Air Quality Permitting
Statement of Basis

November 8, 2006

Permit to Construct No. P-060511

H. K. Contractors, Inc., Portable

Facility ID No. 777-00207

Prepared by:

CZ

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AIR QUALITY DIVISION

Final Permit

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Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
gr/dscf	grain (1 lb = 7,000 grains) per dry standard cubic foot
HAPs	Hazardous Air Pollutants
HMA	hot-mix asphalt facility
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
MMBtu/hr	million British thermal units per hour
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
RAP	Recycled asphalt pavement
SIC	Standard Industrial Classification
SO_2	sulfur dioxide
TAP	toxic air pollutant
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this document is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

The facility consists of a drum mix asphalt plant, with PM and PM_{10} emissions controlled by a scrubber, a fuel oil tank, and two diesel-fired electrical generators. Drum mix asphalt plants may be of either parallel flow design or the counterflow design. In either design aggregate (gravel) is dried in the drum and mixed with liquid asphalt cement to produce hot-mix asphalt which is used primarily for road and parking lot construction. The production of hot-mix asphalt includes aggregate handling operations which may include front end loaders, storage bins, conveyance systems, stock piles and haul trucks.

3. FACILITY / AREA CLASSIFICATION

H. K. Contractors is defined as a synthetic minor facility with emissions equal to or greater than 80 percent of the major source limit because, without permit limits on the potential to emit, the NO_x emissions would exceed 100 tons per year, and with limits on the potential to emit, the NO_x emissions from all sources at the facility are greater than 80 tons per year. The AIRS classification is "SM80".

The facility is a portable facility and may locate anywhere in the state of Idaho except the Sandpoint PM_{10} nonattainment area.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant for the H. K. Contractors facility. This information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

This permit to construct is to permit the capability to burn used oil in the existing hot-mix asphalt plant.

4.1 Application Chronology

May 25, 2006	DEQ received a standard permit to construct application form for HMAs.
June 23, 2006	DEQ determined the application complete.
July 21, 2006	DEQ issued facility draft PTC
August 15, 2006	DEQ received the PTC processing fee of $5,000

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

Hot-Mix Asphalt Plant

Manufacturer: CMI, UDM1200

Type of hot mix asphalt (HMA) plant: Drum mix

Design capacity: 250 T/hr

HMA burner fuel type: Propane, natural gas, used oil, and No. 1 and No. 2 fuel oil

Emissions control device: Scrubber, CMI UDM 200

Asphalt Tank Heater

8 gallons per hour of #2 fuel oil

Generator Set

Manufacturer: Cat 600kw, 8 gallons per hour of #2 fuel oil

Generator Set

Manufacturer: Whisper Watt 45KW, 2 gallons per hour of #2 fuel oil

5.2 Emissions Inventory

The only change at the facility is to burn used oil in addition to the already-permitted natural gas, No. 1 and No. 2 fuel oil, and propane. There is no proposed increase in throughput. Therefore, only the difference in estimated emissions between used oil and the existing fuels are analyzed.

Using AP-42 Section 11.1 emissions factors, the emissions of most pollutants from the combustion of used oil are the same as those from the combustion of No. 2 oil, for which the emissions were analyzed and permitted in the previous permit action. For the criteria pollutants, SO_2 emissions are estimated to be higher for used oil, and some regulated TAPs are higher for used oil. All other pollutants are estimated, using emission factors and production limits, to be the same.

Emission estimates from the asphalt plant when firing on used oil are based on a permitted hourly production rate of 250 tons per hour and 1,212,923 tons per year. This is the limit for attainment or unclassifiable areas, which is a conservative estimate of emissions as the limits for nonattainment areas are lower.

It is not known if the proposed drum mix asphalt plant is a parallel flow or counter flow, for emission estimation purposes it is not necessary to determine which type it is because AP-42 emissions factors for drum mix asphalt plants are not dependent on whether the drum mix plant is parallel flow or counter flow. Consequently, emissions estimates in Appendix B are accurate for either parallel flow drum mix plants or for counter flow drum mix plants.

SO_2 emissions increase:

0.058 lb/ton x 250 tons/hr = 14.5 lb/hr for used oil
0.011 lb/ton x 250 tons/hr = 2.75 lb/hr for No. 2 fuel (highest SO_2 emissions of currently-permitted fuels)

Difference: 14.5 lb/hr – 2.75 lb/hr = 11.75 lb/hr increase of SO_2 when firing on used oil

0.058 lb/ton x 1,212,923 T/yr (used oil limit) x 1 ton/2,000 lb = 35.2 T/yr for used oil
0.011 lb/ton x 1,477,036 T/yr (limit for other than used oil) x 1 ton/2,000 lb = 8.1 T/yr for No. 2 fuel

Difference: 35.2 – 8.1 = 27.1 T/yr increase of SO_2

Most of the remaining pollutants are estimated to be less for used oil than for No. 2 fuel because, although the emission factors are the same, the production limit for used oil is less than the production limit for No. 2 fuel. There are a few TAPs that are emitted when burning used oil that are not emitted, or are emitted at lower levels, from No. 2 fuel.

Table 5.1 gives a summary of the change in air pollutant emissions from the burning of used oil in the hot-mix asphalt plant.

Table 5.1 EMISSIONS ESTIMATES

Pollutant	Maximum T/yr
SO_2	27.1
HCl	0.127
Acetaldehyde	0.788
Acrolein	0.016
MEK	0.012
Propionaldehyde	0.079
Quinone	0.097
Acetone	0.503
Benzaldehyde	0.067
Butyraldehyde	0.097
Crotonaldehyde	0.052
Hexanal	0.067
Isovaleraldehyde	0.019
Valeraldehyde	0.041

5.3 *Modeling*

DEQ performed air pollutant dispersion modeling using SCREEN3 model. The model assumed flat terrain, no downwash and that ambient air was located immediately adjacent to the facility in a rural area. The SCREEN3 modeling results may be seen in Appendix C.

At the requested capacity for used oil, the acetaldehyde emissions are estimated to exceed the acceptable ambient concentration for carcinogens (AACC) from IDAPA 58.01.01.586 of 0.45 $\mu g/m^3$. Therefore, the allowable used oil quantity was back-calculated from the AACC and the modeling results (one-hour maximum concentration of 19.94 $\mu g/m^3$ for one pound of emissions) as follows:

0.45 $\mu g/m^3$ x (1 lb/hr/(19.94 $\mu g/m^3$ x 0.125 persistence factor)) = 0.18 lb acetaldehyde/hr annual average

0.18 lb/hr x 8760 hr/yr = 1,577 lb/yr allowable acetaldehyde

1.3E-03 lb acetaldehyde emitted/ton production (AP-42)

1577 lb/yr allowable acetaldehyde x 1 T production/1.3E-03 lb acetaldehyde =
1,212,923 T/yr allowable production while firing on used oil

Because production is limited due to the acetaldehyde emissions, the emissions increases are based on this limited production rate.

Stack parameters used in the modeling analysis are given in Table 5.2

Table 5.2 STACK PARAMETERS

Stack Parameter	HMA
Height	5.49 m
Diameter	0.64 m
Velocity	8.87 m/s
Temperature	444 K
Emission Rate	0.126 g/s

For modeling purposes the air pollutant emission rate was set to be one pound per hour (0.126 g/s).

Using this method SCREEN3 model gives an air pollutant dispersion coefficient in micrograms per cubic meter per pound of emissions. The linear relationship between emission rate and ambient impact is then used to predict actual ambient impact by multiplying the dispersion coefficient by the actual emission rate. The predicted ambient impact is then multiplied by a persistence factor to convert the models one hour concentration to the averaging periods of the ambient standards or toxic air pollutant increments. Appendix C contains a spread sheet that shows the results of these calculations.

Table 5.3 shows the predicted ambient impacts for the increase in SO_2 from the facility, which is the only criteria air pollutant with increased estimated emissions from this modification.

Table 5.3 AMBIENT POLLUTANT CONCENTRATIONS

Pollutant	Averaging period	Maximum Predicted Ambient Impact (µg/m3)	Background Concentration (µg/m3)	Total Ambient Impact (µg/m3)	NAAQS (µg/m3)	Percent of NAAQS
SO_2	3-hour	211	372	583	1300	45
	24-hour	94	122	216	365	59
	Annual	19	21	40	80	50

a) Background concentration DEQ modeling coordinator, May 25, 20005
b) National Ambient Air Quality Standard

The modeled concentrations, including the background, are less than the NAAQS.

Toxic air pollutant emissions ambient impacts are summarized in Table 5.4 for the increase in those toxic air pollutants that are estimated to be emitted above the toxic air pollutant screening emission level listed in IDAPA 58.01.01.585 and IDAPA 58.01.01.586. All other increases in toxic air pollutants emissions are below the screening emissions rate and modeling is not required. All increases in toxic air pollutants comply with the toxic air pollutant increments listed IDAPA 58.01.01.585 and IDAPA 58.01.01.586.

Table 5.4 TOXIC AIR POLLUTANT AMBIENT IMPACT ASSESSMENT.

Pollutant	HMA Emissions (lb/hr)	HMA Impact (µg/m3)	Allowable Increment (µg/m3)	Averaging period	Acceptable Impact?	Uncontrolled Emissions Exceed Increment ?
Acetaldehyde	0.180 (annual avg.)	4.49E-01	4.50E-01	Annual	YES	no
Propionaldehyde	0.0325	2.59E-01	2.15E+01	24-hour	YES	no
Quinone	0.04	3.19E-01	20	24-hour	YES	no

5.4 *Regulatory Review*

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

H. K. Contractors has requested a revision to their permit to construct to permit the existing hot-mix asphalt plant to burn used oil.

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

The plant was manufactured in 1979 therefore it is an affected facility as defined by 40 CFR 60 Subpart I. The plant was tested on August 4, 2005, in Freedom, Wyoming. The measured particulate emissions were 0.02 gr/dscf and opacity was 4.9%. The standard specifies that the particulate emissions from the plant shall not exceed 0.04 gr/dscf and 20% opacity. The test shows that the facility is in compliance with the standard. Adding used oil is not considered a modification for this NSPS standard, because there is no increase in particulate emissions predicted using AP-42 factors.

40 CFR 279 ..... Standards for the Management of Used Oil

The permit was written to allow the use of used oil. Part 279.11 contains specifications for used oil which include allowable levels for arsenic, cadmium, chromium, lead, the flash point, and total halogens. The limit for total halogens is listed at 4,000 ppm maximum. However, used oil containing more than 1,000 ppm total halogens is presumed to be a hazardous waste under the rebuttable presumption provided under § 279.10(b)(1). Such used oil is subject to Subpart H of part 266 of this chapter rather than this part when burned for energy recovery unless the presumption of mixing can be successfully rebutted. Therefore, the permit limits the total halogens to 1,000 ppm. This permit condition is consistent with previous permits issued for hot-mix asphalt plants[1].

Permit Condition 3.9 states that, in accordance with 40 CFR 279.11, used oil burned for energy recovery shall not exceed any of the allowable levels listed in Table 2.3. These permit conditions are considered reasonable permit conditions because they inherently limit air pollution emissions.

Table 2.3 USED OIL SPECIFICATIONS[1]

Constituent/property	Allowable level
Arsenic	5 ppm[2] 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

[1] 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)).
[2] Parts per million

This table is based on Table 1 from 40 CFR 279.11, incorporating the 1,000 ppm limit for total halogens as explained above.

DEQ's Waste Program has reviewed and approved the above discussions regarding regulating used oil.

IDAPA 58.01.01.2..... Demonstration of Preconstruction Compliance with Toxic Standards

The HMA plant is designed for a production rate of 250 tons per hour. This permit limits the production of the HMA to 1,212,923 tons per year when combusting used oil. With these limitations (the hourly rate is limited by the equipment design), the facility's emissions caused ambient impact less than any toxic air pollutant increment listed in IDAPA 58.01.01.585 and IDAPA 58.01.01.586. The toxic air pollutant emissions inventory can be seen in Appendix B and results of toxic air pollutant modeling can be seen in the Modeling section of this document (Section 5.3) and Appendix C.

In accordance with IDAPA 58.01.01.210.08, if a toxic air pollutant emissions need to be controlled to comply with the toxic increment DEQ "shall include an emission limit for the toxic air pollutant in the permit to construct that is equal to or, if requested by the applicant, less than the emission rate that was used in the modeling". Acetaldehyde uncontrolled emissions exceeded the toxic air pollutant increment specified in IDAPA 58.01.01.586. Therefore, emissions limits are included in the permit which equals the average emission rate which was used in modeling. Controlled emissions caused ambient impacts below the acceptable ambient increment.

[1] PTC-030138 Interstate Concrete, Hayden Lake, 2/18/05 & PTC-040101 Interstate Concrete, Rathdrum, 2/18/05

5.5 PERMIT FEES

H. K. Contractors paid the $1,000 permit to construct application fee as required in IDAPA 58.01.01.224 on May 25, 2006.

A permit to construct processing fee of $5,000 is required in accordance with IDAPA 58.01.01.225, because the emissions from the facility are between 10 and 100 tons per year. The fee calculation spread sheet can be found in Appendix D. The processing fee was paid on August 15, 2006.

H. K. Contractors is not a major facility as defined in IDAPA 58.01.01.008.10. Therefore, registration fees to support the Tier I operating permit program are not applicable in accordance with IDAPA 58.01.01.387.

6. PERMIT CONDITIONS

This permit is a modification of PTC No. 777-00207, issued on July 17, 1997. The only modification requested was to allow the use of used oil. There are no equipment modifications or increases in production. This permit was modified to include permit conditions for used oil and to update some of the permit conditions to reflect current requirements, such as current General Provisions. For permit conditions that were unchanged from the previous permit, no discussion is provided in this statement of basis.

Permit Condition 1 through 2.2

Permit Conditions 1 through 2.2 contains the Purpose of the Permit, listing of the regulated sources and process description.

Existing Permit Condition 1.2

Other Particulate Matter Emission Limits

Gases from systems for screening, handling, storing, and weighing hot aggregate, which emanate from a stack, vent, or other functionally equivalent opening, shall not contain PM emissions in excess of 0.04 gr/dscf.

This permit condition was removed because it applies to batch mix plants and not to drum mix plants.

Permit Condition 3.1

The 40 CFR 60.90 NSPS 20% opacity limit for Hot-Mix Asphalt Facilities is given as a reasonable permit condition.

Permit Condition 3.2

This permit condition is the IDAPA 58.01.01.625 20% opacity limit. The 40 CFR 60.90 NSPS opacity limit and the IDAPA 58.01.01.625 opacity limit are different. The IDAPA 58.01.01.625 20% opacity limit is for a period or periods aggregating more than three minutes in any 60-minutes, the NSPS 20% opacity limitation is for all periods. This limit was in the previous permit and was reworded to match current regulatory language.

Permit Condition 3.5

Acetaldehyde emissions are limited to 1,577 pounds per any consecutive 12-month period.

In accordance with IDAPA 58.01.01.210.08 if a toxic air pollutant emissions need to be controlled to comply with the toxic increment, DEQ "shall include an emission limit for the toxic air pollutant in the permit to construct that is equal to or, if requested by the applicant, less than the emission rate that was used in the modeling". Acetaldehyde toxic air pollutants uncontrolled emissions exceed the toxic air

pollutant increment. An emission limit is included in the permit for each pollutant that equals the rate which was used in modeling.

Compliance Assurance

Permit Conditions 3.11 and 3.19 limit and require tracking for both daily and annual production limitations to restrict nickel, formaldehyde, and acetaldehyde emissions to permitted levels. Because the acetaldehyde emission estimates are limited for used oil and not for other fuels, separate limits and tracking are required when used oil is used.

Permit Condition 3.7

The existing permit condition for reasonable control of fugitive dust has been updated to match the IDAPA 58.01.01.650-651 rules to reasonably control fugitive dust.

Permit Conditions 3.21, 3.27, and 3.28

Source testing is required every five years to assess whether the grain loading and opacity limits are being met. The most recent compliance test conducted by the facility was on August 4, 2005. This test showed compliance with grain loading and opacity.

A test report is required and a test protocol is encouraged.

Remaining Permit Conditions

The permit conditions that have not been discussed in this document are self explanatory and are not included in this statement of basis.

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The Pocatello Regional Office was provided a draft of the permit and statement of basis for review. The regional office had no comments.

7.2 Facility Review of Draft Permit

The facility was provided a draft permit and statement of basis for review. The facility had no comments.

7.3 Public Comment

An opportunity for public comment period on the PTC application was provided from July 11, 2006 to August 10, 2006 in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that H. K. Contractors be issued PTC No. P-060511 for burning used oil at the asphalt plant. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

CZ/bf-sd Permit No. P-060511

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APPENDIX A

Airs Information

P-060511

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: H. K. Contractors
Facility Location: Portable
AIRS Number: 777-00207

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							
NO_x	SM80					SM80		
CO	B							
PM_{10}	B							
PT (Particulate)	B		B					
VOC	B							
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					
			I					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

APPENDIX B

Emissions Inventory

P-060511

#2 Fuel Oil Fired Drum Mix Asphalt Plant With Fabric Filter AP-42 Section 11.1

Fuel Type Toggle = 1
Hourly Throughput 250 T/hr
Annual Hours Operating 5,908 hrs/yr
Max Annual Throughput 1,477,036 Tons/yr (Theoretical Maximum HMA at Max. Annual Operating Hours)
Max Annual Throughput 1,477,036 Tons/yr (Proposed HMA Throughput Limit)

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions at Max Hours (T/yr)	Emissions at Max Throughput (T/yr)
PM (total)[b]	0.033	8.25	24.371	24.371
PM-10 (total)[b]	0.023	5.75	16.966	16.966
P.M.-2.5[b1]	*0.0029*	0.725	2.142	2.142
CO[c]	0.13	32.5	96.007	96.007
NOx[c]	0.055	13.75	40.618	40.618
SO_2[c]	*0.011*	*2.75*	*8.124*	*8.124*
VOC[d]	0.032	8	23.633	23.633
Lead	1.50E-05	0.00375	0.011	0.011
HCl[d,e]	No Data			
Dioxins[e]				
2,3,7,8-TCDD	2.10E-13	5.25E-11	0.000	0.000
Total TCDD	9.30E-13	2.325E-10	0.000	0.000
1,2,3,7,8-PeCDD	3.10E-13	7.75E-11	0.000	0.000
Total PeCDD	2.20E-11	5.5E-09	0.000	0.000
1,2,3,4,7,8-HxCDD	4.20E-13	1.05E-10	0.000	0.000
1,2,3,6,7,8-HxCDD	1.30E-12	3.25E-10	0.000	0.000
1,2,3,7,8,9-HxCDD	9.80E-13	2.45E-10	0.000	0.000
Total HxCDD	1.20E-11	3E-09	0.000	0.000
1,2,3,4,6,7,8-Hp-CDD	*4.80E-12*	*1.2E-09*	*0.000*	*0.000*
Total HpCDD	1.90E-11	4.75E-09	0.000	0.000
Octa CDD	2.50E-11	6.25E-09	0.000	0.000
Total PCDD[h]	7.90E-11	1.975E-08	0.000	0.000
Furans[e]		0	0.000	0.000
2,3,7,8-TCDF	9.70E-13	2.425E-10	0.000	0.000
Total TCDF	3.70E-12	9.25E-10	0.000	0.000
1,2,3,7,8-PeCDF	4.30E-12	1.075E-09	0.000	0.000
2,3,4,7,8-PeCDF	8.40E-13	2.1E-10	0.000	0.000
Total PeCDF	8.40E-11	2.1E-08	0.000	0.000
1,2,3,4,7,8-HxCDF	4.00E-12	1E-09	0.000	0.000
1,2,3,6,7,8-HxCDF	1.20E-12	3E-10	0.000	0.000
2,3,4,6,7,8-HxCDF	1.90E-12	4.75E-10	0.000	0.000
1,2,3,7,8,9-HxCDF	*8.40E-12*	*2.1E-09*	*0.000*	*0.000*
Total HxCDF	1.30E-11	3.25E-09	0.000	0.000
1,2,3,4,6,7,8-HpCDF	6.50E-12	1.625E-09	0.000	0.000
1,2,3,4,7,8,9-HpCDF	2.70E-12	6.75E-10	0.000	0.000
Total HpCDF	1.00E-11	2.5E-09	0.000	0.000
Octa CDF	4.80E-12	1.2E-09	0.000	0.000
Total PCDF[h]	4.00E-11	0.00000001	0.000	0.000
Total PCDD/PCDF[h]	1.20E-10	0.00000003	0.000	0.000
Non-PAH HAPs[f]		0	0.000	0.000
Acetaldehyde[e]		0	0.000	0.000
Acrolein[e]		0	0.000	0.000
Benzene[e]	3.90E-04	0.0975	0.288	0.288
1,3-Butadiene[e]		0	0.000	0.000
Ethylbenzene[e]	2.40E-04	0.06	0.177	0.177
Formaldehyde[e]	3.10E-03	0.775	2.289	2.289
Hexane[e]	9.20E-04	0.23	0.679	0.679
Isooctane	4.00E-05	0.01	0.030	0.030
Methyl Ethyl Ketone[e]		0	0.000	0.000
Pentane[e]		0	0.000	0.000
Propionaldehyde[e]		0	0.000	0.000
Quinone[e]		0	0.000	0.000
Methyl chloroform[e]	4.80E-05	0.012	0.035	0.035
Toluene[e]	2.90E-03	0.725	2.142	2.142
Xylene[e]	2.00E-04	0.05	0.148	0.148

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions at Max Hours (T/yr)	Emissions at Max Throughput (T/yr)
PAH HAPs[f]				
2-Methylnaphthalene	0.00017	4.250E-02	1.255E-01	1.255E-01
3-Methylchloranthrene[e]		0.000E+00	0.000E+00	0.000E+00
Acenaphthene	1.40E-06	3.500E-04	1.034E-03	1.034E-03
Acenaphthylene	2.20E-05	5.500E-03	1.625E-02	1.625E-02
Anthracene	*3.10E-06*	*7.750E-04*	*2.289E-03*	*2.289E-03*
Benzo(a)anthracene	2.10E-07	5.250E-05	1.551E-04	1.551E-04
Benzo(a)pyrene[e]	9.80E-09	2.450E-06	7.237E-06	7.237E-06
Benzo(b)fluoranthene	1.00E-07	2.500E-05	7.385E-05	7.385E-05
Benzo(e)pyrene	1.10E-07	2.750E-05	8.124E-05	8.124E-05
Benzo(g,h,i)perylene	4.00E-08	1.000E-05	2.954E-05	2.954E-05
Benzo(k)fluoranthene	4.10E-08	1.025E-05	3.028E-05	3.028E-05
Chrysene	1.80E-07	4.500E-05	1.329E-04	1.329E-04
Dibenzo(a,h)anthracene		0.000E+00	0.000E+00	0.000E+00
Dichlorobenzene		0.000E+00	0.000E+00	0.000E+00
Fluoranthene	6.10E-07	1.525E-04	4.505E-04	4.505E-04
Fluorene	1.10E-05	2.750E-03	8.124E-03	8.124E-03
Indeno(1,2,3-cd)pyrene	7.00E-09	1.750E-06	5.170E-06	5.170E-06
Naphthalene[e]	*0.00065*	*1.625E-01*	*4.800E-01*	*4.800E-01*
Perylene	8.80E-09	2.200E-06	6.499E-06	6.499E-06
Phenanthrene	2.30E-05	5.750E-03	1.699E-02	1.699E-02
Pyrene	3.00E-06	7.500E-04	2.216E-03	2.216E-03
Non-HAP Organic Compounds[f]		0.000E+00	0.000E+00	0.000E+00
Acetone[e]		0.000E+00	0.000E+00	0.000E+00
Benzaldehyde		0.000E+00	0.000E+00	0.000E+00
Butane	6.70E-04	1.675E-01	4.948E-01	4.948E-01
Butyraldehyde		0.000E+00	0.000E+00	0.000E+00
Crotonaldehyde[e]		0.000E+00	0.000E+00	0.000E+00
Ethylene	7.00E-03	1.750E+00	5.170E+00	5.170E+00
Heptane	9.40E-03	2.350E+00	6.942E+00	6.942E+00
Hexanal		0.000E+00	0.000E+00	0.000E+00
Isovaleraldehyde		*0.000E+00*	*0.000E+00*	*0.000E+00*
2-Methyl-1-pentene	4.00E-03	1.000E+00	2.954E+00	2.954E+00
2-Methyl-2-butene	5.80E-04	1.450E-01	4.283E-01	4.283E-01
3-Methylpentane	1.90E-04	4.750E-02	1.403E-01	1.403E-01
1-Pentene	2.20E-03	5.500E-01	1.625E+00	1.625E+00
n-Pentane	2.10E-04	5.250E-02	1.551E-01	1.551E-01
Valeraldehyde		0.000E+00	0.000E+00	0.000E+00
Metals[g]		0.000E+00	0.000E+00	0.000E+00
Antimony[e]	1.60E-07	4.500E-05	1.329E-04	1.329E-04
Arsenic[e]	5.60E-07	1.400E-04	4.136E-04	4.136E-04
Barium[e]	5.80E-06	1.450E-03	4.283E-03	4.283E-03
Beryllium[e]	0	0.000E+00	0.000E+00	0.000E+00
Cadmium[e]	4.10E-07	1.025E-04	3.028E-04	3.028E-04
Chromium[e]	5.50E-06	1.375E-03	4.062E-03	4.062E-03
Cobalt[e]	2.60E-06	6.500E-06	1.920E-05	1.920E-05
Copper[e]	3.10E-06	7.750E-04	2.289E-03	2.289E-03
Hexavalent Chromium[e]	4.50E-07	1.125E-04	3.323E-04	3.323E-04
Manganese[e]	7.70E-06	1.925E-03	5.687E-03	5.687E-03
Mercury[e]	2.60E-06	6.500E-04	1.920E-03	1.920E-03
Molybdenum[e]		0.000E+00	0.000E+00	0.000E+00
Nickel[e]	6.30E-05	1.575E-02	4.653E-02	4.653E-02
Phosphorus[e]	2.80E-05	7.000E-03	2.068E-02	2.068E-02
Silver[e]	4.80E-07	1.200E-04	3.545E-04	3.545E-04
Selenium[e]	3.50E-07	8.750E-05	2.585E-04	2.585E-04
Thallium[e]	4.10E-09	1.025E-06	3.028E-06	3.028E-06
Vanadium[e]		0.000E+00	0.000E+00	0.000E+00
Zinc[e]	6.10E-05	1.525E-02	4.505E-02	4.505E-02

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 11.1-3, Particulate Matter Emission Factors for Drum Mix Hot Asphalt Plants, 3/04
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers (Emission Rating Factor E - "Poor")
c) AP-42, Table 11.1-7, Emission Factors for CO, CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04
d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04
h) Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA. Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Used Oil Fired Drum Mix Asphalt Plant With Fabric Filter AP-42 Section 11.1

Fuel Type Toggle = 1
Hourly Throughput 250 T/hr
Annual Hours Operating 4,852 hrs/yr
Max Annual Throughput 1,212,923 Tons/yr (Theoretical Maximum at Max. Annual Operating Hours)
Max Annual Throughput 1,212,923 Tons/yr (Proposed Throughput Limit)

Weight % Sulfur = 0.00%
For %S greater than 0.5%, SO2 emissions have been multiplied by a factor:
(AP-42, 1.3 emissions at S%)/(AP-42, 1.3 emissions at 0.5%)

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions at Max Hours (T/yr)	Emissions at Max Throughput (T/yr)
PM (total)[b]	0.033	8.25	20.013	20.013
PM-10 (total)[b]	0.023	5.75	13.949	13.949
P.M.-2.5[b1]	*0.0029*	0.725	1.759	1.758
CO[c]	0.13	32.5	78.840	78.840
NOx[c]	0.055	13.75	33.355	33.355
SO_2[c]	0.058	14.5	35.175	35.175
VOC[d]	0.032	8	19.407	19.407
Lead	1.50E-05	0.00375	0.009	0.009
HCl[d,e]	0.00021	0.0525	0.127	0.127
Dioxins[e,f]		0	0.000	0.000
2,3,7,8-TCDD	2.10E-13	5.25E-11	0.000	0.000
Total TCDD	9.30E-13	2.325E-10	0.000	0.000
1,2,3,7,8-PeCDD	3.10E-13	7.75E-11	0.000	0.000
Total PeCDD	*2.20E-11*	*5.5E-09*	0.000	0.000
1,2,3,4,7,8-HxCDD	4.20E-13	1.05E-10	0.000	0.000
1,2,3,6,7,8-HxCDD	1.30E-12	3.25E-10	0.000	0.000
1,2,3,7,8,9-HxCDD	9.80E-13	2.45E-10	0.000	0.000
Total HxCDD	1.20E-11	0.000000003	0.000	0.000
1,2,3,4,6,7,8-Hp-CDD	4.80E-12	1.2E-09	0.000	0.000
Total HpCDD	1.90E-11	4.75E-09	0.000	0.000
Octa CDD	2.50E-11	6.25E-09	0.000	0.000
Total PCDD[h]	7.90E-11	1.975E-08	0.000	0.000
Furans[e,f]		*0*	*0.000*	*0.000*
2,3,7,8-TCDF	9.70E-13	2.425E-10	0.000	0.000
Total TCDF	3.70E-12	9.25E-10	0.000	0.000
1,2,3,7,8-PeCDF	4.30E-12	1.075E-09	0.000	0.000
2,3,4,7,8-PeCDF	8.40E-13	2.1E-10	0.000	0.000
Total PeCDF	8.40E-11	0.000000021	0.000	0.000
1,2,3,4,7,8-HxCDF	4.00E-12	0.000000001	0.000	0.000
1,2,3,6,7,8-HxCDF	1.20E-12	3E-10	0.000	0.000
2,3,4,6,7,8-HxCDF	1.90E-12	4.75E-10	0.000	0.000
1,2,3,7,8,9-HxCDF	8.40E-12	*2.1E-09*	*0.000*	*0.000*
Total HxCDF	1.30E-11	3.25E-09	0.000	0.000
1,2,3,4,6,7,8-HpCDF	6.50E-12	1.625E-09	0.000	0.000
1,2,3,4,7,8,9-HpCDF	2.70E-12	6.75E-10	0.000	0.000
Total HpCDF	1.00E-11	2.5E-09	0.000	0.000
Octa CDF	4.80E-12	1.2E-09	0.000	0.000
Total PCDF[h]	4.00E-11	0.00000001	0.000	0.000
Total PCDD/PCDF[h]	1.20E-10	0.00000003	0.000	0.000
Non-PAH HAPs[f]		0	0.000	0.000
Acetaldehyde[e]	1.30E-03	0.325	0.788	0.788
Acrolein[e]	2.60E-05	0.0065	0.016	0.016
Benzene[e]	3.90E-04	0.0975	0.237	0.237
1,3-Butadiene[e]		0	0.000	0.000
Ethylbenzene[e]	2.40E-04	0.06	0.146	0.146
Formaldehyde[e]	3.10E-03	0.775	1.880	1.880
Hexane[e]	9.20E-04	0.23	0.558	0.558
Isooctane	4.00E-05	0.01	0.024	0.024
Methyl Ethyl Ketone[e]	2.00E-05	0.005	0.012	0.012
Pentane[e]		0	0.000	0.000
Propionaldehyde[e]	1.30E-04	0.0325	0.079	0.079
Quinone[e]	1.60E-04	0.04	0.097	0.097
Methyl chloroform[e]	4.80E-05	0.012	0.029	0.029
Toluene[e]	2.90E-03	0.725	1.759	1.759
Xylene[e]	2.00E-04	0.05	0.121	0.121

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions at Max Hours (T/yr)	Emissions at Max Throughput (T/yr)
PAH HAPs[f]				
2-Methylnaphthalene	1.70E-04	4.250E-02	1.031E-01	1.031E-01
3-Methylchloranthrene[e]		0.000E+00	0.000E+00	0.000E+00
Acenaphthene	1.40E-06	3.500E-04	8.490E-04	8.490E-04
Acenaphthylene	2.20E-06	5.500E-03	1.334E-02	1.334E-02
Anthracene	*3.10E-06*	*7.750E-04*	*1.880E-03*	*1.880E-03*
Benzo(a)anthracene	2.10E-07	5.250E-05	1.274E-04	1.274E-04
Benzo(a)pyrene[e]	9.80E-09	2.450E-06	5.943E-06	5.943E-06
Benzo(b)fluoranthene	1.00E-07	2.500E-05	6.065E-05	6.065E-05
Benzo(e)pyrene	1.10E-07	2.750E-05	*6.671E-05*	*6.671E-05*
Benzo(g,h,i)perylene	4.00E-08	1.000E-05	2.426E-05	2.426E-05
Benzo(k)fluoranthene	4.10E-08	1.025E-05	2.486E-05	2.486E-05
Chrysene	1.80E-07	4.500E-05	1.092E-04	1.092E-04
Dibenzo(a,h)anthracene		0.000E+00	0.000E+00	0.000E+00
Dichlorobenzene		0.000E+00	0.000E+00	0.000E+00
Fluoranthene	6.10E-07	1.525E-04	3.699E-04	3.699E-04
Fluorene	1.10E-06	2.750E-04	6.671E-03	6.671E-03
Indeno(1,2,3-cd)pyrene	7.00E-09	1.750E-06	4.245E-06	4.245E-06
Naphthalene[e]	6.50E-04	*1.625E-01*	*3.942E-01*	*3.942E-01*
Perylene	8.80E-09	2.200E-06	5.337E-06	5.337E-06
Phenanthrene	2.30E-05	5.750E-03	1.395E-02	1.395E-02
Pyrene	3.00E-06	7.500E-04	1.819E-03	1.819E-03
Non-HAP Organic Compounds[f]	*0.000E+00*	*0.000E+00*	*0.000E+00*	*0.000E+00*
Acetone[e]	8.30E-04	2.075E-01	5.034E-01	5.034E-01
Benzaldehyde	1.10E-04	2.750E-02	6.671E-02	6.671E-02
Butane	6.70E-04	1.675E-01	4.063E-01	4.063E-01
Butyraldehyde	1.60E-04	4.000E-02	9.703E-02	9.703E-02
Crotonaldehyde[e]	8.60E-05	2.150E-02	5.216E-02	5.216E-02
Ethylene	7.00E-03	1.750E+00	4.245E+00	4.245E+00
Heptane	9.40E-03	2.350E+00	5.701E+00	5.701E+00
Hexanal	1.10E-04	2.750E-02	6.671E-02	6.671E-02
Isovaleraldehyde	*3.20E-05*	*8.000E-03*	*1.941E-02*	*1.941E-02*
2-Methyl-1-pentene	4.00E-03	1.000E+00	2.426E+00	2.426E+00
2-Methyl-2-butene	5.80E-04	1.450E-01	3.517E-01	3.517E-01
3-Methylpentane	1.90E-04	4.750E-02	1.152E-01	1.152E-01
1-Pentene	2.20E-03	5.500E-01	1.334E+00	1.334E+00
n-Pentane	2.10E-04	5.250E-02	1.274E-01	1.274E-01
Valeraldehyde[e]	6.70E-05	1.675E-02	4.063E-02	4.063E-02
Metals[g]		0.000E+00	0.000E+00	0.000E+00
Antimony[e]	1.80E-07	4.500E-05	1.092E-04	1.092E-04
Arsenic[e]	5.60E-07	1.400E-04	3.396E-04	3.396E-04
Barium[e]	5.80E-06	1.450E-03	3.517E-03	3.517E-03
Beryllium[e]	0.00E+00	0.000E+00	0.000E+00	0.000E+00
Cadmium[e]	4.10E-07	1.025E-04	2.486E-04	2.486E-04
Chromium[e]	5.50E-06	1.375E-03	3.336E-03	3.336E-03
Cobalt[e]	2.60E-08	6.500E-06	1.577E-05	1.577E-05
Copper[e]	3.10E-06	7.750E-04	1.880E-03	1.880E-03
Hexavalent Chromium[e]	4.50E-07	1.125E-04	2.729E-04	2.729E-04
Manganese[e]	7.70E-06	1.925E-03	4.670E-03	4.670E-03
Mercury[e]	2.60E-06	6.500E-04	1.577E-03	1.577E-03
Molybdenum[e]		0.000E+00	0.000E+00	0.000E+00
Nickel[e]	6.30E-05	1.575E-02	3.821E-02	3.821E-02
Phosphorus[e]	2.80E-05	7.000E-03	1.698E-02	1.698E-02
Silver[e]	4.80E-07	1.200E-04	2.911E-04	2.911E-04
Selenium[e]	3.50E-07	8.750E-05	2.123E-04	2.123E-04
Thallium[e]	4.10E-09	1.025E-06	2.486E-06	2.486E-06
Vanadium[e]		*0.000E+00*	*0.000E+00*	*0.000E+00*
Zinc[e]	6.10E-05	1.525E-02	3.699E-02	3.699E-02

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 11.1-3, Particulate Matter Emission Factors for Drum Mix Hot Asphalt Plants, 3/04
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers **(Emission Rating Factor E - "Poor")**
c) AP-42, Table 11.1-7, Emission Factors for CO, CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04
d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04
h) Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA. Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Pollutants shown in bold/blue text are emitted when using Used Oil but not when using #2 Fuel Oil or Natural Gas.
Pollutants shown in magenta are emitted when using Used Oil or #2 Fuel Oil, but not when using Natural Gas

Difference

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions at Max Hours (T/yr)	Emissions at Max Throughput (T/yr)
PM (total) [b]	0.033	0	-4.358	-4.358
PM-10 (total) [b]	0.023	0	-3.037	-3.037
P.M.-2.5 [b1]	*0.0029*	0	-0.383	-0.383
CO [c]	0.13	0	-17.167	-17.167
NOx [c]	0.055	0	-7.263	-7.263
SO_2 [c]	0.058	11.75	27.051	27.051
VOC [d]	0.032	0	-4.226	-4.226
Lead	1.50E-05	0	-0.002	-0.002
HCl [d,e]	0.00021	0.0525	0.127	0.127
Dioxins[e,f]		0	0.000	0.000
2,3,7,8-TCDD	2.10E-13	0	0.000	0.000
Total TCDD	9.30E-13	0	0.000	0.000
1,2,3,7,8-PeCDD	3.10E-13	0	0.000	0.000
Total PeCDD	2.20E-11	0	0.000	0.000
1,2,3,4,7,8-HxCDD	4.20E-13	0	0.000	0.000
1,2,3,6,7,8-HxCDD	1.30E-12	0	0.000	0.000
1,2,3,7,8,9-HxCDD	9.60E-13	0	0.000	0.000
Total HxCDD	1.20E-11	0	0.000	0.000
1,2,3,4,6,7,8-Hp-CDD	4.60E-12	0	0.000	0.000
Total HpCDD	1.90E-11	0	0.000	0.000
Octa CDD	2.50E-11	0	0.000	0.000
Total PCDD[h]	7.90E-11	0	0.000	0.000
Furans[e,f]		0	0.000	0.000
2,3,7,8-TCDF	9.70E-13	0	0.000	0.000
Total TCDF	3.70E-12	0	0.000	0.000
1,2,3,7,8-PeCDF	4.30E-12	0	0.000	0.000
2,3,4,7,8-PeCDF	8.40E-13	0	0.000	0.000
Total PeCDF	8.40E-11	0	0.000	0.000
1,2,3,4,7,8-HxCDF	4.00E-12	0	0.000	0.000
1,2,3,6,7,8-HxCDF	1.20E-12	0	0.000	0.000
2,3,4,6,7,8-HxCDF	1.90E-12	0	0.000	0.000
1,2,3,7,8,9-HxCDF	8.40E-12	0	0.000	0.000
Total HxCDF	1.30E-11	0	0.000	0.000
1,2,3,4,6,7,8-HpCDF	6.50E-12	0	0.000	0.000
1,2,3,4,7,8,9-HpCDF	2.70E-12	0	0.000	0.000
Total HpCDF	1.00E-11	0	0.000	0.000
Octa CDF	4.80E-12	0	0.000	0.000
Total PCDF[h]	4.00E-11	0	0.000	0.000
Total PCDD/PCDF[h]	1.20E-10	0	0.000	0.000
Non-PAH HAPs[f]		0	0.000	0.000
Acetaldehyde[e]	1.30E-03	0.325	0.788	0.788
Acrolein[e]	2.60E-05	0.0065	0.016	0.016
Benzene[e]	3.90E-04	0	-0.052	-0.052
1,3-Butadiene[e]		0	0.000	0.000
Ethylbenzene[e]	2.40E-04	0	-0.032	-0.032
Formaldehyde[e]	3.10E-03	0	-0.409	-0.409
Hexane[e]	9.20E-04	0	-0.121	-0.121
Isooctane	4.00E-05	0	-0.005	-0.005
Methyl Ethyl Ketone[e]	2.00E-05	0.005	0.012	0.012
Pentane[e]		0	0.000	0.000
Propionaldehyde[e]	1.30E-04	0.0325	0.079	0.079
Quinone[e]	1.80E-04	0.04	0.097	0.097
Methyl chloroform[e]	4.80E-05	0	-0.006	-0.006
Toluene[e]	2.90E-03	0	-0.383	-0.383
Xylene[e]	2.00E-04	0	-0.026	-0.026

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions at Max Hours (T/yr)	Emissions at Max Throughput (T/yr)
PAH HAPs[f]				
2-Methylnaphthalene	1.70E-04	0.000E+00	-2.245E-02	-2.245E-02
3-Methylchloranthrene[e]		0.000E+00	0.000E+00	0.000E+00
Acenaphthene	1.40E-06	0.000E+00	-1.849E-04	-1.849E-04
Acenaphthylene	2.20E-05	0.000E+00	-2.905E-03	-2.905E-03
Anthracene	3.10E-06	0.000E+00	-4.094E-04	-4.094E-04
Benzo(a)anthracene	2.10E-07	0.000E+00	-2.773E-05	-2.773E-05
Benzo(a)pyrene[e]	9.80E-09	0.000E+00	-1.294E-06	-1.294E-06
Benzo(b)fluoranthene	1.00E-07	0.000E+00	-1.321E-05	-1.321E-05
Benzo(e)pyrene	1.10E-07	0.000E+00	-1.453E-05	-1.453E-05
Benzo(g,h,i)perylene	4.00E-08	0.000E+00	-5.282E-06	-5.282E-06
Benzo(k)fluoranthene	4.10E-08	0.000E+00	-5.414E-06	-5.414E-06
Chrysene	1.80E-07	0.000E+00	-2.377E-05	-2.377E-05
Dibenzo(a,h)anthracene		0.000E+00	0.000E+00	0.000E+00
Dichlorobenzene		0.000E+00	0.000E+00	0.000E+00
Fluoranthene	6.10E-07	0.000E+00	-8.055E-05	-8.055E-05
Fluorene	1.10E-05	0.000E+00	-1.453E-03	-1.453E-03
Indeno(1,2,3-cd)pyrene	7.00E-09	0.000E+00	-9.244E-07	-9.244E-07
Naphthalene[e]	6.50E-04	0.000E+00	-8.584E-02	-8.584E-02
Perylene	8.80E-09	0.000E+00	-1.162E-06	-1.162E-06
Phenanthrene	2.30E-05	0.000E+00	-3.037E-03	-3.037E-03
Pyrene	3.00E-06	0.000E+00	-3.962E-04	-3.962E-04
Non-HAP Organic Compounds[f]		0.000E+00	0.000E+00	0.000E+00
Acetone[e]	8.30E-04	2.075E-01	5.034E-01	5.034E-01
Benzaldehyde	1.10E-04	2.750E-02	6.671E-02	6.671E-02
Butane	6.70E-04	0.000E+00	-8.848E-02	-8.848E-02
Butyraldehyde	1.60E-04	4.000E-02	9.703E-02	9.703E-02
Crotonaldehyde[e]	8.60E-05	2.150E-02	5.216E-02	5.216E-02
Ethylene	7.00E-03	0.000E+00	-9.244E-01	-9.244E-01
Heptane	9.40E-03	0.000E+00	-1.241E+00	-1.241E+00
Hexanal	1.10E-04	2.750E-02	6.671E-02	6.671E-02
Isovaleraldehyde	3.20E-05	8.000E-03	1.941E-02	1.941E-02
2-Methyl-1-pentene	4.00E-03	0.000E+00	-5.282E-01	-5.282E-01
2-Methyl-2-butene	5.80E-04	0.000E+00	-7.659E-02	-7.659E-02
3-Methylpentane	1.90E-04	0.000E+00	-2.509E-02	-2.509E-02
1-Pentene	2.20E-03	0.000E+00	-2.905E-01	-2.905E-01
n-Pentane	2.10E-04	0.000E+00	-2.773E-02	-2.773E-02
Valeraldehyde[e]	6.70E-05	1.675E-02	4.063E-02	4.063E-02
Metals[g]		0.000E+00	0.000E+00	0.000E+00
Antimony[e]	1.80E-07	0.000E+00	-2.377E-05	-2.377E-05
Arsenic[e]	5.60E-07	0.000E+00	-7.395E-05	-7.395E-05
Barium[e]	5.80E-06	0.000E+00	-7.659E-04	-7.659E-04
Beryllium[e]	0.00E+00	0.000E+00	0.000E+00	0.000E+00
Cadmium[e]	4.10E-07	0.000E+00	-5.414E-05	-5.414E-05
Chromium[e]	5.50E-06	0.000E+00	-7.263E-04	-7.263E-04
Cobalt[e]	2.60E-06	0.000E+00	-3.433E-06	-3.433E-06
Copper[e]	3.10E-06	0.000E+00	-4.094E-04	-4.094E-04
Hexavalent Chromium[e]	4.50E-07	0.000E+00	-5.943E-05	-5.943E-05
Manganese[e]	7.70E-06	0.000E+00	-1.017E-03	-1.017E-03
Mercury[e]	2.60E-06	0.000E+00	-3.433E-04	-3.433E-04
Molybdenum[e]		0.000E+00	0.000E+00	0.000E+00
Nickel[e]	6.30E-05	0.000E+00	-8.320E-03	-8.320E-03
Phosphorus[e]	2.80E-05	0.000E+00	-3.698E-03	-3.698E-03
Silver[e]	4.80E-07	0.000E+00	-6.339E-05	-6.339E-05
Selenium[e]	3.50E-07	0.000E+00	-4.622E-05	-4.622E-05
Thallium[e]	4.10E-09	0.000E+00	-5.414E-07	-5.414E-07
Vanadium[e]		0.000E+00	0.000E+00	0.000E+00
Zinc[e]	6.10E-05	0.000E+00	-8.055E-03	-8.055E-03

a) Emission factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 11.1-3, Particulate Matter Emission Factors for Drum Mix Hot Asphalt Plants, 3/04
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers (Emission Rating Factor E - "Poor")
c) AP-42, Table 11.1-7, Emission Factors for CO, CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04
d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04
h) Compound is classified as polycyclic organic matter, as defined in the 1990 CAAA. Total PCDD is the sum of the total tetra through octa dioxins; total PCDF is sum of the total tetra through octa furans; and total PCDD/PCDF is the sum of total PCDD and total PCDF.

Pollutants shown in bold/blue text are emitted when using Used Oil but not when using #2 Fuel Oil or Natural Gas.
Pollutants shown in magenta are emitted when using Used Oil or #2 Fuel Oil, but not when using Natural Gas

APPENDIX C

Air Dispersion Models

P-060511

06/21/06
14:02:51

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

P-060511 H-K CONTRACTORS PORTABLE HMA FAC 777-00207

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000
STACK HEIGHT (M)	=	5.4864
STK INSIDE DIAM (M)	=	.6401
STK EXIT VELOCITY (M/S)	=	8.8734
STK GAS EXIT TEMP (K)	=	444.2611
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	1.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	.0000
MIN HORIZ BLDG DIM (M)	=	.0000
MAX HORIZ BLDG DIM (M)	=	.0000

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 6050.0000 (ACFM)

BUOY. FLUX = 3.034 M**4/S**3; MOM. FLUX = 5.319 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

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

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
10.	.8278E-13	4	20.0	20.0	6400.0	6.60	.97	.65	NO
100.	19.79	4	20.0	20.0	6400.0	6.60	8.23	4.70	NO
200.	16.24	4	8.0	8.0	2560.0	11.14	15.66	8.68	NO
300.	13.24	4	5.0	5.0	1600.0	15.34	22.79	12.42	NO
400.	11.35	4	3.5	3.5	1120.0	19.56	29.73	15.79	NO
500.	9.916	4	3.0	3.0	960.0	21.91	36.45	18.89	NO
600.	8.783	4	2.5	2.5	800.0	25.19	43.09	21.95	NO
700.	7.823	4	2.0	2.0	640.0	30.12	49.69	25.04	NO
800.	7.157	4	2.0	2.0	640.0	30.12	56.02	27.69	NO
900.	6.484	4	2.0	2.0	640.0	30.12	62.28	30.29	NO
1000.	6.029	4	1.5	1.5	480.0	38.33	68.77	33.44	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 10. M:									
93.	19.94	4	20.0	20.0	6400.0	6.60	7.77	4.46	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

APPENDIX D

Permit Processing Fee Assessment

P-060511

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: H. K. Contractors, Inc.
Address: P. O. Box 51450
City: Idaho Falls
State: ID
Zip Code: 83405
Facility Contact: Larry Ritter
Title: Superintendent
AIRS No.: 777-00207

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)

Emissions Inventory

Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_x	0.0	0	0.0
SO_2	27.1	0	27.1
CO	0.0	0	0.0
PM10	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	2.0	0	2.0
Total:	0.0	0	29.1
Fee Due	$ 5,000.00		

Comments: