State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Permit to Construct No. P-2008.0124

Final

Salmon Asphalt & Paving, Inc.

Portable (Salmon, Idaho)

Facility ID No. 777-00443

November 24, 2008

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Permit Writer

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

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Acronyms, Units, and Chemical Nomenclature

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
ASTM	American Society for Testing and Materials
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EL	screening emissions levels
EPA	U.S. Environmental Protection Agency
gal/hr	gallons per hour
gr/dscf	grains per dry standard cubic feet
HAP	Hazardous Air Pollutants
HMA	hot mix asphalt
hr/yr	hours per consecutive 12-calendar month period
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
m/sec	meters per second
$\mu g/m^3$	micrograms per cubic meter
mg/dscm	milligrams per dry standard cubic meter
MMBtu/hr	million British thermal units per hour
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PAH	polyaromatic hydrocarbons
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
Rules	Rules for the Control of Air Pollution in Idaho
SCL	Significant Contribution Limits
SIP	State Implementation Plan
SM	Synthetic Minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAP	Toxic Air Pollutant
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12-calendar month period
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. FACILITY INFORMATION

1.1 Facility Description

The processes include a hot mix asphalt (HMA) plant that consists of a drum mix dryer, an asphalt tank heater, a baghouse, an asphalt oil storage tank, a fuel storage tank, and materials transfer equipment. Materials transfer equipment may include front end loaders, storage bins, conveyors, stock piles, and haul trucks.

Stockpiled aggregate is transferred to feed bins. Aggregate may consist of up to 50% recycled asphalt pavement (RAP). Aggregate is dispensed from the bins onto feeder conveyors, which transfer the aggregate to the drum mix dryer. Aggregate travels through the drum-mix dryer and when dried is mixed with liquid asphalt cement. The resulting HMA is conveyed to hot storage bins until it can be loaded into trucks for transport off site or transferred to silos for temporary storage. Electrical power will be supplied to the plant from the local power grid.

1.2 Permitting Action and Facility Permitting History

This permit is the initial Permit to Construct (PTC) for this facility.

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

This permit to construct is for a portable hot mix asphalt plant.

2.2 Application Chronology

July 28, 2008	DEQ received a PTC application and $1,000 application fee.
August 22, 2008	DEQ determined that the application was incomplete.
September 2, 2008	DEQ received additional information from the applicant.
September 30, 2008	DEQ determined that the application was complete.
October 30, 2008	DEQ made available the draft permit and statement of basis for peer and Idaho Falls Regional Office review.
November 4, 2008	DEQ made available the draft permit and statement of basis for facility review.
November 7 - 21, 2008	DEQ provided an opportunity to request a public comment period on the application and the proposed permit to construct.
November 14, 2008	DEQ received $2,500 PTC processing fee.
November 24, 2008	DEQ issued the final permit and statement of basis.

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 SUMMARY OF REGULATED EMISSIONS SOURCES

Source Description		Emissions Controls
Hot Mix Asphalt Dryer with Electric-Powered Asphalt Tank Heater (or equivalent[a])		Hot Mix Asphalt Dryer Baghouse (or equivalent[a])
Manufacturer:	AEDCO	Manufacturer: Cedar Rapids
Model:	AD526 (parallel-flow drum mix)	Model: 3592S
Burner Model:	Hauck SJ260	Type: Pulse jet
Manufacture date:	1985	
Maximum capacity:	125 T/hr and 49.3 MMBtu/hr	
Maximum production:	125 T/hr and 5,000 T/yr	
Fuel:	natural gas, distillate fuel oil ASTM Grade 1 and Grade 2, reprocessed fuel oil	
Maximum fuel usage rate:	360 gal/hr	
Storage tanks		
Model:	above-ground storage tank	None
Maximum capacity:	5,000 gallons	
Type:	asphalt cement	
Model:	above-ground storage tank	None
Maximum capacity:	12,000 gallons	
Type:	fuel oil	
Materials transfer points (includes fugitives)		Minimized drop heights, water sprays, or equivalent control methods
Aggregate dump to ground, Aggregate dump to conveyor, Aggregate conveyor to elevated storage		

a. "or equivalent" is defined as equipment which has an equivalent or less maximum capacity (T/hr) than listed in this table, has an equivalent or greater control efficiency than listed in the permit, which does not result in an increase in emissions, and which does not result in the emission of a toxic air pollutant not previously emitted.

3.2 Emissions Inventory

An emissions inventory for the HMA plant was provided in the application. The emission inventory is based on emission factors from Section 11.1 of AP-42, the sources and emission controls descriptions summarized in Table 3.1, the fuel types summarized in Table 3.2, and the following operational limits: 125 T/hr and 5,000 T/yr maximum asphalt production. Emission inventory data pertaining to storage tank losses were estimated utilizing TANKS emission estimation software.

Emissions estimates were calculated separately for each fuel evaluated for use in the HMA. An emission estimate for each emission source was then developed by selecting the maximum value for each pollutant and each fuel type evaluated for that source, as provided in Table 3.3. This represents a worst-case approach for conservatively evaluating the maximum potential emissions from each source regardless of which fuel the facility chooses to use.

The data available in AP-42 Section 11.1.1.3 does not discern differences in emissions between parallel-flow and counter-flow designs. As a result, recycled asphalt pavement (RAP) should be able to be processed at ratios up to 50% with little to no observed effect on emissions. This permit allows processing of design aggregate that is comprised of up to 50% RAP.

Table 3.2 EMISSION SOURCES, FUEL TYPES, AND EMISSION FACTORS

Emission Source	Fuel Type Evaluated	Emission Factor Source
HMA Dryer with Fabric Filter (Baghouse)	ASTM Grade 2 Fuel Oil	AP-42, Section 11.1
	Used Oil at 0.5% S	AP-42, Section 11.1
	Used Oil (RFO) at 0.5% S	AP-42, Section 11.1
	Natural Gas	AP-42, Section 11.1

A summary of the uncontrolled and controlled point source emissions are shown in Table 3.3 and Table 3.4.

Table 3.3 EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS – UNCONTROLLED EMISSIONS

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/hr (quarterly avg)
Point Sources Affected by the Permitting Action											
HMA Dryer		>1,200		6.02		30.11		71.18		17.52	0.009
Storage tanks (2)										0.91	
Total, Point Sources		**>1,200**		**6.02**		**30.11**		**71.18**		**18.43**	**0.009**
Fugitive Sources Affected by the Permitting Action											
Silo and Truck Loading		0.61						1.38		0.09	
Material handling		0.06									
Unpaved road traffic		0.04									
Total, Fugitive Sources		**0.71**						**1.38**		**0.09**	

Table 3.4 EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS – CONTROLLED EMISSIONS

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/hr (quarterly avg)
Point Sources Affected by the Permitting Action											
HMA Dryer	2.88	0.06	1.38	0.03	6.88	0.14	16.25	0.33	4.00	0.08	0.002
Storage tanks (2)									0.0005	0.91	
Total, Point Sources	**2.88**	**0.06**	**1.38**	**0.03**	**6.88**	**0.14**	**16.25**	**0.33**	**4.01**	**0.99**	**0.002**
Fugitive Sources Affected by the Permitting Action											
Silo and Truck Loading	0.14	0.01					0.32	0.01	0.50	0.01	
Material handling	3.00	0.05									
Unpaved road traffic		0.04									
Total, Fugitive Sources	**3.14**	**0.10**					**0.32**	**0.01**	**0.50**	**0.01**	

A summary of the TAP which exceed the screening emission level (EL) are shown in Table 3.5. The estimated emissions for used oil are the same as distillate fuel oil, except for 13 additional TAP.

Table 3.5 TAP AND HAP CONTROLLED EMISSIONS SUMMARY

HAP	TAP exceeding EL	Emissions Screening Levels	Annual Average[a]
		lb/hr	lb/hr
Formaldehyde	Formaldehyde	5.10E-04	8.70E-01
Nickel	Nickel	2.70E-05	7.88E-03
Naphthalene	Polyaromatic Hydrocarbons (Naphthalene)	9.10E-05	3.76E-04
	Polyaromatic Hydrocarbons (2-Methylnaphthalene)	9.10E-05	1.09E-04

a. Annual average applies to carcinogenic TAP; average emissions rate was calculated based on 40 hr/yr of operation (equivalent to 5,000 T/yr).

The controlled emissions inventory is included in Appendix B.

3.3 Ambient Air Quality Impact Analysis

For statewide operation, the operating scenario considered in the ambient air impact analysis was operation of the HMA plant. Collocated sources or co-contributing sources, such as a portable generator, concrete batch plant, or crusher, were not considered in the analysis.

The estimated emissions from regulated sources listed in Table 3.1 exceeded published modeling thresholds[1] for criteria pollutants PM_{10}, NO_X, and SO_2, and the toxic air pollutants listed in Table 3.5. A full impact analysis of PM_{10}, NO_X, SO_2, and CO was performed, and the maximum predicted impacts for the proposed operating scenario is listed in Table 3.6.

Table 3.6 FULL IMPACT ANALYSIS RESULTS FOR CRITERIA POLLUTANTS AND TAP

Regulated Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Ambient Concentration ($\mu g/m^3$)	AAC/AACC ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	24-hour	<77	73	<150		150
PM_{10}	Annual	<24	26	<50		50
NO_2	Annual	<83	17	<100		100
SO_2	3-hr	<1,266	34	<1,300		1,300
	24-hr	<339	26	<365		365
	Annual	<72	8	<80		80
CO	1-hour	<36,400	3,600	<40,000		40,000
	8-hour	<7,700	2,300	<10,000		10,000
Formaldehyde	Annual	8.09E-03		8.09E-03	7.70E-02	
Nickel	Annual	1.64E-04		1.64E-04	4.20E-03	
Naphthalene (PAH)	Annual	2.31E-03		2.31E-03	1.40E-02	
2-Methylnaphthalene (PAH)	Annual	2.31E-03		2.31E-03	1.40E-02	

The facility has demonstrated compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The facility has also

[1] Criteria pollutant thresholds from Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002; and TAP EL thresholds from IDAPA 58.01.01.585-586.

demonstrated compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any applicable AAC or AACC for TAP.

Compliance with TAP increments was demonstrated because using the controlled ambient concentration is an option for demonstrating compliance in accordance with IDAPA 58.01.01.210.08. Modeling conducted in the development of TAP rules indicates that if a controlled emissions rate is below the EL, controlled ambient concentrations are expected to be below the AAC or AACC.

A comparison of TAP emission rates to the EL is included in Appendix B. A summary of the ambient air quality impact analysis is included in Appendix C.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The initial location for this HMA plant is in Lemhi County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, CO, NO_2, SO_X, and Ozone.

Because an ambient air impact analysis was not provided to demonstrate compliance with applicable standards in nonattainment areas, the HMA plant is not permitted for operation in nonattainment areas.

Idaho currently has nonattainment areas designated for PM_{10}. Information regarding the geographical location of nonattainment areas in Idaho can be found at:
http://www.deq.idaho.gov/air/data_reports/monitoring/overview.cfm#AttvNon

4.2 Permit to Construct (IDAPA 58.01.01.201)

The proposed modification does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a permit to construct is required.

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

The facility is classified as a synthetic minor facility because without limits on the potential to emit, the PM_{10} emissions have the potential to exceed major source thresholds. The facility is not classified as a major facility for Tier I permitting purposes, in accordance with IDAPA 58.01.01.008.10. The facility is not a designated facility as defined in IDAPA 58.01.01.006.30.

The use of a baghouse control device (Permit Condition 2.13) is considered a synthetic minor limitation established to limit emissions below the Title V major source threshold for PM_{10}.

4.4 PSD Classification (40 CFR 52.21)

The facility is classified as a synthetic minor facility, because without limits on the potential to emit, PM_{10} emissions have the potential to exceed the PSD major source threshold.

The use of a baghouse control device (Permit Condition 2.13) is considered a synthetic minor limitation established to limit emissions below the PSD major source threshold for PM_{10}.

4.5 NSPS Applicability (40 CFR 60)

The facility is subject to Subpart I, Standards of Performance for Hot Mix Asphalt Facilities. Authority has been delegated to DEQ by EPA to implement and enforce Subparts A and I as of July 11, 2007 and for the purposes of these subparts "Administrator" includes "DEQ."

Subpart I

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

40 CFR 60.90 ..... Applicability and designation of affected facility.

In accordance with §60.90(a), each hot mix asphalt facility is an affected facility. In accordance with §60.90(b), any hot mix asphalt facility that commences construction or modification after June 11, 1973 is subject to the requirements of Subpart I.

The affected facility includes: the dryer; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

40 CFR 60.91 ..... Definitions.

This section contains the definitions of this subpart.

40 CFR 60.92 ..... Standard for particulate matter.

In accordance with §60.92, no owner or operator shall discharge or cause the discharge into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.04 gr/dscf or exhibit 20 percent opacity or greater. Permit Condition 2.4 includes the requirements of this section.

40 CFR 60.93 ..... Test methods and procedures.

In accordance with §60.93(a), performance tests shall use as reference methods and procedures the test methods in Appendix A of 40 CFR 60.

In accordance with §60.93(b), compliance with the particulate matter standards shall be determined by EPA Reference Method 5, and opacity shall be determined by EPA Reference Method 9.

Permit Condition 2.27 includes the requirements of this section.

Subpart A

40 CFR 60, Subpart A ..... General Provisions

40 CFR 60.1 ..... Applicability.

In accordance with 40 CFR 60.1(a), the provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard. The HMA plant is an affected facility.

40 CFR 60.2 ..... Definitions.

This section contains the definitions of this subpart.

40 CFR 60.3 ..... Units and abbreviations.

This section contains the abbreviations of this subpart.

40 CFR 60.4 ..... Address.

This section contains contact information for this subpart. Permit Condition 2.31 includes regional office contact information.

40 CFR 60.5 ..... Determination of construction or modification.

This section describes administrative procedures for this subpart.

40 CFR 60.6 ..... Review of plans.

This section describes administrative procedures for this subpart.

40 CFR 60.7 ..... Notification and record keeping.

In accordance with §60.7(a), any owner or operator subject to the provisions of this part shall furnish the Administrator written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification, as follows:

(1) A notification of the date construction (or reconstruction as defined under §60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

(3) A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in §60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

Permit Condition 2.31 includes regional office contact information.

40 CFR 60.8 ..... Performance tests.

In accordance with §60.8(a) except as specified in paragraphs (a)(1),(a)(2), (a)(3), and (a)(4) of this section, within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility, or at such other times specified by this part, and at such other times as may be required by the Administrator under section 114 of the Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Administrator a written report of the results of such performance test(s).

In accordance with §60.8(b), performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart.

In accordance with §60.7(c), performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility.

In accordance with §60.8(d), the owner or operator of an affected facility shall provide the Administrator at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Administrator the opportunity to have an observer present.

In accordance with §60.8(e), the owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities.

In accordance with §60.8(f), each performance test shall consist of three separate runs using the applicable test method.

Permit Conditions 2.24 and 2.31, and General Provision 6 include the requirements of this section and incorporate this section by reference.

40 CFR 60.9 ..... Availability of information.

This section describes administrative procedures for this subpart.

40 CFR 60.10 ..... State authority.

This section describes administrative procedures for this subpart.

40 CFR 60.11 ..... Compliance with standards and maintenance requirements.

In accordance with §60.11(c), the opacity standards set forth in this part shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.

In accordance with §60.11(d), at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

Permit Conditions 2.5 and 2.31 include the requirements of this section.

In accordance with §60.11(b), compliance with opacity standards in this part shall be determined by conducting observations in accordance with Method 9 in appendix A of this part.

In accordance with §60.11(e), for the purpose of demonstrating initial compliance, opacity observations shall be conducted concurrently with the initial performance test required in §60.8.

Permit Condition 2.27 includes the requirements of this section.

40 CFR 60.12 ..... Circumvention.

In accordance with §60.12, no owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

Permit Condition 2.31 includes the requirements of this section.

40 CFR 60.13 ..... Monitoring requirements.

These requirements do not apply to this facility because continuous monitoring systems are not required for the HMA plant in order to demonstrate compliance with the requirements in Subpart I.

40 CFR 60.14 ..... Modification.

This section describes requirements and procedures related to modifications. Permit Condition 2.31 includes the requirements of this section.

40 CFR 60.15 ..... Reconstruction.

This section describes administrative procedures for this subpart.

40 CFR 60.16 ..... Priority list.

This section describes administrative procedures for this subpart.

40 CFR 60.17 ..... Incorporations by reference.

This section describes materials which are incorporated by reference into Subpart A.

40 CFR 60.18 ..... General control device requirements.

These requirements do not apply to this facility because flares are not being used as a control device for the HMA plant.

40 CFR 60.19 ..... General notification and reporting requirements.

This section describes the definitions and procedures associated with applicable time periods and deadlines.

4.6 NESHAP Applicability (40 CFR 61)

The facility is not subject to NESHAP.

4.7 MACT Applicability (40 CFR 63)

The facility is not subject to MACT standards.

4.8 CAM Applicability (40 CFR 64)

The facility is a synthetic minor facility for purposes of Title V, and is therefore not subject to CAM requirements. Refer to Section 4.3 for further discussion regarding the synthetic minor classification.

4.9 Permit Conditions Review

This section describes the permit conditions for this initial permit.

New Permit Condition 2.3
Emissions from any baghouse/cartridge filter stack or from any stack, vent, or other functionally equivalent opening associated with the HMA plant shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required in IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Discussion
This permit condition limits opacity from point sources as required by IDAPA 58.01.01.625.

New Permit Condition 2.4
The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart I – Standards of Performance for Hot Mix Asphalt Facilities.

- In accordance with 40 CFR 60.92, no owner or operator shall discharge or cause the discharge into the atmosphere from any HMA facility any gases which:
  - contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf);
  - exhibit 20 percent opacity, or greater.

Discussion
These emission limits are required by NSPS subpart I. Refer to Section 4.5 for additional information.

New Permit Conditions 2.5
The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart A – General Provisions.

- The opacity standards set forth in Permit Condition 2.3 shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard in accordance with 40 CFR 60.11(c).
- At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the HMA plant including the HMA Dryer Baghouse in a manner consistent with good air pollution control practice for minimizing emissions, in accordance with 40 CFR 60.11(d).

Discussion
These requirements are required by NSPS subpart A. Refer to Section 4.5 for additional information.

New Permit Condition 2.6
The emissions from the HMA Dryer stack shall not exceed any corresponding emission rate limits listed in Table 2.2.

Table 2.2 HMA DRYER EMISSION LIMITS[1]

Source Description	PM_{10}[2]	
	lb/hr[3]	T/yr[4]
HMA Dryer stack	2.88	0.06

1) In absence of any other credible evidence, compliance is assured by complying with this permit's operating, monitoring and recordkeeping requirements.
2) Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.81.
3) Pounds per hour on a 24-hour basis, as determined by a test method prescribed by IDAPA 58.01.01.157 or DEQ-approved alternative.
4) Tons per any consecutive 12-calendar month period.

Discussion
PM_{10} emission limits are required to demonstrate compliance with NAAQS (lb/hr and T/yr) and to maintain synthetic minor classification (T/yr).

New Permit Condition 2.7
The permittee shall comply with the minimum setback distances listed in Table 2.3, and the daily and annual production rates shall not exceed the values shown in Table 2.3. The minimum setback shall be defined as the minimum distance from the nearest edge of any emissions source listed in Table 1.1 to any area outside of a building where the general public has access.

The HMA plant shall process aggregate, asphalt cement, and recycled asphalt cement (RAP) as raw materials. RAP used as part of the aggregate shall not exceed 50 percent of the total HMA production in tons per calendar day, or 1,800 tons per calendar day, whichever is less.

Table 2.3 HMA PLANT PRODUCTION LIMITS AND SETBACK DISTANCES

HMA Production Limits		Setback Distance (ft)
Daily HMA production	1,500 T/day	144
Annual HMA production	5,000 T/yr[a]	

a. T/yr is defined as tons of material processed per consecutive 12-calendar month period

Discussion
Daily (T/day) and annual (T/yr) throughput requirements are required to demonstrate compliance with the 24-hr and annual PM_{10} NAAQS. Daily RAP throughput limits are required based on the assumptions used in the development of the emissions inventory.

A setback distance from the property boundary was used in the ambient air quality impact analysis to demonstrate preconstruction compliance with NAAQS and TAP standards. Because the equipment is portable and the location may be changed from its initial location, compliance with a minimum equipment setback distance limit is required.

New Permit Condition 2.8
All reasonable precautions shall be taken to prevent particulate matter 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, oil, 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.

Discussion
Reasonable control of fugitive emissions is required by IDAPA 58.01.01.650-651 and IDAPA 58.01.01.808.

New Permit Conditions 2.9
The HMA Dryer shall combust only natural gas, ASTM Grade 1 and Grade 2 distillate fuel oil meeting the specifications of Permit Condition 2.11, or reprocessed fuel oil (RFO) meeting the specifications of Permit Conditions 2.10 and 2.11.

Discussion
Fuel type requirements for the dryer, asphalt tank heater, and the generators are required based on the assumptions used in the development of the emissions inventory provided in the application.

New Permit Condition 2.10
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 2.4. In addition, used oil shall not contain quantifiable levels (2 ppm) of polychlorinated biphenyls (PCB).

Table 2.4 USED OIL SPECIFICATIONS[1]

Constituent/property	Allowable level
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash point	100 deg. F minimum
Total halogens	1,000 ppm maximum
PCBs[2]	< 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) Applicable standards for the burning of used oil containing PCB are imposed by 40 CFR 761.20(e)

Discussion
These specifications are required by 40 CFR 279, Subpart B.

New Permit Condition 2.11

- 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 58.01.01.725-728:
  - ASTM Grade 1 fuel oil - 0.3% by weight.
  - ASTM Grade 2 fuel oil - 0.5% by weight.
- The permittee shall not use any RFO containing more than 0.5% sulfur by weight.

Discussion
The ASTM fuel sulfur content requirements are required by IDAPA 58.01.01.728. The additional fuel sulfur requirements for RFO fuel are based on the assumptions used in the development of the emissions inventory provided in the application.

New Permit Condition 2.12
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.

Discussion
This permit condition limits odors from the facility as required by IDAPA 58.01.01.776.01.

New Permit Condition 2.13
The permittee shall install and operate the HMA Dryer Baghouse to control PM and PM_{10} from the HMA plant and to demonstrate compliance with the emission limits in Permit Condition 2.6.

Discussion
The requirement to install and operate baghouse/cartridge filter system control devices is required to demonstrate compliance with the 24-hr and annual PM_{10} NAAQS, and to limit emissions below the major source threshold for PM_{10} (refer to Section 4.3).

New Permit Condition 2.14
The permittee shall install, calibrate, maintain, and operate equipment to continuously measure the pressure differential across the HMA Dryer Baghouse, in accordance with manufacturer specifications.

Discussion
The requirement to install, calibrate, maintain, and operate a pressure monitoring device is required to maintain the baghouse control efficiency rating used in the development of the emissions inventory, to demonstrate compliance with the 24-hr and annual PM_{10} NAAQS, and to limit emissions below the major source threshold for PM_{10} (refer to Section 4.3).

New Permit Condition 2.15
Within 60 days of initial startup of the HMA plant, the permittee shall have developed a Baghouse/Filter System Procedures document for the inspection and operation of the HMA Dryer Baghouse. The Baghouse/Filter System Procedures document shall be a permittee developed document independent of the manufacturer supplied operating manual but may include summaries of procedures in the manufacturer supplied operating manual.

At a minimum the following items shall be included in the Baghouse/Filter System Procedures document;

- Procedures for inspecting and maintaining the HMA Dryer Baghouse in accordance with Permit Condition 2.16 and to comply with General Provision 2.
- Schedule and procedures for corrective action that will be taken if visible emissions are present from the HMA Dryer Baghouse at any time, including procedures to determine whether bags or cartridges are ruptured, and procedures to determine if bags or cartridges are not appropriately secured in place.
- The manufacturer's recommended values that shall be maintained for pressure drop across the HMA Dryer Baghouse, in inches of water.
- The manufacturer name and model, the maximum capacity (yd^3/hr and T/hr), the fuel consumption (gal/hr), the PM_{10} control efficiency, and the stack parameters for any equivalent equipment used in place of the equipment listed in Table 1.1.

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

Air Quality Permit Compliance
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

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

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

Discussion
A Baghouse/Filter System Procedures document is required to maintain the baghouse control efficiency rating used in the development of the emissions inventory, in order to demonstrate compliance with the 24-hr and annual PM_{10} NAAQS.

New Permit Condition 2.16
Each month the permittee shall conduct a site-wide inspection of potential sources of visible emissions; including any stack, vent, or other functionally equivalent opening; during daylight hours and under normal operating conditions, to demonstrate compliance with Permit Condition 2.3. The inspection shall consist of a see/no see evaluation for each potential source. If any visible emissions are present from any point of emission, the permittee shall either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test. If opacity is greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance in accordance with IDAPA 58.01.01.130-136.

The permittee shall maintain records of the results of each visible emissions inspection and each opacity test when conducted. The records shall include, at a minimum, the date and results of each inspection and test and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken. All records shall be maintained on-site for a period of 5 years and shall be made available to DEQ representatives upon request.

Discussion
Monitoring for visible emissions from point sources is required to demonstrate compliance with IDAPA 58.01.01.625 (Permit Condition 2.3).

New Permit Condition 2.17
Each day the permittee shall conduct a site-wide inspection of potential sources of fugitive emissions, during daylight hours and under normal operating conditions to ensure that the methods used to reasonably control fugitive emissions are effective, to demonstrate compliance with Permit Condition 2.8. If fugitive emissions are not being reasonably controlled, the permittee shall take corrective action as expeditiously as practicable. The permittee shall maintain records of the results of each fugitive emissions inspection. The records shall include, at a minimum, the date of each inspection and a description of the following: the permittee's assessment of the conditions existing at the time fugitive emissions were present (if observed), any corrective action taken in response to the fugitive emissions, and the date the corrective action was taken.

Discussion
Monitoring for visible emissions from fugitive sources is required to demonstrate compliance with IDAPA 58.01.01.650-651 and IDAPA 58.01.01.808 (Permit Condition 2.8).

New Permit Condition 2.18
The permittee shall monitor and record the daily production on a daily basis and the annual production on a monthly basis to demonstrate compliance with Permit Condition 2.7. Annual production shall be determined by summing each monthly production total over the previous consecutive 12-calendar month period. The recycled asphalt pavement usage shall be monitored and recorded on a daily basis, in tons per calendar day, to demonstrate compliance with Permit Condition 2.7.

Discussion
Monitoring and recordkeeping are required to demonstrate compliance with throughput limits (Permit Condition 2.7).

New Permit Condition 2.19
The permittee shall physically measure and record the minimum setback distance to demonstrate compliance with the setback limits in Permit Condition 2.7:

- Before initial startup of any emissions source listed in Table 1.1;
- Each time any emissions source listed in Table 1.1 is relocated in accordance with IDAPA 58.01.01.500; and
- Any time any emissions source listed in Table 1.1 is changed in such a way that the minimum setback distance is reduced compared to previous operations at that location.

Information recorded shall include, but not be limited to, a brief description of the nearest distance to any area where the general public has access, and the minimum setback distance in meters or feet to an accuracy of plus or minus 1.8 meters (6 feet).

Discussion
Monitoring and recordkeeping of the setback distance is required to demonstrate compliance with Permit Condition 2.7.

New Permit Condition 2.20
The permittee shall demonstrate compliance with the used oil fuel specifications in Permit Condition 2.10 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 2.4;
- The flash point of the used oil expressed as degrees Fahrenheit;
- The analytical method or methods used to determine the concentration of each constituent and property (flash point) listed in Table 2.4;
- The date and location of each sample; and
- The date of each certification analysis.

Discussion
Monitoring and recordkeeping of used oil fuel specifications is required to demonstrate compliance with Permit Condition 2.10.

New Permit Condition 2.21
The permittee shall maintain documentation of supplier verification of fuel oil and used oil sulfur content on an as-received basis to demonstrate compliance with Permit Condition 2.11.

Discussion
Monitoring and recordkeeping of fuel oil sulfur content is required to demonstrate compliance with Permit Condition 2.11.

New Permit Condition 2.22
The permittee shall maintain records of all odor complaints received to demonstrate compliance with Permit Condition 2.12. 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.

Discussion
Monitoring and recordkeeping of odor complaints is required to demonstrate compliance with IDAPA 58.01.01.776.01 (Permit Condition 2.12).

New Permit Condition 2.23
The permittee shall monitor and record the pressure drop across the HMA Dryer Baghouse on a weekly basis to demonstrate compliance with Permit Condition 2.14.

Discussion
Monitoring and recordkeeping of pressure drop is required to demonstrate compliance with Permit Condition 2.14.

New Permit Condition 2.24
Performance testing on the HMA Dryer Baghouse stack shall be performed within 60 days after achieving the maximum permitted production rate in Permit Condition 2.7, but not later than 180 days after initial startup of the HMA plant, in accordance with 40 CFR 60.8.

The initial performance test shall measure the PM emission rate in grains per dry standard cubic feet and the opacity to demonstrate compliance with the emission limits in Permit Condition 2.4.

The performance test shall be conducted under worst-case normal operating conditions and in accordance with 40 CFR 60.93, 60.8, and 60.11; Permit Conditions 2.4, 2.26, and 2.27; 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).

Discussion
Performance testing is required to demonstrate compliance with Permit Condition 2.4, and NSPS subpart I. Refer to Section 4.5 for additional information.

New Permit Condition 2.25
Performance testing on the HMA Dryer Baghouse stack shall be performed concurrently with the initial performance test required by Permit Condition 2.24, and no less than once every five years following the date the initial performance test is required by Permit Condition 2.24.

The performance test shall measure the PM_{10} emission rate in pounds per hour and the opacity to demonstrate compliance with Permit Conditions 2.6 and 2.3.

The performance test shall be conducted under worst-case normal operating conditions and in accordance with IDAPA 58.01.01.157; Permit Conditions 2.3, 2.6, 2.26, and 2.28; 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.

Discussion
Performance testing is required to demonstrate compliance with Permit Conditions 2.3 and 2.6.

New Permit Condition 2.26
The permittee shall monitor and record the following during each performance test:

- The HMA production rate, in tons per hour, once every 15 minutes;
- The recycled asphalt pavement usage in tons per hour, once every 15 minutes;
- The type of fuel combusted in the HMA Dryer; and
- The visible emissions observed during the performance test.

Discussion
Monitoring and recordkeeping of performance test parameters is required to demonstrate compliance with Permit Conditions 2.24 and 2.25; and General Provision 6.

New Permit Condition 2.27
The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart I – Standards of Performance for Hot Mix Asphalt Facilities and Subpart A – General Provisions.

- In accordance with 40 CFR 60.93(b) and 60.11(b), the permittee shall determine compliance with the particulate matter standards in Permit Condition 2.4 as follows:
  - EPA Reference Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).
  - EPA Reference Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.
- In accordance with 40 CFR 60.93(a), in conducting performance tests, the permittee shall use as reference methods and procedures the test methods in 40 CFR 60 Appendix A.
- In accordance with 40 CFR 60.11(e), for the purpose of demonstrating initial compliance, opacity observations shall be conducted concurrently with the initial performance test required by Permit Condition 2.24.

Discussion
Test method and procedure requirements are required by NSPS subpart I. Refer to Section 4.5 for additional information.

New Permit Condition 2.28
The permittee shall use EPA Method 5 and 202 or such comparable and equivalent methods approved in accordance with Subsection 157.02.d to determine compliance with the particulate matter standard in Permit Condition 2.6 in accordance with IDAPA 58.01.01.700.04.

The permittee shall use EPA Method 9 to determine compliance with the opacity matter standard in Permit Condition 2.3 in accordance with IDAPA 58.01.01.625.04.

Discussion
Test method and procedure requirements are required in accordance with IDAPA 58.01.01.700 and IDAPA 58.01.01.625.

New Permit Condition 2.29
Performance test reports shall include records of the monitoring required by Permit Condition 2.26, and documentation that the performance test was conducted in accordance with Permit Conditions 2.24 and/or 2.25. Performance test reports shall be submitted by the permittee 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

Discussion
Performance test reporting is required to demonstrate compliance with General Provision 6.

New Permit Condition 2.30
At least 10 days prior to relocation of any equipment listed in Table 1.1, the permittee shall submit a scaled plot plan and a complete Portable Equipment Relocation Form (PERF) in accordance with IDAPA 58.01.01.500, to the following address or fax number:

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

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

The scaled plot plan shall show the location of any emissions source listed in Table 1.1, and distances to any area outside of a building where the general public has access, including property boundaries.

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

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

Discussion
Relocation notification is required to demonstrate compliance with IDAPA 58.01.01.500.

New Permit Condition 2.31
The permittee shall comply with the applicable requirements of 40 CFR 60, Subpart A – General Provisions.

Table 2.5 SUBPART A – GENERAL PROVISIONS

Section	Section Title	Summary of Section Requirements
60.4	Address	• All notifications and reports shall be submitted to: Department of Environmental Quality Idaho Falls Regional Office 900 N. Skyline, Suite B Idaho Falls, ID 83402
60.7(a),(b),(c), (d) and (f)	Notification and Record Keeping	• Notification of commencement of construction postmarked no later than 30 days after such date. • Notification of startup postmarked within 15 days of such date. • Notification of physical or operational change that may increase emissions postmarked 60 days before the change is made. • Maintain records of the occurrence and duration of any: startup, shutdown or malfunction of the affected source; malfunction of air pollution control device; and any period when a continuous monitoring system or monitoring device is inoperative. • For affected units with continuous monitoring device requirements report excess emissions and monitoring system performance semiannually, postmarked by January 30th and July 30th (in the format required by NSPS). • Maintain in a permanent form records suitable for inspection of all measurements, system testing, performance measurements, calibration checks, and adjustments/maintenance performed. Records shall be maintained for a period of two years from the date the record is required to be generated by the applicable regulation. • CEMS record keeping requirements depending on whether data is automatically or manually recorded - 40 CFR 60.7(f).
60.8	Performance Tests	• The owner or operator shall provide notice at least 30 days prior to any performance test to afford an opportunity for an observer to be present during testing. • Within 60 days of achieving maximum production, but not later than 180 days after startup the permittee shall conduct performance test(s) and furnish a written report of the results of the test(s).
60.11(a),(b),(c), (d) and (g)	Compliance with Standards and Maintenance Requirements	• Other than opacity standards, where performance tests are required compliance with standards is determined by methods and procedures established by 40 CFR 60.8. • Compliance with NSPS opacity standards shall be determined by Method 9 of Appendix A. The owner or operator may elect to use COM measurements in lieu of Method 9 provided notification is made at least 30 days before the performance test. • At all times, including periods of startup, shutdown, and malfunction to the extent practicable, the operator shall maintain and operate any affected facility and air pollution control equipment consistent with good air pollution control practices. • For the purposes of determining compliance with standards any credible evidence may be used if the appropriate performance or compliance test procedure has been performed.
60.12	Circumvention	• No owner or operator shall build, erect, install or use any article or method, including dilution, to conceal an emission which would otherwise constitute a violation.
60.14	Modification	• Physical or operational changes to source types that are regulated by a NSPS which result in an increase in hourly emissions to which a standard applies is considered a modification (unless expressly exempted the NSPS). Modified sources become subject to the NSPS standards. • Note that in accordance with IDAPA 58.01.01.201 no owner or operator may commence a modification without first obtaining a permit to construct unless the modification is exempted from the need to obtain a permit in accordance with IDAPA 58.01.01.220-223.

Discussion

A summary of applicable General Provisions required by NSPS Subpart A is included. Refer to Section 4.5 and Subpart A for additional information.

New Permit Condition 2.32

The permittee shall not relocate and operate any equipment listed in Table 1.1 in any $PM_{2.5}$ or PM_{10} nonattainment area.

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

Discussion
A demonstration of compliance with nonattainment area requirements was not provided in the application, and operation in nonattainment areas was not requested.

New Permit Condition 2.33
The emission sources listed in Table 1.1 may not collocate with any other source of emissions, including another HMA plant, concrete batch plant, sand and gravel operation, or electrical generator set.

An emissions source listed in Table 1.1 shall be considered to be collocated if the nearest distance between any emissions source not listed in Table 1.1 and any emissions source listed in Table 1.1 is less than 1,000 ft (305 m).

Discussion
Collocation as defined by this permit is collocation with any emission source not listed in Table 1.1, which was not considered in the ambient air impact analysis included in the application, and for which compliance with the applicable NAAQS has not been demonstrated.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The permittee is subject to a processing fee of $2,500 in accordance with IDAPA 58.01.01.225 because the permitted emissions are between 1 to less than 10 tons per year. Refer to the chronology in Section 2.2 for fee receipt dates.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.14	0	0.14
SO_2	0.03	0	0.03
CO	0.33	0	0.33
PM_{10}	0.06	0	0.06
VOC	0.99	0	0.99
HAP[1]	0.00	0	0.00
Total[1]:	**1.55**	**0**	**1.55**
Fee Due			**$2,500.00**

[1] For the purposes of fee calculation, particulate and organic HAP/TAP are included in the PM_{10} and VOC emissions totals (respectively) and are therefore not included in the HAP/TAP emissions total.

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there was no comment on the application and there was no request for a public comment period on DEQ's proposed action. Refer to the chronology in Section 2.2 for comment period opportunity dates.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification Form

Facility Name: Salmon Asphalt & Paving, Inc.

Facility Location: Portable

Facility ID: 777-00443 **Date:** 11/03/2008

Project/Permit No.: P-2008.0124 **Completed By:** Morrie Lewis

☐ 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? A, I

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

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

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

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

Appendix B – Emissions Inventory

CURRENT PTC APPLICATION ESTIMATES

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

Facility ID/AIRS No.	059-00011	Spreadsheet Date	10/29/2008 13:42
Permit No.		HMA Type: Drum Mix or Batch ?	Drum Mix
		Include Silo Fill & Loadout Emissions?	Y
Facility Owner/Company Name:	Salmon Asphalt		
Address:	76 Aldous Drive		
City, State, Zip:	Salmon, ID 83467		PTC & FACWIDE ESTIMATES
Facility Contact:	Charles Mualem		
Contact Number/ e-mail:	(208) 756-7939		
Is this HMA facility subject to NSPS? Yes=1,No=0	1	Commenced Operations in:	
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	Hauck burner model SJ260	#2 Fuel Oil	1
Rated heat input capacity, MMBtu/hr	49.3	Used Oil or RFO4 Oil	0
Drum Dryer Hourly Throughput, Tons/hr	125	Natural Gas	0
Hours of operation per day	12	LPG or Propane	0
Hours of operation per year (=Throughput: Annual/Hourly)	40	Exit Gas Volume (acfm)	26,000
Max Throughput at Annual Hours, Tons/yr	5,000	Exit Gas Temperature (°F)	300
Max Throughput (Proposed Limit), T/yr	5,000	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)	0.000	Fuel Type(s)	Fuel Toggle
Hours of operation per day	0	#2 Fuel Oil	0
Operation, days per year	0.00	Used Oil	0
Hours of operation per year	0	Natural Gas	0
Exit Flow (acfm) or Velocity (fps) ACFM		Indirect Heat or Power? Y or N	N
Exhaust exit gas temperature (°F)			

Tank Heater Fuel Consumption	#2 Fuel Oil	Natural Gas
Heat Input Rating (MMBtu/hr)	0.000	0.000
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]	0.00	0
Max Operational Hours per Year (Proposed Limit)	0.0	0

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.

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

		Fuel Type(s)	Fuel Toggle
Generator Make/Model		#2 Fuel Oil (Diesel)	0
		Gasoline	0
EF OPTIONS: Use EFs in lb/hp-hr		Use EFs in lb/MMBtu	0
1) Input Rated Capacity, kW		Max Fuel Use Rate, gal/hr	
Spreadsheet conversion from kW to hp:		Fuel Heating Value, Btu/gal	
OR 2) Input Rated Capacity, hp		Calculated MMBtu/hr	
Max Operational Hours/Day		Max Operational Hours/Day	
Max Operational Hours per Year (Proposed Limit)		Max Operational Hours/Year	
Note: 1 hp = 0.7456999 kW			

Electrical Generator > 600 hp (447 kW) AP-42 Section 3.4 (diesel or dual fuel)

		Fuel Type(s)	Fuel Toggle
Generator Make/Model		#2 Fuel Oil (Diesel)	0
		Dual Fuel (diesel/natural gas)	0
FUEL OPTIONS: #2 Fuel Oil (Diesel)		Natural Gas Fuel	
Max Sulfur weight percent (w/o)		Max Sulfur w/o	
Max Fuel Use Rate, gal/hr		Max Fuel Use Rate, scf/hr	
Fuel Heating Value, Btu/gal		Fuel Heating Value, Btu/scf	
Calculated MMBtu/hr		Calculated MMBtu/hr	
Max Operational Hours per Day		Max Operational Hours per Day	
Max Operational Hours per Year		Max Operational Hours per Year	

Note: AP-42 Table 3.4-1 EFs are based on dual fuel operation of 5% diesel and 95% natural gas.
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: Salmon Asphalt

10/29/2008 13:42 **Permit/Facility ID:** 0 059-00011

CURRENT PTC ESTIMATES

EMISSION INVENTORY

POUNDS PER HOUR

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

A. Drum Mix Plant: 125 Tons/hour 40 Hours/year 5,000 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

B. Tank Heater: 0.0000 MMBtu Rat 0 Hours/year 0 hrs/day

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

C. Generator: 0 gal/hour 0 Hours/year Generator>600hr No Generator #2 Fuel Oil 0 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, & Tank Storage Emission Rate for Pollutant (lb/hr)	E TOTAL of Max Emission Rates from A, B, C & D (lb/hr)
PM (total)	4.13	0.00E+00	0.00E+00	1.38E-01	4.26
PM-10 (total)	2.88	0.00E+00	0.00E+00	1.38E-01	3.01
P.M.-2.5					0.00
CO	16.25	0.00E+00	0.00E+00	3.16E-01	16.57
NOx	6.88	0.00E+00	0.00E+00		6.88
SO_2	1.38	0.00E+00	0.00E+00		1.38
VOC	4.00	0.00E+00	0.00E+00	2.01E-02	4.02
Lead	1.88E-03	0.00E+00	0.00E+00		1.88E-03
HCl [e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Dioxins[e]					
2,3,7,8-TCDD	2.63E-11	0.00E+00	0.00E+00		2.63E-11
Total TCDD	1.16E-10	0.00E+00	0.00E+00		1.16E-10
1,2,3,7,8-PeCDD	3.88E-11	0.00E+00	0.00E+00		3.88E-11
Total PeCDD	2.75E-09	0.00E+00	0.00E+00		2.75E-09
1,2,3,4,7,8-HxCDD	5.25E-11	0.00E+00	0.00E+00		5.25E-11
1,2,3,6,7,8-HxCDD	1.63E-10	0.00E+00	0.00E+00		1.63E-10
1,2,3,7,8,9-HxCDD	1.23E-10	0.00E+00	0.00E+00		1.23E-10
Total HxCDD	1.50E-09	0.00E+00	0.00E+00		1.50E-09
1,2,3,4,6,7,8-Hp-CDD	6.00E-10	0.00E+00	0.00E+00		6.00E-10
Total HpCDD	2.38E-09	0.00E+00	0.00E+00		2.38E-09
Octa CDD	3.13E-09	0.00E+00	0.00E+00		3.13E-09
Total PCDD[h]	9.88E-09	0.00E+00	0.00E+00		9.88E-09
Furans[e]					
2,3,7,8-TCDF	1.21E-10	0.00E+00	0.00E+00		1.21E-10
Total TCDF	4.63E-10	0.00E+00	0.00E+00		4.63E-10
1,2,3,7,8-PeCDF	5.38E-10	0.00E+00	0.00E+00		5.38E-10
2,3,4,7,8-PeCDF	1.05E-10	0.00E+00	0.00E+00		1.05E-10
Total PeCDF	1.05E-08	0.00E+00	0.00E+00		1.05E-08
1,2,3,4,7,8-HxCDF	5.00E-10	0.00E+00	0.00E+00		5.00E-10
1,2,3,6,7,8-HxCDF	1.50E-10	0.00E+00	0.00E+00		1.50E-10
2,3,4,6,7,8-HxCDF	2.38E-10	0.00E+00	0.00E+00		2.38E-10
1,2,3,7,8,9-HxCDF	1.05E-09	0.00E+00	0.00E+00		1.05E-09
Total HxCDF	1.63E-09	0.00E+00	0.00E+00		1.63E-09
1,2,3,4,6,7,8-HpCDF	8.13E-10	0.00E+00	0.00E+00		8.13E-10
1,2,3,4,7,8,9-HpCDF	3.38E-10	0.00E+00	0.00E+00		3.38E-10
Total HpCDF	1.25E-09	0.00E+00	0.00E+00		1.25E-09
Octa CDF	6.00E-10	0.00E+00	0.00E+00		6.00E-10
Total PCDF[h]	5.00E-09	0.00E+00	0.00E+00		5.00E-09
Total PCDD/PCDF[h]	1.50E-08	0.00E+00	0.00E+00		1.50E-08
Non-PAH HAPs					
Acetaldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Acrolein[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Benzene[e]	4.88E-02	0.00E+00	0.00E+00	7.58E-04	4.95E-02
1,3-Butadiene[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Ethylbenzene[e]	3.00E-02	0.00E+00	0.00E+00	4.46E-03	3.45E-02
Formaldehyde[e]	3.88E-01	0.00E+00	0.00E+00	1.10E-02	3.98E-01
Hexane[e]	1.15E-01	0.00E+00	0.00E+00		1.15E-01
Isooctane	5.00E-03	0.00E+00	0.00E+00	1.41E-05	5.01E-03
Methyl Ethyl Ketone[e]	0.00E+00	0.00E+00	0.00E+00	8.49E-04	8.49E-04
Pentane[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Propionaldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Quinone[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Methyl chloroform[e]	6.00E-03	0.00E+00	0.00E+00	0.00E+00	6.00E-03
Toluene[e]	3.63E-01	0.00E+00	0.00E+00	2.04E-03	3.65E-01
Xylene[e]	2.50E-02	0.00E+00	0.00E+00	7.63E-03	3.26E-02

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, & Tank Storage Emission Rate for Pollutant (lb/hr)	E TOTAL of Max Emission Rates from A, B, C & D (lb/hr)
PAH HAPs					
2-Methylnaphthalene	2.13E-02	0.00E+00	0.00E+00	2.69E-03	2.39E-02
3-Methylchloranthrene[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Acenaphthene	1.75E-04	0.00E+00	0.00E+00	2.60E-04	4.35E-04
Acenaphthylene	2.75E-03	0.00E+00	0.00E+00	1.64E-05	2.77E-03
Anthracene	3.88E-04	0.00E+00	0.00E+00	7.11E-05	4.59E-04
Benzo(a)anthracene[e]	2.63E-05	0.00E+00	0.00E+00	2.59E-05	5.21E-05
Benzo(a)pyrene[e]	1.23E-06	0.00E+00	0.00E+00	9.80E-07	2.21E-06
Benzo(b)fluoranthene[e]	1.25E-05	0.00E+00	0.00E+00	3.24E-06	1.57E-05
Benzo(e)pyrene	1.38E-05	0.00E+00	0.00E+00	6.34E-06	2.01E-05
Benzo(g,h,i)perylene	5.00E-06	0.00E+00	0.00E+00	8.10E-07	5.81E-06
Benzo(k)fluoranthene[e]	5.13E-06	0.00E+00	0.00E+00	9.38E-07	6.06E-06
Chrysene[e]	2.25E-05	0.00E+00	0.00E+00	1.11E-04	1.33E-04
Dibenzo(a,h)anthracene[e]	0.00E+00	0.00E+00	0.00E+00	1.58E-07	1.58E-07
Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Fluoranthene	7.63E-05	0.00E+00	0.00E+00	6.89E-05	1.45E-04
Fluorene	1.38E-03	0.00E+00	0.00E+00	6.49E-04	2.02E-03
Indeno(1,2,3-cd)pyrene[e]	8.75E-07	0.00E+00	0.00E+00	2.00E-07	1.08E-06
Naphthalene[e]	8.13E-02	0.00E+00	0.00E+00	1.11E-03	8.24E-02
Perylene	1.10E-06	0.00E+00	0.00E+00	1.89E-05	2.00E-05
Phenanthrene	2.88E-03	0.00E+00	0.00E+00	9.16E-04	3.79E-03
Pyrene	3.75E-04	0.00E+00	0.00E+00	2.04E-04	5.79E-04
Non-HAP Organic Compounds					
Acetone[e]	0.00E+00	0.00E+00	0.00E+00	1.08E-03	1.08E-03
Benzaldehyde	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Butane	8.38E-02	0.00E+00	0.00E+00		8.38E-02
Butyraldehyde	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Crotonaldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Ethylene	8.75E-01	0.00E+00	0.00E+00	2.04E-02	8.95E-01
Heptane	1.18E+00	0.00E+00	0.00E+00		1.18E+00
Hexanal	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Isovaleraldehyde	0.00E+00	0.00E+00	0.00E+00		0.00E+00
2-Methyl-1-pentene	5.00E-01	0.00E+00	0.00E+00		5.00E-01
2-Methyl-2-butene	7.25E-02	0.00E+00	0.00E+00		7.25E-02
3-Methylpentane	2.38E-02	0.00E+00	0.00E+00		2.38E-02
1-Pentene	2.75E-01	0.00E+00	0.00E+00		2.75E-01
n-Pentane	2.63E-02	0.00E+00	0.00E+00		2.63E-02
Valeraldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Metals					
Antimony[e]	2.25E-05	0.00E+00	0.00E+00		2.25E-05
Arsenic[e]	7.00E-05	0.00E+00	0.00E+00		7.00E-05
Barium[e]	7.25E-04	0.00E+00	0.00E+00		7.25E-04
Beryllium[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Cadmium[e]	5.13E-05	0.00E+00	0.00E+00		5.13E-05
Chromium[e]	6.88E-04	0.00E+00	0.00E+00		6.88E-04
Cobalt[e]	3.25E-06	0.00E+00	0.00E+00		3.25E-06
Copper[e]	3.88E-04	0.00E+00	0.00E+00		3.88E-04
Hexavalent Chromium[e]	5.63E-05	0.00E+00	0.00E+00		5.63E-05
Manganese[e]	9.63E-04	0.00E+00	0.00E+00		9.63E-04
Mercury[e]	3.25E-04	0.00E+00	0.00E+00		3.25E-04
Molybdenum[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Nickel[e]	7.88E-03	0.00E+00	0.00E+00		7.88E-03
Phosphorus[e]	3.50E-03	0.00E+00	0.00E+00		3.50E-03
Silver[e]	6.00E-05	0.00E+00	0.00E+00		6.00E-05
Selenium[e]	4.38E-05	0.00E+00	0.00E+00		4.38E-05
Thallium[e]	5.13E-07	0.00E+00	0.00E+00		5.13E-07
Vanadium[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Zinc[e]	7.63E-03	0.00E+00	0.00E+00		7.63E-03

e) IDAPA Toxic Air Pollutant

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

A. Drum Mix Plant: 125 Tons/hour 40 Hours/year 5,000 Tons/year HMA throughput 12 hrs/day

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

B. Tank Heater: 0.0000 MMBtu Rated 0 Hours/year 0 hrs/day

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

C. Generator: 0 gal/hour 0 Hours/year No Generator #2 Fuel Oil Generator>600hp 0 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, & Tank Storage 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]				7.54E-05	7.54E-05
2-Butanone (see Methyl Ethyl Ketone)					0.00E+00
Carbon disulfide[e]				1.51E-04	1.51E-04
Chloroethane (Ethyl chloride[e])				2.19E-05	2.19E-05
Chloromethane (Methyl chloride[e])				1.98E-04	1.98E-04
Cumene				5.72E-04	5.72E-04
n-Hexane				0.00E+00	0.00E+00
Methylene chloride (Dichloromethane[e])				1.40E-06	1.40E-06
MTBE				0.00E+00	0.00E+00
Styrene[e]				6.60E-05	6.60E-05
Tetrachloroethene (Tetrachloroethylene[e])				4.00E-05	4.00E-05
1,1,1-Trichloroethane (Methyl chloroform[e])				0.00E+00	0.00E+00
Trichloroethene (Trichloroethylene[e])				0.00E+00	0.00E+00
Trichlorofluoromethane				6.76E-06	6.76E-06
m-/p-Xylene[e]				3.17E-03	3.17E-03
o-Xylene[e]				4.46E-03	4.46E-03
Phenol[e,f]				5.03E-04	5.03E-04
Non-HAP Organic Compounds					
Methane				1.69E-01	1.69E-01

e) IDAPA Toxic Air Pollutant

Facility: Salmon Asphalt

CURRENT PTC ESTIMATES

10/29/2008 13:42 **Permit/Facility ID:** 0 059-00011

EMISSION INVENTORY

TONS PER YEAR

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

A. Drum Mix Plant: 125 Tons/hour 40 Hours/year 5,000 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

B. Tank Heater: 0.0000 MMBtu Rat 0 Hours/year 0 hrs/day

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

C. Generator: 0 gal/hour 0 Hours/year Generator>600hp No Generator #2 Fuel Oil 0 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)	0.08	0.00E+00	0.00E+00	2.77E-03	0.08
PM-10 (total)	0.06	0.00E+00	0.00E+00	2.77E-03	0.06
P.M.-2.5					0.00
CO	0.33	0.00E+00	0.00E+00	6.32E-03	0.33
NOx	0.14	0.00E+00	0.00E+00		0.14
SO_2	0.03	0.00E+00	0.00E+00		0.03
VOC	0.08	0.00E+00	0.00E+00	4.02E-04	0.08
Lead	3.75E-05	0.00E+00	0.00E+00		3.75E-05
HCl [e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Dioxins[e]					
2,3,7,8-TCDD	5.25E-13	0.00E+00	0.00E+00		5.25E-13
Total TCDD	2.33E-12	0.00E+00	0.00E+00		2.33E-12
1,2,3,7,8-PeCDD	7.75E-13	0.00E+00	0.00E+00		7.75E-13
Total PeCDD	5.50E-11	0.00E+00	0.00E+00		5.50E-11
1,2,3,4,7,8-HxCDD	1.05E-12	0.00E+00	0.00E+00		1.05E-12
1,2,3,6,7,8-HxCDD	3.25E-12	0.00E+00	0.00E+00		3.25E-12
1,2,3,7,8,9-HxCDD	2.45E-12	0.00E+00	0.00E+00		2.45E-12
Total HxCDD	3.00E-11	0.00E+00	0.00E+00		3.00E-11
1,2,3,4,6,7,8-Hp-CDD	1.20E-11	0.00E+00	0.00E+00		1.20E-11
Total HpCDD	4.75E-11	0.00E+00	0.00E+00		4.75E-11
Octa CDD	6.25E-11	0.00E+00	0.00E+00		6.25E-11
Total PCDD[h]	1.98E-10	0.00E+00	0.00E+00		1.98E-10
Furans[e]					
2,3,7,8-TCDF	2.43E-12	0.00E+00	0.00E+00		2.43E-12
Total TCDF	9.25E-12	0.00E+00	0.00E+00		9.25E-12
1,2,3,7,8-PeCDF	1.08E-11	0.00E+00	0.00E+00		1.08E-11
2,3,4,7,8-PeCDF	2.10E-12	0.00E+00	0.00E+00		2.10E-12
Total PeCDF	2.10E-10	0.00E+00	0.00E+00		2.10E-10
1,2,3,4,7,8-HxCDF	1.00E-11	0.00E+00	0.00E+00		1.00E-11
1,2,3,6,7,8-HxCDF	3.00E-12	0.00E+00	0.00E+00		3.00E-12
2,3,4,6,7,8-HxCDF	4.75E-12	0.00E+00	0.00E+00		4.75E-12
1,2,3,7,8,9-HxCDF	2.10E-11	0.00E+00	0.00E+00		2.10E-11
Total HxCDF	3.25E-11	0.00E+00	0.00E+00		3.25E-11
1,2,3,4,6,7,8-HpCDF	1.63E-11	0.00E+00	0.00E+00		1.63E-11
1,2,3,4,7,8,9-HpCDF	6.75E-12	0.00E+00	0.00E+00		6.75E-12
Total HpCDF	2.50E-11	0.00E+00	0.00E+00		2.50E-11
Octa CDF	1.20E-11	0.00E+00	0.00E+00		1.20E-11
Total PCDF[h]	1.00E-10	0.00E+00	0.00E+00		1.00E-10
Total PCDD/PCDF[h]	3.00E-10	0.00E+00	0.00E+00		3.00E-10
Non-PAH HAPs					
Acetaldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Acrolein[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Benzene[e]	9.75E-04	0.00E+00	0.00E+00	1.52E-05	9.75E-04
1,3-Butadiene[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Ethylbenzene[e]	6.00E-04	0.00E+00	0.00E+00	8.93E-05	6.00E-04
Formaldehyde[e]	7.75E-03	0.00E+00	0.00E+00	2.19E-04	7.75E-03
Hexane[e]	2.30E-03	0.00E+00	0.00E+00		2.30E-03
Isooctane	1.00E-04	0.00E+00	0.00E+00	2.82E-07	1.00E-04
Methyl Ethyl Ketone[e]	0.00E+00	0.00E+00	0.00E+00	1.70E-05	0.00E+00
Pentane[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Propionaldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Quinone[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Methyl chloroform[e]	1.20E-04	0.00E+00	0.00E+00	0.00E+00	1.20E-04
Toluene[e]	7.25E-03	0.00E+00	0.00E+00	4.07E-05	7.25E-03
Xylene[e]	5.00E-04	0.00E+00	0.00E+00	1.53E-04	5.00E-04
TOTAL PAH HAPs (T/yr) =					2.21E-03
TOTAL Federal HAPs (T/yr)=					2.23E-02
TOTAL Idaho TAPs (T/yr) =					2.21E-02

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	4.25E-04	0.00E+00	0.00E+00	5.37E-05	4.25E-04
3-Methylchloranthrene[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Acenaphthene	3.50E-06	0.00E+00	0.00E+00	5.20E-06	3.50E-06
Acenaphthylene	5.50E-05	0.00E+00	0.00E+00	3.28E-07	5.50E-05
Anthracene	7.75E-06	0.00E+00	0.00E+00	1.42E-06	7.75E-06
Benzo(a)anthracene[e]	5.25E-07	0.00E+00	0.00E+00	5.17E-07	5.25E-07
Benzo(a)pyrene[e]	2.45E-08	0.00E+00	0.00E+00	1.96E-08	2.45E-08
Benzo(b)fluoranthene[e]	2.50E-07	0.00E+00	0.00E+00	6.48E-08	2.50E-07
Benzo(e)pyrene	2.75E-07	0.00E+00	0.00E+00	1.27E-07	2.75E-07
Benzo(g,h,i)perylene	1.00E-07	0.00E+00	0.00E+00	1.62E-08	1.00E-07
Benzo(k)fluoranthene[e]	1.03E-07	0.00E+00	0.00E+00	1.88E-08	1.03E-07
Chrysene[e]	4.50E-07	0.00E+00	0.00E+00	2.21E-06	4.50E-07
Dibenzo(a,h)anthracene[e]	0.00E+00	0.00E+00	0.00E+00	3.15E-09	0.00E+00
Dichlorobenzene	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Fluoranthene	1.53E-06	0.00E+00	0.00E+00	1.38E-06	1.53E-06
Fluorene	2.75E-05	0.00E+00	0.00E+00	1.30E-05	2.75E-05
Indeno(1,2,3-cd)pyrene[e]	1.75E-08	0.00E+00	0.00E+00	4.01E-09	1.75E-08
Naphthalene[e]	1.63E-03	0.00E+00	0.00E+00	2.22E-05	1.63E-03
Perylene	2.20E-08	0.00E+00	0.00E+00	3.78E-07	2.20E-08
Phenanthrene	5.75E-05	0.00E+00	0.00E+00	1.83E-05	5.75E-05
Pyrene	7.50E-06	0.00E+00	0.00E+00	4.07E-06	7.50E-06
Non-HAP Organic Compounds					
Acetone[e]	0.00E+00	0.00E+00	0.00E+00	2.16E-05	0.00E+00
Benzaldehyde	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Butane	1.68E-03	0.00E+00	0.00E+00		1.68E-03
Butyraldehyde	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Crotonaldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Ethylene	1.75E-02	0.00E+00	0.00E+00	4.09E-04	1.75E-02
Heptane	2.35E-02	0.00E+00	0.00E+00		2.35E-02
Hexanal	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Isovaleraldehyde	0.00E+00	0.00E+00	0.00E+00		0.00E+00
2-Methyl-1-pentene	1.00E-02	0.00E+00	0.00E+00		1.00E-02
2-Methyl-2-butene	1.45E-03	0.00E+00	0.00E+00		1.45E-03
3-Methylpentane	4.75E-04	0.00E+00	0.00E+00		4.75E-04
1-Pentene	5.50E-03	0.00E+00	0.00E+00		5.50E-03
n-Pentane[e]	5.25E-04	0.00E+00	0.00E+00		5.25E-04
Valeraldehyde[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Metals					
Antimony[e]	4.50E-07	0.00E+00	0.00E+00		4.50E-07
Arsenic[e]	1.40E-06	0.00E+00	0.00E+00		1.40E-06
Barium[e]	1.45E-05	0.00E+00	0.00E+00		1.45E-05
Beryllium[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Cadmium[e]	1.03E-06	0.00E+00	0.00E+00		1.03E-06
Chromium[e]	1.38E-05	0.00E+00	0.00E+00		1.38E-05
Cobalt[e]	6.50E-08	0.00E+00	0.00E+00		6.50E-08
Copper[e]	7.75E-06	0.00E+00	0.00E+00		7.75E-06
Hexavalent Chromium[e]	1.13E-06	0.00E+00	0.00E+00		1.13E-06
Manganese[e]	1.93E-05	0.00E+00	0.00E+00		1.93E-05
Mercury[e]	6.50E-06	0.00E+00	0.00E+00		6.50E-06
Molybdenum[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Nickel[e]	1.58E-04	0.00E+00	0.00E+00		1.58E-04
Phosphorus[e]	7.00E-05	0.00E+00	0.00E+00		7.00E-05
Silver[e]	1.20E-06	0.00E+00	0.00E+00		1.20E-06
Selenium[e]	8.75E-07	0.00E+00	0.00E+00		8.75E-07
Thallium[e]	1.03E-08	0.00E+00	0.00E+00		1.03E-08
Vanadium[e]	0.00E+00	0.00E+00	0.00E+00		0.00E+00
Zinc[e]	1.53E-04	0.00E+00	0.00E+00		1.53E-04

e) IDAPA Toxic Air Pollutant

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

A. Drum Mix Plant: 125 Tons/hour 40 Hours/year 5,000 Tons/year HMA throughput 12 hrs/day
Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected = #2 Fuel Oil

B. Tank Heater: 0.0000 MMBtu Rated 0 Hours/year 0 hrs/day
Maximum emission for each pollutant from any fuel-burning option selected. Fuels Selected =

C. Generator: 0 gal/hour 0 Hours/year No Generator #2 Fuel Oil Generator>600hp 0 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[e]					
Bromomethane[e]				1.51E-06	0.00E+00
2-Butanone (see Methyl Ethyl Ketone)					0.00E+00
Carbon disulfide[e]				3.02E-06	0.00E+00
Chloroethane (Ethyl chloride[e])				4.38E-07	0.00E+00
Chloromethane (Methyl chloride[e])				3.95E-06	0.00E+00
Cumene				1.14E-05	0.00E+00
n-Hexane				0.00E+00	0.00E+00
Methylene chloride (Dichloromethane[e])				2.61E-08	0.00E+00
MTBE				0.00E+00	0.00E+00
Styrene[e]				1.32E-06	0.00E+00
Tetrachloroethene (Tetrachloroethylene[e])				8.01E-07	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				1.35E-07	0.00E+00
m-/p-Xylene[e]				6.34E-05	0.00E+00
o-Xylene[e]				8.91E-05	0.00E+00
Phenol[e,f]				1.01E-05	0.00E+00
Non-HAP Organic Compounds					
Methane				3.38E-03	0.00E+00

e) IDAPA Toxic Air Pollutant

Facility: Salmon Asphalt

10/29/2008 13:42 **Permit/Facility ID:** 0 059-00011

CURRENT PTC ESTIMATES

TAPs EL Screen - ALL SOURCES

586 pollutants are shown in bold/red

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

A. Drum Mix Plant: 125 Tons/hour 40 Hours/year 5,000 Tons/year HMA throughput

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

B. Tank Heater: 0.0000 MMBtu Rated 0 Hours/year **D. Include all emissions from Load-out/Silo Filling?** Yes

Maximum emission for each pollutant for heater burning any fuel selected on "Facility Data" worksheet **Short Term Source Factor 586 ELs?** 1

C. Generator: 0 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[b] (lb/hr)	TAPs Emissions Exceed EL Increment?	Modeled? Meets AAC or AACC?
HCl[e]	0.00	0.05	No	
Dioxins[e]		Toxic Equivalency Factor[c]	Adjusted Emission Rate (lb/hr)	
2,3,7,8-TCDD	2.63E-11	1.0	2.63E-11	
Total TCDD	1.16E-10	n/a		
1,2,3,7,8-PeCDD	3.88E-11	0.5	1.94E-11	
Total PeCDD	2.75E-09	n/a		
1,2,3,4,7,8-HxCDD	5.25E-11	0.1	5.25E-12	
1,2,3,6,7,8-HxCDD	1.63E-10	0.1	1.63E-11	
1,2,3,7,8,9-HxCDD	1.23E-10	0.1	1.23E-11	
Total HxCDD	1.50E-09	n/a		
1,2,3,4,6,7,8-Hp-CDD	6.00E-10	0.01	6.00E-12	
Total HpCDD	2.38E-09	n/a		
Octa CDD	3.13E-09	n/a		
Total PCDD[a]	9.88E-09	n/a		
Furans[e]				
2,3,7,8-TCDF	1.21E-10	0.1	1.21E-11	
Total TCDF	4.63E-10	n/a		
1,2,3,7,8-PeCDF	5.38E-10	0.05	2.69E-11	
2,3,4,7,8-PeCDF	1.05E-10	0.5	5.25E-11	
Total PeCDF	1.05E-08	n/a		
1,2,3,4,7,8-HxCDF	5.00E-10	0.1	5.00E-11	
1,2,3,6,7,8-HxCDF	1.50E-10	0.1	1.50E-11	
2,3,4,6,7,8-HxCDF	2.38E-10	0.1	2.38E-11	
1,2,3,7,8,9-HxCDF	1.05E-09	0.1	1.05E-10	
Total HxCDF	1.63E-09	n/a		
1,2,3,4,6,7,8-HpCDF	8.13E-10	0.01	8.13E-12	
1,2,3,4,7,8,9-HpCDF	3.38E-10	0.01	3.38E-12	
Total HpCDF	1.25E-09	n/a		
Octa CDF	6.00E-10	n/a		
Total PCDF[a]	5.00E-09	n/a		
Total PCDD/PCDF[a]	1.50E-08	n/a		
TOTAL	Adjusted lb/hr	TAPs EL for 2,3,7,8 TCDD	Exceeds TAPs EL?	Modeled?
Dioxin/Furans[c]	3.82E-10	1.50E-10	Exceeds	
Non-PAH HAPs				
Acetaldehyde[e]	0.00E+00	3.00E-03	No	
Acrolein[e]	0.00E+00	0.017	No	
Benzene[e]	4.95E-02	8.00E-04	Exceeds	
1,3-Butadiene[e]				
Ethylbenzene[e]	3.45E-02	29	No	
Formaldehyde[e]	3.98E-01	5.10E-04	Exceeds	
Hexane[e]	1.15E-01	12	No	
Isooctane	5.01E-03			
Methyl Ethyl Ketone[e]	8.49E-04	39.3	No	
Pentane[e]	0.00E+00	118	No	
Propionaldehyde[e]	0.00E+00	0.0287	No	
Quinone[e]	0.00E+00	0.027	No	
Methyl chloroform[e]	6.00E-03	127	No	
Toluene[e]	3.65E-01	25	No	
Xylene[e]	3.26E-02	29	No	
TOTAL PAH HAPs (lb/hr) =		1.15E+00		
TOTAL Federal HAPs (lb/hr)=		1.15E+00		
TOTAL Idaho TAPs (lb/hr) =		1.05E+00		

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	2.39E-02			
3-Methylchloranthrene[e]	0.00E+00	2.50E-06	No	
Acenaphthene	4.35E-04			
Acenaphthylene	2.77E-03			
Anthracene	4.59E-04			
Benzo(a)anthracene	5.21E-05			
Benzo(a)pyrene[e]	2.21E-06	2.00E-06	Exceeds	see POM
Benzo(b)fluoranthene	1.57E-05			
Benzo(e)pyrene	2.01E-05			
Benzo(g,h,i)perylene	5.81E-06			
Benzo(k)fluoranthene	6.06E-06			
Chrysene	1.33E-04			
Dibenzo(a,h)anthracene	1.58E-07			
Dichlorobenzene	0.00E+00			
Fluoranthene	1.45E-04			
Fluorene	2.02E-03			
Indeno(1,2,3-cd)pyrene	1.08E-06			
Naphthalene[e]	8.24E-02	3.33	No	
Perylene	2.00E-05			
Phenanthrene	3.79E-03			
Pyrene	5.79E-04			
PolycyclicOrganicMatter[d,e]	2.10E-04	2.60E-06	Exceeds	
Non-HAP Organic Compounds				
Acetone[e]	1.08E-03	119	No	
Benzaldehyde	0.00E+00			
Butane	8.38E-02			
Butyraldehyde	0.00E+00			
Crotonaldehyde[e]	0.00E+00	0.38	No	
Ethylene	8.95E-01			
Heptane	1.18E+00	109	No	
Hexanal	0.00E+00			
Isovaleraldehyde	0.00E+00			
2-Methyl-1-pentene	5.00E-01			
2-Methyl-2-butene	7.25E-02			
3-Methylpentane	2.38E-02			
1-Pentene	2.75E-01			
n-Pentane[e]	2.63E-02	118	No	
Valeraldehyde (n-Valeraldehyde[e])	0.00E+00	11.7	No	
Metals				
Antimony[e]	2.25E-05	0.033	No	
Arsenic[e]	7.00E-05	1.50E-06	Exceeds	
Barium[e]	7.25E-04	0.033	No	
Beryllium[e]	0.00E+00	2.80E-05	No	
Cadmium[e]	5.13E-05	3.70E-06	Exceeds	
Chromium[e]	6.88E-04	0.033	No	
Cobalt[e]	3.25E-06	0.0033	No	
Copper[e]	3.88E-04	0.013	No	
Hexavalent Chromium[e]	5.63E-05	5.60E-07	Exceeds	
Manganese[e]	9.63E-04	0.067	No	
Mercury[e]	3.25E-04	0.003	No	
Molybdenum[e]	0.00E+00	0.333	No	
Nickel[e]	7.88E-03	2.70E-05	Exceeds	
Phosphorus[e]	3.50E-03	0.007	No	
Silver[e]	6.00E-05	0.007	No	
Selenium[e]	4.38E-05	0.013	No	
Thallium[e]	5.13E-07	0.007	No	
Vanadium[e]	0.00E+00	0.003	No	
Zinc[e]	7.63E-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)
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

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

A. Drum Mix Plant: 125 Tons/hour 40 Hours/year 5,000 Tons/year HMA throughput
Maximum emission for each pollutant from any fuel-burning option selected in "Facility Data" worksheet.

B. Tank Heater: 0.0000 MMBtu Rated 0 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: 0 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[b] (lb/hr)	TAPs Emissions Exceed EL Increment?	Modeled?
non-PAH HAPs[a]				
Bromomethane (Methyl bromide[e])	7.54E-05	1.27	No	
2-Butanone (see Methyl Ethyl Ketone)				
Carbon disulfide[e]	1.51E-04	2	No	
Chloroethane (Ethyl chloride[e])	2.19E-05	176	No	
Chloromethane (Methyl chloride[e])	1.98E-04	6.867	No	
Cumene[e]	5.72E-04	16.3	No	
n-Hexane[e] (see Hexane[e])				
Methylene chloride (Dichloromethane[e])	1.40E-06	1.60E-03	No	
MTBE	0.00E+00			
Styrene[e]	6.60E-05	6.67	No	
Tetrachloroethene (Tetrachloroethylene[e])	4.00E-05	1.30E-02	No	
1,1,1-Trichloroethane (see Methyl chloroform[e])				
Trichloroethene (Trichloroethylene[e])	0.00E+00	17.93	No	
Trichlorofluoromethane	6.76E-06			
m-/p-Xylene[e] (added into Xylene[e])				
o-Xylene[e] (added into Xylene[e])				
Phenol[e,f]	5.03E-04	1.27	No	
Non-HAP Organic Compounds				
Methane	1.69E-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

Appendix C – Ambient Air Quality Impact Analysis

MEMORANDUM

DATE: September 12, 2008

TO: Morrie Lewis, Air Quality Analyst, Air Program

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

PROJECT NUMBER: P-2008.0124

SUBJECT: Modeling Review for the Salmon Asphalt and Paving (SAP), Permit to Construct Application for a Portable Hot Mix Asphalt Plant

1.0 Summary

Salmon Asphalt and Paving (SAP) submitted a Permit to Construct (PTC) application for a portable hot mix asphalt plant (HMA) to be operated in Idaho, primarily at a site near Salmon, 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]). Millennium Science and Engineering, Inc. (MSE), SAP's consultant, performed the ambient air quality analyses submitted with the application. DEQ performed additional analyses to verify compliance with air quality standards.

A technical review of the submitted analyses was conducted by DEQ. DEQ staff also performed more detailed analyses, more accurately accounting for impacts from fugitive emissions sources. 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 (minimum distance between pollutant emission points and 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**
Throughput must be limited to 1,500 ton of HMA/day and 5,000 ton HMA/year.	The air quality analyses assumed these throughput rates.
Emissions units must maintain a 44 meter (144 ft) setback distance from the nearest property boundary.	Setbacks are the minimum distance between any emissions point and the property boundary.
The HMA may not operate with co-contributing emissions sources such as other HMAs, rock crushing plants, or concrete batch plants.	Emissions are considered co-contributing if they occur within 1,000 feet (305 meters) of each other.

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

2.1.2 Significant and Full 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.

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.

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 1st highest[h]
	24-hour	5.0	150[i]	Maximum 6th 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 2nd highest[h]
	1-hour	2,000	40,000[l]	Maximum 2nd highest[h]
Sulfur Dioxide (SO_2)	Annual	1.0	80[g]	Maximum 1st highest[h]
	24-hour	5	365[l]	Maximum 2nd highest[h]
	3-hour	25	1,300[l]	Maximum 2nd highest[h]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[g]	Maximum 1st highest[h]
Lead (Pb)	Quarterly	NA	1.5[i]	Maximum 1st 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 1st 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

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 the 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 the Salmon, Idaho area.

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.

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 the applicant and DEQ to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

The submitted analyses were performed using SCREEN3. Only emissions from the asphalt drum dryer were included in the analyses. DEQ determined emissions from fugitive sources are a substantial portion of emissions from HMA facilities and impacts from fugitive emissions may be substantial at locations along the property boundary of such facilities. DEQ performed supplemental analyses to assess impacts from all emissions sources associated with the HMA plant.

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

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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 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description[a]**
General facility location	Near Salmon	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 to 60 meters
	Grid 2	10-meter spacing out to 100 meters

[a] Values in parentheses are those used for DEQ verification analyses

3.1.2 Modeling protocol and Methodology

Screening level air impact analyses were performed by MSE. A modeling protocol was not submitted to DEQ prior to the application. Modeling was generally conducted using data and methods described in the *State of Idaho Air Quality Modeling Guideline*. DEQ performed more refined analyses to include impacts from various fugitive emissions sources which were not assessed in the submitted screening-level analyses.

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 requires 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.

MSE used the screening-level model SCREEN3 for the analyses submitted in the application. SCREEN3 is considered an acceptable screening-level model until AERSCREEN is promulgated by EPA as a replacement model for SCREEN3.

3.1.4 Meteorological Data

Model ready meteorological data are not available for the Salmon, Idaho area. Because of this and 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
Spokane, Wa	Spokane, Wa	1987-1991

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 greater uncertainty in modeled concentrations, resulting from the use of questionably-representative meteorological data, 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 the standard will not be exceeded more than once per year on average over a five 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

Submitted modeling analyses were performed to determine the maximum concentration at any location downwind of the emissions point. As noted in earlier sections of this memorandum, the submitted analyses did not assess impacts from various fugitive emissions sources. Since DEQ determined impacts from fugitive emissions could have a substantial impact, the submitted analyses did not demonstrate compliance with applicable standards to the satisfaction of DEQ.

DEQ's analyses, using a generic facility layout, were used to generate minimum setback distances between emissions points and the property boundary.

3.1.9 Receptor Network and Generation of Setback Distances

A circular grid with 5.0 meter receptor spacing, extending out to 60 meters, and 10.0 meter receptor spacing, extending out to 100 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 concentrations in the results). The following are trigger values:

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

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 receptor from that point.

4) The minimum setback distance was calculated. This was the furthest distance between an emissions point and the controlling receptor. The issued permit will require the setback distance be maintained between any emissions point and the ambient air boundary, defined as the closest point of public access. The property boundary was assumed to be the closest point of public access.

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 short-term averaging periods. DEQ determined annual emissions of criteria pollutants were below levels that could have a reasonable probability of causing a violation of an annual standard. Annual emissions are very low because annual asphalt production will be limited to 5,000 tons. Short-term emissions of carbon monoxide (CO) were also below levels DEQ determined could have a reasonable probability of causing a violation. 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 application did not calculate emissions from these fugitive sources.

Emissions from truck unloading of aggregate, screening of aggregate, and three conveyor transfers were combined into one source (emissions point CONVEY in the model). The application did not include emissions from truck unloading, and emissions from the screen and conveyors were calculated using emissions factors for uncontrolled operations. 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 appropriate control requirements for these sources.

Table 6. EMISSIONS RATES USED FOR FULL NAAQS IMPACT MODELING

Emissions Point	Description	Emissions Rates (lb/hr)		
		PM_{10}[a]	Sulfur Dioxide	Carbon Monoxide
HMA Plant Emissions				
DRYER	Asphalt Dryer Stack	1.438	1.375	16.25
SILO	Asphalt Silo Filling	0.03663		0.1475
LOADOUT	Asphalt Loadout	0.03263		0.169
MATHNDHI	Material Handling – Loader – Reasonable Controls	0.09560[b]		
CONVY	Truck Unloading, Scalping Screen, and Conveyors	0.06113[c]		

[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 wind speed.
[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, as specified by Idaho Air Rules Section 210.12. DEQ has determined use of a fabric filter on exhaust from the drum dryer is T-RACT for carcinogenic TAPs control.

DEQ has determined when T-RACT is used, 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, performed to generate the emissions screening levels (ELs) of Idaho Air Rules Section 586, assures that impacts are less than AACCs when emissions are less than ELs. Consequently, if emissions are below 10 times the ELs, it is also assured that impacts are below 10 times AACCs. Total carcinogenic TAP emissions associated with operation of the HMA are less than a value equal to 10 times the ELs; therefore, maximum impacts are less than values of 10 times the AACCs and are considered acceptable because T-RACT is used to control emissions of carcinogenic TAPs.

Table 7. EMISSIONS RATES USED FOR TAPS IMPACT MODELING

TAP	Averaging Period	Emissions Rates (lb/hr)				
		DRYER	SILO	LOADOUT	Total	10 x EL[a]
Formaldehyde	Annual	1.77E-3	4.80E-5	2.09E-6	1.82E-3	5.1E-3
Total PAH	Annual	5.05E-4	1.64E-5	1.15E-5	5.33E-4	9.1E-4
Nickel	Annual	3.60E-5	0.0	0.0	3.60E-5	2.7E-4

[a] Value of 10 times the emissions screening level in pounds per hour

3.3 Emission Release Parameters

Table 8 provides emissions release parameters for the DEQ 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 for silo filling and loadout 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 (162° 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	5.5	0.69	422	32.8
LOADOUT	Point	5.0	3.0	346	0.1
SILO	Point	9.0	3.0	346	0.1
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 Full NAAQS Impact Analyses

DEQ generated required setback distances from the modeling results for 24-hour PM_{10}, 3-hour SO_2, and 24-hour SO_2. Table 9 lists setback distances for individual analyses. Setback distances needed for compliance with the 24-hour PM_{10} standard were far greater than those needed for SO_2. Because of this, analyses for SO_2 were not performed for some meteorological data sets used for 24-hour PM_{10} analyses. DEQ determined it was not reasonably possible for setback distances associated with SO_2 to be greater than those associated with the maximum setback required for 24-hour PM_{10}.

Table 9. SETBACK DISTANCES FOR SPECIFIC ANALYSES				
Meteorological Data Set	**Pollutant**	**Averaging Period**	**Critical Receptor (m east, m north)**	**Required Setback (meters)**
Minidoka	PM_{10}	24-hour	-30, -25	44 (144 ft)
	SO_2	3-hour	None	<15
		24-hour	None	<15
Sandpoint	PM_{10}	24-hour	-20, -30	40
	SO_2	3-hour	None	<15
		24-hour	None	<15
Lewiston	PM_{10}	24-hour	-20, -10	26
Idaho Falls	PM_{10}	24-hour	15, 15	25
Boise	PM_{10}	24-hour	-15, 10	22
Spokane	PM_{10}	24-hour	15, 15	25
Aberdeen	PM_{10}	24-hour	15, 20	29

3.5 Results for TAPs Analyses

As described in Section 3.2.2 of this memorandum, additional modeling of TAPs was not needed to demonstrate compliance. The previously performed modeling analyses used to establish ELs conservatively assures that when emissions are less than 10 times the EL, the impacts will be below 10 times the AACC. Concentrations of 10 times the AACC are considered acceptable because DEQ determined T-RACT will be used to control emissions of carcinogenic TAPs.

4.0 Conclusions

The ambient air impact analyses performed by DEQ demonstrated 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 125 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

Daily production: $\frac{125 \text{ ton}}{\text{hr}} \mid \frac{12 \text{ hr}}{\text{day}} = \frac{1{,}500 \text{ ton}}{\text{day}}$

Drum Dryer Emissions

Emissions inventory in application indicates the following maximum 1-hour rates:
PM_{10} =2.875 lb/hr; SO2 = 1.375 lb/hr; CO = 16.25 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).

PM_{10} 24-hour: $\frac{2.875 \text{ lb } PM_{10}}{\text{hr}} \mid \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{1.438 \text{ lb } PM_{10}}{\text{hr}}$

SO2 3-hour: $\frac{1.375 \text{ lb SO2}}{\text{hr}}$

SO2 24-hour: $\frac{1.375 \text{ lb SO2}}{\text{hr}} \mid \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{0.6875 \text{ lb SO2}}{\text{hr}}$

CO 1-hour and 8-hour: $\frac{16.25 \text{ lb CO}}{\text{hr}}$

Asphalt Loadout

Emissions inventory in application indicates the following maximum rates:
PM_{10} = 0.06525 lb/hr; CO = 0.169 lb/hr

PM_{10} 24-hour: $\frac{0.06525 \text{ lb } PM_{10}}{\text{hr}} \mid \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{0.03263 \text{ lb } PM_{10}}{\text{hr}}$

CO 1-hour and 8-hour: $\frac{0.169 \text{ lb CO}}{\text{hr}}$

Asphalt Silo Filling

Emissions inventory in application indicates the following maximum rates:
PM_{10} = 0.07325 lb/hr; CO = 0.1475 lb/hr

PM_{10} 24-hour: $\frac{0.07325 \text{ lb } PM_{10}}{\text{hr}} \mid \frac{12 \text{ hr}}{24 \text{ hr}} = \frac{0.03663 \text{ lb } PM_{10}}{\text{hr}}$

CO 1-hour and 8-hour: $\frac{0.1475 \text{ lb CO}}{\text{hr}}$

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 were calculated using emissions factors from AP42 Section 13.2.4.

Emissions were 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 were varied as a function of wind speed, with the base emissions entered for a wind speed of 10 mph.

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

Median wind speed 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: $0.35(0.0032)\frac{(10/5)^{1.3}}{(5/2)^{1.4}} = 7.646 \text{ E}-4 \quad \text{lb/ton}$

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}:

$$\frac{7.646\text{ E-4 lb } PM_{10}}{\text{ton}} \left| \frac{1{,}500\text{ ton}}{\text{day}} \right| \frac{\text{day}}{24\text{ hour}} \left| \text{2 transfers} \right. = \frac{0.09558\text{ lb}}{\text{hr}}$$

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 emission 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}:

$$\frac{0.00010\text{ lb } PM_{10}}{\text{ton}} \left| \frac{1{,}500\text{ ton}}{\text{day}} \right| \frac{\text{day}}{24\text{ hour}} = \frac{0.006250\text{ lb}}{\text{hr}}$$

Scalping Screen (controlled emissions):

Daily PM_{10}:

$$\frac{0.00074\text{ lb } PM_{10}}{\text{ton}} \left| \frac{1{,}500\text{ ton}}{\text{day}} \right| \frac{\text{day}}{24\text{ hour}} = \frac{0.04625\text{ lb}}{\text{hr}}$$

Conveyor Transfers (controlled emissions):

Daily PM_{10}:

$$\frac{4.60\text{ E-5 lb } PM_{10}}{\text{ton}} \left| \frac{1{,}500\text{ ton}}{\text{day}} \right| \frac{\text{day}}{24\text{ hour}} \left| \text{2 transfers} \right. = \frac{0.008625\text{ lb}}{\text{hr}}$$

Total Emissions (unloading, screening, conveyors) = 0.06113 lb/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 = 5.5 meters; effective diameter of release area = 0.65 meters;
typical stack gas temperature = 422 K; typical flow velocity = 32.8 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