

Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

OCT 21 2019

Mr. John Sweeny  
General Manufacturing Manager  
TAMKO Building Products, Inc.  
601 North High Street  
Joplin, MO 64801

RE: New Source Review Permit - Project Number: 2016-01-056

Dear Mr. Sweeny:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: [www.oa.mo.gov/ahc](http://www.oa.mo.gov/ahc).



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If you have any questions regarding this permit, please do not hesitate to contact Chia-Wei Young, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



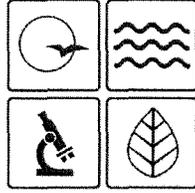
Susan Heckenkamp  
New Source Review Unit Chief

SH:cy a

Enclosures

c: Southwest Regional Office  
PAMS File: 2016-01-056

Permit Number: 102019-007



**MISSOURI**  
DEPARTMENT OF  
NATURAL RESOURCES

**MISSOURI AIR CONSERVATION COMMISSION**

**PERMIT TO CONSTRUCT**

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **102019-007**

Project Number: 2016-01-056  
Installation Number: 097-0013

Parent Company: TAMKO Building Products, Inc.

Parent Company Address: P.O. Box 1404, Joplin, MO 64802-1404

Installation Name: TAMKO Building Products, Inc.

Installation Address: 601 North High Street, Joplin, MO 64801

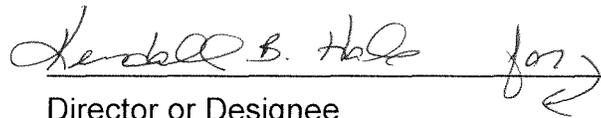
Location Information: Jasper County, S2, T27N, R33W

Application for Authority to Construct was made for:

Increase the operating temperature for storage tanks, replace up to 50% of the saturant asphalt used in Line 3 and Line 4 with petroleum additives, and utilize a new truck loading station. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.



Director or Designee  
Department of Natural Resources

**OCT 21 2019**

Effective Date

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:  
Missouri Department of Natural Resources  
Air Pollution Control Program  
P.O. Box 176  
Jefferson City, MO 65102-0176  
(573) 751-4817

The regional office information can be found at the following website:  
<http://dnr.mo.gov/reg>

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (3)(E). "Conditions Required by Permitting Authority."*

TAMKO Building Products, Inc.  
 Jasper County, S2, T27N, R33W

1. Temperature Limits
  - A. TAMKO Building Products, Inc. shall keep the storage tank operating temperatures at or below the following monthly averages. Monthly average temperatures for each tank only includes temperatures monitored during operating periods.

**Table 1: Storage Tank Average Temperature Limits**

EP	Description	Monthly Average Operating Temperature (°F)
32B	AWA Asphalt Tank #10	500
32C	AWA Asphalt Tank #11	500
28B	AWA Asphalt Tank #13	500
200	AWA Vertical Holding Tank	450
62C	CRL Asphalt Tank #12	480
62D	CRL Asphalt Tank #14	480
28C	CRL Asphalt Tank #15	500
6C	FGL Asphalt Tank #1	510
6D	FGL Asphalt Tank #2	510
23C	LRL Asphalt Tank #3	510
23D	LRL Asphalt Tank #4	510
13C	LRL Laminate Horizontal Supply Tank	340
13D	LRL Sealdown Storage Tank	340
14A	LRL Sealdown Run Tank	370
120A	LRL Laminate Run Tank	390
25A	Sealant Supply Tank	340
FGL2	FGL Sealant Run Tank	370

- B. TAMKO Building Products, Inc. shall monitor and record the temperature at least once every morning and once every afternoon. The results shall be averaged each month to show compliance with Special Condition 1.A. and shall be made available for Department of Natural Resources personnel upon request.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

2. Vapor Pressure Testing

A. TAMKO Building Products, Inc. shall perform vapor pressure testing on the asphalt blend in each of the tanks in Table 2 once every calendar quarter. Testing shall not be performed within 60 days of each other. The vapor pressures of the asphalt blend in each tank shall not exceed the values in Table 2.

**Table 2: Vapor Pressure Limit**

Emission Point	Storage Tank	Vapor Pressure (psia)
EP28B	AWA Asphalt Tank #13	1.61
EP28C	CRL Asphalt Tank #15	1.61
EP32B	AWA Asphalt Tank #10	1.61
EP32C	AWA Asphalt Tank #11	1.61
EP62C	CRL Asphalt Tank #12	1.48
EP62D	CRL Asphalt Tank #14	1.48

- B. Testing shall be performed using ASTM Method D2879 or other methods approved by the Director. Testing shall also be conducted using the maximum actual average operating temperature as recorded in Special Condition 1.B. based on the readings from the last quarter.
- C. Results of the tests shall be kept onsite and be made available to Department of Natural Resources personnel upon request.
- D. If results from the testing required in Special Condition 2.A. shows compliance with the vapor pressure limits in Table 2 for two years, then the facility shall continue testing once every half calendar year. The testing shall not be performed within 120 days of each other. If the biannual testing shows compliance with the vapor pressure limits in Table 2 for four (4) years, no further testing is required.
- E. If any testing required in Special Condition 2.A. and 2.D. shows exceedance of greater than 10% above the vapor pressure limits in Table 2, then the facility shall perform an additional test within two (2) weeks (14 days) of the noncompliant test. If subsequent testing shows exceedance of greater than 10% above the vapor pressure limits in Table 2, then the installation shall submit a request to the Missouri Air Pollution Control Program to modify its permit to take into account the new information. At that point, the testing frequency reverts back to previous more stringent testing frequency as required in Special Condition 2.A.

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- F. If the second test required in Special Condition 2.E. shows vapor pressure less than 10% above the vapor pressure limits in Table 2, then the facility shall continue under the current vapor pressure testing frequency requirements.
3. Truck Loading Limits
- A. TAMKO Building Products, Inc. shall not load more than 43,750 tons per year of asphalt using the new truck loading for maintenance and offspec asphalt (EP150) in any 12 consecutive month period.
  - B. TAMKO Building Products, Inc. shall maintain a record of asphalt loaded from the new truck loading station to show compliance with Special Condition 3.A. A form developed by the installation shall be used. The form shall include, at a minimum, the monthly amount of asphalt loaded from the new truck loading station, the currently 12-month rolling total of asphalt loaded from the new truck loading station, and indication of compliance with Special Condition 3.A.
4. VOC Emissions Limitations
- A. TAMKO Building Products, Inc. shall emit less than 250.0 tons of VOCs in any consecutive 12-month period from the entire installation.
  - B. TAMKO Building Products, Inc. shall develop and use forms to demonstrate compliance with Special Condition 4.A. The forms shall contain, at a minimum, the following information.
    - 1) Installation name
    - 2) Installation ID
    - 3) Permit number
    - 4) Current month
    - 5) Pollutant being tracked
    - 6) Emission units
    - 7) Each emission units' respective current monthly throughput. (Except for EP2, EP2A, LRL-1, EP#6, EPFGL1, EPLRL2, and EP54K) (TAMKO Building Products, Inc. may proportionally allocate the throughput across units with identical emission factors. For example, it may divide natural gas usage equally between all of the natural gas heaters)
    - 8) For EP2, EP2A, LRL-1, EP#6, EPFGL1, and EPLRL2, the average purchased volumes over the previous two (2) calendar years or the previous twenty-four (24) months. (Due to the small amount of ink and paint used by these units, the ink or paint will not be purchased frequently. Therefore, it is not possible to track the usages of the

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- ink on a monthly basis. Therefore, the facility is allowed to track the usage of the ink using the average purchased volume over the previous two (2) calendar years or the previous twenty-four (24) months.
  - 9) For EP54K, the average monthly amount based on the annual amount purchased. (The installation purchases Kerosene once a year and not monthly) If the facility does not use kerosene every month, monthly average shall be the annual amount purchased divided by the number of months that Kerosene is used. The average monthly amount of Kerosene used shall then only be included in the form for the month that Kerosene is being used.
  - 10) Emission factors for each emission unit.
  - 11) An example of the method used to calculate emissions.
  - 12) Any control devices and efficiencies used in the calculations
  - 13) Total pollutant emissions for the month
  - 14) 12-month rolling total pollutant emissions
  - 15) Compliance limit for that pollutant
  - 16) Indication of compliance status with Special Condition 4.A.
- C. TAMKO Building Products, Inc. shall use the emission factors listed in Appendix A to calculate emissions for the Attachments developed in accordance with Special Condition 4.B. TAMKO Building Products, Inc. may use different emission factors than those listed in Appendix A under the following conditions.
- 1) For the emission factors based on performance tests, updated emission factors may be used if other performance tests are conducted by TAMKO Building Products, Inc. Before using the new emission factors, however, TAMKO Building products, Inc. shall submit a written report of the performance test result to the Compliance/Enforcement Unit of the Missouri Air Pollution Control Program for approval.
  - 2) For the emission factors based on EPA document, AP-42, "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition," updated emission factors may be used if the EPA updates the AP-42 with new emission factors.
  - 3) For any other reason to use emission factors not in Appendix A besides those given in Special Conditions 4.C.1) and 4.C.2), TAMKO Building Products shall submit a request to the New Source Review Unit of the Missouri Air Pollution Control Program.

Project No. 2016-01-056

Permit No. 102019-007

**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

5. Record Keeping and Reporting Requirements
  - A. TAMKO Building Products, Inc. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.
  - B. TAMKO Building Products, Inc. shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month following a month in which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2016-01-056

Installation ID Number: 097-0013

Permit Number: 102019-007

Installation Address:

TAMKO Building Products, Inc.  
601 North High Street  
Joplin, MO 64801

Parent Company:

TAMKO Building Products, Inc.  
P.O. Box 1404  
Joplin, MO 64802-1404

Jasper County, S2, T27N, R33W

REVIEW SUMMARY

- TAMKO Building Products, Inc. has applied for authority to add the following equipment and activities.
  - Increase the operating temperature for twelve (12) of the storage tanks.
  - Replace up to 50% of the saturant asphalt used in the production of roofing products on Line 3 – CRL with petroleum additives.
  - Utilize a truck loading station when needed during maintenance or to remove offspec asphalt.
  - Replace up to 50% of the asphalt used in the production of roofing products with petroleum additives on Line 4 – AWA asphalt product manufacturing.
- The application was deemed complete on March 2, 2016
- HAP emissions increases from the new activities are expected to be negligible and below their screening model action levels (SMAL).
- 40 CFR 60, Subpart UU, “Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture” of the NSPS applies to the equipment.
- 40 CFR 60, Subpart Kb, “Standards of Performance for Volatile Organic Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984,” of the NSPS applies to storage tanks with capacity greater than or equal to 75 m<sup>3</sup> (19,812.9 gallons), unless:
  - Subpart Kb does not apply to storage vessels that have capacities greater than or equal to 151 m<sup>3</sup> (39,890 gallons) storing liquid with maximum true vapor pressure less than 3.5 kPa.
  - Subpart Kb does not apply to storage vessels that have capacities greater than or equal to 75 m<sup>3</sup> but less than 151 m<sup>3</sup> storing liquid with maximum true vapor pressure less than 15.0 kPa.
- None of the NESHAPs apply to this installation.

- 40 CFR 63, Subpart AAAAAAA (7A), National Emissions Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing,” of the MACT applies to the installation.
- No air pollution control equipment is being used in association with truck loading station. Storage tanks 12 (EP62C) and 13 (EP28B) are required by special conditions in Permit No. 0493-004 and 1096-020 to be controlled by a fume eliminator.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.
- This installation is located in Jasper County, an attainment area for all criteria pollutants.
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- A Part 70 Operating Permit modification request is required for this installation within 1 year of permit issuance.
- Approval of this permit is recommended with special conditions.

## INSTALLATION DESCRIPTION

TAMKO Building Products, Inc. is an existing asphalt roofing shingles production facility in Joplin. The installation is a Part 70 source for operating permits. According to Permit No. 122012-012 (Project 2012-11-052), the facility's installation-wide PTE is 251.30 tpy. However, TAMKO Building Products, Inc. has requested an installation-wide VOC limit of 250.0 tpy so that the facility can be a minor source for VOC. The installation-wide PM emissions have never been calculated. Therefore, it cannot be determined at this time whether the facility is a minor or a major source for PM. The PM emissions from this project are below the PSD significance level so whether the facility is a minor or a major source does not affect this permit request. Therefore, this permit is issued without making a determination as to the major source status of the installation pertaining to PM.

The following New Source Review permits have been issued to TAMKO Building Products, Inc. from the Air Pollution Control Program.

**Table 3: Permit History**

Permit Number	Description
122012-012	Installation of two new natural gas fired air make-up units and portable kerosene heaters.
112011-005	Increasing production
052011-008	Section (3) temporary permit raw material trial
072009-007A	Update throughput information
022010-009	Section (3) temporary permit topcoat system
092009-004	Limestone transfer system
072009-007	Installation of rock grinding mills and equipment
062009-001	Construction of a metal shingle fabrication line
022009-006	Section (3) temporary permit for the construction of two portable road maintenance melters and laminant applicator
0499-005	Construction of spunbond production line for the manufacture of membranes
0598-017	Construction of pilot plant for the shredding and grinding of tabs and waste asphalt shingles
1096-020	Replacement of two horizontal asphalt storage tanks/natural gas fired heaters with two vertical asphalt storage tanks with new natural gas heaters
0493-004	Construction of two above ground vertical storage tanks.
0292-004	Replacement of three asphalt storage tanks and two natural gas fired heaters with two vertical asphalt storage tanks with two natural gas heaters
0889-001, 0889-001A	Construct an AWA fire retardant production system. The amendment allows use of additional raw material
0184-001A to 0184-011A	Construction of new asphalt roofing production line.

### PROJECT DESCRIPTION

TAMKO Building Products, Inc. has proposed the following.

- Revise the VOC emission factors associated with the existing permitted asphalt storage tanks.
- Increase the operating temperature for twelve (12) of the seventeen (17) storage tanks onsite.
- Replace up to 50% of the saturant asphalt used in the production of roofing products on Line 3-CRL with petroleum additive.
- Replace up to 50% of the asphalt used in the production of roofing products on Line 4 – AWA Line with petroleum additive.
- Utilize a truck loading station when needed during maintenance or to remove offspec asphalt.

#### *Revising VOC and Particulate Emission Factors*

Storage tank VOC emissions have historically been calculated using the USEPA TANKS 4.0.9d program. According to the installation, federal and certain state environmental regulatory agencies have recently expressed concern about the accuracy of VOC emissions calculated using the TANKS program due to the use of default vapor

pressure values. In response, TAMKO developed and implemented an emission factor evaluation program that included Method 25A and Method 18 testing to quantify the actual VOC emissions from a heated tank storage asphalt flux and asphalt coating. During the tests, it was determined that the actual emissions from the storage tanks could be greater than the values calculated using TANKS program. Furthermore, emissions from PM can be calculated using a ratio of PM to VOC emissions given in the paper *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading* by Owen's Corning. With the increase in VOC emissions, there will be slight increases in the particulate emissions as well.

*Increasing the temperature for twelve (12) of the seventeen (17) storage tanks onsite*

Testing data have shown that VOC emissions increase with higher temperatures. Therefore, there will be an emissions increase from increasing the allowed temperature for storage tanks. The temperatures for the following storage tanks are being increased.

**Table 4: Storage Tanks Affected**

EP	Description	Old Temperature (°F)	New Temperature (°F)
28B	AWA Asphalt Tank #13	410	460
62C	CRL Asphalt Tank #12	460	480
6C	FGL Asphalt Tank #1	500	510
6D	FGL Asphalt Tank #2	500	510
23C	LRL Asphalt Tank #3	500	510
23D	LRL Asphalt Tank #4	500	510
13C	LRL Laminate Horizontal Supply Tank	325	340
13D	LRL Sealdown Storage Tank	325	340
14A	LRL Sealdown Run Tank	320	370
120A	LRL Laminate Run Tank	320	390
25A	Sealant Supply Tank	320	340
FGL2	FGL Sealant Run Tank	320	370

Table 1 in Special Condition No. 1.A. lists all seventeen (17) storage tanks. For the five other tanks (EP32B, EP32C, EP200, EP62D, and EP28C), the facility does not plan to increase their operating temperature as part of this project. Therefore, these equipment are not being modified and their emissions are not included in this project.

*Replace up to 50% by weight of the saturant asphalt used in the production of roofing products on Line 3 – CRL and Line 4 – AWA Line with petroleum additive.*

The original request submitted in January, 2016 only proposed replacing 50% of the asphalt in Line 3 – CRL. In June, 2017, TAMKO Building Products, Inc. submitted an applicability determination request to replace up to 50% of the asphalt used in Line 4 – AWA. The new request was included as part of this project.

The affected sources from Line 3 – CRL include Asphalt Tanks #12, 14 and 15 (EP62C, 62D, and 28C), the Saturator (EP50), and the Asphalt Unloading (EP-150). The affected sources from Line 4 – AWA include the following: Asphalt Unloading Station (EP-150), the Line 4 Saturator (EP-49), Tank 10 (EP-32B), Line 4 Pre-Coater (EP-2004-1), Line 4 Coater (EP-49A), Line 4 Mix System (EP-200), and Tanks 10, 11 and 13 (EP-32 B, 32C and 28B).

TAMKO Building Products, Inc. compared the vapor pressure of the additive with the vapor pressure of the tested coatings and flux asphalts. The tested vapor pressure for the additive is less than the tested vapor pressure for the coating. Therefore, the facility suggested that there will be no increase in VOC emissions from the replacement. However, since the installation may use multiple types of petroleum additives, it is now required to test the petroleum additives periodically to ensure that the vapor pressures of the additives are less than the vapor pressure of the asphalt listed on Table 2 of the permit. If testing shows a higher vapor pressure in the new petroleum additives, the facility shall evaluate what effects the higher vapor pressure would have on the permit applicability of this project. The facility shall submit the results of such evaluation and obtain a permit determination/amendment from the Missouri Air Pollution Control Program prior to the use of the additive.

For the petroleum additives, the facility did not submit any HAPs information. However, for another TAMKO facility, located in Joplin, MO (097-0094), the facility submitted HAPs content for 16 different types of polycyclic organic material (POM) for two types of asphalt flux used by the facility as well as for four types of new petroleum additives. The content of these 16 HAPs were shown to be very similar in range and magnitude. Therefore, it was assumed that HAPs emissions increases would be negligible and less than their respective SMAL.

*Truck loading for maintenance or to remove offspec asphalt (EP150).*

There will be VOC emissions increase from the loading of asphalt. However, this does not debottleneck the rest of the process at the installation. In order to unload the offspec asphalt from a specific tank, temporary hoses and pumps are set up at that specific tank location. The emissions from this operation are combined with the unloading station as emission point EP150.

## EMISSIONS/CONTROLS EVALUATION

There will be VOC emissions increase from increasing the temperature of the storage tanks and the new truck loading station. VOC emissions from the storage tanks were calculated using the emission factors developed by the facility from testing. During each testing run, the VOC concentration and air flowrates from a tank were determined using a VOC analyzer and an air flow meter. The data was subsequently corrected for methane/ethane. The installation also collected liquid asphalt transfer throughput, the real-time storage tank headspace, and the liquid asphalt temperature data during the testing runs. The throughput data was used with the VOC emission rates to develop the

VOC emission factor associated with the throughput of the storage tanks. The temperature information was used to extrapolate the VOC emission factors at other tank liquid temperatures.

Normally, the emissions increase would be calculated by using the potential emissions at the new temperature minus the potential emissions at the current temperature. However, the facility did not submit the calculations for potential emissions at the current temperature. Since it did not affect the status of this permit, the emissions increase from changing the tank temperatures were calculated using just the PTE at the new temperature. PM emissions were calculated using information from the paper *Estimates of Air Emissions from Asphalt Storage Tanks and Truck Loading*. The paper suggests that out of total emissions from a storage tank, 22% are PM and 78% are VOC. This ratio was used to calculate PM emissions from VOC emissions. It was assumed conservatively that PM<sub>2.5</sub> and PM<sub>10</sub> are equal to PM. Although PM is defined as only filterable particulates for the purpose of construction permitting, in this paper, the PM includes the condensable portion.

All of the tanks, with the exception of the sealant supply tank (EP25A), uses a fume eliminator to control particulate emissions. The fume eliminator is expected to achieve 95% control efficiency. However, not all of the storage tanks are required to be controlled by a fume eliminator through a permit condition. For storage tanks 12 (EP62C) and 13 (EP28B) the facility is required by special conditions in Permit No. 0493-004 and 1096-020, respectively, to operate a fume eliminator. The facility shall operate the fume eliminator in accordance with the special condition in those permits. Particulate emissions from these tanks were calculated taking into account the 95% control efficiency.

For the other storage tanks, there are no special conditions in previous permits issued to the installation that requires the use of a fume eliminator. Control devices may be operated to maintain compliance with NSPS Subpart UU, but this subpart does not specifically require the use of a fume eliminator. Therefore, no control efficiency is used to calculate the particulate emissions from these tanks and the facility is not required to use the fume eliminator on these tanks.

VOC emissions from the truck loading were calculated using emission factors found in the document *Preliminary Emission Factors for Criteria Pollutants from Asphalt Roofing Manufacturing*, from the Asphalt Roofing Manufacturer's Association, May 8, 2001.

The following table provides an emissions summary for this project. Existing potential emissions were taken from the previous permit no. 122012-012. Existing actual emissions were taken from the installation's 2018 EIQ. The new installation conditioned potential emissions include a 250.0 tons per year VOC limit for the facility to be a minor source for construction permits.

**Table 5: Emissions Summary (tpy)**

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2018 EIQ)	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/D	N/D	5.80	N/D
PM <sub>10</sub>	15.0	70.88	19.81	5.80	N/D
PM <sub>2.5</sub>	10.0	2.96	4.70	5.80	N/D
SO <sub>x</sub>	40.0	6.94	0.96	N/D	N/D
NO <sub>x</sub>	40.0	87.26	1.80	N/D	N/D
VOC	40.0	52.66	52.89	24.6	<250.0
CO	100.0	9.23	5.11	N/D	N/D
GHG (CO <sub>2</sub> e)	75,000	N/D	N/D	N/D	N/D
GHG (mass)	250.0	N/D	N/D	N/D	N/D
HAPs	10.0/25.0	0.00	1.08	N/D	N/D

N/A = Not Applicable; N/D = Not Determined

#### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

#### APPLICABLE REQUIREMENTS

TAMKO Building Products, Inc. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

#### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
  - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220

- *Restriction of Emission of Odors*, 10 CSR 10-6.165

## SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070
  - *Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacturer*, 40 CFR Part 60, Subpart UU
  - *Standards of Performance for Volatile Organic Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*, 40 CFR Part 60, Subpart Kb.
- *MACT Regulations*, 10 CSR 10-6.075
  - *National Emission Standards for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing*, 40 CFR Part 63, Subpart AAAAAAA

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated January 27, 2016, received January 29, 2016, designating TAMKO Building Products, Inc. as the owner and operator of the installation.
- Updated Application for Authority to Construct form, received on April 11, 2017.

Other documents relied upon during permit review.

- *Preliminary Emission Factors for Criteria Pollutants from Asphalt Roofing Manufacturing*, Asphalt Roofing Manufacturer's Association, May 8, 2001.
- Vapor pressure testing results for asphalt flux and petroleum additives.
- HAP content testing results submitted by another TAMKO Building Products, Inc. facility, from Project 2014-09-008
- E-mail communications between TAMKO Building Products, Inc. and the Missouri Air Pollution Control Program. This includes supplemental data submitted along with the e-mails.

## Appendix A: List of VOC Emission Factors for the Installation

Emission Points	Description	VOC Emission Factors	<sup>2</sup> VOC Emission Factor Units	<sup>1</sup> Emission Factor Source
#2	AWA Paint Mixer/Striper – White	6.6	Lb/gallon	Mass Balance
#2A	AWA Paint Mixer/Striper	0.1113	Lb/gallon	Mass Balance
2C, 2D, 4, 6, 6A, 6B, 13, 13A, 13E, 17, 21, 23, 23A, 23B, 25, 27, 28, 28A, 32, 32A, 34, 35, 36, 37NG, 38NG, 40A, 54NG, 62A, 62B, 2011-1, 2012-1, 2012-02, FLH, SW1	Natural Gas Combustion	5.5	Lb/mmcft	AP-42
3	FGL Limestone Heat Exchanger	0.0029	Lb/ton	Testing Data
14A	LRL Sealdown Run Tank	0.02	Lb/ton	Testing Data
18	LRL Limestone Heat Exchanger	0.0088	Lb/ton	Testing Data
28B, 32B,	Asphalt Storage Tanks	0.145	Lb/ton	Testing Data
28C	Asphalt Storage Tanks	0.145	Lb/ton	Testing Data
62C, 62D	Asphalt Storage Tanks	0.123	Lb/ton	Testing Data
6C, 6D, 23C, 23D	Asphalt Storage Tanks	0.156	Lb/ton	Testing Data
13C	Laminant Storage Tank	0.008	Lb/ton	Testing Data
13D	Sealdown Storage Tank	0.013	Lb/ton	Testing Data
25A	Sealdown Supply Tank	0.013	Lb/ton	Testing Data
32C	Asphalt Storage Tank	0.145	Lb/ton	Testing Data
37P, 38P	Propane Boiler	1.0	Lb/1,000 gal	AP-42, Section 1.5
49, 50	Saturators	0.666	Lb/ton	ARMA Report
49A	AWA Coater	0.288	Lb/ton	ARMA Report
47, 48, 50A	Coaters	0.917	Lb/ton	ARMA Report
54K	Kerosene Heater	0.713	Lb/1,000 gal	AP-42
120A	Laminate Run Tank	0.011	Lb/ton	Testing Data
120B	LRL Laminator Application Pan	0.011	Lb/ton	Testing Data
162A, 162B	Lubricant	6.5	Lb/gal	Mass Balance
200	AWA Mixing System	0.633	Lb/ton	ARMA Report
2002-2	Core Adhesive	0.0000002	Lb/ton	SDS
2004-1	AWA Precoater	0.288	Lb/ton	AP-42
2016-1	Asphalt Tank Unload	0.02	Lb/ton	ARMA Report
LRL-1, #6	Paint Mixer/Stripe App	0.1586	Lb/gal	Mass Balance
FGL2	Sealdown Run Tank	0.02	Lg/ton	Testing Data
FGL1, LRL2	Ink Jet Printing	0.25	Lb/gal	Mass Balance
13B	Sealdown Vertical Mixer	0.633	Lb/ton	ARMA Report

Note 1: Emission factors based on testing data may be updated upon new performance testing conducted by TAMKO Building Products. Emission Factors based on AP-42 emission factors may be updated upon new AP-42 emission factor updates by the EPA or if the facility performs testing to determine factors. For any other reasons to update the emission factors (i.e. testing performed by other companies), TAMKO Building Products shall amend its permit to include the new emission factors.

Note 2: For emission points 2, 2A, LRL-1, #6, FGL1, LRL2, emission factors can be multiplied by an average monthly amount purchased over the last two calendar (2) years, or the previous twenty-four (24) months, instead of the actual amount used during that month. Due to the small amount of ink or paint used each month for these emission points, the ink or paint will not be purchased very frequently. Therefore, it is not possible to track the monthly usage. Instead, the installation will be allowed to use the average amount from the previous two (2) calendar years, or the past twenty-four (24) months. For emission point EP54K, emission factors can be multiplied by the average monthly amount purchased annually.

## APPENDIX B

### Abbreviations and Acronyms

<b>%</b> .....	percent	<b>m/s</b> .....	meters per second
<b>°F</b> .....	degrees Fahrenheit	<b>Mgal</b> .....	1,000 gallons
<b>acfm</b> .....	actual cubic feet per minute	<b>MW</b> .....	megawatt
<b>BACT</b> .....	Best Available Control Technology	<b>MHDR</b> .....	maximum hourly design rate
<b>BMPs</b> .....	Best Management Practices	<b>MMBtu</b> .....	Million British thermal units
<b>Btu</b> .....	British thermal unit	<b>MMCF</b> .....	million cubic feet
<b>CAM</b> .....	Compliance Assurance Monitoring	<b>MSDS</b> .....	Material Safety Data Sheet
<b>CAS</b> .....	Chemical Abstracts Service	<b>NAAQS</b> .....	National Ambient Air Quality Standards
<b>CEMS</b> .....	Continuous Emission Monitor System	<b>NESHAPs</b> .....	National Emissions Standards for Hazardous Air Pollutants
<b>CFR</b> .....	Code of Federal Regulations	<b>NO<sub>x</sub></b> .....	nitrogen oxides
<b>CO</b> .....	carbon monoxide	<b>NSPS</b> .....	New Source Performance Standards
<b>CO<sub>2</sub></b> .....	carbon dioxide	<b>NSR</b> .....	New Source Review
<b>CO<sub>2e</sub></b> .....	carbon dioxide equivalent	<b>PM</b> .....	particulate matter
<b>COMS</b> .....	Continuous Opacity Monitoring System	<b>PM<sub>2.5</sub></b> .....	particulate matter less than 2.5 microns in aerodynamic diameter
<b>CSR</b> .....	Code of State Regulations	<b>PM<sub>10</sub></b> .....	particulate matter less than 10 microns in aerodynamic diameter
<b>dscf</b> .....	dry standard cubic feet	<b>ppm</b> .....	parts per million
<b>EIQ</b> .....	Emission Inventory Questionnaire	<b>PSD</b> .....	Prevention of Significant Deterioration
<b>EP</b> .....	Emission Point	<b>PTE</b> .....	potential to emit
<b>EPA</b> .....	Environmental Protection Agency	<b>RACT</b> .....	Reasonable Available Control Technology
<b>EU</b> .....	Emission Unit	<b>RAL</b> .....	Risk Assessment Level
<b>fps</b> .....	feet per second	<b>SCC</b> .....	Source Classification Code
<b>ft</b> .....	feet	<b>scfm</b> .....	standard cubic feet per minute
<b>GACT</b> .....	Generally Available Control Technology	<b>SDS</b> .....	Safety Data Sheet
<b>GHG</b> .....	Greenhouse Gas	<b>SIC</b> .....	Standard Industrial Classification
<b>gpm</b> .....	gallons per minute	<b>SIP</b> .....	State Implementation Plan
<b>gr</b> .....	grains	<b>SMAL</b> .....	Screening Model Action Levels
<b>GWP</b> .....	Global Warming Potential	<b>SO<sub>x</sub></b> .....	sulfur oxides
<b>HAP</b> .....	Hazardous Air Pollutant	<b>SO<sub>2</sub></b> .....	sulfur dioxide
<b>hr</b> .....	hour	<b>tph</b> .....	tons per hour
<b>hp</b> .....	horsepower	<b>tpy</b> .....	tons per year
<b>lb</b> .....	pound	<b>VMT</b> .....	vehicle miles traveled
<b>lbs/hr</b> .....	pounds per hour	<b>VOC</b> .....	Volatile Organic Compound
<b>MACT</b> .....	Maximum Achievable Control Technology		
<b>µg/m<sup>3</sup></b> .....	micrograms per cubic meter		

Storage Tanks										
Post-Project Data										
EP	Description	Material	Tank Liquid T (oF)	Liquid Surface T (oF)	VOC EF (lb/ton)	Maximum Throughput (tpy)	VOC E (tpy)	PM EF (lb/ton)	PM Control %	PM E (tpy)
32B	AWA Asphalt Tank #10	C	460							
32C	AWA Asphalt Tank #11	C	500							
28B	AWA Asphalt Tank #13	C	460	346.5	0.100	40415	2.022208273	0.028225482	95%	0.028518322
200	AWA Vertical Holding Tank	C	450							
62C	CRL Asphalt Tank #12	C	460	361.3	0.123	35687	2.192875891	0.034662676	95%	0.030925173
62D	CRL Asphalt Tank #14	C	480							
28C	CRL Asphalt Tank #15	C	500							
6C	FGL Asphalt Tank #1	C	500	383.4	0.156	81773	6.378294	0.044	0%	1.799006
6D	FGL Asphalt Tank #2	C	500	383.4	0.156	81773	6.378294	0.044	0%	1.799006
23C	LRL Asphalt Tank #3	C	500	383.4	0.156	47275	3.68745	0.044	0%	1.04005
23D	LRL Asphalt Tank #4	C	500	383.4	0.156	47275	3.68745	0.044	0%	1.04005
13C	LRL Laminate Horizontal Supply Tank	F	340	259.6	0.007	4370	0.015295	0.001974359	0%	0.004313974
13D	LRL Sealdown Storage Tank	C	325	261.9	0.013	7126	0.046319	0.003666667	0%	0.013064333
14A	LRL Sealdown Run Tank	C	320	282.7	0.020	4540	0.045408346	0.005642063	0%	0.012807482
120A	LRL Laminate Run Tank	F	320	298.3	0.011	4370	0.023969151	0.003094064	0%	0.00676053
25A	Sealant Supply Tank	C	320	261.9	0.013	7126	0.046319	0.003666667	0%	0.013064333
FGL2	FGL Sealant Run Tank	C	320	282.7	0.020	4169	0.041697664	0.005642063	0%	0.011760879
						Total =	24.56558032			5.799327027

VOC Testing Results		
Runs	Avg Surface T (oF)	VOC (lb/ton)
1	275.6	0.014
2	302.8	0.037
3	341.6	0.093
4	367.3	0.132
5	271.2	0.008
6	307.7	0.012
7	352.1	0.013
9	388.9	0.056

EP	Description	Material	Tank Liquid T (oF)
32B	AWA Asphalt Tank #10	C	460
32C	AWA Asphalt Tank #11	C	500
28B	AWA Asphalt Tank #13	C	460
200	AWA Vertical Holding Tank	C	450
62C	CRL Asphalt Tank #12	C	460
62D	CRL Asphalt Tank #14	C	480
28C	CRL Asphalt Tank #15	C	500
6C	FGL Asphalt Tank #1	C	500
6D	FGL Asphalt Tank #2	C	500
23C	LRL Asphalt Tank #3	C	500
23D	LRL Asphalt Tank #4	C	500
13C	LRL Laminate Horizontal Supply Tank	F	340
13D	LRL Sealdown Storage Tank	C	325
14A	LRL Sealdown Run Tank	C	320
120A	LRL Laminate Run Tank	F	320

25A	Sealant Supply Tank	C	320
FGL2	FGL Sealant Run Tank	C	320