PERMIT CHANGE REQUEST

FORM AQ-R1

Requestor's Name: Eric Kopczynski

Requestor's Title: AQ Analyst 3

Date: October 17, 2003

ROUTING INSTRUCTIONS:
E-mail completed form to:
- Permit Coordinator
- Marilyn Seymore

FACILITY INFORMATION

Facility ID No.: 777-00066

Facility Name, Location: HERCO, Inc. - Portable HMA

Permit Type: ☒ PTC ☐ Tier II ☐ Tier I

Permit Number: 777-0066 Issuance Date: June 03, 1992

RECOMMENDED PERMIT CHANGES/MODIFICATIONS

1. Permit Condition No.: 1.3.2 Stack Specifications

Recommended New Permit Condition Text: Either remove the all the underlying conditions or update the permit to reflect accurate information. 1) Stack is rectangular not circular - it needs correction, 2) Correct the permit to state whether the stack exit volume and velocity minimum or maximum values.

Justification for Change: 1) The stack is a 24x26" rectangular stack (always has been), thus requiring the permittee to meet a diameter (circular) requirement is not possible. 2) Requiring a source to meet an exact value for stack velocity and volume is unreasonable. It is assumed that these are maximum values, however there needs to be clarification in the permit. During the perfomance test both parameters were below the required permit values.

2. Permit Condition No.: 2.1 Emission Limits

Recommended New Permit Condition Text: 1) Either remove 2.1.2-2.1.5 or provide a compliance method. 2) Correct 2.1.6 to accurately state that the 3 min opacity standard is an IDAPA requirement and that there is a 6 min std for NSPS. 3) Either remove 2.1.7 or make is applicable to all HMA plants.

Justification for Change: 1) These parameters should never be exceeded since each is based on maximum design throughput of the plant, which is regulated elsewhere in the permit. Making a compliance determination these emissions limits is difficult without a requiring source test. Making a facilty's emissions inventory the emissions limit is stupid unless it serves to protect some NAAQS. 2) Condtions 2.1.6: The condition does not accuately reflect regulatory requirements of IDAPA or NSPS. 3) Condtion 2.1.7: "No visible blue smoke" - can anyone in SSPO separate out white smoke from a tiny bit of blue smoke when doing a VE?

3. Permit Condition No.: 5.2 Records

Recommended New Permit Condition Text: Records for permit condition 3.3 (Start-up performance testing requirement) do not need to be included in a monthly report.

Justification for Change: It's not an item that will be recorded on a monthly basis or even more than once ever.

STATE OF IDAHO
PERMIT TO CONSTRUCT AN
AIR POLLUTION EMITTING SOURCE

PERMIT NUMBER
7 7 7 — 0 0 6 6

AQCR	CLASS	SIC
0 6 2	A 2	2 9 5 1

ZONE 1 1

UTM COORDINATE (km) ___ . ___ , ___ . ___

1. **PERMITTEE**
HERCO ASPHALT

2. **PROJECT**
HOT MIX ASPHALT PLANT

3. ADDRESS		COUNTY	NO. OF FULL TIME EMPLOYEES
5735 N&S HIGHWAY		NEZ PERCE	5
4. CITY	**STATE**	**ZIP CODE**	**PROPERTY AREA AT SITE (Acreage)**
LEWISTON	IDAHO	83501	2
5. PERSON TO CONTACT		**TITLE**	**TELEPHONE NUMBER**
H.M. WENSTROM		OWNER	(208) 743-8634

6. **EXACT PLANT LOCATION**
PORTABLE SOURCE

7. **GENERAL NATURE OF BUSINESS AND KINDS OF PRODUCTS**
PRODUCE ASPHALT CONCRETE

8. **GENERAL CONDITIONS**

This permit is issued according to the **Rules and Regulations for the Control of Air Pollution in Idaho,** Section 01.1012, and pertains only to emissions of air contaminants which are regulated by the State of Idaho and to the sources specifically allowed to be constructed by this permit.

This permit (a) does not affect the title of the premises upon which the equipment is to be located, (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment, (c) does not release the permittee from compliance with other applicable local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Department of Health and Welfare, or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.

This permit is not transferable to another person, place, piece or set of equipment. This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for two years.

THIS PERMIT HAS BEEN GRANTED ON THE BASIS OF DESIGN INFORMATION PRESENTED WITH ITS APPLICATION. CHANGES OF DESIGN OR EQUIPMENT MUST BE APPROVED IN ADVANCE BY THE DEPARTMENT.

ASSISTANT ADMINISTRATOR
PERMITS AND ENFORCEMENT

DATE June 3, 1992

PERMIT TO CONSTRUCT

PERMIT NUMBER

PERMITTEE, PROJECT, AND LOCATION

Herco Asphalt
Hot Mix Asphalt Plant
Lewiston, Idaho

	7	7	7	-	0	0	6	6

SOURCE

Hot Mix Asphalt Plant

1 SOURCE DESCRIPTION

1.1 Process Description

Graded crushed 3/4" minus aggregate is moved by front end loader from the 100' x 20' x 10' aggregate storage pile to the first and third compartments of the Portable 3 compartment cold feed plant. Sand is loaded from the 30' x 10' pile to the second compartment. Occasionally the third compartment is loaded with asphalt chips. Aggregate is used to make base coat, and sand is used to make top coat. The aggregate, sand and chips are conveyed from the cold feed compartments to the 5'0" diameter x 26' long, 37 MM BTU/hr No. 2 fuel oil and natural gas fired drum mixer dryer. Aggregate, sand and or chips are introduced near the burner end of the revolving drum dryer, and the asphalt is injected midway along the drum from the 15,000 gallon portable single axle storage tank via an asphalt pump skid. The portable slat conveyor moves the asphalt mix (asphaltic concrete) to the portable self erecting storage silo. The asphaltic concrete is loaded into the trucks and hauled off site.

The controls are operated from the 8' x 16' portable control house. A variable flow asphalt pump is linked electronically to the aggregate belt scales to control mix specifications. The drum mix process uses proportional feed controls.

Drum mix plants use parallel flow design for hot burner gases and aggregate flow. Parallel flow has the advantage of giving the mixture a longer time to coat and to collect dust in the mix, thereby reducing particulate matter (PM) emissions. The amount of PM generated within the dryer is usually lower than that generated within conventional dryers, but because asphalt is heated to high temperatures for a long period of time, volatile organic compound (VOC) emissions are greater than in conventional plants.

The most significant ducted source of PM emissions is the drum mixer itself. Emissions from the drum mixer consists of a gas stream with a substantial amount of PM and lesser amounts of VOC. The solid PM,

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DIVISION OF ENVIRONMENTAL QUALITY

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SOURCE

Hot Mix Asphalt Plant

generally consists of fine aggregate particles entrained in the flowing gas stream during the drying process. The VOC result from the heating and mixing of the asphalt cement inside the drum which volatiles some of the asphalt. Once the VOC emissions cool, some condense to form the fine liquid aerosol (PM) or the visible blue smoke. A number of process modifications have been designed into the new asphalt plants to eliminate the blue smoke emissions.

1.2 Controls

PM emissions from the drum dryer mixer are vented to a venturi wet scrubber and then emitted into the atmosphere. Two (2) settling ponds are used with the wet scrubber. The estimated PM removal efficiency for the scrubber is 98 percent (98%).

1.3 Equipment Specifications

1.3.1 Equipment description

5'0" diameter x 26' long drum dryer,
Hauck Starjet No. 2 and or natural gas fired 37 MM Btu/hr burner,
Venturi wet scrubber PM emission control system,
Asphalt pump skid,
8' x 16' portable control house
Portable 3 compartment cold feed plant,
Heated 15,000 gallon portable single axle asphalt storage tank,
8,000 gallon portable No. 2 fuel oil storage tank,
Cold feed to dryer conveyor,
Portable self erecting asphalt mix storage silo and slat conveyor, and
Two (2) 10' x 20' x 3' settling ponds.

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1.3.2 Stack Specifications

The stack from the wet scrubber shall meet the following parameters:

Height -- minimum of 10 feet
Exit Diameter -- 2.3 feet
Exit velocity -- 4819 FPM
Exit gas volume -- 20,000 ACFM
Exit gas temperature -- 140° - 160°F

2 EMISSION LIMITS

2.1 Drum Mix Asphalt Plant

2.1.1 PM emissions shall not exceed 0.04 grains per dry standard cubic foot (0.04 gr PM/dscf) as required in 40 CFR Part 60, Subpart I. PM emissions shall not exceed the pounds per hour (lb/hr) or the tons per year (TPY) values listed in Appendix A.

2.1.2 Sulfur Dioxide (SO2) emissions shall not exceed the lb/hr or TPY values listed in Appendix A.

2.1.3 Oxides of Nitrogen (NOx) emissions shall not exceed the lb/hr or TPY values listed in Appendix A.

2.1.4 Volatile Organic Compound (VOC) emissions shall not exceed the lb/hr or TPY values listed in Appendix A.

2.1.5 Carbon Monoxide (CO) emissions shall not exceed the lb/hr or TPY values listed in Appendix A.

2.1.6 Visible emissions from the asphalt plant shall not exceed twenty percent (20%) opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period as required in 40 CFR Part 60, Subpart I, and

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Hot Mix Asphalt Plant
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in IDAPA 16.01.01201 (Rules and Regulations for the Control of Air Pollution in Idaho). Opacity shall be determined using the DEQ "Procedures for Air Pollution Control".

2.1.7 No visible blue smoke shall be emitted from the drum mixer dryer or the venturi wet scrubber.

2.2 Asphalt Oil Storage Tank

Visible emissions from the asphalt storage tank shall not exceed twenty percent (20%) opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period as required in IDAPA 16.01.01201. Opacity shall be determined using the DEQ "Procedures for Air Pollution Control".

2.3 Fugitive Emissions

Fugitive emissions resulting from the operation of the hot mix asphalt process, including all traffic on unpaved roads, and associated aggregate handling shall be reasonably controlled as required in IDAPA 16.01.01251 and 01605.

3 MONITORING REQUIREMENTS

3.1 Venturi Pressure Drop

The permittee shall install, calibrate, maintain and operate a monitoring device for the continuous measurement of the pressure drop across the venturi scrubber throat.

3.1.1 The change in pressure across the venturi throat shall be recorded at least once per week while the asphalt plant is operating at a normal capacity.

3.1.2 The monitoring device must be certified by the manufacturer to be accurate within + or - one pound per square inch of

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SOURCE

Hot Mix Asphalt Plant

water gauge pressure (1 psig H2O), and shall be calibrated on an annual basis in accordance with the manufacturer's instructions.

3.2 Venturi Input Water Flow

The permittee shall install, calibrate, maintain and operate a monitoring device for the continuous measurement of the scrubbing water flow rate to the venturi scrubber throat.

3.2.1 The scrubber water flow rate shall be recorded at least once per week while the asphalt plant is operating at a normal capacity.

3.2.2 The monitoring device shall be certified by the manufacturer to be accurate within + or - five percent (5%) of the actual scrubbing water flow rate, and must be calibrated on an annual basis in accordance with the manufacturer's instructions.

3.3 Start-Up Performance Test

The permittee shall conduct a performance test to measure PM emissions from the asphalt plant venturi scrubber stack in accordance with 40 CFR Part 60, Subpart I, the DEQ " Procedure Manual for Air Pollution Control"' and General Provision F of this permit. Visible emissions shall be observed and recorded during this test using the methods in the DEQ " Procedure Manual for Air Pollution Control". The tests shall be performed while the asphalt plant is operating at a minimum rate of 95 percent (95%) of maximum capacity.

3.3.1 During the performance test the following data shall be recorded:

Process rate (tons of asphalt produced per hour,

Burner fuel flow rate (i.e. gallons per hour), and

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Pressure drop across the venturi scrubber throat.

3.4 Fugitive Dust

The permittee shall record the following information concerning fugitive dust control:

3.4.1 Type of control used,

3.4.2 Frequency of application per day of operation,

3.4.3 Amount applied per day of operation.

4 OPERATING REQUIREMENT

4.1 Production Limits

The maximum hourly production rate shall not exceed 132 TPH (ton per hour).

4.2 Scrubbing Water Flow Rate

The scrubbing water flow rate shall range only from sixty to ninety gallons per minute (60 - 90 gpm) during normal operation

4.3 Pressure Drop Across the Venturi Scrubber

The pressure drop across the venturi scrubber shall range only from twelve to fifteen inches of water (12" - 15" H2O) during normal operation.

4.4 Drum Firing

The drum mix asphalt plant shall be fired on only No. 2 and or natural gas. The No. 2 fuel oil shall contain less than 0.5 percent (0.5%) sulfur content by weight as required in IDAPA 16.01.01354.

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4.5 Fugitive Dust Control

Water shall be applied as necessary to control fugitive dust emissions from sand and aggregate handling.

5 REPORTING REQUIREMENTS

5.1 Test Submittal

The permittee shall submit a written report on the asphalt plant venturi scrubber performance test to the DEQ within thirty (30) days of performing the test. The following information shall be submitted as recorded for each performance test run:

5.1.1 Visible emissions operation data, and

5.1.2 Asphalt concrete production rate.

5.2 Recording and Retention of Records

The permittee shall record the hours of operation and the information requested in Sections 3.1, 3.2, 3.3, and 3.4 in a monthly report located on site for a two (2) year period. This report shall be made available to DEQ upon request.

5.2.1 This report shall include the monitoring results addressed in Sections 3.1, 3.2 and 3.4 of this permit.

5.3 Written DEQ Approval Prior to Relocation

At least ten (10) days prior to the relocation of any operations pertaining to this permit, the permittee shall submit a written report to the DEQ containing the following information:

5.3.1 When start up will occur and how long operations will last,

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5.3.2 The location of the proposed site,

5.3.3 All equipment on and above information shall be registered on relocation forms supplied by the DEQ.

5.4 Special DEQ Approval Needed for Nonattainment Areas

Special DEQ approval must be received by the permittee prior to relocating any operations into a TSP and or PM-10 Nonattainment area.

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Lewiston, Idaho

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SOURCE

Hot Mix Asphalt Plant

Appendix A

Herco Asphalt (Lewiston)
(Hot Mix Asphalt Plant)

2.1.1 maximum wet scrubber stack emissions of 6.9 lb PM/hr
maximum wet scrubber stack emissions of 30 ton PM/yr

2.1.2 maximum emissions of 1.8 lb SO2/hr
maximum emissions of 8 ton SO2/yr

2.1.3 maximum emissions of 5.4 lb NOx/hr
maximum emissions of 24 ton NOx/yr

2.1.4 maximum emissions of 0.1 lb VOC/hr
maximum emissions of 0.4 ton VOC/yr

2.1.5 maximum emissions of 1.3 lb CO/hr
maximum emissions of 6 ton CO/yr

68.4 TPY + ~~24 TPY = 92.4 TPY~~

132 Tons/hr max prod.

7258 Tons/yr uncontrolled
30
21,840

clean sand & gravel
good dust control

ADMINISTRATOR
DIVISION OF ENVIRONMENTAL QUALITY

DATE: June 3, 1992

IDAHO DEPARTMENT
OF HEALTH AND WELFARE

DIVISION OF
ENVIRONMENTAL QUALITY

1410 North Hilton, Statehouse Mail, Boise, ID 83720-9000, (208) 334-0502

Cecil D. Andrus, Governor — Richard P. Donovan, Director

June 1, 1992

M E M O R A N D U M

TO: Source File -- Herco Asphalt (Lewiston) -- P-920305 (Portable Asphalt Plant)

FROM: George Kunstek, Air Quality Engineer G M K

SUBJECT: **Permit to Construct Technical Analysis**

I. Summary

Based on permit application materials, I recommend that DEQ issue a Permit to Construct to Herco Asphalt for a 132 ton per hour portable asphalt plant managed from Lewiston, Idaho.

II. Background

On March 16, 1992 the DEQ received Herco Asphalt's application for a Permit to Construct a portable asphalt plant. Additional information was received by FAX on May 20, 1992. DEQ declared the application complete on April 3, 1992.

III. Facility Description

Herco Asphalt produces hot mix asphaltic concrete.

IV. Project Description

Graded crushed 3/4" minus aggregate is moved by front end loader from the 100' x 20' x 10' aggregate storage pile to the first and third compartments of the Portable 3 compartment cold feed plant. Sand is loaded from the 30' x 10' pile to the second compartment. Occasionally the third compartment is loaded with asphalt chips. Aggregate is used to make base coat, and sand is used to make top coat. The aggregate, sand and chips are conveyed from the cold feed compartments to the 5'0" diameter x 26' long, 37 MM BTU/hr No. 2 fuel oil and natural gas fired drum mixer dryer. Aggregate, sand and or chips are introduced near the burner end of the revolving drum dryer, and the asphalt is injected midway along the drum from the 15,000 gallon portable single axle storage tank via an asphalt pump skid. The portable slat conveyor moves the

asphalt mix (asphaltic concrete) to the portable self erecting storage silo. The asphaltic concrete is loaded into the trucks and hauled off site.

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Drum mix plants use parallel flow design for hot burner gases and aggregate flow. Parallel flow has the advantage of giving the mixture a longer time to coat and to collect dust in the mix, thereby reducing particulate matter (PM) emissions. The amount of PM generated within the dryer is usually lower than that generated within conventional dryers, but because asphalt is heated to high temperatures for a long period of time, volatile organic compound (VOC) emissions are greater than in conventional plants.

The most significant ducted source of PM emissions is the drum mixer itself. Emissions from the drum mixer consists of a gas stream with a substantial amount of PM and lesser amounts of VOC. The solid PM, generally consists of fine aggregate particles entrained in the flowing gas stream during the drying process. The VOC result from the heating and mixing of the asphalt cement inside the drum which volatiles some of the asphalt. Once the VOC emissions cool, some condense to form the fine liquid aerosol (PM) or the visible blue smoke. A number of process modifications have been designed into the new asphalt plants to eliminate the blue smoke emissions.

V. Discussion

A. Area Classification

Herco Asphalt is located in Lewiston, Idaho. This area is designated as attainment or unclassifiable for all criteria pollutants.

B. Emission Estimates

Emission estimates were obtained by using EPA AP-42 emission factors.

C. Facility Classification

This portable hot mix asphalt plant is a nondesignated facility as defined in IDAPA 16.01.01003,27 (Rules and Regulations for the Control of Air Pollution in Idaho).

The facility is non-major because it will emit less than 250 tons of any criteria single pollutant.

D. Regulatory Review

The facility is subject to the following permitting requirements:

IDAPA 16.01.01012,02 Procedures and Requirements for Permits to Construct and Operating Permits.

IDAPA 16.01.01012,04 Application Procedures.

IDAPA 16.01.01012,05 Application must indicate compliance with all federal, state and local emission standards and that the new source would not cause or significantly contribute to a violation of any ambient air quality standard.

IDAPA 16.01.01012,13 Procedures for Issuing Permits.

IDAPA 16.01.01012,14 Imposition of reasonable permit conditions, instrumentation, and monitoring equipment.

IDAPA 16.01.01012,15 Obligation to comply.

IDAPA 16.01.01013 Registration procedures and requirements for portable equipment.

IDAPA 16.01.01201 Visible Emissions.

IDAPA 16.01.01251 Fugitive Dust.

IDAPA 16.01.01352 Distillate Fuel defined (No. 2).

IDAPA 16.01.01354 No. 2 shall contain < or = 0.5% sulfur.

40 CFR Part 60, Subpart I NSPS for Hot Mix Asphalt Plants.

VI. Recommendation

DEQ staff recommend that a Permit to Construct for a portable asphalt plant be issued to Herco Asphalt.

GK/ks

cc: Gregg Teasdale, NCIRO
G. Kunstek
COF 1.1

Herco Asphalt
5-27-92
George Kunstek

Emission Calculations page 1 of 4
Portable Asphalt Plant

Asphalt Concrete Plants AP-42-(8.1)
Sand and Gravel Processing AP-42-(8.19)

$$\left(\frac{125 \text{ ton Stone}}{\text{hr}}\right)\left(\frac{1}{0.92}\right) = \frac{136 \text{ ton asphaltic concrete}}{\text{hr}}$$

AP-42 (8.1-3) Drum Emissions
uncontrolled

$$\left(\frac{4.9 \text{ lb PM}}{\text{ton}}\right)\left(\frac{136 \text{ ton}}{\text{hr}}\right) = \frac{666 \text{ lb PM}}{\text{hr}}$$

$$\left(\frac{666 \text{ lb PM}}{\text{hr}}\right)\left(\frac{8760 \text{ hr}}{\text{yr}}\right)\left(\frac{\text{ton}}{2{,}000 \text{ lb}}\right) = \frac{2{,}92 \text{ ton PM}}{\text{yr}}$$

controlled

$$\left(\frac{0.04 \text{ lb PM}}{\text{hr}}\right)\left(\frac{136 \text{ ton}}{\text{hr}}\right) = \frac{5 \text{ lb}}{\text{hr}}$$

$$\left(\frac{5 \text{ lb}}{\text{hr}}\right)\left(\frac{8760 \text{ hr}}{\text{yr}}\right)\left(\frac{\text{ton}}{2{,}000 \text{ lb}}\right) = \frac{24 \text{ ton PM}}{\text{Yr}}$$

AP-42 (8.19-1)

$$\left[\left(\frac{0.056 \text{ lb PM}}{\text{ton}}\right)_{\text{batch drop}} + \left(\frac{13.2 \text{ lb PM}}{\text{ton}}\right)_{\text{active storage}}\right]\left(\frac{125 \text{ ton}}{\text{hr}}\right) = \frac{1{,}657 \text{ lb PM}}{\text{hr}}_{\text{dry storage \& handl}}$$

no control no cont

$$\left(\frac{1{,}657 \text{ lb PM}}{\text{hr}}\right)\left(\frac{8760 \text{ hr}}{\text{yr}}\right)\left(\frac{\text{ton}}{2{,}000 \text{ lb}}\right) = \frac{7{,}255 \text{ ton PM}}{\text{yr}}_{\text{dry storage \& handling}}$$

emission for storage & handling are negligible for wet operations.

Hero Asphalt (Lewiston) - Portable asphalt plant
5-27-92 Emission calculations
George Kunstek

Total Emissions (uncontrolled)

$$\left(\frac{(666 + 1,657)\ lb\ PM}{hr}\right) = \frac{2,323\ lb\ PM}{hr} \quad \text{uncontrolled}$$

$$\left(\frac{2,323\ lb\ PM}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2000\ lb}\right) = \frac{10,175\ ton\ PM}{yr}$$

Total Emissions (controlled)

$$\frac{5.06\ PM}{hr}$$

$$\frac{24\ ton\ PM}{yr}$$

Dryer Emissions 37 MM Btu/hr
diesel fuel 137,000 Btu/gal 0.4 % sulfur by weight
AP-42 Appendix (A-3) distillate oil = No. 2
natural gas 1050 Btu/SCF
industrial boilers AP-42 Table 1.3-1

$$\left(\frac{37\ MM\ Btu}{hr}\right)\left(\frac{2\ lb\ PM}{10^3\ gal\ No.2}\right)\left(\frac{gal\ No.2}{137,000\ Btu}\right) = \frac{0.540\ lb\ PM}{hr}$$

$$\left(\frac{37 \times 10^6\ Btu}{hr}\right)\left[\left(\frac{17\ lb\ SO_2}{10^3\ gal}\right)(0.4)\right]\left(\frac{gal\ No.2}{137 \times 10^3\ Btu}\right) = \frac{1,836\ lb\ SO_2}{hr}$$

$$\left(\frac{37 \times 10^6\ Btu}{hr}\right)\left(\frac{5\ lb\ CO}{10^3\ gal}\right)\left(\frac{gal\ No.2}{137 \times 10^3\ Btu}\right) = \frac{1,350\ lb\ CO}{hr}$$

$$\left(\frac{37 \times 10^6\ Btu}{hr}\right)\left(\frac{20\ lb\ NO_x}{10^3\ gal}\right)\left(\frac{gal\ No.2}{137 \times 10^3\ Btu}\right) = \frac{5,401\ lb\ NO_x}{hr}$$

$$\left(\frac{37 \times 10^6\ Btu}{hr}\right)\left(\frac{0.2\ lb\ VOC}{10^3\ gal}\right)\left(\frac{gal\ No.2}{137 \times 10^3\ Btu}\right) = \frac{0.054\ lb\ VOC}{hr}$$

Herco Asphalt
5-27-92
George Kunstek

$$\left(\frac{0.540\ lb\ PM}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{2{,}365\ ton\ PM}{yr}$$

$$\left(\frac{1{,}836\ lb\ SO_2}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{8{,}042\ ton\ SO_2}{yr}$$

$$\left(\frac{1{,}350\ lb\ CO}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{5{,}913\ ton\ CO}{yr}$$

$$\left(\frac{5{,}401\ lb\ NO_x}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{23{,}656\ ton\ NO_x}{yr}$$

$$\left(\frac{0.054\ lb\ VOC}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{0.236\ ton\ VOC}{yr}$$

Natural Gas-Fired 37 MM Btu/hr dryer
AP-42 Table 1.4-1

$$\left(\frac{37\ MM\ Btu}{hr}\right)\left(\frac{5\ lb\ PM}{10^6\ ft^3}\right)\left(\frac{ft^3}{1{,}050\ Btu}\right) = \left(\frac{0.18\ lb\ PM}{hr}\right)$$

$$\left(\frac{37\ MM\ Btu}{hr}\right)\left(\frac{0.6\ lb\ SO_2}{10^6\ ft^3}\right)\left(\frac{ft^3}{1{,}050\ Btu}\right) = \left(\frac{0.02\ lb\ SO_2}{hr}\right)$$

$$\left(\frac{37\ MM\ Btu}{hr}\right)\left(\frac{140\ lb\ NO_x}{10^6\ ft^3}\right)\left(\frac{ft^3}{1{,}050\ Btu}\right) = \left(\frac{4.93\ lb\ NO_x}{hr}\right)$$

$$\left(\frac{37\ MM\ Btu}{hr}\right)\left(\frac{35\ lb\ CO}{10^6\ ft^3}\right)\left(\frac{ft^3}{1050\ Btu}\right) = \left(\frac{1.23\ lb\ CO}{hr}\right)$$

$$\left(\frac{37\ MM\ Btu}{hr}\right)\left(\frac{2.8\ lb\ VOC}{10^6\ ft^3}\right)\left(\frac{ft^3}{1{,}050\ Btu}\right) = \left(\frac{0.10\ lb\ VOC}{hr}\right)$$

Herco Asphalt (Lewiston) page 4 of 4
5-27-92
George Kunstek

$$\left(\frac{0.18\ lb\ PM}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{0.8\ ton\ PM}{yr}$$

$$\left(\frac{0.02\ lb\ SO_2}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{0.1\ ton\ SO_2}{yr}$$

$$\left(\frac{4.93\ lb\ NOx}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{21.6\ ton\ NO_x}{yr}$$

$$\left(\frac{1.23\ lb\ CO}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{5.4\ ton\ CO}{yr}$$

$$\left(\frac{0.10\ lb\ VOC}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{0.4\ ton\ VOC}{yr}$$

$$\left(\frac{136\ ton}{hr}\right)\left(\frac{8760\ hr}{yr}\right) = \frac{1{,}191{,}000\ ton\ asphaltic\ concrete}{yr}$$

Compliance Calculations

PM from wet scrubber stack

$$\left(\frac{0.04\ gr}{dscf}\right)\left(\frac{lb}{7{,}000\ gr}\right)\left(\frac{20{,}000\ cf}{min}\right)\left(\frac{60\ min}{hr}\right) = \frac{6.9\ lb\ PM}{hr}$$

$$\left(\frac{6.9\ lb\ PM}{hr}\right)\left(\frac{8760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right) = \frac{30\ ton\ PM}{yr}$$ from wet scrubber stack