CURRENT PTC APPLICATION ESTIMATES

DEQ Verification Worksheets: Hot Mix Asphalt (HMA) Drum Mix Facility Data

Facility ID/AIRS No.	777-00433	Spreadsheet Date	11/10/2008 14:51
Permit No.		HMA Type: Drum Mix or Batch ?	Drum Mix
		Include Silo Fill & Loadout Emissions'	Y
Facility Owner/Company Name:	Owen PC Construction, LLC		
Address:	P.O. Box 1077		
City, State, Zip:	Victor, Idaho 83455		FACWIDE ESTIMATES
Facility Contact:	Voyd Stewart, Vice President		
Contact Number/ e-mail:	(208) 787-6936/voyd@owen-pc.com		
Is this HMA facility subject to NSPS? Yes=1,No=0	1	Commenced Operations in:	Year
Use Short Term Source Factor on 586 ELs? Y or N	N	**Use T-RACT on 586 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	CMI/UDM 1200	#2 Fuel Oil	1
Rated heat input capacity, MMBtu/hr	41.1	Used Oil or RFO4 Oil	1
Drum Dryer Hourly Throughput, Tons/hr	150	Natural Gas	1
Hours of operation per day	12	LPG or Propane	1
Hours of operation per year (=Throughput: Annual/Hourly)	1,000	Exit Gas Volume (acfm)	31,164
		Exit Gas Temperature (^oF)	164
Max Throughput (Proposed Limit), T/yr	150,000	Stack Pressure (in Hg)	
Used Oil max sulfur content (Default is 0.5%)	0.50%	Stack Moisture Content, %	

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)	1.096	**Fuel Type(s)**	**Fuel Toggle**
Hours of operation per day	24	#2 Fuel Oil	1
Operation, days per year	125.00	Used Oil	0
Max Hours of operation per year (Proposed limit)	3,000	Natural Gas	0
Exit Flow (acfm) or Velocity (fps) FPS	48.9 fps	Indirect Heat or Power? Y or N	Y
Exhaust exit gas temperature (^oF)	170		

Tank Heater Fuel Consumption	**#2 Fuel Oil**	**Natural Gas**
Heat Input Rating (MMBtu/hr)	1.096	1.096
Fuel Heating Value, Btu/gal (oil) or Btu/scf (gas)	137,030	1,050
Heating Value Correction for Natural Gas EFs, see Note	n/a	1.029
Theoretical Max Fuel Use Rate gal/hr [oil] or scf/hr [gas]	8.00	1,044
Max Operational Hours per Year (Proposed Limit)	3,000	3,000

Note: AP-42 EFs for natural gas combustion (Tables 1.4-xx) are based on heat value of 1,020 Btu/scf.
EFs for other fuel heating values must be multiplied by the ratio of the specified heating value to 1,020.

CAUTION: WORKSHEET PRESUMES ONLY ONE SMALL OR ONE LARGE GENERATOR. WILL NOT INCLUDE EMISSIONS FOR TWO GENERATC

Electrical Generator < 600 hp (447 kW) AP-42 Section 3.3 (diesel fueled)			
		Fuel Type(s)	**Fuel Toggle**
Generator Make/Model	Whisper Watt	#2 Fuel Oil (Diesel)	1
Generator Rated Capacity (kW)	45		
EF OPTIONS:		**Use EFs in lb/MMBtu fuel input**	
1 hp = 0.7456999 kW	0.7457	Calculated Max Fuel Use Rate, gal/hr	3.08
Avg brake-specific fuel consumption (BSFC) = 7000 Btu/hp-hr	7000	Fuel Heating Value, Btu/gal	137,030
		Calculated MMBtu/hr	0.42
		Max Operational Hours/Day	12
		Max Operational Hours/Year	1,500

Electrical Generator > 600 hp (447 kW) AP-42 Section 3.4 (diesel or dual fuel)			
		Fuel Type(s)	**Fuel Toggle**
Generator Make/Model	Caterpiller	#2 Fuel Oil (Diesel)	1
Generator Rated Capacity (kW)	545		
FUEL OPTIONS: #2 Fuel Oil (Diesel)			
Max Sulfur weight percent (w/o)	0.50%	1 hp = 0.7456999 kW	0.7457
Calculated Max Fuel Use Rate, gal/hr	37.33	Avg BSFC = 7000 Btu/hp-hr	7000
Fuel Heating Value, Btu/gal	137,030		
Calculated MMBtu/hr	5.12		
Max Operational Hours per Day	12		
Max Operational Hours per Year	1,500		

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

Facility: Owen PC Construction, LLC

11/21/2008 8:37 **Permit/Facility ID:** 0 777-00433

EMISSION INVENTORY

POUNDS PER HOUR

Maximum Controlled Emissions of Any Pollutant from Drum Mix HMA Plant with Scrubber, Tank Heater, Generator, Load-out/Silo/Asphalt Storage

A. Drum Mix Plant: **150** Tons/hour **1,000** Hours/year **150,000** Tons/year HMA throughput **12** hrs/day

Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil Used Oil Natural Gas LPG/Propane

B. Tank Heater: **1.0960** MMBtu Rat **3,000** Hours/year **24** hrs/day

Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil

C. Generator: **37.33488** gal/hour **1500** Hours/year Generator>600hp #2 Fuel Oil **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 Max Emission Rate for Pollutant (lb/hr)	D Load-out & Silo Filling Emission Rate for Pollutant (lb/hr)	E TOTAL of Max Emission Rates from A, B, C & D (lb/hr)
PM (total)	6.75	2.64E-02	5.12E-01	1.66E-01	7.45
PM-10 (total)	4.05	2.64E-02	2.93E-01	1.66E-01	4.54
P.M.-2.5	0.00	0.00E+00	0.00E+00	0.00E+00	0.00
CO	19.50	4.00E-02	4.35E+00	3.79E-01	24.27
NOx	8.25	1.60E-01	1.64E+01		24.78
SO_2	8.70	5.68E-01	2.58E+00		11.85
VOC	4.80	4.45E-03	4.60E-01	6.05E-01	5.87
Lead	1.35E-02	1.21E-05	0.00E+00		1.35E-02
HCl [e]	3.15E-02	0.00E+00	0.00E+00		3.15E-02
Dioxins[e]					
2,3,7,8-TCDD	3.60E-12	0.00E+00	0.00E+00		3.60E-12
Total TCDD	1.59E-11	0.00E+00	0.00E+00		1.59E-11
1,2,3,7,8-PeCDD	5.31E-12	0.00E+00	0.00E+00		5.31E-12
Total PeCDD	3.77E-10	0.00E+00	0.00E+00		3.77E-10
1,2,3,4,7,8-HxCDD	7.19E-12	1.89E-12	0.00E+00		9.08E-12
1,2,3,6,7,8-HxCDD	2.23E-11	0.00E+00	0.00E+00		2.23E-11
1,2,3,7,8,9-HxCDD	1.68E-11	2.08E-12	0.00E+00		1.89E-11
Total HxCDD	2.05E-10	0.00E+00	0.00E+00		2.05E-10
1,2,3,4,6,7,8-Hp-CDD	8.22E-11	4.11E-11	0.00E+00		1.23E-10
Total HpCDD	3.25E-10	5.48E-11	0.00E+00		3.80E-10
Octa CDD	4.28E-10	4.38E-10	0.00E+00		8.66E-10
Total PCDD[h]	1.35E-09	5.48E-10	0.00E+00		1.90E-09
Furans[e]					
2,3,7,8-TCDF	1.66E-11	0.00E+00	0.00E+00		1.66E-11
Total TCDF	6.34E-11	9.04E-12	0.00E+00		7.24E-11
1,2,3,7,8-PeCDF	7.36E-11	0.00E+00	0.00E+00		7.36E-11
2,3,4,7,8-PeCDF	1.44E-11	0.00E+00	0.00E+00		1.44E-11
Total PeCDF	1.44E-09	1.31E-12	0.00E+00		1.44E-09
1,2,3,4,7,8-HxCDF	6.85E-11	0.00E+00	0.00E+00		6.85E-11
1,2,3,6,7,8-HxCDF	2.05E-11	0.00E+00	0.00E+00		2.05E-11
2,3,4,6,7,8-HxCDF	3.25E-11	0.00E+00	0.00E+00		3.25E-11
1,2,3,7,8,9-HxCDF	1.44E-10	0.00E+00	0.00E+00		1.44E-10
Total HxCDF	2.23E-10	5.48E-12	0.00E+00		2.28E-10
1,2,3,4,6,7,8-HpCDF	1.11E-10	0.00E+00	0.00E+00		1.11E-10
1,2,3,4,7,8,9-HpCDF	4.62E-11	0.00E+00	0.00E+00		4.62E-11
Total HpCDF	1.71E-10	2.66E-11	0.00E+00		1.98E-10
Octa CDF	8.22E-11	3.29E-11	0.00E+00		1.15E-10
Total PCDF[h]	6.85E-10	8.49E-11	0.00E+00		7.70E-10
Total PCDD/PCDF[h]	2.05E-09	6.30E-10	0.00E+00		2.68E-09
Non-PAH HAPs					
Acetaldehyde[e]	2.23E-02	0.00E+00	5.55E-05		2.23E-02
Acrolein[e]	3.90E-03	0.00E+00	4.03E-05		3.94E-03
Benzene[e]	6.68E-03	0.00E+00	6.80E-04	1.04E-04	7.46E-03
1,3-Butadiene[e]	0.00E+00	0.00E+00	2.83E-06		2.83E-06
Ethylbenzene[e]	3.60E-02	0.00E+00	0.00E+00	2.44E-03	3.84E-02
Formaldehyde[e]	5.31E-02	9.59E-06	8.54E-05	1.50E-03	5.47E-02
Hexane[e]	1.38E-01	0.00E+00	0.00E+00	2.76E-03	1.41E-01
Isooctane	6.00E-03	0.00E+00	0.00E+00	1.69E-05	6.02E-03
Methyl Ethyl Ketone[e]	3.00E-03	0.00E+00	0.00E+00	1.02E-03	4.02E-03
Pentane[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Propionaldehyde[e]	1.95E-02	0.00E+00	0.00E+00		1.95E-02
Quinone[e]	2.40E-02	0.00E+00	0.00E+00		2.40E-02
Methyl chloroform[e]	7.20E-03	0.00E+00	0.00E+00		7.20E-03
Toluene[e]	4.35E-01	0.00E+00	1.44E-03	2.44E-03	4.39E-01
Xylene[e]	3.00E-02	0.00E+00	9.87E-04	1.22E-02	4.32E-02

e) IDAPA Toxic Air Pollutant

Pollutant	A Drum Mix Max Emission Rate for Pollutant (lb/hr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (lb/hr)	C Generator Max Emission Rate for Pollutant (lb/hr)	D Load-out & Silo Filling Emission Rate for Pollutant (lb/hr)	E TOTAL of Max Emission Rates from A, B, C & D (lb/hr)
PAH HAPs					
2-Methylnaphthalene	2.91E-03	0.00E+00	0.00E+00	3.68E-04	3.28E-03
3-Methylchloranthrene[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Acenaphthene	2.40E-05	1.45E-06	4.10E-06	3.56E-05	6.51E-05
Acenaphthylene	3.77E-04	5.48E-07	8.09E-06	2.24E-06	3.88E-04
Anthracene	5.31E-05	4.93E-07	1.08E-06	9.74E-06	6.44E-05
Benzo(a)anthracene[e]	3.60E-06	0.00E+00	5.45E-07	3.54E-06	7.68E-06
Benzo(a)pyrene[e]	1.68E-07	0.00E+00	2.25E-07	1.34E-07	5.27E-07
Benzo(b)fluoranthene[e]	1.71E-06	2.74E-07	9.72E-07	4.44E-07	3.40E-06
Benzo(e)pyrene	1.88E-06	0.00E+00	0.00E+00	8.68E-07	2.75E-06
Benzo(g,h,I)perylene	6.85E-07	0.00E+00	4.87E-07	1.11E-07	1.28E-06
Benzo(k)fluoranthene[e]	7.02E-07	0.00E+00	1.91E-07	1.28E-07	1.02E-06
Chrysene[e]	3.08E-06	0.00E+00	1.34E-06	1.51E-05	1.96E-05
Dibenzo(a,h)anthracene[e]	0.00E+00	0.00E+00	3.03E-07	2.16E-08	3.25E-07
Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Fluoranthene	1.04E-05	1.21E-07	3.53E-06	9.44E-06	2.35E-05
Fluorene	1.88E-04	8.77E-08	1.12E-05	8.89E-05	2.89E-04
Indeno(1,2,3-cd)pyrene[e]	1.20E-07	0.00E+00	3.63E-07	2.74E-08	5.10E-07
Naphthalene[e]	1.11E-02	4.66E-05	6.13E-06	1.52E-04	1.13E-02
Perylene	1.51E-07	0.00E+00	0.00E+00	2.59E-06	2.74E-06
Phenanthrene	3.94E-04	1.34E-05	3.57E-05	1.26E-04	5.69E-04
Pyrene	5.14E-05	8.77E-08	3.25E-06	2.79E-05	8.26E-05
Non-HAP Organic Compounds					
Acetone[e]	1.25E-01	0.00E+00	0.00E+00	1.30E-03	1.26E-01
Benzaldehyde	1.65E-02	0.00E+00	0.00E+00		1.65E-02
Butane	1.01E-01	0.00E+00	0.00E+00		1.01E-01
Butyraldehyde	2.40E-02	0.00E+00	0.00E+00		2.40E-02
Crotonaldehyde[e]	1.29E-02	0.00E+00	0.00E+00		1.29E-02
Ethylene	1.05E+00	0.00E+00	0.00E+00	2.45E-02	1.07E+00
Heptane	1.41E+00	0.00E+00	0.00E+00		1.41E+00
Hexanal	1.65E-02	0.00E+00	0.00E+00		1.65E-02
Isovaleraldehyde	4.80E-03	0.00E+00	0.00E+00		4.80E-03
2-Methyl-1-pentene	6.00E-01	0.00E+00	0.00E+00		6.00E-01
2-Methyl-2-butene	8.70E-02	0.00E+00	0.00E+00		8.70E-02
3-Methylpentane	2.85E-02	0.00E+00	0.00E+00		2.85E-02
1-Pentene	3.30E-01	0.00E+00	0.00E+00		3.30E-01
n-Pentane	3.15E-02	0.00E+00	0.00E+00		3.15E-02
Valeraldehyde[e]	1.01E-02	0.00E+00	0.00E+00		1.01E-02
Metals					
Antimony[e]	2.70E-04	4.20E-05	0.00E+00		3.12E-04
Arsenic[e]	2.23E-05	3.62E-06	0.00E+00		2.59E-05
Barium[e]	5.22E-03	2.06E-05	0.00E+00		5.24E-03
Beryllium[e]	0.00E+00	7.61E-08	0.00E+00		7.61E-08
Cadmium[e]	2.16E-05	1.09E-06	0.00E+00		2.27E-05
Chromium[e]	1.08E-03	6.76E-06	0.00E+00		1.09E-03
Cobalt[e]	2.34E-05	4.81E-05	0.00E+00		7.15E-05
Copper[e]	2.79E-03	1.41E-05	0.00E+00		2.80E-03
Hexavalent Chromium[e]	4.62E-05	6.79E-07	0.00E+00		4.69E-05
Manganese[e]	6.93E-03	2.40E-05	0.00E+00		6.95E-03
Mercury[e]	2.34E-03	9.04E-07	0.00E+00		2.34E-03
Molybdenum[e]	0.00E+00	6.29E-06	0.00E+00		6.29E-06
Nickel[e]	6.47E-03	2.31E-04	0.00E+00		6.70E-03
Phosphorus[e]	2.52E-02	7.57E-05	0.00E+00		2.53E-02
Silver[e]	4.32E-04	0.00E+00	0.00E+00		4.32E-04
Selenium[e]	1.08E-04	5.46E-06	0.00E+00		1.13E-04
Thallium[e]	3.69E-06	0.00E+00	0.00E+00		3.69E-06
Vanadium[e]	0.00E+00	2.54E-04	0.00E+00		2.54E-04
Zinc[e]	8.10E-03	2.33E-04	0.00E+00		8.33E-03
POM (7-PAH Group)	2.74E-07	3.94E-06	2.03E-05	See Silo Fill & Loadout sheets	

Pollutants shown in bold text are carcinogens subject to an annual standard. Lb/hr values shown 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: Owen PC Construction, LLC

11/21/2008 8:37 **Permit/Facility ID:** 0 777-00433

EMISSION INVENTORY

POUNDS PER HOUR

Max Emissions of Any Pollutant from Drum Mix HMA Plant: Scrubber, Tank Heater, Generator, Load-out/Silo/Asphalt Storage

A. Drum Mix Plant: **150** Tons/hour **1,000** Hours/year **150,000** Tons/year HMA throughput **12** hrs/day

Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil Used Oil Natural Gas LPG/Propane

B. Tank Heater: **1.0960** MMBtu Rated **3,000** Hours/year **24** hrs/day

Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil

C. Generator: **37.3348834** gal/hour **1500** Hours/year #2 Fuel Oil Generator>600hp **12** hrs/day

Pollutants	A Drum Mix Max Emission Rate for Pollutant (lb/hr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (lb/hr)	C Generator Max Emission Rate for Pollutant (lb/hr)	D Load-out & Silo Filling Emission Rate for Pollutant (lb/hr)	E TOTAL of Max Emission Rates from A, B, C & D (lb/hr)
non-PAH HAPs[e]					
Bromomethane[e]				1.49E-04	1.49E-04
2-Butanone (see Methyl Ethyl Ketone)				0.00E+00	0.00E+00
Carbon disulfide[e]				3.74E-04	3.74E-04
Chloroethane (Ethyl chloride[e])				7.44E-05	7.44E-05
Chloromethane (Methyl chloride[e])				5.14E-04	5.14E-04
Cumene				6.86E-04	6.86E-04
n-Hexane				0.00E+00	0.00E+00
Methylene chloride (Dichloromethane[e])				4.94E-06	4.94E-06
MTBE				0.00E+00	0.00E+00
Styrene[e]				1.44E-04	1.44E-04
Tetrachloroethene (Tetrachloroethylene[e])				4.80E-05	4.80E-05
1,1,1-Trichloroethane (Methyl chloroform[e])				0.00E+00	0.00E+00
Trichloroethene (Trichloroethylene[e])				0.00E+00	0.00E+00
Trichlorofluoromethane				8.11E-06	8.11E-06
m-/p-Xylene[e]				6.21E-03	6.21E-03
o-Xylene[e]				6.03E-03	6.03E-03
Phenol[e,f]				6.03E-04	6.03E-04
Non-HAP Organic Compounds					
Methane				5.16E-01	5.16E-01

e) IDAPA Toxic Air Pollutant

Facility: Owen PC Construction, LLC

11/10/2008 14:48 **Permit/Facility ID:** 0 777-00433

TAPs EL Screen - ALL SOURCES

586 pollutants are shown in bold/red

Max Emissions of Any Pollutant from Drum Mix HMA Plant with Scrubber, Tank Heater, Generator, Load-out/Silo/Asphalt Storage

A. Drum Mix Plant: **150** Tons/hour **1,000** Hours/year **150,000** Tons/year HMA throughput

Maximum emission for each pollutant from any fuel-burning option selected on "Facility Data" worksheet

B. Tank Heater: **1.0960** MMBtu Rated **3,000** 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 586 ELs? **1**

C. Generator: **37.3348834** gal/hour **1,500** 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) Increment[b] (lb/hr)	TAPs Emissions Exceed EL Increment?	Modeled? Meets AAC or AACC?
HCl[e]	0.032	0.05	No	
Dioxins[e]		**Toxic Equivalency Factor[c]**	**Adjusted Emission Rate (lb/hr)**	
2,3,7,8-TCDD	3.60E-12	1.0	3.60E-12	
Total TCDD	1.59E-11	n/a		
1,2,3,7,8-PeCDD	5.31E-12	0.5	2.65E-12	
Total PeCDD	3.77E-10	n/a		
1,2,3,4,7,8-HxCDD	9.08E-12	0.1	9.08E-13	
1,2,3,6,7,8-HxCDD	2.23E-11	0.1	2.23E-12	
1,2,3,7,8,9-HxCDD	1.89E-11	0.1	1.89E-12	
Total HxCDD	2.05E-10	n/a		
1,2,3,4,6,7,8-Hp-CDD	1.23E-10	0.01	1.23E-12	
Total HpCDD	3.80E-10	n/a		
Octa CDD	8.66E-10	0.0001	8.66E-14	
Total PCDD[h]	1.90E-09	n/a		
Furans[e]				
2,3,7,8-TCDF	1.66E-11	0.1	1.66E-12	
Total TCDF	7.24E-11	n/a		
1,2,3,7,8-PeCDF	7.36E-11	0.05	3.68E-12	
2,3,4,7,8-PeCDF	1.44E-11	0.5	7.19E-12	
Total PeCDF	1.44E-09	n/a		
1,2,3,4,7,8-HxCDF	6.85E-11	0.1	6.85E-12	
1,2,3,6,7,8-HxCDF	2.05E-11	0.1	2.05E-12	
2,3,4,6,7,8-HxCDF	3.25E-11	0.1	3.25E-12	
1,2,3,7,8,9-HxCDF	1.44E-10	0.1	1.44E-11	
Total HxCDF	2.28E-10	n/a		
1,2,3,4,6,7,8-HpCDF	1.11E-10	0.01	1.11E-12	
1,2,3,4,7,8,9-HpCDF	4.62E-11	0.01	4.62E-13	
Total HpCDF	1.98E-10	n/a		
Octa CDF	1.15E-10	0.0001	1.15E-14	
Total PCDF[h]	7.70E-10	n/a		
Total PCDD/PCDF[h]	2.68E-09	n/a		
TOTAL Dioxin/Furans[c]	Adjusted lb/hr 5.33E-11	TAPs EL for 2,3,7,8 TCDD 1.50E-10	**Exceeds TAPs EL?** No	**Modeled?**
Non-PAH HAPs				
Acetaldehyde[e]	2.23E-02	3.00E-03	Exceeds	
Acrolein[e]	3.94E-03	0.017	No	
Benzene[e]	7.46E-03	8.00E-04	Exceeds	
1,3-Butadiene[e]				
Ethylbenzene[e]	3.84E-02	29	No	
Formaldehyde[e]	5.47E-02	5.10E-04	Exceeds	
Hexane[e]	1.41E-01	12	No	
Isooctane	6.02E-03			
Methyl Ethyl Ketone[e]	4.02E-03	39.3	No	
Pentane[e]	0.00E+00	118	No	
Propionaldehyde[e]	1.95E-02	0.0287	No	
Quinone[e]	2.40E-02	0.027	No	
Methyl chloroform[e]	7.20E-03	127	No	
Toluene[e]	4.39E-01	25	No	
Xylene[e]	4.32E-02	29	No	
TOTAL PAH HAPs (lb/hr) =	1.61E-02	9.10E-05	Exceeds	

Pollutant	TOTAL of Max Emission Rates from A, B, C & D (lb/hr)	TAPs Screening Emission Limit (EL) Increment[b] (lb/hr)	TAPs Emissions Exceed EL Increment?	Modeled? Meets AAC or AACC?
PAH HAPs				
2-Methylnaphthalene	3.28E-03			
3-Methylchloranthrene[e]	0.00E+00	2.50E-06	No	
Acenaphthene	6.51E-05			
Acenaphthylene	3.88E-04			
Anthracene	6.44E-05			
Benzo(a)anthracene	7.68E-06			see POM
Benzo(a)pyrene[e]	5.27E-07	2.00E-06	No	see POM
Benzo(b)fluoranthene	3.40E-06			see POM
Benzo(e)pyrene	2.75E-06			
Benzo(g,h,I)perylene	1.28E-06			
Benzo(k)fluoranthene	1.02E-06			see POM
Chrysene	1.96E-05			see POM
Dibenzo(a,h)anthracene	3.25E-07			see POM
Dichlorobenzene	0.00E+00			
Fluoranthene	2.35E-05			
Fluorene	2.89E-04			
Indeno(1,2,3-cd)pyrene	5.10E-07			see POM
Naphthalene[e]	1.13E-02	3.33	No	
Perylene	2.74E-06			
Phenanthrene	5.69E-04			
Pyrene	8.26E-05			
PolycyclicOrganicMatter[d,e]	3.30E-05	2.00E-06	Exceeds	
Non-HAP Organic Compounds				
Acetone[e]	1.26E-01	119	No	
Benzaldehyde	1.65E-02			
Butane	1.01E-01			
Butyraldehyde	2.40E-02			
Crotonaldehyde[e]	1.29E-02	0.38	No	
Ethylene	1.07E+00			
Heptane	1.41E+00	109	No	
Hexanal	1.65E-02			
Isovaleraldehyde	4.80E-03			
2-Methyl-1-pentene	6.00E-01			
2-Methyl-2-butene	8.70E-02			
3-Methylpentane	2.85E-02			
1-Pentene	3.30E-01			
n-Pentane[e]	3.15E-02	118	No	
Valeraldehyde (n-Valeraldehyde[e])	1.01E-02	11.7	No	
Metals				
Antimony[e]	3.12E-04	0.033	No	
Arsenic[e]	2.59E-05	1.50E-06	Exceeds	
Barium[e]	5.24E-03	0.033	No	
Beryllium[e]	7.61E-08	2.80E-05	No	
Cadmium[e]	2.27E-05	3.70E-06	Exceeds	
Chromium[e]	1.09E-03	0.033	No	
Cobalt[e]	7.15E-05	0.0033	No	
Copper[e]	2.80E-03	0.013	No	
Hexavalent Chromium[e]	4.69E-05	5.60E-07	Exceeds	
Manganese[e]	6.95E-03	0.067	No	
Mercury[e]	2.34E-03	0.003	No	
Molybdenum[e]	6.29E-06	0.333	No	
Nickel[e]	6.70E-03	2.70E-05	Exceeds	
Phosphorus[e]	2.53E-02	0.007	Exceeds	
Silver[e]	4.32E-04	0.007	No	
Selenium[e]	1.13E-04	0.013	No	
Thallium[e]	3.69E-06	0.007	No	
Vanadium[e]	2.54E-04	0.003	No	
Zinc[e]	8.33E-03	0.667	No	

a) Reserved.

b) Toxic Air Pollutants, IDAPA 58.01.01.585 and .586, levels in effect as of January 27, 2006

c) Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-*p*-dioxins and Dibenzofurans (CDDs and CDFs, 1989 update, EPA/625/3-89/016, March 1989 (Source: Mike Dubois, IDEQ State Office, April 2005)
Plus 1,2,3,7,8 PeCDD,OCDD & OCDF TEFs, Van den Berg, et al, 1998, Environmental Health Perspectives 106, 775. accessed at www.dioxinfacts.org/dioxin_health/dioxin_tissues/dioxin_toxicit
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 .586

Pollutants shown in bold text are carcinogens subject to an annual standard. These lb/hr values 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: Owen PC Construction, LLC

11/10/2008 14:48 **Permit/Facility ID:** 0 777-00433

TAPs EL Screen - ALL SOURCES

Maximum Emissions of Any Pollutant from Drum Mix HMA Plant with Scrubber, Tank Heater, Generator, Load-out/Silo/Asphalt Storage

A. Drum Mix Plant: 150 Tons/hour 1,000 Hours/year 150,000 Tons/year HMA throughput

Maximum emission for each pollutant from any fuel-burning option selected in "Facility Data" worksheet.

B. Tank Heater: 1.0960 MMBtu Rated 3,000 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: 37.33488343 gal/hour 0 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) Increment (lb/hr)	TAPs Emissions Exceed EL Increment?	Modeled?
non-PAH HAPs[e]				
Bromomethane (Methyl bromide[e])	1.49E-04	1.27	No	
2-Butanone (see Methyl Ethyl Ketone)				
Carbon disulfide[e]	3.74E-04	2	No	
Chloroethane (Ethyl chloride[e])	7.44E-05	176	No	
Chloromethane (Methyl chloride[e])	5.14E-04	6.867	No	
Cumene[e]	6.86E-04	16.3	No	
n-Hexane[e] (see Hexane[e])				
Methylene chloride (Dichloromethane[e])	4.94E-06	1.60E-03	No	
MTBE	0.00E+00			
Styrene[e]	1.44E-04	6.67	No	
Tetrachloroethene (Tetrachloroethylene[e])	4.80E-05	1.30E-02	No	
1,1,1-Trichloroethane (see Methyl chloroform[e])				
Trichloroethene (Trichloroethylene[e])	0.00E+00	17.93	No	
Trichlorofluoromethane	8.11E-06			
m-/p-Xylene[e] (added into Xylene[e])				
o-Xylene[e] (added into Xylene[e])				
Phenol[e,f]	6.03E-04	1.27	No	
Non-HAP Organic Compounds				
Methane	5.16E-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.
e) IDAPA Toxic Air Pollutant, 58.01.01.585 or .586

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Facility: Owen PC Construction, LLC

11/21/2008 8:37 **Permit/Facility ID:** 0 777-00433

EMISSION INVENTORY

TONS PER YEAR

Maximum Controlled Emissions of Any Pollutant from Drum Mix HMA Plant with Scrubber, Tank Heater, Generator, Load-out/Silo/Asphalt Storage

A. Drum Mix Plant: 150 Tons/hour 1,000 Hours/year 150,000 Tons/year HMA throughput 12 hrs/day

Maximum emission for each pollutant from any fuel-burning options selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil Used Oil Netural Gas LPG/Propane

B. Tank Heater: 1.0960 MMBtu Rate 3,000 Hours/year 24 hrs/day

Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet. Fuels Selected = #2 Fuel Oil

C. Generator: 37.33488 gal/hour 1500 Hours/year Generator>600hp #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 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
PM (total)	3.38	3.96E-02	3.84E-01	8.31E-02	3.80
PM-10 (total)	2.03	3.96E-02	2.20E-01	8.31E-02	2.28
P.M.-2.5					
CO	9.75	6.00E-02	3.26E+00	1.90E-01	13.07
NOx	4.13	2.40E-01	1.23E+01		16.64
SO_2	4.35	8.52E-01	1.94E+00		7.14
VOC	2.40	6.67E-03	3.45E-01	3.02E-01	2.75
Lead	6.75E-03	1.81E-05	0.00E+00		6.77E-03
HCl [e]	1.58E-02	0.00E+00	0.00E+00		1.58E-02
Dioxins[a]					
2,3,7,8-TCDD	1.58E-11	0.00E+00	0.00E+00		1.58E-11
Total TCDD	6.98E-11	0.00E+00	0.00E+00		6.98E-11
1,2,3,7,8-PeCDD	2.33E-11	0.00E+00	0.00E+00		2.33E-11
Total PeCDD	1.65E-09	0.00E+00	0.00E+00		1.65E-09
1,2,3,4,7,8-HxCDD	3.15E-11	8.28E-12	0.00E+00		3.98E-11
1,2,3,6,7,8-HxCDD	9.75E-11	0.00E+00	0.00E+00		9.75E-11
1,2,3,7,8,9-HxCDD	7.35E-11	9.12E-12	0.00E+00		8.26E-11
Total HxCDD	9.00E-10	0.00E+00	0.00E+00		9.00E-10
1,2,3,4,6,7,8-Hp-CDD	3.60E-10	1.80E-10	0.00E+00		5.40E-10
Total HpCDD	1.43E-09	2.40E-10	0.00E+00		1.66E-09
Octa CDD	1.88E-09	1.92E-09	0.00E+00		3.79E-09
Total PCDD[h]	5.93E-09	2.40E-09	0.00E+00		8.32E-09
Furans[a]					
2,3,7,8-TCDF	7.28E-11	0.00E+00	0.00E+00		7.28E-11
Total TCDF	2.78E-10	3.96E-11	0.00E+00		3.17E-10
1,2,3,7,8-PeCDF	3.23E-10	0.00E+00	0.00E+00		3.23E-10
2,3,4,7,8-PeCDF	6.30E-11	0.00E+00	0.00E+00		6.30E-11
Total PeCDF	6.30E-09	5.76E-12	0.00E+00		6.31E-09
1,2,3,4,7,8-HxCDF	3.00E-10	0.00E+00	0.00E+00		3.00E-10
1,2,3,6,7,8-HxCDF	9.00E-11	0.00E+00	0.00E+00		9.00E-11
2,3,4,6,7,8-HxCDF	1.43E-10	0.00E+00	0.00E+00		1.43E-10
1,2,3,7,8,9-HxCDF	6.30E-10	0.00E+00	0.00E+00		6.30E-10
Total HxCDF	9.75E-10	2.40E-11	0.00E+00		9.99E-10
1,2,3,4,6,7,8-HpCDF	4.88E-10	0.00E+00	0.00E+00		4.88E-10
1,2,3,4,7,8,9-HpCDF	2.03E-10	0.00E+00	0.00E+00		2.03E-10
Total HpCDF	7.50E-10	1.16E-10	0.00E+00		8.66E-10
Octa CDF	3.60E-10	1.44E-10	0.00E+00		5.04E-10
Total PCDF[h]	3.00E-09	3.72E-10	0.00E+00		3.37E-09
Total PCDD/PCDF[h]	9.00E-09	2.76E-09	0.00E+00		1.18E-08
Non-PAH HAPs					
Acetaldehyde[e]	9.75E-02	0.00E+00	2.43E-04		9.77E-02
Acrolein[e]	1.95E-03	0.00E+00	3.02E-05		1.98E-03
Benzene[e]	2.93E-02	0.00E+00	2.98E-03	4.55E-04	3.22E-02
1,3-Butadiene[e]	0.00E+00	0.00E+00	1.24E-05		1.24E-05
Ethylbenzene[e]	1.80E-02	0.00E+00	0.00E+00	1.22E-03	1.80E-02
Formaldehyde[e]	2.33E-01	4.20E-05	3.74E-04	6.58E-03	2.33E-01
Hexane[e]	6.90E-02	0.00E+00	0.00E+00	1.38E-03	6.90E-02
Isooctane	3.00E-03	0.00E+00	0.00E+00	8.45E-06	3.00E-03
Methyl Ethyl Ketone[e]	1.50E-03	0.00E+00	0.00E+00	5.09E-04	1.50E-03
Pentane[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Propionaldehyde[e]	9.75E-03	0.00E+00	0.00E+00		9.75E-03
Quinone[e]	1.20E-02	0.00E+00	0.00E+00		1.20E-02
Methyl chloroform[e]	3.60E-03	0.00E+00	0.00E+00		3.60E-03
Toluene[e]	2.18E-01	0.00E+00	1.08E-03	1.22E-03	2.19E-01
Xylene[e]	1.50E-02	0.00E+00	7.41E-04	6.12E-03	1.57E-02
TOTAL Federal HAPs (T/yr)=					**8.56E-01**

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
PAH HAPs					
2-Methylnaphthalene	1.28E-02	0.00E+00	0.00E+00	1.61E-03	1.28E-02
3-Methylchloranthrene[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Acenaphthene	1.05E-04	6.36E-06	1.80E-05	1.56E-04	1.29E-04
Acenaphthylene	1.65E-03	2.40E-06	3.54E-05	9.83E-06	1.69E-03
Anthracene	2.33E-04	2.16E-06	4.72E-06	4.27E-05	2.39E-04
Benzo(a)anthracene[e]	1.58E-05	0.00E+00	2.39E-06	1.55E-05	1.81E-05
Benzo(a)pyrene[e]	7.35E-07	0.00E+00	9.86E-07	5.88E-07	1.72E-06
Benzo(b)fluoranthene[e]	7.50E-06	1.20E-06	4.26E-06	1.94E-06	1.30E-05
Benzo(e)pyrene	8.25E-06	0.00E+00	0.00E+00	3.80E-06	8.25E-06
Benzo(g,h,i)perylene	3.00E-06	0.00E+00	2.13E-06	4.86E-07	5.13E-06
Benzo(k)fluoranthene[e]	3.08E-06	0.00E+00	8.36E-07	5.63E-07	3.91E-06
Chrysene[e]	1.35E-05	0.00E+00	5.87E-06	6.63E-05	1.94E-05
Dibenzo(a,h)anthracene[e]	0.00E+00	0.00E+00	1.33E-06	9.46E-08	1.33E-06
Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Fluoranthene	4.58E-05	5.28E-07	1.55E-05	4.13E-05	6.17E-05
Fluorene	8.25E-04	3.84E-07	4.91E-05	3.89E-04	8.74E-04
Indeno(1,2,3-cd)pyrene[e]	5.25E-07	0.00E+00	1.59E-06	1.20E-07	2.11E-06
Naphthalene[e]	4.88E-02	2.04E-04	2.69E-05	6.66E-04	4.90E-02
Perylene	6.60E-07	0.00E+00	0.00E+00	1.13E-05	6.60E-07
Phenanthrene	1.73E-03	5.88E-05	1.57E-04	5.50E-04	1.94E-03
Pyrene	2.25E-04	3.84E-07	1.42E-05	1.22E-04	2.40E-04
Non-HAP Organic Compounds					
Acetone[e]	6.23E-02	0.00E+00	0.00E+00	6.49E-04	6.23E-02
Benzaldehyde	8.25E-03	0.00E+00	0.00E+00		8.25E-03
Butane	5.03E-02	0.00E+00	0.00E+00		5.03E-02
Butyraldehyde	1.20E-02	0.00E+00	0.00E+00		1.20E-02
Crotonaldehyde[e]	6.45E-03	0.00E+00	0.00E+00		6.45E-03
Ethylene	5.25E-01	0.00E+00	0.00E+00	1.23E-02	5.25E-01
Heptane	7.05E-01	0.00E+00	0.00E+00		7.05E-01
Hexanal	8.25E-03	0.00E+00	0.00E+00		8.25E-03
Isovaleraldehyde	2.40E-03	0.00E+00	0.00E+00		2.40E-03
2-Methyl-1-pentene	3.00E-01	0.00E+00	0.00E+00		3.00E-01
2-Methyl-2-butene	4.35E-02	0.00E+00	0.00E+00		4.35E-02
3-Methylpentane	1.43E-02	0.00E+00	0.00E+00		1.43E-02
1-Pentene	1.65E-01	0.00E+00	0.00E+00		1.65E-01
n-Pentane[e]	1.58E-02	0.00E+00	0.00E+00		1.58E-02
Valeraldehyde[e]	5.03E-03	0.00E+00	0.00E+00		5.03E-03
Metals					
Antimony[e]	1.35E-04	6.30E-05	0.00E+00		1.98E-04
Arsenic[e]	9.75E-05	1.58E-05	0.00E+00		1.13E-04
Barium[e]	2.61E-03	3.08E-05	0.00E+00		2.64E-03
Beryllium[e]	0.00E+00	3.34E-07	0.00E+00		3.34E-07
Cadmium[e]	9.45E-05	4.77E-06	0.00E+00		9.93E-05
Chromium[e]	5.40E-04	1.01E-05	0.00E+00		5.50E-04
Cobalt[e]	1.17E-05	7.22E-05	0.00E+00		8.39E-05
Copper[e]	1.40E-03	2.11E-05	0.00E+00		1.42E-03
Hexavalent Chromium[e]	2.03E-04	2.98E-06	0.00E+00		2.05E-04
Manganese[e]	3.47E-03	3.60E-05	0.00E+00		3.50E-03
Mercury[e]	1.17E-03	1.36E-06	0.00E+00		1.17E-03
Molybdenum[e]	0.00E+00	9.44E-06	0.00E+00		9.44E-06
Nickel[e]	2.84E-02	1.01E-03	0.00E+00		2.94E-02
Phosphorus[e]	1.26E-02	1.13E-04	0.00E+00		1.27E-02
Silver[e]	2.16E-04	0.00E+00	0.00E+00		2.16E-04
Selenium[e]	5.40E-05	8.19E-06	0.00E+00		6.22E-05
Thallium[e]	1.85E-06	0.00E+00	0.00E+00		1.85E-06
Vanadium[e]	0.00E+00	3.82E-04	0.00E+00		3.82E-04
Zinc[e]	4.05E-03	3.49E-04	0.00E+00		4.40E-03

e) IDAPA Toxic Air Pollutant

Facility: Owen PC Construction, LLC

11/21/2008 8:37 **Permit/Facility ID:** 0 777-00433

EMISSION INVENTORY

TONS PER YEAR

Max Emissions of Any Pollutant from Drum Mix HMA Plant: Scrubber, Tank Heater, Generator, Load-out/Silo/Asphalt Storage

A. Drum Mix Plant: 150 Tons/hour 1,000 Hours/year 150,000 Tons/year HMA throughput 12 hrs/day

Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil Used Oil Natural Gas LPG/Propane

B. Tank Heater: 1.0960 MMBtu Rated 3,000 Hours/year 24 hrs/day

Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil

C. Generator: 37.3348834 gal/hour 1500 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[e]				7.47E-05	0.00E+00
2-Butanone (see Methyl Ethyl Ketone)					0.00E+00
Carbon disulfide[e]				1.87E-04	0.00E+00
Chloroethane (Ethyl chloride[e])				3.72E-05	0.00E+00
Chloromethane (Methyl chloride[e])				2.57E-04	0.00E+00
Cumene				3.43E-04	0.00E+00
n-Hexane				0.00E+00	0.00E+00
Methylene chloride (Dichloromethane[e])				2.47E-06	0.00E+00
MTBE					0.00E+00
Styrene[e]				7.21E-05	0.00E+00
Tetrachloroethene (Tetrachloroethylene[e])				2.40E-05	0.00E+00
1,1,1-Trichloroethane (Methyl chloroform[e])				0.00E+00	0.00E+00
Trichloroethene (Trichloroethylene[e])				0.00E+00	0.00E+00
Trichlorofluoromethane				4.06E-06	0.00E+00
m-/p-Xylene[e]				3.11E-03	0.00E+00
o-Xylene[e]				3.02E-03	0.00E+00
Phenol[e,i]				3.02E-04	0.00E+00
Non-HAP Organic Compounds					
Methane				2.58E-01	0.00E+00

e) IDAPA Toxic Air Pollutant

Facility: Owen PC Construction, LLC
11/21/2008 8:57 **Permit/Facility ID:** 0 777-00433

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

Fuel Type Toggle = 1
Hourly Throughput 150 T/hr
Annual Hours Operating 1,000 hrs/yr
Max Annual Throughput 150,000 Tons/yr (Proposed HMA Throughput Limit)

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)[b]	0.045	6.75	3.375	0.77
PM-10 (total)[b]	0.027	4.05	2.025	0.46
P.M.-2.5[b1]	*0.0174*			
CO[c]	0.13	19.5	9.75	
NOx[c]	0.055	8.25	4.125	
SO_2[c]	0.011	1.65	0.825	
VOC[d]	0.032	4.8	2.4	
Lead[d1]	9.00E-05	1.35E-02	6.75E-03	
HCl[d e]	No Data			
Dioxins[e]				
2,3,7,8-TCDD	2.10E-13	3.15E-11	1.58E-11	3.60E-12
Total TCDD	9.30E-13	1.395E-10	6.98E-11	1.59E-11
1,2,3,7,8-PeCDD	3.10E-13	4.65E-11	2.33E-11	5.31E-12
Total PeCDD	2.20E-11	3.3E-09	1.65E-09	3.77E-10
1,2,3,4,7,8-HxCDD	4.20E-13	6.3E-11	3.15E-11	7.19E-12
1,2,3,6,7,8-HxCDD	1.30E-12	1.95E-10	9.75E-11	2.23E-11
1,2,3,7,8,9-HxCDD	9.80E-13	1.47E-10	7.35E-11	1.68E-11
Total HxCDD	1.20E-11	1.8E-09	9.00E-10	2.05E-10
1,2,3,4,6,7,8-Hp-CDD	4.80E-12	7.2E-10	3.60E-10	8.22E-11
Total HpCDD	1.90E-11	2.85E-09	1.43E-09	3.25E-10
Octa CDD	2.50E-11	3.75E-09	1.88E-09	4.28E-10
Total PCDD[h]	7.90E-11	1.185E-08	5.93E-09	1.35E-09
Furans[e]				
2,3,7,8-TCDF	9.70E-13	1.455E-10	7.28E-11	1.66E-11
Total TCDF	3.70E-12	5.55E-10	2.78E-10	6.34E-11
1,2,3,7,8-PeCDF	4.30E-12	6.45E-10	3.23E-10	7.36E-11
2,3,4,7,8-PeCDF	8.40E-13	1.26E-10	6.30E-11	1.44E-11
Total PeCDF	8.40E-11	1.26E-08	6.30E-09	1.44E-09
1,2,3,4,7,8-HxCDF	4.00E-12	6E-10	3.00E-10	6.85E-11
1,2,3,6,7,8-HxCDF	1.20E-12	1.8E-10	9.00E-11	2.05E-11
2,3,4,6,7,8-HxCDF	1.90E-12	2.85E-10	1.43E-10	3.25E-11
1,2,3,7,8,9-HxCDF	8.40E-12	1.26E-09	6.30E-10	1.44E-10
Total HxCDF	1.30E-11	1.95E-09	9.75E-10	2.23E-10
1,2,3,4,6,7,8-HpCDF	6.50E-12	9.75E-10	4.88E-10	1.11E-10
1,2,3,4,7,8,9-HpCDF	2.70E-12	4.05E-10	2.03E-10	4.62E-11
Total HpCDF	1.00E-11	1.5E-09	7.50E-10	1.71E-10
Octa CDF	4.80E-12	7.2E-10	3.60E-10	8.22E-11
Total PCDF[h]	4.00E-11	6E-09	3.00E-09	6.85E-10
Total PCDD/PCDF[h]	1.20E-10	1.8E-08	9.00E-09	2.05E-09
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	3.90E-04	5.85E-02	2.93E-02	6.68E-03
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	3.60E-02	1.80E-02	
Formaldehyde[e]	3.10E-03	4.65E-01	2.33E-01	5.31E-02
Hexane[e]	9.20E-04	1.38E-01	6.90E-02	
Isooctane	4.00E-05	6.00E-03	3.00E-03	
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]	4.80E-05	7.20E-03	3.60E-03	
Toluene[e]	2.90E-03	4.35E-01	2.18E-01	
Xylene[e]	2.00E-04	3.00E-02	1.50E-02	
POM (7-PAH Group)				9.38E-06

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs[f]				
2-Methylnaphthalene	0.00017	2.55E-02	1.28E-02	2.91E-03
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	2.10E-04	1.05E-04	2.40E-05
Acenaphthylene	2.20E-05	3.30E-03	1.65E-03	3.77E-04
Anthracene	3.10E-06	4.65E-04	2.33E-04	5.31E-05
Benzo(a)anthracene	2.10E-07	3.15E-05	1.58E-05	3.60E-06
Benzo(a)pyrene[e]	9.80E-09	1.47E-06	7.35E-07	1.68E-07
Benzo(b)fluoranthene	1.00E-07	1.50E-05	7.50E-06	1.71E-06
Benzo(e)pyrene	1.10E-07	1.65E-05	8.25E-06	1.88E-06
Benzo(g,h,i)perylene	4.00E-08	6.00E-06	3.00E-06	6.85E-07
Benzo(k)fluoranthene	4.10E-08	6.15E-06	3.08E-06	7.02E-07
Chrysene	1.80E-07	2.70E-05	1.35E-05	3.08E-06
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	9.15E-05	4.58E-05	1.04E-05
Fluorene	1.10E-05	1.65E-03	8.25E-04	1.88E-04
Indeno(1,2,3-cd)pyrene	7.00E-09	1.05E-06	5.25E-07	1.20E-07
Naphthalene[e]	0.00065	9.75E-02	4.88E-02	1.11E-02
Perylene	8.80E-09	1.32E-06	6.60E-07	1.51E-07
Phenanthrene	2.30E-05	3.45E-03	1.73E-03	3.94E-04
Pyrene	3.00E-06	4.50E-04	2.25E-04	5.14E-05
Non-HAP Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane	6.70E-04	1.01E-01	5.03E-02	
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	7.00E-03	1.05E+00	5.25E-01	
Heptane	9.40E-03	1.41E+00	7.05E-01	
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene	4.00E-03	6.00E-01	3.00E-01	
2-Methyl-2-butene	5.80E-04	8.70E-02	4.35E-02	
3-Methylpentane	1.90E-04	2.85E-02	1.43E-02	
1-Pentene	2.20E-03	3.30E-01	1.65E-01	
n-Pentane	2.10E-04	3.15E-02	1.58E-02	
Valeraldehyde				
Metals[g]				
Antimony[e]	1.80E-06	2.70E-04	1.35E-04	
Arsenic[e]	1.30E-06	1.95E-04	9.75E-05	2.23E-05
Barium[e]	3.48E-05	5.22E-03	2.61E-03	
Beryllium[e]				
Cadmium[e]	1.26E-06	1.89E-04	9.45E-05	2.16E-05
Chromium[e]	7.20E-06	1.08E-03	5.40E-04	
Cobalt[e]	1.56E-07	2.34E-05	1.17E-05	
Copper[e]	1.86E-05	2.79E-03	1.40E-03	
Hexavalent Chromium[e]	2.70E-06	4.05E-04	2.03E-04	4.62E-05
Manganese[e]	4.62E-05	6.93E-03	3.47E-03	
Mercury[e]	1.56E-05	2.34E-03	1.17E-03	
Molybdenum[e]				
Nickel[e]	3.78E-04	5.67E-02	2.84E-02	6.47E-03
Phosphorus[e]	1.68E-04	2.52E-02	1.26E-02	
Silver[e]	2.88E-06	4.32E-04	2.16E-04	
Selenium[e]	7.20E-07	1.08E-04	5.40E-05	
Thallium[e]	2.46E-06	3.69E-06	1.85E-06	
Vanadium[e]				
Zinc[e]	5.40E-05	8.10E-03	4.05E-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 @ 60% ratio of PM
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers (Emission Rating Factor E - "Poor") Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
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
d1) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Asphalt Plants, 3/04; No. 2 fuel oil-fired Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
e) IDAPA Toxic Air Pollutant (AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants)
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04 either calculated from "Uncontrolled" EF using 70% Control for Wet Scrubber or converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
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 text are carcinogens subject to an annual standard.

Facility: **Owen PC Construction, LLC**
11/21/2008 8:57 **Permit/Facility ID:** **0 777-00433**

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

Fuel Type Toggle = 1
Hourly Throughput 150 T/hr
Annual Hours Operating 1,000 hrs/yr
Max Annual Throughput 150,000 Tons/yr (Proposed Throughput Limit)

Weight % Sulfur = 0.50%
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 (T/yr)	Emissions (lb/hr) Annual Average
PM (total)[b]	0.045	6.75	3.375	0.77
PM-10 (total)[b]	0.027	4.05	2.025	0.46
P.M.-2.5[b1]	*0.0174*			
CO[c]	0.13	19.5	9.75	
NOx[c]	0.055	8.25	4.125	0.94
SO_2[c]	0.058	8.7	4.35	0.99
VOC[d]	0.032	4.8	2.4	
Lead[d1]	9.00E-05	1.35E-02	6.75E-03	
HCl[d,e]	0.00021	0.0315	1.58E-02	
Dioxins[e,f]				
2,3,7,8-TCDD	2.10E-13	3.15E-11	1.58E-11	3.60E-12
Total TCDD	9.30E-13	1.40E-10	6.98E-11	1.59E-11
1,2,3,7,8-PeCDD	3.10E-13	4.65E-11	2.33E-11	5.31E-12
Total PeCDD	2.20E-11	3.30E-09	1.65E-09	3.77E-10
1,2,3,4,7,8-HxCDD	4.20E-13	6.30E-11	3.15E-11	7.19E-12
1,2,3,6,7,8-HxCDD	1.30E-12	1.95E-10	9.75E-11	2.23E-11
1,2,3,7,8,9-HxCDD	9.80E-13	1.47E-10	7.35E-11	1.68E-11
Total HxCDD	1.20E-11	1.80E-09	9.00E-10	2.05E-10
1,2,3,4,6,7,8-Hp-CDD	4.80E-12	7.20E-10	3.60E-10	8.22E-11
Total HpCDD	1.90E-11	2.85E-09	1.43E-09	3.25E-10
Octa CDD	2.50E-11	3.75E-09	1.88E-09	4.28E-10
Total PCDD[h]	7.90E-11	1.19E-08	5.93E-09	1.35E-09
Furans[e,f]				
2,3,7,8-TCDF	9.70E-13	1.46E-10	7.28E-11	1.66E-11
Total TCDF	3.70E-12	5.55E-10	2.78E-10	6.34E-11
1,2,3,7,8-PeCDF	4.30E-12	6.45E-10	3.23E-10	7.36E-11
2,3,4,7,8-PeCDF	8.40E-13	1.26E-10	6.30E-11	1.44E-11
Total PeCDF	8.40E-11	1.26E-08	6.30E-09	1.44E-09
1,2,3,4,7,8-HxCDF	4.00E-12	6.00E-10	3.00E-10	6.85E-11
1,2,3,6,7,8-HxCDF	1.20E-12	1.80E-10	9.00E-11	2.05E-11
2,3,4,6,7,8-HxCDF	1.90E-12	2.85E-10	1.43E-10	3.25E-11
1,2,3,7,8,9-HxCDF	8.40E-12	1.26E-09	6.30E-10	1.44E-10
Total HxCDF	1.30E-11	1.95E-09	9.75E-10	2.23E-10
1,2,3,4,6,7,8-HpCDF	6.50E-12	9.75E-10	4.88E-10	1.11E-10
1,2,3,4,7,8,9-HpCDF	2.70E-12	4.05E-10	2.03E-10	4.62E-11
Total HpCDF	1.00E-11	1.50E-09	7.50E-10	1.71E-10
Octa CDF	4.80E-12	7.20E-10	3.60E-10	8.22E-11
Total PCDF[h]	4.00E-11	6.00E-09	3.00E-09	6.85E-10
Total PCDD/PCDF[h]	1.20E-10	1.80E-08	9.00E-09	2.05E-09
Non-PAH HAPs[f]				
Acetaldehyde[e]	1.30E-03	1.95E-01	9.75E-02	2.23E-02
Acrolein[e]	2.60E-05	3.90E-03	1.95E-03	
Benzene[e]	3.90E-04	5.85E-02	2.93E-02	6.68E-03
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	3.60E-02	1.80E-02	
Formaldehyde[e]	3.10E-03	4.65E-01	2.33E-01	5.31E-02
Hexane[e]	9.20E-04	1.38E-01	6.90E-02	
Isooctane	4.00E-05	6.00E-03	3.00E-03	
Methyl Ethyl Ketone[e]	2.00E-05	3.00E-03	1.50E-03	
Pentane[e]				
Propionaldehyde[e]	1.30E-04	1.95E-02	9.75E-03	
Quinone[e]	1.60E-04	2.40E-02	1.20E-02	
Methyl chloroform[e]	4.80E-05	7.20E-03	3.60E-03	
Toluene[e]	2.90E-03	4.35E-01	2.18E-01	
Xylene[e]	2.00E-04	3.00E-02	1.50E-02	
POM (7-PAH Group)				9.38E-06

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs[f]				
2-Methylnaphthalene	1.70E-04	2.55E-02	1.28E-02	2.91E-03
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	2.10E-04	1.05E-04	2.40E-05
Acenaphthylene	2.20E-05	3.30E-03	1.65E-03	3.77E-04
Anthracene	3.10E-06	4.65E-04	2.33E-04	5.31E-05
Benzo(a)anthracene	2.10E-07	3.15E-05	1.58E-05	3.60E-06
Benzo(a)pyrene[e]	9.80E-09	1.47E-06	7.35E-07	1.68E-07
Benzo(b)fluoranthene	1.00E-07	1.50E-05	7.50E-06	1.71E-06
Benzo(e)pyrene	1.10E-07	1.65E-05	8.25E-06	1.88E-06
Benzo(g,h,i)perylene	4.00E-08	6.00E-06	3.00E-06	6.85E-07
Benzo(k)fluoranthene	4.10E-08	6.15E-06	3.08E-06	7.02E-07
Chrysene	1.80E-07	2.70E-05	1.35E-05	3.08E-06
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	9.15E-05	4.58E-05	1.04E-05
Fluorene	1.10E-05	1.65E-03	8.25E-04	1.88E-04
Indeno(1,2,3-cd)pyrene	7.00E-09	1.05E-06	5.25E-07	1.20E-07
Naphthalene[e]	6.50E-04	9.75E-02	4.88E-02	1.11E-02
Perylene	8.80E-09	1.32E-06	6.60E-07	1.51E-07
Phenanthrene	2.30E-05	3.45E-03	1.73E-03	3.94E-04
Pyrene	3.00E-06	4.50E-04	2.25E-04	5.14E-05
Non-HAP Organic Compounds[f]				
Acetone[e]	8.30E-04	1.25E-01	6.23E-02	
Benzaldehyde	1.10E-04	1.65E-02	8.25E-03	
Butane	6.70E-04	1.01E-01	5.03E-02	
Butyraldehyde	1.60E-04	2.40E-02	1.20E-02	
Crotonaldehyde[e]	8.60E-05	1.29E-02	6.45E-03	
Ethylene	7.00E-03	1.05E+00	5.25E-01	
Heptane	9.40E-03	1.41E+00	7.05E-01	
Hexanal	1.10E-04	1.65E-02	8.25E-03	
Isovaleraldehyde	3.20E-05	4.80E-03	2.40E-03	
2-Methyl-1-pentene	4.00E-03	6.00E-01	3.00E-01	
2-Methyl-2-butene	5.80E-04	8.70E-02	4.35E-02	
3-Methylpentane	1.90E-04	2.85E-02	1.43E-02	
1-Pentene	2.20E-03	3.30E-01	1.65E-01	
n-Pentane	2.10E-04	3.15E-02	1.58E-02	
Valeraldehyde[e]	6.70E-05	1.01E-02	5.03E-03	
Metals[g]				
Antimony[e]	1.80E-06	2.70E-04	1.35E-04	
Arsenic[e]	1.30E-06	1.95E-04	9.75E-05	2.23E-05
Barium[e]	3.48E-05	5.22E-03	2.61E-03	
Beryllium[e]		0.00E+00	0.00E+00	0.00E+00
Cadmium[e]	1.26E-06	1.89E-04	9.45E-05	2.16E-05
Chromium[e]	7.20E-06	1.08E-03	5.40E-04	
Cobalt[e]	1.56E-07	2.34E-05	1.17E-05	
Copper[e]	1.86E-05	2.79E-03	1.40E-03	
Hexavalent Chromium[e]	2.70E-06	4.05E-04	2.03E-04	4.62E-05
Manganese[e]	4.62E-05	6.93E-03	3.47E-03	
Mercury[e]	1.56E-05	2.34E-03	1.17E-03	
Molybdenum[e]				
Nickel[e]	3.78E-04	5.67E-02	2.84E-02	6.47E-03
Phosphorus[e]	1.68E-04	2.52E-02	1.26E-02	
Silver[e]	2.88E-06	4.32E-04	2.16E-04	
Selenium[e]	7.20E-07	1.08E-04	5.40E-05	
Thallium[e]	2.46E-08	3.69E-06	1.85E-06	
Vanadium[e]				
Zinc[e]	5.40E-05	8.10E-03	4.05E-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 @ 60% ratio of PM
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers **(Emission Rating Factor E - "Poor")** Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
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
d1) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Asphalt Plants, 3/04; No. 2 fuel oil-fired Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
e) IDAPA Toxic Air Pollutant (AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants)
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04 either calculated from "Uncontrolled" EF using 70% Control for Wet Scrubber or converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
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

Pollutants shown in bold text are carcinogens subject to an annual standard.

Pollutants shown in blue text are emitted only when burning Used Oil, but not when burning #2 Fuel Oil or Natural Gas

Facility: Owen PC Construction, LLC
11/21/2008 8:57 **Permit/ Facility ID:** 0 777-00433

Natural Gas Fired Drum Mix Asphalt Plant With Scrubber AP-42 Section 11.1

Fuel Type Toggle =	1	
Maximum Hourly Throughput	150	Tons/hr
Annual Hours Operating	1,000	hrs/yr
Max Annual Throughput	150,000	Tons/yr (Proposed Throughput Limit)

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)[b]	0.045	6.75	3.375	0.77
PM-10 (total)[b]	0.027	4.05	2.025	0.46
P.M.-2.5 [b1]	*0.0174*			
CO [c]	0.13	19.5	9.75	
NOx [c]	0.026	3.9	1.95	
SO_2 [c]	0.0034	0.51	0.255	
VOC [d]	0.032	4.8	2.4	
Lead [d1]	3.72E-06	5.58E-04	2.79E-04	
HCl [d,e]	No Data			
Dioxins[e]				
-- No EFs for Natural Gas Fuel --				
Furans[e]				
-- No EFs for Natural Gas Fuel --				
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	3.90E-04	5.85E-02	2.93E-02	6.68E-03
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	3.60E-02	1.80E-02	
Formaldehyde[e]	3.10E-03	4.65E-01	2.33E-01	5.31E-02
Hexane[e]	9.20E-04	1.38E-01	6.90E-02	
Isooctane	4.00E-05	6.00E-03	3.00E-03	
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]	4.80E-05	7.20E-03	3.60E-03	
Toluene[e]	1.50E-04	2.25E-02	1.13E-02	
Xylene[e]	2.00E-04	3.00E-02	1.50E-02	
POM (7-PAH Group)				9.38E-06

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs[f]				
2-Methylnaphthalene	7.40E-05	1.11E-02	5.55E-03	1.27E-03
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	2.10E-04	1.05E-04	2.40E-05
Acenaphthylene	8.60E-06	1.29E-03	6.45E-04	1.47E-04
Anthracene	2.20E-07	3.30E-05	1.65E-05	3.77E-06
Benzo(a)anthracene	2.10E-07	3.15E-05	1.58E-05	3.60E-06
Benzo(a)pyrene[e]	9.80E-09	1.47E-06	7.35E-07	1.68E-07
Benzo(b)fluoranthene	1.00E-07	1.50E-05	7.50E-06	1.71E-06
Benzo(e)pyrene	1.10E-07	1.65E-05	8.25E-06	1.88E-06
Benzo(g,h,i)perylene	4.00E-08	6.00E-06	3.00E-06	6.85E-07
Benzo(k)fluoranthene	4.10E-08	6.15E-06	3.08E-06	7.02E-07
Chrysene	1.80E-07	2.70E-05	1.35E-05	3.08E-06
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	9.15E-05	4.58E-05	1.04E-05
Fluorene	3.80E-06	5.70E-04	2.85E-04	6.51E-05
Indeno(1,2,3-cd)pyrene	7.00E-09	1.05E-06	5.25E-07	1.20E-07
Naphthalene[e]	9.00E-05	1.35E-02	6.75E-03	1.54E-03
Perylene	8.80E-09	1.32E-06	6.60E-07	1.51E-07
Phenanthrene	7.60E-06	1.14E-03	5.70E-04	1.30E-04
Pyrene	5.40E-07	8.10E-05	4.05E-05	9.25E-06
Non-HAPs Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane	6.70E-04	1.01E-01	5.03E-02	
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	7.00E-03	1.05E+00	5.25E-01	
Heptane	9.40E-03	1.41E+00	7.05E-01	
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene	4.00E-03	6.00E-01	3.00E-01	
2-Methyl-2-butene	5.80E-04	8.70E-02	4.35E-02	
3-Methylpentane	1.90E-04	2.85E-02	1.43E-02	
1-Pentene	2.20E-03	3.30E-01	1.65E-01	
n-Pentane	2.10E-04	3.15E-02	1.58E-02	
Valeraldehyde				
Metals[g]				
Antimony[e]	1.80E-06	2.70E-04	1.35E-04	
Arsenic[e]	1.30E-06	1.95E-04	9.75E-05	2.23E-05
Barium[e]	3.48E-05	5.22E-03	2.61E-03	
Beryllium[e]				
Cadmium[e]	1.26E-06	1.89E-04	9.45E-05	2.16E-05
Chromium[e]	7.20E-06	1.08E-03	5.40E-04	
Cobalt[e]	1.56E-07	2.34E-05	1.17E-05	
Copper[e]	1.86E-05	2.79E-03	1.40E-03	
Hexavalent Chromium[e]	2.70E-06	4.05E-04	2.03E-04	4.62E-05
Manganese[e]	4.62E-05	6.93E-03	3.47E-03	
Mercury[e]	1.44E-06	2.16E-04	1.08E-04	
Molybdenum[e]				
Nickel[e]	3.78E-04	5.67E-02	2.84E-02	6.47E-03
Phosphorus[e]	1.68E-04	2.52E-02	1.26E-02	
Silver[e]	2.88E-06	4.32E-04	2.16E-04	
Selenium[e]	7.20E-07	1.08E-04	5.40E-05	
Thallium[e]	2.46E-08	3.69E-06	1.85E-06	
Vanadium[e]				
Zinc[e]	5.40E-05	8.10E-03	4.05E-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 @ 60% ratio of PM
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers (Emission Rating Factor E - "Poor") Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
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
d1) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Asphalt Plants, 3/04; No. 2 fuel oil-fired Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
e) IDAPA Toxic Air Pollutant (AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants)
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04 either calculated from "Uncontrolled" EF using 70% Control for Wet Scrubber or converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber

Pollutants shown in bold text are carcinogens subject to an annual standard.

Facility: Owen PC Construction, LLC
11/21/2008 8:57 **Permit/ Facility ID:** 0 777-00433

LPG or Propane Fired Drum Mix Asphalt Plant With Scrubber

Fuel Type Toggle = 1
Maximum Hourly Throughput 150 Tons/hr
Annual Hours Operating 1,000 hrs/yr
Max Annual Throughput 150,000 Tons/yr (Proposed Throughput Limit)

Note: Presumes same emissions as natural gas except for NOx
(see AP-42, Section 1.5, Liquefied Petroleum Gas Combustion)
SO2 emissions from natural gas are ~70% lower than with #2 Fuel Oil, and ~94% lower than with Used Oil or #6 Fuel Oil (minimal impact on emissions, used Nat Gas EF)

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)[b]	0.045	6.75	3.375	0.77
PM-10 (total)[b]	0.027	4.05	2.025	0.46
P.M.-2.5 [b1]	*0.0174*			
CO [c]	0.13	19.5	9.75	
NOx [c1] (Natural Gas EF x 1.5)	0.039	5.85	2.925	
SO_2 [c]	0.0034	0.51	0.255	
VOC [d]	0.032	4.8	2.4	
Lead [d1]	3.72E-06	0.000558	2.79E-04	
HCl [d,e]	No Data			
Dioxins[e]				
-- No EFs for LP Gas or Propane Fuel --				
Furans[e]				
-- No EFs for LP Gas or Propane Fuel --				
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]	3.90E-04	5.85E-02	2.93E-02	6.68E-03
1,3-Butadiene[e]				
Ethylbenzene[e]	2.40E-04	3.60E-02	1.80E-02	
Formaldehyde[e]	3.10E-03	4.65E-01	2.33E-01	5.31E-02
Hexane[e]	9.20E-04	1.38E-01	6.90E-02	
Isooctane	4.00E-05	6.00E-03	3.00E-03	
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]	4.80E-05	7.20E-03	3.60E-03	
Toluene[e]	1.50E-04	2.25E-02	1.13E-02	
Xylene[e]	2.00E-04	3.00E-02	1.50E-02	
POM (7-PAH Group)				9.38E-06

Pollutant	Emission Factor[a] (lb/ton)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs[f]				
2-Methylnaphthalene	7.40E-05	1.11E-02	5.55E-03	1.27E-03
3-Methylchloranthrene[e]				
Acenaphthene	1.40E-06	2.10E-04	1.05E-04	2.40E-05
Acenaphthylene	8.60E-06	1.29E-03	6.45E-04	1.47E-04
Anthracene	2.20E-07	3.30E-05	1.65E-05	3.77E-06
Benzo(a)anthracene	2.10E-07	3.15E-05	1.58E-05	3.60E-06
Benzo(a)pyrene[e]	9.80E-09	1.47E-06	7.35E-07	1.68E-07
Benzo(b)fluoranthene	1.00E-07	1.50E-05	7.50E-06	1.71E-06
Benzo(e)pyrene	1.10E-07	1.65E-05	8.25E-06	1.88E-06
Benzo(g,h,i)perylene	4.00E-08	6.00E-06	3.00E-06	6.85E-07
Benzo(k)fluoranthene	4.10E-08	6.15E-06	3.08E-06	7.02E-07
Chrysene	1.80E-07	2.70E-05	1.35E-05	3.08E-06
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene	6.10E-07	9.15E-05	4.58E-05	1.04E-05
Fluorene	3.80E-06	5.70E-04	2.85E-04	6.51E-05
Indeno(1,2,3-cd)pyrene	7.00E-09	1.05E-06	5.25E-07	1.20E-07
Naphthalene[e]	9.00E-05	1.35E-02	6.75E-03	1.54E-03
Perylene	8.80E-09	1.32E-06	6.60E-07	1.51E-07
Phenanthrene	7.60E-06	1.14E-03	5.70E-04	1.30E-04
Pyrene	5.40E-07	8.10E-05	4.05E-05	9.25E-06
Non-HAPs Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane	6.70E-04	1.01E-01	5.03E-02	
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene	7.00E-03	1.05E+00	5.25E-01	
Heptane	9.40E-03	1.41E+00	7.05E-01	
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene	4.00E-03	6.00E-01	3.00E-01	
2-Methyl-2-butene	5.80E-04	8.70E-02	4.35E-02	
3-Methylpentane	1.90E-04	2.85E-02	1.43E-02	
1-Pentene	2.20E-03	3.30E-01	1.65E-01	
n-Pentane	2.10E-04	3.15E-02	1.58E-02	
Valeraldehyde				
Metals[g]				
Antimony[e]	1.80E-06	2.70E-04	1.35E-04	
Arsenic[e]	1.30E-06	1.95E-04	9.75E-05	2.23E-05
Barium[e]	3.48E-05	5.22E-03	2.61E-03	
Beryllium[e]				
Cadmium[e]	1.26E-06	1.89E-04	9.45E-05	2.16E-05
Chromium[e]	7.20E-06	1.08E-03	5.40E-04	
Cobalt[e]	1.56E-07	2.34E-05	1.17E-05	
Copper[e]	1.86E-05	2.79E-03	1.40E-03	
Hexavalent Chromium[e]	2.70E-06	4.05E-04	2.03E-04	4.62E-05
Manganese[e]	4.62E-05	6.93E-03	3.47E-03	
Mercury[e]	1.44E-06	2.16E-04	1.08E-04	
Molybdenum[e]				
Nickel[e]	3.78E-04	5.67E-02	2.84E-02	6.47E-03
Phosphorus[e]	1.68E-04	2.52E-02	1.26E-02	
Silver[e]	2.88E-06	4.32E-04	2.16E-04	
Selenium[e]	7.20E-07	1.08E-04	5.40E-05	
Thallium[e]	2.46E-08	3.69E-06	1.85E-06	
Vanadium[e]				
Zinc[e]	5.40E-05	8.10E-03	4.05E-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 @ 60% ratio of PM
b1) AP-42, Table 11.1-4, Summary of Particle Size Distribution for Drum Mix Dryers (**Emission Rating Factor E - "Poor"**) Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
c) AP-42, Table 11.1-7, Emission Factors for CO, CO2, NOx, and SO2 from Drum Mix Hot Asphalt Plants, 3/04
c1) AP-42, Table 1.5-1, Emission Factors for LPG Combustion, note (a): "Assumes emissions (except SOx and NOx) are the same, on a heat input basis, as for natural gas combustion. The NOx emission factors have been multiplied by a factor of 1.5, which is the approximate ration of propane/butane NOx emissions to natural gas NOx emissions.
d) AP-42, Table 11.1-8, Emission Factors for TOC, Methane, VOC, and HCl from Drum Mix Hot Asphalt Plants, 3/04
d1) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Asphalt Plants, 3/04; No. 2 fuel oil-fired Fabric Filter EF converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber
e) IDAPA Toxic Air Pollutant (AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants)
f) AP-42, Table 11.1-10, Emission Factors for Organic Pollutant Emissions from Drum Mix Hot Asphalt Plants, 3/04 - Assumes Fabric Filter and Wet Scrubber controls are equitable for these pollutants
g) AP-42, Table 11.1-12, Emission Factors for Metal Emissions from Drum Mix Hot Mix Asphalt Plants, 3/04 either calculated from "Uncontrolled" EF using 70% Control for Wet Scrubber or converted to Wet Scrubber EF using 95% Control for Fabric Filter and 70% Control for Wet Scrubber

Pollutants shown in bold text are carcinogens subject to an annual standard.

Facility: **Owen PC Construction, LLC**
11/10/2008 14:48 **Permit/Facility ID:** **0 777-00433**

Asphalt Tank Heater - #2 Oil Fired, Estimated Emissions Using AP42 Sections 11.1 (HMA Plants) & 1.3 (Fuel Oil Combustion)

Fuel Type Toggle = 1
Fuel Consumption Rate 8.00 gal/hr
Proposed Max Hrs Operating 3,000 hrs/yr

Maximum fuel sulfur % = 0.5

Pollutant	Emission Factor[a] (lb/gal)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total) [b] (filterable+cond)	0.0033	2.64E-02	0.04	9.04E-03
PM-10 (total) [b] (filterable+con	0.0033	2.64E-02	0.04	9.04E-03
P.M.-2.5				
CO [b] ("C" EF Rating Factor)	0.005	4.00E-02	0.06	
NOx [b]	0.02	1.60E-01	0.24	5.48E-02
SO_2 [b]	0.071	5.68E-01	0.85	1.94E-01
VOC [d] (TOC EF)	5.56E-04	4.45E-03	6.67E-03	
Lead[f]	1.51E-06	1.21E-05	1.81E-05	
HCl [e]				
Dioxins[e]				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD[c]	6.90E-13	5.52E-12	8.28E-12	1.89E-12
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD[c]	7.60E-13	6.08E-12	9.12E-12	2.08E-12
Total HxCDD				
1,2,3,4,6,7,8-Hp-CDD[c]	1.50E-11	1.20E-10	1.80E-10	4.11E-11
Total HpCDD[c]	2.00E-11	1.60E-10	2.40E-10	5.48E-11
Octa CDD[c]	1.60E-10	1.28E-09	1.92E-09	4.38E-10
Total PCDD[c]	2.00E-10	1.60E-09	2.40E-09	5.48E-10
Furans[c]				
2,3,7,8-TCDF				
Total TCDF[c]	3.30E-12	2.64E-11	3.96E-11	9.04E-12
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF[c]	4.80E-13	3.84E-12	5.76E-12	1.31E-12
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF[c]	2.00E-12	1.60E-11	2.40E-11	5.48E-12
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF[c]	9.70E-12	7.76E-11	1.16E-10	2.66E-11
Octa CDF[c]	1.20E-11	9.60E-11	1.44E-10	3.29E-11
Total PCDF[c]	3.10E-11	2.48E-10	3.72E-10	8.49E-11
Total PCDD/PCDF[c]	2.30E-10	1.84E-09	2.76E-09	6.30E-10
Non-PAH HAPs				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]				
1,3-Butadiene[e]				
Ethylbenzene[e]				
Formaldehyde[c,e]	3.50E-06	2.80E-05	4.20E-05	9.59E-06
Hexane[e]				
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[e]				
Xylene[e]				
POM (7-PAH Group)				2.74E-07

Pollutant	Emission Factor[a] (lb/gal)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene[c]	5.30E-07	4.24E-06	6.36E-06	1.45E-06
Acenaphthylene[c]	2.00E-07	1.60E-06	2.40E-06	5.48E-07
Anthracene[c]	1.80E-07	1.44E-06	2.16E-06	4.93E-07
Benzo(a)anthracene				
Benzo(a)pyrene[e]				
Benzo(b)fluoranthene[c]	1.00E-07	8.00E-07	1.20E-06	2.74E-07
Benzo(e)pyrene				
Benzo(g,h,i)perylene				
Benzo(k)fluoranthene				
Chrysene				
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene[c]	4.40E-08	3.52E-07	5.28E-07	1.21E-07
Fluorene[c]	3.20E-08	2.56E-07	3.84E-07	8.77E-08
Indeno(1,2,3-cd)pyrene				
Naphthalene[c,e]	1.70E-05	1.36E-04	2.04E-04	4.66E-05
Perylene				
Phenanthrene[c]	4.90E-06	3.92E-05	5.88E-05	1.34E-05
Pyrene[c]	3.20E-08	2.56E-07	3.84E-07	8.77E-08
Non-HAP Organic Compounds				
Acetone[e]				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals[f]				
Antimony[e]	5.25E-06	4.20E-05	6.30E-05	
Arsenic[e]	1.32E-06	1.06E-05	1.58E-05	3.62E-06
Barium[e]	2.57E-06	2.06E-05	3.08E-05	
Beryllium[e]	2.78E-08	2.22E-07	3.34E-07	7.61E-08
Cadmium[e]	3.98E-07	3.18E-06	4.77E-06	1.09E-06
Chromium[e]	8.45E-07	6.76E-06	1.01E-05	
Cobalt[e]	6.02E-06	4.81E-05	7.22E-05	
Copper[e]	1.76E-06	1.41E-05	2.11E-05	
Hexavalent Chromium[e]	2.48E-07	1.98E-06	2.98E-06	6.79E-07
Manganese[e]	3.00E-06	2.40E-05	3.60E-05	
Mercury[e]	1.13E-07	9.04E-07	1.36E-06	
Molybdenum[e]	7.87E-07	6.29E-06	9.44E-06	
Nickel[e]	8.45E-05	6.76E-04	1.01E-03	2.31E-04
Phosphorus[e]	9.46E-06	7.57E-05	1.13E-04	
Silver[e]				
Selenium[e]	6.83E-07	5.46E-06	8.19E-06	
Thallium[e]				
Vanadium[e]	3.18E-05	2.54E-04	3.82E-04	
Zinc[e]	2.91E-05	2.33E-04	3.49E-04	

a) Emission factors for criteria pollutants are from AP-42, 1.3, Fuel Oil Combustion, 9/98; all other factors are from AP-42 11.1, Hot Mix Asphalt Plants, 3/04
b) AP-42, Table 1.3-1, Criteria Pollutant Emission Factors for Fuel Oil Combustion, 9/98, Boilers < 100 MMBtu, SOx based on max fuel sulfur content
c) AP-42, Table 11.1-13, Emission Factors for Hot Mix Asphalt Hot Oil Systems, 3/04
d) AP-42, Table 1.3-3, Emission Factors for Total Organic Compounds (TOC), Methane, and Nonmethane TOC (NMTOC) from Uncontrolled Fuel Oil Combustion; Comm Boiler
e) IDAPA Toxic Air Pollutant
f) AP-42, Table 1.3-11, Emission Factors for Metals from Uncontrolled No. 6 Fuel Oil Combustion

Pollutants shown in bold text are carcinogens subject to an annual standard.

Facility: Owen PC Construction, LLC
11/10/2008 14:48 **Permit/Facility ID:** 0 777-00433 **0.000169**

Asphalt Tank Heater - Natural Gas Fired, Estimated Emissions Using AP42 Section 11.1 (Hot Mix Asphalt Plants)

Fuel Type Toggle = 0
Fuel Consumption Rate 1,044 scf/hr
Proposed Max Hrs Operating 3,000 hrs/yr

Note: CO EF per AP-42 Table 1.4.1 for natural gas combustion in boilers is 84 lb/MMscf, a factor of 10 higher than the factor shown in Table 11.1-13

Pollutant	Emission Factor[a] (lb/scf)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)				
PM-10 (total)				
P.M.-2.5				
CO [c]	**8.90E-06**	0.00E+00	0.00E+00	0.00E+00
NOx				
SO_2				
VOC				
Lead				
HCl [e]				
Dioxins[e]				
-- No EFs for Natural Gas Fuel --				
Furans[e]				
-- No EFs for Natural Gas Fuel --				
Non-PAH HAPs				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[e]				
1,3-Butadiene[e]				
Ethylbenzene[e]				
Formaldehyde[c,e]	2.60E-08	0.00E+00	0.00E+00	0.00E+00
Hexane[e]				
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[e]				
Xylene[e]				
POM (7-PAH Group)				0.00E+00

Pollutant	Emission Factor[a] (lb/scf)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene				
Acenaphthylene				
Anthracene				
Benzo(a)anthracene				
Benzo(a)pyrene[e]				
Benzo(b)fluoranthene				
Benzo(e)pyrene				
Benzo(g,h,l)perylene				
Benzo(k)fluoranthene				
Chrysene				
Dibenzo(a,h)anthracene				
Dichlorobenzene				
Fluoranthene				
Fluorene				
Indeno(1,2,3-cd)pyrene				
Naphthalene[e]				
Perylene				
Phenanthrene				
Pyrene				
Non-HAPs Organic Compounds				
Acetone[e]				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony[e]				
Arsenic[e]				
Barium[e]				
Beryllium[e]				
Cadmium[e]				
Chromium[e]				
Cobalt[e]				
Copper[e]				
Hexavalent Chromium[e]				
Manganese[e]				
Mercury[e]				
Molybdenum[e]				
Nickel[e]				
Phosphorus[e]				
Silver[e]				
Selenium[e]				
Thallium[e]				
Vanadium[e]				
Zinc[e]				

a) Emission factors are from AP-42
b) (reserved)
c) AP-42, Table 11.1-13, Emission Factors for Hot Mix Asphalt Hot Oil Systems, 3/04
d) (reserved)
e) IDAPA Toxic Air Pollutant

Pollutants shown in bold text are carcinogens subject to an annual standard.

Facility: **Owen PC Construction, LLC**
11/10/2008 14:48 **Permit/Facility ID:** **0 777-00433**

Asphalt Tank Heater - Natural Gas Fired, Estimated Emissions Using AP42 Section 1.4 (Natural Gas Combustion)

Fuel Type Toggle = 0
Fuel Consumption Rate 1,044 scf/hr
Proposed Max Hrs Operating 3,000 hrs/yr

Note: CO EF per AP-42 Table 1.4.1 for natural gas combustion in boilers is 84 lb/MMscf, a factor of 10 higher than the factor shown in Table 11.1-13

Heating Value Correction: 1.029 applied to Emissions (lb/hr, T/yr) calculations

Pollutant	Emission Factor[a] (lb/MMscf)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)[c]	7.6	0.00E+00	0.00E+00	0.00E+00
PM-10 (total)[c]	7.6	0.00E+00	0.00E+00	0.00E+00
P.M.-2.5				
CO[b]	**8.40E+01**	0.00E+00	0.00E+00	
NOx[b]	100	0.00E+00	0.00E+00	0.00E+00
SO_2[c]	0.6	0.00E+00	0.00E+00	0.00E+00
VOC[c]	5.5	0.00E+00	0.00E+00	
Lead[c]	5.00E-04	0.00E+00	0.00E+00	
HCl[e]				
Dioxins[e]				
-- No EFs for Natural Gas Fuel --				
Furans[e]				
-- No EFs for Natural Gas Fuel --				
Non-PAH HAPs[f]				
Acetaldehyde[e]				
Acrolein[e]				
Benzene[c1, e]	2.10E-03	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene[e]				
Ethylbenzene[e]				
Formaldehyde[e]	7.50E-02	0.00E+00	0.00E+00	0.00E+00
Hexane[e]	1.80E+00	0.00E+00	0.00E+00	
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[c1, e]	2.60E+00	0.00E+00	0.00E+00	
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[c1, e]	3.40E-03	0.00E+00	0.00E+00	
Xylene[e]				
POM (7-PAH Group)				0.00E+00

Pollutant	Emission Factor[a] (lb/MMscf)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs[f]				
2-Methylnaphthalene[c1]	2.40E-05	0.00E+00	0.00E+00	0.00E+00
3-Methylchloranthrene[c1, e]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Acenaphthene[c1]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Acenaphthylene[c1]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Anthracene[c1]	2.40E-06	0.00E+00	0.00E+00	0.00E+00
Benzo(a)anthracene[c1]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Benzo(a)pyrene[c1, e]	1.20E-06	0.00E+00	0.00E+00	0.00E+00
Benzo(b)fluoranthenec[1]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Benzo(e)pyrene				
Benzo(g,h,l)perylene[c1]	1.20E-06	0.00E+00	0.00E+00	0.00E+00
Benzo(k)fluoranthene[c1]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Chrysene[c1]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Dibenzo(a,h)anthracene[c1]	1.20E-06	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene[c1]	1.20E-03	0.00E+00	0.00E+00	0.00E+00
Fluoranthene[c1]	3.00E-06	0.00E+00	0.00E+00	0.00E+00
Fluorene[c1]	2.80E-06	0.00E+00	0.00E+00	0.00E+00
Indeno(1,2,3-cd)pyrene[c1]	1.80E-06	0.00E+00	0.00E+00	0.00E+00
Naphthalene[c1, e]	6.10E-04	0.00E+00	0.00E+00	0.00E+00
Perylene				
Phenanthrene[c1]	1.70E-05	0.00E+00	0.00E+00	0.00E+00
Pyrene[c1]	5.00E-06	0.00E+00	0.00E+00	0.00E+00
Non-HAPs Organic Compounds[f]				
Acetone[e]				
Benzaldehyde				
Butane[c1]	2.10E+00	0.00E+00	0.00E+00	
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals[g]				
Antimony[e]				
Arsenic[d,e]	2.00E-04	0.00E+00	0.00E+00	0.00E+00
Barium[d,e]	4.40E-03	0.00E+00	0.00E+00	
Beryllium[e]	1.20E-05	0.00E+00	0.00E+00	0.00E+00
Cadmium[d,e]	1.10E-03	0.00E+00	0.00E+00	0.00E+00
Chromium[d,e]	1.40E-03	0.00E+00	0.00E+00	
Cobalt[d,e]	8.40E-05	0.00E+00	0.00E+00	
Copper[d,e]	8.50E-04	0.00E+00	0.00E+00	
Hexavalent Chromium[e]				
Manganese[d,e]				
Mercury[d,e]				
Molybdenum[d,e]	1.10E-03	0.00E+00	0.00E+00	
Nickel[d,e]				
Phosphorus[e]				
Silver[e]				
Selenium[d,e]				
Thallium[e]				
Vanadium[d,e]	2.30E-03	0.00E+00	0.00E+00	
Zinc[d,e]				

a) Emission factors are from AP-42
b) AP-42, Table 1.4-1, Emission Factors for NOx and CO from Natural Gas Combustion, 7/98
c) AP-42, Table 1.4-2, Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion, 7/98
c1) AP-42, Table 1.4-3, Emission Factors for Speciated Organic Compounds from Natural Gas Combustion, 7/98
d) AP-42, Table 1.4-4, Emission Factors for Metals from Natural Gas Combustion, 7/98
e) IDAPA Toxic Air Pollutant

Pollutants shown in bold text are carcinogens subject to an annual standard.

Facility: Owen PC Construction, LLC
11/10/2008 14:48 **Permit/Facility ID:** 0 777-00433

Electrical Generator < 600 hp (447 kW) AP-42 Section 3.3 (diesel fueled)

Fuel Type Toggle =	1	Nonroad Diesel with S at 0.5%
Fuel Consumption Rate	3.08 gal/hr	
Fuel Heating Value	137,030 Btu/gal	
Calculated MMBtu/hr	0.4224 MMBtu/hr	
Proposed Max Hrs Operating	1,500 hrs/yr	

Pollutant	Emission Factor[a] (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total) [b]	0.31	0.131	9.82E-02	2.24E-02
PM-10 (total) [b]	0.31	0.131	9.82E-02	2.24E-02
P.M.-2.5				
CO [b]	0.95	0.401	3.01E-01	
NOx[b]	4.41	1.863	1.40E+00	3.19E-01
SO_2 [b] (total SOx presumed SO2	0.29	0.123	9.19E-02	2.10E-02
VOC [b] (total TOC--> VOCs)	0.36	0.152	1.14E-01	
Lead				
HCl [e]				
Dioxins[e]				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD[c]				
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD[c]				
Total HxCDD				
1,2,3,4,6,7,8-Hp-CDD[c]				
Total HpCDD$_c$				
Octa CDD[c]				
Total PCDD[c]				
Furans[e]				
2,3,7,8-TCDF				
Total TCDF[c]				
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF[c]				
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF[c]				
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF[c]				
Octa CDF[c]				
Total PCDF[c]				
Total PCDD/PCDF[c]				
Non-PAH HAPs				
Acetaldehyde[c]	7.67E-04	3.24E-04	2.43E-04	5.55E-05
Acrolein[c]	9.25E-05	3.91E-05	2.93E-05	
Benzene[c,e]	9.33E-04	3.94E-04	2.96E-04	6.75E-05
1,3-Butadiene[c,e]	3.91E-05	1.65E-05	1.24E-05	2.83E-06
Ethylbenzene[e]				
Formaldehyde[c,e]	1.18E-03	4.98E-04	3.74E-04	8.54E-05
Hexane[e]				
Isooctane				
Methyl Ethyl Ketone[e]				
Pentane[e]				
Propionaldehyde[e]				
Quinone[e]				
Methyl chloroform[e]				
Toluene[c,e]	4.09E-04	1.73E-04	1.30E-04	
Xylene[c,e]	2.85E-04	1.20E-04	9.03E-05	
POM (7-PAH Group)				2.48E-07

Pollutant	Emission Factor[a] (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene[e]				
Acenaphthene[c]	1.42E-06	6.00E-07	4.50E-07	1.03E-07
Acenaphthylene[c]	5.06E-06	2.14E-06	1.60E-06	3.66E-07
Anthracene[c]	1.87E-06	7.90E-07	5.92E-07	1.35E-07
Benzo(a)anthracene[c]	1.68E-06	7.10E-07	5.32E-07	1.22E-07
Benzo(a)pyrene[c,e]	1.88E-07	7.94E-08	5.96E-08	1.36E-08
Benzo(b)fluoranthene[c]	9.91E-08	4.19E-08	3.14E-08	7.17E-09
Benzo(e)pyrene				
Benzo(g,h,i)perylene[c]	4.89E-07	2.07E-07	1.55E-07	3.54E-08
Benzo(k)fluoranthene[c]	1.55E-07	6.55E-08	4.91E-08	1.12E-08
Chrysene[c]	3.53E-07	1.49E-07	1.12E-07	2.55E-08
Dibenzo(a,h)anthracene[c]	5.83E-07	2.46E-07	1.85E-07	4.22E-08
Dichlorobenzene				
Fluoranthene[c]	7.61E-06	3.21E-06	2.41E-06	5.50E-07
Fluorene[c]	2.92E-05	1.23E-05	9.25E-06	2.11E-06
Indeno(1,2,3-cd)pyrene[c]	3.75E-07	1.58E-07	1.19E-07	2.71E-08
Naphthalene[c,e]	8.48E-05	3.58E-05	2.69E-05	6.13E-06
Perylene				
Phenanthrene[c]	2.94E-05	1.24E-05	9.31E-06	2.13E-06
Pyrene[c]	4.78E-06	2.02E-06	1.51E-06	3.46E-07
Non-HAP Organic Compounds				
Acetone[e]				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde[e]				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony[e]				
Arsenic[e]				
Barium[e]				
Beryllium[e]				
Cadmium[e]				
Chromium[e]				
Cobalt[e]				
Copper[e]				
Hexavalent Chromium[e]				
Manganese[e]				
Mercury[e]				
Molybdenum[e]				
Nickel[e]				
Phosphorus[e]				
Silver[e]				
Selenium[e]				
Thallium[e]				
Vanadium[e]				
Zinc[e]				

a) Emission factors are from AP-42
b) AP-42, Table 3.3-1, Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines, 10/96
c) AP-42, Table 3.3-2, Speciated Organic Compoun Emission Factors for Uncontrolled Diesel Engine, Emission Factor Rating E, 10/96
d) (reserved)
e) IDAPA Toxic Air Pollutant

Pollutants shown in bold text are carcinogens subject to an annual standard.