

STATE OF MISSOURI

PERMIT BOOK



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number:

092015-007

Project Number: 2015-06-004

Installation Number: 095-0046

Parent Company:

US Government - Army

Parent Company Address: PO Box 1000, Independence, MO 64051

Installation Name:

Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant

Installation Address:

25201 East 78 Highway, Independence, MO 64051

Location Information:

Jackson County, S31/32, T50N, R30W

Application for Authority to Construct was made for:

Installation of two new annealing furnaces and pickling wash lines. 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.

Prepared by
Kathy Kolb
New Source Review Unit

Director or Designee
Department of Natural Resources

SEP 17 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: 2015-06-004
Installation ID Number: 095-0046
Permit Number: 082015-006A

Installation Address:

Alliant Techsystem Operations LLC - Lake
City Army Ammunition Plant
25201 East 78 Highway
Independence, MO 64051

Parent Company:

US Government - Army
PO Box 1000
Independence, MO 64051

Jackson County, S31/32, T50N, R30W

REVIEW SUMMARY

- Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant has applied for authority to install two new annealing furnaces and two new wash systems.
- The application was deemed complete on June 22, 2015.
- 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.
- 40 CFR Part 63 Subpart DDDDD regulations apply to the proposed natural gas fired dryers associated with the pickling 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.

- Emissions testing is not required for the equipment.
- An amendment to their 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 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_x, NO_x, 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 pickle/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.
082015-006	Installation of new can and crate printers

PROJECT DESCRIPTION

This project is the second phase of a number of projects that will be submitted in the next months by Alliant Techsystems Operations LLC. This project will be an amendment to Permit # 082015-006. Although this project's emissions are less than the insignificant level of 2.75 pounds per hour of NOx and consequently less than 40 tons per year, the summation of all the emissions from the upcoming phases will be above the insignificant level as stated in 10 CSR 10-6.061 (3)(A)3.A. The first phase of these projects was for a can printer and a crate printer for each of the 7.62mm and 50 caliber ammunition (Project Number 2015-05-037/Permit #082015-006). Because this project is part of a phased project, the phased project's total potential emissions include both the potential emissions from the initial phase as well as the potential emissions of this project.

Second Phase Project Description:

In Building 1 the 5.56 mm case cups are annealed and formed into completed 5.56mm ammunition cases which are then primed and loaded into completed 5.56mm ammunition cartridges. There are two existing 1940's era annealing furnaces and case cup pickle, rinse, wash and dry lines that are in need of replacement.

Alliant Techsystems Operations LLC proposes to install two Thermal Specialties 2.5 MMBtu/hr direct fired natural gas annealing furnaces; and two five stage (pickle, rinse, rinse, soap and dry) washing systems. The first four stages of the wash system are heated using electricity. The final stage, drying of the case cups, is accomplished by one natural gas fired 0.4 MMBtu/hr burner for each wash system.

Each of the annealing furnaces will have two zones. Heating Zone 1 is heated using two 0.75 MMBtu/hr each Eclipse burners. Zone 2 is heated using two 0.5 MMBtu/hr each Eclipse burners. The feed rate of case cups through each annealing furnace is 2,000 pounds per hour. These annealing furnaces are direct fired, meaning the combustion gases come into direct contact with the process material (case cups). Therefore, these furnaces are not subject to the Boiler/Process Heater MACT, 40 CFR 63 Subpart DDDDD.

For the two Ransohoff Five-Stage Washers, each line will have heat for drying the cups generated by a 0.4 MMBtu/hr burner. The process chemicals used in each stage of the wash are as follows. Pickle – Sulfuric acid and water; two Rinses – Hot Water; Soap -- Sodium salt of tallow fatty acids; Dry – heated air is blown over the parts as they are slowly tumbled. The 0.4 MMBtu/hr burner for the pickling line supplies hot air to indirectly dry the cups therefore making it subject to Subpart DDDDD. The rinse is heated electrically.

The pollutants associated with the project are emissions from the combustion of natural gas and sulfuric acid mist.

Sulfuric acid emissions are calculated based upon emission testing performed in 1997 on the facility's pickle train lines. The corrected emission factors are those stated in Construction Permit 022010-008.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, *Natural Gas Combustion, Section 1.4*, July 1998.

Pickling sulfur acid mist emissions were incorrectly calculated in the 1997 stack test report and recalculated in Project # 2009-11-032 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, one on each wash system. Therefore, the combined sulfur acid mist emissions are 0.0081 tons per year.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit # 032015-020. Existing actual emissions were taken from the installation's 2014 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	¹ Existing Installation Potential Emissions	Existing Actual Emissions (2014 EIQ)	² Potential Emissions of the Phase I Application	Potential Emissions of this Project (Phase II)	Total Emissions of Phased Project (Phase 1 and 2)
PM	25.0	N/D	N/A	N/A	0.05	0.05
PM ₁₀	15.0	83.82	7.62	N/A	0.19	0.19
PM _{2.5}	10.0	N/D	7.57	N/A	0.19	0.19
SOx	40.0	1,780.66	1.12	N/A	0.01	0.01
NOx	40.0	370.73	44.02	N/A	2.49	2.49
VOC	40.0	1,462.53	91.51	0.213	0.14	0.35
CO	100.0	168.94	29.54	N/A	2.09	2.09
GHG (CO ₂ e)	75,000 / 100,000	N/D	N/A	N/A	3,006.47	3,006.47
GHG (mass)	0.0 / 100.0 / 250.0	N/D	N/A	N/A	2,988.82	2,988.82
HAPs	10.0/25.0	272.27	0.0196	N/A	0.047	0.047
Sulfuric Acid Mist	7.0	N/A	N/D	N/A	0.0081	0.0081

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

¹Existing Emissions as stated in Permit # 032015-020; Phases I and II along with future phases will eventually be added to this total.

²Emissions calculated in Project #2015-05-037 / Permit #052015-006

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 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

SPECIFIC REQUIREMENTS

- *MACT Regulations*, 10 CSR 10-6.075
 - *National Emission Standards for Major Sources: Industrial/Commercial/Institutional Boilers and Process Heaters*, 40 CFR Part 63, Subpart DDDDD. Applies to EP-34E and EP-34F each having a 0.4 MMBtu/hr burner that supplies indirect heat to dry the cups during the pickling wash process.
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-6.405. All burners are natural gas fired and according to OP2014-009, the installation is exempt from this rule.

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 with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 27, 2015, received June 2, 2015, designating US Government - Army as the owner and operator of the installation.

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	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
CO_{2e}	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/m³	micrograms per cubic meter		

Ms. Tonya Aggson
Environmental Engineer
Alliant Techsystem Operations LLC - Lake City Army Ammunition Plant
PO Box 1000
Independence, MO 64051

RE: New Source Review Permit - Project Number: 2015-06-004

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, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: 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 or at (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: 2015-06-004
Permit Number: