

# **Statement of Basis**

**Final**



**C&A Paving , Inc.**

**Boise, Idaho**

**Facility ID No. 777-00221**

**Permit to Construct P-2009.0131**

**February 11, 2010**

**Eric Clark**

**Permit Writer**

**The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.**

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## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations for non-carcinogens
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
gpm	gallons per minute
gph	gallons per hour
gr	grain (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per year
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operations and maintenance
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form

PM	particulate matter
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SCL	significant contribution limits
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
T/yr	tons per consecutive 12-calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
U.S.C.	United States Code
UTM	Universal Transverse Mercator
VOC	volatile organic compounds
yd <sup>3</sup>	cubic yards
µg/m <sup>3</sup>	micrograms per cubic meter

## **FACILITY INFORMATION**

### ***Description***

A portable Hot Mix Asphalt (HMA) plant use aggregate material that is mixed, heated and dried. The aggregate is then combined with liquid asphalt to create hot mix asphalt. This hot mix asphalt will be primarily used for road surfaces.

### ***Permitting History***

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or replaced (R).

September 25, 2009	P-2009.0049, Change of Ownership from Steelman-Duff, Inc. and replacement of a scrubber with a baghouse, Permit status (R)
July 22, 1998	PTC No.: 777-00221, allowed the use of diesel fuel and the addition of a 500 kW generator. Permit status (R)
June 5, 1998	PTC No.: 777-00221, Initial Permit for facility. Permit Status (R)

### ***Application Scope***

This PTC is for a minor modification at an existing minor facility.

The applicant has proposed to:

Modify the allowable fuels for the HMA dryer to include used oil.

### ***Application Chronology***

October 20, 2009	DEQ received an application and an application fee.
October 26–November 10, 2009	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
November 18, 2009	DEQ determined that the application was incomplete.
December 17, 2009	DEQ received supplemental information from the applicant.
January 8, 2010	DEQ determined that the application was complete.
February 12, 2010	DEQ made available the draft permit and statement of basis for peer and regional office review.
February 19, 2010	DEQ made available the draft permit and statement of basis for applicant review.
February 24, 2010	DEQ received processing fee.
March 2, 2010	DEQ issued the final permit and statement of basis.

# TECHNICAL ANALYSIS

## Emissions Units and Control Devices

Table 1 EMISSIONS UNIT AND CONTROL DEVICE INFORMATION

Source Descriptions	Control Equipment Descriptions	Emissions Discharge Point ID No. and/or Description
<u>Hot Mix Asphalt Dryer</u> Manufacturer: CMI (drum mix) Maximum fuel usage rate: 98.3 MMBtu/hr Maximum production: 240 T/hr and 250,000 T/yr Fuel: natural gas, used oil, distillate fuel oil ASTM Grade 1 or 2	<u>Hot Mix Asphalt Dryer Baghouse</u> Manufacturer: Aero Pulse	Stack height from ground: 24 ft Stack inside diameter: 4.62 ft Stack exit flow rate: 46,000 acfm Stack exit gas temp: 235 °F
<u>Asphalt Tank Heater</u> Fuel: natural gas, distillate fuel oil ASTM Grade 1 or 2 Maximum fuel usage rate : 0.4 MM Btu/hr	None	Stack height from ground: 12 ft Stack inside diameter: 0.67 ft Stack exit flow rate: 80 acfm Stack exit gas temp: 300 °F
<u>HMA plant generator</u> Manufacturer: Detroit Diesel Model: 81237305, 12V92 Turbo Engine Rated output: 500 kW Serial No: 12VF00162 Built: June 1984 Sold: June 18, 1984 Fuel: distillate fuel oil ASTM Grade 1 or 2 Maximum fuel usage rate: 34.25 gal/hr	None	Stack height from ground: 18 ft Stack inside diameter: 0.67 ft Stack exit flow rate: 3310 acfm Stack exit gas temp: 870°F

### Emissions Inventories

Emissions estimates for all units with the exception of the HMA dryer are identical to those discussed in PTC P-2009.0049, issued September 25, 2009. Emissions associated with the asphalt tank heater are derived from emission factors in section 1.3, Fuel Oil Combustion of AP-42 for criteria pollutants and metals. Fuel #6 factors are used as surrogates to distillate fuel for metals. Fuel #6 assumes greater emissions than would #2 distillate. All emissions associated with the 500 kW generator are from AP-42, section 3.4. Asphalt load-out and silo filling factors are derived again from AP-42 section 11.1. Each of those estimates is not changing from the previous permitting action. Pre and post-project emissions differ only for the HMA dryer. Pre-project emissions are representative of distillate fuel; while post-project represent the emissions if used oil is incorporated.

Material handling, conveying and screening and vehicle emissions are all considered fugitive sources. Note that the hourly estimates are assuming 240 T/hr throughput rate and the annual emissions are assuming a throughput of 250,000 T/yr. For further details on all emissions please refer to Appendix A. Summaries of the estimated controlled emissions of criteria pollutants from the facility are provided in the following tables.

**Table 2 EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS – PRE-PROJECT CONTROLLED EMISSIONS**

Source	PM <sub>10</sub> <sup>c</sup>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead
	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/qtr <sup>a</sup>
<b>Point Sources</b>											
HMA Dryer	5.52	2.875	2.640	1.375	13.2	6.875	31.2	16.25	7.680	4.0	0.94
Tank Heater	0.006	0.003	0.415	0.216	0.058	0.030	0.015	0.008	0.002	0.001	0.00115
Generator	0.269	0.140	2.370	1.234	15.019	7.823	3.989	2.078	0.422	0.220	0
Silo-filling & Storage	0.141	0.0732	0	0	0	0	0.283	0.147	2.925	1.523	0
Load-out	0.125	0.0652	0	0	0	0	0.324	0.169	0.998	0.520	0
<b>Total, Point Sources</b>	<b>6.06</b>	<b>3.16</b>	<b>5.43</b>	<b>2.83</b>	<b>28.28</b>	<b>14.73</b>	<b>35.81</b>	<b>18.65</b>	<b>12.03</b>	<b>6.26</b>	<b>0.941</b>
<b>Fugitive Sources</b>											
Material Handling	0.461	0.24									
Conveying & Screening	0.179	0.0933									
Vehicle Fugitives	5.85	2.93									
<b>Total, Fugitive Sources</b>	<b>6.49</b>	<b>3.26</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.000</b>

- a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
- b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
- c) Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.81.

**Table 3 EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS – POST-PROJECT CONTROLLED EMISSIONS**

Source	PM <sub>10</sub> <sup>c</sup>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead
	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/qtr <sup>a</sup>
<b>Point Sources</b>											
HMA Dryer	5.52	2.875	13.92	7.25	13.2	6.875	31.2	16.25	7.680	4.0	0.94
Tank Heater	0.006	0.003	0.415	0.216	0.058	0.030	0.015	0.008	0.002	0.001	0.00115
Generator	0.269	0.140	2.370	1.234	15.019	7.823	3.989	2.078	0.422	0.220	0
Silo-filling & Storage	0.141	0.0732	0	0	0	0	0.283	0.147	2.925	1.523	0
Load-out	0.125	0.0652	0	0	0	0	0.324	0.169	0.998	0.520	0
<b>Total, Point Sources</b>	<b>6.06</b>	<b>3.16</b>	<b>16.71</b>	<b>8.70</b>	<b>28.28</b>	<b>14.73</b>	<b>35.81</b>	<b>18.65</b>	<b>12.03</b>	<b>6.26</b>	<b>0.941</b>
<b>Fugitive Sources</b>											
Material Handling	0.461	0.24									
Conveying & Screening	0.179	0.0933									
Vehicle Fugitives	5.85	2.93									
<b>Total, Fugitive Sources</b>	<b>6.49</b>	<b>3.26</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.000</b>

- a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
- b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
- c) Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.81.

**Table 4 EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS – CHANGE IN CONTROLLED EMISSIONS**

Source	PM <sub>10</sub> <sup>c</sup>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Lead
	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/hr <sup>a</sup>	T/yr <sup>b</sup>	lb/qtr <sup>a</sup>
<b>Point Sources</b>											
HMA Dryer	0	0	11.28	5.88	0	0	0	0	0	0	0

Used oil contains several toxic air pollutants (TAPs) that are not included in distillate fuel. As a result the increase in overall TAPs emissions is a function of those particular toxics, as all emission factors are identical for those TAPs which are in both fuels. A summary of the estimated controlled emissions increase of TAPs is provided in the following table. The estimated controlled emissions increases of some TAP exceeded applicable emissions screening levels (EL). Estimated controlled HAP emissions were below the annual major source threshold.

**Table 5 EMISSIONS ESTIMATES OF TAP AND HAP –CONTROLLED EMISSIONS HMA DRYER**

Pollutant	Category (TAP/HAP)	Averaging Period	Screening Emission Level	Controlled Average	Controlled Annual
			lb/hr	lb/hr	T/yr <sup>c</sup>
Acetaldehyde <sup>b</sup>	HAP	Annual	3.0E-3	0.312	0.163
Acrolein <sup>a</sup>	HAP	24-hour	0.017	6.24E-03	3.25E-03
Propionaldehyde <sup>a</sup>	HAP	24-hour	0.0287	3.12E-02	1.63E-02
Quinone <sup>a</sup>	HAP	24-hour	0.027	3.84E-02	2.0E-02
Methyl Ethyl Ketone <sup>ad</sup>	TAP	24-hour	39.3	4.80E-03	2.5E-03
Acetone <sup>a</sup>	TAP	24-hour	119	0.199	0.104
Crotonaldehyde <sup>a</sup>	TAP	24-hour	0.38	2.06E-02	1.08E-02
Valeraldehyde <sup>a</sup>	TAP	24-hour	11.7	1.61E-02	8.38E-03
<b>Individual HAP</b>					0.163
<b>Total HAP</b>					0.203

- a) Non-carcinogenic substance listed in IDAPA 58.01.01.585.
- b) Carcinogenic substance listed in IDAPA 58.01.01.586.
- c) Tons per any consecutive 12-calendar month period.
- d) Methyl Ethyl Ketone is no longer a federally regulated HAP

The emissions inventories for this facility are included in Appendix A.

### Ambient Air Quality Impact Analyses

Based on the emissions inventories provided, the estimated controlled emission rates of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, and some TAP exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline<sup>1</sup>. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

**Table 6 AMBIENT AIR IMPACT ANALYSIS RESULTS FOR CRITERIA POLLUTANTS**

Pollutant	Averaging Period	Facility Modeled Impact	Background Concentration	Total Ambient Concentration	NAAQS <sup>a</sup>	Percentage of Standard
		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
PM <sub>10</sub>	24-hr <sup>a</sup>	34.7	73	107.70	150	71.8
	Annual <sup>b</sup>	9.0	26	35.00	50	70.0
SO <sub>2</sub>	3-hr	105	34	139.00	1,300	10.7
	24-hr <sup>a</sup>	68.7	26	94.70	365	25.9
	Annual <sup>b</sup>	13	8	21.00	80	26.3
NO <sub>2</sub>	Annual <sup>b</sup>	37.1	17	54.10	100	54.1
CO	1-hr	266	3,600	3866.0	40,000	9.7
	8-hr	212	2,300	2512.0	10,000	25.1
Lead	Annual <sup>b</sup>	0.28	0.12	0.40	100	0.4

- a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
- b) Controlled average emission rate in pounds per hour is an annual average, based on the proposed annual operating schedule and annual limits.
- c) National Ambient Air Quality Standard (NAAQS).

<sup>1</sup> Criteria pollutant thresholds in Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002.

Table 7 AMBIENT AIR IMPACT ANALYSIS RESULTS FOR TOXIC AIR POLLUTANTS

Pollutant	Averaging Period	Facility Modeled Impact	AAC or AACC <sup>a</sup>	Percentage of Standard
		µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
Dioxin/Furans	Annual	3.79E-11	2.20E-8	0.17
Acetaldehyde	Annual	1.61E-2	4.50E-1	3.58
Benzene	Annual	5.63E-3	1.20E-1	4.69
Formaldehyde	Annual	4.19E-2	7.70E-2	54.4
propionaldehyde	24-hour	1.15E-1	21.5	0.53
Quinone	24-hour	1.50E-1	20	0.75
Benzo(a)pyrene	Annual	1.99E-6	3.00E-4	0.66
Polycyclic Organic Matter <sup>b</sup>	Annual	2.63E-4	3.00E-4	87.7
Arsenic	Annual	7.83E-6	2.30E-4	3.92
Cadmium	Annual	5.33E-6	5.60E-4	0.95
Chromium 6+	Annual	5.73E-6	8.30E-5	6.90
Nickel	Annual	8.37E-4	4.20E-3	19.9

- a) The applicable acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC), as appropriate.  
 b) Polycyclic organic matter, as defined in IDAPA 58.01.01.586.

The applicant has demonstrated compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action.

## **REGULATORY ANALYSIS**

### ***Attainment Designation (40 CFR 81.313)***

Because a separate modeling analysis was not provided to demonstrate compliance with applicable standards in nonattainment areas, this portable facility is not permitted for operation in nonattainment areas.

### ***Permit to Construct (IDAPA 58.01.01.201)***

The proposed project does not meet the permit to construct exemption criteria in IDAPA 58.01.01.220–223. Therefore, a permit to construct is required in accordance with IDAPA 58.01.01.201. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

### ***Tier II Operating Permit (IDAPA 58.01.01.401)***

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

### ***Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)***

The facility is not classified as a major facility as defined in IDAPA 58.01.01.008.10. The facility is a synthetic minor facility, because without limits on the potential to emit, PM<sub>10</sub>, NO<sub>x</sub>, and VOC emissions have the potential to exceed major source thresholds. Therefore, the requirements of IDAPA 58.01.01.300–399 are not applicable to this permitting action.

### ***PSD Classification (40 CFR 52.21)***

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52.21(b)(1). Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

### ***NSPS Applicability (40 CFR 60)***

The facility is subject to the requirements of 40 CFR 60 Subpart I – Standards of Performance for Hot Mix Asphalt Facilities.

40 CFR 60, Subpart I.....Standards of Performance for Hot Mix Asphalt Facilities

*§ 60.90 Applicability and designation of affected facility.*

(a) The affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

(b) Any facility under paragraph (a) of this section that commences construction or modification after June 11, 1973, is subject to the requirements of this subpart.

C & A Paving – The HMA was constructed by Steelman-Duff in 1998. Therefore, the facility is subject to subpart I.

40 CFR 60, Subpart III.....Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

*§ 60.4200 Am I subject to this subpart?*

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines,

(ii) The model year listed in table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005 where the stationary CI ICE are:

(i) Manufactured after April 1, 2006 and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005.

C & A Paving – The facility is not subject to this subpart because the engine was ordered and constructed in 1984.

### ***NESHAP Applicability (40 CFR 61)***

The facility is not subject to any NESHAP requirements in 40 CFR 61.

### ***MACT Applicability (40 CFR 63)***

The facility is not subject to any MACT standards in 40 CFR Part 63.

### ***CAM Applicability (40 CFR 64)***

The facility is not classified as a major source (refer to Title V Classification section). Because the facility does not require a Title V permit, the requirements of CAM are not applicable.

## Permit Conditions Review

This section describes the permit conditions for only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

### Existing Permit Condition 1.4

*Table Error! No text of specified style in document.1.1 SUMMARY OF REGULATED SOURCES*

<i>Permit Section</i>	<i>Source Description</i>	<i>Emissions Control</i>
2	<u>Hot Mix Asphalt Dryer</u> <i>Manufacturer:</i> CMI (drum mix) <i>Maximum production:</i> 240 T/hr <i>Fuel:</i> natural gas, propane, distillate fuel oil ASTM Grade 1 or 2	<u>Hot Mix Asphalt Dryer Baghouse</u> <i>Manufacturer:</i> Aero Pulse
2	<u>Asphalt Tank Heater</u> <i>Fuel:</i> natural gas or propane, distillate fuel oil ASTM Grade 1 or 2	None
2	<u>HMA plant generator:</u> <i>Manufacturer:</i> Detroit Diesel <i>Rated Output:</i> 500 kW <i>Built:</i> June 1984 <i>Sold:</i> June 18, 1984 <i>Fuel:</i> distillate fuel oil ASTM Grade 1 or 2	None

### Revised Permit Condition 4

*Table 8 REGULATED SOURCES*

<i>Emissions Units</i>	<i>Control Devices</i>
<u>Hot Mix Asphalt Dryer</u> <i>Manufacturer:</i> CMI (drum mix) <i>Maximum production :</i> 240 T/hr <i>Fuel:</i> natural gas, propane, distillate fuel oil ASTM Grade 1 or 2, used oil	<u>Hot Mix Asphalt Dryer Baghouse</u> <i>Manufacturer:</i> Aero Pulse
<u>Asphalt Tank Heater</u> <i>Fuel:</i> natural gas or propane, distillate fuel oil ASTM Grade 1 or 2	None
<u>HMA plant generator</u> <i>Manufacturer:</i> Detroit Diesel <i>Rated Output:</i> 500 kW <i>Built:</i> June 1984 <i>Sold:</i> June 18, 1984 <i>Fuel:</i> distillate fuel oil ASTM Grade 1 or 2	None

This permit condition has been revised to add used oil as option fuel type to the HMA Dryer. The permit section was removed as there is only one section outside the General Provisions.

## Existing Permit Condition 2.2

The  $PM_{10}$  and  $NO_x$  emissions from the Dryer Stack shall not exceed any corresponding emissions rate limits listed in Table 2.1.

Table 2.1 HOT MIX ASPHALT PLANT EMISSIONS LIMITS<sup>a</sup>

Source Description	$PM_{10}$ <sup>b</sup>	$NO_x$
	lb/hr	T/yr
Dryer Stack	9.3	58.8

- In absence of any other credible evidence, compliance is assured by complying with this permit's operating, monitoring and record keeping requirements.
- Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers including condensable particulate as defined in IDAPA 58.01.01.006.81.

## Revised Permit Condition 8

The  $PM_{10}$  emissions from the Dryer Stack shall not exceed any corresponding emissions rate limits listed in Table 3.

Table 3 HOT MIX ASPHALT PLANT EMISSIONS LIMIT<sup>a</sup>

Source Description	$PM_{10}$ <sup>b</sup>		$NO_x$
	lb/hr <sup>c</sup>	T/yr <sup>d</sup>	T/yr <sup>d</sup>
Dryer Stack	5.52	2.88	6.88

- In absence of any other credible evidence, compliance is assured by complying with permit operating, monitoring, and record keeping requirements.
- Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.81.
- Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference method, or DEQ-approved alternative.
- Tons per any consecutive 12-calendar month period

The  $PM_{10}$  and  $NO_x$  limits were updated to reflect the current modeling data that as modeled to demonstrate NAAQS compliance. Both  $PM_{10}$  emissions were near 70% of the standard. The  $NO_x$  emissions were greater than 50% of standard so keeping the limit is reasonable.

## Existing Permit Condition 2.6

The production rate of the hot mix asphalt plant shall not exceed a maximum of one million, five hundred sixty-seven thousand tons per consecutive 12-month period (1,567,000 t/yr) when operating in any attainment or unclassifiable area.

## Revised Permit Condition 12

To demonstrate compliance with the emissions limits, the production rate of asphalt shall not exceed all of the following limits:

- 240 tons per hr.
- 250,000 tons per any consecutive 12-calendar month period.
- Recycled Asphalt Pavement (RAP) may be used at a rate of up to 50% of the total production.

This condition was revised to reflect the requested and modeled throughputs. These limits are necessary to demonstrate compliance with NAAQS standards.

#### Removed Permit Condition 2.7

*The Production rate of the hot mix asphalt plant shall not exceed a maximum of one thousand, eight hundred twenty-five tons per day (1,825 t/day) when operating in any PM<sub>10</sub> nonattainment area or proposed PM<sub>10</sub> nonattainment area.*

Operations in a nonattainment area are no longer option as modeling compliance was not demonstrated using used oil.

#### Added Permit Condition 14

*Setback distance is defined as the minimum distance from any emission source to property boundary. The setback distance in any direction to the property boundary shall be greater than or equal to 150 meters (492 feet).*

A setback distance is required to again demonstrate compliance with NAAQS standards and was assumed during modeling demonstration.

#### Existing Permit Condition 2.8

- *The dryer burner fuel shall be natural gas or propane gas, ASTM Grade 1 or Grade 2 distillate fuel oil, or a mix of Grade 1 and Grade 2 distillate fuel oil with a maximum sulfur content of 0.5%S by weight.*
- *The asphalt tank heater fuel shall be natural gas or propane gas, ASTM Grade 1 or Grade 2 distillate fuel oil, or a mix of Grade 1 and Grade 2 distillate fuel oil with a maximum sulfur content of 0.5%S by weight.*
- *The generator shall combust ASTM Grade 1 or Grade 2 distillate fuel oil, or a mix of Grade 1 and Grade 2 distillate fuel oil with a maximum sulfur content of 0.5%S by weight.*

#### Revised Permit Condition 15

*The dryer burner fuel shall combust natural gas or propane gas, ASTM Grade 1 or Grade 2 distillate fuel oil, or a mix of Grade 1 and Grade 2 distillate fuel oil with a maximum sulfur content of 0.5%S by weight or used oil with 0.5% sulfur content.*

*The asphalt tank heater fuel shall combust natural gas or propane gas, ASTM Grade 1 or Grade 2 distillate fuel oil, or a mix of Grade 1 and Grade 2 distillate fuel oil with a maximum sulfur content of 0.5%S by weight.*

*The generator shall combust ASTM Grade 1 or Grade 2 distillate fuel oil, or a mix of Grade 1 and Grade 2 distillate fuel oil with a maximum sulfur content of 0.5%S by weight.*

The ability to use used oil in the dryer burner was added.

#### Added Permit Condition 16

*In accordance with 40 CFR 279.11, with the exception of total halogens which are limited to 1,000 ppm, used oil burned for energy recovery shall not exceed any of the allowable levels of the constituents and property listed in Table 4. In addition, used oil shall not contain quantifiable levels (2 ppm) of polychlorinated biphenyls (PCB).*

Table 4 USED OIL SPECIFICATIONS<sup>c</sup>

Constituent/property	Allowable level
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash point	100 deg. F minimum
Total halogens	1,000 ppm maximum
PCBs <sup>b</sup>	< 2 ppm

- a) *The specification does not apply to mixtures of used oil and hazardous waste that continue to be regulated as hazardous waste (see 40 CFR 279.10(b)).*  
 b) *Applicable standards for the burning of used oil containing PCB are imposed by 40 CFR 761.20(e).*

The used oil specifications were added to ensure compliance with 40 CFR 279.11 when combusting RFO in the drum dryer.

Existing Permit Condition 2.13

*Within 60 days of initial start-up, the permittee shall have developed a Baghouse/Filter System Procedures document for the inspection and operation of the Baghouse/Filter system which controls emissions from the Dryer Stack. The Baghouse/Filter System Procedures document shall be a permittee developed document independent of the manufacturer supplied operating manual but may include summaries of procedures included in the manufacturer supplied operating manual.*

*The Baghouse/Filter System Procedures document shall describe the procedures that will be followed to comply with General Provision 2 and shall contain requirements for monthly see-no-see visible emissions inspections of the baghouse. The inspection shall occur during daylight hours and under normal operating conditions.*

*The Baghouse/Filter System Procedures document shall also include a schedule and procedures for corrective action that will be taken if visible emissions are present from the baghouse at anytime. At a minimum the document shall include:*

- *procedures to determine if bags or cartridges are ruptured; and*
- *procedures to determine if bags or cartridges are not appropriately secured in place.*

*The Permittee shall maintain records of the results of each baghouse/filter system inspections in accordance with General Provision 7. The records shall include a description of whether visible emissions were present and if visible emissions were present a description of the corrective action that was taken.*

*The Baghouse/Filter System Procedures document shall be submitted to DEQ within 60 days of permit issuance for review and comment and shall contain a certification by a responsible official. Any changes to the Baghouse/Filter System Procedures document shall be submitted within 15 days of the change.*

*Air Quality Permit Compliance  
 Boise Regional Office  
 Department of Environmental Quality  
 1445 N. Orchard  
 Boise, ID 83706  
 Phone: (208) 373-0550*

*The Baghouse/Filter System Procedures document shall also remain on site at all times and shall be made available to DEQ representatives upon request.*

*The operating and monitoring requirements specified in the Baghouse/Filter System Procedures document are incorporated by reference to this permit and are enforceable permit conditions.*

### Revised Permit Condition 19

*Within 60 days of permit issuance a new and updated Baghouse/Filter Procedures Document shall be submitted to the DEQ Boise Regional Office. The Baghouse/Filter System Procedures document shall be a permittee developed document independent of the manufacturer supplied operating manual but may include summaries of procedures included in the manufacturer supplied operating manual.*

*The Baghouse/Filter System Procedures document shall describe the procedures that will be followed to comply with the General Compliance General Provision and shall contain requirements for monthly see-no-see visible emissions inspections of the baghouse. The inspection shall occur during daylight hours and under normal operating conditions.*

*The Baghouse/Filter System Procedures document shall also include a schedule and procedures for corrective action that will be taken if visible emissions are present from the baghouse at anytime. At a minimum the document shall include:*

- *Procedures to determine if bags or cartridges are ruptured; and*
- *Procedures to determine if bags or cartridges are not appropriately secured in place.*

*The Permittee shall maintain records of the results of each baghouse/filter system inspections in accordance with the Monitoring and Recordkeeping General Provision. The records shall include a description of whether visible emissions were present and if visible emissions were present a description of the corrective action that was taken.*

*The Baghouse/Filter System Procedures document shall be submitted to DEQ within 60 days of permit issuance for review and comment and shall contain a certification by a responsible official. Any changes to the Baghouse/Filter System Procedures document shall be submitted within 15 days of the change.*

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*The Baghouse/Filter System Procedures document shall also remain on site at all times and shall be made available to DEQ representatives upon request.*

*The operating and monitoring requirements specified in the Baghouse/Filter System Procedures document are incorporated by reference to this permit and are enforceable permit conditions.*

At the request of the Boise Regional Office Compliance officer, the requirement of a newly submitted manual was added to verify the use of used oil and any new corresponding particulates are accounted for in the operations and maintenance of the baghouse system.

### Added Permit Condition 24

*The permittee shall measure and record the minimum setback distance to demonstrate compliance with the setback:*

- *Before initial startup of any emissions source listed in Table 1;*
- *Each time the source is relocated.*

*Information recorded shall include, but not be limited to, a brief description of the nearest distance to any area where the general public has access, the minimum setback distance in meters or feet to an accuracy of plus or minus 6 feet, and a description of the method used to measure distance.*

This is a recordkeeping requirement to demonstrate compliance with the setback distance.

#### Added Permit Condition 25

*The permittee shall demonstrate compliance with the used oil fuel specifications in Permit Condition 16 by obtaining a used oil fuel certification from the used oil fuel supplier on an as-received basis for each shipment or by having the fuel analyzed by a qualified laboratory. The certification shall include the following information:*

- *The name and address of the used oil supplier;*
- *The measured concentration, expressed as ppm, of each constituent listed in Table 4;*
- *The flash point of the used oil expressed as degrees Fahrenheit;*
- *The analytical method or methods used to determine the concentration of each constituent and property (flash point) listed in Table 4;*
- *The date and location of each sample; and*
- *The date of each certification analysis.*

Requires certification of the properties associated with used oil when it is received. This is required to demonstrate compliance with 40 CFR 279.11.

#### Added Permit Condition 26

*The permittee shall maintain documentation of supplier verification of fuel oil and used oil sulfur content on an as-received basis.*

Another recordkeeping requirement asking sulfur content of used oil to be monitored on as-received basis.

#### Added Permit Condition 28

*Performance testing on the Asphalt Dryer Baghouse stack shall be performed within 60 days after achieving the maximum permitted production rate stated in the asphalt production limit permit Condition, but not later than 180 days after initial startup of the HMA plant, in accordance with 40 CFR 60.8.*

*The initial performance test shall measure the PM<sub>10</sub> emission rate in grains per dry standard cubic feet and the opacity to demonstrate compliance with the emission limits in the particulate matter standard permit condition.*

*The performance test shall be conducted under worst-case normal operating conditions and in accordance with 40 CFR 60.93, 60.8, and 60.11; Permit Conditions 7, 31, and 32; and the Performance Test General Provision of this permit. The permittee is encouraged to submit a performance testing protocol for approval 30 days prior to conducting the performance tests.*

*Each performance test shall consist of three separate runs using the applicable test method in accordance with 40 CFR 60.8(f).*

C&A Paving has yet to demonstrate compliance when burning used oil. Therefore an initial performance test is necessary within 180 days of permit issuance. Additionally, it was determined that while owned by Steelman-Duff, Inc. this HMA plant failed a source test in the Lewiston area and no follow-up was conducted by the Lewiston Regional Office.

#### Added Permit Condition 31

- *In accordance with 40 CFR 60.93(b) and 60.11(b), the permittee shall determine compliance with the particulate matter standards in Permit Condition 7 as follows:*
  - *EPA Reference Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).*
  - *EPA Reference Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.*

- *In accordance with 40 CFR 60.93(a), in conducting performance tests, the permittee shall use as reference methods and procedures the test methods in 40 CFR 60 Appendix A.*
- *In accordance with 40 CFR 60.11(e), for the purpose of demonstrating compliance, opacity observations shall be conducted concurrently with the performance test required by Permit Condition 29.*

When a performance test is required the appropriate test methods shall be adhered to. This in accordance with 40 CFR 60 Subpart I.

Added Permit Condition 32

*The permittee shall use EPA Methods 5 and 202 or such comparable and equivalent methods approved in accordance with Subsection 157.02.d to determine compliance with the particulate matter standard permit condition in accordance with IDAPA 58.01.01.700.04.*

*The permittee shall use EPA Method 9 to determine compliance with the opacity matter standard permit condition in accordance with IDAPA 58.01.01.625.04.*

This requires that EPA methods 5 and 202 or approved equivalent methods must be used when testing for compliance against the particulate matter standard. Similarly, EPA Method 9 shall be used when testing opacity.

Added Permit Condition 33

*Performance test reports shall include records of the monitoring required by this permit during the test, and documentation that the performance test was conducted under worst-case normal operating conditions and in accordance with IDAPA 58.01.01.157. Performance test reports shall be submitted by the permittee to the following address:*

*Air Quality Permit Compliance  
Boise Regional Office  
Department of Environmental Quality  
1445 N Orchard Street  
Boise, ID 83706*

*Phone: (208) 373-0550*

*Fax: (208) 373-0287*

All performance test reports need to be sent to the Idaho DEQ Boise Regional office in accordance with IDAPA 58.01.01.157.

Revised Permit condition 34

*At least 10 days prior to relocation of the equipment listed in Table 1.1, the permittee shall submit a scaled plot plan and a complete Portable Equipment Relocation Form (PERF) in accordance with IDAPA 58.01.01.500, to the following address or fax number:*

*PERF Processing Unit  
DEQ– Air Quality  
1410 N. Hilton  
Boise, ID 83706-1255*

*The scaled plot plan shall show the location of the emissions sources listed in Table 1, and distances to any area outside of a building where the general public has access, including property boundaries.*

*Electronic copies of the PERF may be obtained from the DEQ website:*

*[http://www.deq.idaho.gov/air/permits\\_forms/forms/ptc\\_relocation.pdf](http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.pdf)*

*[http://www.deq.idaho.gov/air/permits\\_forms/forms/ptc\\_relocation.doc](http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.doc)*

*Should the permittee relocate out of Ada or Canyon counties and combust used oil at the new location an updated modeling compliance demonstration must be performed. This would require a modification to the current permit.*

The permittee submitted modeling and demonstrated compliance with the NAAQS standards for only Ada and Canyon counties. The permittee was asked if they wanted to conduct more state-wide modeling and they declined. The current demonstration does not include the use of used oil in any portion of the state outside those two counties. Should the permittee relocate outside Ada or Canyon county and combust used oil a permit modification is required. A new application and fees would also be required.

#### Added Permit Condition 36

*The permittee shall not relocate and operate any equipment listed in Table 1 in any PM<sub>2.5</sub> or PM<sub>10</sub> nonattainment area.*

*Contact DEQ for current nonattainment area status and more specific details about the nonattainment area boundaries. The geographical locations of nonattainment areas in Idaho may be found online at: [http://www.deq.idaho.gov/air/data\\_reports/monitoring/overview.cfm#AttvNon](http://www.deq.idaho.gov/air/data_reports/monitoring/overview.cfm#AttvNon).*

Nonattainment compliance was not demonstrated when combusting used oil.

#### Added Permit Condition 38

*Unless expressly provided otherwise, any reference in this permit to any document identified in IDAPA 58.01.01.107.03 shall constitute the full incorporation into this permit of that document for the purposes of the reference, including any notes and appendices therein. Documents include, but are not limited to:*

- *Standards of Performance for New Stationary Sources (NSPS), 40 CFR Part 60*

*For permit conditions referencing or cited in accordance with any document incorporated by reference (including permit conditions identified as NSPS or NESHAP), should there be any conflict between the requirements of the permit condition and the requirements of the document, the requirements of the document shall govern, including any amendments to that regulation.*

This condition was added to remind the permittee that if there is ever a discrepancy between the permit and 40 CFR 60, that all federal requirements govern and must be adhered to.

## **PUBLIC REVIEW**

### ***Public Comment Opportunity***

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

## APPENDIX A – EMISSIONS INVENTORIES





**HOT-MIX ASPHALT PLANT DRUM DRYER EMISSION FACTORS**

Pollutant	Emission Factor		Pollutant	Emission Factor	
	#2 Fuel Oil (lb/ton)	Used/RPO4 Oil (lb/ton)		#2 Fuel Oil (lb/ton)	Used/RPO4 Oil (lb/ton)
PM (total)	0.033	0.033	<b>PAH HAPs</b>		
PM-10 (total)	0.023	0.023	2-Methylnaphthalene	0.00017	1.70E-04
P.M.-2.5	0.0029	0.0029	Acenaphthene	1.40E-06	1.40E-06
CO	0.13	0.13	Acenaphthylene	2.20E-05	2.20E-05
NOx	0.055	0.055	Anthracene	3.10E-06	3.10E-06
SO <sub>2</sub>	0.011	0.038	Benzo(a)anthracene	2.10E-07	2.10E-07
VOC	0.032	0.032	Benzo(a)pyrene	9.80E-09	9.80E-09
Lead	1.50E-05	1.50E-05	Benzo(b)fluoranthene	1.00E-07	1.00E-07
HCl	No Data	0.00021	Benzo(c)pyrene	1.10E-07	1.10E-07
<b>Dioxins</b>			Benzo(g,h,i)perylene	4.00E-08	4.00E-08
2,3,7,8-TCDD	2.10E-13	2.10E-13	Benzo(k)fluoranthene	4.10E-08	4.10E-08
Total TCDD	9.30E-13	9.30E-13	Chrysene	1.80E-07	1.80E-07
1,2,3,7,8-PeCDD	3.10E-13	3.10E-13	Fluoranthene	6.10E-07	6.10E-07
Total PeCDD	2.20E-11	2.20E-11	Fluorene	1.10E-05	1.10E-05
1,2,3,4,7,8-HxCDD	4.20E-13	4.20E-13	Indeno(1,2,3-cd)pyrene	7.00E-09	7.00E-09
1,2,3,6,7,8-HxCDD	1.30E-12	1.30E-12	Naphthalene	0.00065	6.50E-04
1,2,3,7,8,9-HxCDD	9.80E-13	9.80E-13	Perylene	8.80E-09	8.80E-09
Total HxCDD	1.20E-11	1.20E-11	Phenanthrene	2.30E-05	2.30E-05
1,2,3,4,6,7,8-Hp-CDD	4.80E-12	4.80E-12	Pyrene	3.00E-06	3.00E-06
Total HpCDD	1.90E-11	1.90E-11	<b>Non-HAP Organic Compounds</b>		
Octa CDD	2.50E-11	2.50E-11	Acetone		9.30E-04
Total PCDD	7.90E-11	7.90E-11	Benzaldehyde		1.10E-04
<b>Furans</b>			Butane	6.70E-04	6.70E-04
2,3,7,8-TCDF	9.70E-13	9.70E-13	Butyraldehyde		1.60E-04
Total TCDF	3.70E-12	3.70E-12	Crotonaldehyde		8.60E-05
1,2,3,7,8-PeCDF	4.30E-12	4.30E-12	Ethylene	7.00E-03	7.00E-03
2,3,4,7,8-PeCDF	8.40E-13	8.40E-13	Heptane	9.40E-03	9.40E-03
Total PeCDF	8.40E-11	8.40E-11	Hexanal		1.10E-04
1,2,3,4,7,8-HxCDF	4.00E-12	4.00E-12	Isovaleraldehyde		3.20E-05
1,2,3,6,7,8-HxCDF	1.20E-12	1.20E-12	2-Methyl-1-pentene	4.00E-03	4.00E-03
2,3,4,6,7,8-HxCDF	1.90E-12	1.90E-12	2-Methyl-2-butene	5.80E-04	5.80E-04
1,2,3,7,8,9-HxCDF	8.40E-12	8.40E-12	3-Methylpentane	1.90E-04	1.90E-04
Total HxCDF	1.30E-11	1.30E-11	1-Pentene	2.20E-03	2.20E-03
1,2,3,4,6,7,8-HpCDF	6.50E-12	6.50E-12	n-Pentane	2.10E-04	2.10E-04
1,2,3,4,7,8,9-HpCDF	2.70E-12	2.70E-12	Valeraldehyde		6.70E-05
Total HpCDF	1.00E-11	1.00E-11	<b>Metals</b>		
Octa CDF	4.80E-12	4.80E-12	Antimony	1.80E-07	1.80E-07
Total PCDF	4.00E-11	4.00E-11	Arsenic	5.60E-07	5.60E-07
Total PCDD/PCDF	1.20E-10	1.20E-10	Barium	5.80E-06	5.80E-06
<b>Non-PAH HAPs</b>			Cadmium	4.10E-07	4.10E-07
Acetaldehyde		1.30E-03	Chromium	5.50E-06	5.50E-06
Acrolein		2.60E-05	Cobalt	2.60E-08	2.60E-08
Benzene	3.90E-04	3.90E-04	Copper	3.10E-06	3.10E-06
Ethylbenzene	2.40E-04	2.40E-04	Hexavalent Chromium	4.50E-07	4.50E-07
Formaldehyde	3.10E-03	3.10E-03	Manganese	7.70E-06	7.70E-06
Hexane	9.20E-04	9.20E-04	Mercury	2.60E-06	2.60E-06
Isaectan	4.00E-05	4.00E-05	Nickel	6.30E-05	6.30E-05
Methyl Ethyl Ketone		2.00E-05	Phosphorus	2.80E-05	2.80E-05
Propionaldehyde		1.30E-04	Silver	4.80E-07	4.80E-07
Quinone		1.60E-04	Selenium	3.50E-07	3.50E-07
Methyl chloroform	4.80E-05	4.80E-05	Thallium	4.10E-09	4.10E-09
Toluene	2.90E-03	2.90E-03	Zinc	6.10E-05	6.10E-05
Xylene	2.00E-04	2.00E-04			

Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04

Figure A.3 – Drum Dryer Emissions Factors for both criteria pollutants and TAPs.

**EMISSION FACTORS FOR ASPHALT TANK HEATER**

Pollutant	Emission Factor		Pollutant	Emission Factor	
	#2 Fuel Oil (lb/gal)	Used/RFO4 Oil (lb/gal)		#2 Fuel Oil (lb/gal)	Used/RFO4 Oil (lb/gal)
PM (total) (filterable)	0.002	.064A	Metals		
PM-10 (total) (filterable)	0.002	.051A	Antimony <sup>c</sup>	5.25E-06	1.10E-01
CO	0.005	0.005	Arsenic <sup>c</sup>	1.32E-06	3.50E-05
NOx	0.02	0.019	Barium <sup>o</sup>	2.57E-06	
SO <sub>2</sub>	0.142S	.147S	Beryllium <sup>o</sup>	2.76E-08	9.30E-03
VOC (TOC EF)	5.56E-04	0.001	Cadmium <sup>o</sup>	3.98E-07	2.00E-02
Lead	1.51E-06	.055L	Chromium <sup>o</sup>	8.46E-07	7.100E-05
<b>Dioxins</b>			Cobalt <sup>a</sup>	6.02E-06	2.10E-04
1,2,3,4,7,8-HxCDD	6.90E-13		Copper <sup>a</sup>	1.76E-06	6.80E-02
1,2,3,7,8,9-HxCDD	7.60E-13		Hexavalent Chromium <sup>a</sup>	2.48E-07	
1,2,3,4,6,7,8-Hp-CDD	1.50E-11		Manganese <sup>a</sup>	3.00E-06	
Total HpCDD	2.00E-11		Mercury <sup>a</sup>	1.13E-07	1.10E-02
Octa CDD	1.60E-10		Molybdenum <sup>a</sup>	7.87E-07	
Total PCDD	2.00E-10		Nickel <sup>a</sup>	8.45E-05	
<b>Furans</b>			Phosphorus <sup>a</sup>	9.46E-06	
Total TCDF	3.30E-12		Silver <sup>a</sup>		
Total PeCDF	4.80E-13		Selenium <sup>a</sup>	6.83E-07	
Total HxCDF	2.00E-12		Thallium <sup>a</sup>		
Total HpCDF	9.70E-12		Vanadium <sup>o</sup>	3.18E-05	
Octa CDF	1.20E-11		Zinc <sup>a</sup>	2.91E-05	
Total PCDF	3.10E-11				
Total PCDD/PCDF	2.30E-10		Vanadium	3.18E-05	
<b>Non-PAH HAPs</b>			Zinc	2.91E-05	
Formaldehyde	3.50E-06				
<b>PAH HAPs</b>					
Acenaphthene	5.30E-07				
Acenaphthylene	2.00E-07				
Anthracene	1.80E-07				
Benzo(b)fluoranthene	1.00E-07				
Fluoranthene	4.40E-08				
Fluorene	3.20E-08				
Naphthalene	1.70E-05				
Phenanthrene	4.90E-06				
Pyrene	3.20E-08				

Emission factors for criteria pollutants are from AP-42, 1.3, Fuel Oil Combustion, 9/98;  
 Emission Factors for Metals from AP-42, Table 1.3-11 Uncontrolled No. 6 Fuel Oil Combustion  
 AP-42 11.1, Hot Mix Asphalt Plants, 3/04; and AP-42 1.11 Waste Oil Combustors, 10/96.  
 S = weight % sulfur in fuel  
 L = weight % Lead in fuel  
 A = weight % Ash in fuel

**EMISSION FACTORS FOR DIESEL GENERATOR**

Pollutant	Emission Factor (lb/MMBtu)	Pollutant	Emission Factor (lb/MMBtu)
PM	0.1	PAH HAPs	
PM-10 (total)	0.0373	Acenaphthene	4.68E-06
CO	0.85	Acenaphthylene	9.23E-06
NOx	3.2	Anthracene	1.23E-06
SO <sub>2</sub> (total SOx presumed SO2)	1.01S	Benzo(a)anthracene	6.22E-07
VOC (total TOC -> VOCs)	0.09	Benzo(a)pyrene	2.57E-07
<b>Non-PAH HAPs</b>		Benzo(b)fluoranthene	1.11E-06
Acetaldehyde	2.52E-05	Benzo(g,h,i)perylene	5.56E-07
Acrolein	7.88E-06	Benzo(k)fluoranthene	2.18E-07
Benzene	7.76E-04	Chrysene	1.53E-06
Formaldehyde	7.89E-05	Dibenz(a,b)anthracene	3.46E-07
Toluene	2.81E-04	Fluoranthene	4.03E-06
Xylene	1.93E-04	Fluorene	1.28E-05
		Indeno(1,2,3-cd)pyrene	4.14E-07
		Naphthalene	1.30E-04
		Phenanthrene	4.08E-05
		Pyrene	3.71E-06

Emission factors are from AP-42 3.4  
 S = weight % sulfur in fuel

Figure A.4 – Asphalt Tank Heater and Diesel Generator Emissions Factors for both criteria pollutants and TAPs.

FUGITIVE EMISSION FACTORS FOR LOAD-OUT, SILO FILLING, AND ASPHALT STORAGE

		Asphalt Volatility (V) -0.5	HMA Mix Temp (T) 325	
Emission Source	Pollutant	Predictive Emission Equation		Emission Factor (lb/ton)
		$EF = 0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$		
Plant Load-out	Total PM	$EF = 0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$		5.219E-04
	Organic PM	$EF = 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$		3.409E-04
	TOC	$EF = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)}$		4.159E-03
	CO	$EF = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)}$		1.349E-03
Silo Filling	Total PM	$EF = 0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$		5.859E-04
	Organic PM	$EF = 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$		2.539E-04
	TOC	$EF = 0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$		1.219E-02
	CO	$EF = 0.00488(-V)e^{((0.0251)(T + 460) - 20.43)}$		1.180E-03

Toxic Air Pollutant Non-Carcinogenic	Organic Particulate/ Organic Volatile		Emission Factor		
	Load-out (%)	Silo Filling (%)	Load-out lb/ton	Silo Filling lb/ton	Total lb/ton
PM (total)			5.219E-04	5.859E-04	1.108E-03
PM-10 (total)			5.219E-04	5.859E-04	1.108E-03
P.M.-2.5			5.219E-04	5.859E-04	1.108E-03
CO			1.349E-03	1.180E-03	2.529E-03
VOC	94	100	3.909E-03	1.219E-02	1.610E-02
<b>Non-PAH HAPs</b>					
Benzene	0.052	0.032	2.163E-06	3.900E-06	6.06239E-06
Ethylbenzene	0.28	0.038	1.164E-05	4.631E-06	1.6276E-05
Formaldehyde	0.088	0.69	3.660E-06	8.409E-05	8.7748E-05
Hexane	0.15	0.1	6.238E-06	1.219E-05	1.84251E-05
Heptane	0.0018	0.00031	7.486E-08	3.778E-08	1.1264E-07
Methyl Ethyl Ketone	0.049	0.039	2.038E-06	4.753E-06	6.79069E-06
Toluene	0.21	0.062	8.734E-06	7.556E-06	1.62895E-05
Xylene			2.038E-05	3.132E-05	5.170E-05
<b>PAH HAPs</b>					
2-Methylnaphthalene	2.38	5.27	8.114E-06	1.338E-05	2.14943E-05
Acenaphthene	0.26	0.47	8.864E-07	1.193E-06	2.07972E-06
Acenaphthylene	0.028	0.014	9.546E-08	3.544E-08	1.31007E-07
Anthracene	0.07	0.13	2.387E-07	3.301E-07	5.68712E-07
Benzo(a)anthracene	0.019	0.056	6.478E-08	1.422E-07	2.06956E-07
Benzo(a)pyrene	0.0023	0	7.842E-09	0.000E+00	7.84155E-09
Benzo(b)fluoranthene	0.0076	0	2.591E-08	0.000E+00	2.59112E-08
Benzo(c)pyrene	0.0078	0.0095	2.659E-08	2.412E-08	5.07126E-08
Benzo(g,h,i)perylene	0.0019	0	6.478E-09	0.000E+00	6.4778E-09
Benzo(k)fluoranthene	0.0022	0	7.501E-09	0.000E+00	7.50061E-09
Chrysene	0.103	0.21	3.512E-07	5.332E-07	8.84333E-07
Dibenzo(a,h)anthracene	0.0037	0	1.261E-09	0.000E+00	1.26147E-09
Fluoranthene	0.05	0.15	1.705E-07	3.808E-07	5.51302E-07
Fluorene	0.77	1.01	2.625E-06	2.564E-06	5.1895E-06
Indeno(1,2,3-cd)pyrene	0.0047	0	1.602E-09	0.000E+00	1.6024E-09
Naphthalene	1.25	1.82	4.262E-06	4.621E-06	8.8825E-06
Perylene	0.022	0.03	7.501E-08	7.617E-08	1.51173E-07
Phenanthrene	0.81	1.8	2.762E-06	4.570E-06	7.3316E-06
Pyrene	0.15	0.44	5.114E-07	1.117E-06	1.62832E-06
<b>non-PAH HAPs</b>					
Bromomethane	0.0096	0.0049	3.993E-07	5.971E-07	9.96407E-07
Carbon disulfide	0.013	0.016	5.407E-07	1.950E-06	2.49053E-06
Chloroethane (Ethyl chloride)	0.00021	0.004	8.734E-09	4.875E-07	4.96201E-07
Chloromethane (Methyl chloride)	0.015	0.023	6.238E-07	2.803E-06	3.42678E-06
Cumene	0.11	0	4.575E-06	0.000E+00	4.57484E-06
Methylene chloride (Dichloromethane)	0	0.00027	0.000E+00	3.290E-08	3.29041E-08
MTBE	0	0	0.000E+00	0.000E+00	0
Styrene	0.0073	0.0054	3.036E-07	6.581E-07	9.61684E-07
Tetrahydroethene (Tetrahydroethylene)	0.0077	0	3.202E-07	0.000E+00	3.20239E-07
1,1,1-Trichloroethane (Methyl chloroform)	0	0	0.000E+00	0.000E+00	0
Trichloroethene (Trichloroethylene)	0	0	0.000E+00	0.000E+00	0
Trichlorofluoromethane	0.0013	0	5.407E-08	0.000E+00	5.40663E-08
m/p-Xylene (added into Xylene)	0.41	0.2	1.705E-05	2.437E-05	4.14251E-05
o-Xylene (added into Xylene)	0.08	0.057	3.327E-06	6.946E-06	1.02736E-05
Phenol	1.18	0	4.023E-06	0.000E+00	4.02306E-06
<b>Non-HAP Organic Compounds</b>					
Acetone	0.046	0.055	1.913E-06	6.703E-06	8.61579E-06
Ethylene	0.71	1.1	2.943E-05	1.341E-04	0.000163482
Methane	6.5	0.26	2.703E-04	3.169E-05	0.000302017

Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04

Figure A.5 – Load-out, silo filling and Storage Emissions Factors for both criteria pollutants and TAPs.

**FUGITIVE EMISSION FACTORS FOR AGGREGATE TRANSFERS AND SCREENING**

Source	Emission Factor		
	PM lb/ton	PM10 lb/ton	PM2.5 lb/ton
Agg. Trans to Bins	5.33E-03	2.02E-03	3.06E-04
Aggregate Conveying	1.40E-04	4.60E-05	1.30E-05
Scalping Screen	2.20E-03	7.40E-04	5.00E-05

Emission factors for conveyor transfers and screening from AP-42 Table 11.19.2-2

Drop Point Emission Factor for Aggregate Transfer to bin from

Equation 1, AP-42 13.2.A where:

Mean Wind Speed (U) = 10 mph

Moisture Content (M) = 2.5%

Particle Size Multiplier (k) =

TSP = 0.74

PM = TSP/0.8 = 0.925

PM10 = 0.35

PM2.5 = .053

$$EF \left( \frac{\text{lb}}{\text{ton}} \right) = (k \times 0.0032) \frac{\left( \frac{U}{5} \right)^{1.3}}{\left( \frac{M}{2} \right)^{1.4}}$$

**TABLE 5: FUGITIVE EMISSIONS FROM PLANT VEHICLE TRAFFIC**

Vehicle	s	W	Emission Factors		
			PM <sub>10</sub> (lb/VMT)	PM <sub>10</sub> (lb/VMT)	PM <sub>2.5</sub> (lb/VMT)
Asphalt Truck	4.8	20	6.059	1.544	0.154
Loader	4.8	10	4.435	1.130	0.113

Vehicle	VMT/hr	VMT/yr	Fugitive Vehicle Emissions					
			PM		PM <sub>10</sub>		PM <sub>2.5</sub>	
			(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Asphalt Truck	2.00	2000.00	12.118	6.059	3.088	1.544	0.309	0.154
Loader	2.44	2442.86	10.835	5.418	2.761	1.381	0.276	0.138
		<b>TOTAL</b>	<b>22.953</b>	<b>11.476</b>	<b>5.850</b>	<b>2.925</b>	<b>0.585</b>	<b>0.292</b>

	Plant Road	Loader Pall
Round Trip Distance (miles)	0.25	0.075
Tons Hauled per Round Trip	30	7
Tons Hauled per hour	240	228
Tons Hauled per year	240,000	228,000.0
Vehicle Miles Traveled per hour	2.00	2.44
Vehicle Miles Traveled per Year	2000.00	2442.86

AP-42 13.2.2 Equation 1a

$$E = k \left( \frac{s}{12} \right)^a \left( \frac{W}{3} \right)^b = \text{lb} / \text{VMT}$$

E = Emission Factor in Pounds per Vehicle Mile Traveled (lb / VMT)

k = 4.9 for PM<sub>10</sub>, 1.5 for PM<sub>10</sub> and 0.15 for PM<sub>2.5</sub>

s = Silt Content %

W = Mean Vehicle Weight (tons)

a = 0.7 for PM<sub>10</sub>; 0.9 for PM<sub>10</sub> and PM<sub>2.5</sub>

b = 0.45

**Figure A.6 – Aggregate Transfer and Screening and Vehicle Fugitive Emissions Factors.**

**Modeled Emission Rates**

Criteria Air Pollutants	Dryer Stack (lb/hr)	Tank Heater (lb/hr)	Generator (lb/hr)	Load-out (lb/hr)	Silo Filling (lb/hr)	Material Handling (lb/hr)	Material Conveying and Screening (lb/hr)
PM-10 (total)	3.520	0.149	0.269	1.233E-01	1.406E-01	4.606E-01	1.792E-01
CO	31.200	0.015	3.989	3.238E-01	2.832E-01	0	0
NOx	13.200	0.058	15.019	0	0	0	0
SO <sub>2</sub>	13.920	0.429	2.370	0	0	0	0
Lead	3.600E-03	0.161	0	0	0	0	0
<b>Toxic Air Pollutants</b>							
Dioxin/Furans	8.724E-11	1.024E-13	0	0	0	0	0
Acetaldehyde	3.710E-02	0	1.406E-05	0	0	0	0
Benzene	1.113E-02	0	4.331E-04	6.172E-05	1.113E-04	0	0
Formaldehyde	8.847E-02	1.215E-06	4.404E-05	1.044E-04	2.400E-03	0	0
Propionaldehyde	3.120E-02	0	0	0	0	0	0
Quinone	3.840E-02	0	0	0	0	0	0
Benzo(a)pyrene	2.797E-07	0	1.434E-07	2.238E-07	0	0	0
Polycyclic Organic Matter	1.563E-05	3.471E-08	2.510E-06	1.313E-05	1.927E-05	0	0
Arsenic	1.598E-05	4.582E-07	0	0	0	0	0
Cadmium	1.170E-05	1.382E-07	0	0	0	0	0
Hexavalent Chromium	1.284E-05	8.608E-08	0	0	0	0	0
Nickel	1.798E-03	2.933E-05	0	0	0	0	0

Point per hour emission rates for toxic air pollutants with an annual averaging period were calculated from the total annual emissions divided by 8,760 hrs/yr.

**Significant Impact Analysis**

Criteria Air Pollutant	Averaging Period	Modeled Concentration µg/m <sup>3</sup>	Limit µg/m <sup>3</sup>	NAAQS Analysis Required?
PM-10	24-hr	46.90041	5	YES
	Annual	9.04145	1	YES
CO	1-hr	266.13159	2,000	NO
	8-hr	211.959	500	NO
NOx	Annual	37.1381	1	YES
	3-hr	113.92139	25	YES
SO <sub>2</sub>	24-hr	72.17908	5	YES
	Annual	13.02217	1	YES

**Full Impact Analysis**

Criteria Air Pollutant	Averaging Period	Modeled Concentration µg/m <sup>3</sup>	Background Concentration µg/m <sup>3</sup>	Total Concentration µg/m <sup>3</sup>	NAAQS Limit µg/m <sup>3</sup>	Percent of NAAQS
PM-10	24-hr 2 <sup>nd</sup> highest	34.69751	73	107.70	150	71.80%
	24-hr 6 <sup>th</sup> highest	30.73975	73	103.74	150	69.16%
	Annual	9.04145	26	35.04	50	70.08%
NOx	Annual	37.1381	17	54.14	100	54.14%
	3-hr	103.36755	34	139.37	1,300	10.72%
SO <sub>2</sub>	24-hr	68.70138	26	94.70	365	25.93%
	Annual	13.02217	8	21.02	80	26.28%
Lead	Quarterly	7.020E-02	0.03	0.10	1.5	6.68%

**Toxic Air Pollutant Ambient Air Impacts**

Toxic Air Pollutant	Averaging Period	Modeled Concentration µg/m <sup>3</sup>	AAC/AACC	Percent of AAC/AACC
Dioxin/Furans	Annual	4.73E-11	2.20E-08	0.22%
Acetaldehyde	Annual	2.01E-02	4.50E-01	4.46%
Benzene	Annual	6.96E-03	1.20E-01	5.80%
Formaldehyde	Annual	5.24E-02	7.70E-02	68.05%
Propionaldehyde	24-hr	1.22E-01	21.5	0.57%
Quinone	24-hr	1.50E-01	20	0.75%
Benzo(a)pyrene	Annual	2.45E-06	3.00E-04	0.82%
Polycyclic Organic Matter	Annual	2.63E-04	3.00E-04	87.81%
Arsenic	Annual	9.80E-06	2.30E-04	4.26%
Cadmium	Annual	6.67E-06	5.60E-04	1.19%
Hexavalent Chromium	Annual	7.13E-06	8.30E-05	8.59%
Nickel	Annual	1.05E-03	4.20E-03	24.91%

Figure A.7 – Modeling Emission Rates and Results

**APPENDIX B – PERMIT FEES**

## PTC Fee Calculation

**Instructions:**

Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

**Company:** C&A Paving, Inc.  
**Address:** 4015 South Banner Street  
**City:** Boise  
**State:** Idaho  
**Zip Code:** 83709  
**Facility Contact:** Tony Martarano  
**Title:** Owner  
**AIRS No.:** 777-00221

- N** Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
- Y** Did this permit require engineering analysis? Y/N
- N** Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

<b>Emissions Inventory</b>			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO <sub>x</sub>	0.0	0	0.0
SO <sub>2</sub>	5.9	0	5.9
CO	0.0	0	0.0
PM10	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.2	0	0.2
<b>Total:</b>	<b>0.0</b>	<b>0</b>	<b>6.1</b>
Fee Due	<b>\$ 2,500.00</b>		

**Comments:** In accordance with IDAPA 58.01.01.124, the processing fee is \$2500 as there is an increase of emissions between 1 to 10 T/yr.

## APPENDIX C – FACILITY DRAFT COMMENTS

There were no comments from the facility regarding the draft permit.