



State of Idaho
Department of Environmental Quality
Air Quality Division

**AIR QUALITY PERMIT
STATEMENT OF BASIS**

Permit to Construct P-2008.0119

Final Permit

Central Washington Asphalt, Inc.

Portable Hot Mix Asphalt Plant

Rathdrum, Idaho

Facility ID No. 777-00438

November 24, 2009


Dan Pitman, P.E.

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.

Table of Contents

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE	3
1. FACILITY INFORMATION	5
2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY	5
3. TECHNICAL ANALYSIS	5
4. REGULATORY REVIEW	8
5. PERMIT FEES	14
6. PUBLIC COMMENT	14
APPENDIX A – AIRS INFORMATION	
APPENDIX B – EMISSIONS INVENTORY	

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
Btu	British thermal unit
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
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
gr	grain (1 lb = 7,000 grains)
HAP	hazardous air pollutants
hp	horsepower
hr/yr	hours per year
ICE	Internal Combustion Engine
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
MMBtu	million British thermal units
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
PC	permit condition
PM	particulate matter
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet

SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO ₂	sulfur dioxide
SO _x	sulfur oxides
T/yr	tons per year
T2	Tier II operating permit
T2/PTC	Tier II operating permit and permit to construct
TAP	toxic air pollutant
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
UTM	Universal Transverse Mercator
VOC	volatile organic compounds
µg/m ³	micrograms per cubic meter

1. FACILITY INFORMATION

1.1 Facility Description

Central Washington is proposing to operate a portable 450¹ ton per hour drum mix asphalt plant in Idaho. Aggregate is dried and mixed with asphalt in the hot drum. Distillate fuel oil is used to fire the drum mix asphalt plant. The facility includes a heated asphalt tank, two portable electrical generator sets, asphalt storage and transfer, and aggregate handling operations.

1.2 Permitting Action and Facility Permitting History

This permit is the initial PTC for this facility.

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

The application is for the initial permit to construct for a portable hot mix asphalt plant and two portable electrical generator sets.

2.2 Application Chronology

July 17, 2008	DEQ received and application for the Central Washington portable asphalt plant.
August 8, 2008	DEQ determined the application incomplete.
May 13, 2009	DEQ received and updated application from Central Washington Asphalt.
June 12, 2009	DEQ determined Central Washington's application complete.
August 6, 2009	DEQ issued a facility draft permit to Central Washington for review
August 24, 2009	DEQ received Central Washington's comment on the facility draft (sole comment was to remove the requirement to have load-out emissions controlled by the baghouse)
November 17, 2009	DEQ received the PTC processing fee from Central Washington

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Emissions Unit Description	Control Device Description	Emissions Discharge Point ID No. and/or Description
Drum Mix Asphalt Plant Stack	Baghouse	Dryer Baghouse Stack
Asphalt Storage Tank & Tank Heater	None	Storage Tank Stack
Generator Engines (Caterpillar 700kW & Onan 125 kW)	None	Generator Engine Stack

¹ According to the applications submitted by Central Washington the manufacturer rated the asphalt plant as a 400 T/hr plant, and Central Washington has certified that the maximum capacity of this plant is actually 450 T/hr. The emission inventory for this permit action is based on a capacity of 450 T/hr as requested by Central Washington.

3.2 Emissions Inventory

The emission inventory upon which the permit is based is from the DEQ developed emission inventory spreadsheet for hot mix asphalt plants. The permittee had submitted an emission inventory but discrepancies were found in that inventory. The emission inventories were discussed with Central Washington Asphalt on June 3, 2009. Central Washington agreed to use DEQ's emission inventory rather than work through the discrepancies with the inventory provided in the application.

Particulate matter, nitrogen oxide, carbon monoxide and volatile organic compound emissions are estimated based on emission factors obtained during a source test conducted on June 20, 2007. All other emission estimates are based on US EPA AP-42 emission factors. DEQ's emission inventory is included in Appendix B and is summarized in Table 3.2. In accordance with AP-42, Section 11.1.1.1.3, recycled asphalt may be used at a rate of up to 50% of the total production in counter flow drum mix plants with little or no effect upon emissions; therefore the permit allows use of recycled asphalt up to 30% of the total production (which is the recycled asphalt usage rate requested by Central Washington).

Table 3.2 FACILITY-WIDE CRITERIA AIR POLLUTANT EMISSIONS SUMMARY^a

Pollutant	Drum Mix Plant		Tank Heater		IC Engine (Caterpillar & Onan)		Asphalt Load Out & Silo Filling		Potential to Emit (Permitted Emissions)	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
PM	0.84	0.32	1.59E-2	1.46E-2	1.19E+00	2.03	4.43E-01	1.66E-1	2.49	2.35
PM-10	0.84	0.32	1.59E-2	1.46E-2	8.40E-01	1.32	4.43E-01	1.66E-1	2.14	1.65
CO	10.2	3.83	3.41E-2	2.21E-2	6.83E+00	15.24	1.01E+00	3.79E-1	18.06	19.08
NO _x	12.52	4.70	9.63E-2	8.83E-2	7.80E+00	58.34	NA	NA	20.42	63.13
SO ₂	4.4	1.65	0.068	6E-3	4.54	8.73	NA	NA	9.00	10.39
VOC	0.96	0.36	2.68E-3	2.46E-3	1.17E+00	1.92E+00	1.61E+00	6.05E-1	3.75	2.28
Pb	6.0E-3	2.25E-3	7.27E-6	6.67E-6	NA	NA	NA	NA	6.01E-3	2.3E-3

a) Permitted emission rate

Table 3.3 provides a summary of the facility toxic air pollutant emissions for those pollutants which exceeded the toxic air pollutant screening emission level. The emissions these pollutants were modeled and all ambient impacts were determined to be in compliance with the toxic air pollutant rules.

Table 3.3 FACILITY-WIDE TOXIC AIR POLLUTANT EMISSIONS SUMMARY^a

Air Pollutant	Total Emissions (lb/hr annual average)
Benzene	1.68E-2
Formaldehyde	1.1E-1
PAH ^b	2.3E-2
POM	7.57E-6
Arsenic	2.05E-5
Cadmium	1.44E-5
Hexavalent Chromium	1.57E-5
Nickel	2.24E-3

a) Permitted emission rate

b) Naphthalene

3.3 Ambient Air Quality Impact Analysis

The ambient air impact analyses demonstrated to DEQ's satisfaction² that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard. The modeling analysis shows compliance with criteria and toxic air pollutants standards with 410 feet from the dryer stack to areas where the public has access. The initial draft permit provided to Central Washington specified a set back of 344 feet. Central Washington's only comment to the draft permit was to remove the requirement to have silo load-out emissions sent to the baghouse. DEQ agreed to allow Central Washington to change the scope of the application due to pending compliance issues³. This required that emissions be remodeled to assure compliance with all toxic air pollutant increments and ambient standards. Modeling of this operating scenario resulted in a new set back requirement of 125 meters (410 feet).

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is permitted to locate areas which are designated as attainment or unclassifiable for PM₁₀, PM_{2.5}, CO, NO₂, SO_X, and Ozone. Reference 40 CFR 81.313. The permit precludes operation in areas designated as non-attainment for particulate matter.

4.2 Permit to Construct (IDAPA 58.01.01.201)

Central Washington Asphalt has submitted an application to obtain a permit to construct in accordance with IDAPA 58.01.01.202. The facility would not qualify for an exemption from the need to obtain a permit to construct in accordance with IDAPA 58.01.01.220-223.

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

The facility is not subject to Tier II Operating permit requirements. Maximum permitted emissions are 63.1 tons per year of nitrogen oxides which is below the 100 ton per year major facility threshold.

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

The facility is not Title V major facility and therefore is not subject to the Title V permitting requirements. Maximum permitted emissions are 63.1 tons per year of nitrogen oxides which is below the 100 ton per year major facility threshold; hazardous air pollutant emission in aggregate are less than 25 tons per year and no one hazardous air pollutant is emitted at 10 or more tons per year.

² October 28, 2009 Modeling Review for the Central Washington Asphalt, Inc., Permit to Construct Application for a Portable Hot Mix Asphalt Plant. From Schilling, DEQ Stationary Source Modeling Coordinator, Air Program to Dan Pitman, DEQ Permit Writer.

³ Central Washington was operating in violation of a consent order which required silo emissions to be vented to the baghouse. Central Washington did not, and is not planning to, vent load-out emissions to the baghouse.

4.5 PSD Classification (40 CFR 52.21)

The facility is not a designated PSD facility, and does not emit air pollutants at PSD thresholds (250 T/yr).

The facility solely consists of the asphalt plant operations. The permit precludes collocation with another industrial source of air pollution therefore there are no support facilities contributing the potential to emit of the facility.

4.6 NSPS Applicability (40 CFR 60)

Subpart I

§ 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.

Central Washington's Gencor Asphalt Plant was constructed after June 11, 1973 and is therefore an affected facility.

§ 60.91 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) *Hot mix asphalt facility* means any facility, as described in §60.90, used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements.

§ 60.92 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf).

(2) Exhibit 20 percent opacity, or greater.

These emission standards are included in the permit to construct.

§ 60.93 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b)

(b) The owner or operator shall determine compliance with the particulate matter standards in §60.92 as follows:

(1) 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).

(2) Method 9 and the procedures in §60.11 shall be used to determine opacity

The initial source test required by the NSPS was conducted on June 20, 2007 near Moses Lake in the State of Washington.

Subpart IIII

§ 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:

This section only applies to manufacturers of stationary compression ignition 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

The Caterpillar engine was manufactured in October of 1980, and the Onan engine was manufactured in November of 1985.

(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.

Neither the Caterpillar nor Onan engine has been modified after July 11, 2005.

Because neither generator engine was manufactured after April 1, 2006 or modified after July 11, 2005 NSPS Subpart IIII does not apply to Central Washington Asphalt for the Caterpillar or Onan engines.

4.7 NESHAP Applicability (40 CFR 61)

The hot mix asphalt plant facility is not defined as affected by any Subpart of 40 CFR 61.

4.8 MACT Applicability (40 CFR 63)

The hot mix asphalt plant facility is not defined as affected by any Subpart of 40 CFR 63.

4.9 CAM Applicability (40 CFR 64)

The facility is not a Tier I major facility and is not subject to the compliance assurance monitoring requirements.

4.10 Permit Conditions Review

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

Permit Condition 2.3

PM₁₀ emissions from the HMA Dryer stack shall not exceed 2.10 E -3 pounds of per ton of asphalt produced, as determined by a test method prescribed by IDAPA 58.01.01.157 or DEQ approved alternative.

This emission restriction along with the limitation on the amount of asphalt that may be produced in a day restricts the daily pound per hour PM₁₀ emissions to the emission rate (0.34 lb/hr) that was used in air dispersion modeling which should compliance with standards. Emissions were limited to pounds per ton of asphalt instead of pounds per hour because the maximum hourly production of the plant given by the applicant ranged from 400 to 450 tons per hour. Limiting emissions to pounds per ton of asphalt produced and limiting the amount of asphalt that may be produced restricts the daily average emissions to those rates which were modeled and allows the facility to produce either 400 or 450 tons per hour as long it does not exceed the daily production limit.

Compliance with this emissions rate limit is also demonstrated by complying with fuel, baghouse operating and monitoring requirements, and periodic source testing requirements.

Permit Condition 2.4

Permit Condition 2.4 limits opacity emissions to 20% per IDAPA 58.01.01.625. Compliance is assured by daily visible emissions monitoring required by Permit Condition 2.14.

Permit Condition 2.5

This permit conditions includes the NSPS particulate matter and opacity standards for hot mix asphalt plants. Compliance is assured with the particulate matter grain loading standard by periodic source testing required; compliance is assured with the visible emissions limit by weekly visible emissions monitoring. The initial performance test required by the NSPS was conducted on June 20, 2007; the periodic testing required by the permit is a reasonable permit condition in accordance with IDAPA 58.01.01.211.

Permit Condition 2.6

This condition limits throughput and setback distance. The production limits are based on the emission inventory that was used to determine compliance with the ambient standards. The set back distance was established by air dispersion modeling.

Permit Condition 2.7

This is the IDAP A requirements to reasonably control fugitive emissions.

Permit Condition 2.8

This permit condition limits fuel use distillate fuel oil because this is what the compliance demonstration emission inventory is based upon.

Permit Condition 2.9

This permit condition limits fuel oil sulfur content as specified by IDAPA.

Permit Condition 2.10

This permit condition is the IDAPA odor standard.

Permit Condition 2.11

This permit condition requires the operation of a baghouse consistent with the application and the emission inventory that was used to demonstrate compliance.

Permit Condition 2.12

Permit condition 2.12 includes permit language for baghouses consistent with comments provided on the draft permit by DEQ's Couer d' Alene Regional Office.

Permit Condition 2.13

This permit condition limits generator hours of operation consistent with application and the emission inventory that was used to demonstrate compliance.

Permit Condition 2.14

This permit condition requires daily visible emissions monitoring consistent with comments on the draft permit provided by DEQ's Couer d' Alene Regional Office.

Permit Condition 2.15

This permit condition requires daily fugitive dust monitoring consistent with comments provided on the draft permit by DEQ's Couer d' Alene Regional Office.

Permit Condition 2.16

This permit condition requires production monitoring to assure compliance with production limits.

Permit Condition 2.17

This permit condition requires set back monitoring to assure compliance with set back requirements.

Permit Condition 2.18

This permit condition requires monitoring to assure compliance with fuel sulfur limits.

Permit Condition 2.19

This permit condition requires maintaining information on odor complaints if received consistent with DEQ's permit for Asphalt Plants (P-2008.0058, Gordon Paving, issued June 24, 2009).

Permit Condition 2.20

This permit condition requires monitoring of generator hours of operation to assure compliance with generator usage limits.

Permit Condition 2.21

This permit condition requires PM performance test once every 5 years consistent with DEQ's permit's for Asphalt Plants (i.e. P-2008.0058, Gordon Paving, Issued June 24, 2009). The initial source test required by the NSPS was conducted on June 20, 2007 and a source test was required by a consent order by July 22, 2009. Therefore, the permit does not need to require a source test within 180 days of startup; a test within 5 years of permit issuance is sufficient.

Permit Condition 2.22

This permit condition requires monitoring production information during the performance test. The production information matches those permit restrictions that are established to provide limits on emissions and required to be monitored to assure the source test is conducted consistent with how the facility is permitted.

Permit Condition 2.23

This permit condition includes a fugitive dust plan consistent with the one required by the consent order signed by Central Washington Asphalt on June 30, 2009.

Permit Condition 2.24 – 2.26

Permit Conditions 2.24- 2.26 are self explanatory.

Permit Condition 27

This permit condition precludes operation in areas designated as nonattainment (see the Dispersion Modeling memorandum in Appendix C).

Permit Condition 28

This permit conditions limits co-located operations of other industrial facilities consistent the requirements specified in see the air pollution dispersion modeling memorandum⁴ that DEQ conducted for this permit action.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. In accordance with IDAPA 58.01.01.225 the facility is subject to a processing fee of \$5,000 because its permitted emissions are 97.6 tons per year. Refer to the chronology for fee receipt dates.

Table 5.1 PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	63.1	0	63.1
SO ₂	10.4	0	10.4
CO	19.1	0	19.1
PM ₁₀	1.7	0	1.7
VOC	2.3	0	2.3
HAPS	< 1	0	< 1
Total:	97.6	0	97.6
Fee Due	\$ 5,000.00		

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided from July 16, 2009 to August 4, 2009 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.

⁴ October 28, 2009 Modeling Review for the Central Washington Asphalt, Inc., Permit to Construct Application for a Portable Hot Mix Asphalt Plant. From Schilling, DEQ Stationary Source Modeling Coordinator, Air Program to Dan Pitman, DEQ Permit Writer.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification – Data Form

Facility Name: Central Washington Asphalt
Facility Location: Portable
Facility ID: 777-00438 **Date:** 7/15/09
Project/Permit No.: P-2008.0119 **Completed By:** Dan Pitman

- Check if there are no changes to the facility-wide classification resulting from this action. (compare to form with last permit)
 Comments:
- Yes, this facility is an SM80 source.

Identify the facility's area classification as A (attainment), N (nonattainment), or U (unclassified) for the following pollutants:

	SO2	PM10	VOC
Area Classification:	U	U	U

DO NOT LEAVE ANY BLANK

Check one of the following:

- SIP [0]** - Yes, this facility is subject to SIP requirements. (do not use if facility is Title V)
 OR
 Title V [V] - Yes, this facility is subject to Title V requirements. (If yes, do not also use SIP listed above.)

For SIP or TV, identify the classification (A, SM, B, C, or ND) for the pollutants listed below. Leave box blank if pollutant is not applicable to facility.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	B	SM	SM	SM	SM	B	B

- PSD [6]** - Yes, this facility has a PSD permit.

If yes, identify the pollutant(s) listed below that apply to PSD. Leave box blank if pollutant does not apply to PSD.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	<input type="checkbox"/>						

- NSR - NAA [7]** - Yes, this facility is subject to NSR nonattainment area (IDAPA 58.01.01.204) requirements.

Note: As of 9/12/08, Idaho has no facility in this category.

If yes, identify the pollutant(s) listed below that apply to NSR-NAA. Leave box blank if pollutant does not apply to NSR - NAA.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	<input type="checkbox"/>						

- NESHAP [8]** - Yes, this facility is subject to NESHAP (Part 61) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

- NSPS [9]** - Yes, this facility is subject to NSPS (Part 60) requirements.

If yes, what CFR Subpart(s) is applicable?

Subpat I

If yes, identify the pollutant(s) regulated by the subpart(s) listed above. Leave box blank if pollutant does not apply to the NSPS.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- MACT [M]** - Yes, this facility is subject to MACT (Part 63) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

Appendix B – Emissions Inventory

CURRENT PTC APPLICATION ESTIMATES

DEQ Verification Worksheets: Hot Mix Asphalt (HMA) Drum Mix Facility Data			
Facility ID/AIRS No.	777-00438	Spreadsheet Date	7/10/2009 14:19
Permit No.	P-2008.0119		
Facility Owner/Company Name:		Central Washington Asphalt Paving, Inc.	
Address:		PORTABLE	
City, State, Zip:			
Facility Contact:			
Contact Number/ e-mail:			
		Include Site Fill & Loadout Emissions?	Y
Use Short Term Source Factor on 556 ELs? Y/N	N	Use T-RACT on 556 AACC? Y/N	N
Hot Mix Plant AP-42 Section 11.1)	Input (Bold Color) or Calculated Value (Black)	Fuel Type(s)	Fuel Type Toggle ("0" or "1")
Drum Dryer Make/Model	Gencor 400	Distillate (#2) Fuel Oil	1
Rated heat input capacity, MMBtu/hr	--	Used Oil or RFO4 Oil	0
Drum Dryer Hourly HMA Production, Tons/hour	400	Natural Gas	0
Max Production Per day, Tons per day	3,925	LPG or Propane	0
Max Annual HMA Production, Tons/year	300,000	Default #2 fuel oil and used oil sulfur	0.5%
Min Hours of operation per year (annual/max hourly production)	750	Distillate Fuel Oil Max Sulfur Content	0.500%
		Used Oil/RFO4 Oil Max Sulfur Content	0.500%

Asphalt Tank Heater AP-42, Section 11.1 (oil or natural gas fuel), or Section 1.4 (natural gas fuel)			
Rated heat input capacity, MMBtu/hr	0.660	Fuel Type(s)	Fuel Toggle
Hours of operation per day	24	#2 Fuel Oil	1
Operation, days per year	76.42	Fuel oil sulfur content	0.050%
Max Hours of operation per year	1,834	Natural Gas	0

24 hr/day x 7 months x 30 days/month = 5,040 hrs			
Tank Heater Fuel Consumption	#2 Fuel Oil	Natural Gas	
Heat Input Rating, MMBtu/hr	0.660	0.660	
Fuel Heating Value, Btu/gal (oil) or Btu/scf (gas)	137,030	1,020	
Heating Value Correction for Natural Gas EFs, see Note	n/a	1.000	
Theoretical Max Fuel Use Rate gal/hr (oil) or scf/hr (gas)	4.82	647	
Max Operational Hours per Year	1,834	1,834	

Note: AP-42 EFs for natural gas and diesel combustion are based on heat value of 1,020 Btu/scf and 137,030 Btu/gal

G1 Electrical Generator < 600 hp (447 kW) AP-42 Section 3.3 (diesel fueled)			
		Fuel Type(s)	Generator Toggle
Generator Make/Model		#2 Fuel Oil (Diesel)	1
Generator Rated Capacity (kW)	125	Max Sulfur weight percent (w/o)	0.500%
EF OPTIONS:		Use EFs in lb/MMBtu fuel input	
1 hp = 0.7456999 kW	0.7457	Max Operational Hours/Day	12
Avg brake-specific fuel consumption (BSFC) = 7000 Btu/hp-hr	7000	Max Operational Hours/Year	2,000
Fuel Heating Value, Btu/gal	137,030	Calculated Max Fuel Use Rate, gal/hr	8.56
		Calculated MMBtu/hr	1.17

G2 Electrical Generator > 600 hp (447 kW) AP-42 Section 3.4 (diesel fueled)			
		Fuel Type(s)	Generator Toggle
Generator Make/Model	Large Diesel	#2 Fuel Oil (Diesel)	1
Generator Rated Capacity (kW)	888	Max Sulfur weight percent (w/o)	0.500%
EF OPTIONS:		Use EFs in lb/MMBtu fuel input	
1 hp = 0.7456999 kW	0.7457	Max Operational Hours per Day	12
Avg brake-specific fuel consumption (BSFC) = 7000 Btu/hp-hr	7000	Max Operational Hours per Year	4,000
Fuel Heating Value, Btu/gal	137,030	Calculated Max Fuel Use Rate, gal/hr	60.63
		Calculated MMBtu/hr	8.31

Note: AP-42 Tables 3.3-x,3.4-x: avg diesel heating value is based on 19,300 Btu/lb with density equal 7.1 lb/gal=> Btu/gal = 137,030

Max Controlled Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, S/SO Filling/Load-out
 A. Drum Mix Plant: 400 Tons/hour 760 Hours/year 300,000 Tons/year 3,326 Tons/day
 Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil
 B. Tank Heater: 0.8400 MMBtu/hr 1,834 Hours/year 24 hrs/day
 Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected = ULSF #2 Fuel Oil
 C1. Generator G1: 8.66 gal/hour 2000 Hours/year Generator < 600hp 12 hrs/day
 C2. Generator G2: 60.63 gal/hour 4000 Hours/year Generator > 600hp 12 hrs/day

Pollutant	A Drum Mix Max Emission Rate for Pollutant (lb/hr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (lb/hr)	C Generator G1 + G2 Max Emission Rate for Pollutant (lb/hr)	D Load-out & S/SO Filling Emission Rate for Pollutant (lb/hr)	E TOTAL of Max Emission Rates from A, B, C & D (lb/hr)	Pollutant	A Drum Mix Max Emission Rate for Pollutant (lb/hr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (lb/hr)	C Generator G1 + G2 Max Emission Rate for Pollutant (lb/hr)	D Load-out & S/SO Filling Emission Rate for Pollutant (lb/hr)	E TOTAL of Max Emission Rates from A, B, C & D (lb/hr)
PM (total)	0.84	1.59E-02	1.19E+00	4.43E-01	2.49	PAH NAPs					
PM-10 (total)	0.84	1.59E-02	8.40E-01	4.43E-01	2.14	2-Methylnaphthalene	5.82E-03	0.00E+00		7.36E-04	6.56E-03
PM-2.5	0.00	0.00E+00	0.00E+00	0.00E+00	0.00	3-Methylchloranthrene*	0.00E+00	0.00E+00			0.00E+00
CO	10.20	2.41E-02	6.63E+00	1.01E+00	18.06	Acenaphthene	4.79E-06	5.34E-07	1.81E-05	7.12E-05	1.38E-04
NOx	12.62	9.63E-02	7.80E+00		20.42	Acenaphthylene	7.53E-04	2.02E-07	3.64E-05	4.49E-06	7.94E-04
SOx	4.40	0.066	4.536		9.00	Anthracene	1.06E-04	1.82E-07	6.17E-06	1.95E-05	1.31E-04
VOC	0.98	2.88E-03	1.17E+00	1.61E+00	3.75	Benzo(a)anthracene*	7.19E-08	0.00E+00	2.81E-06	7.06E-06	1.71E-05
Lead	0.00E-03	7.27E-06	0.00E+00		6.01E-03	Benzo(a)pyrene*	3.36E-07	0.00E+00	1.03E-06	2.89E-07	1.43E-06
HCl*	0.00E+00	0.00E+00	0.00E+00		0.00E+00	Benzo(b)fluoranthene*	3.42E-06	1.01E-07	4.24E-06	8.87E-07	8.88E-06
Dioxins*						Benzo(g)pyrene	3.77E-06	0.00E+00		1.74E-06	5.60E-06
2,3,7,8-TCDD	7.19E-12				7.19E-12	Benzo(k)fluoranthene	1.37E-06	0.00E+00	2.24E-06	2.22E-07	3.83E-06
Total TCDD	3.18E-11				3.18E-11	Benzo(k)fluoranthene*	1.40E-06	0.00E+00	8.68E-07	2.57E-07	2.43E-06
1,2,3,7,8-PeCDD	1.09E-11				1.08E-11	Chrysene*	6.16E-06	0.00E+00	5.90E-06	3.03E-06	4.23E-06
Total PeCDD	7.53E-10				7.53E-10	Dibenz(a,h)anthracene*	0.00E+00	0.00E+00	1.47E-06	4.32E-06	1.81E-06
1,2,3,4,7,8-HxCDD	1.44E-11	6.96E-13			1.61E-11	Dichlorobenzene	0.00E+00	0.00E+00			0.00E+00
1,2,3,6,7,8-HxCDD	4.45E-11				4.45E-11	Fluoranthene	2.09E-05	4.44E-06	1.73E-05	1.89E-05	8.71E-06
1,2,3,7,8-HxCDD	3.39E-11	7.86E-13			3.43E-11	Fluorene	3.77E-04	3.23E-08	5.64E-05	1.78E-04	6.11E-04
Total HxCDD	4.11E-10				4.11E-10	Indeno(1,2,3-cd)pyrene*	2.40E-07	0.00E+00	1.67E-06	5.49E-06	1.97E-06
1,2,3,4,6,7,8-HpCDD	1.64E-10	1.61E-11			1.80E-10	Naphthalene	2.23E-02	1.71E-05	5.18E-04	3.04E-04	2.31E-02
Total HpCDD	6.51E-10	2.02E-11			6.71E-10	Perylene	3.01E-07	0.00E+00		5.16E-06	6.48E-06
Octa CDD	8.56E-10	1.61E-10			1.02E-09	Phenanthrene	7.88E-04	4.94E-06	1.63E-04	2.51E-04	1.21E-03
Total PCDD*	2.71E-09	2.02E-10			2.91E-09	Pyrene	1.03E-04	3.23E-06	1.54E-05	5.56E-05	1.74E-04
Furans*						Non-HAP Organic Compounds					
2,3,7,8-TCDF	3.32E-11				3.32E-11	Acetone*	1.36E-01	0.00E+00		1.41E-03	1.37E-01
Total TCDF	1.27E-10	3.33E-12			1.30E-10	Benzaldehyde	1.80E-02	0.00E+00			1.80E-02
1,2,3,7,8-PeCDF	1.47E-10				1.47E-10	Butane	1.10E-01	0.00E+00			1.10E-01
2,3,4,7,8-PeCDF	2.89E-11				2.89E-11	Butyraldehyde	2.82E-02	0.00E+00			2.82E-02
Total PeCDF	2.89E-09	4.84E-13			2.89E-09	Crotonaldehyde*	1.41E-02	0.00E+00			1.41E-02
1,2,3,4,7,8-HxCDF	1.37E-10				1.37E-10	Ethylene	1.14E+00	0.00E+00		2.66E-02	1.17E+00
1,2,3,6,7,8-HxCDF	4.11E-11				4.11E-11	Heptane	1.54E+00	0.00E+00			1.54E+00
2,3,4,6,7,8-HxCDF	6.61E-11				6.61E-11	Hexanal	1.80E-02	0.00E+00			1.80E-02
1,2,3,7,8-HxCDF	2.89E-10				2.89E-10	Isovaleraldehyde	5.23E-03	0.00E+00			5.23E-03
Total HxCDF	4.45E-10	2.02E-12			4.47E-10	2-Methyl-1-pentane	6.54E-01	0.00E+00			6.54E-01
1,2,3,4,6,7,8-HpCDF	2.23E-10				2.23E-10	2-Methyl-2-butane	9.49E-02	0.00E+00			9.49E-02
1,2,3,4,7,8-HpCDF	9.25E-11				9.25E-11	3-Methylpentane	3.11E-02	0.00E+00			3.11E-02
Total HpCDF	9.42E-10	9.78E-12			9.52E-10	1-Pentane	3.60E-01	0.00E+00			3.60E-01
Octa CDF	1.64E-10	1.21E-11			1.76E-10	n-Pentane	3.43E-02	0.00E+00			3.43E-02
Total PCDF*	1.37E-09	3.13E-11			1.40E-09	Valeraldehyde*	1.10E-02	0.00E+00			1.10E-02
Total PCDD/PCDF*	4.11E-09	2.32E-10	0.00E+00		4.34E-09	Metals					
Non-PAH HAPs						Antimony*	2.94E-05	2.53E-05			5.47E-05
Acetaldehyde*	0.00E+00		3.01E-04		3.01E-04	Arsenic*	1.92E-05	1.33E-06			2.05E-05
Acrolein*	4.25E-03		5.43E-05		4.31E-03	Barium*	9.49E-04	1.24E-06			9.51E-04
Benzene*	1.34E-02	0.00E+00	3.19E-03	2.08E-04	1.68E-02	Beryllium*	0.00E+00	2.80E-06			2.80E-06
1,3-Butadiene*	1.06E-05		1.06E-05		1.08E-05	Cadmium*	1.40E-06	4.01E-07			1.44E-06
Ethylbenzene*	3.93E-02			2.86E-03	4.19E-02	Chromium*	8.99E-04	4.07E-06			9.04E-04
Formaldehyde*	1.06E-01	3.53E-06	6.18E-04	3.01E-03	1.10E-01	Cobalt*	4.26E-06	2.90E-06			3.32E-05
Hexane*	1.60E-01	0.00E+00		3.01E-03	1.63E-01	Copper*	5.07E-04	8.48E-06			6.15E-04
Isocyanate	6.54E-03		1.84E-06	6.66E-03	6.66E-03	Sixvalent Chromium*	1.54E-05	2.50E-07			1.87E-05
Methyl Ethyl Ketone*	3.27E-03			1.11E-03	4.38E-03	Manganese*	1.26E-03	1.44E-06			1.27E-03
Pentane*		0.00E+00			0.00E+00	Mercury*	4.25E-04	5.44E-07			4.26E-04
Propionaldehyde*	2.13E-02				2.13E-02	Molybdenum*	0.00E+00	3.79E-06			3.79E-06
Quinone*	2.82E-02				2.82E-02	Nickel*	2.16E-03	8.82E-06			2.24E-03
Methyl chloroform*	7.85E-03				7.85E-03	Phosphorus*	4.58E-03	4.58E-05			4.62E-03
Toluene*	4.74E-01	0.00E+00	1.41E-03	2.86E-03	4.78E-01	Silver*	7.85E-05	0.00E+00			7.85E-05
Xylene*	3.27E-02		9.69E-04	1.34E-02	4.70E-02	Selenium*	5.72E-06	3.29E-06			8.09E-06
POM (7-PAH Group)*	1.88E-05	1.01E-07	1.80E-05	3.89E-05	7.87E-05	Thallium*	6.71E-07	0.00E+00			6.71E-07
TOTAL PAH HAPs	3.03E-02	2.32E-05	8.47E-04	1.69E-03	3.29E-02	Vanadium*	0.00E+00	1.53E-04			1.53E-04
						Zinc*	9.66E-03	1.40E-04			1.01E-02

e) IDAPA Toxic Air Pollutant

Criteria Pollutant lb/hr emissions are maximum 1-hr averages
 TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.
 Pollutants shown in blue text are emitted only when burning Used Oil, but not when burning #2 Fuel Oil or Natural Gas

EMISSION INVENTORY
 TONS PER YEAR Page 1 of 2

Max Controlled Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out
 A. Drum Mix Plant: 400 Tons/hour 760 Hours/year 300,000 Tons/year HMA throughput 3,925 hrs/day
 Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil
 B. Tank Heater: 0.6600 MMBtu/hy 1,834 Hours/year 24 hrs/day
 Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Sele ULSF #2 Fuel Oil
 C1. Generator G1: 6.66 gal/hour 2006 Hours/year Generator <600hp ULSF #2 Fuel Oil 12 hrs/day
 C2. Generator G2: 60.83 gal/hour 4000 Hours/year Generator >600hp ULSF #2 Fuel Oil 12 hrs/day

Pollutant	A Drum Mix Max Emission Rate for Pollutant (T/yr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (T/yr)	C Generator G1 + G2 Max Emission Rate for Pollutant (T/yr)	D Load-out & Silo Filling Emission Rate for Pollutant (T/yr)	E TOTAL of Max Emission Rates from A, B, & C (T/yr) Exclude Fugitives from D	Pollutant	A Drum Mix Max Emission Rate for Pollutant (T/yr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (T/yr)	C Generator G1 + G2 Max Emission Rate for Pollutant (T/yr)	D Load-out & Silo Filling Emission Rate for Pollutant (T/yr)	E TOTAL of Max Emission Rates from A, B, & C (T/yr) Exclude Fugitives from D
PM (total)	0.32	1.46E-02	2.025	1.66E-01	2.35	PAH HAPs					
PM-10 (total)	0.32	1.46E-02	1.316	1.66E-01	1.65	2-Methylnaphthalene	2.55E-02	0.00E+00		3.22E-03	2.55E-02
PM-2.5						3-Methylchloranthrene*	0.00E+00	0.00E+00			0.00E+00
CO	3.83	2.21E-02	15.238	3.79E-01	19.08	Acenaphthene	2.10E-04	2.34E-08	7.94E-05	3.12E-04	2.92E-04
NOx	4.70	8.83E-02	58.344		63.13	Acenaphthylene	3.30E-03	8.83E-07	1.59E-04	1.97E-05	3.48E-03
SO ₂	1.65	0.006	0.731		10.39	Anthracene	4.85E-04	7.95E-07	2.20E-05	6.83E-05	4.88E-04
VOC	0.96	2.46E-03	1.92E+00	6.05E-01	2.28	Benzo(a)anthracene*	3.15E-05	0.00E+00	1.23E-05	3.10E-05	4.38E-05
Lead	2.25E-03	6.67E-06	0.00E+00		2.26E-03	Benzo(b)pyrene*	1.47E-06	0.00E+00	4.49E-05	1.18E-06	5.96E-06
HCl ^a	0.00E+00	0.00E+00	0.00E+00		0.00E+00	Benzo(k)fluoranthene*	1.50E-05	4.42E-07	1.66E-05	3.69E-06	3.40E-05
Dioxins*						Benzo(e)pyrene	1.65E-05	0.00E+00		7.61E-06	1.65E-05
2,3,7,8-TCDD	3.15E-11				3.15E-11	Benzo(g,h)perylene	6.00E-06	0.00E+00	9.81E-08	9.72E-07	1.66E-05
Total TCDD	1.40E-10				1.40E-10	Benzo(k)fluoranthene*	6.15E-06	0.00E+00	3.80E-06	1.13E-06	9.85E-06
1,2,3,7,8-PeCDD	4.65E-11				4.65E-11	Chrysene*	2.70E-05	0.00E+00	2.50E-05	1.33E-04	2.52E-05
Total PeCDD	3.30E-09				3.30E-09	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	6.43E-06	1.89E-07	6.43E-06
1,2,3,4,7,8-HxCDD	6.30E-11	3.05E-12			6.60E-11	Dichlorobenzene	0.00E+00	0.00E+00			0.00E+00
1,2,3,6,7,8-HxCDD	1.95E-10				1.95E-10	Fluoranthene	9.15E-05	1.94E-07	7.59E-05	8.27E-05	1.68E-04
1,2,3,7,8,9-HxCDD	1.47E-10	3.36E-12			1.50E-10	Fluorene	1.65E-03	1.41E-07	2.47E-04	7.78E-04	1.90E-03
Total HxCDD	1.80E-09				1.80E-09	Indeno(1,2,3-cd)pyrene*	1.05E-06	0.00E+00	7.32E-06	2.40E-07	8.37E-06
1,2,3,4,6,7,8-HpCDD	7.20E-10	8.63E-11			7.86E-10	Naphthalene*	9.75E-02	7.51E-05	2.26E-03	1.33E-03	9.98E-02
Total HpCDD	2.85E-09	8.63E-11			2.94E-09	Perylene	1.32E-06	0.00E+00		2.27E-06	1.32E-06
Octa CDD	3.78E-09	7.07E-10			4.46E-09	Phenanthrene	3.45E-03	2.16E-03	7.12E-04	1.10E-03	4.19E-03
Total PCDD ^a	1.19E-08	8.63E-10			1.27E-08	Pyrene	4.50E-04	1.41E-07	6.73E-05	2.44E-04	5.17E-04
Furans*						Non-HAP Organic Compounds					
2,3,7,8-TCDF	1.46E-10				1.46E-10	Acetone*	0.00E+00	0.00E+00		1.30E-03	0.00E+00
Total TCDF	5.85E-10	1.46E-11			5.70E-10	Benzaldehyde	0.00E+00	0.00E+00			0.00E+00
1,2,3,7,8-PeCDF	6.45E-10				6.45E-10	Butane	1.01E-01	0.00E+00			1.01E-01
2,3,4,7,8-PeCDF	1.26E-10				1.26E-10	Butylaldehyde	0.00E+00	0.00E+00			0.00E+00
Total PeCDF	1.26E-08	2.12E-12			1.26E-08	Crotonaldehyde*	0.00E+00	0.00E+00			0.00E+00
1,2,3,4,7,8-HxCDF	6.00E-10				6.00E-10	Ethylene	1.05E+00	0.00E+00		2.45E-02	1.05E+00
1,2,3,6,7,8-HxCDF	1.80E-10				1.80E-10	Heptane	1.41E+00	0.00E+00			1.41E+00
2,3,4,6,7,8-HxCDF	2.85E-10				2.85E-10	Hexanal	0.00E+00	0.00E+00			0.00E+00
1,2,3,7,8,9-HxCDF	1.26E-09				1.26E-09	Isovaleraldehyde	0.00E+00	0.00E+00			0.00E+00
Total HxCDF	1.95E-09	8.63E-12			1.96E-09	2-Methyl-1-pentene	6.00E-01	0.00E+00			6.00E-01
1,2,3,4,6,7,8-HpCDF	9.75E-10				9.75E-10	2-Methyl-2-butene	6.70E-02	0.00E+00			6.70E-02
1,2,3,4,7,8,9-HpCDF	4.05E-10				4.05E-10	3-Methylpentane	2.85E-02	0.00E+00			2.85E-02
Total HpCDF	1.50E-09	4.28E-11			1.54E-09	1-Pentene	3.30E-01	0.00E+00			3.30E-01
Octa CDF	7.20E-10	5.30E-11			7.73E-10	n-Pentane*	3.15E-02	0.00E+00			3.15E-02
Total PCDF ^a	6.00E-09	1.37E-10			6.14E-09	Valeraldehyde*	0.00E+00	0.00E+00			0.00E+00
Total PCDD/PCDF ^a	1.80E-08	1.02E-09			1.90E-08	Metals					
Non-PAH HAPs						Arsinoy*	2.70E-06	2.32E-06			5.02E-05
Acetaldehyde*	0.00E+00		1.32E-03		1.32E-03	Arsenic*	8.40E-06	5.83E-06			8.98E-06
Acrolein*	0.00E+00		2.39E-04		2.39E-04	Barium*	8.70E-04	1.14E-05			8.81E-04
Benzene*	6.85E-02	0.00E+00	1.40E-02	9.06E-04	7.26E-02	Beryllium*	0.00E+00	1.23E-07			1.23E-07
1,3-Butadiene*	0.00E+00		4.59E-03		4.59E-03	Cadmium*	6.15E-05	1.78E-06			6.33E-05
Ethylbenzene*	3.80E-02			2.44E-03	3.60E-02	Chromium*	8.25E-04	3.73E-06			8.29E-04
Formaldehyde*	4.85E-01	1.55E-05	2.70E-03	1.32E-02	4.68E-01	Cobalt*	3.90E-06	2.66E-06			3.05E-05
Hexane*	1.38E-01	0.00E+00		2.78E-03	1.38E-01	Copper*	4.85E-04	7.77E-06			4.73E-04
Isocane	6.00E-03			1.69E-05	6.00E-03	Hexavalent Chromium*	6.75E-05	1.10E-06			6.86E-05
Methyl Ethyl Ketone*	0.00E+00			1.02E-03	0.00E+00	Manganese*	1.16E-03	1.33E-05			1.17E-03
Pentane*	0.00E+00	0.00E+00			0.00E+00	Mercury*	3.90E-04	4.99E-07			3.90E-04
Propionaldehyde*	0.00E+00				0.00E+00	Molybdenum*	0.00E+00	3.48E-06			3.48E-06
Quinone*	0.00E+00				0.00E+00	Nickel*	9.45E-03	3.73E-04			9.82E-03
Methyl chloroform*	7.20E-03				7.20E-03	Phosphorus*	4.20E-03	4.18E-06			4.20E-03
Toluene*	4.35E-01	0.00E+00	5.15E-03	2.44E-03	4.40E-01	Silver*	7.20E-05	0.00E+00			7.20E-05
Xylenes*	3.00E-02	0.00E+00	3.54E-03	1.22E-02	3.38E-02	Selenium*	6.25E-05	3.02E-06			6.56E-05
						Thallium*	8.15E-07				6.19E-07
TOTAL Federal HAPs (T/yr)					1.37E+00	Vanadium*	0.00E+00	1.40E-04			1.40E-04
						Zinc*	9.15E-03	1.29E-04			9.28E-03

a) IDAPA Toxic Air Pollutant

Facility: 0

7/10/2009 14:19

Permit/Facility ID: 0

777-00438

EMISSION INVENTORY
TONS PER YEAR Page 2 of 2

Max Controlled Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out
 A. Drum Mix Plant: 400 Tonshour 750 Hours/year 300,000 Tons/year 3,925 Tons/day
 Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil
 0.8600 HMBtu/hr 1,834 Hours/year 24 hrs/day
 B. Tank Heater: 0.8600 HMBtu/hr 1,834 Hours/year
 Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil
 C1. Generator G1: 8.68 gal/hour 2000 Hours/year #2 Fuel Oil Generator <600hp 12 hrs/day
 C2. Generator G2: 80.63 gal/hour 4000 Hours/year #2 Fuel Oil Generator > 600hp 12 hrs/day

Pollutant	A Drum Mix Max Emission Rate for Pollutant (T/yr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (T/yr)	C Generator Max Emission Rate for Pollutant (T/yr)	D Load-out, Silo Filling, & Tank Storage Emission Rate for Pollutant (T/yr)	E TOTAL of Max Emission Rates from A, B, & C (T/yr) Exclude Fugitives from D
non-PAH HAPs ^a					
Bromomethane ^b				1.49E-04	0.00E+00
2-Butanone (see Methyl Ethyl Ketone)					0.00E+00
Carbon disulfide ^c				3.74E-04	0.00E+00
Chloroethane (Ethyl chloride) ^d				7.44E-05	0.00E+00
Chloromethane (Methyl chloride) ^e				5.14E-04	0.00E+00
Cumene				6.86E-04	0.00E+00
n-Hexane				0.00E+00	0.00E+00
Methylene chloride (Dichloromethane) ^f				4.94E-06	0.00E+00
MTBE					0.00E+00
Styrene ^g				1.44E-04	0.00E+00
Tetrachloroethene (Tetrachloroethylene) ^h				4.80E-05	0.00E+00
1,1,1-Trichloroethane (Methyl chloroform) ⁱ				0.00E+00	0.00E+00
Trichloroethene (Trichloroethylene) ^j				0.00E+00	0.00E+00
Trichlorofluoromethane				8.11E-08	0.00E+00
m-p-Xylene ^k				6.21E-03	0.00E+00
o-Xylene ^l				6.03E-03	0.00E+00
Phenol ^m				6.03E-04	0.00E+00
Non-HAP Organic Compounds					
Methane				5.18E-01	0.00E+00

e) IDAPA Toxic Air Pollutant

Facility: Central Washington Asphalt Paving, Inc.
 7/10/2009 14:19 Permit/Facility ID: Permit No. 777-00438

TAPs EL Screen - ALL SOURCES
 088 pollutants are shown in bold

Max Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out
 A. Drum Mix Plant: 400 Tons/year 750 Hours/year 300,000 Tons/year 3,925 Tons/day
 Maximum emission for each pollutant from any fuel-burning option selected on "Facility Data" worksheet
 B. Tank Heater: 0.8000 MMBtu Rated 1,834 Hours/year
 Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet
 D. Include all emissions from Load-out/Silo Filling? Yes
 Short Term Source Factor S88 ELs? 1

Pollutant	TOTAL of Max Emission Rates from A, B, C & D (lb/hr)	TAPs Screening Emission Limit (EL) Increment ^a (lb/hr)	TAPs Emissions Exceed EL Increment?	Modeled? Meets Standard?	Pollutant	TOTAL of Max Emission Rates from A, B, C & D (lb/hr)	TAPs Screening Emission Limit (EL) Increment ^a (lb/hr)	TAPs Emissions Exceed EL Increment?	Modeled? Meets Standard?
PAH HAPs					2-Methylnaphthalene	6.68E-03			
					3-Methylchloranthrene ^b	0.00E+00	2.50E-06	No	
					Acenaphthene	1.38E-04			
					Acenaphthylene	7.94E-04			
					Anthracene	1.31E-04			
					Benz(a)anthracene	1.71E-05			see POM
					Benz(a)pyrene ^b	1.03E-06	2.00E-06	No	see POM
					Benz(b)fluoranthene	8.85E-06			see POM
HCl ^c	0.000	0.05	No		Benz(e)pyrene	5.50E-06			
Dioxins ^d		Toxic Equivalency Factor ^e	Adjusted Emission Rate (lb/hr)		Benz(g,h,i)perylene	3.83E-06			
2,3,7,8-TCDD	7.19E-12	1.0	7.19E-12		Benz(k)fluoranthene	2.93E-06			see POM
Total TCDD	3.18E-11	n/a			Chrysene	4.23E-05			see POM
1,2,3,7,8-PeCDD	1.08E-11	0.5	5.31E-12		Dibenz(a,h)anthracene	1.51E-06			see POM
Total PeCDD	7.53E-10	n/a			Dichlorobenzene	0.00E+00			
1,2,3,4,7,8-HxCDD	1.51E-11	0.1	1.51E-12		Fluoranthene	6.71E-05			
1,2,3,6,7,8-HxCDD	4.45E-11	0.1	4.45E-12		Fluorene	6.11E-04			
1,2,3,7,8-HxCDD	3.43E-11	0.1	3.43E-12		Indeno(1,2,3-cd)pyrene	1.87E-06			see POM
Total HxCDD	4.11E-10	n/a			Naphthalene ^b	2.31E-02	3.33	No	
1,2,3,4,6,7,8-HpCDD	1.90E-10	0.01	1.80E-12		Phenanthrene	6.48E-06			
Total HpCDD	8.71E-10	n/a			Phenanthrene	1.21E-03			
Octa CDD	1.02E-09	0.0001	1.02E-13		Pyrene	1.74E-04			
Total PCDD ^d	2.91E-09	n/a			Polycyclic Organic Matter ^{d,e}	7.67E-05	2.00E-06	Exceeds	
Furans ^d					Non-HAP Organic Compounds				
2,3,7,8-TCDF	3.32E-11	0.1	3.32E-12		Acetone	1.37E-01	118	No	
Total TCDF	1.30E-10	n/a			Benzaldehyde	1.80E-02			
1,2,3,7,8-PeCDF	1.47E-10	0.05	7.36E-12		Butane	1.19E-01			
2,3,4,7,8-PeCDF	2.88E-11	0.5	1.44E-11		Butyraldehyde	2.62E-02			
Total PeCDF	2.88E-09	n/a			Crotonaldehyde ^b	1.41E-02	0.38	No	
1,2,3,4,7,8-HxCDF	1.37E-10	0.1	1.37E-11		Ethylene	1.17E+00			
1,2,3,6,7,8-HxCDF	4.11E-11	0.1	4.11E-12		Heptane	1.54E+00	108	No	
2,3,4,6,7,8-HxCDF	6.51E-11	0.1	6.51E-12		Hexanal	1.80E-02			
1,2,3,7,8,9-HxCDF	2.88E-10	0.1	2.88E-11		Isovaleraldehyde	2.23E-03			
Total HxCDF	4.47E-10	n/a			2-Methyl-1-pentene	6.54E-01			
1,2,3,4,6,7,8-HpCDF	2.23E-10	0.01	2.23E-12		2-Methyl-2-butene	8.49E-02			
Total HpCDF	9.25E-11	0.01	9.25E-13		3-Methylpentene	3.11E-02			
Octa CDF	3.52E-10	n/a			n-Pentene	3.80E-01			
Total PCDF ^d	1.78E-10	0.0001	1.78E-14		n-Pentene	3.43E-02	118	No	
Total PCDD/PCDF ^d	1.40E-09	n/a			Valeraldehyde (n-Valeraldehyde)	1.10E-02	11.7	No	
TOTAL Dioxin/Furans ^d	Adjusted lb/hr	TAPs EL for 2,3,7,8 TCDD	Exceeds TAPs EL?	Modeled?					
	1.05E-10	1.50E-10	No		Metals				
Non-PAH HAPs					Antimony ^b	5.47E-05	0.033	No	
Acetaldehyde ^b	3.01E-04	3.00E-03	No		Arsenic ^b	2.05E-05	1.50E-06	Exceeds	yes
Acrolein ^b	4.31E-03	0.017	No		Barium ^b	9.91E-04	0.033	No	
Benzene ^b	1.88E-02	8.00E-04	Exceeds	yes	Beryllium ^b	2.80E-08	2.80E-05	No	
1,3-Butadiene ^b	4.19E-02	29	No		Cadmium ^b	1.44E-05	3.70E-06	Exceeds	yes
Ethylbenzene ^b	4.19E-02	29	No		Chromium ^b	6.04E-04	0.033	No	
Formaldehyde ^b	1.10E-01	5.10E-04	Exceeds	yes	Cobalt ^b	3.32E-06	0.0033	No	
Hexane ^b	1.53E-01	12	No		Copper ^b	5.15E-04	0.013	No	
Isoprene	6.86E-03				Hexavalent Chromium ^b	1.67E-05	5.60E-07	Exceeds	Yes
Methyl Ethyl Ketone ^b	4.38E-03	38.3	No		Manganese ^b	1.27E-03	0.067	No	
Pentane ^b	0.00E+00	118	No		Mercury ^b	4.29E-04	0.003	No	
Propionaldehyde ^b	2.19E-02	0.0287	No		Molybdenum ^b	3.79E-06	0.333	No	
Quinone ^b	2.82E-02	0.027	No		Nickel ^b	2.24E-03	2.70E-05	Exceeds	Yes
Methyl chloroform ^b	7.63E-03	127	No		Phosphorus ^b	4.62E-03	0.007	No	
Toluene ^b	4.78E-01	25	No		Silver ^b	7.85E-05	0.007	No	
Xylene ^b	4.70E-02	28	No		Selenium ^b	6.05E-06	0.013	No	
TOTAL PAH HAPs (lb/hr) ^a	3.29E-02	9.10E-05	Exceeds		Thallium ^b	8.71E-07	0.007	No	
					Vanadium ^b	1.63E-04	0.003	No	
					Zinc ^b	1.01E-02	0.667	No	

a) Reserved.
 b) Toxic Air Pollutants, IDAPA 58.01.01.585 and .586, levels in effect as of January 27, 2008
 c) Interim Procedures for Estimated Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and Dibenzofurans (CDDs and CDFs, 1980 update, EPA/426/3-BB/018, March 1989 (Source: Mike Dubois, IDEO State Office, April 2005)
 Plus 1,2,3,7,8-PeCDD,OCDD & OCDF TEFs, Van den Berg, et al, 1996, Environmental Health Perspectives 106, 775, accessed at www.dioxinfacts.org/dioxin_health/dioxin_issues/dioxin_toxicity.html
 n/a = not available. IDAPA 58.01.01.586, TAPs Carcinogenic Increments; Total of adjusted emission rates are treated as a single TAP (2,3,7,8 TCDD)
 d) IDAPA 58.01.01.586, Polycyclic Organic Matter; Emissions of PAHs shown in bold shall be considered together as one TAP equivalent in potency to benzo(a)pyrene.
 e) IDAPA Toxic Air Pollutant, 58.01.01.585 or .666
 TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.
 Pollutants shown in blue text are emitted only when burning Used Oil, but not when burning #2 Fuel Oil or Natural Gas

Facility:

0

7/10/2009 14:19

Perm# / Facility ID:

0

777-00438

TAPs EL Screen - ALL SOURCES

Page 2 of 2

Max Emissions of Any Pollutant from Drum Mix HMA Plant Fabric Filter, Tank Heater, Generator, Silo Fill/Load-out

A. Drum Mix Plant: 400 Tons/hour 750 Hours/year 300,000 Tons/year 3,925 Tons/day
 Maximum emission for each pollutant from any fuel-burning option selected in "Facility Data" worksheet.

B. Tank Heater: 0.8600 MMBtu Rated 1,834 Hours/year D. Include all emissions from Load-out/Silo/Storage? Yes
 Maximum emission for each pollutant for heater burning any fuel selected in "Facility Data" worksheet.

C. Generator: 60.8283703 gal/hour #REF! Hours/year Small or Large Generator using Diesel Fuel

Pollutant	TOTAL of Max Emission Rates from A, B, C & D (lb/hr)	TAPs Screening Emission Limit (EL) (lb/hr) ^a	TAPs Emissions Exceed EL Increment?	Modeled?
non-PAH HAPs ^b				
Bromomethane (Methyl bromide)	1.63E-04	1.27	No	
2-Butanone (see Methyl Ethyl Ketone)				
Carbon disulfide	4.07E-04	2	No	
Chloroethane (Ethyl chloride)	8.11E-05	178	No	
Chloromethane (Methyl chloride)	5.80E-04	6.87	No	
Cumene ^c	7.48E-04	18.3	No	
n-Hexane ^c (see Hexane)				
Methylene chloride (Dichloromethane)	5.38E-06	1.60E-03	No	
MTBE	0.00E+00			
Styrene ^c	1.57E-04	6.87	No	
Tetrachloroethene (Tetrachloroethylene)	5.24E-05	1.30E-02	No	
1,1,1-Trichloroethane (see Methyl chloroform)				
Trichloroethane (Trichloroethylene)	0.00E+00	17.93	No	
Trichlorobromomethane	8.64E-06			
m-p-Xylene ^c (added into Xylene)				
o-Xylene ^c (added into Xylene)				
Phenol ^c	6.58E-04	1.27	No	
Non-HAP Organic Compounds				
Methane	5.62E-01			

a) For HMA facilities subject to NSPS (40 CFR 60, Subpart I), PTE includes fugitive emissions of PM from load-out, silo filling & storage tank operations.
 b) IDAPA Toxic Air Pollutant, 58.01.01 585 or .586

Facility: Central Washington Asphalt Paving, Inc.
 7/10/2009 14:19 Permits/Facility ID: P-2008.0119 777-00438

Max Hourly Production 400 T/hr 98% T/hr is Aggregate & RAP = 384 T/hr
 Max Daily Production 3,925 Tons/day 98% T/day is Aggregate & RAP = 3,768 T/day
 Max Annual Production 300,000 Tons/yr 98% T/yr is Aggregate & RAP = 288,000 T/yr

Fine PM emitted from RAP use is negligible (see assumptions on page 1 of this spreadsheet). Worst case emissions are for 0% RAP

Aggregate Front-end Loader Drop Points, AP-42 13.2.4 (11/08)

$E = k (0.0032) \times (U/5)^{1.3} / (M/2)^{1.4} = 1.62E-03 \quad 7.65E-04 \text{ lb/ton for PM10} \quad 1.18E-04 \text{ lb/ton for PM2.5}$

k = particle size multiplier 0.74 for PM 0.35 for PM10 0.053 for PM2.5
 U = mean wind speed = 10 mph Wind speed range for source conditions for Equation 1: 1.3 to 15 mph. Select 10 mph as base case wind speed.
 M = moisture content = 5 %

Moisture Content: STAPPA-ALAPCO-EPA, Emission Inventory Improvement Program, Volume II, Chapter 3, Preferred and Alternative Methods for Estimating Air Emissions from Hot Mix Asphalt Plants, Final Report, July 1996; Aggregate moisture content into dryer typically 3 to 7 %
 BAAQMD, Hot Mixing Asphalt Facilities, Engineering Evaluation Template, www.baaqmd.gov/pmthandbook/s11c02ev.htm; Bulk aggregate moisture content typically stabilizes between 3 and 5% by weight.

Wind Category	Windspeed Variation Factors for AERMOD modeling:			PM10		PM2.5	
	Upper windspeed (m/sec)	Avg windspeed (m/sec)	Avg windspeed (mph)	E @ avg mph	F = Eavg mph / E@10mph	F @ avg mph	F = Eavg mph / E@10mph
Cat 1:	1.54	0.77	1.72	7.77E-05	0.1016	1.18E-05	0.1016
Cat 2:	3.09	2.32	5.18	3.25E-04	0.4251	4.92E-05	0.4251
Cat 3:	5.14	4.12	9.20	6.87E-04	0.8979	1.04E-04	0.8979
Cat 4:	8.23	6.89	14.95	1.29E-03	1.687	1.95E-04	1.687
Cat 5:	10.80	9.52	21.28	2.04E-03	2.670	3.09E-04	2.670
Cat 6:	14.00	12.40	27.74	2.88E-03	3.767	4.36E-04	3.767

Aggregate Front End Loader Drop Points

Pollutant	Emission Factor (lb/ton)	Drop to storage pile and drop to bins: 384 T/hr				2 Transfer Points			
		Emissions Per Transfer Point				Total Emissions			
		Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	1.62E-03	0.62	0.25	0.23	0.05	1.24	0.51	0.47	0.11
PM-10 (total)	7.65E-04	0.29	0.12	0.11	0.03	0.59	0.24	0.22	0.05
P.M.-2.5	1.18E-04	0.04	0.02	0.02	0.00	0.06	0.04	0.03	0.01

Conveyor and Scalping Screen Emission Points

Moisture/Control %:
 AP-42 Table 11.19.2-2, Note b. Moisture content of uncontrolled sources ranged from 0.21 to 1.3%
 AP-42 Table 11.19.2-2, Note b. Moisture content of controlled (water spray) sources ranged from 0.55 to 2.88% --> ~91.3% control for screening, ~95% control for conveyor transfer
 Bulk aggregate for HMA plants typically stabilizes between 3 and 5% by weight--> Apply additional 0% control to lb/hr, etc. for the higher moisture.

Aggregate Weigh Conveyor Transfer from bins to conveyor and from conveyor to scalping screen:

Pollutant	Emission Factor Table 11.19.2-2 CONVEYOR TRANSFER PT CONTROLLED (lb/ton)	Emissions Per Transfer Point				2 Transfer Points			
		Emissions Per Transfer Point				Total Emissions			
		Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	0.00014	0.054	0.022	2.02E-02	4.60E-03	0.108	0.044	4.03E-02	9.21E-03
PM-10 (total)	4.60E-05	0.018	0.007	6.82E-03	1.51E-03	0.035	0.014	1.32E-02	3.02E-03
P.M.-2.5	1.30E-05	0.006	0.002	1.87E-03	4.27E-04	0.010	0.004	3.74E-03	8.56E-04

