

NORTH CAROLINA DIVISION OF AIR QUALITY Air Permit Review			Region: Wilmington Regional Office County: Onslow NC Facility ID: 6700160 Inspector's Name: TDB Date of Last Inspection: TBD Compliance Code: TBD		
Permit Issue Date: JANUARY DRAFT, 2011					
Facility Data			Permit Applicability (this application only)		
Applicant (Facility's Name): Morton Trucking, Inc.			SIP: X NSPS: X (Subpart I, Asphalt Plants) NESHAP: PSD: PSD Avoidance: NC Toxics: Yes, 2D .1100 112(r): Other:		
Facility Address: Morton Trucking, Inc. 121 Garnet Lane Jacksonville, NC 28546					
SIC: 2951 / Paving Mixtures And Blocks NAICS: 324121 / Asphalt Paving Mixture and Block Manufacturing					
Facility Classification: Before: <BFacClass> After: <Synthetic Minor> Fee Classification: Before: <BFeeClass> After: <Synthetic Minor>					
Contact Data			Application Data		
Facility Contact	Authorized Contact	Technical Contact	Application Number: 6700160.10A Date Received: 10/15/2010 Application Type: Greenfield Facility Application Schedule: State Existing Permit Data Existing Permit Number: <Permit Number> Existing Permit Issue Date: <XPIssDate> Existing Permit Expiration Date: <XPExpDate>		
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Review Engineer: Dean Carroll			Comments / Recommendations:		
Review Engineer's Signature: _____ Date: _____			Issue: 10122R00 Permit Issue Date: January DRAFT, 2010 Permit Expiration Date: January 1, 2015		

1. **Purpose of Application** (App. No. 67/00160.10A)

Morton Trucking, Inc. requests a new Greenfield permit for a new hot mix asphalt facility in Jacksonville, NC, Onslow County. This facility is planning to be located at 121 Garnet Lane off of Highway 17, North of Jacksonville. The facility has met with the Onslow County Zoning Department for applicable zoning approval and received a Special Use Permit on March 12, 2010. The DAQ application forms (with required NC toxics modeling analysis) were submitted on October 15, 2010 and were deemed complete by NC Division of Air Quality (DAQ) staff. The application fee of \$400 was also received on October 15, 2010. The 90-day processing clock for the application was halted on November 17, 2010 in accordance with a memo from Sheila Holman, NC Division of Air Quality (DAQ) Director. The clock was stopped based on her decision to hold a public hearing on this application in response to significant requests from the public. The clock will restart after receiving an approved Hearing Officer's report.

2. **Facility Description**

This is planned to be a new 400 ton/hr drum hot mix asphalt plant (2010/2011 model) in Onslow County. Fuel supply will include natural gas / No. 2 fuel oil / recycled No. 2 fuel oil. The facility will be subject to the federal New Source Performance Standard (NSPS) Subpart I for new asphalt plants. Pictures are imbedded below.



Pictures Taken October 26, 2010.



3. **Facility Description** The sources applied for in the application included the following:

Emission Source ID	Emission Source Description	Control System ID	Control System Description
ES-1 (NSPS)	one drum mix hot mix asphalt plant (maximum rating of 400 ton/hr; 100 MM Btu/hr burner heat input; firing No. 2 fuel oil/recycled on-spec No. 2 fuel oil/natural gas); with the option of utilizing recycled, post consumer waste, asphalt (asbestos-free) shingles or recycled asphalt pavement (RAP) in the mix.	CD-1	one bagfilter (12,399 square feet of filter area)
ES-2a, 2b, 2c	three (3) HMA storage silos (200 tons storage capacity each)	N/A	N/A
ES-3	one truck load-out operation (gravity fed from silos into haul trucks); only one silo is permitted to load into trucks at a time.	N/A	N/A
ES-4	Miscellaneous aggregate handling and storage for use in HMA process	N/A	N/A

The following sources were requested to be permitted as well, which were identified as Insignificant Activities. These emission sources will be placed on the “Insignificant Activities” page attached to the back of the permit:

Source	Exemption Regulation	Source of TAPs?	Source of Title V Pollutants?
IES-1 - one liquid asphalt cement preheater (rated at 1.2 MM Btu/hr heat input, fired by No. 2 fuel oil or natural gas)	2Q .0102 (c)(2)(E)(i)	No	Yes
IES-2 - two (2) above ground storage tanks (30,000 gal each for heated liquid asphalt cement)	2Q .0102 (c)(2)(E)(i)	No	Yes
IES-3 - one No. 2 fuel oil storage tank (20,000 gal capacity)	2Q .0102 (c)(1)(D)(i)	No	Yes
IES-4 - one recycled on-spec No. 2 fuel oil storage tank (20,000 gal capacity)	2Q .0102 (c)(1)(D)(i)	No	Yes
IES-5 – one recycled asphalt pavement (RAP) crusher with screens and conveyors	2Q .0102 (c)(2)(E)(i)	No	Yes
IES-6 – one sand mine operation	2Q .0102 (c)(2)(E)(i)	No	Yes

Per the DAQ application, the following facility wide emissions were submitted on the D1 Form:

	<u>ACTUALS</u> <i>based on 941,875 tons/yr</i>	<u>POTENTIALS</u> <i>based on 3,504,000 tons/yr</i>
TSP	15 ton/yr	47 ton/yr
PM-10	6.3	18.8
SO ₂	33.6	125
NO _x	26	97
VOC	22.6	84
CO	62	232
HAP's	6.7	15.7

There are no NESHAP or MACT standards for hot mix asphalt plants, therefore, HAP emissions were only evaluated against the Title V (TV) thresholds of 10 ton/yr and 25 ton/yr (combined). As indicated above, the levels are below the TV applicability threshold. The facility will be subject to the North Carolina air toxics rules in North Carolina Administrative Code (NCAC) 2Q .0700 (see Section 8. below) and the NSPS Subpart I standard (see Section 9. below). The facility classification will be a Synthetic Minor due to PM₁₀, SO₂, and CO emissions limitations placed in the permit.

4. Regulatory Review

The following DAQ regulations apply to this facility. The regulations marked with the * were addressed in the application supplied by ERM NC, PC. Compliance is expected with each of these regulations as indicated in the application and this permit review.

- 15A NCAC 2D .0202, "Permit Renewal and Emission Inventory Requirement"
- * 15A NCAC 2D .0506, "Particulates from Hot Mix Asphalt Plants"
- 15A NCAC 2D .0515, "Particulates from Miscellaneous Industrial Processes"
- * 15A NCAC 2D .0516, "Sulfur Dioxide Emissions from Combustion Sources"
- * 15A NCAC 2D .0521, "Control of Visible Emissions"
- * 15A NCAC 2D .0524, "NSPS (40 CFR Part 60, Subpart I) for Asphalt Plants"
- 15A NCAC 2D .0535, "Excess Emissions Reporting and Malfunctions"
- * 15A NCAC 2D .0540, "Fugitive Dust Control Requirement"
- 15A NCAC 2D .0611, "Bagfilter Requirements (I & M and Recordkeeping)"
- * 15A NCAC 2D .1100, "Control of Toxic Air Pollutants"
- * 15A NCAC 2D .1806, "Control and Prohibition of Odorous Emissions"
- * 15A NCAC 2Q .0315, "Synthetic Minor Facilities – to Avoid Title V Permitting"
- 15A NCAC 2Q .0317, "Used Oil Equivalent Standards"
- 15A NCAC 2Q .0700, "Requirements for Use of Recycled Asphalt Shingles"

PARTICULATE CONTROL REQUIREMENT, 15A NCAC 2D .0506 - "Particulates from Hot Mix Asphalt Plants,"

- a. Particulate matter emissions resulting from the operation of a hot mix asphalt plant shall not exceed allowable emission rates. The allowable emission rates are, as defined in 15A NCAC 2D .0506, a function of the process weight rate and shall be determined by the following equation (calculated to three significant figures), where P is the process throughput rate in tons per hour (tons/hr) and E is the allowable emission rate in pounds per hour (lbs/hr).

$$E = 4.9445 * (P)^{0.4376} \quad \text{for } P < 300 \text{ tons/hr, or}$$

$$E = 60 \text{ lbs/hr} \quad \text{for } P \geq 300 \text{ tons/hr.}$$

For a maximum process rate (P) of 400 tons per hour at this HMA facility, the allowable emission rate (E) would be calculated as:

$$E = 60 \text{ lbs/hour.}$$

The actual hourly rate of particulate emissions from this plant per the DAQ spreadsheet for asphalt plants is given as 13.2 lbs/hour, which indicates expected compliance. This expected emission rate will be verified during the performance test required by NSPS Subpart I.

Particulate Control Requirement, 15A NCAC 2D .0515 – Particulate matter (PM) standards - potential PM emissions from any *stack, vent, or outlet* for which no other emission control standards are applicable. Pursuant to the standard, emissions of filterable PM from the affected emission sources (*none actually identified in the application*), shall not exceed an allowable emission rate as calculated by the following equations:

$$\text{For } P \leq 30 \text{ tons per hour:}$$

$$E = 4.10 \times P^{0.67}$$

$$\text{For } P > 30 \text{ tons per hour:}$$

$$E = 55.0 \times P^{0.11} - 40$$

Where E = allowable emission rate in pounds per hour; and,
P = process weight in tons per hour.

This regulatory stipulation was added out of an abundance of caution and for clarity. It is not applicable to any of the permitted or insignificant sources listed in the application, however, due to the nature and usage of the site, there is a potential for the operation of permit exempt equipment at the site to which this regulation could apply.

Sulfur Dioxide Control Requirement, 15A NCAC 2D .0516 - "Sulfur Dioxide Emissions from Combustion Sources," sulfur dioxide emissions from the combustion sources shall not exceed 2.3 pounds per million Btu heat input. (2.3 lb/MM Btu heat input) X (100 MM Btu/hr burner) = 230 lb/hour as the permitted allowable.

The drum dryer (ES-1) and the asphalt pre-heater (IES-1) are limited to a percent sulfur of 0.5 % by weight or less in the fuel (see Specific Conditions A13 and A14). At the maximum sulfur content of 0.5 %, SO₂ hourly emissions correspond to 28 lb/hour (based on the DAQ spreadsheet), indicating compliance.

Visible Emissions Control Requirement, 15A NCAC 2D .0521 – VE emissions from any stack, vent, or outlet for which no other emission control standards are applicable. This regulation limits visible emissions as follows:

For sources manufactured after July 1, 1971, visible emissions may not exceed 20 percent opacity when averaged over a 6-minute period, except that 6-minute periods averaging

more than 87 percent opacity may occur not more than once in any hour not more than four times in any 24-hour period.

Visible emissions from this facility will be controlled through the use of a fabric filter on the drum mix hot mix asphalt plant. The permit also includes inspection and maintenance (I & M) requirements for the fabric filter pursuant to 15A NCAC 2D .0611 to ensure proper operation. The DAQ anticipates that proper inspection/maintenance of the fabric filter will be sufficient to meet the visible emission standards pursuant to 15A NCAC 2D .0515. This plant is subject to NSPS Subpart I which limits opacity to 20 % at all times (disallowing the one exceedance per hour described above). Compliance with both limits will be demonstrated via Method 9 testing required by the NSPS Subpart I condition (below).

NEW SOURCE PERFORMANCE STANDARDS, 15A NCAC 2D .0524 - For one 400 ton/hour drum mix hot mix asphalt plant (ID No. ES-1), the Permittee shall comply with all applicable provisions, including the notification, testing, reporting, recordkeeping, and monitoring requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards" (NSPS) as promulgated in 40 CFR 60, **Subpart I**, including Subpart A "General Provisions."

a. NSPS Reporting Requirements - In addition to any other notification requirements to the Environmental Protection Agency (EPA), the Permittee is required to **NOTIFY** the Regional Supervisor, DAQ, in **WRITING**, of the following:

- i. The date construction (40 CFR 60.7) or reconstruction (40 CFR 60.15) of an affected source is commenced, postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced sources which are purchased in completed form;
- ii. The actual date of initial start-up of an affected source, postmarked within 15 days after such date.

b. NSPS Emissions Limitations - As required by 15A NCAC 2D .0524, the Permittee shall not discharge or cause the discharge into the atmosphere from any affected source any gases which:

- i. Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf); or
- ii. Exhibit 20 percent opacity, or greater.

NSPS Performance Testing - As required by 15A NCAC 2D .0524, the following performance tests shall be conducted. Compliance with the standard will be demonstrated after start-up (within 60 days but not later than 180 days of initial start-up).

Affected Source(s)	Pollutant	Test Method
one 400 ton/hr hot mix asphalt DRUM plant (ES-1)	Visible Emissions	Method 9
one 400 ton/hr hot mix asphalt DRUM plant (ES-1)	Particulate Matter	Method 5
one 400 ton/hr hot mix asphalt DRUM plant (ES-1)	Particulate Matter	Method 202

NOTIFICATION REQUIREMENT, 15A NCAC 2D .0535 - the Permittee of a source of excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions, shall Notify the Director or his designee of any such occurrence by 9:00 a.m. Eastern time of the Division's next business day of becoming aware of the occurrence.

FUGITIVE DUST CONTROL REQUIREMENT, 15A NCAC 2D .0540 - "Particulates from Fugitive Dust Emission Sources," the Permittee shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. If substantive complaints or excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or operator may be required to submit a fugitive dust plan as described in 2D .0540(f).

Fabric Filter Requirements, 15A NCAC 2D .0611 – This permit requires that potential particulate matter emissions from the drum mix asphalt plant be controlled by a fabric filter. DAQ has included the requirement to conduct annual internal inspections of the fabric filter in addition to any periodic inspection and maintenance procedures that are recommended by the equipment manufacturer. This requirement is added to ensure proper operation of the fabric filter, which controls potential emissions from the drum mix asphalt plant to comply with the particulate matter, visible emission, and toxic air pollutant (metals) emission limitations.

To demonstrate compliance with the fabric filter requirement, the permit requires (in addition to the performance testing described under the NSPS Subpart I discussion) that the Permittee retain results of all inspections in a logbook, including any variance from manufacturer's recommendations or from those given in this permit. Any variance shall be investigated with corrections made and dates of actions recorded in the logbook. The logbook (in written or electronic form) shall be kept on-site and made available to DAQ personnel upon request.

Toxic Air Pollutant Control Requirements, 15A NCAC 2D .1100 – DAQ requires any facility that emits a regulated Toxic Air Pollutant (TAP) at a rate greater than the TAP Permitting Emission Rate (TPER), as listed in 15A NCAC 2Q .0711, demonstrate through air dispersion modeling that emissions from the facility are not resulting in the exceedance of the Acceptable Ambient Level (AAL) for that pollutant, as listed in 15A NCAC 2D .1104.

Affected Source(s)	Toxic Air Pollutant	Modeled Emission Limit
Facility Wide	Arsenic & Compounds (total mass of elemental AS, arsine and all inorganic compounds) (ASC (7778394))	2.0 lb/yr
Facility Wide	Benzene (71-43-2)	1,388.1 lb/yr
Facility Wide	Cadmium Metal, elemental, unreacted (Component of CDC) (7440-43-9)	1.47 lb/yr
Facility Wide	Formaldehyde (50-00-0)	1.28 lb/hour
Facility Wide	Mercury - alkyl compounds, total mass (Component of HGC) (MERCALKYL)	0.025 lb/day
Facility Wide	Nickel metal (Component of NIC) (7440-02-0)	0.605 lb/day

Restrictions - To ensure compliance with the above limits, the amount of asphalt produced from the drum mix HMA plant (ES-1) shall be no more than 400 ton/hour (allowed for 24 hours/day; no more than 9,600 ton/day), and no more than 3,504,000 ton/yr.

The permittee used the maximum design production rate and assumed 24/7 operation of the plant for 365 days per year to establish the modeled rates above. These theoretical emission rates correspond to the following percentages of the AAL: Arsenic = 17%, Benzene = 20%, Cadmium = < 1 %, Formaldehyde = 4 %, Mercury = < 1 %, and Nickel = < 1 %. Arsenic, Benzene, and Cadmium are offered further protections since the facility has chosen to be permitted as a synthetic minor facility (discussed later), limiting annual production to 1,500,000 tpy of asphalt (well below the theoretical modeled rate of 3,504,000 tpy).

CONTROL AND PROHIBITION OF ODOROUS EMISSIONS, 15A NCAC 2D .1806 - the Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

LIMITATION TO AVOID 15A NCAC 2Q .0501, 15A NCAC 2Q .0315 - "Synthetic Minor Facilities," to avoid the applicability of 15A NCAC 2Q .0501 "Purpose of Section and Requirement for a Title V Permit," as requested by the Permittee, facility-wide emissions shall be less than the following:

Pollutant	Emission Limit (Tons per consecutive 12-month period)
PM10	100
SO2	100
CO	100

Operations Restrictions - To ensure emissions do not exceed the limitations above, the following restrictions shall apply:

- i. The amount of asphalt produced shall be less than 1,500,000 tons per consecutive 12-month period when burning fuel that is 0.5 percent by weight sulfur.
- ii. The percent sulfur of the No. 2 fuel oil shall be limited to 0.5 % sulfur by weight.
- iii. The CO emission factor (highest pollutant) utilized for a drum mix plant was 0.13 lb/ton. To ensure that SO2 emissions are less than 100 ton/yr, fuel certifications shall be kept on-site and made available to DAQ personnel upon request. These certifications shall indicate that all fuel oil (No. 2 fuel oil and recycled on-spec No. 2 fuel oil) has a % sulfur of 0.5 % by weight or less. The Permittee shall keep each record on file for a minimum of three years. At 0.5 %, the SO2 emission factor is estimated by AP-42 to be 0.0701 lb/ton and the particulate emissions are estimated to be 28 lb/ton before controls and 0.014 lb/ton after controls. The annual amount of actual asphalt produced is expected to be much less than the limit of 1,500,000 tons of asphalt per year.

VENDOR SUPPLIED RECYCLED No. 2 FUEL OIL REQUIREMENTS, 15A NCAC 2Q .0317 (Used Oil) - The Permittee is avoiding the applicability of Rule 2Q .0700 by using recycled fuels which are equivalent to their virgin counterparts. The Permittee is allowed to use the recycled fuel oil(s) supplied by a DAQ-approved vendor. See permit condition for actual specifications of approved recycled oils and recordkeeping and reporting requirements.

REQUIREMENTS FOR USE OF RECYCLED ASPHALT SHINGLES - The Permittee is avoiding applicability of 15A NCAC 2Q .0700 for asbestos by using certified asbestos free recycled post consumer asphalt shingles ("post consumer" meaning already purchased, used on a structure, and removed) that are included as part of the feed materials for the production of asphalt concrete paving material. See permit condition for actual specifications of approved post consumer asphalt shingles and recordkeeping requirements.

Local Zoning Requirement - According to local planning and zoning ordinances, no construction may occur of the asphalt plant until "required state and air quality permits" have been obtained and submitted to the Onslow County Planning Board. A Specific Condition (A.16) to that effect has been added to the permit.

5. Other Points to Note

1. RAP crushing may take place at this site and is permitted as an Insignificant Emission Source, IES-5.
2. This plant has three (3) silos in the application but only two (2) will be initially constructed. Only one (1) truck load-out station will be used at a time as reflected in the application and restricted in the emission source description for ES-4.
3. The NSPS particulate and VE testing is expected to be conducted using No. 2 fuel oil. The permit condition states that the testing shall be completed using "each fuel permitted" (see condition A.7.(c)(iii)). Since the No. 2 fuel oil is heavier and dirtier than natural gas, a repeat test with natural gas will not be necessary. Additionally, since all recycled oil is required to be sampled and shown to be equivalent to virgin No. 2 with respect to flash point, ash, metals, and sulfur, testing No. 2 fuel oil is considered equivalent to testing recycled No. 2 fuel oil.
4. The toxics condition will follow the same recordkeeping and reporting requirements as the synthetic minor condition because the toxics modeling was based on maximum achievable production rates for hourly and daily limits (negating a need for a limit on those pollutants), and because the annual limit for synthetic minor (1,500,000 tpy) is more restrictive than the toxics limit (3,504,000 tpy).
5. The applicant applied for recycled oil at the facility, (No. 2 fuel oil equivalent only). The appropriate permit language was added to the permit as condition A.14.
6. The applicant applied for recycled post consumer asphalt shingle feedstocks. The appropriate permit language was added to the permit as Specific Condition A.15.

6. Required Control Efficiency

CD-1	one bagfilter with 12,399 square feet of filter area
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The proposed control device is expected to achieve compliance with the DAQ particulate regulations and the NSPS Subpart I particulate limit of:

- i. Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf); or
- ii. Exhibit 20 percent opacity, or greater.

This type of control device has routinely been used in this industry with acceptable results. Compliance will be verified with an Initial Performance Test.

7. Control Equipment Selection and Design

The application was sealed by NC PE, Mr. Jeffrey Twaddle, of ERM NC, PE, which is intended to verify that the control equipment will operate in compliance with the permit limits. Bagfilters have typically provided adequate particulate control, VE, and air toxic control at asphalt plants.

8. NC Air Toxics

The total emissions were modeled on a source-by-source basis, and the resulting % AAL's were:

<i>Arsenic</i>	<i>Units: (lb/yr)</i>	<i>TPER = 0.016</i>	<i>Actual = 2.0</i>	<i>AAL = 17 %</i>
<i>Benzene</i>	<i>(lb/yr)</i>	<i>8.10</i>	<i>1,388</i>	<i>20 %</i>
<i>Cadmium</i>	<i>(lb/yr)</i>	<i>0.37</i>	<i>1.47</i>	<i>< 1 %</i>
<i>Formaldehyde</i>	<i>(lb/hr)</i>	<i>0.04</i>	<i>1.28</i>	<i>4 %</i>
<i>Mercury</i>	<i>(lb/day)</i>	<i>0.013</i>	<i>0.025</i>	<i>< 1 %</i>
<i>Nickel</i>	<i>(lb/day)</i>	<i>0.130</i>	<i>0.605</i>	<i>< 1 %</i>

These results were based on the scenario of running the DRUM plant at 3,504,000 ton/yr along with the maximum hourly (400 ton/hr) and daily production rate (9,600 ton/day). See modeling summary report from Tom Anderson to Dean Carroll dated November 15, 2010. Since none of the toxics are above the 75 % AAL threshold, the recordkeeping and reporting requirement will involve annual reporting.

9. Applicability of NSPS, NESHAPS, PSD, and 112(r)

NSPS Subpart I will apply to this facility. No NESHAP rules apply to this facility.

PSD status: Minor. The synthetic minor limit of 100 ton/yr for CO and SO₂ emissions provide the means for the facility to be a PSD minor source.

PSD Increment Tracking – this is a new permitted facility in a NON-triggered county (Onslow), PSD increment tracking is not required. The permit cover letter will not include any information regarding PSD increment.

112(r) status: Not Subject.

10. Compliance History

This facility has not yet been inspected by the WIRO. The facility will need a new inspector assigned and will be inspected after permit issuance. A file review indicates there is no prior history of Air Quality violations at the site.

11. Application Fee and Local Zoning Consistency

\$400 fee submitted on October 15, 2010. The Zoning Consistency Determination was required and submitted with the application, which explained the Special Use Permit details. Mr. Homer Hobgood, Chairman, presided over the Onslow County Planning Board during the decision for the Special Use Application for Morton Trucking, Inc. on March 12, 2010. Due to significant public comment, a hearing is scheduled for January 11, 2011 regarding this draft air permit.

- 12.** The draft permit was emailed to the applicant (Mr. Elijah Morton) and the consultant (Ms. Jenny Pappalardo) for courtesy copies. All questions and comments were resolved.

(The NC DAQ Spreadsheets for emissions from HMA plants are available by contacting the Wilmington Regional Office. Hard copies are available via fax machine for review by the public.)