

**PERMIT BOOK**

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: **082015-006** Project Number: 2015-05-037  
Installation Number: 095-0046

Parent Company: US Government - Department of Army

Parent Company Address: PO Box 1000, Independence, MO 64501

Installation Name: Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant

Installation Address: 25201 East 78 Highway, Independence, MO 64501

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

Application for Authority to Construct was made for:

Installation of one 7.62mm and 50 caliber ammunition can printer and one 7.62mm and 50 caliber ammunition crate printer. 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.

Handwritten signature of Kathy Kolb in black ink.

Prepared by  
Kathy Kolb  
New Source Review Unit

Handwritten signature of Kyna L. Moore in black ink.

Director or Designee  
Department of Natural Resources

**AUG 12 2015**

Effective Date

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the 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.

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

Project Number: 2015-05-037  
Installation ID Number: 095-0046  
Permit Number:

Installation Address:

Alliant Techsystem Operations LLC - Lake  
City Army Ammunition Plant  
25201 East 78 Highway  
Independence, MO 64501

Parent Company:

US Government - Department of Army  
PO Box 1000  
Independence, MO 64501

Jackson County, S31/32, T50N, R30W

REVIEW SUMMARY

- Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant has applied for authority install one 7.62mm and 50 caliber ammunition can printer and one 7.62mm and 50 caliber ammunition crate printer.
- The application was deemed complete on May 22, 2015.
- HAP emissions are not expected from the proposed equipment. MSDS/SDS provided by the company verified that there are no HAPs in the ink/solvent.
- None of the New Source Performance Standards (NSPS) apply to this project.
- None of the NESHAPs apply to this project. None of the currently promulgated MACT regulations apply to the proposed equipment.
- 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 from this project (Phase I) are below de minimis. However, subsequent phases combined are estimated to be above insignificance thresholds, thus requiring a permit.
- 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 is not required for the equipment.
- An amendment to your Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended without special conditions.

## INSTALLATION DESCRIPTION

Alliant Techsystems Operations LLC operates a small arms ammunition manufacturing facility (Lake City Ammunition Plant) in Independence, MO. The installation is an existing major source under construction permits for SO<sub>x</sub>, NO<sub>x</sub>, VOC, and HAP. The installation is currently operating under Part 70 operating permit OP2014-009 which expires July 10, 2019.

The following New Source Review permits have been issued to Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant from the Air Pollution Control Program:

**Table 1: Permit History**

Permit Number	Description
1088-009A	Install three new painting/sealing systems and two 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 air strippers that will strip VOC 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 standby emergency diesel generators
1095-022	Install three video-jet printers for 20-mm case marking. This equipment replaced the ink-pad and rubber-stamping method
0496-018	Install three 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 ammunition loading machines and one ammunition priming machine. Replaced four WWII machines
092000-002	Install calcium resinate system for manufacturing
112000-008	Install two 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 12.1 MMBtu/hr natural gas fired steam generating boilers
082001-016	Install one 45-ton press, one 75-ton press and one 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 150-ton presses and one 100-ton press to an existing machine gun belt link manufacturing operation
112001-009A	Install two 30-ton presses and one 60 ton press to an existing machine gun belt link manufacturing operation
012003-008	Two Manuhrin loaders for the combat cartridge tip identification and cartridge sealing operation (EP-14 and EP-15, respectively)

032005-012	Installation of one 33.5 MMBtu/hr boiler
112008-012	Installation of eight new priming machines and five new loading machines, including one Manurhin loading machine. (Phase I)
122008-007	Installation of six new draw presses, three new wash and dry lines, two new pickel/wash/lube lines, and eight new back end case cells. (Phase II)
062009-004	Installation of five ammunition can printing lines and four new crate printing lines. (Phase III)
022010-008	Installation of three first draw presses, two natural gas fueled anneal ovens, two pickle trains, three second draw presses, three final wash lines, and five 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	Transfer efficiency.
112008-012B	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.
062013-007	Increasing the usage and changing the formulation of the mouth water proofing compound
102013-006	Installation of natural gas burners on existing Boilers #5 and #6
032015-020	Installation of a quench bath and replace existing furnaces associated with the installation's existing machine gun belt links operations.

## PROJECT DESCRIPTION

This project is the first phase of a number of projects that will be submitted in the next months by Alliant Techsystems Operations LLC. Although this project's emissions are less than the insignificant level of 2.75 pounds per hour of VOC and consequently less than 40 tons per year, the summation of all the emission from the upcoming phases will be above the insignificant level as stated in 10 CSR 10-6.061 (3)(A)3.A.

Completed ammunition is packed into various configurations for field use depending upon the weapons system utilizing the round. For storage, shipping and Department of Defense specifications, the ammunition must be packed in metal ammunition cans then two cans are placed into one wooden crate. Each ammunition can and crate must contain information such as product type, pack configuration, and lot numbers. This printing of ammunition cans and crates is currently performed at the Lake City Army Ammunition Plant (LCAAP), and the current printing systems are in need of replacement.

### Can Printing

It is requested that one Leibinger Jet 3 ammunition can printing system with two print heads be installed in Building 3 packing area. The Leibinger Jet 3 printer will have the capability to print on both 7.62mm and 50 caliber metal ammunition cans. The design of the system is two conveyors and two robotic print arms. Each robotic arm will have one print head. Printing is accomplished by both robotic arms printing on one can at a time, one arm will print the top and the second will print the side. The arms will then transition to the second conveyor and print the next can, alternating back and forth between conveyor lines, allowing the next can to index or transition into place while the other can is printing. Three

sizes of ammunition cans will be printed on this equipment. The M19A1 and M548 cans are used to pack 7.62mm, and the M2A1 can is used to pack both 7.62mm and 50 caliber ammunition. Only one size of can will be printed at a time.

### Crate Printing

It is also requested that one Leibinger ammunition crate printer with two print heads and the ability to print both 7.62mm and 50 caliber wooden crates be installed in Building 3 packing area. The design of the system is one conveyor line, two robotic print arms each with one print head. Only one crate will be printed at a time; one robotic arm will print the sides and the other will print the top. Only one size of crate will be printed at a time.

Both printers will use ink and make-up solution to print on the cans and crates. Ink usage information is based upon manufacturer projected in usage quantities based upon the size of characters and number of characters that will be printed on each configuration. The M548 can has the most characters per can and therefore the highest ink usage. Ink volume usage is assuming that 100% of the cans printed will be M548 cans.

The manufacturer is hesitant to provide or estimate make-up solution usage rates. Due to this lack of information for the make-up solution usage, LCAAP has reviewed usage of the current can printer in Build 3 which uses a two part printing solution. In calendar year 2014, 3.7 times more make-up solution was used than ink. As a worst case scenario, calculations of 3.7 times more make-up solution than ink were used for this application for both can and crate printing on maximum hourly design rate volumes.

### MHDR

#### Can:

- Maximum application rate of 0.00017 liters per min (L/min)
- Per the manufacturer printing occurs 4 out of 12 seconds (the rest of the time is spent indexing).
- Maximum amount of ink that can be printed is 0.0000567 L/min or 0.0034 L/hr per print head X 2 print head = 0.0068 L/hr.

#### Crate

- Maximum application rate of 0.0008L/min
- Per the manufacturer printing occurs 32 out of 60 seconds (the rest of the time is spent indexing.)
- Maximum amount of ink that can be printed is 0.0000427L/min or 0.00256L/hr per print head X 2 print heads.

**Table 2 Project Equipment List**

Emission Unit	Description	Project Status	MHDR
EP13F	7.62 & 50Cal Can Printer Ink	New	0.0018 gal/hr
EP13F	7.62 & 50Cal Can Printer Make-Up Solution/Solvent	New	0.0067 gal/hr
EP13G	7.62 & 50Cal Crate Printer Ink	New	0.0013 gal/hr
EP15G	7.62 & 50Cal Crate Printer Make-up	New	0.0050 gal/hr

	Solution/Solvent		
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### EMISSIONS/CONTROLS EVALUATION

- The emissions from the ink and solvent were determined by using mass balance. Density and VOC content of each product were attained from the individual MSDS/SDS that were provided by the applicant. It was assumed the 100% of the VOC content would be emitted

**Table 3: Emissions Summary (tons per year)**

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions <sup>1</sup>	Existing Actual Emissions (2014 EIQ)	Potential Emissions of the Application
PM	25.0	N/D	N/A	N/A
PM <sub>10</sub>	15.0	83.82	7.62	N/A
PM <sub>2.5</sub>	10.0	N/D	7.57	N/A
SO <sub>x</sub>	40.0	1,780.66	1.12	N/A
NO <sub>x</sub>	40.0	370.73	44.02	N/A
VOC	40.0	1,462.53	91.51	0.213
CO	100.0	168.94	29.54	N/A
GHG (CO <sub>2</sub> e)	75,000 / 100,000	N/D	N/A	N/A
GHG (mass)	0.0 / 100.0 / 250.0	N/D	N/A	N/A
HAPs	10.0/25.0	272.27	0.0196	N/A

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

<sup>1</sup>Existing Emissions as stated in Permit # 032015-020

### 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 below de minimis levels.

### APPLICABLE REQUIREMENTS

Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant 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*, it is recommended that this permit be granted without special conditions.

#### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

The Application for Authority to Construct form, dated May 15, 2015, received May 13, 2015, designating US Government - Department of Army as the owner and Alliant Techsystem Operations LLC - Lake City Army Ammunition as the operator of the installation.

## APPENDIX A

### Abbreviations and Acronyms

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

Ms. Tonya Aggson  
Environmental Engineer  
Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant  
PO Box 1000  
Independence, MO 64501

RE: New Source Review Permit - Project Number: 2015-05-037

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. 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 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, Missouri 65102, [www.ao.mo.gov/ahc](http://www.ao.mo.gov/ahc).

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

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp  
New Source Review Unit Chief

SH:kk1

Enclosures

c: Kansas City Regional Office  
PAMS File: 2015-05-037  
Permit Number: