

## Asheville-Buncombe Air Quality Agency APPLICATION REVIEW SUMMARY

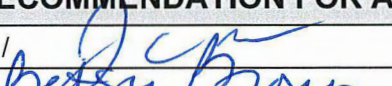
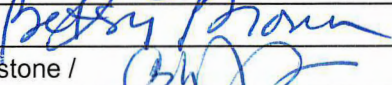
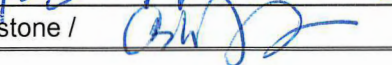
SECTION A: FACILITY INFORMATION			
Company Name:	APAC Atlantic, Inc.		
Site Name:	Weaverville		
Mailing Address:	P.O. Box 6939, Asheville, NC 28816		
Site Address:	101 Goldview Road, Weaverville		
General Description of Business:	Hot Mix Asphalt Plant		
Facility Classification:	Synthetic Minor	SITE STATUS:	Existing

SECTION B: APPLICATION INFORMATION			
Date Of Application:	June 26, 2023	Application Tracking No.:	NA
Date Complete Application Received:	August 10, 2023	Board Meeting Date:	September 28, 2023
Confidentiality Requested?	No	Board Agenda Type:	Modification
Application Results:	The purpose of this review is to lend approval to APAC to replace equipment at their asphalt plant and to raise their production limit.		
Permit No. / Date Issued by Application:	11-796-22A / September 28, 2023		
Permit No. / Date Voided by Application:	11-796-22 / May 24, 2022		

SECTION C: REGULATORY INFORMATION	
AB Air Quality Regulations:	4.0506, 4.0516, 4.0524, 4.0540, 4.0605, 4.0611, 4.1100, 4.1806, 17.0315, 17.0700

SECTION D: FACILITY-WIDE EMISSIONS INFORMATION			
Pollutants Reviewed as a Result of this Application or AB Air Quality Action:	2022 Actual Emissions (TONS/YR)	Potential Emissions (TONS/YR)	
		With Production Limit & Natural Gas	With Production Limit & No. 4 Fuel Oil
PM	1.51*	20.79*	20.98*
PM <sub>10</sub>	1.24*	14.73*	14.92*
PM <sub>2.5</sub>	1.24*	14.73*	14.92*
SO <sub>2</sub>	0.01	0.05	45.25
NO <sub>x</sub>	2.19	16.76	34.69
CO	8.86	80.49	79.94
VOC	3.08	28.92	28.89
Greenhouse Gases, CO <sub>2e</sub>	3,614	18,930	26,744
All Hazardous Air Pollutants (HAPs)	0.53	3.44	6.94
List all HAPs >10TPY of potential emissions	None		

\*Emission numbers denoted with an (\*) reflect "controlled" emissions (i.e. emissions reduced by a pollution control device).

RECOMMENDATION FOR APPROVAL			
Prepared By:	James C. Raiford / 	Date Completed:	9/15/2023
Reviewed By:	Betsy Brown / 	Date Reviewed:	9/15/2023
Director Name:	Ashley J. Featherstone / 	Date Approved:	9/19/2023

## SECTION A DETAILS

### Facility Information

[Detailed discussion of any items in Section A]

The APAC Weaverville plant is a 300 tons per hour continuous mix asphalt plant. Raw materials include gravel, sand, recycled asphalt product (RAP), consisting of used, crushed asphalt, ground recycled asphalt shingles, and liquid asphalt cement. The sand, gravel and RAP, which are stored in large piles onsite, are placed into hoppers by a mobile front-end loader. Various ratios of sand and gravel are taken via conveyors to a large metal rotating drum for mixing and drying. RAP may also be used and is added to the drum via the RAP conveyor. (Typically, about 15% of the aggregate is RAP). The aggregate is loaded into the high end of the drum and is dried as it travels downward by a burner located at the low end of the drum. The burner combusts either No.4 recycled on-specification fuel oil or natural gas, and previously had a maximum rated capacity of 120 MMBtu/hr. The burner for this modification has a maximum capacity of 75 MMBtu/hr.

Liquid asphalt cement is stored in three 30,000-gallon tanks. An asphalt tank heater, running on No.2 fuel oil, maintains the asphalt in a liquid state. A condensing unit mounted on the top of the old tank captures some of the vapors emitted by both tanks. The liquid asphalt cement is pumped to a mixer located near the burner in the low end of the drum to combine with the aggregate. The mixture is heated to over 300 °F. Air flows from the low end of the drum to the high end of the drum, against the flow of the aggregate. The air, which contains particulates from flowing over the aggregate, exits the drum and enters a closed loop inertial separator. Air from the separator is then routed to a bagfilter. Particles collected in the cyclone and the baghouse are reintroduced to the process.

The finished asphalt is conveyed from the drum to the top of one of the three silos where it is stored. Asphalt can be stored for up to 7 days before it becomes too cool for use. The exhaust from the three silos is ducted back to the dryer drum for use as make up air. Dump trucks are driven underneath the silos to be loaded with asphalt. The truck load out area is equipped with a Chem Station brand soap application system that drivers use to coat the inside of the truck bed before the liquid asphalt is loaded. This biodegradable soap solution helps with unloading and eliminates the need for the use of diesel fuel to line the beds, a practice that is not allowed but not uncommon. According to some in the industry, diesel fuel lined beds have been associated with some of the blue smoke emissions from the truck load out. With the soap solution system, the driver pulls up to the load out area, reaches out the window and pulls down on a lever, which delivers a metered amount of the solution to the truck bed before the asphalt is loaded.

For this modification, the facility is proposing to replace the existing asphalt plant with a newer asphalt plant with the same capacity of 300 tons per hour. This includes replacing the previous burner rated at 120 MMBtu/hr with one rated at 75 MMBtu/hr. The asphalt heater tank that was previously rated at 1.5 MMBtu/hr will be replaced with one rated at 2.7 MMBtu/hr. The three silos and the truck load out will be replaced with identical newer versions. Some of the insignificant activities including fuel storage tanks are also being replaced with new equipment.

Also, as part of this permit modification, the facility is proposing to increase their annual asphalt production limit from the current 12-month rolling average production of asphalt from 450,000 tons to 1,200,000 tons. Increasing this limit required the facility to conduct toxics modeling for arsenic, benzene, cadmium, nickel, mercury and formaldehyde. The modeling was reviewed and was well below the Acceptable Ambient Limits. Further information can be found in the Regulatory notes after Section C of this review.

Additionally, the facility has requested to reduce the limit for the sulfur content of Recycled Fuel Oil from 1.2% to 0.5%. This reduction is needed to keep sulfur emission below Title V thresholds. This lower limit will be reflected in the modified permit. This fuel is only used on an emergency basis and has not been used in several years.

## SECTION B DETAILS

### Application Information

[List all emission sources (permitted and exempt) reviewed as a result of this application, their associated control devices and pollutants. Provide a detailed discussion of any other items in Section B at bottom under "Application Notes"]

Emission Source ID	Emission Source Description 1. Type, manufacturer, capacity 2. Control device with ID (if any)	Pollutant(s) Emitted	Miscellaneous Notes
ES-5	One continuous mix hot mix asphalt plant with a rated capacity of 300 tons per hour, including a dryer drum burner with a maximum heat input value of 75 MMBtu per hour fired on natural gas, No. 2 fuel oil, or recycled No. 4 fuel oil. The process is controlled by an Inertial Separator followed by a baghouse with 12,399 square feet of filter area.	PM, PM <sub>10</sub> , PM <sub>2.5</sub> , CO, NO <sub>x</sub> , SO <sub>2</sub> , VOC, HAPs/TAPs, CO <sub>2e</sub>	This emission source replaces ES-1 on the previous permit. Natural gas is the primary fuel for the dryer drum with No. 2 fuel oil serving as the backup. The facility is also permitted to burn recycled No. 4 fuel oil.
ES-6	Three asphalt storage silos with 300 tons capacity each.	PM, PM <sub>10</sub> , PM <sub>2.5</sub> , CO, VOC, HAPs/TAPs, CO <sub>2e</sub>	This emission source replaces ES-2 on the previous permit. Emissions from the silo vents are routed back to the dryer/drum. Control efficiency is unknown, and as such, emissions are considered uncontrolled.
ES-7	Gravity drop dump truck load out operation	PM, PM <sub>10</sub> , PM <sub>2.5</sub> , CO, VOC, HAPs/TAPs, CO <sub>2e</sub>	This emission source replaces ES-3 on the previous permit. Emissions from truck loading are not controlled.
ES-8	One 2.7 million BTU per hour asphalt cement tank heater fired on natural gas or No. 2 fuel oil	PM, PM <sub>10</sub> , PM <sub>2.5</sub> , CO, NO <sub>x</sub> , SO <sub>2</sub> , VOC, HAPs/TAPs, CO <sub>2e</sub>	This emission source replaces ES-4 on the previous permit. Natural gas is the primary fuel for the asphalt cement tank heater with No. 2 fuel oil serving as the backup fuel. Because this tank heater was included in the toxics modeling analysis, it is not exempt from permitting per AB Air Quality 17.0102(b)(7).
NA	One 13,000 gallon No. 2 fuel oil storage tank	VOC	The tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).
NA	Two 20,000 gallon recycled No. 4 fuel oil (RFO) storage tanks	VOC	The tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).
NA	Two 30,000 gallon liquid asphalt cement tanks	VOC	These storage tanks are exempt from permitting per AB Air Quality 17.0102(c)(2)(F).
NA	One 2,000 gallon anti-strip tank	VOC	This storage tank is exempt from permitting per AB Air Quality 17.0102(c)(2)(F).
NA	One approximately 100 gallon propane tank	VOC	The tank is exempt from permitting per AB Air Quality Code 17.0102(c)(1)(D)(i).

### APPLICATION NOTES

Regarding the asphalt cement tank and the anti-strip tank, Appendix 27 to the AB Air Quality Code indicates that aboveground tanks storing organic liquids with low vapor pressures that cannot qualify for an exemption under 17.0102(c)(2)(A)(i) because the tank is over the 1,100-gallon threshold may qualify for the case-by-case exemption under 17.0102(c)(2)(F). Because asphalt cement and anti-stripping agent have low vapor pressures, this exemption appears to be the best fit.

Since the result of this permit modification resulted in an increase in potential emissions, a zoning consistency determination was required and was received from Buncombe County on August 10, 2023.

## SECTION C DETAILS

### Regulatory Information

(Identify the AB Air Quality Regulations reviewed because of this application. At a minimum, the regulations already listed should be reviewed and reason given for applicability or non-applicability. If a regulation has a standard, list the standard and indicate how the source is in compliance.)

AB Air Quality Regulation Number / Title	Emission Source ID No(s). Subject	Notes On Regulation (Compliance demonstration, applicability, etc.)
17.0500 – Title V Procedures and 17.0315 – Synthetic Minor Facilities	Entire facility	The facility is not subject to Title V permitting procedures because it elected to take avoidance limitations that define its potential to emit as less than 100 tons per year for SO <sub>2</sub> , CO, and PM <sub>10</sub> . The facility's potential to emit HAPs is less than the 10-ton per year applicability threshold for individual HAPs and the 25-ton per year applicability threshold for combined HAPs.
17.0700 – Toxic Air Pollutant Procedures and 4.1100 – Control of Toxic Air Pollutants	ES-5, ES-6, ES-7, ES-8	NC Air Toxics regulations triggered with this modification, and in response, a toxics compliance demonstration was submitted. The toxics analysis was updated for this permit modification (see notes below).
4.0524 – New Source Performance Standards (40 CFR 60, Subpart I)	ES-5, ES-6	The facility is subject to a PM limit of 90 mg/dscm (0.04 gr/dscf) and a visible emissions limit of 20% opacity. Compliance will be demonstrated by conducting a Method 5 stack testing and a Method 9 visible emissions test. Subpart I requires initial testing, and since the equipment is new the facility will be required to test within 60 days of achieving the maximum production rate but no longer than 180 days from initial startup. After the initial test, an 8/13/13 DAQ memo established requiring minimum testing once every 10 years (see notes below).
4.0530 – Prevention of Significant Deterioration	NA	The facility does have potential (uncontrolled) PM <sub>10</sub> and SO <sub>2</sub> emissions above the PSD major source applicability threshold. An avoidance limit will be included in the permit.
4.1111 – MACT (40 CFR 63)	NA	The facility has no equipment or processes that are subject to a MACT standard.
4.0516 – Sulfur Dioxide Emissions from Combustion Sources	ES-5, ES-8	SO <sub>2</sub> emissions from the dryer drum (ES-5) shall not exceed 2.3 lbs/MMBtu. The facility limits sulfur content of the No. 4 fuel oil to 0.5%. With this limitation, SO <sub>2</sub> emissions are: 20.99 lb SO <sub>2</sub> /hr / 75 MMBtu/hr = 0.28 lb/MMBtu. When burning No. 2 fuel oil, SO <sub>2</sub> emissions from the asphalt cement tank heater (ES-8) are: 1.37 lb SO <sub>2</sub> /hr / 2.7 MMBtu/hr = 0.51 lb/MMBtu.

40 CFR 279 - Standards for the Management of Used Oil	ES-5	The facility is subject to 40 CFR 279. In order to avoid all of the requirements of 40 CFR 279, the facility must demonstrate that the used oil (i.e., recycled No. 4 fuel oil) it plans to burn meets the specifications outlined in 40 CFR 279.11. In addition, the facility must be in compliance with 279.72 and 279.74(b). 279.72 requires that the facility must determine that the used oil meets the specifications in 279.11 by performing analyses or obtaining copies of analyses that show that the used oil meets the specifications, and copies of the analyses must be maintained for three years. 279.74(b) states that records of each shipment must be maintained and include the following information: name and address of the facility receiving the shipment, quantity of used oil fuel delivered, date of delivery, and a cross reference to the used oil analysis. NC DENR DAQ has set more stringent limits to avoid the applicability of toxics for facilities that burn used oil (see the DAQ Recycled Oil Management Plan, January 2013). The permit reflects the more stringent limits used by DAQ.
4.0506 – Particulates from Hot Mix Asphalt Plants	Entire facility	Particulate matter emission limit for ES-5 is 60 lb/hr for process weights $\geq$ 300 ton/hr. Compliance will be demonstrated by conducting a Method 202 stack test and will be required to test within 60 days of achieving the maximum production rate but no longer than 180 days from initial startup. As noted above, the 8/13/13 DAQ memo established minimum testing as once every 10 years (see notes below). Per 4.0506, fugitive process emissions not covered under 4.0524 are subject to a visible emissions limit of 20% opacity, and fugitive non-process emissions are subject to 4.0540.
4.0540 – Particulates from Fugitive Non-Process Dust Emission Sources	All sources of fugitive non-process dust	The facility will take reasonable precautions to prevent particulate matter from becoming airborne as a result of storage, transportation, processing, and handling of materials.
4.0611 – Monitoring Emissions From Other Sources	ES-5	The facility will perform periodic inspections and maintenance of the cyclone and baghouse and maintain records of these activities in a logbook.
4.0605 – General Recordkeeping and Reporting Requirements	Entire facility	The facility is required to submit annual reporting of the monthly and annual asphalt production and fuel type, the amount of No.4 fuel oil used, and a summary of the analytical fuel oil testing.

4.1806 – Control and Prohibition of Odorous Emissions	Entire facility	The owner or operator of the facility 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.
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### REGULATORY NOTES

**17.0315** - In order for the facility to avoid the requirements of 40 CFR 70, the facility has requested an asphalt production limit of 1,200,000 ton/yr and a No. 4 fuel oil sulfur limit of 0.5% (in addition to operating the baghouse). The previous permit had a production limit of 450,000 ton/yr and a 1.2% No. 4 fuel oil sulfur limit.

**17.0700** - NC Air Toxics regulations were triggered by this modification. In addition to replacing all of the equipment at the site, the facility has proposed raising the maximum asphalt production limit from 450,000 tons/yr to 1,200,000 tons/yr. Air toxics modeling was submitted with the permit application. Emissions of arsenic, benzene, cadmium, formaldehyde, mercury, and nickel were above the corresponding TAP permitting emission rates (TPERs) and were included in the modeling analysis. The modeling was performed using the latest AERMOD version 22112 (version date April 22, 2022). The Agency reviewed the modeling parameters and results and found them acceptable. Below are the results of the model compared to the Acceptable Annual Limit (AAL) for each pollutant:

Pollutant	Averaging Period	Max Modeled Impact mg/m <sup>3</sup>	AAL	Compliance (Yes/No)	Percentage of AAL
Arsenic	Annual	4.60E-07	2.10E-06	Yes	21.9%
Benzene	Annual	1.74E-05	1.20E-04	Yes	14.51%
Cadmium	Annual	3.40E-07	5.50E-06	Yes	6.18%
Nickel	24 Hour	3.83E-05	6.00E-03	Yes	0.64%
Mercury	24 Hour	3.38E-06	6.00E-04	Yes	0.56%
Formaldehyde	1-Hr	3.87E-03	1.50E-01	Yes	2.58%

The modeling analysis that was submitted with the application listed the above units in micrograms per cubic meter and were converted to milligrams per cubic meter as they are listed in AB Air Quality Code Chapter 4.1100. The original modeling analysis had an incorrect table and they sent an amended report on September 14<sup>th</sup>.

**4.0506 and 4.0524** - Condition B.11 requires an initial source test within 60 days after achieving the maximum production rate, but no longer than 180 days after the initial start-up of the new equipment. After the initial test, the permit requires source testing once every 10 years, consistent with North Carolina DAQ policy, per an 8/13/13 DAQ memo. Method 5 for filterable PM and Method 9 for visible emissions are used to demonstrate compliance with 4.0524, per Subpart I, and Method 5 and Method 202 for condensable PM are used to demonstrate compliance with 4.0506, per DAQ guidance (see Michael Aldridge's 5/4/01 memo and Shannon Vogel's May 2009 email, in the review for Permit No. 11-796-09).

## SECTION D DETAILS

### Emission Information

<b>Calculation Method Codes</b> (List all that apply)	1 = Stack test result 2 = Material (mass) balance 3 = EPA approved information (AP-42, CTG, etc.) 4 = Other (specify in table below)			
<b>Calculation Rejection Codes</b> (List all that apply)	1 = Calculation error 2 = Wrong emission factor(s) used 3 = Control efficiency(ies) not accepted 4 = Other (specify in table below)			
<b>Emission Source (ID No.)</b>	<b>Calculation Method Code</b>	<b>Accept or Reject?</b>	<b>Calculation Rejection Code</b>	<b>AB Air Quality Calculations Attached?</b>
ES-5, ES-6, ES-7, ES-8	3	Accept	NA	Yes

### EMISSION NOTES

The facility submitted emissions calculations and were confirmed with Agency calculations. Also included are the most current actual emissions from 2022. The emissions calculations include the proposed permitted production limit of 1,200,000 tons of asphalt per year. One set of spreadsheet calculations was based on burning No. 4 fuel oil with the new proposed maximum sulfur content limit of 0.5% in the dryer drum and burning No. 2 fuel oil in the asphalt cement tank heater. The facility submitted particulate emissions based on stack test results, but since the equipment is new and has not been tested, the Agency used AP42 emission factors that were slightly more conservative. Emissions of arsenic, benzene, cadmium, formaldehyde, mercury, and nickel were above the corresponding TPERs and were addressed in the toxics demonstration. A second set of spreadsheet calculations was based on burning natural gas in both the dryer drum and the asphalt cement tank heater. Using natural gas, emissions of the same TAPs, except mercury, exceeded the TPERs.



## **SECTION E**

### **Supporting Documentation** **(Provide brief description of any attachments)**

1. Permit Application
2. Air Toxics Modeling Analysis
3. Draft Permit
4. Draft Cover Letter
5. Zoning consistency letter