July 20, 2001

MEMORANDUM

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

FROM: Tom Harman, Air Quality Program Manager
Coeur d'Alene Regional office

SUBJECT: ***PERMIT TO CONSTRUCT TECHNICAL ANALYSIS***
P-010103, Spokane Rock Products, Portable
(Standard Concrete Batch Plant Permit to Construct No. **777-00285**; Including Aggregate, Asphalt, and Concrete Production when Collocated in Attainment Areas)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 (*Rules for the Control of Air Pollution in Idaho*) for issuing Permits to Construct (PTC).

PROJECT DESCRIPTION

SPOKANE ROCK PRODUCTS, INC. is proposing to commence construction of a portable concrete batching facility. SPOKANE ROCK PRODUCTS, INC. is requesting a PTC be issued to cover the operations of the concrete batching facility in both attainment and nonattainment areas throughout the state of Idaho. Note that the Standard PTC for a portable concrete batching facility also includes provisions for collocated operations in attainment areas with one other portable source (i.e., rock crusher, hot-mix asphalt, or concrete batch plant). The concrete batch plant's maximum hourly throughput is 200 cubic yards per hour (200 cy/hr). Electricity is supplied to the facility by the local utility.

SUMMARY OF EVENTS

On June 22, 2001, the Idaho Department of Environmental Quality received an application from Spokane Rock Products, Inc. for a portable concrete batch plant. On July 6, 2001, the application was determined complete.

DISCUSSION

1. Process Description

Concrete is produced by combining water, sand and gravel, and Portland cement. A portable concrete batch plant consists of storage bins for the sand and gravel, a storage silo for the cement, weigh bins that weigh each component, a conveyor, a water supply, and a control panel. Sand and gravel are either produced on site or purchased elsewhere. Typically, three or four different sizes of gravel and one or two different sizes of sand are stockpiles for varying job specifications. Cement is delivered by truck and pneumatically transferred to its storage silo. A baghouse is mounted above the silo to capture cement as air is displaced in the silo. For this source category, the baghouse is considered process equipment primarily, and air pollution control equipment secondarily. Power to run the facility is provided by the local utility.

After all the storage bins are filled, the production process begins when sand and gravel are drop-fed into their respective weigh bins. When a pre-determined amount of each is weighed, the sand and gravel is drop-fed onto an inclined conveyor, which transfers the mixture into a cement truck. A pre-determined amount of cement is also weighed and drop-fed through a rubber chute into the cement truck. The rubber chute directs the cement and provides a measure of dust control. A separate baghouse is used to capture cement dust from the cement weigh bin. Water is then added, and the components are mixed in the truck on the way to the job site.

The Standard PTC requested will allow this concrete batching facility to collocate and simultaneously operate with one 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 concrete batching facility is then part of a single, larger source engaged in the production of either concrete, aggregate and/or asphalt, depending upon which type of portable plant the concrete batching facility 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 concrete batching facility 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 concrete batching facility 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 facility is permitted assumes the following equipment would be used:

2.1 Portable Concrete Batch Plant

Manufacturer	-	WEMCO
Model	-	Pro Batch 150 Mobile Transit Mix Plant
Maximum Capacity (cy/hr)	-	200

2.2 Cement Storage Silo Baghouse

Stack Height (ft)	-	60
Stack Diameter (ft)	-	0.67 (8-inches)
Exit Air Flowrate (acfm)	-	1000
Capture Efficiency	-	99.9%

2.3 Cement Weigh Bin Baghouse

Stack Height (ft)	-	30
Stack Diameter (ft)	-	0.5 (6-inches)
Exit Air Flowrate (acfm)	-	126
Capture Efficiency	-	99.9%

When collocated, this concrete batch plant is then part of a single, larger source that produces either concrete, aggregate, and/or asphalt, depending upon which type of portable plant the concrete batch plant is collocated with. The equipment used by this single, larger source would include the concrete batch plant 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 concrete batching facility is a portable source and may operate in both attainment and nonattainment areas throughout the state of Idaho.

4. Emission Estimates

A spreadsheet has been developed specifically for concrete batching facilities to determine their potential to emit (PTE). PTE is used to determine if Prevention of Significant Deterioration (PSD) or Title V Operating Permit requirements apply. In determining PTE, the spreadsheet uses production data supplied by the applicant and emission factors from EPA's AP-42. For concrete batching facilities, PTE is based on emissions from the cement storage silo baghouse, and the cement weigh bin baghouse. If the facility includes a generator, its emissions are also included in the determination of the facility's PTE. Because these facilities are not designated facilities or NSPS-affected facilities, fugitive emissions from concrete batch plants do not count toward determining PTE. This facility's PTE is 0.12 tons per any consecutive 12-month period (0.12 T/yr) based on PM10 emissions.

The spreadsheet inherently limits emissions below certain triggering levels (i.e., PSD and Title V thresholds) by limiting throughput. If a generator is not used, throughput is solely limited to limit a facility's PTE below 99 T/yr of PM-10 emissions. If a generator is used, throughput is limited to protect the NAAQS and it is limited to keep emissions below the 99 T/yr triggering level. The throughput limits for this facility are presented below. The spreadsheet used to calculate the PTE and throughput limit is included as Appendix A of this document.

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.

4.1 Attainment Area Operations

In the standard permit, two throughput limit options are available to choose from. One option limits annual throughput (annual is any consecutive 12-month period) only and the other option limits daily and annual throughput. The annual throughput limit option is chosen to limit emissions to 99 T/yr or less. This option is most likely chosen if the facility does not include a generator. The daily and annual limit is chosen when throughput has to be limited to protect the 24-hr PM-10 NAAQS and to limit facility emissions to 99 T/yr or less.

For this concrete batch plant, the concrete throughput is unlimited while operating in any attainment or unclassifiable area.

4.2 Nonattainment Area Operations

For facilities that use a generator in a PM-10 nonattainment area or proposed PM-10 nonattainment area, throughput is limited to protect the PM-10 nonattainment area 24-hour and annual ambient impact limits (5.0 ug/m3 and 1.0 ug/m3, respectively). When a generator is not used, throughput is limited to keep PM-10 emissions below 99 T/yr.

For this concrete batch plant, the concrete throughput is unlimited while operating in PM-10 nonattainment area or proposed PM-10 nonattainment area.

4.3 Collocated Operations in Attainment Areas

Standard PTCs will only allow collocation with one other portable source (i.e., rock crusher, hot-mix asphalt plant, or concrete batch plant) which has also received a Standard PTC that specifically allows collocation. When a combination of one portable concrete batching 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 concrete batch plant 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).

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. For this concrete batch plant, the concrete throughput is limited to 876,000 cubic yards per consecutive 12-month

period (cy/yr) when collocated with another concrete batch plant, rock crushing plant, or hot-mix asphalt plant in any attainment or unclassifiable area.

4.4 Fugitive Emissions

What about - collocation in non-attainment areas?

Even though fugitive dust emissions are not included to determine PTE, they must be reasonably controlled at all times. In order to ensure the air quality is not degraded beyond the facility boundary, the standard permit requires that no visible emissions be seen crossing the facility boundary. It is assumed if no emissions visibly cross the boundary, the air quality is protected. This provision is included in the standard permit in lieu of fugitive dust modeling.

Modeling of Point Sources

5.1 Baghouse(s)

The EPA-approved SCREEN3 model was used in this analysis using stack data provided by the applicant to predict the impact the baghouse emissions may have on the ambient air. A one (1) pound-per-hour emission rate (7.6 grams per second) was input into the model which calculated a maximum 1-hour concentration of 23.7 $\mu g/m^3$ for the cement silo baghouse. A 1-hour concentration of 148.5 $\mu g/m^3$ was predicted for the weigh batch baghouse. This information was input into the spreadsheet which calculated the allowable throughput.

5.2 Collocated Operations

For collocated operations in attainment areas, operation of the concrete batch plant and its generator (if used) are 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 $\mu g/m^3$, as follows:

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

where 150 $\mu g/m^3$ is the 24-hour average standard and 86 $\mu g/m^3$ is the conservative statewide 24-hour average background value. Then operation of the concrete batch plant and its generator (if used) would be limited as needed, based on the specific ambient impact modeling, so that the modeled 24-hour concentration does not exceed 32 $\mu g/m^3$ 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.

6. Facility Classification

This facility is not a major facility as defined in IDAPA 16.01.01.006.55 and IDAPA 58.01.01.008.10. Portable concrete batch plants are not designated facilities as defined in IDAPA 58.01.01.006.27. Concrete batch plants are not subject to federal New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPS) regulation. The SIC code for concrete batch plants is 3273. The AIRS facility classification for this facility is "B" because the uncontrolled potential to emit is less than (100 T/yr). The spreadsheet included as Appendix A automatically determines the facility classification.

7. Regulatory Review

The following rules and regulations have been reviewed for this permit analysis:

IDAPA 58.01.01.201	Permit to Construct;
IDAPA 58.01.01.202	Application Procedures;
IDAPA 58.01.01.203	Permit Requirements for New and Modified Stationary Sources;
IDAPA 58.01.01.209	Procedures for Issuing Permits;
IDAPA 58.01.01.211	Conditions for Permits to Construct;
IDAPA 58.01.01.212	Obligation to Comply;
IDAPA 58.01.01.577	Ambient PM-10 Air Quality Standard;
IDAPA 58.01.01.625	Visible Emissions; and
IDAPA 58.01.01.650	Rules for Control of Fugitive Dust.

8. Permit Coordination

This concrete batching facility is not a major facility as defined by IDAPA 16.01.01.006.55 and IDAPA 58.01.01.008.10, and it is not an NSPS-affected facility. Therefore, coordination with the Operating Permit Section is not necessary.

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 in accordance with IDAPA 58.01.01.526 are not applicable.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that SPOKANE ROCK PRODUCTS, INC. be issued a PTC for a portable concrete batching facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD PTC requirements.

cc: DEQ State Office
Coeur d'Alene Regional Office

Appendix A

Emission Estimate Calculations

Concrete Batch Plant, Portable

Company Name:	Spokane Rock Products	**Engineer:**	TH/vh
Permit No.:	777-00285	**Date:**	11-Jul-01
Project:	STANDARD SREADSHEET CONCRETE BATCH PLANTS	**File:**	gxfer\harman\workforvonnie\spokane rock products sdsht

Ton per Year Emission Limit: 99.9 [=] Tons/yr

Concrete Batch Plant Information

Facility Production Capacity:	200	[=] yd3/hr
Maximum Annual Hours of Operation	8,760	[=] hr/yr
Cement Silo:		
Modeled 1-hr Concentration:	23.7	[=] µg/m3, at emission rate of 1 lb/hr
Baghouse Control Effcy.	99.90%	%
Cement Hopper:		
Modeled 1-hr Concentration:	148.5	[=] µg/m3, at emission rate of 1 lb/hr
Baghouse Control Effcy.	99.90%	%

Generator Set Information

Generator? (Y/N)	N	
	B	
	A	
	50	Conversion Factor
		0
	560	

Background Concentrations					
	1-hr	3-hr	8-hr	24-hr	Annua
PM_{10}				86	32.7
CO	11400		5130		
NO_x					40
SO_x		543		144	23.5
TOC					

INPUTS TO PERMIT TO CONSTRUCT (PTC)		**Value**	**Units**
Section B "Attainment Area When Not Collocated"			
Section B.1.1Facility Throughput Limits:	**Annual Throughput Limit**	*Unlimited*	**yd3/yr**
	<<OR>>		
	Daily Throughput Limit	*Unlimited*	**yd3/day**
	Annual Throughput Limit	*Unlimited*	**yd3/yr**
Section B.1.3 Generator Hours of Operation:	**Annual Hours of Operation**	**NA**	**hr/year**
	<<AND/OR>>		
	Daily Hours of Operation	**NA**	**hr/day**
Section C "Attainment Area When Collocated"			
Section C.1.3 Facility Throughput Limits:	**Annual Throughput Limit**	**876,000**	**yd3/yr**
	<<OR>>		
	Daily Throughput Limit	*Unlimited*	**yd3/day**
	Annual Throughput Limit	**876,000**	**yd3/yr**
Section C.1.4 Generator Hours of Operation:	**Annual Hours of Operation**	**NA**	**hr/year**
	<<AND/OR>>		
	Daily Hours of Operation	**NA**	**hr/day**
Section D "Nonattainment Area"			
Section D.1.1 Facility Throughput Limits:	**Annual Throughput Limits**	*Unlimited*	**yd3/yr**
	<<AND/OR>>		
	Daily Throughput Limits	*Unlimited*	**yd3/day**
	Annual Throughput Limits	*Unlimited*	**yd3/yr**
Section D.1.3 Generator Hours of Operation:	**Annual Hours of Operation**	**NA**	**hr/year**
	<<AND/OR>>		
	Daily Hours of Operation	**NA**	**hr/day**

PERMIT LIMITS TABLE

	Non-Attainment Area	Attainment Area	Collocated Attainment Area
Production Rate:	200 yds/hr	200 yds/hr	200 yds/hr
Operational Schedule:	24.0 hr/day 8,760 hr/year	24.0 hr/day 8,760 hr/year	24.0 hr/day 4,380 hr/year
Throughput Limits:	*Unlimited* yds/day *Unlimited* yds/yr	*Unlimited* yds/day *Unlimited* yds/yr	*Unlimited* yds/day 876,000 yds/yr
Limiting Pollutant:	None	None	None
AIRS Facility Classification	B	B	B

CO 1-hr Standard	SO2 3-hr Standard	CO 8-hr Standard	
minutes/1-hr	hr/3-hr	hr/8-hr	
60.00	3.00	8.00	

OUTPUT

POTENTIAL TO EMIT -- EMISSIONS ANALYSIS USING AMBIENT AIR QUALITY STANDARDS

Attainment/Non-Classifiable Areas

Generator

Pollutant	Permitted Controlled Emission Rates	
PM_{10}	0.00 lbs/hr	0.00 Tons/yr
CO	0.00 lbs/hr	0.00 Tons/yr
NO_x	0.00 lbs/hr	0.00 Tons/yr
SO_2	0.00 lbs/hr	0.00 Tons/yr
TOC	0.00 lbs/hr	0.00 Tons/yr

Concrete Batching Point Sources

PM_{10}	0.0280 lbs/hr	0.123 Tons/yr

	Uncontrolled	Controlled		Classification
Potential to Emit:	0.1 Tons/yr	0.1 Tons/yr	PM_{10}	B

Enforceable Limits:

Production Rate:	200 yds/hr			
Operational Schedule:	24.0 hr/day		8,760 hr/year	
Throughput Limits:	*Unlimited* yds/day	*Unlimited*	yds/yr	
Limiting Pollutant:	None			

ATTAINMENT/NON-CLASSIFIABLE AREAS

Concrete Batching Point Sources

Source	PM Emission Factor [=] lb/yd3 Concrete	Pre-Baghouse PM Emissions [=] lb/hr	Pre-Baghouse PM Emissions [=] T/yr	Given	Baghouse Control Efficiency	Post-Baghouse PM Emissions [=] lb/hr	Post-Baghouse PM Emissions [=] T/yr
Cement Silo Loading (Pneumatic)	0.07	14.0	61.3	8,760 hrs/yr	99.90%	0.014	0.06
Weigh Hopper Loading (Cement)	0.07	14.0	61.3	8,760 hrs/yr	99.90%	0.014	0.06
Total		28.0	122.6			0.028	0.12

Generator and Concrete Batching Point Source Emissions

Pollutant	Generator Emisson Factor [=] lb/hp-hr	Generator Emission Rate [=] lb/hr	Allowable Impacts AAQS Hours of Operation [=] hr/day	Hours of Operation [=] hr/year	Other	< 100 TPY[1] Hours of Operation [=] hr/year
PM	N/A	0.00	N/S	N/S		N/S
PM_{10}	N/A	0.00	24.0	8,760		8,760
CO	N/A	0.00	N/S	N/S		8,760
CO [2]					1.0	
CO [3]					8.0	
NO_x	N/A	0.00	N/S	8,760		8,760
SO_2	N/A	0.00	24.0	8,760		8,760
SO_2 [4]					3.0	
TOC	N/A	0.00	N/S	N/S		8,760

Hours of Operation [=] hr/day	[=] hr/year
24.0	8,760
Based on:	Based on:
None	None

Generator & Silo Allowable Impacts Emission Rates [=] lb/day	[=] Tons/year
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00

Permitted Impacts AAQS Calculated 24-hr Impact [=] µg/m	Calculated Annual Impact [=] µg/m	Other	< 100 TPY[1] Calculated Emissions [=] ton/year
N/S	N/S		0.12
1.0	0.2		0.12
0.0	0.0		0.00
		0.0	
		0.0	
0.0	0.0		0.00
0.0	0.0		0.00
		0.0	
0.0	0.0		0.00

Non-Attainment Areas

Generator

Pollutant	Permitted Controlled Emission Rates	
PM_{10}	0.00 lbs/hr	0.00 Tons/yr
CO	0.00 lbs/hr	0.00 Tons/yr
NO_x	0.00 lbs/hr	0.00 Tons/yr
SO_2	0.00 lbs/hr	0.00 Tons/yr
TOC	0.00 lbs/hr	0.00 Tons/yr

Concrete Batching Point Sources

PM_{10}	0.0280 lbs/hr	0.123 Tons/yr

	Uncontrolled	Controlled		Classification
Potential to Emit:	0.1 Tons/yr	0.1 Tons/yr	PM_{10}	B

Enforceable Limits:

Production Rate:	200 yds/hr			
Operational Schedule:	24.0 hr/day		8,760 hr/year	
Throughput Limits:	*Unlimited* yds/day	*Unlimited*	yds/yr	
Limiting Pollutant:	None			

Pollutant	Ambient Air Concentrations w/ Background Values (ug/m3) 1-hr	3-hr	8-hr	24-hr	Annual
PM					
PM_{10}					
CO	11,400		5,130		
NO_x					
SO_2		543		144	24
TOC					

NON-ATTAINMENT AREAS

Concrete Batching Point Sources

Source	PM Emission Factor [=] lb/yd3 Concrete	Pre-Baghouse PM Emissions [=] lb/hr	Pre-Baghouse PM Emissions [=] T/yr	Given	Baghouse Control Efficiency	Post-Baghouse PM Emissions [=] lb/hr	Post-Baghouse PM Emissions [=] T/yr
Cement Silo Loading (Pneumatic)	0.07	14.0	61.32	8,760 hrs/yr	99.90%	0.014	0.06
Weigh Hopper Loading (Cement)	0.07	14.0	61.32	8,760 hrs/yr	99.90%	0.014	0.06
Total		28.0	122.64			0.028	0.12

Generator and Concrete Batching Point Source Emissions -- Non-Attainment Areas

Pollutant	Generator Emisson Factor [=] lb/hp-hr	Generator Emission Rate [=] lb/hr	Allowable Impacts AAQS Hours of Operation [=] hr/day	Hours of Operation [=] hr/year	Hours of Operation Other 2,3,4	< 100 TPY1 Hours of Operation [=] hr/year	Generator & Silo Allowable Impacts Hours of Operation [=] hr/day	[=] hr/year	Emission Rates [=] lb/day	[=] Tons/year	Permitted Impacts AAQS Calculated 24-hr Impact [=] ug/m	Calculated Annual Impact [=] ug/m	Other	< 100 TPY1 Calculated Emissions [=] ton/year
PM	N/A	0.00	N/S	N/S		N/S	24.0	8,760	0.0	0.00	N/S	N/S		0.12
PM_{10}	N/A	0.00	24.0	8,760		8,760	Based on:	Based on:	0.0	0.00	1.0	0.2		0.12
CO	N/A	0.00	N/S	N/S		8,760	None	None	0.0	0.00	0.0	0.0		0.00
CO 2					1.0								0.0	
CO 3					8.0								0.0	
NO_x	N/A	0.00	N/S	8,760		8,760			0.0	0.00	0.0	0.0		0.00
SO_2	N/A	0.00	24.0	8,760		8,760			0.0	0.00	0.0	0.0		0.00
SO_2 4					3.0								0.0	
TOC	N/A	0.00	N/S	N/S		8,760			0.0	0.00	0.0	0.0		0.00

Notes: 1 TPY calculations include concrete batching point source emissions.
2 CO 1-hr Averaging Period
3 CO 8-hr Averaging Period
4 SO_2 3-hr Averaging Period
** Assumes ambient TSP concentrations exceed NAAQS in PM-10 Non-Attainment Areas.

Attainment Area - Collocated Units - Calculations

Collocated Ambient Air Quality Standards - Calculations

Pollutant	(1-hr, 3-hr, 8-hr, 24-hr standards are cut in half for collocation) 1-hr	3-hr	8-hr	24-hr	Annual (50% Attainment Hours)
PM					
PM-10				31.03568	8.65
CO	14300		2435		
NO_x					30
SO_2		378.5		110.5	28.25
TOC					

Background Concentrations -- Attainment/Non-Classifiable Areas (ug/m3)

Pollutant	1-hr	3-hr	8-hr	24-hr	Annual
PM					
PM-10				86	32.7
CO	11400		5130		
NO_x					40
SO_2		543		144	23.5
TOC					

Appendix B

Modeling

Concrete Batch Plant, Portable

Notes

SPOKANE ROCK PRODUCTS

A SCREEN 3 MODELING - CEMENT SILO

BASED ON 1 lb/hr emission rate:

$$\frac{1\ lb}{hr}\left(\frac{454\ g}{lb}\right)\left(\frac{1\ hr}{3600\ sec}\right) = 0.126\ \frac{g}{s}$$

$$\text{EXIT VELOCITY} = \frac{Q}{A} = \frac{1000\ acfm}{\pi\left(\frac{0.67}{2}\right)^2} = 2838\ fpm\left(\frac{0.3048\ m}{ft}\right)\left(\frac{1\ min}{60\ sec}\right) = 14.4\ \frac{m}{s}$$

$$\text{RELEASE HT} = 60\ ft\left(\frac{0.3048\ m}{ft}\right) = 18.3\ m$$

$$\text{STACK DIAMETER} = 8\ in\left(\frac{1\ ft}{12\ in}\right)\left(\frac{0.3048\ m}{ft}\right) = 0.20\ m$$

ASSUME NO ASSOCIATED BLDG.

POPULATION CLASSIFICATION = URBAN

DISTANCE TO PROPERTY LINE = 200 ft = 6096m
(PER 6/18/01 EMAIL FROM J. HARTALIN)

B RERUN SCREEN3 FOR CEMENT SCALE

ALL SAME EXCEPT:

$$\text{EXIT VELOCITY} = \frac{126\ cfm}{\pi\left(\frac{0.5}{2}\right)^2} = 792.6\ fpm = 4.0\ \frac{m}{s}$$

STACK HEIGHT = 30 ft = 9.1 m

$$\text{STACK DIAMETER} = 6\ in\left(\frac{ft}{12\ in}\right)\left(\frac{0.3048\ m}{ft}\right) = 0.15\ m$$

06/22/01
07:36:43

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

Spokane Rock Products - Cement Storage Silo

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	18.3000
STK INSIDE DIAM (M)	=	.2000
STK EXIT VELOCITY (M/S)	=	14.4000
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	23.70	270.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = 2.074 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)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
61.	4.972	1	2.0	2.1	640.0	22.44	17.26	8.82	NO
100.	17.25	1	1.0	1.0	320.0	26.58	26.96	14.15	NO
200.	22.23	2	1.0	1.0	320.0	26.58	36.24	20.37	NO
300.	23.30	3	1.0	1.1	320.0	26.43	34.37	20.46	NO
400.	19.38	3	1.0	1.1	320.0	26.43	44.71	26.55	NO
500.	20.00	4	1.0	1.1	320.0	26.19	36.22	18.44	NO
600.	18.89	4	1.0	1.1	320.0	26.19	42.78	21.33	NO

700.	18.15	5	1.0	1.2	10000.0	24.33	36.81	16.60	NO
800.	17.67	5	1.0	1.2	10000.0	24.33	41.58	18.35	NO
900.	16.75	5	1.0	1.2	10000.0	24.33	46.30	20.04	NO
1000.	15.66	5	1.0	1.2	10000.0	24.33	50.97	21.70	NO
1100.	14.92	6	1.0	1.4	10000.0	23.57	36.99	14.90	NO
1200.	14.86	6	1.0	1.4	10000.0	23.57	40.04	15.73	NO
1300.	14.62	6	1.0	1.4	10000.0	23.57	43.07	16.54	NO
1400.	14.28	6	1.0	1.4	10000.0	23.57	46.07	17.33	NO
1500.	13.87	6	1.0	1.4	10000.0	23.57	49.05	18.09	NO
1600.	13.42	6	1.0	1.4	10000.0	23.57	52.02	18.84	NO
1700.	12.95	6	1.0	1.4	10000.0	23.57	54.96	19.57	NO
1800.	12.47	6	1.0	1.4	10000.0	23.57	57.89	20.29	NO
1900.	12.00	6	1.0	1.4	10000.0	23.57	60.80	20.99	NO
2000.	11.53	6	1.0	1.4	10000.0	23.57	63.69	21.68	NO
2100.	11.08	6	1.0	1.4	10000.0	23.57	66.57	22.26	NO
2200.	10.65	6	1.0	1.4	10000.0	23.57	69.44	22.83	NO
2300.	10.24	6	1.0	1.4	10000.0	23.57	72.29	23.39	NO
2400.	9.848	6	1.0	1.4	10000.0	23.57	75.13	23.93	NO
2500.	9.480	6	1.0	1.4	10000.0	23.57	77.96	24.47	NO
2600.	9.132	6	1.0	1.4	10000.0	23.57	80.78	25.00	NO
2700.	8.802	6	1.0	1.4	10000.0	23.57	83.58	25.52	NO
2800.	8.490	6	1.0	1.4	10000.0	23.57	86.38	26.02	NO
2900.	8.195	6	1.0	1.4	10000.0	23.57	89.16	26.53	NO
3000.	7.915	6	1.0	1.4	10000.0	23.57	91.94	27.02	NO
3500.	6.745	6	1.0	1.4	10000.0	23.57	105.66	29.02	NO
4000.	5.841	6	1.0	1.4	10000.0	23.57	119.18	30.87	NO
4500.	5.126	6	1.0	1.4	10000.0	23.57	132.51	32.61	NO
5000.	4.550	6	1.0	1.4	10000.0	23.57	145.68	34.24	NO
5500.	4.077	6	1.0	1.4	10000.0	23.57	158.70	35.79	NO
6000.	3.683	6	1.0	1.4	10000.0	23.57	171.58	37.26	NO
6500.	3.351	6	1.0	1.4	10000.0	23.57	184.35	38.67	NO
7000.	3.067	6	1.0	1.4	10000.0	23.57	197.00	40.03	NO
7500.	2.829	6	1.0	1.4	10000.0	23.57	209.54	41.19	NO
8000.	2.622	6	1.0	1.4	10000.0	23.57	221.99	42.31	NO
8500.	2.441	6	1.0	1.4	10000.0	23.57	234.34	43.38	NO
9000.	2.281	6	1.0	1.4	10000.0	23.57	246.61	44.42	NO
9500.	2.138	6	1.0	1.4	10000.0	23.57	258.80	45.43	NO
10000.	2.011	6	1.0	1.4	10000.0	23.57	270.91	46.41	NO
15000.	1.230	6	1.0	1.4	10000.0	23.57	388.43	54.90	NO
20000.	.8820	6	1.0	1.4	10000.0	23.57	500.95	60.31	NO
25000.	.6807	6	1.0	1.4	10000.0	23.57	609.75	64.87	NO
30000.	.5506	6	1.0	1.4	10000.0	23.57	715.59	68.85	NO
40000.	.3991	6	1.0	1.4	10000.0	23.57	920.22	74.50	NO
50000.	.3109	6	1.0	1.4	10000.0	23.57	1117.42	79.21	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 61. M:

270.	23.70	3	1.0	1.1	320.0	26.43	31.32	18.67	NO

DIST = DISTANCE FROM THE SOURCE
CONC = MAXIMUM GROUND LEVEL CONCENTRATION
STAB = ATMOSPHERIC STABILITY CLASS (1=A, 2=B, 3=C, 4=D, 5=E, 6=F)
U10M = WIND SPEED AT THE 10-M LEVEL
USTK = WIND SPEED AT STACK HEIGHT
MIX HT = MIXING HEIGHT
PLUME HT= PLUME CENTERLINE HEIGHT
SIGMA Y = LATERAL DISPERSION PARAMETER
SIGMA Z = VERTICAL DISPERSION PARAMETER

```
  DWASH    = BUILDING DOWNWASH:
             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

**********************************
*** END OF SCREEN MODEL OUTPUT ***
**********************************
```

06/22/01
07:37:26

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 95250 ***

Spokane Rock Products - Cement Scale

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	9.1000
STK INSIDE DIAM (M)	=	.1500
STK EXIT VELOCITY (M/S)	=	4.0000
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	148.5	103.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .090 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)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
61.	130.0	2	1.0	1.0	320.0	10.90	12.29	6.71	NO
100.	148.2	3	1.0	1.0	320.0	10.90	12.47	7.46	NO
200.	133.3	4	1.0	1.0	320.0	10.90	15.57	8.51	NO
300.	124.5	5	1.0	1.0	10000.0	10.90	16.90	8.71	NO
400.	117.9	6	1.0	1.0	10000.0	10.90	14.65	7.07	NO
500.	114.6	6	1.0	1.0	10000.0	10.90	17.97	8.41	NO
600.	103.5	6	1.0	1.0	10000.0	10.90	21.24	9.70	NO

700.	91.23	6	1.0	1.0	10000.0	10.90	24.46	10.94	NO
800.	80.06	6	1.0	1.0	10000.0	10.90	27.64	11.99	NO
900.	70.54	6	1.0	1.0	10000.0	10.90	30.78	12.99	NO
1000.	62.50	6	1.0	1.0	10000.0	10.90	33.89	13.96	NO
1100.	55.84	6	1.0	1.0	10000.0	10.90	36.97	14.83	NO
1200.	50.22	6	1.0	1.0	10000.0	10.90	40.02	15.67	NO
1300.	45.43	6	1.0	1.0	10000.0	10.90	43.05	16.48	NO
1400.	41.33	6	1.0	1.0	10000.0	10.90	46.05	17.27	NO
1500.	37.78	6	1.0	1.0	10000.0	10.90	49.03	18.04	NO
1600.	34.70	6	1.0	1.0	10000.0	10.90	52.00	18.79	NO
1700.	32.00	6	1.0	1.0	10000.0	10.90	54.94	19.52	NO
1800.	29.62	6	1.0	1.0	10000.0	10.90	57.87	20.24	NO
1900.	27.52	6	1.0	1.0	10000.0	10.90	60.78	20.94	NO
2000.	25.64	6	1.0	1.0	10000.0	10.90	63.68	21.63	NO
2100.	24.05	6	1.0	1.0	10000.0	10.90	66.56	22.22	NO
2200.	22.61	6	1.0	1.0	10000.0	10.90	69.43	22.79	NO
2300.	21.31	6	1.0	1.0	10000.0	10.90	72.28	23.35	NO
2400.	20.14	6	1.0	1.0	10000.0	10.90	75.12	23.89	NO
2500.	19.07	6	1.0	1.0	10000.0	10.90	77.95	24.43	NO
2600.	18.09	6	1.0	1.0	10000.0	10.90	80.77	24.96	NO
2700.	17.19	6	1.0	1.0	10000.0	10.90	83.57	25.48	NO
2800.	16.37	6	1.0	1.0	10000.0	10.90	86.37	25.99	NO
2900.	15.61	6	1.0	1.0	10000.0	10.90	89.15	26.49	NO
3000.	14.90	6	1.0	1.0	10000.0	10.90	91.92	26.98	NO
3500.	12.20	6	1.0	1.0	10000.0	10.90	105.65	28.98	NO
4000.	10.25	6	1.0	1.0	10000.0	10.90	119.17	30.84	NO
4500.	8.786	6	1.0	1.0	10000.0	10.90	132.50	32.58	NO
5000.	7.650	6	1.0	1.0	10000.0	10.90	145.67	34.21	NO
5500.	6.747	6	1.0	1.0	10000.0	10.90	158.69	35.76	NO
6000.	6.014	6	1.0	1.0	10000.0	10.90	171.58	37.24	NO
6500.	5.410	6	1.0	1.0	10000.0	10.90	184.34	38.65	NO
7000.	4.904	6	1.0	1.0	10000.0	10.90	196.99	40.00	NO
7500.	4.489	6	1.0	1.0	10000.0	10.90	209.54	41.17	NO
8000.	4.133	6	1.0	1.0	10000.0	10.90	221.99	42.28	NO
8500.	3.824	6	1.0	1.0	10000.0	10.90	234.34	43.36	NO
9000.	3.554	6	1.0	1.0	10000.0	10.90	246.61	44.40	NO
9500.	3.316	6	1.0	1.0	10000.0	10.90	258.79	45.41	NO
10000.	3.105	6	1.0	1.0	10000.0	10.90	270.90	46.39	NO
15000.	1.845	6	1.0	1.0	10000.0	10.90	388.43	54.89	NO
20000.	1.306	6	1.0	1.0	10000.0	10.90	500.95	60.30	NO
25000.	.9999	6	1.0	1.0	10000.0	10.90	609.75	64.86	NO
30000.	.8041	6	1.0	1.0	10000.0	10.90	715.59	68.84	NO
40000.	.5789	6	1.0	1.0	10000.0	10.90	920.22	74.49	NO
50000.	.4490	6	1.0	1.0	10000.0	10.90	1117.42	79.19	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 61. M:

103.	148.5	3	1.0	1.0	320.0	10.90	12.93	7.73	NO

DIST = DISTANCE FROM THE SOURCE
CONC = MAXIMUM GROUND LEVEL CONCENTRATION
STAB = ATMOSPHERIC STABILITY CLASS (1=A, 2=B, 3=C, 4=D, 5=E, 6=F)
U10M = WIND SPEED AT THE 10-M LEVEL
USTK = WIND SPEED AT STACK HEIGHT
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SIGMA Y = LATERAL DISPERSION PARAMETER
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```
  DWASH    = BUILDING DOWNWASH:
             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

**********************************
*** END OF SCREEN MODEL OUTPUT ***
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Appendix C

AIRS Database Update Form

Concrete Batch Plants, Portable

ABBREVIATED AIRS DATA ENTRY SHEET - CONCRETE BATCH PLANT

Name of Facility: SPOKANE ROCK PRODUCTS, INC.

AIRS/Permit #: 777-00285

Permit Issue Date: June 22, 2001

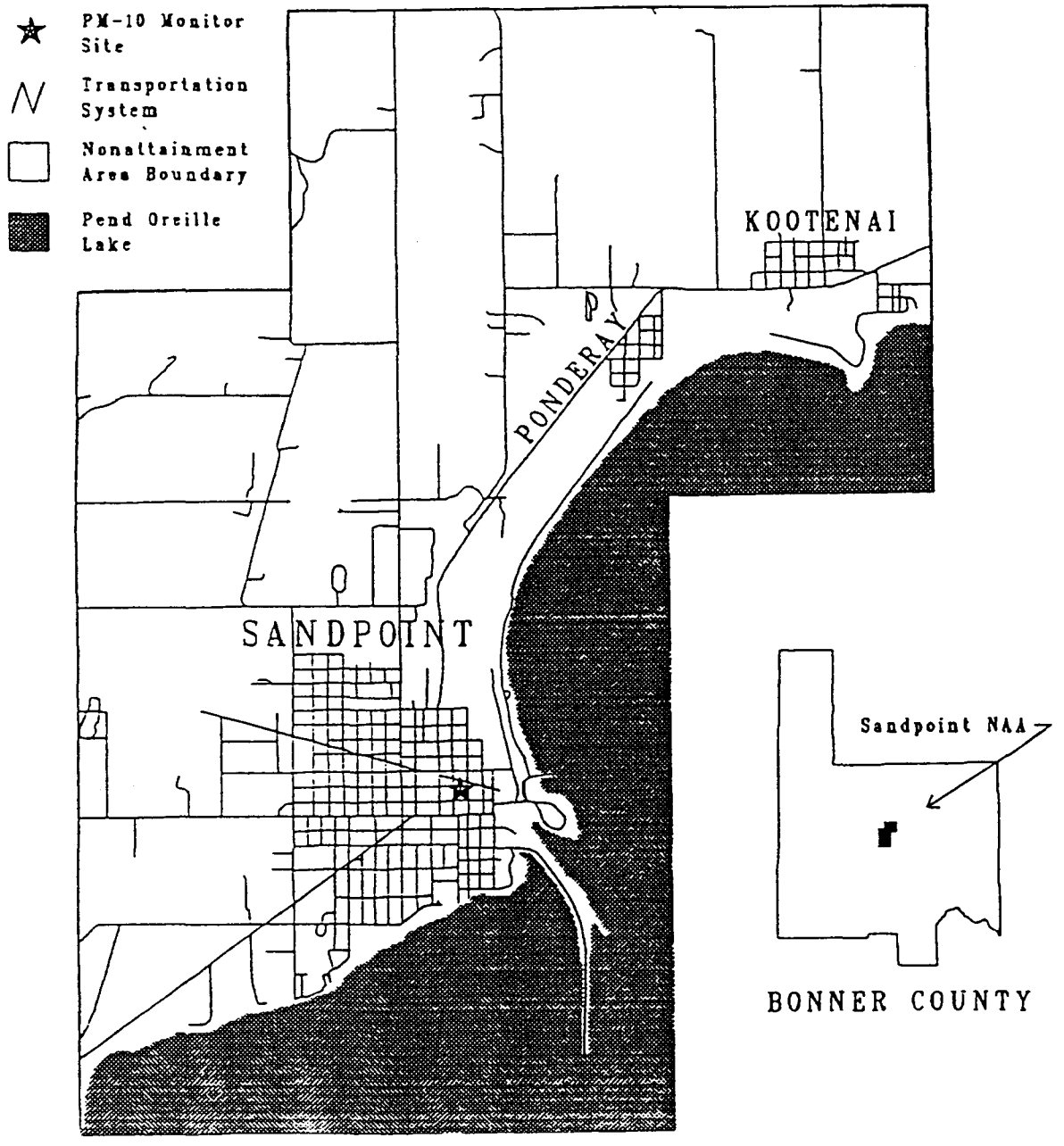
Source/Emissions Unit Name (25 spaces) (Please use name as indicated in permit)	**SCC #** (8 digit #)	**Air Program** (SIP/NESHAP/NSPS/PSD)
Flyash/Cement to Silo	30501199	SIP
Diesel Generator	20200401	Not Applicable
Agg Handling/Piles	30500204	SIP
Transit Mix Truck Loading	30501110	SIP
Fugitives	30588801	SIP
Property Boundary	30588801	SIP

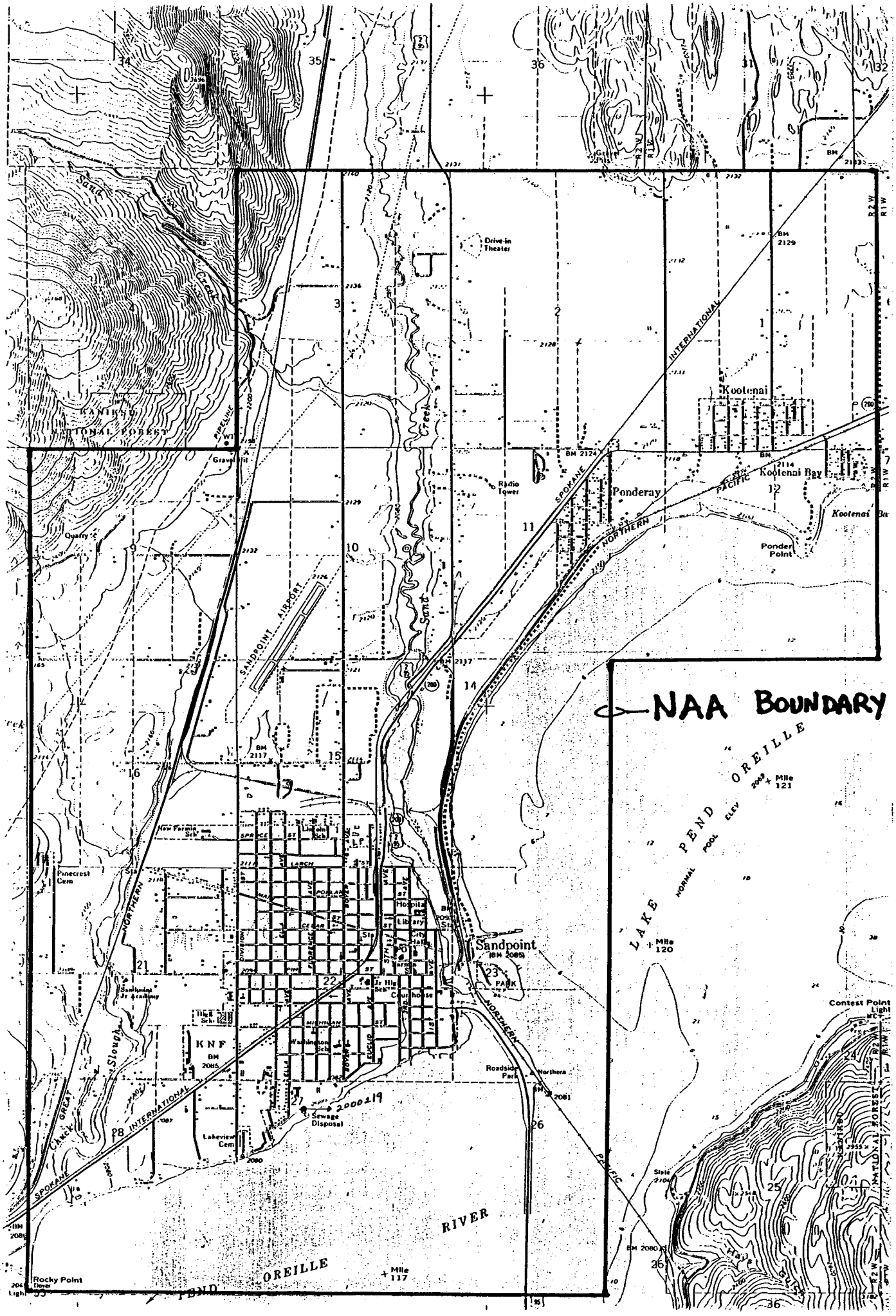
RETURN TO PAT RAYNE

AIRS-PT.LST (9/95)

Figure 04

SANDPOINT NONATTAINMENT AREA




NAA BOUNDARY
Sandpoint
Kootenai
Ponderay
Kootenai Bay
Ponder Point
Drive-in Theater
Radio Tower
SANDPOINT AIRPORT
Sand Creek
Pinecrest Cem
Lakeview Cem
Sewage Disposal
Roadside Park
Contest Point Light
Rocky Point
LAKE PEND OREILLE
NORMAL POOL ELEV 2062
Mile 121
Mile 120
Mile 117
KNF
SPOKANE INTERNATIONAL
NORTHERN PACIFIC
PEND OREILLE RIVER
2000219

IDAHO DIVISION OF ENVIRONMENTAL QUALITY

PORTABLE EQUIPMENT REGISTRATION AND RELOCATION FORM

COMPANY NAME: _____ PHONE NO.: _____

COMPANY MAILING ADDRESS: _____

_____

NAME OF CONTACT PERSON: _____

Phone number (if different from above): _____

Signature: _____ Date: _____

PLANT TYPE (i.e., mfr. name, model no., etc.): _____

PERMIT TO CONSTRUCT OR OPERATING PERMIT NO.: _____ ISSUE DATE: _____

CURRENT PLANT LOCATION: _____

NEW PLANT LOCATION: _____

ESTIMATED DATES OF OPERATION AT NEW LOCATION (Month/Day/Year):

Startup: _____ End: _____

FUEL TYPE: _____

Have any major components of the plant or its air pollution control equipment been replaced or modified since the plant last operated? _____ No _____ Yes (If yes, explain below:)

_____

_____

Will the Plant be collocated with another rock crushing, concrete batch, or hot-mix asphalt plant at the new plant location? _____ No _____ Yes (If yes, provide the following regarding the other plant:)

Name of the other company: _____

Type of plant: _____ Crusher _____ Hot-Mix Asphalt _____ Concrete Batch

The Idaho Air Quality Permit Number and Date for the other plant: _____

If plant will be operated in conjunction with a contract with the state of Idaho, please specify:

Contract No.: _____

State of Idaho Contact Person: _____ Phone No.: _____

THIS FORM MUST BE SUBMITTED TEN (10) DAYS BEFORE PLANT IS RELOCATED.

A scaled plot plan identifying the property boundary of the new site must be included with this form.

Mail to: **PERF Processing Unit**
Idaho DEQ - Air Quality
1410 North Hilton