

ENGINEERING ANALYSIS
HOSEA O. WEAVER & SONS, INC.
MOBILE, AL
503-8069
UNIT NO. X002

Hosea O. Weaver & Sons, Inc. (HOW) has requested that the ADEM - Air Division modify Air Permit 503-8069-X001 for the existing 400 TPH Double Barrel Drum-Mix Asphalt Plant located at 1908 Bay Bridge Cutoff Road in Mobile, Alabama. HOW has proposed to include Synthetic Minor Operating Permit (SMOP) limits, which would limit the operating hours and fuel oil usage at the plant in order to minimize emissions. HOW has proposed to modify the permit to include the following limits:

Annual Operating Hours Limit of 3,700 hours per year (rolling average)
Fuel oil usage limit of 1,800,000 gallons per year (rolling average)

No other permit conditions would be altered as a result of this modification. The existing Air Permit is Unit No. X001 and will be voided upon issuance of Unit No. X002. The modified permit, Unit No. X002, will include the proposed SMOP limitations with the following description:

X002 – 400 TPH Double Barrel Drum-Mix Asphalt Plant with Baghouse (NSPS Subpart I)

X002 Process Description:

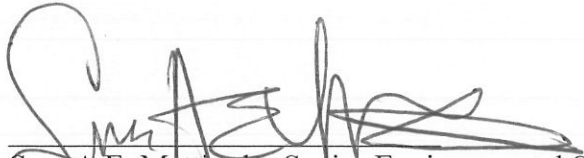
Plant X002 would be required to meet the New Source Performance Standards (NSPS), Subpart I, particulate emissions limit of ≤ 0.04 gr/dscf which, for this plant, allows a particulate emission rate of ≤ 14.69 lbs/hr or **64.34 TPY** (Appendix A).

The burner could be fired by fuel oil or natural gas. Since potential emissions for CO are above the 100 TPY Title V threshold, an hours of operation limitation of 3700 hours during any consecutive twelve (12) month rolling period will be included in the permit. Due to the hours of operation limit, emissions of criteria pollutants would not meet or exceed the major source threshold for Title V sources (see Appendix A, calculations). Since potential emissions based on estimates for SO₂ are above the 100 TPY Title V threshold, HOW has proposed a fuel oil usage limitation of 1,800,000 gallons of oil per consecutive twelve (12) month rolling period. Fuel oil sulfur content may be no greater than 0.7% and ash content may be no greater than 1%. Calculations have been performed based on the fuel oil limitation of 1,800,000 gallons/year. Emissions of criteria pollutants will not meet or exceed the major source threshold for Title V sources (see Appendix A, calculations).

This facility would not be located within 100 km of the Breton Wildlife Refuge, a Class I Wildlife Area. The operation of this plant is not anticipated to impact this area.

HOW submitted emission estimate calculations analyzing potential emissions from all plant operations. The Department reviewed the calculations and has determined that no individual HAP or total HAPs will exceed the Title V threshold. This facility would not be considered "major" for any criteria pollutant and, therefore, would not be required to undergo the PSD process. HOW would be required to complete a 15-day public comment period.

Based on this information, this analysis indicates that this source would meet the requirements of all ADEM - Air Division rules and regulations. I recommend that an Air Permit be issued to Hosea O. Weaver & Sons, Inc., incorporating the provisions of Appendix B and Appendix C, the cover letter.



Sara A.E. Mattingly, Senior Environmental Scientist
ADEM Air Division
Energy Branch/CMS

11/15/2023
Date

**APPENDIX A
CALCULATIONS
HOSEA O. WEAVER & SONS, INC.
FACILITY No. 503-8069
UNIT X002**

Plant Type: Astec Model Turbo 400, Double Barrel drum-mix asphalt plant
 Capacity: 400 TPH
 Control Device: Astec Model RBH-75 Baghouse
 Flow Rate: 75,000 ACFM at 280° F with 20 % Moisture
 Operating Hours: SMOP Limitation of 3,700 hrs/yr (rolling average)
 Fuel Type: Natural Gas or Fuel Oil (SMOP Fuel Oil Limitation of 1,800,000 gallons per year – rolling average)

PARTICULATE MATTER EMISSIONS

Allowable: ≤ 0.04 gr/dscf from 40 CFR Part 60, Subpart I.

$$VA = \frac{VS (\text{°F}) + 460}{530}$$

$$75,000 \text{ acfm} = \frac{VS (280 + 460)}{530}$$

$$75,000 \text{ acfm} = VS (1.40)$$

$$VS = 53,571.43 \text{ scfm}$$

53,571.43 scf min	0.80 (20 % moisture)	= 42,857.14 dscf min
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≤ 0.04 gr dscf	42,857.14 dscf min	60 min Hr	1 lb 7000 gr	= ≤ 14.69 lbs/hr
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OR

64.34 TPY @ 8760 hrs/yr

Uncontrolled: Emission Factor of 28 lbs/T of asphalt produced taken from AP-42.

400 T hr	28 lbs T	= 11,200 lbs/hr
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OR

49,056 TPY @ 8760 hrs/year

Controlled: Assuming 99.96% efficiency

$\frac{11,200 \text{ lbs}}{\text{hr}}$	0.0004 (99.96% efficiency)	$= 4.48 \text{ lbs/hr}$
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OR

19.6 TPY @ 8760 hrs/yr

Limited (3700 hrs/year):

$\frac{4.48 \text{ lbs}}{\text{hr}}$	$\frac{3700 \text{ hrs}}{\text{yr}}$	$\frac{1 \text{ T}}{2000 \text{ lbs}}$	$= 8.29 \text{ TPY}$
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NATURAL GAS COMBUSTION

Emission factors taken from AP-42, Table 11.1-7-8

Potential Emissions (8760 hours)

SO₂

400 T	0.0034 lb	1 T	8760 hrs	= 5.96 TPY or 1.36 lbs/hr
hr	T	2000 lbs	1 yr	

NO_x

400 T	0.026 lb	1 T	8760 hrs	= 45.6 TPY or 10.4 lbs/hr
hr	T	2000 lbs	1 Yr	

CO

400 T	0.13 lb	1 T	8760 hrs	= 227.76 TPY or 52.00 lbs/hr
hr	T	2000 lbs	1 Yr	

VOC

400 T	0.032 lb	1 T	8760 hrs	= 56.1 TPY or 12.8 lbs/hr
hr	T	2000 lbs	1 Yr	

Limited/Expected Emissions (3700 hours)

SO₂

400 T	0.0034 lb	1 T	3700 hrs	= 2.52 TPY or 1.36 lbs/hr
hr	T	2000 lbs	1 yr	

NO_x

400 T	0.026 lb	1 T	3700 hrs	= 19.24 TPY or 10.4 lbs/hr
hr	T	2000 lbs	1 Yr	

CO

400 T	0.13 lb	1 T	3700 hrs	= 96.20 TPY or 52 lbs/hr
hr	T	2000 lbs	1 Yr	

VOC

400 T	0.032 lb	1 T	3700 hrs	= 23.68 TPY or 12.8 lbs/hr
hr	T	2000 lbs	1 Yr	

X002 Natural Gas Emissions Summary

Pollutant	Allowable		Potential (8760 hrs)		Limited (3700 hrs)	
	Lbs/hr	TPY	Lbs/hr	TPY	Lbs/hr	TPY
Particulate (PM10) Process	14.69	64.34	14.69	64.34	4.48	8.29
SO² *			1.36	5.96	1.36	2.52
NO_x *	----	----	10.40	45.6	10.40	19.24
CO *	----	----	52.0	227.76	52.0	96.20
VOC *	----	----	12.8	56.1	12.8	23.68

FUEL OIL COMBUSTION

SO₂ Emissions

Allowable/Limited: HOW has proposed a SMOP fuel oil usage limit of 1,800,000 gallons per year, 12 month rolling average. Sulfur content is limited to $\leq 0.7\%$. This will establish the SO₂ allowable emissions rate.

1,800,000 gal	7.5 lbs	0.007 (0.7% sulfur)	1 T	64 MW SO ₂	= 94.5 TPY
yr	gal		2,000 lbs	32 MW S	

Emission factors taken from AP-42, Table 1.3-1 and 1.3-3 for fuel oil combustion for commercial/institutional boilers.

NO_x Emissions

47 lbs	1,800,000 gal	1 T	=	42.3 TPY or 22.9 lbs/hr
1000 gal	yr	2000 lbs		@ 3700 hrs/yr

CO Emissions

5 lbs	1,800,000 gal	1 T	=	4.5 TPY or 2.43 lbs/hr @
1000 gal	Yr	2000 lbs		3700 hrs/yr

VOC Emissions

1.28 lbs	1,800,000 gal	1 T	=	1.15 TPY or 0.62 lbs/hr @
1000 gal	yr	2000 lbs		3700 hrs/yr

X002 Fuel Oil Emissions Summary

Pollutant	Allowable/Limited	
	Lbs/hr	TPY
Particulate (PM10) Process	14.69 / 4.48	64.34 / 8.29
SO₂ *	51.08	94.5
NO_x *	22.9	42.3
CO *	2.43	4.5
VOC *	0.62	1.15

(*Based on 12 month rolling fuel limitation of 1,800,000 gallons, worst case fuel oil)

APPENDIX B
HOSEA O. WEAVER & SONS, INC.
MOBILE, ALABAMA
PERMIT NO. 503-8069-X002
PROVISOS

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.
4. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
5. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
6. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained, and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.
7. This permit expires, and the application is canceled if construction has not begun within 24 months of the date of issuance of the permit.
8. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification

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shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.

9. Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written test results are to be reported to the Department within 15 working days of completion of testing.

Particulates	(X)	Carbon Monoxide	()
Sulfur Dioxide	()	Nitrogen Oxides	()
Volatile Organic Compounds	()	Visible Emissions	(X)

10. Submission of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.
11. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
12. Nothing in this permit or conditions thereto shall negate any authority granted to the Department pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
13. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
14. The Department must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations. To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:
- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
 - (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).

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- (c) A description of the processes to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Department within 15 days of the actual completion of the test, unless an extension of time is specifically approved by the Department.

15. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

16. The bucket elevator shall be enclosed and sealed. The dryer shall be hooded at the feed and sealed at the burner end. Dust emissions created by the operation of the dryer shall be exhausted through the ducts and the control system by an enclosed fan. Dust emissions shall not be allowed to escape from enclosures or through seals due to holes or cracks in the enclosures or seals or due to inadequate or poor draft caused by leaks, blockages, or fan malfunctioning. Holes or cracks in enclosures or seals and/or inadequate or poor draft, which allow dust emissions to escape the enclosures and/or seals, must be promptly repaired.

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17. A properly maintained and operated device shall be utilized to measure the pressure differential across the baghouse.
18. Upon completion of construction, this facility shall not burn more than 1,800,000 gallons of oil during any consecutive twelve (12) month period with a sulfur content no greater than 0.7% as measured by procedures found in ASTM D129-64 (Reapproved 1978). The fuel oil sample to be tested for sulfur content shall be collected in accordance with ASTM D4177-82 or ASTM D4057-81. Records of oil usage and sulfur content must be kept in permanent form suitable for inspection. The records shall be retained for at least five (5) years and made available upon request.
19. This facility is authorized to use fuel oil with an ash content not to exceed 1.0 %, as measured by procedures found in ASTM D-482. Records of ash content must be kept in permanent form suitable for inspection. The records shall be retained for at least five (5) years and made available upon request.
20. Should this facility, at any time, exceed the limits set forth in this permit, this Department must be notified within ten (10) days of the exceedance.
21. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.
22. If this plant relocates to another site, this plant's Air Permit remains valid for this site unless or until it is revoked for failure to comply with ADEM Air Division Rules and Regulations. The owner or operator of this plant must provide written notification of the intent to relocate the plant to this site at least two weeks in advance. The written notification should include the planned construction beginning date and the projected startup date. Failure to provide this written notification is a violation of this permit condition and is grounds for revocation of this permit.
23. This facility is subject to New Source Performance Standards (NSPS), Subpart I, Standards of Performance for Hot Mix Asphalt Facilities. This limits particulate emissions to 0.04 grains per dry standard cubic foot and visible emissions to 20% opacity.
24. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.
25. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

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26. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
27. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
28. This facility is limited to the use of Natural Gas or fuel oil to fire the burner. Any plans to change to any other type of burner fuel must receive prior approval from this office.
29. This facility is limited to 3700 hours of operation during any consecutive twelve (12) month period (12 month rolling average). Recordkeeping is required for the hours of operation. Records shall be kept on the facility site, either in a handwritten logbook or in electronic version suitable for inspection upon request by Air Division inspectors and will be retained for at least five (5) years following the date of generation.
30. The permittee shall submit an annual report by March 15th of each calendar year that provides each monthly and 12-month rolling average total of hours of operation and fuel oil usage, including the sulfur and ash content of the fuel oil.

Date



Synthetic Minor Operating Permit

PERMITTEE: HOSEA O. WEAVER & SONS, INC.
FACILITY NAME: HOW MOBILE ASPHALT PLANT
LOCATION: MOBILE, ALABAMA

<u>PERMIT NUMBER</u>	<u>DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE</u>
503-8069-X002	400 TPH Double Barrel Drum-Mix Asphalt Plant with Baghouse (NSPS Subpart I)

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: [Date]

Appendix C

[Date]

Mr. Michael Weaver
Hosea O. Weaver & Sons, Inc.
PO BOX 8039
Mobile, AL 36689

Dear Mr. Weaver:

**RE: Facility No. 503-8069
Unit X002**

The enclosed Synthetic Minor Operating Permit is issued pursuant to the Department's air pollution control rules and regulations. Please note the conditions (provisions) which must be met in order to retain this Permit.

Upon receiving the enclosed Air Permit, please review **all** of the provisions.

Should you have any questions or if clarification of permit conditions is required, please do not hesitate to contact Sara Mattingly at (334) 270-5639 in Montgomery.

Sincerely,

Ronald W. Gore, Chief
Air Division

RWG/sam

Enclosures