



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: 022010 - 008

Project Number: 2009-11-032

Parent Company: Alliant Techsystems Inc.

Parent Company Address: 7480 Flying Cloud Dr., Minneapolis, MN 55344

Installation Name: ATK Lake City Army Ammunition Plant

Installation Number: 095-0046

Installation Address: 25201 East Hwy 78, Independence, MO 64051

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

Application for Authority to Construct was made for:

The installation of .50 caliber ammunition case equipment including six draw presses, two annealing furnaces, two pickling lines, three wash lines, and five back end case cells, and an amendment to Phase II. 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.

FEB 23 2010

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.

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

Project Number: 2009-11-032  
Installation ID Number: 095-0046  
Permit Number:

ATK Lake City Army Ammunition Plant  
25201 East Hwy 78  
Independence, MO 64051

Complete: November 19, 2009

Parent Company:  
Alliant Techsystems Inc.  
7480 Flying Cloud Dr.  
Minneapolis, MN 55344

Jackson County, S31/32, T50N, R30W

REVIEW SUMMARY

- ATK Lake City Army Ammunition Plant has applied for authority to install .50 caliber ammunition case equipment including six draw presses, two annealing furnaces, two pickling lines, three wash lines, and five back end case cells, and an amendment to Phase II.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are from the combustion of natural gas.
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (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 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.
- An emission testing is not required for the equipment.

- A modification to the Part 70 Operating Permit is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended without special conditions.

### INSTALLATION DESCRIPTION

Alliant Techsystems Incorporated operates a small arms ammunition manufacturing facility know as ATK Lake City, located in Independence, Missouri. This is an existing major source under construction permits. Alliant received a Part 70 Operating Permit in 2003 (OP2003-042). A renewal to the Part 70 Operating Permit was received in May of 2008 and is currently undergoing technical review.

Table 1 shows the construction permits that have been issued to this installation, or to private entities which have now been assumed by this installation, 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) Manuhrin 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.

## PROJECT DESCRIPTION

This project is the completion of the Modernization Effort began under project 2008-03-057 (Phase I). This project addresses the potential emissions from Phase IV and an amendment to permit 122008-007 (Phase II). Phase IV and the amendment are being permitted together, as the amendment is to update Phase II, and emissions from all phases (Phases I-IV collectively called the Modernization Effort) are evaluated together for permit applicability.

Under Phase IV, ATK is installing 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 equipment is for manufacturing .50 caliber shell casings. The three first draw presses are electrically powered and form brass into a rough shell case shape. The water soluble lubricant Multan F 5001 will be applied to reduce friction and heat. The rough shells are then annealed in two 2.5 million British thermal units (MMBtu) per hour natural gas fueled ovens. Each pickle train consists of a sulfuric acid wash, water rinse, lube application, and drying. Heat for the washing and drying is from natural gas combustion. The cases are processed through a second draw before being cleaned, rinsed and dried again. The back end case cells perform final machining of the shell casings. They are electrically powered, so there are no combustion emissions, and insignificant PM<sub>10</sub> emissions are expected from machining the shell casings. In total, the natural gas maximum hourly design rate for Phase IV is 11 MMBtu per hour. The draw lube is four percent volatile organic compound (VOC) by weight. The cleaning agents do not contain VOCs or hazardous air pollutants (HAPs). The sulfuric acid rinse creates sulfur acid mist emissions.

Under the amendment to permit 122008-007 (Phase II), ATK is installing equipment equivalent to that in Phase IV, but for manufacturing 7.62 millimeter shell casings. Originally, Phase II included electrically powered heaters and dryers and different draw lubes and wash chemicals. In total, the natural gas maximum hourly design rate for the Phase II amendment is 11 MMBtu per hour. There are no control devices for either the .50 caliber or 7.62 emissions.

## EMISSIONS/CONTROLS EVALUATION

The emission factors for natural gas combustion used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, *Natural Gas Combustion*, Section 1.4, July 1998.

Emissions from the draw lube, Multan F 5001, were calculated assuming 5 gallons of mixed lube/water solution evaporating or being applied to the shell casings and later evaporating per 24 hours, per application site. The draw lube will be applied at three locations for the .50 caliber line, and 3 locations for the 7.62 caliber line. The total MHDR for the draw lube is estimated at 1.25 gallons of mixed solution per hour. At 5 percent concentration when mixed, and 80 percent VOC by weight, the VOC concentration of the solution is 4 percent by weight. VOC emissions from the draw lube

are 1.95 tons per year.

Pickling sulfur acid mist emissions were incorrectly calculated in the stack test report used in Phase II, and recalculated in this review. The stack test report incorrectly converted from the International System of Units (metric) to the United States customary system (standard). The correct sulfur acid mist emissions are 8.11 pounds per year per stack. Two sulfuric acid baths are being installed for the 0.50 caliber lines, and two for the 7.62 caliber lines. Therefore, the combined sulfur acid mist emissions for the Modernization Effort are 1.62 E -02 tons per year.

Existing Potential Emissions are cited from construction permit 032005-012. Existing Actual Emissions are reported in the 2008 Emissions Inventory Questionnaire (EIQ). Potential Emissions of the Project represent the uncontrolled potential emissions of the new .50 caliber case equipment and the amendment to construction permit 122008-007, assuming continuous operation (8,760 hours per year). Potential Emissions of the Modernization Effort represent the potential emissions of Phases I, II (amended), III, and IV (projects 2008-03-057, 2009-04-024, and 2009-11-032). Potential emissions from Phase II (project 2008-09-005) are not included in the Potential Emissions of the Modernization Effort as they were recalculated for this project. Potential Emissions of the New Installation represent the potential emissions of the installation at the completion of this review, calculated by summing the potential emissions of the Modernization Effort and those in permit 032005-012.

**Table 2: Emissions Summary (tons per year)**

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2008 EIQ)	Potential Emissions of the Project (Phase II and IV)	Potential Emissions of the Modernization Effort	Potential Emissions of the New Installation
PM <sub>10</sub>	15.0	71.57	10.02	0.72	3.53	75.10
SO <sub>x</sub>	40.0	<sup>2</sup> 1,780.57	1.50	0.06	0.06	1,780.63
NO <sub>x</sub>	40.0	349.79	49.94	9.45	9.45	359.24
VOC	40.0	1,387.99	115.50	2.47	17.03	1,405.02
CO	100.0	157.34	26.59	7.94	7.94	165.28
Lead	0.6	2.15	0.35	4.72 E -05	4.72 E -05	2.15
Combined HAPs	25.0	268.54	0.17	0.18	2.88	271.42
Sulfur Acid Mist	7.0	N/A	N/D	8.11 E -03	1.62 E -02	1.62 E -02
Toluene	<sup>1</sup> 10.0	N/A	N/D	N/A	1.44	1.44
Xylene	<sup>1</sup> 10.0	N/A	N/D	N/A	0.67	0.67
Methanol	<sup>1</sup> 10.0	N/A	N/D	N/A	0.08	0.08
Lead Chromate	<sup>1</sup> 0.01	N/A	N/D	N/A	0.07	<sup>3</sup> < 0.01
Dibutyl phthalate	<sup>1</sup> 10.0	N/A	N/D	N/A	0.44	0.44
Methyl Isobutyl Ketone	<sup>1</sup> 10.0	N/A	N/D	N/A	4.8 E -04	4.8 E -04
Hydroquinone	<sup>1</sup> 1.0	N/A	N/D	N/A	1.11 E -04	1.11 E -04

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

<sup>1</sup> Screening Model Action Level (SMAL)

<sup>2</sup> The 40.0 ton per year limit on SO<sub>x</sub> emissions is for the project, not the installation, from permit 032005-012. the existing potential emissions for this current project are the sum of the existing potential emissions from 032005-012 and its project emissions, 1,780.57 tons per year.

Therefore, permit

<sup>3</sup> Conditioned Potential Emissions from Phase I.

## 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 in Phase IV are below their respective de minimis level, SMAL, or their respective insignificance exemption level.

However, permit applicability was based upon the Potential Emissions of the Modernization Effort in Table 2. Potential emissions of VOC are above the hourly insignificant exemption level. Potential emissions of lead chromate were conditioned below the SMAL in Phase I.

## APPLICABLE REQUIREMENTS

ATK 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. The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *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 10-2.070

### SPECIFIC REQUIREMENTS

- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-3.060

## 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 without special conditions.

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David Little  
Environmental Engineer

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Date

### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated November 12, 2009, received November 12, 2009, designating Alliant Techsystems Inc. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated November 30, 2009.

Ms. Tonya Aggson  
ATK Lake City Army Ammunition Plant  
25201 East Hwy 78  
Independence, MO 64051

RE: New Source Review Permit - Project Number: 2009-11-032

Dear Ms. Aggson:

Enclosed with this letter is your permit to construct. Please study it carefully. 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 David Little, at the Departments' 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  
New Source Review Unit Chief

KBH:dll

Enclosures

c: Kansas City Regional Office  
PAMS File: 2009-11-032

Permit Number: