

STATE OF 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: 062013-007 Project Number: 2013-03-073 Installation Number: 095-0046

Parent Company: Department of Defense - Lake City Army Ammunition Plant

Parent Company Address: P.O Box 330, Independence, MO 64051

Installation Name: Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City

Installation Address: 25201 East 78 Highway, Independence, MO 64056

Location Information: Jackson County, S31/32, T50N, R30W

Application for Authority to Construct was made for:

Increasing the usage and changing the formulation on the mouth water proofing compound. 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.

JUN 13 2013

EFFECTIVE DATE

Kyra L. Moore

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.

Page No.	3
Permit No.	
Project No.	2013-03-073

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."

Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City
Jackson County, S31/32, T50N, R30W

1. Operational Requirement – Chemicals
Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City shall keep all chemicals in sealed containers whenever the materials are not in use. Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City shall provide and maintain suitable, easily read, permanent markings on all chemical containers used with this equipment.

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

Project Number: 2013-03-073
Installation ID Number: 095-0046
Permit Number:

Alliant Techsystems Operations LLC
Small Caliber Systems - Lake City
25201 East 78 Highway
Independence, MO 64056

Complete: March 19, 2013

Parent Company:
Department of Defense - Lake City Army Ammunition Plant
P.O Box 330
Independence, MO 64051

Jackson County, S31/32, T50N, R30W

REVIEW SUMMARY

- Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City has applied for authority to increase the amount of mouth water proofing (MWP) compound used on the four 7.62 mm Fritz Werner priming machines and to change its formulation from what was previously permitted.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process are dibutyl phthalate and toluene.
- None of the New Source Performance Standards (NSPS) apply to the use of the MWP compound.
- None of the NESHAP and the currently promulgated MACT regulations apply to the use of the MWP compound.
- No air pollution control equipment is being used in association with the new equipment.
- 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 Jackson County, a maintenance area for ozone and an attainment area for all other 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 are not required for the equipment.

- A modification to your Part 70 Operating Permit is required for this installation within 1 year of changing the MWP compound, or the facility may choose to apply for an Intermediate Operating Permit within 90 days of changing the MWP compound.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Alliant Techsystems Operations LLC operates a small arms ammunition manufacturing facility in Independence, MO. The installation is an existing major source under construction permits for SO_x, NO_x, VOC and HAPs, and was issued a Part 70 Operating Permit in November, 2003. A Part 70 Operating Permit renewal application, submitted by the facility in May, 2008, is currently under review by the Air Pollution Control Program (Project 2008-05-039).

The following New Source Review permits have been issued to Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
1088-009A	Install three (3) new painting/sealing systems and two (2) air strippers
0690-009	Install a trinitroresorcinol (TNR) manufacturing building
0690-003	Install an explosive wastewater treatment plant to remove metals
0191-004	Install four (4) air strippers that will strip VOCs from drinking water
0492-002	Install emergency diesel pump for boiler feed, and (20) emergency generators
1192-018	Install a natural gas fired generator unit
0694-021	Install a primer popping operation
0395-027	Install nine (9) standby emergency diesel generators
1095-022	Install three (3) video-jet printers for 20-mm case marking. This equipment replaced the ink-pad and rubber-stamping method
0496-018	Install three (3) ink jet equipment for 5.56 mm packing cartons. This equipment replaced the existing rubber-stamp operation
1097-018	Modify existing process to manufacture I-136N igniter mix by eliminating calcium resinate and replacing it with a polyurethane formula
0199-021	Install emergency diesel booster pump and fuel storage tank
012000-017	Install three (3) ammunition loading machines and one (1) ammunition priming machine. Replaced four (4) WWII machines
092000-002	Install calcium resinate system for manufacturing
112000-008	Install two (2) 16.8 MMBTU/hr steam generating boilers
042001-003	Install machine gun belt link manufacturing equipment. Permit has been relinquished to Lake City Ammo by Galion, Inc
052001-012	Install two (2) 12.1 million BTU per hour natural gas fired steam generating boilers
082001-016	Install one (1) 45-ton press, one (1) 75-ton press and one (1) resistance welding station to an existing machine gun belt link manufacturing operation. Permit has been relinquished to Lake City Ammo by Valentec Wells, LLC (formerly Galion, Inc.)
102001-006	Install two (2) 150-ton presses and one (1) 100-ton press to an existing machine gun belt link manufacturing operation
112001-009A	Install two (2) 30-ton presses and one (1) 60 ton press to an existing machine gun belt link manufacturing operation
012003-008	Two (2) Manurhin loaders for the combat cartridge tip identification and cartridge sealing operation (EP-14 and EP-15, respectively)
032005-012	Installation of one (1) 33.5 MMBtu per hour boiler
112008-012	Installation of eight (8) new priming machines and five (5) new loading machines, including one (1) Manurhin loading machine. (Phase I)
122008-007	Installation of six (6) new draw presses, three (3) new wash and dry lines, two (2) new pickle/wash/lube lines and eight (8) new back end case cells. (Phase II)
062009-004	Installation of five (5) ammunition can printing lines and four (4) new crate printing lines. (Phase III)
022010-008	Installation of three (3) first draw presses, two (2) natural gas fueled anneal ovens, two (2) pickle trains, three (3) second draw presses, three (3) final wash lines, and five (5) back end case cells. (Phase IV) Also includes amendment to Phase II by installing equipment for manufacturing 7.62 mm shell casings.
042010-005	Temporary concrete crusher.
042010-005A	Correcting responsible party.
112008-012A	Change the formulation for the mouth water proofing compound.
022011-010	Temporary permit for a Thermal Convection System (TCS).
022011-010A	Amendment to the temporary permit to allow the treatment of additional equipment by the TCS.
012013-009	Use of new lube, wash additives and brass brighteners for five high speed case manufacturing lines.

PROJECT DESCRIPTION

In 2007, Alliant Techsystems Operations LLC added one 7.62 Manurhin loading machine (Project No. 2007-02-046). The determination of the project was that all emissions were under significance thresholds and therefore, no permit was required. At that time, Alliant Techsystems did not anticipate the addition of any other equipment. However, the installation eventually decided to add more equipment as part of modernization project. The equipment was to be added in different phases. Each time a phase was permitted, emissions from the previous phase was added to it to obtain the total emissions from the project.

Phase I was considered to be the addition of the 7.62 Manurhin loading machine in 2007 and also the addition of eight priming machines and five loading machine (Permit No. 112008-012). Phase II (Permit No. 122008-007) added six new draw presses, three new wash and dry lines, two new pickle/wash/lube lines, and eight new back end case cells. Phase III was for the installation of five ammunition can printing lines and four new crate printing lines (Permit No. 062009-004). Phase IV, which was the last phase, included three first draw presses, two natural gas fuel anneal ovens, two pickle trains, three second draw presses, three final wash lines, and five back end case cells (Permit No. 022010-008).

During the entire modernization projects, previous permits were also amended as needed. When the four Fritz Werner 7.62 mm priming machines were first permitted (Permit No. 112008-012), the MWP compound was water-based and no emissions were expected from the use of these chemicals. In 2010, the facility was allowed to change the MWP to a solvent-based material, through permit amendment no. 112008-012B. However, military specification testing demonstrated that an acceptable seal on the ammunitions could not be obtained using the manufacturer supplied MWP volumes as previously permitted in Permit No. 112008-012B. The formulation of the MWP must also be changed. Therefore, the facility has applied to increase the volume and change the formulation of the MWP compound. The change in the volume and the formulation of the MWP will cause an increase in emissions and therefore, a permit is needed. The new MWP compound is 130110-DBP Black, which contains 57.6% VOC by weight and 5% dibutyl phthalate, which is a HAP. Solvents are used for cleanup and are expected to emit VOC, including toluene, which is also a HAP.

EMISSIONS/CONTROLS EVALUATION

The Fritz Werner 7.62 mm priming machines are expected to produce 250 cases per minute. The maximum MWP compound used is 6.66E-06 gallons per case (0.025 ml per case). VOC and HAP emissions from the MWP and solvents were calculated using mass balance assuming 100% of the VOC and HAP are emitted.

The following table provides an emissions summary for this project. Existing potential emissions are the sum of the emissions from the previous permits issued to the installation (Permit No. 032005-012 and 012013-009) and no permit required determinations (Project No. 2005-10-019, 2006-10-029, and 2006-12-018), even if they were issued after the modernization project. However, it does not include no permit required determinations made regarding an emergency generator and temporary permits. It includes any emissions limits issued in previous permits. Emissions from the modernization project are not included in the

existing potential emissions. Instead, they are included in a separate column. The existing potential emissions in Table 2 basically represent the emissions from the installation without the modernization project and temporary or emergency equipment.

Existing actual emissions were taken from the installation's 2012 EIQ. Potential emissions of the application represent the potential of the entire modernization project assuming continuous operation (8760 hours per year). They are calculated by taking the potential of the entire modernization project before the MWP compound formulation change (taken from Permit No. 022010-008), subtracting emissions from the cleanup solvents used with the water-based MWP compound, and then adding emissions from the use of the new solvent-based MWP compound. Emissions from the cleanup solvents used with the water-based MWP compound were subtracted because the solvents will no longer be used. The potential emissions of the installation were calculated by adding the existing potential emissions and the potential emissions of the modernization project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis/SMALLevels	Existing Potential Emissions	Existing Actual Emissions (2012 EIQ)	Potential Emissions of the Modernization Project	Potential Emissions of the Installation
PM	25.0	N/D	N/D	N/D	N/D
PM ₁₀	15.0	72.67	10.50	3.53	76.20
PM _{2.5}	10.0	N/D	2.28	N/D	N/D
SO _x	40.0	1780.59	1.79	0.06	1780.65
NO _x	40.0	352.37	45.88	9.45	361.82
VOC	40.0	1434.44	123.14	25.81	1460.25
CO	100.0	159.51	19.67	7.94	167.45
HAPs	10.0/25.0	268.54	0.43	3.70	272.24
Lead	0.6	2.15	0.40	4.72 x 10 ⁻⁵	2.15
Toluene	10.0	N/A	N/D	2.20	2.20
Xylene	10.0	N/A	N/D	0.67	0.67
Methanol	10.0	N/A	N/D	0.08	0.08
Lead Chromate	0.01	N/A	N/D	¹ 0.07	¹ <0.01
Dibutyl Phthalate	10.0	N/A	N/D	1.21	1.21
MIBK	10.0	N/A	N/D	4,8 x 10 ⁻⁴	4,8 x 10 ⁻⁴
Hydroquinone	1	N/A	N/D	1.11 x 10 ⁻⁴	1.11 x 10 ⁻⁴
Sulfuric Acid Mist	7.0	N/A	N/D	1.62 x 10 ⁻²	1.62 x 10 ⁻²

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

Note 1: The facility accepted a limit of 0.01 tons per year of Lead Chromate in Phase I of the modernization project (Permit No. 112008-012)

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

Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City 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.

Chia-Wei Young
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 March 15, 2013, received March 19, 2013, designating Department of Defense - Lake City Army Ammunition Plant as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual 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	
CFR	Code of Federal Regulations	National Emissions Standards for Hazardous Air Pollutants
CO	carbon monoxide	NO_x	nitrogen oxides
CO₂	carbon dioxide	NSPS	New Source Performance Standards
CO_{2e}	carbon dioxide equivalent	NSR	New Source Review
COMS	Continuous Opacity Monitoring System	PM	particulate matter
CSR	Code of State Regulations	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
dscf	dry standard cubic feet	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
EQ	Emission Inventory Questionnaire	ppm	parts per million
EP	Emission Point	PSD	Prevention of Significant Deterioration
EPA	Environmental Protection Agency	PTE	potential to emit
EU	Emission Unit	RACT	Reasonable Available Control Technology
fps	feet per second	RAL	Risk Assessment Level
ft	feet	SCC	Source Classification Code
GACT	Generally Available Control Technology	scfm	standard cubic feet per minute
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/m³	micrograms per cubic meter		

Ms. Tonya Aggson
Environmental Engineer
Alliant Techsystems Operations LLC - Small Caliber Systems - Lake City
P.O Box 1000
Independence, MO 64051

RE: New Source Review Permit - Project Number: 2013-03-073

Dear Ms. Aggson:

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.

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:cyl

Enclosures

c: Kansas City Regional Office
PAMS File: 2013-03-073

Permit Number: