

Air Permit Review

Permit Issue Date: *(Insert Issue Date)*

Region: Asheville Regional Office
County: Rutherford
NC Facility ID: 8100211
Inspector's Name: Christopher Scott
Date of Last Inspection: N/A
Compliance Code: N/A

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): APAC-Atlantic, Inc. - Henrietta Plant Facility Address: APAC-Atlantic, Inc. - Henrietta Plant Ferry Road Henrietta, NC 28076 SIC: 2951 / Paving Mixtures And Blocks NAICS: 324121 / Asphalt Paving Mixture and Block Manufacturing Facility Classification: Before: N/A After: Synthetic Minor Fee Classification: Before: N/A After: Synthetic Minor			SIP: Yes NSPS: Yes, Subpart I NESHAP: No PSD: No PSD Avoidance: Yes NC Toxics: Yes 112(r): No Other: N/A
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 8100211.05A Date Received: 07/07/2005 Application Type: Greenfield Facility Application Schedule: State Existing Permit Data Existing Permit Number: Existing Permit Issue Date: Existing Permit Expiration Date:
Greg Davis Environmental Manager (828) 665-1180 P O Box 6939 Asheville NC, 28816	William Tomlinson Division President (828) 665-1180 P O Box 6939 Asheville NC, 28816	Greg Davis Environmental Manager (828) 665-1180 P O Box 6939 Asheville NC, 28816	
Review Engineer: Christopher Scott Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue: 09544R00 Permit Issue Date: <i>(Insert Issue Date)</i> Permit Expiration Date: <i>(Insert Appropriate Date)</i>	

1. Purpose of Application

Application is made for a Greenfield facility to be located outside Henrietta, Rutherford County, 1.1 miles southwest of Henrietta, 6.8 miles southeast of Forest City. This facility will manufacture hot-mix asphalt and has requested to be permitted for the following equipment:

Emission Source ID	Emission Source Description	Control System ID	Control System Description
one continuous hot mix asphalt plant (300 tons per hour maximum capacity), consisting of:			
ES-1 NSPS	one virgin No. 2/recycled No. 2/recycled No. 4 fuel oil-fired continuous drum mix asphalt plant aggregate dryer (96.8 million Btu per hour maximum heat input rate)	CD-1	one bagfilter (9,300 square feet of filter area)
ES-2 NSPS	two 200-ton asphalt storage silos	N/A	N/A
ES-3 NSPS	one gravity feed truck load-out operation	N/A	N/A

2. Application Chronology

July 8, 2004 An initial application was received for the facility

July 14, 2005 Dispersion modeling analysis received by DAQ

July 28, 2005 Dispersion modeling analysis approved by DAQ. Memorandum from Tom Anderson received by ARO on August 2, 2005

August 4, 2005 DAQ received amended permit application

December 13, 2005 DAQ received another amended permit application - The permit application is considered complete as of this date.

3. Regulatory Review

The Company must comply with the following EMC Regulations for this application:

15A NCAC 2D .0506, "Particulates from Hot Mix Asphalt Plants";
15A NCAC 2D .0516, "Sulfur Dioxide Emissions from Combustion Sources";
15A NCAC 2D .0521, "Control of Visible Emissions";
15A NCAC 2D .0524, "New Source Performance Standards";
15A NCAC 2D .0535, "Excess Emissions Reporting and Malfunctions";
15A NCAC 2D .0540, "Particulates from Fugitive Non-process Dust Emission Sources";
15A NCAC 2D .1100, "Control of Toxic Air Pollutants";
15A NCAC 2D .1806, "Control and Prohibition of Odorous Emissions";
15A NCAC 2Q .0102, "Activities Exempted from Permit Requirements";
15A NCAC 2Q .0315, "Synthetic Minor Facilities";
15A NCAC 2Q .0317, "Avoidance Conditions (PSD)"; and,
15A NCAC 2Q .0711, "Emission Rates Requiring a Permit".

4. Compliance Determination

2D .0506 - Particulates from Hot Mix Asphalt Plants - Section (a) of this regulation limits emission of particulate matter to the following:

$$\begin{array}{ll} E = 4.9445 * P^{0.4376} & \text{for } P < 300 \text{ tons/hr, or} \\ E = 60 \text{ lbs/hr} & \text{for } P \geq 300 \text{ tons/hr} \end{array}$$

Where E is the allowable emission rate in pounds per hour and P equals the maximum process rate in tons per hour. Therefore at the maximum permitted process rate of 300 tons per hour the allowable emissions are 60 tons per hour.

Using the AP-42 emission factor of 32 pounds of PM per ton of asphalt produced (ref. AP-42 Table 11.1-1), actual uncontrolled emissions are estimated to be 9,600 pounds per hour. Therefore, the required bagfilter efficiency to demonstrate compliance with this regulation is 99.375%. The permit application indicates that the overall efficiency is stated to be 99.95% and the estimated actual emissions are 4.80 pounds per hour. Compliance with this regulation is expected and will be verified through Methods 5 and 202 testing within the timeframe dictated by NSPS, Subpart I (not to exceed 180 days after startup).

Section (b) of this regulation requires that visible emissions for all hot mix asphalt plants shall have an opacity of less than 20% when averaged over a six-minute period. Compliance with this portion of the regulation will be confirmed by inspection and stack testing as required by NSPS, Subpart I.

Section (c) of this regulation requires that visible emissions from all hot mix asphalt plants shall be equipped with a fugitive process dust control system for the drying, conveying, classifying, and mixing equipment, which shall be operated and maintained in such a manner as to reduce to a minimum the emissions of particulate matter from any point other than the stack outlet. Compliance with this portion of the regulation will be determined through compliance inspections.

Section (d) states that fugitive non-process dust emissions be regulated under Rule 2D. 0540.

Section (e) states that fugitive emissions from sources associated with the hot mix asphalt plant, not otherwise covered by Rule 2D .0506, are limited to an opacity of 20 percent.

Bagfilter Design: As indicated on the attached bagfilter information sheet, the system appears to be properly designed. According to the application the bagfilter is designed to accommodate an air flow of 51,150 acfm (test data from an identical facility in Penrose documents an actual air flowrate of 19,549 acfm). The filter area is 9,300 square feet, the filter material is Nomex and the cleaning mechanism is timed air pulse. This type of fabric is appropriate for the operating temperature (max. of 400 °F). The bagfilter I & M condition will be included in the permit.

2D .0516 - Sulfur Dioxide Emissions from Combustion Sources - Sulfur dioxide emissions are limited to 2.3 pounds per million Btu heat input. The burner on the aggregate dryer will be permitted to combust No. 2 fuel oil or recycled No. 2 or No. 4 fuel oil. The facility requested a sulfur limit of 1% for the recycled No. 2 and No.4 fuel oil (ref. Permit Application dated July 5, 2005) and virgin No. 2 fuel oil has a maximum sulfur content of 0.5 % by definition.

The AP-42 emission factor for SO₂ emissions from recycled or virgin No. 2 fuel oil emission is 142(S) pounds per 1000 gallons and the emission factor for SO₂ emissions from recycled No. 4 fuel oil combustion is 150(S) pounds per 1000 gallons (ref. AP-42 Table 1.3-1), where S represents the sulfur content of the fuel. According to AP-42, the heat content of No. 2 fuel oil is 140,000 Btu per gallon and 150,000 Btu per gallon for No. 4 fuel oil. As previously stated, APAC has requested a 1% sulfur limit for recycled No. 4 fuel oil, thus worst case SO₂ emissions occur from recycled No. 4 fuel oil combustion and are calculated as follows:

$$150(S) \frac{\text{lb}}{1000 \text{ gal}} \left(\frac{1000 \text{ gal}}{150 \text{ MMBtu}} \right) = 1.00 \frac{\text{lb SO}_2}{\text{MMBtu}}$$

Compliance with 2D .0516 is indicated.

2D .0524 - New Source Performance Standards – The application lists the manufacture date of the asphalt plant as “To Be Determined”. Thus, the manufacture date will be assumed later than June 11, 1973 and the asphalt plant is subject to NSPS Subpart I, “Standards of Performance for Hot Mix Asphalt Facilities”. Affected facilities (sources) are listed as any of the following: dryers; 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. The performance standards state that the following emissions limits apply:

- a. particulate matter emissions shall be less than 90 mg/dscm (0.04 gr/dscf); and
- b. visible emissions shall be less than 20% opacity.

Within 60 days of achieving maximum production, but no later than 180 days from initial startup, the facility will be required to demonstrate compliance with the above standards through Methods 5 and 9 stack testing. Proper operation and maintenance should ensure compliance with these standards. The NSPS construction and startup notification requirements will be included in the permit. The tests should be conducted while combusting worst case fuel (recycled No. 4 fuel oil).

2D .0535 - Excess Emissions Reporting and Malfunctions - This regulation requires timely reporting and appropriate actions during periods of excess emissions and malfunctions. The requirements of this regulation will be incorporated into the air permit.

2D .0540 - Particulates from Fugitive Non-process Dust Emission Sources - This is a complaint driven regulation designed to control non-process fugitive particulate emissions from areas such as process areas, haul roads, and stockpiles. If two substantive complaints of non-process fugitive particulate emissions are received within a 12-month period concerning the facility, the facility is required to write and implement a non-process fugitive particulate emissions control plan. Compliance with 2D .0540 is expected. This is a new facility (not operated yet) and thus no complaints have been received.

2D .1100 - Control of Toxic Air Pollutants - As shown on the attached spreadsheets (emissions estimated using AP-42 emission factors, estimated at a liquid ac storage temperature of 325 °F), at the synthetic minor limit of 300,000 tons per year, emissions would exceed the TPERs for arsenic, benzene, formaldehyde, nickel and mercury. Mr. Tom Anderson of the AQAB used SCREEN3 modeling to evaluate simple terrain, complex terrain and cavity impacts for emissions from the main bagfilter stack, silos, and the truck loadout, and demonstrated that the facility is expected to be in compliance with the AALs at the property boundaries.

The analysis assumed (based on the site plan submitted with the application) that the silo/surge bin and loadout operation sources would be at least 67.4 meters from the closest property boundary and the baghouse source would be at least 67.4 meters from the property boundary. The following table shows the percent of the AAL for each TAP (Ref. July 28, 2005 Dispersion Model from Tom Anderson).

Pollutant	Averaging Period	% of AAL
Arsenic	Annual	7
Benzene	Annual	81
Formaldehyde	1-hour	9
Nickel	24-hour	<1
Mercury	24-hour	<1

These results indicate that the facility is expected to be in compliance with the AALs at the property boundary, operating with a production limit of 300,000 tons per year (assuming the given stack parameters and distance to closest property boundary). Although there are physically two truck loadouts, there are physical restrictions to operating more than one at a given time. The following restrictions will be included in the toxics condition to ensure adherence to the modeled parameters:

- a. The height of the main dryer stack (ID No. ES-1) shall not be less than 32'6" (9.91 meters) high.
- b. The main dryer stack (ID No. ES-1) shall not be closer than 337 feet (102.9 meters) from the nearest property boundary. The silo (ID No. ES-2) and the truck loadout operation (ID No. ES-3) shall not be closer than 221 feet (67.4 meters) from the nearest property boundary.
- c. The maximum hourly production rate for the facility is restricted to 300 tons per hour based on the above modeling. According to the permit application dated July 5, 2005, The facility is design rated at 300 tons per hour.
- d. Only one truck loadout may be used at any given time.

The recordkeeping and reporting requirements of the synthetic minor permit will serve to document compliance with toxics as well. The modeled emission rates will be listed in the permit. See the July 28, 2005 memo from Tom Anderson for more details.

2D .1806 - Control and Prohibition of Odorous Emissions - The purpose of this rule is to provide for the control and prohibition of objectionable odorous emissions. The permit condition will state, "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.” Complaints have been received regarding odors from other asphalt plants, so it is possible that odors could present a problem at this facility. This will be handled through site investigation, including an odor evaluation if necessary.

2Q .0102 - Activities Exempt from Permit Requirements

- a. one No. 2 fuel oil fired asphalt heater (ID No. IES-1; 2 million Btu per hour maximum heat input rate) - This combustion source is exempt under 2Q .0102 (c)(2)(B)(i)(I) and will be listed as an insignificant activity on an attachment to the permit.
- b. three 15,000 gallon fuel oil storage tanks (ID no. IES-2) - These storage tanks are exempt under 2Q .0102 (c)(1)(D)(i) and will be listed as an insignificant activity on an attachment to the permit.
- c. one 35,000 gallon asphalt cement storage tank (ID No. IES-3) - According to the Asphalt Institute web site (<http://www.asphaltinstitute.org/faq/acbfaqs.htm>), the vapor pressure of liquid asphalt at 325 degrees F (typical storage temperature) is 1.5 E-03 kPa. NSPS Subpart Kb exempts liquid organic storage tanks of this size if the vapor pressure is less than 15.0 kPa (Ref. 40 CFR 60.110b(c)). This storage tank is not subject to the state toxics regulations in accordance with 2Q .0702(19)(B). Additionally, there are no AP-42 emission factors for emissions from liquid asphalt storage tanks, so it is exempt per 2Q .0102 (c)(1)(L)(ix) and will be listed as an insignificant activity on an attachment to the permit.

2Q .0315 - Synthetic Minor Facilities - Uncontrolled potential emissions from this facility are above the Title V thresholds for sulfur dioxide and carbon monoxide. Note the PM emissions are limited to 0.04 gr/dscf per NSPS, Subpart I. The reported exhaust rate from the drier is 19,549 acfm at 371 °F and 31.1% gas moisture, thus the dry standard cubic feet per minute is calculated as:

$$19,549 \text{ acfm} = \left(\frac{460^{\circ}\text{R} + 70^{\circ}\text{F}}{460^{\circ}\text{R} + 371^{\circ}\text{F}} \right) \times (1 - 31.1\%) = 8,590 \text{ dscf}$$

and potential PM emissions are limited to:

$$8,590 \text{ dscf/min} * 0.04 \text{ gr/dscf} * 60 \text{ min/hr} * 8760 \text{ hr/yr} * 1 \text{ lb/7000 gr} * 1 \text{ ton/2000 lb} = 12.90 \text{ tons/year}$$

This exhaust rate will be confirmed through Method 5 testing. The bagfilter is required to meet the NSPS, Subpart I limit. Thus, the bagfilter I & M requirement is listed as a separate condition. The facility requested a synthetic minor limit of 300,000 tons of asphalt produced per year to keep the modeled emission rate of Benzene to approximately 81% of the Acceptable Ambient Limit (AAL). These production rate limits also ensure that the emission rate of each criteria pollutant remains below 100 tons per year. Quarterly reporting of production rates will be required to ensure compliance with production limits is maintained.

2Q .0317 - Avoidance Conditions (PSD) - The facility has the potential to exceed 250 tons of SO₂ per year. Compliance with this regulation is monitored through the Synthetic Minor limit, recordkeeping, and reporting.

2Q .0711 - Emission Rates Requiring a Permit - The Toxic Pollutant Emission Rates (TPERs) will be included for the following toxics.

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
Acetaldehyde (75-07-0)				6.8
Acrolein (107-02-8)				0.02

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
Benzo(a)pyrene (50-32-8)	2.2			
Beryllium (7440-41-7)	0.28			
CFC-11; Trichlorofluoromethane (75-69-4)			140	
Cadmium (7440-43-9)	0.37			
Carbon disulfide (75-15-0)		3.9		
Soluble Chromate Compounds as Chromium-VI equivalent (SolCR6)		0.013		
Hexachlorodibenzo-P-Dioxin (57653-85-7)	0.0051			
n-Hexane (110-54-3)		23		
Manganese & Compounds (MNC)		0.63		
Methyl Chloroform (71-55-6)		250		
Methyl Ethyl Ketone (78-93-3)		78		22.4
Methylene Chloride (75-09-2)	1600		0.39	
Perchloroethylene (127-18-4)	13000			
Phenol (108-95-2)			0.24	
Styrene (100-42-5)			2.7	
Tetrachlorodibenzo-P-Dioxin (1746-01-6)	0.00020			
Toluene (108-88-3)		98		14.4
Trichloroethylene (79-01-6)	4000			
Xylene (1330-20-7)		57		16.4

To ensure compliance with these limits, the Permittee will be required to limit asphalt production to 300,00 tons per year and 300 tons per hour as well as properly operate and maintain bagfilter CD-1 to control particulate matter emissions. Additionally, since modeling did not address more than one truck loading at any given time and the facility will construct two truck load-out points, the permit includes a requirement that restricts the Permittee to operating only one load-out and a time (Greg Davis, the Environmental Manager for APAC has stated that the

facility design proposed is not physically capable of operating both load-outs simultaneously). Compliance with 2Q .0711 is expected.

Public Notice in Areas Without Zoning - In accordance with the requirements of 2Q .0113, Brooks and Medlock (consultant to Long Branch Partners) submitted proof of compliance with public notification requirements on behalf of APAC-Atlantic, Inc. This included pictures of signs posted at each of two accesses to the property and a copy of the notice that appeared in The Daily Courier (a newspaper of general circulation in Forest City, NC) on June 22, 2004. Mr. Troy Harrison and I visited the area of the proposed asphalt plant and verified that the signs appeared to meet the requirements of this rule.

To comply with the requirements of the permit application procedure, APAC-Atlantic, Inc. requested a zoning consistency statement from the Rutherford County Zoning Administrator in a letter dated August 4, 2005. Gregg Davis with APAC-Atlantic has provided documentation (ref. attached FedEx Express Proof of Delivery documentation dated October 14, 2005) which appears to indicate that the determination request was delivered on August 5, 2005, although to date, neither APAC nor the DAQ has received a written response to this request.

North Carolina General Statute § 143-215.108(f): “If the local government fails to make such a determination within 15 days after receipt of the zoning consistency request, the DAQ may proceed without regard to local zoning.

A policy memo dated July 31, 2000 states: *“However, if we have not heard from the local government after the 15 day period, the review engineer shall make one last attempt to contact the local government authority by phone to make sure that the determination simply has not been misplaced or delayed.”*

Mr. Paul Muller of this office contacted Danny Searcy, the Rutherford County Planner and confirmed that the determination request had been received. Mr. Searcy indicated that the statement would be issued pending the expiration of a moratorium which restricts new building permits for certain industries in watershed protection areas (the proposed quarry would be constructed in an area currently protected by the moratorium). It may be noted here that the DAQ received a determination for the proposed Henrietta Quarry (located on the same property) which indicates that the site of the proposed facility is not a zoned area, however it states that the property is subject to the Rutherford County Watershed Protection Ordinance.

5. NSPS, NESHAPS, PSD, Toxics and 112(r) and Attainment Status

The facility is not subject to the requirements of NESHAPS, PSD, or 112(r). The facility is subject to NSPS, Subparts I, and the state Toxics regulations, as referenced below and discussed in detail above. Synthetic Minor limitations prevent emissions from exceeding PSD thresholds.

- a. **NSPS** - This facility is subject to NSPS Subpart I, “Standards of Performance for Hot Mix Asphalt Facilities”. This facility is not subject to NSPS Subpart Kb, “Standards of Performance for Volatile Organic Liquid Storage Vessels”, as discussed above.
- b. **Toxics** - The facility triggered a toxics review with emissions exceeding the TPERs for several pollutants, as discussed above. Compliance was demonstrated at modeled emissions rates, using the 300 tons per hour and 300,000 tons per year production limits (ref. July 28, 2005 memorandum from Tom Anderson, Meteorologist with AQAB).
- c. **112(r)** - The permit application for this facility indicates that it is not subject to the requirements of 112(r).

6. Facility Compliance Status

This is a greenfield facility and has no inspection history.

7. Facility-wide Emissions Review

Emissions estimates are shown on the attached spreadsheets. Based on the potential emissions shown below, this facility is classified as a synthetic minor facility:

Pollutant	Projected Actual Emissions	Controlled Potential Emissions	Uncontrolled Potential Emissions
TSP	(No estimates available)	5.49 tons	12.90 tons*
PM ₁₀		3.99 tons	12.90 tons*
SO ₂		43.70 tons	250 tons**
NO _x		10.52 tons	74.54 tons
VOCs		7.25 tons	63.24 tons
CO		20.45 tons	174.71 tons
Formaldehyde		8,380 lbs.	956 lbs.
Total HAPs		27,000 lbs.	3,080 lbs.

* NSPS, Subpart I limits PM emissions to 0.04 gr/dscf, or 12.90 tons/year in this case

** Rule 2Q .0317 sets PSD avoidance limitations such that SO₂ emissions may not exceed 250 tons per year. Compliance with this condition is assured through compliance with the synthetic minor limit.

8. Stipulation Review

DAQ recommends the issuance of this Permit for the new continuous hot mix asphalt plant.

9. Conclusions, Comments, and Recommendations

I checked the NC Secretary of State Webpage on November 8, 2005 and verified that APAC-Atlantic, Inc. is registered as a North Carolina corporate entity. ARO will issue Air Permit No. 09544R00 to APAC-Atlantic, Inc., Rutherford County, North Carolina.