

Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

AUG 28 2019

Mr. David Zoghby
Senior Director of Marketing and Commercial Contracts
EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical
Systems Munition Services (GD-OTS MS)
P.O. Box 1386
Joplin, MO 64802

RE: New Source Review Permit - Project Number: 2019-08-003

Dear Mr. Zoghby:

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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

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, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.



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If you have any questions regarding this permit, please do not hesitate to contact Nicole Weidenbenner, 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



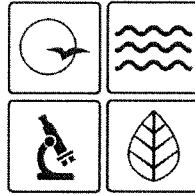
Susan Heckenkamp
New Source Review Unit Chief

SH:nwa

Enclosures

c: Southwest Regional Office
PAMS File: 2019-08-003

Permit Number: 082019-008



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: **082019-008**

Project Number: 2019-08-003
Installation Number: 097-0138

Parent Company: General Dynamics Ordnance and Tactical Systems

Parent Company Address: 11399 16th Court North, Suite 200, St. Petersburg, FL 33716

Installation Name: EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS)

Installation Address: 4171 County Road 180, Carthage, MO 64836

Location Information: Jasper County, S25, T28N, R32

Application for Authority to Construct was made for:
Increase throughput of Building #12 Nitrocellulose Based Propellant Treatment Unit (NCP TTU). 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.



Director or Designee
Department of Natural Resources

AUG 28 2019

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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of 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's 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 the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 using the contact information below.

Contact Information:

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
<http://dnr.mo.gov/regions/>

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 to 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 (3)(E). "Conditions required by permitting authority."

EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS)
Jasper County, S25, T28N, R32

1. Superseding Condition

The conditions of this permit supersede Special Conditions 1.B. found in the previously issued Construction Permit 082015-007A issued by the Air Pollution Control Program. All other provisions of Special Condition 1 still apply.

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

Project Number: 2019-08-003
Installation ID Number: 097-0138
Permit Number: 082019-008

Installation Address:

EBV Explosives Environmental Company
dba General Dynamics Ordnance and
Tactical Systems Munition Services (GD-
OTS MS)
4171 County Road 180
Carthage, MO 64836

Parent Company:

General Dynamics Ordnance and Tactical
Systems
11399 16th Court North, Suite 200
St. Petersburg, FL 33716

Jasper County, S25, T28N, R32

REVIEW SUMMARY

- EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) has applied for authority to increase the throughput of Building #12 Nitrocellulose Based Propellant Treatment Unit (NCP TTU).
- The application was deemed complete on August 16, 2019.
- HAP emissions are expected from the process. The HAP of concern from this process is 2,4-Dinitrotoluene, CAS 121-14-2.
- None of the New Source Performance Standards (NSPS) apply to the project.
- None of the NESHAPs apply to the project.
- None of the currently promulgated MACT regulations apply to the project.
- The existing air pollution control system of Building #12 consisting of a baghouse followed by a wet scrubber is being used to control the emissions from the equipment in this permit as made practically enforceable by Construction Permit 082015-007B, Special Condition #1 and Construction Permit 082005-007, Special Condition #2.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of the project are below de minimis levels. A permit is required as DNT emissions exceed the SMAL.

- This installation is located in Jasper County, an attainment/unclassifiable 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 performed to determine the ambient impact of 2,4-Dinitrotoluene, a HAP.
- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- An update to the Part 70 Operating Permit application, Project # 2018-03-018 is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) is a reactive waste management facility located in Jasper County. The facility accepts hazardous waste from government agencies, the explosives manufacturing industry, users of explosives devices and materials, and various other manufacturing industries. The hazardous wastes processed include explosive/reactive materials, explosive and energetic devices, propellants, nitroglycerin containing pharmaceuticals, ammunition, and materials contaminated with explosive/reactive waste.

GD-OTS-MS operates a rotary kiln incinerator and a car bottom furnace incinerator (EP 03 for both), which are subject to 40 CFR Part 63, Subpart EEE, *National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*. This subpart requires the installation to maintain a Part 70 Operating Permit.

The rotary kiln incinerator is fed a wide variety of solid explosive waste material via a continuous feed system while the car bottom furnace is loaded in batches. Each of these incinerators can be operated alone or simultaneously, and both are fired by natural gas. Exhaust gases from both of these incinerators travel to a single secondary combustor, for the second stage of combustion. In addition to the pollution control that the secondary combustor provides, the combustion gases pass through a two stage air pollution control system, consisting of a spray dryer and a three section baghouse.

In addition to these two incinerators, the installation also utilizes ten thermal treatment units for reactive wastes. Building #1 contains four static kilns for the thermal treatment of fuses with a dedicated air pollution control system consisting of a cartridge filter and a HEPA filter. Building #1 also has four contained thermal treatment units for the treatment of submunitions with two air pollution control systems that handle two thermal

treatment units each. These air pollution control systems consist of a cartridge filter and a HEPA filter. Building #3 contains two propellant thermal treatment units with a dedicated air pollution control system consisting of a dry scrubber (CD-1), six parallel baghouses (CD-2), and a packed bed wet scrubber (CD-3) to control particulate and hydrogen chloride emissions.

Support units includes Storage Magazines, a Storage/Feed Handling Building, and a Feed/Control Building, a diesel powered emergency electric generator, a diesel powered emergency fire pump, and residual/ash handling systems.

The following New Source Review permits have been issued to EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
0990-002	The installation of the rotary kiln incinerator and car bottom furnace to combust hazardous waste. (EP03)
1293-010	Storage Feed Handling Building Vents #1 and #2. (EP01 and EP02)
0894-007	The installation of a diesel fired emergency generator.
0990-002B	The elimination of the direct liquid feed system for the rotary kiln incinerator and car bottom furnace. (EP03)
072009-004	The installation of Building #3 thermal treatment units (EU1 and EU2) and associated air pollution control systems and miscellaneous equipment. This permit was superseded by 012012-001.
072009-004A	An amendment to correct the as-built maximum design rate of Building #3 thermal treatment units (EU1 and EU2). This amendment was superseded by 012012-001.
012012-001	The modification of Building #3 thermal treatment units (EU1 and EU2).
082015-007	The installation of Building #12 nitrocellulose propellant thermal treatment facility (EP11).
082015-007A	An amendment to treat an additional propellant type in Building #12 (EP11).
082015-007B	An amendment to add a baghouse prior to the existing wet scrubber to control emissions from Building #12 (EP11)
082019-002	Modification of Building #3 Propellant Thermal Treatment Unit Treatment Chamber (EU1) and associated equipment.

PROJECT DESCRIPTION

This project will increase the throughput of the Building #12 Nitrocellulose Based Propellant Treatment Unit (NCP TTU). The NCP TTU includes a Receiving Bay, a Drum Handling Room, a Safety Cell, two Thermal Treatment Chambers (TTC) and an

Air Pollution Control System (APCS) based on RCRA Subpart X regulations. NCP is received and transferred from drums into the feed system. The feed system meters a fixed weight per minute of NCP into one of the two TTCs. The NCP is ignited when it falls on an electrically heated plate in the TTC. The TTC is held at negative pressure by an Induced Draft (ID) Fan on the APCS through which emissions are pulled for cleaning. The APCS consists of a baghouse and wet scrubber. The ID Fan pulls all emissions from the TTC through the wet scrubber to the stack. The process is monitored and controlled by a programmable logic control system (PLC) capable of continuously monitoring the process to assure all operational parameters are within regulatory and permit limits while NCP is fed to either TTC unit.

The NCP TTU is designed to burn 600 pounds per hour of the NCP feed. There are no physical changes proposed for the equipment as part of this project, as the current equipment is designed to process the proposed increased capacity. This permit supersedes the DNT emission limitation established in Construction Permit Amendment #082015-007A, Special Condition 1.B., as the installation has submitted modeling which demonstrates compliance with the Risk Assessment Level (RAL) for 2,4-dinitrotoluene (DNT). The increased throughput results in an increase in emissions, which will exceed the current permitted limit of 0.02 tons per any consecutive twelve month period of 2,4-dinitrotoluene (CAS # 121-14-2). This limit was originally established in Construction Permit Amendment #082015-007A, Special Condition 1.B., and set at the Screening Model Action Level (SMAL) to avoid modeling.

Construction Permit #082015-007, authorized the initial construction of the NCP TTU facility. Construction Permit Amendment #082015-007A authorized the treatment of an additional propellant, which contains 2,4-dinitrotoluene (DNT) and/or lead- hazardous air pollutants (HAPs) that were not considered in the original permit action. Construction Permit Amendment #082015-007B authorized the addition of a baghouse prior to the wet scrubber.

EMISSIONS/CONTROLS EVALUATION

Emission sources associated with the increase in throughput include the Building #12 NCP TTU and the control devices. Potential Emissions of the Project represents the annual emission rate of the NCP TTU, based on an hourly emission rate of 0.0238 lb/hr of DNT, and assuming continuous operation (8760 hours per year). There are no changes in combustion, therefore combustion emissions are not included. This emission rate was established by stack testing performed May 13, 2019 and mass balance on the materials of the process. The following table provides an emissions summary for this project. Existing actual emissions were taken from the installation's 2018 EIQ.

Table 2: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2018 EIQ)	Potential Emissions of the Project
PM	25.0	ND	NR	0.0
PM ₁₀	15.0	N/D	2.24	0.0
PM _{2.5}	10.0	N/D	1.12	0.0
SO _x	40.0	N/D	0.14	0.0
NO _x	40.0	N/D	68.87	0.0
VOC	40.0	N/D	0.69	0.10
CO	100.0	N/D	12.10	0.0
GHG (CO ₂ e)	N/A	N/D	N/R	0.0
GHG (mass)	N/A	N/D	N/R	0.0
Total HAPs	25.0	N/D	0.61	0.10
2,4- Dinitrotoluene	10.0/ SMAL 0.02	N/D	N/D	0.10

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

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 the project are below de minimis levels. A permit is required because potential emissions of DNT exceed the SMAL.

APPLICABLE REQUIREMENTS

EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) 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

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110

- *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

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of 2,4-Dinitrotoluene, CAS 121-14-2. Modeling was required to demonstrate compliance with the Risk Assessment Levels, due to potential emissions greater than the SMAL value. The modeling was performed using the US EPA AERSCREEN model.

Modeling included all sources of DNT at the installation: the Building #12 Exhaust and the Building #6 Rotary Kiln Exhaust. The emission rate for Building #12 Exhaust is based on May 13, 2019 stack testing, which indicated a rate of 0.0238 lb./hr. The emission rate for Building #6 Rotary Kiln Exhaust is based a maximum feed rate of 600 lbs./hour, a maximum DNT content of 10% in the NCP, and a control system efficiency of 99.9999% based on March 2017 Comprehensive Performance Testing. These values result in an emission rate of 6.0×10^{-5} lb./hr. Stack parameters and modeling results are presented in the tables below.

Table 3: Stack Parameters

Stack Height (ft)	Temperature (F)	Inside Diameter (inches)	Flow Rate (acfm)	Emission rate (lb/hr)	Exit Velocity (ft/s)
50.0	120	19.0	6200	0.0238	52.48

Table 4: Modeling Results

Pollutant	Modeled Impact, 8-hr predicted concentration ($\mu\text{g}/\text{m}^3$)	8 hr RAL ($\mu\text{g}/\text{m}^3$)
2,4-Dinitrotoluene CAS 121-14-2	0.2139	0.267

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 August 5, 2019, received August 5, 2019, designating General Dynamics Ordnance and Tactical Systems as the owner and operator of the installation.
- Air Dispersion Modeling, Dated August 2, 2019, submitted with the Application for Authority to Construct.

APPENDIX A

Abbreviations and Acronyms

%	percent	Mgal	1,000 gallons
°F	degrees Fahrenheit	MW	megawatt
acfm	actual cubic feet per minute	MHDR	maximum hourly design rate
BACT	Best Available Control Technology	MMBtu	Million British thermal units
BMPs	Best Management Practices	MMCF	million cubic feet
Btu	British thermal unit	MSDS	Material Safety Data Sheet
CAM	Compliance Assurance Monitoring	NAAQS	National Ambient Air Quality Standards
CAS	Chemical Abstracts Service	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CEMS	Continuous Emission Monitor System	NO_x	nitrogen oxides
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	carbon monoxide	NSR	New Source Review
CO₂	carbon dioxide	PM	particulate matter
CO_{2e}	carbon dioxide equivalent	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
COMS	Continuous Opacity Monitoring System	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
CSR	Code of State Regulations	ppm	parts per million
dscf	dry standard cubic feet	PSD	Prevention of Significant Deterioration
EQ	Emission Inventory Questionnaire	PTE	potential to emit
EP	Emission Point	RACT	Reasonable Available Control Technology
EPA	Environmental Protection Agency	RAL	Risk Assessment Level
EU	Emission Unit	SCC	Source Classification Code
fps	feet per second	scfm	standard cubic feet per minute
ft	feet	SDS	Safety Data Sheet
GACT	Generally Available Control Technology	SIC	Standard Industrial Classification
GHG	Greenhouse Gas	SIP	State Implementation Plan
gpm	gallons per minute	SMAL	Screening Model Action Levels
gr	grains	SO_x	sulfur oxides
GWP	Global Warming Potential	SO₂	sulfur dioxide
HAP	Hazardous Air Pollutant	SSM	Startup, Shutdown & Malfunction
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		
m/s	meters per second		

