

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

PERMIT BOOK

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: **01 2015 - 001**

Project Number: 2014-10-048
Installation Number: 169-0004

Parent Company: U.S. Army Installation Management Command - Central Region

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

Installation Name: U.S. Army Garrison 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:

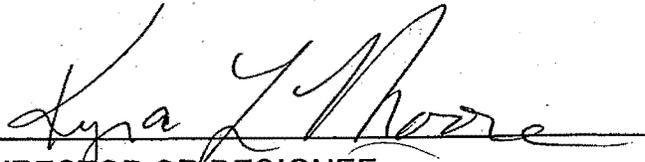
Installation of new spray coating operation. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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

JAN 16 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 these air contaminant sources. 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 these air contaminant sources.

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 sources(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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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."

U.S. Army Garrison and Fort Leonard Wood
Pulaski County, S21, T35N, R8W

1. Superseding Condition
 - A. The conditions of this permit supersede the following special conditions found in the previously issued Construction Permit 052001-010 issued by the Air Pollution Control Program.
 - 1) Special Condition 2. Emission Limitation – Building No. 5138, No. 5265, and No. 5266

2. VOC and HAPs Emission Limitations – Building No. 5138, No. 5265, No. 5266, and No. 12350
 - A. U.S. Army Garrison and Fort Leonard Wood shall emit less than 20.0 tons of VOCs in any consecutive 12-month period from all of the specified buildings listed below.
 - 1) Building No. 5138
 - 2) Building No. 5265
 - 3) Building No. 5266
 - 4) Building No. 12350

 - B. U.S. Army Garrison and Fort Leonard Wood shall emit less than 0.1 tons per year of Phenol and 1.0 tons per year of Styrene HAPs in any consecutive 12-month period from Building No. 12350

 - C. Attachments A, B, and C, or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A, and 2.B.

3. Control Device Requirement-Fabric Filter/ Paint Booth
 - A. U.S. Army Garrison and Fort Leonard Wood shall control and capture emissions from the Building No. 12350 surface coating operation using a fabric filter and paint booth.

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SPECIAL CONDITIONS:

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

- B. The filter shall be operated and maintained in accordance with the manufacturer's specifications.
 - C. U.S. Army Garrison and Fort Leonard Wood shall demonstrate that the paint booth was constructed according to manufacturer's specifications by keeping a record of the following design parameters:
 - 1) The minimum recommended face velocity.
 - 2) Engineering drawings which demonstrate that the paint booth was designed to meet the minimum recommended face velocity.
 - D. The filter 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 the Department of Natural Resources' employees may easily observe them. The pressure drop shall be measured and recorded at least once every 24 hours while surface coating activities are in operation. The pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - E. U.S. Army Garrison and Fort Leonard Wood shall maintain a copy of the filter manufacturer's performance warranty on site.
 - F. U.S. Army Garrison and Fort Leonard Wood shall maintain an operating and maintenance log for the filter 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. Use of Alternative Material
- A. Before using an alternative material in the surface coating operation in Building No. 12350 that differs from a material listed in the Application for Authority to Construct, U.S. Army Garrison and Fort Leonard Wood shall calculate the potential emissions of all HAPs of the alternative material using Attachment D.
 - B. U.S. Army Garrison and Fort Leonard Wood shall seek approval from the Air Pollution Control Program New Source Review Unit before use of the alternative material if the potential individual HAP emissions for the alternative material are greater than the SMAL for any HAP listed in

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SPECIAL CONDITIONS:

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

Appendix B. For the most current table of HAPs go to: <http://dnr.mo.gov/env/apcp/docs/cp-hapratbl6.pdf>

5. Record Keeping and Reporting Requirements
 - A. U.S. Army Garrison and Fort Leonard Wood 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. U.S. Army Garrison and Fort Leonard Wood 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 during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2014-10-048
Installation ID Number: 169-0004
Permit Number:

U.S. Army Garrison and Fort Leonard Wood
14000 MSCOE Loop, Suite 120
Fort Leonard Wood, MO 65473-8944

Complete: October 27, 2014

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

Pulaski County, S21, T35N, R8W

REVIEW SUMMARY

- U.S. Army Garrison and Fort Leonard Wood has applied for authority to construct a new paint booth and voluntarily establish a 20 ton per year VOC emission limitation that includes the paint booths located in Building No. 5138, No 5265, and No. 5266, permitted in Permit No. 052001-010.
- HAP emissions are expected from the proposed equipment. HAPs of most concern from this process are Phenol and Styrene.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- NESHAP 40 CFR Part 63 MMMM: *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products* does not apply to this installation because they are not a major source of HAP emissions.
- NESHAP 40 CFR Part 63 HHHHHH: *National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources* does not apply to this installation because the installation is owned by the Armed Forces of the United States.
- A fabric filter and booth with permanent total enclosure is being used to control the particulate matter emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of VOC are voluntarily conditioned below de minimis levels. Phenol and Styrene are also conditioned below their respective SMAL.
- This installation is located in Pulaski 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 conditioned below de minimis levels.
- An emission testing is not required for the equipment.
- Submittal of an application to amend the Part 70 Operating Permit is required for this installation within one year of permit issuance.
- Approval of this permit is recommended with special conditions.

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 proven 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 NO_x 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 NO_x source, it would not affect this permit. If the installation were a major HAP source, it would affect the paint booth's MACT applicability. A Part 70 renewal application is currently in house but must be updated to reflect the new potential to emit.

The following New Source Review permits have been issued to U.S. Army Garrison and Fort Leonard Wood from the Air Pollution Control Program.

Table 1: Permit History

Project Number	Permit Number	Description
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.

PROJECT DESCRIPTION

The installation has proposed to install and operate a new surface coating operation at the Training Support Center in Building No. 12350. The surface coating operation will be used to paint and touch up military training aids after the manufacture repair of the training aids. Training aids will be painted as needed. The maximum hourly paint usage was estimated to be 0.5 gal/hr after considering drying time bottlenecks. A Graco Reactor, Model 309551E will be used to spray apply truck bed liners. Paint will be applied to the training aids using an Eastwood Concours HVLP Spray Gun or wiped on by hand. The facility will have two full-sized spray guns, and one mini-detail gun, however only one will be used at any time.

U.S. Army Garrison and Fort Leonard Wood has requested to establish a VOC limit of 20 tons per year for the new surface coating operation with the existing surface coating operations permitted in Permit No. 052001-010. This includes all surface coating operations in Building No. 5138, No. 5265, No. 5266, and No. 12350.

EMISSIONS/CONTROLS EVALUATION

Potential emissions from the new paint booth were calculated using mass balance, citing the paint MSDS. The paint booth uses a HPLV spray gun. The spray gun was assigned 65 percent solids transfer efficiency per the U.S. Air Force IERA document titled "Air Emissions Inventory Guidance Document for Stationary Sources at Air Force Installations", Table 30-1, December 2003. When using wipe-on coating, 100% transfer is assumed. All applied VOC and volatile HAPs were considered emitted. The paint booth has a permanent total enclosure and was given 98 percent capture efficiency. Potential emissions of each pollutant were selected from the greatest of all coatings respective emissions, at the same application rate, regardless of the coating. For example, project PM emissions could be from one coating, while project VOC emissions could be from another coating. This approach represents the most conservative scenario. Particulate emissions from the paint booth will be controlled by a fabric filter system with 98 percent control efficiency. The overall PM control efficiency is 98.6%. No VOC controls will be used for the paint booth emissions.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit No. 052013-012 and are subject to revision. Existing actual emissions were taken from the installation's 2013 EIQ. Potential emissions of the application represent the potential of the new paint booth equipment, assuming continuous operation (8760 hours per year). The conditioned potential emissions of the application represent the voluntarily limited potential from Building No. 5138, No. 5265, No. 5266, and No. 12350.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels/SMAL	Existing Potential Emissions	Existing Actual Emissions (2013 EIQ)	Potential Emissions of the Application	Conditioned Potential Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/D	N/D	N/a	N/A	N/A
PM ₁₀	15.0	1209.5	3.28	0.268	N/A	N/A
PM _{2.5}	10.0	N/D	1.92	N/A	N/A	N/A
SO _x	40.0	122.96	2.99	N/A	N/A	N/A
NO _x	40.0	259.18	44.45	N/A	N/A	N/A
VOC	40.0	509.11	2.7	13.95	<20.0	N/A
CO	100.0	2331.29	15.17	N/A	N/A	N/A
HAPs	10 / 25.0	6.75	0.01	13.552	N/A	N/A
Phenol	0.1	N/D	N/D	0.504	<0.1	N/A
Styrene	1.0	N/D	N/D	5.808	<1.0	N/A

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 VOC are conditioned below de minimis levels. Phenol and Styrene are also conditioned below their respective SMAL.

APPLICABLE REQUIREMENTS

U.S. Army Garrison 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
- *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

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.

Bryce Mihalevich
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 September 19, 2014, received October 16, 2014, designating U.S. 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.
- SDS's supplied with permit application.

**Attachment D – Alternative Coating Compliance Worksheet
Surface Coating Operation in Building No. 12350**

U.S. Army Garrison and Fort Leonard Wood
Pulaski County, S21, T35N, R8W
Project: 2014-10-048
Installation ID: 159-0027
Permit:

Coating or material name _____ Date _____ Copy this sheet as needed.

A	B	C	D	E	F	G	H	I	J
Process and Emission Unit	Individual HAP Name and CAS No.	HAP is also Particulate Matter (yes / no)	Individual HAP Content (max weight %)	Maximum Hourly Application Rate (lbs coating per hour)	Overall Transfer and Control Efficiency (%)	Individual HAP PTE (tpy)	Individual HAP SMAL (tpy)	Coating VOC (weight %)	Coating VOC PTE (tpy)
<i>(Example) Building 12350</i>	<i>Benzene 71-43-2</i>	<i>no</i>	<i>2.0%</i>	<i>1.293</i>	<i>N/A</i>	<i>0.113</i>	<i>2.0</i>	<i>36.61%</i>	<i>2.073</i>
<i>(Example) Building 12350</i>	<i>Cobalt 2-Ethylhexanoate 136-52-7</i>	<i>yes</i>	<i>0.5%</i>		<i>98.61%</i>	<i>0.0004</i>	<i>0.1</i>		

- (a) Record the process description and emission unit.
- (b) Record all the individual HAPs from this single coating/material SDS.
- (c) Compare the HAP to Appendix B for verification as particulate matter.
- (d) Record the maximum weight percent of each HAP from the SDS.
- (e) Calculate the coating's maximum hourly application rate (lb/hr) by multiplying the coating density (lb/gal) by the spray gun MHDR (0.5 gal/hr)
- (f) The overall PM transfer and control efficiency includes the HPLV gun transfer efficiency (65%), booth capture efficiency (98%), and three stage filter system control efficiency (98%): $\{1 - [(1 - 65\%) \times (1 - 98\%) + (1 - 65\%) \times (1 - 98\%) \times (98\%)]\} \times 100 = 98.61\%$.
- (g) Calculate the particulate matter and VOC HAP potential to emit: $G = D \times E \times (1 - F) \times 8,760 / 2,000$.
- (h) Record the individual HAP SMAL from Appendix B. If the individual HAP potential to emit is greater than or equal to the respective SMAL seek approval from the Air Pollution Control Program New Source Review Unit before using this coating.
- (i) Record or calculate the coating's VOC weight % from the SDS.
- (j) Calculate the VOC potential to emit: $J = E \times I \times 8,760 / 2,000$. Contact the Air Pollution Control Program New Source Review Unit if the VOC emissions are greater than 12 tons per year.

APPENDIX A

Abbreviations and Acronyms

%percent	m/s meters per second
°Fdegrees Fahrenheit	Mgal 1,000 gallons
acfmactual cubic feet per minute	MW megawatt
BACT Best Available Control Technology	MHDR maximum hourly design rate
BMPs Best Management Practices	MMBtu Million British thermal units
Btu British thermal unit	MMCF million cubic feet
CAM Compliance Assurance Monitoring	MSDS Material Safety Data Sheet
CAS Chemical Abstracts Service	NAAQS ... National Ambient Air Quality Standards
CEMS Continuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFR Code of Federal Regulations	NO_x nitrogen oxides
CO carbon monoxide	NSPS New Source Performance Standards
CO₂ carbon dioxide	NSR New Source Review
CO₂e carbon dioxide equivalent	PM particulate matter
COMS Continuous Opacity Monitoring System	PM_{2.5} particulate matter less than 2.5 microns in aerodynamic diameter
CSR Code of State Regulations	PM₁₀ particulate matter less than 10 microns in aerodynamic diameter
dscf dry standard cubic feet	ppm parts per million
EQ Emission Inventory Questionnaire	PSD Prevention of Significant Deterioration
EP Emission Point	PTE potential to emit
EPA Environmental Protection Agency	RACT Reasonable Available Control Technology
EU Emission Unit	RAL Risk Assessment Level
fps feet per second	SCC Source Classification Code
ft feet	scfm standard cubic feet per minute
GACT Generally Available Control Technology	SDS Safety Data Sheet
GHG Greenhouse Gas	SIC Standard Industrial Classification
gpm gallons per minute	SIP State Implementation Plan
gr grains	SMAL Screening Model Action Levels
GWP Global Warming Potential	SO_x sulfur oxides
HAP Hazardous Air Pollutant	SO₂ sulfur dioxide
hr hour	tph tons per hour
hp horsepower	tpy tons per year
lb pound	VMT vehicle miles traveled
lbs/hr pounds per hour	VOC Volatile Organic Compound
MACT Maximum Achievable Control Technology	
µg/m³micrograms per cubic meter	

Appendix B: Table of Hazardous Air Pollutants and Screening Model Action Levels (May 3, 2012 Revision 10)

Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM
ACETALDEHYDE	75-07-0	9		Y	N	CARBARYL	63-25-2	10	V	Y	Y	DICHLOROPROPANE, [1,2-]	78-87-5	1		Y	N
ACETAMIDE	60-35-5	1		Y	N	CARBON DISULFIDE	75-15-0	1		Y	N	DICHLOROPROPENE, [1,3-]	542-75-6	1		Y	N
ACETONITRILE	75-05-8	4		Y	N	CARBON TETRACHLORIDE	56-23-5	1		Y	N	DICHLORVOS	62-73-7	0.2		Y	N
ACETOPHENONE	98-86-2	1		Y	N	CARBONYL SULFIDE	463-58-1	5		Y	N	DIETHANOLAMINE	111-42-2	5		Y	N
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005	V	Y	Y	CATECHOL	120-80-9	5		Y	N	DIETHYL SULFATE	64-67-5	1		Y	N
ACROLEIN	107-02-8	0.04		Y	N	CHLORAMBEN	133-90-4	1		Y	Y	DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5	P	Y	N
ACRYLAMIDE	79-06-1	0.02		Y	N	CHLORDANE	57-74-9	0.01		Y	Y	DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1	V	Y	Y
ACRYLIC ACID	79-10-7	0.6		Y	N	CHLORINE	7782-50-5	0.1		N	N	DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008	V	Y	Y
ACRYLONITRILE	107-13-1	0.3		Y	N	CHLOROACETIC ACID	79-11-8	0.1		Y	N	DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02		Y	N
ALLYL CHLORIDE	107-05-1	1		Y	N	CHLOROACETOPHENONE, [2-]	532-27-4	0.06		Y	N	DIMETHYL FORMAMIDE	68-12-2	1		Y	N
AMNOBIPHENYL, [4-]	92-67-1	1	V	Y	N	CHLORO BENZENE	108-90-7	10		Y	N	DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008		Y	N
ANILINE	62-53-3	1		Y	N	CHLORO BENZILATE	510-15-6	0.4	V	Y	Y	DIMETHYL PHTHALATE	131-11-3	10		Y	N
ANISIDINE, [ORTHO-]	90-04-0	1		Y	N	CHLOROFORM	67-66-3	0.9		Y	N	DIMETHYL SULFATE	77-78-1	0.1		Y	N
ANTHRACENE	120-12-7	0.01	V	Y	N	CHLOROMETHYL METHYL ETHER	107-30-2	0.1		Y	N	DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1		Y	N
ANTHRACENE COMPOUNDS		5	H	N	Y	CHLOROPRENE	126-99-8	1		Y	N	DIMETHYLANILINE, [N-N-]	121-69-7	1		Y	N
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1	H	N	Y	CHROMIUM (VI) COMPOUNDS		0.002	L	N	Y	DINITRO-O-CRESOL, [4,6-] (Note 6)	534-52-1	0.1	E	Y	Y
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1	H	N	Y	CHROMIUM COMPOUNDS		5	L	N	Y	DINITROPHENOL, [2,4-]	51-28-5	1		Y	N
ANTIMONY TRIOXIDE	1309-64-4	1	H	N	Y	CHRYSENE	218-01-9	0.01	V	Y	N	DINITROTOLUENE, [2,4-]	121-14-2	0.02		Y	N
ANTIMONY TRISULFIDE	1345-04-6	0.1	H	N	Y	COBALT COMPOUNDS		0.1	M	N	Y	DIOXANE, [1,4-]	123-91-1	6		Y	N
ARSENIC COMPOUNDS		0.005	I	N	Y	COKE OVEN EMISSIONS	8007-45-2	0.03	N	Y	N	DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	V	Y	Y
ASBESTOS	1332-21-4	0	A	N	Y	CRESOL, [META-]	108-39-4	1	B	Y	N	DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	V	Y	N
BENZ(A)ANTHRACENE	56-55-3	0.01	V	Y	N	CRESOL, [ORTHO-]	95-48-7	1	B	Y	N	EPICHLOROHYDRIN	106-89-8	2		Y	N
BENZENE	71-43-2	2		Y	N	CRESOL, [PARA-]	106-44-5	1	B	Y	N	ETHOXYETHANOL, [2-]	110-80-5	10	P	Y	N
BENZIDINE	92-87-5	0.0003	V	Y	N	CRESOLS (MIXED ISOMERS)	1319-77-3	1	B	Y	N	ETHOXYETHYL ACETATE, [2-]	111-15-9	5	P	Y	N
BENZO(A)PYRENE	50-32-8	0.01	V	Y	N	CUMENE	98-82-8	10		Y	N	ETHYL ACRYLATE	140-88-5	1		Y	N
BENZO(B)FLUORANTHENE	205-99-2	0.01	V	Y	N	CYANIDE COMPOUNDS		0.1	O	Y	N	ETHYL BENZENE	100-41-4	10		Y	N
BENZO(K)FLUORANTHENE	207-08-9	0.01	V	Y	N	DDE	72-55-9	0.01	V	Y	Y	ETHYL CHLORIDE	75-00-3	10		Y	N
BENZOTRICHLORIDE	98-07-7	0.006		Y	N	DI[2-ETHYLHEXYL] PHTHALATE, (DEHP)	117-81-7	5		Y	N	ETHYLENE GLYCOL	107-21-1	10		Y	N
BENZYL CHLORIDE	100-44-7	0.1		Y	N	DIAMINOTOLUENE, [2,4-]	95-80-7	0.02		Y	N	ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2				
BERYLLIUM COMPOUNDS		0.008	J	N	Y	DIAZOMETHANE	334-88-3	1		Y	N	ETHYLENE GLYCOL MONOHEXYL ETHER	112-25-4	5	P	Y	N
BERYLLIUM SALTS		2E-05	J	N	Y	DIBENZ(A,H)ANTHRACENE	53-70-3	0.01	V	Y	N	ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003		Y	N
BIPHENYL, [1,1-]	92-52-4	10	V	Y	N	DIOXINS/FURANS		6E-07	D,V	Y	N	ETHYLENE OXIDE	75-21-8	0.1		Y	N
BIS(CHLOROETHYL)ETHER	111-44-4	0.06		Y	N	DIBENZOFURAN	132-64-9	5	V	Y	N	ETHYLENE THIOUREA	96-45-7	0.6		Y	Y
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0003		Y	N	DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01		Y	N	FORMALDEHYDE	50-00-0	2		Y	N
BROMOFORM	75-25-2	10		Y	N	DIBROMOETHANE, [1,2-]	106-93-4	0.1		Y	N	GLYCOL ETHER (ETHYLENE GLYCOL ETHERS)		5	P	Y	N
BROMOMETHANE	74-83-9	10		Y	N	DIBUTYL PHTHALATE	84-74-2	10		Y	Y	GLYCOL ETHER (DIETHYLENE GLYCOL ETHERS)		5	P	Y	N
BUTADIENE, [1,3-]	106-99-0	0.07		Y	N	DICHLOROBENZENE, [1,4-]	106-46-7	3		Y	N	HEPTACHLOR	76-44-8	0.02		Y	N
BUTOXYETHANOL ACETATE, [2-]	112-07-2	5	P	Y	N	DICHLOROBENZIDENE, [3,3-]	91-94-1	0.2	V	Y	Y	HEXACHLOROBENZENE	118-74-1	0.01		Y	N
BUTYLENE OXIDE, [1,2-]	106-88-7	1		Y	N	DICHLOROETHANE, [1,1-]	75-34-3	1		Y	N	HEXACHLOROBUTADIENE	87-68-3	0.9		Y	N
CADMIUM COMPOUNDS		0.01	K	N	Y	DICHLOROETHANE, [1,2-]	107-06-2	0.8		Y	N	HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	F	Y	N
CALCIUM CYANAMIDE	156-62-7	10		Y	Y	DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		Y	N	HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	F	Y	N
CAPROLACTAM (Delisted)	105-60-2					DICHLOROMETHANE	75-09-2	10		N	N	HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	F	Y	N
CAPTAN	133-06-2	10		Y	Y	DICHLOROPHENOXY ACETIC ACID, [2,4-]	94-75-7	10	C	Y	Y	HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	F	Y	N

Appendix B: Table of Hazardous Air Pollutants and Screening Model Action Levels (May 3, 2012 Revision 10)

Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM	Chemical	CAS #	SMAL (tons/yr)	Group ID	VOC	PM
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		Y	N	NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001		Y	N	TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		Y	N
HEXACHLOROETHANE	67-72-1	5		Y	N	NITROSOMORPHOLINE, [N-]	59-89-2	1		Y	N	URETHANE [ETHYL CARBAMATE]	51-79-6	0.8		Y	N
HEXAMETHYLENE,-1,6-DIISOCYANATE	822-06-0	0.02		Y	N	NITROSO-N-METHYLUREA, [N-]	684-93-5	0.0002		Y	N	VINYL ACETATE	108-05-4	1		Y	N
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01		Y	N	OCTACHLORONAPHTHALENE	2234-13-1	0.01	V	Y	N	VINYL BROMIDE	593-60-2	0.6		Y	N
HEXANE, [N-]	110-54-3	10		Y	N	PARATHION	56-38-2	0.1		Y	Y	VINYL CHLORIDE	75-01-4	0.2		Y	N
HYDRAZINE	302-01-2	0.004		N	N	PCB [POLYCHLORINATED BIPHENYLS]	1336-36-3	0.009	X	Y	Y	XYLENE, [META-]	108-38-3	10	G	Y	N
HYDROGEN CHLORIDE	7647-01-0	10		N	N	PENTACHLORONITROBENZENE	82-68-8	0.3		Y	N	XYLENE, [ORTHO-]	95-47-6	10	G	Y	N
HYDROGEN FLUORIDE	7664-39-3	0.1		N	N	PENTACHLOROPHENOL	87-86-5	0.7		Y	N	XYLENE, [PARA-]	106-42-3	10	G	Y	N
HYDROQUINONE	123-31-9	1		Y	N	PHENOL	108-95-2	0.1		Y	N	XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N
INDENO(1,2,3CD)PYRENE	193-39-5	0.01	V	Y	N	PHENYLENEDIAMINE, [PARA-]	106-50-3	10		Y	N						
ISOPHORONE	78-59-1	10		Y	N	PHOSGENE	75-44-5	0.1		Y	N						
LEAD COMPOUNDS		0.01	Q	N	Y	PHOSPHINE	7803-51-2	5		N	N						
LINDANE [GAMMA-HEXACHLOROCYCLOHEXANE]	58-89-9	0.01	F	Y	N	PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1		N	N	Legend					
MALEIC ANHYDRIDE	108-31-6	1		Y	N	PTHALIC ANHYDRIDE	85-44-9	5		Y	N	Group ID	Aggregate Group Name				
MANGANESE COMPOUNDS		0.8	R	N	Y	POLYCYLIC ORGANIC MATTER		0.01	V	Y	N	A	Asbestos				
MERCURY COMPOUNDS		0.01	S	N	N	PROPANE SULTONE, [1,3-]	1120-71-4	0.03		Y	Y	B	Cresols/Cresylic Acid (isomers and mixtures)				
METHANOL	67-56-1	10		Y	N	PROPIOLACTONE, [BETA-]	57-57-8	0.1		Y	N	C	2,4 - D, Salts and Esters				
METHOXYCHLOR	72-43-5	10	V	Y	Y	PROPIONALDEHYDE	123-38-6	5		Y	N	D	Dibenzofurans, Dibenzodioxins				
METHOXYETHANOL, [2-]	109-86-4	10	P	Y	N	PROPOXUR [BAYGON]	114-26-1	10		Y	Y	E	4, 6 Dinitro-o-cresol, and Salts				
METHYL CHLORIDE	74-87-3	10		Y	N	PROPYLENE OXIDE	75-56-9	5		Y	N	F	Lindane (all isomers)				
METHYL ETHYL KETONE (Delisted)	78-93-3					PROPYLENEIMINE, [1,2-]	75-55-8	0.003		Y	N	G	Xylenes (all isomers and mixtures)				
METHYL HYDRAZINE	60-34-4	0.06		Y	N	QUINOLINE	91-22-5	0.006		Y	N	H	Antimony Compounds				
METHYL IODIDE	74-88-4	1		Y	N	QUINONE	106-51-4	5		Y	N	I	Arsenic Compounds				
METHYL ISOBUTYL KETONE	108-10-1	10		Y	N	RADIONUCLIDES		Note 1	Y	N	Y	J	Beryllium Compounds				
METHYL ISOCYANATE	624-83-9	0.1		Y	N	SELENIUM COMPOUNDS		0.1	W	N	Y	K	Cadmium Compounds				
METHYL METHACRYLATE	80-62-6	10		Y	N	STYRENE	100-42-5	1		Y	N	L	Chromium Compounds				
METHYL TERT-BUTYL ETHER	1634-04-4	10		Y	N	STYRENE OXIDE	96-09-3	1		Y	N	M	Cobalt Compounds				
METHYLCYCLOPENTADIENYL MANGANESE	12108-13-3	0.1	R	N	Y	TETRACHLORODIBENZO-P-DIOXIN,[2,3,7,8]	1746-01-6	6E-07	D,V	Y	Y	N	N	Coke Oven Emissions			
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	V	Y	Y	TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		Y	N	O	Cyanide Compounds				
METHYLENEDIANILINE, [4,4-]	101-77-9	1	V	Y	N	TETRACHLOROETHYLENE	127-18-4	10		N	N	P	Glycol Ethers				
METHYLNAPHTHALENE, [2-]	91-57-6	0.01	V	Y	N	TITANIUM TETRACHLORIDE	7550-45-0	0.1		N	N	Q	Lead Compounds (except elemental Lead)				
MINERAL FIBERS		0	T	N	Y	TOLUENE	108-88-3	10		Y	N	R	Manganese Compounds				
NAPHTHALENE	91-20-3	10	V	Y	N	TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		Y	N	S	Mercury Compounds				
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01	V	Y	N	TOLUIDINE, [ORTHO-]	95-53-4	4		Y	N	T	Fine Mineral Fibers				
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01	V	Y	N	TOXAPHENE	8001-35-2	0.01		Y	N	U	Nickel Compounds				
NICKEL CARBONYL	13463-39-3	0.1	U	N	Y	TRICHLOROBENZENE, [1,2,4-]	120-82-1	10		Y	N	V	Polycyclic Organic Matter				
NICKEL COMPOUNDS		1	U	N	Y	TRICHLOROETHANE, [1,1,1-]	71-55-6	10		N	N	W	Selenium Compounds				
NICKEL REFINERY DUST		0.08	U	N	Y	TRICHLOROETHANE, [1,1,2-]	79-00-5	1		Y	N	X	Polychlorinated Biphenyls (Aroclors)				
NICKEL SUBSULFIDE	12035-72-2	0.04	U	N	Y	TRICHLOROETHYLENE	79-01-6	10		Y	N	Y	Radionuclides				
NITROBENZENE	98-95-3	1		Y	N	TRICHLOROPHENOL, [2,4,5-]	95-95-4	1		Y	N						
NITROBIPHENYL, [4-]	92-93-3	1	V	Y	N	TRICHLOROPHENOL, [2,4,6-]	88-06-2	6		Y	N						
NITROPHENOL, [4-]	100-02-7	5		Y	N	TRIETHYLAMINE	121-44-8	10		Y	N	Note 1	The SMAL for radionuclides is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million				
NITROPROPANE, [2-]	79-46-9	1		Y	N	TRIFLURALIN	1582-09-8	9		Y	Y						

Mr. Leonard Housley
Deputy Garrison Commander
U.S. Army Garrison and Fort Leonard Wood
16037 Minnesota Ave, Bldg. 2222, ATTN: IMLD-PWE
Fort Sam Houston, TX 78234-1223

RE: New Source Review Permit - Project Number: 2014-10-048

Dear Mr. Housley:

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, 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.

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. If any such petition is sent by registered mail it will be deemed filed on the date it is mailed; if it is sent by any other method it will be deemed filed on the date it is received by the administrative hearing commission: Administrative Hearing Commission, Truman State Office Building, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have any questions regarding this permit contact me at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:bml

Enclosures

c: Southeast Regional Office
PAMS File: 2014-10-048
Permit Number: