


June 9, 2000

MEMORANDUM

TO: Gwen P. Fransen, Regional Administrator
Coeur d'Alene Regional Office

FROM: Allan Johnson, Engineer 
Technical Services Office

SUBJECT: ***PERMIT TO CONSTRUCT TECHNICAL ANALYSIS***
P-00102, Wood's Crushing & Hauling Inc., Portable
(Standard Rock Crusher Permit to Construct No. 777-00259; Including Aggregate,
Asphalt, and Concrete Production when Collocated in Attainment Areas)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

Wood's Crushing & Hauling Inc. is proposing to commence construction of a portable rock crushing facility. Wood's Crushing & Hauling Inc. is requesting a PTC be issued to cover the operations of the rock crushing facility in both attainment and non-attainment areas throughout the State of Idaho. Note that the Standard PTC for a portable rock crusher also includes provisions for collocated operations in attainment areas with one (1) other portable source (i.e., rock crusher, hot-mix asphalt, or concrete batch plant). The rock crushing facility's maximum hourly production rate is 400 tons per hour (400 T/hr). The facility includes a 635-kilowatt (635-kW), diesel-fired, electrical generator.

SUMMARY OF EVENTS

On March 6, 2000, the Idaho Department of Health and Welfare, Division of Environmental Quality (DEQ) received a PTC application. On April 4, 2000, the application was declared complete.

DISCUSSION

1. **Process Description**

The majority of rock crushing facilities in Idaho mine rock deposits from pits using front-end loaders. However, rock may also be mined from quarries by drilling and blasting or dredged from stream beds. Rock crushing facilities generally produce three to four sizes of aggregate by employing a series of crushers and screens.

The rock is transferred to a vibrating grizzly to segregate large from small material. The large material is conveyed to the primary crusher (usually a jaw or gyratory crusher) where it is reduced to 3 to 12 inches in diameter. The crushed material is transferred to the primary screen where it is separated into two or three size ranges. The oversized material is

conveyed to a secondary crusher, and the smaller material is transferred to a tertiary crusher or is stockpiled. The secondary crusher (usually a gyratory or cone crusher) reduces the material to roughly 1 to 4 inches in diameter. The material is rescreened. The oversized material is crushed in a tertiary crusher and rescreened, and the small aggregate is stockpiled.

Particulate matter (PM) emissions are generated at all points of crushing, screening, and material transfer. The use of water spray is the most common method used to control particulate emissions. If an electrical generation unit is used, the combustion of fuel also results in PM emissions, as well as, oxides of nitrogen (NO_x), oxides of sulfur (SO_x), carbon monoxide (CO), and volatile organic compounds (VOCs). Fugitive PM emissions are generated by the mining activities, the aggregate storage piles, and front-end loader and truck traffic.

The Standard PTC requested will allow this rock crushing facility to collocate and simultaneously operate with one (1) other portable plant (i.e., rock crusher, hot-mix asphalt, or concrete batch plant) in attainment areas. It is important to note that during collocated operations, this crusher is then part of a single, larger source engaged in the production of either hot-mix asphalt, concrete, and/or aggregate; depending upon which type of portable plant the crusher is collocated with. While collocated, the two portable plants are now considered to be one source, and the emissions of this single source is the sum of the emissions from the two portable plants. This single, larger source must comply with all applicable federal, state, and local requirements. To maintain compliance, specific requirements and limitations have been included in the Standard PTC for this rock crusher for collocated operations. As described in the following sections of this technical memorandum, specific conservative assumptions and calculations were made to determine these Standard PTC collocation requirements. For this reason, the permit for the other portable plant with which this rock crusher will collocate must also contain specific collocation requirements based on the same conservative assumptions and calculations used in this Standard PTC.

2. Equipment Listing

The analysis upon which this permit was based assumed that the following equipment would be used:

2.1 Primary Crusher

Manufacturer/Type: Norberg 34 x 44 Jaw
Date of Manufacture: 1998
Maximum Capacity: 400 Tons/hr

2.2 Secondary Crusher

Manufacturer/Type: Cedarapids RC 45 Standard Cone
Date of Manufacture: 1991
Maximum Capacity: 400 Tons/hr

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2.3 Tertiary Crusher

Manufacturer/Type: Cedarapids 45 in. RCII Cone
Date of Manufacture: 1995
Maximum Capacity: 400 Tons/hr

2.4 Additional Crusher(s)

Manufacturer/Type: Pioneer
Date of Manufacture: 1960
Maximum Capacity: 200 Tons/hr

2.5 Generator

Manufacturer: Caterpillar
Model: 3412
Serial Number:
Rated Power Output(kW): 635 kW
Fuel Type (gasoline/diesel): Diesel
Fuel Usage (gal/hr): 36 gal/hr
Stack Diameter (ft): 0.5 ft
Stack Height (ft): 14 ft
Exhaust Flared (acfm): 4,061 acfm
Exhaust Temperature (°F): 1,131 °F

When collocated, this crusher is then part of a single, larger source that produces either hot-mix asphalt, concrete, and/or aggregate; depending upon which type of portable plant the crusher is collocated with. The equipment used by this single, larger source would include the crusher equipment listed above plus the equipment of the other portable plant. To see an equipment description for the other portable plant, see the corresponding permitting files for that plant.

3. Area Classification

The rock crushing facility is a portable source and may operate in both attainment and nonattainment areas throughout Idaho.

4. Emission Estimates

Emission estimates to determine the potential to emit (PTE) for aggregate processing and handling are conservatively determined using a spreadsheet specifically developed for rock crushing facilities. The spreadsheet has been developed using emission factors from AP-42, Table 11.19.2-2, 1/95 Edition, to estimate the facility's emissions from crushers, screens, and transfer points. Fugitive emissions from sources that are not affected facilities, pursuant to 40 CFR 60.670, are not included in determining PTE. Likewise for collocated operations; fugitive emissions from hot-mix asphalt plant sources that are not affected facilities, pursuant to 40 CFR 60.90, are not included in determining PTE. PTE is used to determine if prevention of significant deterioration (PSD) or Title V Operating Permit requirements apply to the facility. Emissions from generators are also determined by the spreadsheet using emission factors from AP-42, Tables 3.3-2 and 3.4-2, 1/95 Edition.

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These emissions are included in the determination of PTE. Crusher, screen, and transfer point emissions are not limited to specific pound-per-hour or ton-per-year emission rates because of the margin of error inherent in the emission estimates, which are not source-specific, but rather are applicable to the broader source category of crushed stone processing. Generator emissions are not limited to specific emission rates either.

For collocated operations, a conservative approach is taken by limiting the emissions of each of the collocated units to half of the levels allowed when operating alone. Then the combined emissions of the two collocated sources will be within the allowable levels. See the information below for a more detailed description. This approach is designed to result in acceptable throughput limits for most collocation situations. In cases where the throughput limits are too restrictive, a site-specific analysis and permit amendment may be completed.

This facility's uncontrolled and controlled PTE is 326.5 tons per any consecutive 12-month period (T/yr) and 99.0 T/yr, respectively, based on a throughput of 1.35 million tons of rock per year. The emission estimates are included as Appendix A. The following narrative briefly explains the methods and assumptions used in the development of the source-specific spreadsheet.

ATTAINMENT AREA OPERATIONS

The spreadsheet inherently limits emissions below certain triggering levels (i.e., PSD and Title V thresholds) by *limiting maximum throughput*. If a generator is not used, throughput is solely limited to limit a facility's PTE to 99 T/yr of PM emissions. If a generator is used, throughput is limited based on the most limiting pollutant or pollutants (i.e., the pollutant whose emission rate is closest to 99 T/yr). The spreadsheet calculations incorporate the following to determine the throughput limit: the maximum hourly throughput of the primary crusher, the total number of crushers, the capacity of the generator (if used), the ambient impact from the generator, and the generator's fuel type and fuel consumption rate.

In the standard permit, two throughput limit options are available for attainment area operations. One is for an annual limit (annual is any consecutive 12-month period), and the other is for a daily and annual limit. The annual limit option is chosen only to limit emissions to 99 T/yr or less. The daily and annual limit option is chosen to protect a 24-hour ambient standard, an annual ambient standard, and to limit emissions to 99 T/yr. Depending on the circumstances, one or both options may be required.

NON-ATTAINMENT AREA OPERATIONS

For facilities that operate in a non-attainment area, throughput is limited to protect the standard(s) for which the area is designated as non-attainment. For example, when these facilities operate in a particulate matter with an aerodynamic diameter of less than or equal to a nominal ten (10) microns (PM-10) non-attainment area, throughput is, or may have to be, limited on a daily basis to protect the 24-hour standard, or annually to protect the annual standard. In either case, the spreadsheet automatically calculates the allowable throughput that protects these standards. When a generator is used, the spreadsheet takes into account its ambient impact and limits throughput accordingly. If the impacts are not significant, the spreadsheet limits throughput to keep emissions at or below 99 T/yr.

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In the standard permit, two throughput options are available to choose from for operations in a non-attainment area. The first option states the rock crushing facility cannot operate in any PM-10 non-attainment area or proposed PM-10 non-attainment area without DEQ approval. The choice of this option is obvious. The second option is a daily and annual throughput limit. Imposing this limit not only protects the 24-hour limit and annual limit, but also ensures facility emissions will not exceed 99 T/yr.

COLLOCATED OPERATIONS IN ATTAINMENT AREAS

Standard PTCs will only allow collocation with one (1) other portable source (i.e., rock crusher, hot-mix asphalt, or concrete batch plant) which has also received a Standard PTC that specifically allows collocation. When a combination of one portable crusher unit and one other portable unit are operated at a single location, the emissions of both units must be added together when determining PTE. Consistent with the approach taken for attainment area operations, the spreadsheet inherently limits the combined emissions of the two portable units to below certain triggering levels (i.e., PSD and Title V thresholds) by limiting the maximum throughput of each. For collocated operations, half of the attainment area triggering levels are used as limits for calculating throughput for each source. The crusher throughput is then established based on the most limiting pollutant or pollutants (i.e., the pollutant whose emission rate is closest to 49.5 T/yr). The spreadsheet calculations incorporate the following to determine the throughput limit: the maximum hourly throughput of the primary crusher, the total number of crushers, the capacity of the generator (if used), the ambient impact from the generator, and the generator's fuel type and fuel consumption rate.

In the standard permit, two throughput limit options are available for collocated attainment area operations. One is for an annual limit (annual is any consecutive 12-month period), and the other is for a daily and annual limit. The annual limit option is chosen only to limit the combined emissions to 99 T/yr or less. The daily and annual limit option is chosen to protect a 24-hour ambient standard, an annual ambient standard, and to limit emissions to 99 T/yr. Depending on the circumstances, one or both options may be required.

FUGITIVE EMISSIONS AT THE PROPERTY BOUNDARY

In order to ensure the air quality at and beyond the facility boundary is not further degraded, the standard permit requires that no visible emissions cross the facility boundary. It is assumed if no emissions visibly cross the boundary, the air quality is protected and not further degraded. The permit requirement is offered in lieu of fugitive dust modeling.

5. Modeling

Estimated emissions due to aggregate crushing and handling are expected to vary considerably from the facility's actual emissions. Modeling results would reflect the emission estimates with an added level of conservatism built into the modeling. Because of the degree of uncertainty involved in the emissions estimate, modeling of fugitive dust emissions was not conducted. However, to ensure no ambient air quality standard will be violated due to emissions generated by crushing, screening, aggregate handling, and fugitive sources; the permit requires that emissions from these sources not be seen leaving the property boundary for more than three (3) minutes in any sixty (60) minute period. If visible emissions

are not seen crossing the property boundary, no significant impact on ambient air quality nor a violation of National Ambient Air Quality Standards (NAAQS) will occur.

If a generator is used to provide power to the facility, an ambient impact analysis must be performed to ensure its emissions do not cause or contribute to a violation of any applicable ambient air quality standard. Normally, the EPA-approved SCREEN3 modeling program is used to predict the ambient impact from the generator. The spreadsheet then uses the modeling result and calculates a throughput limit based on the proposed operating area (attainment, non-attainment, or collocated attainment). For collocated operations, the crusher generator operation is limited as needed so that the modeled impacts will be half of the available allowable ambient impact. Likewise for collocated operations; the modeled impacts of the other portable facility will also be limited to half of the available allowable ambient impact so that the combined emissions of the two collocated sources will remain within the NAAQS. Using the 24-hour NAAQS standard for PM-10 (attainment area) as an example, one-half of the allowable available impact would be equal to $32 \mu\text{g}/\text{m}^3$, as follows:

$$32 \mu\text{g}/\text{m}^3 = 0.5 \times [150 \mu\text{g}/\text{m}^3 - 86 \mu\text{g}/\text{m}^3],$$

where $150 \mu\text{g}/\text{m}^3$ is the 24-hour average standard and $86 \mu\text{g}/\text{m}^3$ is the conservative statewide 24-hour average background value. Then the generator operations would be limited as needed, based on the specific ambient impact modeling for this generator, so that its modeled 24-hour concentration does not exceed $32 \mu\text{g}/\text{m}^3$ at or beyond the facility's property boundary. This approach is designed to result in acceptable operational limits for most collocation situations. In cases where these limits are too restrictive, a site-specific analysis and permit amendment may be completed. If a generator is used, the modeling estimates are included as Appendix B.

6. Facility Classification

Rock crushing plants (including collocated operations producing asphalt, concrete, and aggregate) are not designated facilities, as defined in IDAPA 16.01.01.006.27. This facility is not a major facility as defined in IDAPA 16.01.01.006.55 and IDAPA 16.01.01.008.10. The SIC code for this rock crushing facility is 1442, "Construction Sand and Gravel." The AIRS facility classification for this facility is "A2" because the uncontrolled PTE is greater than 100 T/yr. The spreadsheet included as Appendix A automatically determines the facility classification.

7. Regulatory Review

The following rules and/or regulations have been reviewed in this permit analysis:

<u>IDAPA 16.01.01.201</u>	Permit to Construct;
<u>IDAPA 16.01.01.202</u>	Application Procedures;
<u>IDAPA 16.01.01.203</u>	Permit Requirements for New and Modified Stationary Sources;
<u>IDAPA 16.01.01.209</u>	Procedures for Issuing Permits;

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<u>IDAPA 16.01.01.211</u>	Conditions for Permits to Construct;
<u>IDAPA 16.01.01.212</u>	Obligation to Comply;
<u>IDAPA 16.01.01.577</u>	Ambient PM-10 Air Quality Standard;
<u>IDAPA 16.01.01.625</u>	Visible Emissions;
<u>IDAPA 16.01.01.650</u>	Rules for Control of Fugitive Dust; and
<u>IDAPA 16.01.01.728.02</u>	Distillate Fuel Oil.

With regard to 40 CFR 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, this is an affected facility per the applicant's permit application.

8. Permit Coordination

This facility is not a major facility as defined by IDAPA 16.01.01.006.55 and IDAPA 16.01.01.008.10. However, the applicant has indicated that it is an NSPS-affected facility (40 CFR Part 60, Subpart OOO), and therefore, it is a Tier I source as defined by IDAPA 16.01.01.006.104(b). In accordance with IDAPA 16.01.01.301.02(b), Tier I sources not located at major facilities do not require a Tier I Operating Permit until June 1, 2001, unless an earlier date is required by an applicable standard or EPA determines that no Tier I Operating Permit is required.

9. AIRS Information

Since each of these facilities is considered a new facility for AIRS purposes, an update to the AIRS data base is required. The information necessary to update the data base is included as Appendix C of this technical analysis.

FEES

The facility is not a major facility as defined in IDAPA 16.01.01.008.10. Therefore, registration and registration fees, according to IDAPA 16.01.01.526, are not applicable.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Wood's Crushing & Hauling Inc. be issued a PTC for a portable rock crushing facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD PTC requirements.

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cc: DEQ State Office
EPA Region 10
Coeur d'Alene RO

Appendix A

Emission Estimate Calculations

P-000102

Wood's Crushing & Hauling Inc., Sandpoint, ID

From: The following information was received from the applicant:

DATA ENTRY

Company Name: **Meridian** Project: **Meridian** Date: **02/19/00**
 Project: **Meridian** File Name:

Generator Information

Facility Production Capacity: **400 MW**

Approved Hours of Operation: **24 (1) Daily**

Estimated Throughput: **3,500,000 (1) Yearly**

Maximum Hours of Operation: **5,000 (1) Yearly**

Maximum Throughput: **3,500,000 (1) Yearly**

Permit Information

Annual Threshold Emission Limit: **A (A = <100 Tons/yr Below TGA V Threshold)**

Subtotal Emission Limit: **(B = <50 Tons/yr PSD Threshold)**

Generator Information

Generator: **PN13** Capacity: **400 MW** Fuel: **Coal**

Units: **1** (A = Nonoperating) (B = Known)

Fuel Type: **A** (A = Punct Fuel Generator) (B = Standard Fuel Oil/Water Generator)

Fuel Usage: **0 (1) gal/hr**

Installed Value: **400,000,000 (\$)**

Model: **PN13** (A = PN13, B = PN13, C = PN13, D = PN13, E = PN13, F = PN13, G = PN13, H = PN13, I = PN13, J = PN13, K = PN13, L = PN13, M = PN13, N = PN13, O = PN13, P = PN13, Q = PN13, R = PN13, S = PN13, T = PN13, U = PN13, V = PN13, W = PN13, X = PN13, Y = PN13, Z = PN13)

Generator Information

Generator: **PN13** Capacity: **400 MW** Fuel: **Coal**

Units: **1** (A = Nonoperating) (B = Known)

Fuel Type: **A** (A = Punct Fuel Generator) (B = Standard Fuel Oil/Water Generator)

Fuel Usage: **0 (1) gal/hr**

Installed Value: **400,000,000 (\$)**

Model: **PN13** (A = PN13, B = PN13, C = PN13, D = PN13, E = PN13, F = PN13, G = PN13, H = PN13, I = PN13, J = PN13, K = PN13, L = PN13, M = PN13, N = PN13, O = PN13, P = PN13, Q = PN13, R = PN13, S = PN13, T = PN13, U = PN13, V = PN13, W = PN13, X = PN13, Y = PN13, Z = PN13)

UNIT'S REFERRED TO CONSTRAINT (1/1)	Value	Units
Section A.2.1 Operating Requirements		
Section A.2.1.1 Number of Generators	4	
Section A.2.1.2 Number of Generators	1	
Section A.2.1.3 State of Generator	433	(1) MW
Section B.1.1 Estimated Annual Throughput Limit	3,500,000	Yearly
Section B.1.2 Facility Throughput Limit	3,500,000	Yearly
Section B.1.3 Generator Hours of Operation	<<ANDOR>>	
Section C.1.1 Number of Generators	NA	
Section C.1.2 Annual Throughput Limit	NA	
Section C.1.3 Annual Hours of Operation	675,495	Yearly
Section C.1.4 Generator Hours of Operation	2,411	Yearly
Section C.1.5 State of Generator	<<ANDOR>>	
Section D.1.1 Daily Hours of Operation	NA	
Section D.1.2 Annual Throughput Limit	3,500,000	Yearly
Section D.1.3 Facility Throughput Limit	3,500,000	Yearly
Section D.1.4 Generator Hours of Operation	<<ANDOR>>	
Section D.1.5 Daily Hours of Operation	NA	

On-line Permitting System

Permit	Background Characterization - A (Maximum Annual Average Daily)		Year	Annual
	1-h	3-h		
PM				
PM 10				3.1
SU				4.3
SO 2				0.1
NO 2				0.1
NO X				0.1

PERMIT LIMITS TABLE

Category	New Assessment Area		Calculated Assessment Area		1997 to 2000	1997 to 2000	1997 to 2000
	1-h	3-h	8-h	Annual			
Operating Equipment	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Operating Equipment	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Operating Equipment	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Operating Equipment	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Operating Equipment	1.33	1.33	1.33	1.33	1.33	1.33	1.33

UNIT 7

Permitted to Park - Based on Applicant's Data

Category	Permitted to Park	Quantity (Tons)	Quantity (Tons)
PM 10	148 tons	237 tons	148 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons

Permitted to Park - Based on NMCI Inspection

Category	Permitted to Park	Quantity (Tons)	Quantity (Tons)
PM 10	148 tons	237 tons	148 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons
PM 10	1.3 tons	1.3 tons	1.3 tons

Table Part 1 (cont'd) (G. Areas of High Interest)

WISCONSIN WISCONSIN - BASED ON AMBIENT AIR QUALITY STANDARDS
 Emissions Based on Low Rates

Pollutant	General Emission Factor (lb/MMBtu)	General Emission Rate (lb/hr)	Hours of Operation (hr/yr)	Hours of Operation (hr/yr)	Hours of Operation (hr/yr)	Calculated Emissions		Hours of Operation (hr/yr)	Hours of Operation (hr/yr)	Hours of Operation (hr/yr)	Hours of Operation (hr/yr)
						Calculated Emissions (lb/yr)	Calculated Emissions (lb/yr)				
PM ₁₀	0.14	262	8760	8760	8760	2290	2290	8760	8760	8760	8760
SO ₂	0.13	246	8760	8760	8760	2290	2290	8760	8760	8760	8760
NO _x	0.13	246	8760	8760	8760	2290	2290	8760	8760	8760	8760
CO	0.13	246	8760	8760	8760	2290	2290	8760	8760	8760	8760
CH ₄	0.13	246	8760	8760	8760	2290	2290	8760	8760	8760	8760
N ₂ O	0.13	246	8760	8760	8760	2290	2290	8760	8760	8760	8760
HFC	0.13	246	8760	8760	8760	2290	2290	8760	8760	8760	8760
PFC	0.13	246	8760	8760	8760	2290	2290	8760	8760	8760	8760

Archived Air Emissions of Air Pollutants (lb/yr)

Pollutant	Calculated Emissions		Calculated Emissions		Hours of Operation (hr/yr)	Hours of Operation (hr/yr)	Hours of Operation (hr/yr)	Hours of Operation (hr/yr)
	Calculated Emissions (lb/yr)	Calculated Emissions (lb/yr)	Calculated Emissions (lb/yr)	Calculated Emissions (lb/yr)				
PM ₁₀	2290	2290	2290	2290	8760	8760	8760	8760
SO ₂	2290	2290	2290	2290	8760	8760	8760	8760
NO _x	2290	2290	2290	2290	8760	8760	8760	8760
CO	2290	2290	2290	2290	8760	8760	8760	8760
CH ₄	2290	2290	2290	2290	8760	8760	8760	8760
N ₂ O	2290	2290	2290	2290	8760	8760	8760	8760
HFC	2290	2290	2290	2290	8760	8760	8760	8760
PFC	2290	2290	2290	2290	8760	8760	8760	8760

Notes:
 1. PM₁₀ calculated on the basis of the maximum amount of particulate matter emitted.
 2. SO₂ calculated on the basis of the maximum amount of sulfur dioxide emitted.
 3. NO_x calculated on the basis of the maximum amount of nitrogen oxides emitted.
 4. CO calculated on the basis of the maximum amount of carbon monoxide emitted.
 5. CH₄ calculated on the basis of the maximum amount of methane emitted.
 6. N₂O calculated on the basis of the maximum amount of nitrous oxide emitted.
 7. HFC calculated on the basis of the maximum amount of hydrofluorocarbon emitted.
 8. PFC calculated on the basis of the maximum amount of perfluorocarbon emitted.

Table Permitted Air Use and Emissions

EMISSION ANALYSIS - BASED ON AMBIENT AIR QUALITY DATA
1998 Tuesday

Pollutant	Generator Emission Rate lb/hr	Generator Emission Rate lb/day	Hours of Operation hr/yr	Hours of Operation hr/yr	Calculated Impact		Allowable Impact		Maximum Throughput lb/yr
					lb/yr	lb/yr	lb/yr	lb/yr	
PM ₁₀	0.14	0.34	85	85	11,725	11,725	11,725	11,725	11,725
PM _{2.5}	0.09	0.22	85	85	7,665	7,665	7,665	7,665	7,665
SO ₂	1.14	2.74	85	85	97,650	97,650	97,650	97,650	97,650
NO _x	1.14	2.74	85	85	97,650	97,650	97,650	97,650	97,650
CO	0.41	1.00	85	85	34,825	34,825	34,825	34,825	34,825

Pollutant	Generator Emission Rate lb/hr	Generator Emission Rate lb/day	Hours of Operation hr/yr	Hours of Operation hr/yr	Calculated Impact		Allowable Impact		Maximum Throughput lb/yr
					lb/yr	lb/yr	lb/yr	lb/yr	
PM ₁₀	0.14	0.34	85	85	11,725	11,725	11,725	11,725	11,725
PM _{2.5}	0.09	0.22	85	85	7,665	7,665	7,665	7,665	7,665
SO ₂	1.14	2.74	85	85	97,650	97,650	97,650	97,650	97,650
NO _x	1.14	2.74	85	85	97,650	97,650	97,650	97,650	97,650
CO	0.41	1.00	85	85	34,825	34,825	34,825	34,825	34,825

Pollutant	Generator Emission Rate lb/hr	Generator Emission Rate lb/day	Hours of Operation hr/yr	Hours of Operation hr/yr	Calculated Impact		Allowable Impact		Maximum Throughput lb/yr
					lb/yr	lb/yr	lb/yr	lb/yr	
PM ₁₀	0.14	0.34	85	85	11,725	11,725	11,725	11,725	11,725
PM _{2.5}	0.09	0.22	85	85	7,665	7,665	7,665	7,665	7,665
SO ₂	1.14	2.74	85	85	97,650	97,650	97,650	97,650	97,650
NO _x	1.14	2.74	85	85	97,650	97,650	97,650	97,650	97,650
CO	0.41	1.00	85	85	34,825	34,825	34,825	34,825	34,825

Crater Fire Basin - Fish Lake - 1998 Results

Assessment Area - Crater Lake - Calculations

Assessment Area	Calculated Carbon AS Concentration - Assessment Area Calculations (1983 to 2000, 8 3446 samples are used to half for confidence)				Assessed Min. Hg in Sample (41.575)1
	1 lb	2 lb	4 lb	34 lb	
Crater Lake	84377	3386		361	83
Crater Lake			841	84	124
Crater Lake					211

Assessment Area	Assessed Carbon AS Concentration - Assessment Area Calculations (1983 to 2000, 8 3446 samples are used to half for confidence)				Assessed Min. Hg in Sample (41.575)1
	1 lb	2 lb	4 lb	34 lb	
Crater Lake	11280	3125		867	311
Crater Lake			244	244	450
Crater Lake					315

Appendix B

Modeling Results

P-000102

Wood's Crushing & Hauling Inc., Sandpoint, ID

05/23/00
15:34:26

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Woods Crushing

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = .126000
STACK HEIGHT (M) = 4.2600
STK INSIDE DIAM (M) = .1500
STK EXIT VELOCITY (M/S)= 108.4561
STK GAS EXIT TEMP (K) = 883.7000
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = 1.0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = .0000
MIN HORIZ BLDG DIM (M) = .0000
MAX HORIZ BLDG DIM (M) = .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 4061.0000 (ACFM)

BUOY. FLUX = 3.999 M**4/S**3; MOM. FLUX = 21.938 M**4/S**2.

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	U10M STAB	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	1	1.0	1.0	320.0	64.85	2.39 2.36	NO
100.	16.84	3	10.0	10.0	3200.0	10.32	12.56 7.60	NO
200.	14.72	4	8.0	8.0	2560.0	11.83	15.71 8.77	NO
300.	11.97	4	5.0	5.0	1600.0	16.38	22.87 12.58	NO
400.	10.12	4	4.5	4.5	1440.0	17.72	29.70 15.75	NO
500.	8.676	4	3.5	3.5	1120.0	21.57	36.48 18.95	NO
600.	7.601	4	3.0	3.0	960.0	24.46	43.11 21.98	NO
700.	6.750	4	2.5	2.5	800.0	28.49	49.67 25.01	NO
800.	6.092	4	2.5	2.5	800.0	28.49	56.00 27.66	NO
900.	5.550	4	2.0	2.0	640.0	34.55	62.49 30.71	NO
1000.	5.118	4	2.0	2.0	640.0	34.55	68.67 33.24	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
94. 16.96 3 10.0 10.0 3200.0 10.32 11.98 7.26 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)

DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	16.96	94.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

Appendix C

AIRS Information

P-000102

Wood's Crushing & Hauling Inc., Sandpoint, ID

ABBREVIATED AIRS DATA ENTRY SHEET - ROCK CRUSHERS

Name of Facility: Wood's Crushing & Hauling Inc.

AIRS/Permit #: 777-00259

Permit Issue Date: _____

*Source/Emissions Unit Name (25 spcs)
(Please use name as indicated in permit)

SCC #
(8 digit #)

Air Program
(SIP/NESHAP/
NSPS/PSD)

* Rock Crushers

30502510

NSPS/SIP

Diesel Generator

20200401

SIP

Transfer/Screen/Convey

30502503

SIP

Fugitives

30588801

SIP

Property Boundary

30588801

SIP

RETURN TO PAT RAYNE
AIRS-PT.LST (9/95)

Idaho

