State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Permit to Construct No. P-2008.0189

Final Permit

Owen PC Construction LLC

Portable Facility

Facility ID No. 777-00433

March 31, 2009

CZ

Carole Zundel

Permit Writer

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

Table of Contents

Acronyms, Units, and Chemical Nomenclature

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
Btu	British thermal unit
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
gr/dscf	grains (1 lb = 7,000 grains) per dry standard cubic foot
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
MACT	Maximum Achievable Control Technology
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
PC	permit condition
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO_2	sulfur dioxide
T/yr	tons per year
VOC	volatile organic compound

1. FACILITY INFORMATION

1.1 Facility Description

Owen PC Construction, LLC is a CMI model UDM 1200 portable hot mix asphalt plant that consists of a parallel flow drum mix dryer, portable generators, an asphalt tank heater/asphalt tank, diesel fuel storage tanks, wet scrubber, and material transfer equipment. Materials transfer equipment may include front end loaders, storage bins, storage silos, conveyors, stock piles, and haul trucks.

Front end loaders are used to transfer the stockpiled aggregates to feed bins. Aggregate is dispensed from the bins onto a scale conveyor that weighs and delivers the aggregate to the drum mixer. Aggregate travels through the drum mix dryer, and when dried it is blended with liquid asphalt cement. The resulting hot mix asphalt is conveyed to a storage silo until it can be loaded into trucks for transport to the jobsite.

The drum dryer is a parallel flow design that uses proportioning aggregate (cold feed) controls for the process materials. Sized aggregate is introduced at the burner end. As the drum rotates, the aggregates and the combustion air move in parallel towards the dryer outlet. During the drying process the mixture is coated with liquid asphalt cement. The exhaust gases from the drum dryer and coater are collected and ducted to a wet scrubber by an induced draft fan. The water from the wet scrubber is collected in a settling pond that consists of two sections. The dirty water is released into the settling basin where the heavy dirt and pollutants settle out. The clean water runs over a weir and into a clean water retention area and is then recycled through the wet scrubber.

1.2 Permitting Action and Facility Permitting History

This permit is the initial PTC for this facility.

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

Owen PC Construction has applied for a permit to construct for a new portable hot mix asphalt plant.

2.2 Application Chronology

November 25, 2008	DEQ receives application
May 9, 2008	DEQ receives application fee (retained from previous withdrawn PTC application)
December 23, 2008	DEQ issues completeness letter
February 20, 2009	DEQ issues facility draft permit
March 3, 2009	DEQ receives additional information
March 17, 2009	DEQ receives processing fee

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Emissions Unit Description	Control Device Description
Drum mix plant 1580 Manufacturer: CMI Model: UDM 1200 Maximum capacity: 250 tons per hour Fuel types: Propane, natural gas, No. 2 fuel oil, and used oil Date of construction: 1979	Scrubber
Tank heater Manufacturer: CMI Model: UDM 1200 Fuel type: Propane, natural gas, No. 2 fuel oil, and used oil Date of construction: 1979	None
Generator Manufacturer: Caterpillar Model: 3412CDITA Engine number: BPG02595 Rated power: 545 Kilowatts Fuel type: No. 2 fuel oil Rated use: 40 gallons per hour Date of construction: 2005, purchased about July 1, 2005.	None
Generator Manufacturer: Whisper Watt Model: 45kw Rated power: 45 Kilowatts Fuel type: No. 2 fuel oil Rated use: 2 gallons per hour Date of construction: 2008	None

3.2 Emissions Inventory

Table 3.1 EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		SO_2		NOx		CO		VOC		LEAD
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/quarter
Point Sources Affected by the Permitting Action											
HMA Plant	4.05	1.62	8.7	3.48	8.3	3.30	19.5	7.80	4.8	1.92	2.7
Asphalt tank heater	0.03	0.04	0.6	0.9	0.2	0.2	0.1	0.1	0.006	0.01	0.01
Caterpillar 545 Kilowatt generator	0.3	0.2	2.6	1.9	16.4	12.3	4.3	3.3	0.5	0.3	*
45 Kilowatt generator	0.1	0.1	0.1	0.1	1.9	1.4	0.4	0.3	0.2	0.1	*
Total, Point Sources	4.5	2.0	12.0	6.4	26.8	17.2	24.3	11.5	5.5	2.3	2.7
Process Fugitive/Volume Sources affected by the Permitting Action											
Silo Filling	0.09	0.04	---	---	---	---	0.2	0.09	0.02	0.01	---
Loadout	0.08	0.03	---	---	---	---	0.2	0.08	0.6	0.23	---
Total, Process Fugitives	0.17	0.07	---	---	---	---	0.4	0.17	0.62	0.24	---

* Emission factor not available
Silo filling and loadout factors are from AP-42

The emissions estimates are based on operating hours of 800 hours per year. The emissions factors used to determine the PM_{10} emissions are AP-42 11.1-3 for total PM (wet stack) with a venturi or wet scrubber control.

The emissions from the tank heater are based on 3,000 hours per year of operation.

The emissions from the generators were based on a Btu rating of 5.12 MMBtu/hr for the Cat generator and 0.42 MMBtu/hr for the 45 Kilowatt generator and 1,500 hours of operation per year. The emission factors are from AP-42.

The toxic air pollutant (TAP) and hazardous air pollutant (HAP) inventory is shown in Appendix B. The estimates for the TAPs that are particulates (the metals) were estimated for the HMA for scrubber control. When there is a factor for uncontrolled, a 70% control value was used. When a factor was available only for a baghouse, then the baghouse efficiency was estimated to be 95% (based on AP-42), to convert the factor from baghouse control to scrubber control.

3.3 Ambient Air Quality Impact Analysis

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard. The modeling tech memo is included in Appendix C.

The setback distance has been determined to be 180 meter setback (591 feet) from the nearest property boundary because the estimated nickel concentrations do not demonstrate compliance with the acceptable ambient concentration specified in IDAPA 58.01.01.586 at a lesser distance. The permit currently allows the requested annual throughput of 120,000 tons per year.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is a portable facility. A permit condition is written to require further analysis prior to the facility being relocated to a non-attainment area.

4.2 Permit to Construct (IDAPA 58.01.01.201)

A permit to construct is required for this facility because the source is not exempt in accordance with IDAPA 58.01.01.200-223, and permit conditions limiting throughput and emissions are required to ensure compliance with National Ambient Air Quality Standards (NAAQS).

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

The source does not emit more than 100 tons per year of any criteria pollutant, more than 10 tons per year of any single hazardous air pollutant (HAP), or more than 25 tons per year of any combination of HAPs. The source is not a Title V facility.

4.4 PSD Classification (40 CFR 52.21)

The source does not emit pollutants over the amount that would qualify as a PSD source, so it is not a PSD facility.

4.5 NSPS Applicability (40 CFR 60)

Subpart I applies to this facility because it is a hot mix asphalt facility that commenced construction in 1979, which is after the applicability date of June 11, 1973. The required performance test was conducted on June 26, 1986, in Perry, Kansas. The plant was tested at 292.1 tons per hour (the rated capacity is 250 tons per hour) and the emission rate was 3.22 lb/hr and 0.0273 gr/dscf. The limits are 0.04 gr/dscf and 20% opacity. Additional non-NSPS tests are required by this permit, but only one test is required by the NSPS, which has been completed as documented.

Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, does not apply to this facility because the generators are compression ignition and not spark ignition engines.

Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines does not apply to the Caterpillar 545 Kilowatt generator because it was constructed prior to the applicability date of July 11, 2005 and has not been modified since then. The 45 Kilowatt generator has not been purchased but it will be an EPA Tier III certified engine.

To determine applicability, Subpart IIII is referenced, as follows:

§ 60.4200 Am I subject to this subpart?

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

(Break in Section)

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

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

(Break in Section)

The 45 Kilowatt generator will be subject to this subpart because it has not yet been ordered. The Caterpillar 545 Kilowatt generator was purchased prior to July 11, 2005 and has not been modified since, so it is not subject to this subpart.

§ 60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(break)

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

Section 4201 requires that the manufacturer certify the generators according to the tables in the regulation.

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.

(break)

§ 60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel.

(c) Owners and operators of pre-2011 model year stationary CI ICE subject to this subpart may petition the Administrator for approval to use remaining non-compliant fuel that does not meet the fuel requirements of paragraphs (a) and (b) of this section beyond the dates required for the purpose of using up existing fuel inventories. If approved, the petition will be valid for a period of up to 6 months. If additional time is needed, the owner or operator is required to submit a new petition to the Administrator.

The fuel requirements of 40 CFR 80.510 are as follows:

§ 80.510 What are the standards and marker requirements for NRLM diesel fuel?
(a) Beginning June 1, 2007. Except as otherwise specifically provided in this subpart, all NRLM diesel fuel is subject to the following per-gallon standards:

(1) Sulfur content. 500 parts per million (ppm) maximum.

(2) Cetane index or aromatic content, as follows:

(i) A minimum cetane index of 40; or

(ii) A maximum aromatic content of 35 volume percent.

(b) Beginning June 1, 2010 . Except as otherwise specifically provided in this subpart, all NR and LM diesel fuel is subject to the following per-gallon standards:

(1) Sulfur content.

(i) 15 ppm maximum for NR diesel fuel.

(ii) 500 ppm maximum for LM diesel fuel.

(2) Cetane index or aromatic content, as follows:

(i) A minimum cetane index of 40; or

(ii) A maximum aromatic content of 35 volume percent.

(c) Beginning June 1, 2012 . Except as otherwise specifically provided in this subpart, all NRLM diesel fuel is subject to the following per-gallon standards:

(1) Sulfur content. 15 ppm maximum.

(2) Cetane index or aromatic content, as follows:

(i) A minimum cetane index of 40; or

(ii) A maximum aromatic content of 35 volume percent.

(d) Marking provisions. From June 1, 2007 through May 31, 2010:

(1) Except as provided for in paragraph (i) of this section, prior to distribution from a truck loading terminal, all heating oil shall contain six milligrams per liter of marker solvent yellow 124.

(2) All motor vehicle and NRLM diesel fuel shall be free of solvent yellow 124.

(3) Any diesel fuel that contains greater than or equal to 0.10 milligrams per liter of marker solvent yellow 124 shall be deemed to be heating oil and shall be prohibited from use in any motor vehicle or nonroad diesel engine (including locomotive, or marine diesel engines).

(4) Except as provided for in paragraph (i) of this section, any diesel fuel, other than jet fuel or kerosene that is downstream of a truck loading terminal, that contains less than 0.10 milligrams per liter of marker solvent yellow 124 shall be considered motor vehicle diesel fuel or NRLM diesel fuel, as appropriate.

(5) Any heating oil that is required to contain marker solvent yellow 124 pursuant to the requirements of this paragraph (d) must also contain visible evidence of dye solvent red 164.

(e) Marking provisions. From June 1, 2010 through May 31, 2012:

(1) Except as provided for in paragraph (i) of this section, prior to distribution from a truck loading terminal, all heating oil and diesel fuel designated as 500 ppm sulfur LM diesel fuel shall contain six milligrams per liter of solvent yellow 124.

(2) All motor vehicle and NR diesel fuel shall be free of marker solvent yellow 124.

(3) Any diesel fuel that contains greater than or equal to 0.10 milligrams per liter of marker solvent yellow 124 shall be deemed to be LM diesel fuel or heating oil, as appropriate, and shall be prohibited from use in any motor vehicle or nonroad diesel engine (except for locomotive or marine diesel engines).

(4) Except as provided for in paragraph (i) of this section, any diesel fuel, other than jet fuel or kerosene that is downstream of a truck loading terminal, that contains less than 0.10 milligrams per liter of marker solvent yellow 124 shall be considered motor vehicle diesel fuel or NR diesel fuel, as appropriate.

(5) Any LM diesel fuel or heating oil that is required to contain marker solvent yellow 124 pursuant to the requirements of this paragraph (e) must also contain visible evidence of dye solvent red 164.

(f) Marking provisions. Beginning June 1, 2012:

(1) Except as provided for in paragraph (i) of this section, prior to distribution from a truck loading terminal, all heating oil shall contain six milligrams per liter of marker solvent yellow 124.

(2) All motor vehicle and NRLM diesel fuel shall be free of marker solvent yellow 124.

(3) Any diesel fuel that contains greater than or equal to 0.10 milligrams per liter of marker solvent yellow 124 shall be deemed to be heating oil and shall be prohibited from use in any motor vehicle or nonroad diesel engine (including locomotive, or marine diesel engines).

(4) Except as provided for in paragraph (i) of this section, any diesel fuel, other than jet fuel or kerosene that is downstream of a truck loading terminal, that contains less than 0.10 milligrams per liter of marker solvent yellow 124 shall be considered motor vehicle diesel fuel or NRLM diesel fuel, as appropriate.

(5) Any heating oil that is required to contain marker solvent yellow 124 pursuant to the requirements of this paragraph (f) must also contain visible evidence of dye solvent red 164.

(Break in Section)

§ 60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

(Break)

§ 60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. In addition, owners and operators may only change those settings that are permitted by the manufacturer. You must also meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

40 CFR part 89 applies to non-road engines. This generator does not meet the definition of non-road engine.

40 CFR 94 applies to marine engines.

40 CFR 1068 applies to non-road engines and refers to subpart 1039, which applies to non-road engines.

(Break)

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications.

This means that the engine must be certified to the standards in 60.4204(b) or 60.4205(b). Also, the engine must be installed and configured according to manufacturer's specs.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

This applies to fire pumps and emergency engines.

No performance testing is required for the 45 Kilowatt generator because it is required that the manufacturer certify it in accordance with 60 CFR 4211(c).

4.6 NESHAP Applicability (40 CFR 61)

There are no NESHAP regulations that apply to this facility.

4.7 MACT Applicability (40 CFR 63)

There are no MACT regulations that apply to this facility.

4.8 CAM Applicability (40 CFR 64)

Because the facility is not Title V major, CAM does not apply.

4.9 Permit Conditions Review

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

This section describes the permit conditions (PC) that have been written as a result of this permitting action.

New PC 2.3

In absence of any other creditable evidence, compliance with emission limits is assured by complying with this permit's operating, monitoring and record keeping requirements.

New PC 2.4

These emission limits were established based on a modeling analysis that shows compliance with the NAAQS (National Ambient Air Quality Standards) for PM_{10}.

The PM_{10}, emissions from the hot mix asphalt plant stack shall not exceed any corresponding emissions rate limits listed in Table 2.2.

Table 2.2 HMA EMISSIONS LIMITS

Source Description	*PM_{10}*	
	lb/hr[a]	*T/yr*
HMA	*4.05*	*1.62*

[a] Pounds per hour as determined by a test method prescribed by IDAPA 58.01.01.157 or DEQ approved alternative.

New PC 2.5

This is the regulatory opacity limit that applies to all stacks.

New PC 2.6

This is a regulatory limit from Subpart I:

In accordance with 40 CFR Subpart I, the permittee shall not discharge or cause the discharge into the atmosphere from the hot mix asphalt facility any gases which:

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

(2) Exhibit 20 percent opacity, or greater.

New PC 2.7

This is the regulation for odors. Odors may occur from a hot mix asphalt plant.

The permittee shall not allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids into the atmosphere in such quantities as to cause air pollution in accordance with IDAPA 58.01.01.776.01.

New PC 2.8

Production limits were established because the facility's initial test data showed that the HMA plant was operated at 292 tons per hour, which is greater than the rated capacity of the unit, which is 250 tons per hour. Therefore, because the emission estimates and modeling were based on 150 tons per hour and 12 hours per day, the production rate was limited to that amount, on a daily basis, because it has not been demonstrated by modeling that a higher value would demonstrate compliance with the NAAQS or the IDAPA 58.01.01.585 and 586 increments.

- *The production rate of the HMA plant shall not exceed 1,800 tons of HMA per day (T/day).*
- *The production rate of the HMA plant shall not exceed 120,000 tons of HMA per any consecutive 12-calendar month period (T/yr).*

New PC 2.9

Operating hour limits were set for the same reason the production limit was set.

2.9.1 The hot mix asphalt plant operating hours shall not exceed 800 hours per any consecutive 12-calendar month period.

2.9.2 The tank heater operating hours shall not exceed 3,000 hours per any consecutive 12-calendar month period.

2.9.3 The Caterpillar 545 Kilowatt generator operating hours shall not exceed 1,500 hours per any consecutive 12-calendar month period.

2.9.4 The 45 Kilowatt generator operating hours shall not exceed 1,500 hours per any consecutive 12-calendar month period.

New PC 2.10

A scrubber is required to be used to control PM_{10} emissions to the levels estimated in the permit.

The permittee shall use a scrubber to control PM and PM_{10} emissions from the scrubber at all times when the hot mix asphalt plant is in operation.

New PC 2.11

An O&M manual is required to be developed to ensure that the control equipment is operated properly.

Within 60 days of permit issuance, the permittee shall have developed an Operations and Maintenance (O&M) manual for the scrubber which describes the procedures that will be followed to comply with General Provision 2 of this permit and the manufacturer specifications for the air pollution control device. At a minimum the following items shall be included in the manual:

The manufacturer's recommended minimum and maximum values that shall be maintained for each of the following operating parameters:

- *Scrubbing media flow rate in gallons per minute*
- *Pressure drop across scrubber in inches of water*

The O&M manual shall be maintained on site and made available to DEQ representatives upon request.

New PC 2.12

This permit condition was established to ensure the scrubber is operated according to the parameters in the O&M manual so that it will be efficient in controlling particulate emissions.

The permittee shall maintain the scrubbing media flow rate and the pressure drop across the scrubber within the range established in Permit Condition 2.11.

New PC 2.13

This permit condition was written to require that the fuels proposed in the permit application, for which emission estimates were made and modeling done that showed compliance with NAAQS and that demonstrated that none of the TAPS increments were exceeded, are used as proposed.

2.13.1 The hot mix asphalt plant shall combust only natural gas, ASTM Grade 1 and 2 distillate fuel oil meeting the specifications of Permit Condition 2.15, or used oil meeting the specifications of Permit Conditions 2.14 and 2.15.

2.13.2 The asphalt tank heater shall combust only natural gas, ASTM Grade 1 and 2 distillate fuel oil meeting the specifications of Permit Condition 2.15, or used oil meeting the specifications of Permit Conditions 2.14 and 2.15.

2.13.3 The generators shall combust only ASTM Grade 1 and 2 distillate fuel oil meeting the specifications of Permit Condition 2.15 and, for the 45 Kilowatt generator, Permit Condition 2.16.

New PC 2.14

This permit condition was written to ensure that the used oil used complies with the regulation.

The permittee shall comply with the applicable requirements of 40 CFR 279, Subpart B – Used Oil Specifications.

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

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*
PCBs[3]	*< 2 ppm*

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
3) Applicable standards for the burning of used oil containing PCB are imposed by 40 CFR 761.20(e)

New PC 2.15

This is the IDAPA 58.01.01 rule that applies to distillate fuel oil sulfur content.

No person shall sell, distribute, use, or make available for use any distillate fuel oil containing more than the following percentages of sulfur in accordance with IDAPA 58.01.01.728:

- *ASTM Grade 1 fuel oil - 0.3% by weight.*
- *ASTM Grade 2 fuel oil - 0.5% by weight.*

The permittee shall not use any used oil containing more than 0.5% sulfur by weight.

New PC 2.16

The following is a requirement from the Subpart IIII.

For the 45 Kilowatt generator, the permittee shall only use diesel fuel that meets the requirements of 40 CFR 80.510 in accordance with 40 CFR 60.4207.

New PC 2.17

The following is a requirement from the Subpart IIII. Because the generator has not yet been purchased, it is unknown whether there will be a filter. Because it is a new generator that will be certified, it is unlikely that it will need a filter.

If the 45 Kilowatt generator is equipped with a diesel particulate filter to comply with the emission standards in 40 CFR 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

New PC 2.18

The following is a requirement from the Subpart IIII.

The 45 Kilowatt generator must be installed and configured according to the manufacturer's specifications.

The permittee shall operate and maintain the 45 Kilowatt generator according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the engine manufacturer. In addition, the permittee may only change those settings that are permitted by the manufacturer.

New PC 2.19

This permit condition is the IDAPA 58.01.01 rule and includes an additional requirement for "good operating practices" to ensure that HMA-specific source of fugitive dust are included as requiring dust control.

All reasonable precautions shall be taken to prevent particulate matter (PM) from becoming airborne in accordance with IDAPA 58.01.01.650-651 and IDAPA 58.01.01.808. In determining what is reasonable, consideration will be given to factors such as the proximity of dust-emitting operations to human habitations and/or activities and atmospheric conditions that might affect the movement of PM. Some of the reasonable precautions include, but are not limited to, the following:

- *Good operating practices, including water spraying or other suitable measures, shall be employed to prevent dust generation and atmospheric entrainment during operations such as stockpiling, screen changing and general maintenance.*
- *Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of lands.*
- *Application, where practical, of asphalt, water, or suitable chemicals to, or covering of, dirt roads, material stockpiles, and other surfaces which can create dust.*

- *Installation and use, where practical, of hoods, fans, and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations.*
- *Covering, where practical, of open-bodied trucks transporting materials likely to give rise to airborne dusts.*
- *Paving of roadways and their maintenance in a clean condition, where practical.*
- *Prompt removal of earth or other stored material from streets, where practical.*

New PC 2.20

The drum dryer shall not be closer than 180 meter setback (591 feet) from any Owen PC Construction property boundary.

This permit condition was written because the nickel concentrations do not meet the acceptable ambient concentration from IDAPA 58.01.01.586 at less than 591 feet as demonstrated by air dispersion modeling.

New PC 2.21

Subpart I applies to this facility because it is a hot mix asphalt facility that commenced construction in 1979, which is after the applicability date of June 11, 1973. The required performance test was conducted on June 26, 1986, in Perry, Kansas. The plant was tested at 292.1 tons per hour (the rated capacity is 250 tons per hour) and the emission rate was 3.22 lb/hr and 0.0273 gr/dscf. The limits are 0.04 gr/dscf and 20% opacity. Additional non-NSPS tests are required by this permit, but only one test is required by the NSPS, which has been completed as documented.

Source testing is required to show compliance with the PM and PM_{10} limits in the permit. The five-year retest frequency is to verify that the HMA and scrubber are still operating in compliance. Used oil in some cases cannot be burned without exceeding the standard, so testing should be done while burning used oil to determine if it complies in this case.

2.21.1 PM/PM_{10} Performance Testing

Performance testing on the HMA dryer venturi scrubber stack for PM and PM_{10} shall be performed within 60 days after achieving the maximum permitted production rate, but not later than 180 days after commencement of operations of the HMA plant in Idaho.

The initial performance test for PM shall measure the PM emission rate in grains per dry standard cubic feet and the opacity to demonstrate compliance with the emission limits in Permit Conditions 2.5 and 2.6.

The initial performance test for PM_{10} shall measure the PM_{10} emission rate in pounds per hour to demonstrate compliance with the hourly emission limit in Permit Condition 2.4.

The performance tests shall be conducted under worst-case normal operating conditions and in accordance with 40 CFR 60.93, 60.8, and 60.11; and General Provision 6 of this permit.

The permittee is encouraged to submit a performance testing protocol for approval 30 days prior to conducting the performance tests.

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

Performance testing on the HMA dryer venturi scrubber stack shall be performed no less than once every five years following the date of the initial performance test.

The performance test shall measure the PM_{10} emission rate in pounds per hour and the opacity to demonstrate compliance with Permit Conditions 2.4 and 2.5.

2.21.2 PM/PM_{10} Performance Test Methods and Procedures

The permittee shall use EPA Methods 5 and 202 or such comparable and equivalent methods approved in accordance with IDAPA 58.01.01.157.02.d to determine compliance with the particulate matter standards in Permit Conditions 2.4 and 2.6.

The permittee shall use EPA Method 9 to determine compliance with the opacity matter standard in Permit Condition 2.5, in accordance with IDAPA 58.01.01.625.04.

New PC 2.22

The permittee shall monitor and record the following information:

- *HMA production on daily basis, in tons per day to demonstrate compliance with Permit Condition 2.8.*
- *HMA production on a monthly basis, in tons per month and tons per consecutive 12-calendar month period to demonstrate compliance with Permit Condition 2.8.*
- *Pressure drop across the scrubber in inches of water once each week.*
- *Scrubbing media flow rate in gallons per minute once each week*

New PC 2.23

The permittee shall monitor and record the hours of operation of the hot mix asphalt plant and each of the generators once each day.

New PC 2.24

The following is a requirement from the Subpart IIII. This generator has not yet been purchased, so there is not a certificate available at this time.

For the 45 Kilowatt generator, the permittee shall provide documentation from the manufacturer showing that the generator is certified in accordance with 40 CFR 60.4201(a).

New PC 2.25

The permittee shall demonstrate compliance with the used oil fuel specifications in Permit Condition 04 by obtaining a used oil fuel certification from the used oil fuel supplier on an as-received basis for each shipment or by having the fuel analyzed by a qualified laboratory. The certification shall include the following information:

- *The name and address of the used oil supplier;*
- *The measured concentration, expressed as ppm, of each constituent listed in Table 2.3;*

- *The flash point of the used oil expressed as degrees Fahrenheit;*
- *The analytical method or methods used to determine the concentration of each constituent and property (flash point) listed in Table 2.3;*
- *The date and location of each sample; and*
- *The date of each certification analysis.*

New PC 2.26

The permittee shall maintain records of all odor complaints received to demonstrate compliance with Permit Condition 2.7. The permittee shall take appropriate corrective action as expeditiously as practicable. The records shall include, at a minimum, the date each complaint was received and a description of the following: the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

New PC 2.27

The minimum height for the hot mix asphalt plant dryer stack shall be 33 feet.

The stack height was increased, which decreased the concentrations of nickel and reduced the setback requirement. Because the plant does not currently have a stack height of 33 feet, this was added as a permit requirement.

New PC 2.28

Performance test reporting shall be conducted in accordance with General Provision 6 of this permit and sent to the following address:

Air Quality Permit Compliance
Idaho Falls Regional Office
Department of Environmental Quality
900 N. Skyline, Suite B
Idaho Falls, ID 83402

Phone: (208) 528-2650
Fax: (208) 528-2695

New PC 2.29

At least 10 days prior to relocation of any equipment covered by this permit, the permittee shall submit a scaled plot plan and a complete Portable Equipment Registration and Relocation Form (PERF, available on the DEQ website at http://www.deq.idaho.gov/air/permits_forms/forms/forms.cfm), in accordance with IDAPA 58.01.01.500, to the following address or fax number:

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

Phone: (208) 373-0502
Fax: (208) 373-0340

Electronic copies of the PERF may be obtained from the DEQ website;

http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.pdf, or
http://www.deq.idaho.gov/air/permits_forms/forms/ptc_relocation.doc

New PC 2.30

The emissions were not assessed for non-attainment areas. Specific analyses and potential restrictions are required for operation in non-attainment areas.

The permittee shall not relocate and operate the HMA plant in any $PM_{2.5}$ or PM_{10} nonattainment area without first obtaining a permit which specifically allows for operations in a $PM_{2.5}$ or PM_{10} nonattainment area.

The geographical locations of nonattainment areas in Idaho can be found at:

http://www.deq.idaho.gov/air/data_reports/monitoring/overview.cfm#AttvNon.

For additional information regarding nonattainment areas please contact DEQ.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The facility is subject to a processing fee of $5,000 because its permitted emissions are 40.1 tons. Refer to the chronology for fee receipt dates.

Table 5.1 PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	17.2	0	17.2
SO_2	6.4	0	6.4
CO	11.5	0	11.5
PM_{10}	2.0	0	2.0
VOC	2.3	0	2.3
HAPS	0.7	0	0.7
Total:	**40.1**	**0**	**40.1**
Fee Due	**$ 5,000.00**		

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided from December 11, 2008, to December 29, 2008 in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification Form

Facility Name: Owen PC Construction LLC

Facility Location: Portable

Facility ID: 777-00433 **Date:** February 11, 2009

Project/Permit No.: P-2008.0189 **Completed By:** Carole Zundel

☐ Check if there are no changes to the facilitywide classification resulting from this action. (compare to form with last permit)

☐ Yes, this facility is an SM80 source.

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

	SO2	PM10	VOC
Area Classification:	U	U	U

DO NOT LEAVE ANY BLANK

Check one of the following:

☒ **SIP** [0] - Yes, this facility is subject to SIP requirements. (do not use if facility is Title V)

OR

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☒	☒	☒	☒	☒	☒	☐

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

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

Appendix B – Emissions Inventory

Facility: **Owen PC Construction, LLC**

4/2/2009 12:23 **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 **800** Hours/year **120,000** 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>600h #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 **Generators** Sum 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	6.43E-01	1.66E-01	7.59
PM-10 (total)	4.05	2.64E-02	4.24E-01	1.66E-01	4.67
P.M.-2.5	0.00	0.00E+00	0.00E+00	0.00E+00	0.00
CO	19.50	4.00E-02	4.75E+00	3.79E-01	24.67
NOx	8.25	1.60E-01	1.82E+01		26.64
SO_2	8.70	5.68E-01	2.71E+00		11.97
VOC	4.80	4.45E-03	6.13E-01	6.05E-01	6.02
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	2.88E-12	0.00E+00	0.00E+00		2.88E-12
Total TCDD	1.27E-11	0.00E+00	0.00E+00		1.27E-11
1,2,3,7,8-PeCDD	4.25E-12	0.00E+00	0.00E+00		4.25E-12
Total PeCDD	3.01E-10	0.00E+00	0.00E+00		3.01E-10
1,2,3,4,7,8-HxCDD	5.75E-12	1.89E-12	0.00E+00		7.64E-12
1,2,3,6,7,8-HxCDD	1.78E-11	0.00E+00	0.00E+00		1.78E-11
1,2,3,7,8,9-HxCDD	1.34E-11	2.08E-12	0.00E+00		1.55E-11
Total HxCDD	1.64E-10	0.00E+00	0.00E+00		1.64E-10
1,2,3,4,6,7,8-Hp-CDD	6.58E-11	4.11E-11	0.00E+00		1.07E-10
Total HpCDD	2.60E-10	5.48E-11	0.00E+00		3.15E-10
Octa CDD	3.42E-10	4.38E-10	0.00E+00		7.81E-10
Total PCDD[h]	1.08E-09	5.48E-10	0.00E+00		1.63E-09
Furans[e]					
2,3,7,8-TCDF	1.33E-11	0.00E+00	0.00E+00		1.33E-11
Total TCDF	5.07E-11	9.04E-12	0.00E+00		5.97E-11
1,2,3,7,8-PeCDF	5.89E-11	0.00E+00	0.00E+00		5.89E-11
2,3,4,7,8-PeCDF	1.15E-11	0.00E+00	0.00E+00		1.15E-11
Total PeCDF	1.15E-09	1.31E-12	0.00E+00		1.15E-09
1,2,3,4,7,8-HxCDF	5.48E-11	0.00E+00	0.00E+00		5.48E-11
1,2,3,6,7,8-HxCDF	1.64E-11	0.00E+00	0.00E+00		1.64E-11
2,3,4,6,7,8-HxCDF	2.60E-11	0.00E+00	0.00E+00		2.60E-11
1,2,3,7,8,9-HxCDF	1.15E-10	0.00E+00	0.00E+00		1.15E-10
Total HxCDF	1.78E-10	5.48E-12	0.00E+00		1.84E-10
1,2,3,4,6,7,8-HpCDF	8.90E-11	0.00E+00	0.00E+00		8.90E-11
1,2,3,4,7,8,9-HpCDF	3.70E-11	0.00E+00	0.00E+00		3.70E-11
Total HpCDF	1.37E-10	2.66E-11	0.00E+00		1.64E-10
Octa CDF	6.58E-11	3.29E-11	0.00E+00		9.86E-11
Total PCDF[h]	5.48E-10	8.49E-11	0.00E+00		6.33E-10
Total PCDD/PCDF[h]	1.64E-09	6.30E-10	0.00E+00		2.27E-09
Non-PAH HAPs					
Acetaldehyde[e]	1.78E-02	0.00E+00	4.53E-04		1.83E-02
Acrolein[e]	3.90E-03	0.00E+00	7.94E-05		3.98E-03
Benzene[e]	5.34E-03	0.00E+00	4.36E-03	8.30E-05	9.79E-03
1,3-Butadiene[e]	0.00E+00	0.00E+00	1.65E-05		1.65E-05
Ethylbenzene[e]	3.60E-02	0.00E+00	0.00E+00	2.44E-03	3.84E-02
Formaldehyde[e]	4.25E-02	9.59E-06	9.02E-04	1.20E-03	4.46E-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	1.61E-03	2.44E-03	4.39E-01
Xylene[e]	3.00E-02	0.00E+00	1.11E-03	1.22E-02	4.34E-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 **Generators** Sum 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	2.33E-03	0.00E+00	0.00E+00	2.94E-04	2.62E-03
3-Methylchloranthrene[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Acenaphthene	1.92E-05	1.45E-06	1.84E-05	2.85E-05	6.75E-05
Acenaphthylene	3.01E-04	5.48E-07	3.70E-05	1.79E-06	3.41E-04
Anthracene	4.25E-05	4.93E-07	5.31E-06	7.79E-06	5.61E-05
Benzo(a)anthracene[e]	2.88E-06	0.00E+00	2.92E-06	2.84E-06	8.63E-06
Benzo(a)pyrene[e]	1.34E-07	0.00E+00	1.05E-06	1.07E-07	1.29E-06
Benzo(b)fluoranthene[e]	1.37E-06	2.74E-07	4.29E-06	3.55E-07	6.29E-06
Benzo(e)pyrene	1.51E-06	0.00E+00	0.00E+00	6.95E-07	2.20E-06
Benzo(g,h,l)perylene	5.48E-07	0.00E+00	2.29E-06	8.87E-08	2.92E-06
Benzo(k)fluoranthene[e]	5.62E-07	0.00E+00	8.86E-07	1.03E-07	1.55E-06
Chrysene[e]	2.47E-06	0.00E+00	5.98E-06	1.21E-05	2.06E-05
Dibenzo(a,h)anthracene[e]	0.00E+00	0.00E+00	1.51E-06	1.73E-08	1.53E-06
Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Fluoranthene	8.36E-06	1.21E-07	1.79E-05	7.55E-06	3.39E-05
Fluorene	1.51E-04	8.77E-08	5.84E-05	7.11E-05	2.80E-04
Indeno(1,2,3-cd)pyrene[e]	9.59E-08	0.00E+00	1.71E-06	2.20E-08	1.83E-06
Naphthalene[e]	8.90E-03	4.66E-05	2.69E-05	1.22E-04	9.10E-03
Perylene	1.21E-07	0.00E+00	0.00E+00	2.07E-06	2.19E-06
Phenanthrene	3.15E-04	1.34E-05	1.66E-04	1.00E-04	5.95E-04
Pyrene	4.11E-05	8.77E-08	3.60E-06	2.23E-05	6.71E-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]	1.78E-05	3.62E-06	0.00E+00		2.14E-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]	1.73E-05	1.09E-06	0.00E+00		1.84E-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]	3.70E-05	6.79E-07	0.00E+00		3.77E-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]	5.18E-03	2.31E-04	0.00E+00		5.41E-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	1.83E-05	1.62E-05	See Silo Fill & Loadout sheet	

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

4/2/2009 12:23 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 **800** Hours/year **120,000** 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 (lb/hr)	B Asphalt Tank Heater Max Emission Rate for Pollutant (lb/hr)	C Generators Sum 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[g]					
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

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Appendix C – Ambient Air Quality Impact Analysis

MEMORANDUM

DATE: March 11, 2009

TO: Carole Zundel, Air Quality Analyst, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT NUMBER: P-2008.0189

SUBJECT: Modeling Review for the Owen PC Construction, LLC (Owen PC), Permit to Construct Application for a Portable Hot Mix Asphalt Plant

1.0 Summary

Owen PC Construction, LLC (Owen PC) submitted a Permit to Construct (PTC) application for a portable hot mix asphalt plant (HMA) to be operated in Idaho, initially at a site near Driggs, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the proposed project were performed to demonstrate the new facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 [Idaho Air Rules Section 203.02]). Environmental Consulting Services, LLP (ECS), Owen PC's consultant, submitted applicable information and data for DEQ to perform the ambient air quality analyses in support of the application.

A technical review of the submitted information was conducted by DEQ. DEQ staff performed detailed air quality analyses. Results from DEQ's analyses were used to establish minimum setback distances between emissions points and the property boundary of the site. The submitted information, in combination with DEQ's air quality analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the proposed facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all locations outside of the required setback distance (closest distance from pollutant emission points to the property boundary). Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY CONDITIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
HMA plant: Throughput must be limited to 1,800 ton of HMA/day and 150,000 ton HMA/year.	The air quality analyses performed assumed these throughput rates.
Emissions units must maintain a 218 meter setback distance from the nearest property boundary.	This setback distance is necessary to assure compliance with applicable air quality standards at all ambient air locations.
If throughput is limited to 120,000 ton HMA/year, only a setback of 180 meters is needed.	Annual throughput should be limited by the permit to 120,000 ton/year if this setback restriction is used.
The HMA may not operate at a site where co-contributing emissions sources such as other HMAs, rock crushing plants, or concrete batch plants are operating.	Emissions are considered co-contributing if they occur within 1,000 feet (305 meters) of each other.
The HMA may not locate in any non-attainment areas.	All analyses performed assumed the facility will be located in areas attaining air quality standards.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The Owen PC HMA will be initially located near Driggs, Idaho. The area is designated as attainment or unclassifiable for all criteria pollutants.

2.1.2 Significant and Cumulative NAAQS Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed new facility exceed the significant contribution levels (SCLs) of Idaho Air Rules Section 006.102, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual[f]	1.0	50[g]	Maximum 1[st] highest[h]
	24-hour	5.0	150[i]	Maximum 6[th] highest[j]
$PM_{2.5}$[k]	Annual	Not established	15	Use PM_{10} as surrogate
	24-hour	Not established	35	Use PM_{10} as surrogate
Carbon monoxide (CO)	8-hour	500	10,000[l]	Maximum 2[nd] highest[h]
	1-hour	2,000	40,000[l]	Maximum 2[nd] highest[h]
Sulfur Dioxide (SO_2)	Annual	1.0	80[g]	Maximum 1[st] highest[h]
	24-hour	5	365[i]	Maximum 2[nd] highest[h]
	3-hour	25	1,300[i]	Maximum 2[nd] highest[h]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[g]	Maximum 1[st] highest[h]
Lead (Pb)	Quarterly	NA	1.5[i]	Maximum 1[st] highest[h]

[a]Idaho Air Rules Section 006.102
[b]Micrograms per cubic meter
[c]Idaho Air Rules Section 577 for criteria pollutants
[d]The maximum 1[st] highest modeled value is always used for the significant impact analysis
[e]Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f]The annual PM_{10} standard was revoked in 2006. The standard is still listed because compliance with the annual $PM_{2.5}$ standard is demonstrated by a PM_{10} analysis that demonstrates compliance with the revoked PM_{10} standard.
[g]Never expected to be exceeded in any calendar year
[h]Concentration at any modeled receptor
[i]Never expected to be exceeded more than once in any calendar year
[j]Concentration at any modeled receptor when using five years of meteorological data
[k]Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
[l]Not to be exceeded more than once per year

New source review requirements for assuring compliance with $PM_{2.5}$ standards have not yet been completed and promulgated into regulation. EPA has asserted through a policy memorandum that compliance with $PM_{2.5}$ standards will be assured through an air quality analysis for the corresponding PM_{10} standard. Although the PM_{10} annual standard was revoked in 2006, compliance with the revoked PM_{10} annual standard must be demonstrated as a surrogate to the annual $PM_{2.5}$ standard.

2.1.3 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permit requirements for toxic air pollutants from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if total project-wide emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated. If DEQ determines T-RACT is used to control emissions of carcinogenic TAPs, then modeled concentrations of 10 times the AACC are considered acceptable, as per Idaho Air Rules Section 210.12.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled. Table 3 lists appropriate background concentrations for rural Idaho areas.

Background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations in these analyses were based on DEQ default values for rural/agricultural areas.

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1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling.* Memorandum to Mary Anderson, March 14, 2003.

Table 3. BACKGROUND CONCENTRATIONS		
Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a]
PM_{10}[b]	24-hour	73
	Annual	26
Carbon monoxide (CO)	1-hour	3,600
	8-hour	2,300
Sulfur dioxide (SO_2)	3-hour	34
	24-hour	26
	Annual	8
Nitrogen dioxide (NO_2)	Annual	17
Lead (Pb)	Quarterly	0.03

a. Micrograms per cubic meter
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

This section describes the modeling methods used by DEQ to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

DEQ staff performed the air quality analyses in support of the submitted permit application.

Table 4 provides a brief description of parameters used in the DEQ modeling analyses.

Table 4. MODELING PARAMETERS		
Parameter	Description/Values	Documentation/Addition Description[a]
General facility location	Near Driggs	The HMA application is for a portable facility
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 07026
Meteorological data	Multiple Data Sets	See Section 3.1.4
Terrain	Flat	The analyses assumed flat terrain for the immediate area
Building downwash	Not Considered	Not considered because of porous nature of equipment and portable nature of the plant
Receptor Grid	Grid 1	5-meter spacing along the property boundary out 60 meters
	Grid 2	10-meter spacing out to 200 meters

3.1.2 Modeling protocol and Methodology

A modeling protocol was not submitted to DEQ prior to the application because DEQ staff performed the air quality analyses. Modeling was generally conducted using data and methods described in the *State of Idaho Air Quality Modeling Guideline*.

Because of the portable nature of the HMA plant, DEQ performed modeling to establish setback distances between emissions source locations and the property boundary.

3.1.3 Model Selection

Idaho Air Rules Section 202.02 require that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. EPA provided a 1-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer
- Improved plume rise and buoyancy calculations
- Improved treatment of terrain affects on dispersion
- New vertical profiles of wind, turbulence, and temperature

AERMOD was used for the DEQ analyses.

3.1.4 Meteorological Data

Because of the portable nature of the facility, DEQ used six different meteorological data sets from various locations in Idaho to assure compliance with applicable standards. Table 5 lists the meteorological data sets used in the air impact analyses.

Table 5. METEOROLOGICAL DATA SETS USED IN MODELING ANALYSES

Surface Data	Upper Air Data	Years
Boise	Boise	1988-1992
Aberdeen	Boise	2001-2005
Idaho Falls	Boise	2000-2004
Minidoka	Boise	2000-2004
Lewiston	Spokane, Wa	1992-1995, 1997
Sandpoint	Spokane, Wa	2002-2006

Use of representative meteorological data is of greater concern when using AERMOD than when using ISCST3. This is because AERMOD uses site-specific surface characteristics to more accurately account for turbulence. To account for this uncertainty, the following measures were taken:

- Use the maximum 2nd high modeled concentration to evaluate compliance with the 24-hour PM_{10} standard, rather than the maximum 6th high modeled concentration typically used when modeling a five-year meteorological data set to demonstrate that the standard will not be exceeded more than once per year on average over a three year period.

- Use the maximum 1st high modeled concentration to evaluate compliance with all pollutants and averaging times, except for 24-hour PM_{10}.

3.1.5 Terrain Effects

Terrain effects on dispersion were not considered in the analyses. Flat terrain was an appropriate assumption because most emissions sources associated with the HMA plant are near ground-level and the surrounding area is typically flat for dispersion modeling purposes. Emissions sources near ground-level typically have maximum pollutant impacts near the source, minimizing the potential affect of surrounding terrain to influence the magnitude of maximum modeled impacts.

3.1.6 Facility Layout

DEQ's analyses used a generic facility layout. This was done because the specific layout will vary depending upon product needs and specific characteristics of the site.

3.1.7 Building Downwash

DEQ's analyses did not account for building downwash because of the following:

- Determining a building configuration is extremely difficult given the portable nature of the facility.
- Much of the equipment is porous with regard to wind, thereby minimizing downwash effects.

3.1.8 Ambient Air Boundary

DEQ's analyses, using a generic facility layout, were used to generate minimum setback distances between emissions units and the property boundary. The issued permit will require this distance be maintained at all locations.

3.1.9 Receptor Network and Generation of Setback Distances

A circular grid with 10.0 meter receptor spacing, extending out to 200 meters was used in the modeling files for the DEQ analyses. To establish a setback distance, the following procedure was followed:

1) Trigger values for the modeling analyses were determined. These are values, when combined with background concentrations, would indicate an exceedance to a standard. They were calculated by subtracting the background value from the standard (because the model does not specifically include background in the results). The following are trigger values:

PM_{10}	24-hour	77 μg/m^3
	annual	24 μg/m^3
SO_2	3-hour	1266 μg/m^3
	24-hour	339 μg/m^3
	annual	72 μg/m^3
CO	1-hour	36400 μg/m^3
	8-hour	7700 μg/m^3
NO_2	annual	83 μg/m^3

2) For each pollutant, averaging period, and meteorological data set, all receptors with concentrations equal or greater than the trigger value were plotted. This effectively gave a plot of receptors where the standard may be exceeded for that pollutant and averaging period.

3) The controlling receptor for each pollutant, averaging period, and meteorological data set was identified. First, the receptor having a concentration in excess of the trigger value that is the furthest from any emissions source was identified. The controlling receptor was the next furthest downwind receptor from that point.

4) The minimum setback distance was calculated. This was the furthest distance between an emissions point and the controlling receptor.

3.2 Emission Rates

Emissions rates used in the modeling analyses for the proposed project were equal to those presented in other sections of the permit application or the DEQ Statement of Basis. However, since the application indicated the HMA plant would only operate a maximum of 12 hours/day, DEQ's emissions rates used for 24-hour averaging periods were calculated by multiplying the maximum 1-hour emissions rate by the ratio of 12/24, or 0.5.

3.2.1 Criteria Pollutant Emissions Rates

Table 6 lists criteria pollutant emissions rates used in the DEQ modeling analyses for all averaging periods. Attachment 1 provides details of DEQ emissions calculations.

Fugitive dust emissions from frontend loader handling of aggregate materials for the HMA plant were designated as emissions point MATHNDHI in the model. Two transfers were included for the source: 1) transfer of aggregate from truck unloading to a storage pile; 2) transfer of aggregate from the storage pile to a hopper. The submitted application did not calculate emissions from these fugitive sources. Attachment 1 provides details on emissions calculations.

Emissions from truck unloading of aggregate, screening of aggregate, and three conveyor transfers were combined into one source (emissions point CONVEY in the model). DEQ calculated emissions for truck unloading and used emissions factors for controlled screening and conveyor transfers. Controlled emissions were used for screening and conveyor transfers because compliance with the 24-hour PM_{10} standard could not be demonstrated with a reasonable setback distance when using uncontrolled screening and conveyor transfer emissions. The issued permit should include control requirements for these sources.

Table 6. EMISSIONS RATES USED FOR FULL NAAQS IMPACT MODELING						
Emissions Point	Description	Averaging Period	Emissions Rates (lb/hr)			
			Carbon Monoxide	PM_{10}[a]	Sulfur Dioxide	Oxides of Nitrogen
DRYER	Asphalt Dryer Stack	1-/8-hour	19.50			
		3-hour			8.700	
		24-hour		2.025	4.350	
		annual		0.4623	0.9932	0.9418
SILO	Asphalt Silo Filling	1-/8-hour	0.1770			
		24-hour		0.04394		
		annual		0.01003		
LOADOUT	Asphalt Loadout	1-/8-hour	0.2024			
		24-hour		0.03915		
		annual		0.008937		
HOTOIL	Asphalt Oil Heater	1-/8-hour	0.02999			
		3-hour			0.5679	
		24-hour		0.02639	0.5679	
		annual		0.009038	0.1945	0.05479
GEN1	545 kW generator	1-/8-hour	4.390			
		3-hour			2.584	
		24-hour		0.1466	1.292	
		annual		0.05019	0.4425	2.803
GEN2	45 kW generator	1-/8-hour	0.4013			
		3-hour			0.1225	
		24-hour		0.06550	0.06125	
		annual		0.02243	0.02098	0.3190
MATHNDHI	Material Handling – Loader – Reasonable Controls[b]	24-hour		0.1147		
		annual		0.02618		
CONVY	Truck Unloading, Scalping Screen, and Conveyors[c]	24-hour		0.07335		
		annual		0.01675		

[a] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[b] Emissions calculated for a base 10 mph wind speed and a moisture content of 5%. Emissions in the model are varied with windspeed.
[c] Calculated using a factor for controlled emissions

3.2.2 TAP Emissions Rates

Table 7 provides TAP emissions associated with operation of the proposed HMA. The table only includes those TAPs where total emissions exceeded emissions screening levels of Idaho Air Rules Section 585 and 586. Allowable impacts of carcinogenic TAPs may be 10 times the AACC if DEQ determines the facility uses T-RACT to control emissions. When T-RACT is used, DEQ has determined that compliance with a concentration of 10 times the AACCs is assured if emissions remain below 10 times the ELs. This approach is valid because conservative modeling was used to generate the emissions screening levels (ELs) of Idaho Air Rules Section 586, assuring that impacts are less than AACCs when emissions are less than ELs. Consequently, if emissions are below 10 times the ELs it is assured that impacts are below 10 times AACCs.

DEQ determined no additional control is T-RACT for non-particulate TAP emissions from the drum dryer, including acetaldehyde, benzene, formaldehyde, POM, and PAHs. Control by baghouse has previously been determined as meeting T-RACT for particulate TAP emissions. Owen PC proposes to control emissions from the drum dryer using a wet scrubber, which has a lower particulate control efficiency than a baghouse. The scrubber was not evaluated as T-RACT for particulate control; therefore, maximum ambient concentrations must be below established AACCs.

Table 7. EMISSIONS RATES USED FOR TAPS IMPACT MODELING							
TAP	**Emissions Rates (lb/hr)**						
	DRYR	**SILO**	**LOAD OUT**	**OIL HEAT**	**GEN1**	**GEN2**	**Total**
Acetaldehyde	2.226E-2				2.208E-5	5.548E-5	2.234E-2
Benzene	6.678E-3	6.678E-5	3.703E-5		6.798E-4	6.749E-5	7.529E-3
Formaldehyde	5.308E-2	1.440E-3	6.267E-5	2.760E-5	6.912E-5	8.535E-5	5.476E-2
POM	9.380E-6	1.156E-5	7.878E-6	2.739E-7	3.939E-6	2.483E-7	3.328E-5
Total PAH	1.113E-2	7.912E-5	7.297E-5	4.657E-5	1.139E-4	6.134E-6	1.145E-2
Arsenic	2.226E-5		.	3.616E-6			2.588E-5
Cadmium	2.158E-5			1.090E-6			2.267E-5
Chromium 6	4.623E-5			6.793E-7			4.691E-5
Nickel	6.473E-3			2.315E-4			6.705E-3
Phosphorus	2.520E-2			7.566E-5			2.528E-2

3.3 Emission Release Parameters

Table 8 provides emissions release parameters for the analyses including stack height, stack diameter, exhaust temperature, and exhaust velocity. Asphalt silo filling and asphalt loadout were modeled as point sources, rather than volume sources, to account for thermal buoyancy of the emissions. Release parameters were based on the following:

- Release point of silo filling was established as the top of the storage silo and the release point of asphalt loadout operations was set to correspond to the top of a truck bed.
- Stack diameter of 3.0 meters was used to approximately correspond to a typical silo. Model-calculated stack tip downwash will account for downwash affects potentially caused by the silo.
- Stack gas temperature of 344K was calculated by assuming the gas temperature would be half that of the default asphalt temperature of 325°F.
- Flow velocity of 0.1 m/sec was used to establish a reasonably conservative total flow from the source of 1,500 actual cubic feet per minute, caused by convection.

Table 8. EMISSIONS RELEASE PARAMETERS					
Release Point /Location	**Source Type**	**Stack Height (m)[a]**	**Modeled Diameter (m)**	**Stack Gas Temp. (K)[b]**	**Stack Gas Flow Velocity (m/sec)[c]**
DRYER	Point	10	0.79	346	30
LOADOUT	Point	5.0	3.0	346	0.1
SILO	Point	9.0	3.0	346	0.1
HOTOIL	Point	3.7	0.20	350	14.8
GEN1	Point	2.0	0.10	600	35
GEN2	Point	2.0	0.10	600	60
Volume Sources					

Release Point /Location	Source Type	Release Height (m)	Initial Horizontal Dispersion Coefficient σ_{y0} (m)	Initial Vertical Dispersion Coefficient σ_{z0} (m)	
MATHNDHI	Volume	2.5	4.65	1.16	
CONVY	Volume	5.0	4.65	1.16	

[a] Meters
[b] Kelvin
[c] Meters per second

3.4 Results for Cumulative NAAQS Impact Analyses

DEQ generated required setback distances from the modeling results for criteria pollutants. Table 9 lists setback distances for individual analyses.

Table 9. Setback Distances for Specific Analyses

Meteorological Data Set	Pollutant	Averaging Period	Critical Receptor[a] (m east, m north)	Required Setback[b] (meters)
Sandpoint	PM_{10}	24-hour	-40, -60	77
		Annual[c]	none	none
	SO_2	3-hour	-30, -40	55
		24-hour	-30, -40	55
		Annual[c]	none	none
	CO	1-hour	none	none
		8-hour	none	none
	NO_2	Annual[c]	none	none
Boise	PM_{10}	24-hour	-30, 30	46
		Annual[d]	none	none
	SO_2	3-hour	none	none
		24-hour	-30, 20	40
		Annual[d]	none	none
	NO_2	Annual[d]	-50, 40	68
Lewiston	PM_{10}	24-hour	-30, -20	40
Idaho Falls	PM_{10}	24-hour	20, 30	40
	SO_2	3-hour	none	none
		24-hour	none	none
Minidoka	PM_{10}	24-hour	-60, -50	82
		Annual[e]	none	none
	SO_2	3-hour	-70, 40	85
		24-hour	-40, -40	61
		Annual[e]	none	none
	NO_2	Annual[e]	40, 20	49
Aberdeen	PM_{10}	24-hour	-30, -20	
	SO^2	3-hour	none	none
		24-hour	none	none

[a]One receptor beyond the furthest receptor that has concentrations exceeding NAAQS when combined with an appropriate background concentration
[b]Closest allowable distance between an emissions source and the ambient air boundary
[c]Modeled for 2005 -2006
[d]Modeled for 1991 - 1992
[e]Modeled for 2003 - 2004

3.5 Results for TAPs Analyses

DEQ generated required setback distances from the modeling results for TAPs. Table 10 lists setback distances for individual analyses. After performing TAP analyses for Sandpoint and Boise meteorological data sets, it was apparent that setback distances would be driven by modeling results for only a few TAPs, including formaldehyde, PAH, POM, and Nickel. Subsequent analyses using Lewiston, Aberdeen, and Minidoka metrological data were performed only for those TAPs. Since DEQ determined T-RACT will be implemented for non-particulate TAPs, T-RACT-adjusted setback requirements for formaldehyde, PAH, and POM are reduced to levels less than those needed to assure compliance with criteria pollutants. Impacts of nickel (T-RACT is not used to control nickel emissions) drive the setback requirements, with Minidoka meteorological data indicating the largest setback at 218 meters. If throughput is limited to 120,000 ton HMA per year, then the required setback is reduced to 180 meters.

Table 10. Setback Distances for Specific TAP Analyses

Meteorological Data Set	Pollutant	Averaging Period	Critical Receptor[a] (m east, m north)	Required Setback[b] (meters)
Sandpoint	Acetaldehyde[c]	period	none (none)	none
	Benzene[c]	period	none (none	none
	Formaldehyde[c]	period	none (20, 30)	none (40)
	PAH[c]	period	none (-20, -30)	none (40)
	POM[c]	period	20, 10 (50, 50)	27 (75)
	Arsenic	period	none	none
	Cadmium	period	none	none
	Chromium6+	period	none	none
	Nickel	period	none	none
Minidoka	Formaldehyde[c]	period	20, 10 (40,20)	27 (49)
	PAH[c]	period	none (30,20)	none (40)
	POM[c]	period	20, 10 (70, 40)	27 (85)
	Nickel	period	200, 80	218
	Nickel adjusted[d]	period	170, 50	180
Boise	Acetaldehyde[c]	period	none	none
	Benzene[c]	period	none	none
	Formaldehyde	period	20, -10 (-40, 30)	27 (55)
	PAH	period	none (-40, 30)	none (55)
	POM	period	-20, 20 (-90, 70)	33 (119)
	Arsenic	Period	none	none
	Cadmium	Period	none	none
	Chromium6+	period	none	none
	Nickel	period	-150, 110	190
Idaho Falls	Formaldehyde	period	none (20, 40)	none (49)
	PAH	period	none (20, 30)	none (40)
	POM	period	20, 20 (50, 80)	33 (98)
	Nickel	period	none	none
Aberdeen	Formaldehyde	period	none (40, 30)	none (55)
	PAH	period	none (30, 30)	none (46)
	POM	period	20, 20 (70, 60)	none (96)
	Nickel	period	140, 140	202
Lewiston	Nickel	period	none	none

[a] One receptor beyond the furthest receptor that has concentrations exceeding AACs/AACCs. Values in parentheses are those receptors that are one receptor beyond the furthest receptor that has concentrations exceeding 10 times the AACs/AACCs (applicable for T-RACT)
[b] Closest allowable distance between an emissions source and the ambient air boundary
[c] Value listed is setback considering T-RACT, value in parentheses is setback without considering T-RACT
[d] Impact associated with a reduced throughput of 120,000 ton HMA per year

4.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

ATTACHMENT A

EMISSIONS CALCULATIONS AND MODELING PARAMETERS FOR

DEQ'S SUPPLEMENTAL ANALYSES

HMA Plant Modeled Emissions Rates

The applicant indicated maximum hourly throughput would be 150 ton HMA/hr. The application also indicated the plant could operate up to 12 hr/day. DEQ calculated maximum daily emissions based on maximum hourly throughput for 12 hr/day. Annual emissions were based on 1,000 hr/yr at 150 ton HMA/hr.

Daily production:

$$\frac{150 \text{ ton}}{\text{hr}} \left| \frac{12 \text{ hr}}{\text{day}} \right. = \frac{1{,}800 \text{ ton}}{\text{day}}$$

Annual production:

$$\frac{150 \text{ ton}}{\text{hr}} \left| \frac{1{,}000 \text{ hr}}{\text{yr}} \right. = \frac{150{,}000 \text{ ton}}{\text{yr}}$$

<u>Drum Dryer Emissions</u>

Emissions inventory in application indicates the following maximum 1-hour rates:
PM_{10} = 4.050 lb/hr; SO2 = 8.700 lb/hr; CO = 19.5 lb/hr; NOx = 8.250 lb/hr

To calculate appropriate emissions rates for 24-hour impacts the maximum daily rates were divided by 24 hr/day. Since the daily rate was equal to the maximum hourly rate for 12 hr/day, an appropriate hourly emissions rate to use for modeling 24-hour impacts can be calculated by multiplying the maximum hourly rate by 12 hr/24 hr (0.5).

To calculate appropriate emissions rates for annual impacts the maximum annual rates were divided by 8,760 hr/yr. Since the annual rate was equal to the maximum hourly rate for 1,000 hr/day, an appropriate hourly emissions rate to use for modeling annual impacts can be calculated by multiplying the maximum hourly rate by 1,000 hr/8,760 hr.

PM_{10} 24-hour:

$$\frac{4.050 \text{ lb } PM_{10}}{\text{hr}} \left| \frac{12 \text{ hr}}{24 \text{ hr}} \right. = \frac{2.025 \text{ lb } PM_{10}}{\text{hr}}$$

annual:

$$\frac{4.050 \text{ lb } PM_{10}}{\text{hr}} \left| \frac{1{,}000 \text{ hr}}{8{,}760 \text{ hr}} \right. = \frac{0.4623 \text{ lb } PM_{10}}{\text{hr}}$$

SO2 3-hour:

$$\frac{8.700 \text{ lb SO2}}{\text{hr}}$$

24-hour:

$$\frac{8.700 \text{ lb SO2}}{\text{hr}} \left| \frac{12 \text{ hr}}{24 \text{ hr}} \right. = \frac{4.350 \text{ lb SO2}}{\text{hr}}$$

annual:

$$\frac{8.700 \text{ lb SO2}}{\text{hr}} \left| \frac{1{,}000 \text{ hr}}{8{,}760 \text{ hr}} \right. = \frac{0.9932 \text{ lb SO2}}{\text{hr}}$$

CO 1-hour and 8-hour: $\frac{19.5 \text{ lb CO}}{\text{hr}}$

NOx annual: $\frac{8.250 \text{ lb NOx}}{\text{hr}} \left| \frac{1{,}000 \text{ hr}}{8{,}760 \text{ hr}} \right. = \frac{0.9418 \text{ lb NOx}}{\text{hr}}$

Asphalt Loadout

Emissions inventory in application indicates the following maximum rates:
PM_{10} = 0.07829 lb/hr; CO = 0.2024 lb/hr

PM_{10} 24-hour: $\frac{0.07829 \text{ lb } PM_{10}}{\text{hr}} \left| \frac{12 \text{ hr}}{24 \text{ hr}} \right. = \frac{0.03915 \text{ lb } PM_{10}}{\text{hr}}$

annual: $\frac{0.07829 \text{ lb } PM_{10}}{\text{hr}} \left| \frac{1{,}000 \text{ hr}}{8{,}760 \text{ hr}} \right. = \frac{0.008937 \text{ lb } PM_{10}}{\text{hr}}$

CO 1-hour and 8-hour: $\frac{0.2024 \text{ lb CO}}{\text{hr}}$

Asphalt Silo Filling

Emissions inventory in application indicates the following maximum rates:
PM_{10} = 0.08788 lb/hr; CO = 0.1770 lb/hr

PM_{10} 24-hour: $\frac{0.08788 \text{ lb } PM_{10}}{\text{hr}} \left| \frac{12 \text{ hr}}{24 \text{ hr}} \right. = \frac{0.04394 \text{ lb } PM_{10}}{\text{hr}}$

annual: $\frac{0.08788 \text{ ton } PM_{10}}{\text{yr}} \left| \frac{1{,}000 \text{ hr}}{8{,}760 \text{ hr}} \right. = \frac{0.01003 \text{ lb } PM_{10}}{\text{hr}}$

CO 1-hour and 8-hour: $\frac{0.1770 \text{ lb CO}}{\text{hr}}$

Asphalt Tank Heater Emissions

Emissions inventory in application indicates the following maximum 1-hour rates:
PM_{10} = 0.02639 lb/hr; SO2 = 0.5679 lb/hr; CO = 0.03999 lb/hr; NOx = 0.1600 lb/hr
The tank heater will operate 24 hr/day, so 1-hr emissions are the same as averaged 24 hr emissions.

545 kW Generator Emissions

Emissions inventory in application indicates the following maximum rates:
PM_{10} = 0.2931 lb/hr; SO2 = 2.548 lb/hr; CO = 4.349 lb/hr; NOx = 16.37 lb/hr
The application indicates the generator will operate for up to 12 hr/day and 1,500 hr/yr

PM_{10} 24-hour: $\frac{0.2931 \text{ lb } PM_{10}}{\text{hr}} \Big| \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{0.1466 \text{ lb } PM_{10}}{\text{hr}}$

PM_{10} Annual: $\frac{0.2931 \text{ lb } PM_{10}}{\text{hr}} \Big| \frac{1{,}500 \text{ hr}}{8760 \text{ hr}} = \frac{0.05019 \text{ lb } PM_{10}}{\text{hr}}$

SO2 3-hour: $\frac{2.584 \text{ lb SO2}}{\text{hr}}$

SO2 24-hour: $\frac{2.584 \text{ lb SO2}}{\text{hr}} \Big| \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{1.292 \text{ lb SO2}}{\text{hr}}$

SO2 Annual: $\frac{2.584 \text{ lb SO2}}{\text{yr}} \Big| \frac{1{,}500 \text{ hr}}{8760 \text{ hr}} = \frac{0.4425 \text{ lb SO2}}{\text{hr}}$

CO 1-hour and 8-hour: $\frac{4.349 \text{ lb CO}}{\text{hr}}$

NOx Annual: $\frac{16.37 \text{ lb NOx}}{\text{hr}} \Big| \frac{1{,}500 \text{ hr}}{8760 \text{ hr}} = \frac{2.803 \text{ lb NOx}}{\text{hr}}$

45 kW Generator Emissions

Emissions inventory in application indicates the following maximum rates:
PM_{10} = 0.131 lb/hr; SO2 = 0.1225 lb/hr; CO = 0.4013 lb/hr; NOx = 1.863 lb/hr
The application indicates the generator will operate for up to 12 hr/day and 1,500 hr/yr

PM_{10} 24-hour: $\frac{0.1310 \text{ lb } PM_{10}}{\text{hr}} \Big| \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{0.06550 \text{ lb } PM_{10}}{\text{hr}}$

PM_{10} Annual: $\frac{0.1310 \text{ lb } PM_{10}}{\text{hr}} \Big| \frac{1{,}500 \text{ hr}}{8760 \text{ hr}} = \frac{0.02243 \text{ lb } PM_{10}}{\text{hr}}$

SO2 3-hour: $\frac{0.1225 \text{ lb SO2}}{\text{hr}}$

SO2 24-hour: $\frac{0.1225 \text{ lb SO2}}{\text{hr}} \Big| \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{0.06125 \text{ lb SO2}}{\text{hr}}$

SO2 Annual: $\frac{0.1225 \text{ lb SO2}}{\text{hr}} \Big| \frac{1{,}500 \text{ hr}}{8760 \text{ hr}} = \frac{0.02098 \text{ lb SO2}}{\text{hr}}$

CO 1-hour and 8-hour: $\frac{0.4013 \text{ lb CO}}{\text{hr}}$

NOx Annual: $\frac{1.863 \text{ lb NOx}}{\text{hr}} \Big| \frac{1{,}500 \text{ hr}}{8760 \text{ hr}} = \frac{0.3190 \text{ lb NOx}}{\text{hr}}$

Aggregate Handling by Loader Emissions

Emissions from aggregate handling by frontend loaders were calculated for the following transfers: 1) aggregate to a storage pile; 2) aggregate from a pile to a hopper.

PM_{10} emissions associated with the handling of aggregate materials should be calculated using emissions factors from AP42 Section 13.2.4.

Emissions are calculated using the following emissions equation:

$$E = k(0.0032)\left[\frac{(U/5)^{1.3}}{(M/2)^{1.4}}\right] \quad \text{lb/ton}$$

Where:

k	=	0.35 for PM_{10}
M	=	5% for aggregate
U	=	wind speed (mph)

A moisture content of 3% to 7% was estimated as a typical moisture content of aggregate entering the dryer, per STAPPA-ALAPCO-EPA, Emission Inventory Improvement Program, Volume II, Chapter 3, Preferred and Alternative Methods for Estimating Air Emissions from Hot Mix Asphalt Plants, Final Report, July 1996.

In the model, emissions are varied as a function of windspeed, with the base emissions entered for a windspeed of 10 mph.

upper windspeeds for 6 categories: 1.54, 3.09, 5.14, 8.23, 10.8 m/sec

Median windspeed for each category (1 m/sec = 2.237 mph)

Cat 1: (0 + 1.54)/2 = 0.77 m/sec ➢ 1.72 mph
Cat 2: (1.54 + 3.09)/2 = 2.32 m/sec ➢ 5.18 mph
Cat 3: (3.09 + 5.14)/2 = 4.12 m/sec ➢ 9.20 mph
Cat 4: (5.14 + 8.23)/2 = 6.69 m/sec ➢ 14.95 mph
Cat 5: (8.23 + 10.8)/2 = 9.52 m/sec ➢ 21.28 mph
Cat 6: (10.8 + 14)/2 = 12.4 m/sec ➢ 27.74 mph

Base factor – use 10 mph wind: $0.35(0.0032)\frac{(10/5)^{1.3}}{(5/2)^{1.4}} = 7.646\text{ E}-4$ lb/ton

Adjustment factors to put in the model:

Cat 1: $(1.72/5)^{1.3}$ (3.105 E-4) = 7.756 E-5 lb/ton
Factor = 7.756 E-5/7.646 E-4 = 0.1014

Cat 2: $(5.18/5)^{1.3}$ (3.105 E-4) = 3.251 E-4 lb/ton
Factor = 3.251 E-4/ 7.646 E-4 = 0.4253

Cat 3: $(9.20/5)^{1.3}$ (3.105 E-4) = 6.861 E-4 lb/ton
Factor = 6.861 E-4/7.646 E-4 = 0.8974

Cat 4: $(14.95/5)^{1.3}$ (3.105 E-4) = 1.290 E-3 lb/ton
Factor = 1.290 E-3/7.646 E-4 = 1.687

Cat 5: $(21.28/5)^{1.3}$ (3.105 E-4) = 2.041 E-3 lb/ton
Factor = 2.041 E-3/7.646 E-4 = 2.669

Cat 6: $(27.74/5)^{1.3}$ (3.105 E-4) = 2.881 E-3 lb/ton
Factor = 2.881 E-3/7.646 E-4 = 3.768

Daily PM_{10}:

7.646 E-4 lb PM_{10}	150 ton	12 hr	2 transfers	=	0.1147 lb
ton	hr	24 hr			hr

Annual PM_{10}:

7.646 E-4 lb PM_{10}	150,000 ton	yr	2 transfers	=	0.02618 lb
ton	yr	8,760 hour			hr

These sources were modeled as a single volume source with a 20-meter square area, 5.0 meters thick, with a release height of 2.5 meters. The initial dispersion coefficients were calculated as follows:

σ_{yo} = 20 m / 4.3 = 4.65 m

σ_{zo} = 5 m / 4.3 = 1.16 m

Conveyors and Screens Emissions

These sources include truck unloading of aggregate, the scalping screen, and conveyor transfers. Controlled emissions factors for the conveyor transfers and the scalping screen were used, and the issued permit should include requirements to implement appropriate measures to assure emissions are minimized and are not greater than those used in the DEQ impact analyses.

Truck Unloading of Aggregate:

Daily PM_{10}:

0.00010 lb PM_{10}	1,800 ton	day	=	0.007500 lb
ton	day	24 hour		hr

Annual PM_{10}:

0.00010 lb PM_{10}	150,000 ton	yr	=	0.001712 lb
ton	yr	8,760 hour		hr

Scalping Screen (controlled emissions):

Daily PM_{10}:

0.00074 lb PM_{10}	1,800 ton	day	=	0.05550 lb
ton	day	24 hour		hr

Annual PM_{10}:

0.00074 lb PM_{10}	150,000 ton	yr	=	0.01267 lb
ton	yr	8,760 hour		hr

Conveyor Transfers (controlled emissions):

Daily PM_{10}:

4.60 E-5 lb PM_{10}	1,800 ton	day	3 transfers	=	0.01035 lb
ton	day	24 hour			hr

Annual PM_{10}:

4.60 E-5 lb PM_{10}	150,000 ton	yr	3 transfers	=	0.002363 lb
ton	yr	8,760 hour			hr

Total Daily Emissions (unloading, screening, conveyors) = 0.07335 lb/hr

Total Annual Emissions (unloading, screening, conveyors) = 0.01675lb/hr

These sources were modeled as a single volume source with a 20-meter square area, 5.0 meters thick, with a release height of 5.0 meters. The initial dispersion coefficients are calculated as follows:

σ_{yo} = 20 m / 4.3 = 4.65 m

σ_{zo} = 5 m / 4.3 = 1.16 m

HMA Plant Modeling Parameters

Dryer Baghouse Stack

Release height = 10 meters; effective diameter of release area = 0.79 meters;
typical stack gas temperature = 346 K; typical flow velocity = 30 meters/second

Asphalt Silo Filling

DEQ modeled this source as a point source.
- release height of 9 meters (equal to height of silo)
- stack diameter of 3 meters, corresponding to the approximate diameter of the silo
- gas temperature was estimated at half the AP42 default asphalt temperature: 325° F / 2 = 163° F
- stack velocity of 0.1 m/sec to account for convective air flow.

Asphalt Loadout

DEQ modeled this source as a point source.
- release height of 5 meters (equal to height of silo)
- stack diameter of 3 meters, corresponding to the approximate diameter of the silo
- gas temperature was estimated at half the AP42 default asphalt temperature: 325° F / 2 = 163° F

- stack velocity of 0.1 m/sec to account for convective air flow.

Aggregate to and from Storage

Release emissions in model from a 20 m X 20 m area 5 m high, released at 2.5 m

Initial dispersion coefficients:

σ_{y0} = 20 m / 4.3 = 4.65 m

σ_{z0} = 5 m / 4.3 = 1.16 m

Sources include: 1) frontend loader transfers from unloading to pile; 2) frontend loader transfer from pile to hopper.

Conveyor Transfers

Release emissions in model from a 20 m X 20 m area 5 m high, released at 5 m

Initial dispersion coefficients:

σ_{y0} = 20 m / 4.3 = 4.65 m

σ_{z0} = 5 m / 4.3 = 1.16 m

Sources include: all conveyor transfers associated with HMA operations