

STATE OF MISSOURI

PERMIT BOOK



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: **032015 - 007**

Project Number: 2014-10-049
Installation ID: 169-0004

Parent Company: US Army Installation Management Command - Central Region

Parent Company Address: 2405 Gun Shed Road, Fort Sam Houston, TX 78234-1223

Installation Name: USAG and Fort Leonard Wood

Installation Address: 14000 MSCOE Loop Suite 120, Fort Leonard Wood, MO 65473-8944

Location Information: Pulaski County, S21 T35N R8W

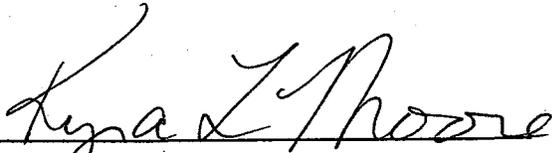
Application for Authority to Construct was made for:
Installation of a new asphalt plant. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

MAR 06 2015

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

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 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 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 of Natural Resources' 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 this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' 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 at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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Project No.	2014-10-049

SITE SPECIFIC 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 (12)(A)10. "Conditions required by permitting authority."

1. **Best Management Practices Requirement**
USAG and Fort Leonard Wood shall control fugitive emissions from all of the haul roads and vehicular activity areas at this site by performing BMPs as defined in Attachment AA while the asphalt plant is in operation.
2. **Annual Emission Limit**
 - A. USAG and Fort Leonard Wood shall emit less than 10.0 tons of PM_{2.5} in any 12-month period from the asphalt plant.
 - B. USAG and Fort Leonard Wood shall demonstrate compliance with Special Condition 2.A using Attachment A or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
3. **Control Device Requirement-Baghouse**
 - A. USAG and Fort Leonard Wood shall control emissions from the drum dryer (EP-54) using a baghouse as specified in the permit application.
 - B. The baghouse shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that Department of Natural Resources' employees may easily observe them.
 - C. Replacement filters for the baghouse shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - D. USAG and Fort Leonard Wood shall monitor and record the operating pressure drop across the baghouse at least once every 24 hours while in operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. USAG and Fort Leonard Wood shall maintain a copy of the baghouse manufacturer's performance warranty on site.

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SITE SPECIFIC SPECIAL CONDITIONS:

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

- F. USAG and Fort Leonard Wood shall maintain an operating and maintenance log for the baghouse which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

- 4. Fuel Requirement-Drum Dryer and Asphalt Heater
 - A. USAG and Fort Leonard Wood shall burn in their Drum Dryer (EP-54) and Asphalt Heater (EP-57) ultra-low sulfur diesel fuel (15 ppm) or jet fuel (JP8 or equivalent) with no higher than 0.3% sulfur content during asphalt production.

 - B. USAG and Fort Leonard Wood shall demonstrate compliance with Special Condition 4.A by obtaining records of the fuel's sulfur content from the vendor for each shipment of fuel received or by testing each shipment of fuel for the sulfur content in accordance with the method described in 10 CSR 10-6.040 *Reference Methods*.

 - C. USAG and Fort Leonard Wood shall keep the records required by Special Condition 4.B with the unit and make them available for Department of Natural Resources' employees upon request.

- 5. Minimum Distance to Property Boundary Requirement
The Drum Dryer (EP-54) shall be located at least 1000 feet from the nearest property boundary.

- 6. Record Keeping Requirement
USAG and Fort Leonard Wood shall maintain all records required by this permit for not less than five years and make them available to any Missouri Department of Natural Resources' personnel upon request.

- 7. Reporting Requirement
USAG and Fort Leonard Wood shall report to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after any exceedances of the limitations imposed by this permit.

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

Project Number: 2014-10-049
Installation ID Number: 169-0004
Permit Number:

USAG and Fort Leonard Wood
14000 MSCOE Loop Suite 120
Fort Leonard Wood, MO 65473-8944

Complete: October 23, 2014

Parent Company:
US Army Installation Management Command - Central Region
2405 Gun Shed Road
Fort Sam Houston, TX 78234-1223

Pulaski County, S21 T35N R8W

INSTALLATION DESCRIPTION

U.S. Army Garrison and Fort Leonard Wood is a federal military installation located on approximately 63,000 acres of land in Pulaski County. The primary purpose of the installation is to train enlisted and officer personnel in basic combat training, military engineering and motor vehicle operations. This includes: bridging, demolitions, placement and removal and land mines; placement and breaching of obstacles designated to prevent movement; and construction and maintenance of buildings, utility systems and roads. Training is also provided in operations, repair, and maintenance of heavy equipment, and tracked/wheeled vehicles.

The installation is a Part 70 source under operating permits. The installation may be a major NOx source under construction permits. However, due to the installation's extensive permit history the status is not known at the time of this permit's issuance. If the installation were a major NOx source, it would not affect this permit. A Part 70 renewal application is currently in house but must be updated to reflect the new potential to emit.

PROJECT DESCRIPTION

Fort Leonard Wood is installing a new 200 tons per hour asphalt plant. The new asphalt plant is a portable plant, but will be operated as a fixed facility, with no intentions of moving it and operating it as a portable plant. It will be operated for training purposes only, and will not be used for commercial production purposes. The new plant will replace the existing asphalt plant (Construction Permit# 022002-009), and will be located on the same site at Training Area 256. The existing asphalt plant will be dismantled and removed beginning in November, 2014. The generator load assembly includes a 900 kW operating generator set and 275 kW downtime generator. These generators will not be used and placed in storage. The plant will be powered off the grid.

The drum dryer burner is a Whisper Jet/WJ-50D-O0JP8. Its burner capacity is rated at 50mmBtu/hr and burns #2 diesel fuel. It is also capable of burning JP-8 (military grade jet fuel) but for this permit application, diesel fuel emission factors were used because it represented the worst case scenario.

The applicant is using one of the methods described in Attachment AA, "Best Management Practices," to control emissions from haul roads and vehicular activity areas.

This installation is located in Pulaski County, an attainment area for all criteria pollutants.

The asphalt plant is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is under review. Part 70 operating permit renewal application is currently in house but must be updated to reflect the new potential to emit associated with this project.

TABLES

The following permits have been issued to USAG and Fort Leonard Wood from the Air Pollution Control Program.

Table 1: Permit History

Project Number	Permit Number	Description
2014-10-048	In house	Surface coating operation
2013-02-035	052013-012	Dual-fuel boiler (EP-002BB) at Building 311A.
2012-07-100	0995-017B	Crushing plant amendment
2011-06-031	pending	Add generators to Prime Power School
2009-07-025	072009-012	Temporary permit for Prime Power School
2008-09-029	042009-006	Crushing plant
2008-07-094	082002-024	Soil and vegetation monitoring plan
2008-03-097	082002-024B	Soil and vegetation sampling changes
2008-03-010	092008-001	40 tpy NO _x limit for Prime Power School
2007-10-028	082002-024	Monitoring network changes
2007-05-036	082002-024C	Soil and vegetation sampling
2005-10-039	082002-024B	Reporting requirements
2005-09-013	072003-022A	Sulfur and nitrogen determinations
2005-09-014	082002-024A	New training areas
2004-05-116	082002-024A	Monitor location
2003-06-026	072003-022	A Section (5) permit issued to install one new dual-fuel 400 horsepower (HP) steam boiler in Building 311A to provide steam for space heating and other hospital uses.
2003-04-125	062003-015	A Section (5) permit application for a new 400 kW generator at the Forney Air Field to replace several of the existing emergency generators.
2003-04-124	062003-005	A Section (5) permit issued to install two (2) new dry cleaning machines to the existing installation to replace the two (2) existing dry cleaning units.
2003-01-058	52000-004A	An amendment to Permit Number 052000-004 approved on March 24, 2003 to remove the quarterly reporting requirements for the fire training activities included in the original permit.
2001-12-051	082002-024	A Section (6) permit issued as a corrective action to entirely replace and vacate two (2) previously issued Prevention of Significant

		Deterioration permits (Numbers 0695-010 and 1099-001) and any subsequent amendments related to these permits that were issued by the Missouri Air Pollution Control Program. This "corrective action" permit was issued as a result of the new guidance received from the Environmental Protection Agency, Region VII on December 14, 2001 concerning this installation.
2001-12-052	022002-009	A Section (5) permit issued as a corrective action for the addition of a new 150 ton per hour asphalt plant in March of 1995 that replaced an existing grand-fathered asphalt plant of the same size. Project number 3860-0004-029 incorrectly concluded that this replacement of the asphalt plant would not have required a New Source Review (NSR) permit and a No Permit Required letter was sent on March 13, 1995.
2001-07-017	1099-001C	An amendment to Permit Number 1099-001 to include language that would allow the usage of an automated Look-Up Table system as an alternate compliance mechanism after final approval was obtained from the Air Pollution Control Program.
2001-02-056	1099-001B	An amendment to Permit Number 1900-001 to approve one (1) additional smoke training site to be added to the list of approved site locations for this activity.
2000-11-040	052001-011	A Section (5) permit issued to establish a 25 ton per year Volatile Organic Compounds (VOC) limitation on a number of existing fuel storage tanks. The permit also supersedes some existing throughput, capacity and material stored restrictions that were established in Permit Number's 0294-007, 0294-007A, and 0895-030.
2000-10-072	052001-010	A Section (5) permit issued to establish a 30 ton per year VOC limitation on the painting operations in Buildings Number 5138, Number 5265 and Number 5266. The permit also supersedes some existing throughput limitations on these same painting operations that were established in Permit Number's 0294-007, 0294-007A, 0697-0903, and 0998-032.
2000-05-011	1099-001A	An amendment to Permit Number 1099-001 issued to increase the allowable insignificant level of fog oil usage to 876 pounds per year due to a rule change and to allow a vegetable based fog oil product to be tested.
2000-03-057	082000-006	A Section (5) Permit issued to construct a Bureau of Alcohol, Tobacco and Firearms (BATF) explosive range and classroom.
2000-03-043	052000-004	A Section (5) Permit issued to construct a structure to conduct fire training exercises.
2000-01-079	1099-001A	An amendment to Permit Number 1099-001 issued to add additional operational scenarios to the original Look-Up Tables of the permit.
1999-09-040	0999-015	A Section (5) permit issued for the switch in fuels in the fog oil generators from unleaded gasoline as allowed in Permit Number 0695-010 to JP-8.
1999-03-020	0699-022	A Section (5) permit issued for the installation of a 300 kilowatt (kW) emergency generator instead of a 175 kW generator originally permitted for the CDTF in Permit Number 0495-013A.
1998-11-105	1099-001	A Section (8) modification to Permit Number 0695-010 for the new sources related to the move of the U.S. Army Chemical and Military Police Schools to U.S. Army Engineer Center and Fort Leonard Wood that were not included in the original permit.
1998-07-029	0998-032	A Section (5) permit issued to increase the CARC paint usage in the Bldg. 5138 paint booth.
1998-05-090	0695-010A	A request for a one (1) year extension to begin construction of Air Pollution Control Program Permit Number 0695-010. The extension

		request was granted on February 10, 1997.
1998-04-027	0495-013A	An amendment to Permit Number 0495-013 to replace the incinerator originally permitted with seven (7) new 0.875 MMBTU/hr boilers and one (1) redundant 175 kW standby generator.
3860-0004-033	0897-013	A Section (5) permit issued for the installation of six (6) used oil heaters.
3860-0004-032	0697-003	A Section (5) permit issued to modify Permit Number 0294-007 to reflect addition of a new paint booth.
3860-0004-031	0294-007A	An amendment to Permit Number 0294-007 issued to allow the usage of a clear coat material in Building 5266.
3860-0004-030	0590-004A	An amendment to Permit Number 0590-004 to allow the burning of Type (5) medical/infectious waste materials in the medical waste incinerator.
3860-0004-028	0895-030	A Section (5) permit issued to increase the storage capacity of above ground storage tanks, an increase in throughput of RVP 7 and RVP 13 fuel and to switch to JP-8 from JP-4.
3860-0004-027	0879-002	A Section (6) permit issued for an incinerator to burn refuse.
3860-0004-026	0495-013	A Section (5) permit issued to construct a Chemical Decontamination Training Facility (CDTF) and Thermal Treatment Unit.
3860-0004-025	0995-017	A Section (5) permit issued for the addition of a new 150 ton per hour rock crushing plant. Ownership of the rock crushing plant installed under this permit has been transferred to the Missouri National Guard.
3860-0004-023	0794-011	A Section (5) permit issued to install/modify two (2) 10.25 MMBTU/hr boilers to use either fuel oil or natural gas and for the construction of six (6) new 4.45 MMBTU/hr natural gas boilers.
3860-0004-022	0294-007	A Section (5) permit issued to construct three (3) paint booths that were installed in 1980 and also for the addition of a fourth paint booth in Building 5138.
3860-0004-021	0392-011	A Section (6) permit issued to construct a rock crushing/screening plant.
3860-0004-020	0891-003	A Section (5) permit issued to construct a rock crushing/screening plant.
3860-0004-019	0790-007	A Section (5) permit issued to construct a 150 ton per hour rock crushing/screening plant.
3860-0004-018	0590-004	A Section (5) permit issued to construct an incinerator to destroy Type 0, 1, & 4 wastes. This incinerator permit replaced the incinerator permitted under Permit Number 0983-019 and this permit was superseded by Air Pollution Control Program Permit Number 1099-001 and also later by Air Pollution Control Program Permit Number 082002-024.
3860-0004-017	0983-019	A Section (5) permit to construct a Type IV waste incinerator.
3860-0004-016	0979-030	A Section (5) permit to construct one (1) 2.1 MMBTU/hr #2 Fuel Oil fired boiler to be used for space heating.
3860-0004-015	0695-010	A Section (8) permit issued to construct a static and mobile fog oil smoke training facility. This permit was vacated after the issuance of Permit Number 082002-024.
3860-0004-010	0879-010 & 0879-011	An amendment to Permit Number 0879-002 to allow the construction of two (2) additional incinerators that are identical to the incinerator permitted under Permit Number 0879-002. This amendment was to include these two (2) additional incinerators that should have been included under the original permit.
3860-0004-005	0179-006 to 0179-016	A Section (5) permit to construct eleven (11) new petroleum storage tanks with eight (8) of the tanks being subject to NSPS Subpart K requirements.

The following table lists the new pieces of equipment associated with this project.

Table 2: Project Equipment List

Emission Unit	Equipment Description	MHDR
EP51	Aggregate Bins	184 tph
EP52	Aggregate handling conveyor (3)	552 tph
EP53	Vibrating Screen	184 tph
EP54	Drum Dryer	200 tph
EP55	Plant Loadout	200 tph
EP56	Silo Loading	200 tph
EP57	Asphalt Heater	200 tph
EP58	Storage Piles	184 tph
EP59	Haul Roads	0.47 VMT

The table below summarizes the emissions of this project. The potential emissions of the process equipment, which excluded emissions from haul roads and wind erosion, are not site specific and should not vary from site to site. The existing actual emissions were taken from the previous year's EIQ. The potential emissions of the application represent the emissions of all equipment and activities assuming continuous operation (8760 hours per year). The conditioned potential emissions include emissions from sources that will limit their production to ensure compliance with the annual emission limit.

Table 3: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/SMAL	^a Existing Potential of Facility	Existing Actual Emissions (2013 EIQ)	^b Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	N/D	N/D	105.12	41.32
PM ₁₀	15.0	1209.5	3.28	52.69	20.71
PM _{2.5}	10.0	N/D	1.92	25.44	<10.0
SO _x	40.0	122.96	2.99	70.58	27.75
NO _x	40.0	259.18	44.45	33.14	13.03
VOC	40.0	509.11	2.7	42.16	16.57
CO	100.0	2331.29	15.17	10.50	4.13
GHG (CO ₂ e)	75,000 / 100,000	N/D	N/D	37,443.98	14,719.68
GHG (mass)	0.0 / 100.0 / 250.0	N/D	N/D	37,283.20	14,656.47
Formaldehyde	10.0/2.0 ^c	N/D	N/D	2.79	1.10
2-methylnaphthalene ^d	10.0/0.01 ^c	N/D	N/D	0.1489	0.0585
Total HAPs	25.0	6.95	0.01	7.86	3.09

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

^aExisting Potential Emissions taken from Project # 2013-02-035

^bIncludes site specific haul road and storage pile emissions

^cSMAL

^d2-methylnaphthalene is a member of the Polycyclic Organic Matter (POM) HAP group.

Table 4 summarizes the ambient air quality impact analysis. The maximum modeled impact is the impact of each pollutant when the plant is operating continuously. The 24-hour limited impacts and daily limit are based on compliance with the NAAQS for 2-methylnaphthalene. The annual limited impacts are based on the annual PM_{2.5} de minimis limit.

Table 4: Ambient Air Quality Impact Analysis

Pollutant	NAAQS/ RAL ($\mu\text{g}/\text{m}^3$) ^a	Averaging Time	Maximum Modeled Impact ($\mu\text{g}/\text{m}^3$) ^b	Allowed Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Daily Production (tons/day) ^c
C ₁₁ H ₁₀	23	24-hour	0.0796	N/A	N/A	N/A
C ₁₁ H ₁₀ ^d	2.3	Annual	0.00038	N/A	N/A	N/A

N/A = Not Applicable

^a National Ambient Air Quality Standards (NAAQS) and Risk Assessment Level (RAL)

^b Modeled impact at maximum capacity with controls

^c Daily production based on the maximum hourly design rate of the portable plant.

^d 2-methylnaphthalene is a member of the polycyclic organic matter (POM) HAP group.

EMISSIONS CALCULATIONS

Emissions for the project were calculated using emission factors found in the United States EPA document AP-42 *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition (AP-42).

Emissions from the drum mix asphalt plant were calculated using emission factors from AP-42 Section 11.1 "Hot Mix Asphalt Plants," April 2004. SO_x emissions were calculated using the SO₂ and SO₃ emission factors from AP-42 Section 1.3 "Fuel Oil Combustion," September 1998 and assuming half of the sulfur up to 0.1 pound per ton of product is absorbed into the product. Jet fuel emission factors are similar to kerosene and diesel fuel except that the sulfur content of JP8 (jet fuel) is 0.3%. For this project, distillate fuel oil No. 2's emission factors were used to calculate potential to emit but using the higher sulfur content of 0.3% instead of 0.0015% (15 ppm) for ultra low sulfur. The asphalt plant is controlled by a baghouse, so the fabric filter controlled emission factor was used to calculate PM₁₀ emissions. Emissions from plant load-out were calculated using predictive equations found in AP-42 Table 11.1-14. Default values were used for asphalt volatility and mix temperature. Emissions from the asphalt heater were calculated using emission factors from AP-42 Section 1.3. Emissions from aggregate handling were calculated using emission factors from AP-42 Section 11.19.2 "Crushed Stone Processing and Pulverized Mineral Processing," August 2004. The uncontrolled emission factors were used because the inherent moisture content of the crushed rock is less than 1.5% by weight.

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2 "Unpaved Roads," November 2006. A 90% control efficiency for PM and PM₁₀ and a 40% control efficiency for PM_{2.5} were applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The default moisture content of the aggregate is 0.7% by weight. Emissions from wind erosion of

storage piles were calculated using an equation found in the Air Pollution Control Program's Emissions Inventory Questionnaire Form 2.8 "Storage Pile Worksheet."

AMBIENT AIR QUALITY IMPACT ANALYSIS

Fort Leonard Wood has an extensive monitoring system that determines the maximum concentration of PM₁₀, therefore an ambient air quality impact analysis (AAQIA) was not performed to determine the impact of the particulate matter emissions. Fort Leonard Wood is responsible to see that the National Ambient Air Quality Standard (NAAQS) is not exceeded for PM₁₀.

2-methylnaphthalene's conditioned potential to emit is 0.0424 tons per year which exceeds the SMAL of 0.01 tons per year. When modelled using AERSCREEN, the 24-hr average is 0.0796 μm^3 compared to 24-hr RAL of 23 μm^3 . The annual average is 0.0038 μm^3 compared to the annual RAL of 2.3 μm^3 .

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 NO_x are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

USAG and Fort Leonard Wood 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. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110.
- Amending your Part 70 Operating Permit application to reflect changes and additions of this project is required for this installation within 1 year of commencement of operations.
- *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

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- 40 CFR 60 Subpart I, "Standards of Performance for Hot Mix Asphalt Facilities" applies to the equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) or National Emission Standards for Hazardous Air Pollutants for Source Categories (MACTS) apply to the proposed equipment.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

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*, I recommend this permit be granted with special conditions.

Kathy Kolb
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 15, 2014, received October 16, 2014, designating US Army Installation Management Command - Central Region as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Attachment AA: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the plant is operating.

1. Pavement
 - A. The operator shall pave the area with materials such as asphalt, concrete or other materials approved by the Air Pollution Control Program. The pavement will be applied in accordance with industry standards to achieve control of fugitive emissions while the plant is operating.
 - B. Maintenance and repair of the road surface will be conducted as necessary to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall periodically wash or otherwise clean all of the paved portions of the haul roads as necessary to achieve control of fugitive emissions from these areas while the plant is operating.

2. Application of Chemical Dust Suppressants
 - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
 - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacturer's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources' personnel upon request.

3. Application of Water-Documented Daily
 - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
 - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
 - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
 - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
 - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources' personnel upon request.

APPENDIX A

Abbreviations and Acronyms

%	percent	MMBtu	Million British thermal units
°F	degrees Fahrenheit	MMCF	million cubic feet
acfm	actual cubic feet per minute	MSDS	Material Safety Data Sheet
BACT	Best Available Control Technology	NAAQS ...	National Ambient Air Quality Standards
BMPs	Best Management Practices	NESHAPs ..	National Emissions Standards for Hazardous Air Pollutants
Btu	British thermal unit	NO_x	nitrogen oxides
CAM	Compliance Assurance Monitoring	NSPS	New Source Performance Standards
CAS	Chemical Abstracts Service	NSR	New Source Review
CEMS	Continuous Emission Monitor System	PM	particulate matter
CFR	Code of Federal Regulations	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CO	carbon monoxide	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
CO₂	carbon dioxide	ppm	parts per million
CO_{2e}	carbon dioxide equivalent	PSD	Prevention of Significant Deterioration
COMS	Continuous Opacity Monitoring System	PTE	potential to emit
CSR	Code of State Regulations	RACT	Reasonable Available Control Technology
dscf	dry standard cubic feet	RAL	Risk Assessment Level
EQ	Emission Inventory Questionnaire	SCC	Source Classification Code
EP	Emission Point	scfm	standard cubic feet per minute
EPA	Environmental Protection Agency	SDS	Safety Data Sheet
EU	Emission Unit	SIC	Standard Industrial Classification
fps	feet per second	SIP	State Implementation Plan
ft	feet	SMAL	Screening Model Action Levels
GACT	Generally Available Control Technology	SO_x	sulfur oxides
GHG	Greenhouse Gas	SO₂	sulfur dioxide
gpm	gallons per minute	tph	tons per hour
gr	grains	tpy	tons per year
GWP	Global Warming Potential	VMT	vehicle miles traveled
HAP	Hazardous Air Pollutant	VOC	Volatile Organic Compound
hr	hour		
hp	horsepower		
lb	pound		
lbs/hr	pounds per hour		
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		
m/s	meters per second		
Mgal	1,000 gallons		
MW	megawatt		
MHDR	maximum hourly design rate		

Mr. Dee Lloyd
Chief, Environmental Branch
USAG and Fort Leonard Wood
1334 1st Street
BLDG 2222
ATTN: IMLD-PWE
Fort Leonard Wood, MO 65473-8944

RE: New Source Review Permit - Project Number: 2014-10-049

Dear Mr. Lloyd:

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. 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.

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, Truman State Office Building, P.O. Box 1557, Jefferson City, MO 65102, www.ao.mo.gov/ahc.

If you have any questions, please contact Kathy Kolb, at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:kk1

Enclosures

c: Southeast Regional Office
PAMS File: 2014-10-049
Permit Number:

Mr. Mark Lenox
Chief, Environmental Branch
USAG and Fort Leonard Wood
16037 Minnesota Ave
BLDG 2222, ATTN: IMLD-PWE
Fort Leonard Wood, MO 65473

RE: New Source Review Permit Amendment - Permit Number: 032015-007A
Project Number: 2015-11-046; Installation Number: 169-0004

Dear Mr. Lenox:

As stated in your application received on November 19, 2015, U.S. Army Garrison and Fort Leonard Wood is requesting to add the use of two generators in conjunction with the previously permitted asphalt plant. This project is considered a part of the same project as the asphalt plant project, Permit No. 032015-007, due to the proximity in timing. Therefore, in this amendment, the potential emissions for the two new generators are considered in combination the emissions of the equipment associated with Permit No. 032015-007.

The two new generators are a 900 kW Diesel Generator Set (2012 Cummins, Model 900DQFAC/QST30-G5 NR2) and a 275 kW Diesel Generator Set (2012 Cummins Model 275DQDA/QLS0-G5). Both will be fueled with diesel (distillate #2) with 0.0015 % sulfur by weight (15 ppm). It has also been requested at this time that the fuel requirement for the asphalt drum dryer and asphalt heater be limited to ultra-low sulfur diesel fuel (15 ppm).

The following Table 1 represents the new calculations for this amendment with a NO_x de minimis limit. The limit has been taken to avoid dispersion modeling.

Table 1: Emissions Summary (tons per year)

Air Pollutant	De Minimis Level/SMAL	^a Existing Potential of Facility	Existing Actual Emissions (2014 EIQ)	^b Potential Emissions of the Application	Conditioned Potential Emissions
PM	25.0	N/D	N/D	94.63	23.94
PM ₁₀	15.0	1209.5	3.62	48.46	12.26
PM _{2.5}	10.0	N/D	2.26	26.67	6.75
SO _x	40.0	122.96	0.21	40.31	1.69
NO _x	40.0	259.18	50.47	158.10	<40.0
VOC	40.0	509.11	3.39	45.97	11.63
CO	100.0	2331.29	20.22	55.33	14.00
GHG (CO ₂ e)	75,000 / 100,000	N/D	N/D	45,787.45	11,541.65
GHG (mass)	0.0 / 100.0 / 250.0	N/D	N/D	45,619.17	11,541.65
Formaldehyde	10.0/2.0 ^c	N/D	N/D	2.79	0.71
2-methylnaphthalene ^d	10.0/0.01 ^c	N/D	N/D	0.1489	0.04
Total HAPs	25.0	6.95	0.0265	7.86	2.02

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

^aExisting Potential Emissions taken from Project # 2013-02-035

^bIncludes site specific haul road and storage pile emissions

^cSMAL

^d2-methylnaphthalene is a member of the Polycyclic Organic Matter (POM) HAP group.

Table 2 summarizes the ambient air quality impact analysis. The maximum modeled impact is the impact of each pollutant when the plant is operating continuously. The 24-hour limited impacts and daily limit are based on compliance with the NAAQS for 2-methylnaphthalene. The annual limited impacts are based on the annual NO_x de minimis limit.

An ambient air quality impact analysis (AAQIA) was performed to determine the impact of the pollutants listed in Table 2. The Air Pollution Control Program requires an AAQIA of PM₁₀ for all asphalt, concrete and rock-crushing plants regardless of the level of PM₁₀ emissions if a permit is required. An AAQIA is required for other pollutants if their emissions exceed their respective de minimis or screening model action level (SMAL). In this case, 2-methylnaphthalene (C₁₁H₁₀) exceeded the SMAL of 0.01 tons/year but was below the RAL as stated in Table 2. The AAQIA was performed using the Air Pollution Control Program's generic nomographs and when appropriate the EPA modeling software AERSCREEN. For each pollutant that was modeled, the maximum concentration that occurs at or beyond the site

boundary was compared to the NAAQS or RAL for the pollutant. If during continuous operation the modeled concentration of a pollutant is greater than the applicable NAAQS or RAL, the plant's production is limited to ensure compliance with the standard.

Table 2: Ambient Air Quality Impact Analysis

Pollutant	NAAQS/RAL ($\mu\text{g}/\text{m}^3$)	Averaging Time	^a Maximum Modeled Impact ($\mu\text{g}/\text{m}^3$)	Limited Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Daily Limit (tons/day)
2-methylnaphthalene	23.0	24-hour	0.07959	N/A	N/A	N/A
2-methylnaphthalene	2.3	Annual	0.00336	N/A	N/A	N/A

^aModeled impact at maximum capacity with controls

Emissions from the drum mix asphalt plant were calculated using emission factors from AP-42 Section 11.1 "Hot Mix Asphalt Plants," April 2004. SO_x emissions were calculated using the SO₂ and SO₃ emission factors from AP-42 Section 1.3 "Fuel Oil Combustion," September 1998 and assuming half of the sulfur up to 0.1 pound per ton of product is absorbed into the product. The asphalt plant is controlled by a baghouse, so the fabric filter controlled emission factor was used to calculate PM₁₀ emissions. Emissions from plant load-out were calculated using predictive equations found in AP-42 Table 11.1-14. Default values were used for asphalt volatility and mix temperature. Emissions from the asphalt heater were calculated using emission factors from AP-42 Section 1.3. Emissions from aggregate handling were calculated using emission factors from AP-42 Section 11.19.2 "Crushed Stone Processing and Pulverized Mineral Processing," August 2004. The controlled emission factors were used because the inherent moisture content of the crushed rock is greater than 1.5% by weight.

Emissions from the diesel engines/generators were calculated using emission factors from AP-42 Section 3.3 Gasoline and Diesel Industrial Engines," October 1996 and Section 3.4 "Large Stationary Diesel and All Stationary Dual-fuel Engines," October 1996. Distillate fuel oil No. 2 (diesel) was used with a sulfur content of 15 ppm (0.0015% by weight).

Emissions from haul roads and vehicular activity areas were calculated using the predictive equation from AP-42 Section 13.2.2 "Unpaved Roads," November 2006. A 90% control efficiency for PM and PM₁₀ and a 40% control efficiency for PM_{2.5} were applied to the emission calculations for the use of BMPs. Emissions from load-in and load-out of storage piles were calculated using the predictive equation from AP-42 Section 13.2.4. The default moisture content of the aggregate is 0.7% by weight. Emissions from wind erosion of storage piles were calculated using an equation found in the Air Pollution Control Program's Emissions Inventory Questionnaire Form 2.8 "Storage Pile Worksheet."

Fort Leonard Wood has an extensive monitoring system that determines the maximum

Mr. Lenox
Page Four

concentration of PM₁₀, therefore an ambient air quality impact analysis (AAQIA) was not performed to determine the impact of the particulate matter emissions. Fort Leonard Wood is responsible to see that the National Ambient Air Quality Standard (NAAQS) is not exceeded for PM₁₀.

2-methylnaphthalene's conditioned potential to emit is 0.04 tons per year which exceeds the SMAL of 0.01 tons per year. When modelled using AERSCREEN, the 24-hr average is 0.0796 μm^3 compared to 24-hr RAL of 23 μm^3 . The annual average is 0.0034 μm^3 compared to the annual RAL of 2.3 μm^3 .

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, Truman State Office Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.aa.mo.gov/ahc.

If you have any questions regarding this amendment, please do not hesitate to contact Kathy Kolb, at the department's 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

Kendall B. Hale
Permits Section Chief

KBH:kk1

Enclosures

c: Southeast Regional Office
PAMS File: 2015-11-046

Page No.	5
Permit No.	032015-007A
Project No.	2015-11-046

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 (12)(A)10. "Conditions required by permitting authority."

USAG and Fort Leonard Wood
Pulaski County, S21, T35N, R8W

1. Superseding Condition

The conditions of this permit supersede Special Condition 2 and 4 found in the previously issued construction Permit No. 032015-007 issued by the Air Pollution Control Program.

2. Annual Emission Limit

A. USAG and Fort Leonard Wood shall emit less than 40.0 tons of NO_x in any 12-month period from the asphalt plant.

B. USAG and Fort Leonard Wood shall demonstrate compliance with Special Condition 2.A using Attachment A or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.

3. Fuel Requirement - Asphalt Drum Dryer, Asphalt Heater, and Two Generators

A. USAG and Fort Leonard Wood shall burn ultra-low sulfur diesel fuel (15 ppm) in their Asphalt Drum Dryer (EP-54), Asphalt Heater (EP-57) and two Generators (EP-060J and EP-061K) during asphalt production.

B. USAG and Fort Leonard Wood shall demonstrate compliance with Special Condition 3.A by obtaining records of the fuel's sulfur content from the vendor for each shipment of fuel received or by testing each shipment of fuel for the sulfur content in accordance with the method described in 10 CSR 10-6.040 *Reference Methods*.

