Loading

Process Rate: 525 tons/hr (Maximum Process Rate)
Hours of operation: 4050 hr/yr 24 hr/day

TSP Emissions:

Emission Factor: 0.02 lbs/ton (AFSSCC, 3-05-025-06)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.02 lbs/ton * 525 tons/hr = 10.50 lbs/hr
10.50 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 21.2625 tons/yr
21.26 tons/yr * (1.00 - 0.50) = 10.63 tons/yr
10.50 lbs/hr * 24 hr/day * (1.00 - 0.50) = 126.00 lbs/day

PM-10 Emissions:

Emission Factor: 0.0024 lbs/ton (AP42SEC, 3-05-025-06)
Control Efficiency: 50% (Water Spray Bars or Naturally Wet Material)
Calculations: 0.002 lbs/ton * 525 tons/hr = 1.26 lbs/hr
1.26 lbs/hr * 4050 hr/yr * 0.0005 tons/lb = 2.55 tons/yr
2.55 tons/yr * (1.00 - 0.50) = 1.28 tons/yr
1.26 lbs/hr * 24 hr/day * (1.00 - 0.50) = 15.12 lbs/day

Haul Roads

Operating Hours: 4050 Hours/Yr
Vehicle Miles Traveled: 692 VMT/Yr (Based on Maximum Production Rate)
Control Efficiency is 50% for watering.

TSP Emission factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR
Where:
E= TSP Emission Factor in Lbs/Vehicle Mile Traveled (VMT)
k= Particle sizing constant for TSP 1.0
s= Silt Content in percent 8.7 %
S= Average Speed of vehicles in mph 10.0 mph
W= Average weight of vehicles in Tons 18.5 Tons
w= Average number of wheels on vehicles 8 wheels
PR= Precipitation Ratio based on the following:
130 Days with more than .01" of Precipitation
PR= (365 days - 130 days)/365 Days = 0.6438

TSP Emissions:

TSP Emission factor: 4.02 Lbs/VMT

E(TSP)= (692 VMT/Yr)(4.02 Lbs/VMT)(0.5)
E(TSP)= 1390 Lbs/Yr
or 0.69 Tons/Yr

PM10 Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**0.7*(w/4)**0.5*PR
Where:
E= PM10 Emission factor in Lbs/Vehicle Mile Traveled (VMT)
k= Particle sizing constant for PM10 0.36
s= Silt Content in percent 8.7 %
S= Average Speed of vehicles in mph 5.0 mph
W= Average weight of vehicles in Tons 20.8 Tons
w= Average number of wheels on vehicles 4 wheels
PR= Precipitation Ratio based on the following:
130 Days with more than .01" of Precipitation
PR= (365 days - 130 days)/365 Days = 0.6438

PM10 Emissions:

PM10 Emission factor: 0.64 Lbs/VMT

E(PM10)= (692 VMT/Yr)(0.64 Lbs/VMT)(0.5)
E(PM10)= 222 lbs/Yr or 0.11 Tons/Yr

Haul Roads (Daily)

Operating Hours: 0.060 Hours/Yr
Vehicle Miles Traveled: 692 VMT/Yr (Based on Maximum Production Rate)
Control Efficiency is 50% for watering.

TSP Emission Factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**2.7*(w/4)**0.5*PE

Where:

E= TSP Emission Factor in Lbs/Vehicle Mile Traveled (VMT)	
k= Particle sizing constant for TSP	1.0
s= Silt Content in percent	8.7 %
S= Average Speed of vehicles in mph	10.0 mph
W= Average weight of vehicles in Tons	18.5 Tons
w= Average number of wheels on vehicles	6 wheels
PE= Assumes no precipitation	1.0000

TSP Emissions:

TSP Emission Factor: 6.24 Lbs/VMT

E(TSP)= (692 VMT/Yr)(6.24 Lbs/VMT)(0.5)
E(TSP)= 2159 Lbs/Yr or 1.02 Tons/Yr or 5.91 lbs/day

PM10 Emission factor is determined by the following equation:

E= 5.9*k*(s/12)*(S/30)*(W/3)**2.7*(w/4)**0.5*PE

Where:

E= PM10 Emission Factor in Lbs/Vehicle Mile Traveled (VMT)	
k= Particle sizing constant for PM10	0.36
s= Silt Content in percent	8.7 %
S= Average Speed of vehicles in mph	5.0 mph
W= Average weight of vehicles in Tons	20.8 Tons
w= Average number of wheels on vehicles	6 wheels
PE= Assumes no precipitation	1.0000

PM10 Emissions:

PM10 Emission Factor: 1.00 Lbs/VMT

E(PM10)= (692 VMT/Yr)(1.00 Lbs/VMT)(0.5)
E(PM10)= 346 Lbs/Yr or 0.17 Tons/Yr or 0.96 lbs/day

V. Existing Air Quality and Impacts

On July 1, 1987 the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (PM-10). Due to exceedances of the national standards for PM-10, the city of Kalispell and the nearby Evergreen area have been designated by EPA as nonattainment for PM-10. As a result of this designation, EPA required the Department of Health and Environmental Sciences and the Flathead City-County Health Department to submit the Kalispell PM-10 State Implementation Plan (SIP) to EPA in November, 1991. The SIP consisted of an emission control plan that controlled fugitive dust emissions from roads, parking lots, construction, and demolition, since technical studies determined these sources to be the major contributors of PM-10 emissions.

Receptor modeling (a model which identifies contributors based on actual area and industrial emissions and ambient data) was originally used to demonstrate attainment of the federal PM-10 standards in the SIP. The EPA is now requiring the department to use a dispersion model (a model which incorporates allowable emission rates from facilities) to assure that attainment can still be demonstrated if individual sources are operating at their maximum allowable emission rates.

After an analysis, the department determined that emission limitations applicable to the Mc & W facility were in some cases nonexistent (no permit required) or several times higher than actual emissions (ARM 16.8.1403). Dispersion modelling conducted using emissions from the Mc & W facility at its potential to emit (emissions associated with maximum design capacity or as limited by ARM 16.8.1403) indicated that the facility

contributed significantly to the PM-10 concentrations in the Kalispell nonattainment area.

In order to demonstrate compliance (through dispersion modeling) with the PM-10 NAAQS in the Kalispell nonattainment area, it is necessary to reduce or establish new emission limitations for the Mc & W facility. The new emission limitations in this document, in conjunction with similar limitations on other Kalispell area facilities, demonstrates through dispersion modeling that compliance with the NAAQS for PM-10 will be attained. These reductions in allowable emissions will be enforced through a signed stipulation.

With the proper utilization of existing control equipment and reasonable control techniques (watering or application of dust suppressant) for haul road dust and restrictions on annual operating hours the department has determined that the Mc & W facility should be able to operate at maximum design rates and remain in compliance with the stipulated emission limitations.

Kalispell and Evergreen Nonattainment Boundaries

The area is bounded by lines from UTM Coordinate 700000mE, 5347000mN, east to 704000mE, 5346000mN, south to 704000mE, 5341000mN, west to 703000mE, 5341000mN, south to 703000mE, 5340000mN, west to 702000mE, 5340000mN, south to 702000mE, 5339000mN, east to 703000mE, 5339000N, south to 703000mE, 5338000mN, east to 704000mE, 5338000mN, south to 704000mE, 5336000mN, west to 702000mE, 5336000mN, west to 702000mE, 5336000mN, south to 702000mE, 5335000mN, west to 700000mE, 5335000mN, north to 700000mE, 5340000mN, west to 695000mE, 5340000mN, north to 695000mE, 5345000mN, east to 700000mE, 5345000mN, north to 700000mE, 5347000mN.

VI. Environmental Assessment

An environmental assessment, required by the Montana Environmental Protection Act, was completed for this project. A copy is attached.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Air Quality Bureau
Cogswell Building, Helena, Montana 59620
(406) 444-3454

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Project or Application: McElroy and Wilken, Inc., Air Quality Stipulation for Kalispell SIP.

Description of Project: This stipulation is for the operation of a portable 1988 Baromac Impact Crusher, Model Mark II, Serial #764-385 and a 1986 KHD Humbolt Wedag, Model B, Serial #462-012 and gravel screening facility. This plant crushes gravel for use in construction, repair, and maintenance of roads and highways, and for use in concrete batching.

Benefits and Purpose of Proposal: On July 1, 1987 the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (PM-10). Due to exceedances of the national standards for PM-10, the city of Kalispell and the nearby Evergreen area have been designated by EPA as nonattainment for PM-10. As a result of this designation, EPA required the Department of Health and Environmental Sciences and the Flathead City-County Health Department to submit the Kalispell PM-10 State Implementation Plan (SIP) to EPA in November, 1991. The stipulation identifies the emission sources and makes enforceable emission limitations and the operation of control equipment and techniques which when considered with similar limitations on other Kalispell area sources will achieve the PM-10 NAAQS.

Description and analysis of reasonable alternatives whenever alternatives are reasonably available and prudent to consider: No reasonable alternatives available.

A listing and appropriate evaluation of mitigation, stipulations and other controls enforceable by the agency or another government agency: "A list of enforceable conditions and an analysis of conditions are contained in a signed stipulation.

Recommendation: No EIS is required.

If an EIS is needed, and if appropriate, explain the reasons for preparing the EA:

If an EIS is not required, explain why the EA is an appropriate level of analysis: The emissions from this operation will be reduced by further reducing the allowable hours of operation. This action makes the control equipment, control techniques, and limitations on operating hours at the plant enforceable and assures that the emissions from this facility when considered with similar emission limitations at other sources will attain the PM-10 NAAQS.

Other groups or agencies contacted or which may have overlapping jurisdiction: None

Individuals or groups contributing to this EA: Department of Health and Environmental Sciences, Air Quality Bureau.

EA prepared by: Michael Glavin

Date: July 22, 1993

Potential Impact on Physical Environment

		Major	Moderate	Minor	None	Unknown	Comments Attached
1	Terrestrial and Aquatic Life and Habitats				X		
2	Water Quality, Quantity and Distribution				X		
3	Geology and Soil Quality, Stability and Moisture				X		
4	Vegetation Cover, Quantity and Quality				X		
5	Aesthetics				X		
6	Air Quality			X			
7	Unique Endangered, Fragile or Limited Environmental Resource					X	
8	Demands on Environmental Resource of Water, Air and Energy				X		
9	Historical and Archaeological Sites					X	
10	Cumulative and Secondary Impacts			X			

Potential Impact on Human Environment

		Major	Moderate	Minor	None	Unknown	Comments Attached
1	Social Structures and Mores				X		
2	Cultural Uniqueness and Diversity				X		
3	Local and State Tax Base and Tax Revenue				X		
4	Agricultural or Industrial Production				X		
5	Human Health				X		
6	Access to and Quality of Recreational and Wilderness Activities				X		
7	Quantity and Distribution of Employment				X		
8	Distribution of Population				X		
9	Demands for Government Services				X		
10	Industrial and Commercial Activity				X		
11	Locally Adopted Environmental Plans and Goals			X			
12	Cumulative and Secondary Impacts				X		