

Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

AUG 09 2019

Mr. David Zoghby
Senior Director of Marketing & 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: 2019-05-049

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, 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 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



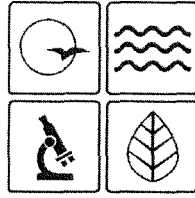
Susan Heckenkamp
New Source Review Unit Chief

SH:nws

Enclosures

c: Southwest Regional Office
PAMS File: 2019-05-049

Permit Number: 082019-002



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: **082019-002** Project Number: 2019-05-049
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

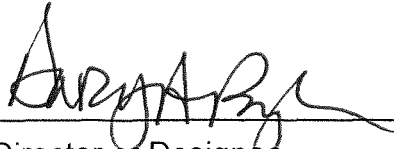
Installation Name: EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS)

Installation Address: 4174 County Road 180, Carthage, MO 64836

Location Information: Jasper County, S25, T28N, R32

Application for Authority to Construct was made for:
Modification of Building #3 Propellant Thermal Treatment Unit Treatment Chamber EU1, and associated equipment, to allow treatment of inflators. 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 09 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 3.A, 6.B., 7A., and 8.B. of Construction Permit 012012-001 previously issued by the Air Pollution Control Program.
2. **Hourly Emission Limitations**
 - A. General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) shall not discharge hydrogen chloride into the atmosphere from the following stacks in excess of the listed amounts:

Table 1: HCL Emission Limitations

| Emission Point | Description | Pollutant | Lbs/hr |
|----------------|---|-----------|--------|
| EP-03 | Incinerator Stack (Building 6) | HCl | 1.305 |
| EP-05 | PTTS (Building 3) | HCl | 2.640 |
| EP-06 | Static Kiln (Building 1) | HCl | 0.052 |
| EP-07 | Thermal Treatment Unit 1 & 2 (Building 1) | HCl | 0.190 |
| EP-08 | Thermal Treatment Unit 3 & 4 (Building 1) | HCl | 0.190 |

- B. Continual compliance with these emission rates shall be verified using the HCl continuous emission monitoring system (CEMS) according to the provisions of Construction Permit 012012-001.
3. **Propellant Thermal Treatment Chamber (PTTC) Operating and Maintenance Requirements**
 - A. GD-OTS MS shall restrict the type of feed material to EU2 to M26 Multiple Launch Rocket System rocket motor segments. EU1 shall restrict feed materials to M26 Multiple Launch Rocket System rocket motor segments or inflators.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. GD-OTS MS shall limit the feed rate of inflators to EU1 to 2 tons per hour and shall record the amount of inflators combusted each hour.
 - C. GD-OTS MS shall comply with all other requirements of Special Condition 6 of Construction Permit 012012-001.
4. Capture Device Requirements
- A. GD-OTS MS shall design, construct, and operate each PTTC (EU1 and EU2) to function as a total enclosure such that all emissions associated with the thermal treatment are captured and exhausted to the air pollution control system (CD-1, CD-2, CD-3).
 - B. GD-OTS MS shall comply with all other requirements of Special Condition 7 of Construction Permit 012012-001.
5. Dry Scrubber (CD-1) Requirements
- A. GD-OTS MS shall develop and implement a control device monitoring plan to verify the proper operation of the dry scrubber. The plan shall be documented and made available for review by any Missouri Department of Natural Resources' personnel upon request. At a minimum, the plan shall include the following:
 - 1) When treating inflators in EU1, sorbent is not required. When treating M26 Multiple Launch Rocket System rocket motor segments in either EU1 or EU2:
 - a.) A minimum sorbent feed rate on a 60-minute rolling average; and
 - b.) A sorbent blower operating signal; and
 - c.) The sorbent specifications, including the brand (i.e. manufacturer) and type of sorbent used during the initial performance test. The sorbent may be substituted at any time after the initial performance test with a different brand or type of sorbent, provided that the replacement has equivalent or improved properties. The substitution shall be documented in the control device monitoring plan for the dry scrubber and also in the operating and maintenance logs for the PTTCs and the air pollution control system (CD-1, CD-2, CD-3).
 - B. GD-OTS MS shall comply with all other requirements of Special Condition 8 of Construction Permit 012012-001.
6. Record Keeping and Reporting Requirements
- A. EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) shall maintain all records required by this permit for not less than five years and

082019-002

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

- B. EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) shall report to the Air Pollution Control Program's Compliance/Enforcement Section, by mail at P.O. Box 176, Jefferson City, MO 65102 or by email at AirComplianceReporting@dnr.mo.gov, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

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

Project Number: 2019-05-049
Installation ID Number: 097-0138
Permit Number: 082019-002

Installation Address:

EBV Explosives Environmental Company
dba General Dynamics Ordnance and
Tactical Systems Munition Services (GD-
OTS MS)
4174 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 modify Building #3 Propellant Thermal Treatment Unit, Treatment Chamber EU1, for the treatment of inflators. This project also includes installation of a natural gas fired heat exchanger, two conveyors, and operational modifications to the air pollution control system.
- The application was deemed complete on June 19, 2019.
- HAP emissions are expected from the proposed equipment.
- None of the New Source Performance Standards (NSPS) apply to the project.
- None of the NESHAPs apply to the project.
- *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters, 40 CFR part 63 Subpart DDDDD* applies to the new natural gas fired heat exchanger (EP12).
- The existing air pollution control system, consisting of dry scrubber (CD-1), 6 baghouses in parallel (CD-2), and a packed bed wet scrubber (CD-3), is being used to control the emissions from the Building #3 Propellant Thermal Treatment Unit, Treatment Chamber EU1. The conveyors and heat exchanger emissions are uncontrolled.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of particulates are conditioned below de minimis levels by the required use of the air

pollution control system.

- 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 not performed since potential emissions of the application are below de minimis levels.
- A Part 70 Operating Permit application is required for this project within 1 year of commencement of operations.
- 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. The packed bed wet scrubber uses water and sodium hydroxide as the scrubbing liquid.

Support units includes Storage Magazines, a Storage/Feed Handling Building, and 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 GD-OTS MS from the Air Pollution Control Program.

Table 2: 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 Vent #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) |

PROJECT DESCRIPTION

This project will modify the existing Building #3 Propellant Thermal Treatment Unit, East Propellant Thermal Treatment Chamber (EU1), to allow for the treatment of inflators; as well as the construction of a natural gas fired heat exchanger, two conveyors, and operational changes to the air pollution control system. The Treatment Chamber (EU1) will retain the existing permitted capability to treat M26 Multiple Launch Rocket System rocket motor segments as permitted in Construction Permit 012012-001. The changes are detailed below:

- Increase EU1 volume by 25% to accommodate two additional rotary conveyor system sections, an increase from four to six sections, to increase the residence time for the volume of inflators. To accommodate the increased capacity, EU1 will be extended by ten feet to add the two additional rotary conveyor system sections. Emissions from EU1 will continue to be routed to the existing air pollution control system.
- Construct a 3.5 MMBTU/hr natural gas fired, low NOx burner and air heat exchanger (EP12) to indirectly heat the process air supplied to the existing rotary conveying system. The burner will have a new 35 foot stack (S-112). The unit will be installed east of EU1 and will heat the process air to the rotary conveyor system to 1,200°F. The air will be pulled from inside EU1, heated, and injected back into the south (discharge) end of the rotary conveyor system. The inflators are fed to the north end of the rotary conveyor system and travel towards the south end, creating a counter-current design. These emissions are uncontrolled.
- Construct an input conveyor to weigh and feed inflators to the existing rotary conveying system. No emissions are expected from this activity.
- Construct a new discharge conveyor to remove the treated inflators from the existing rotary conveying system. No emissions are expected from this activity.
- Modify the operation of the existing air pollution control system to no longer add sorbent or activated carbon during inflator treatment due to decreased chlorine content compared to current operations.

This permit will allow the feeding of up to 4,000 pounds per hour (2 tons per hour) of both passenger side and driver side inflators. Passenger side inflators are two inches in diameter and 6.5 to 7.5 inches long and weigh 0.9 pounds each. Driver side inflators are 4 inches in diameter and 1.5 inches high and weigh 0.9 pounds each. The inflators are 92% by weight steel and contain 6-8% by weight propellant and an igniter. The propellant is primarily ammonium, potassium, and strontium nitrate with aminotetrazole. The propellant contains 0.8-1.1% by weight ash, 0.017-0.037% by weight chlorine, and no heavy metals.

The inflators are received in fiberboard boxes or open-top drums. The inflators are removed from the shipping container and placed onto a weigh conveyor. The weigh conveyor controls the feed rate of the inflators to the rotary conveying system.

There are no proposed changes to the West Propellant Thermal Treatment Chamber (EU2), which will continue to treat rocket motors as permitted in Construction Permit 012012-001. Only one of the treatment chambers (EU1 or EU2) will operate at any time. Both thermal treatment chambers (EU1 and EU2) will continue to be held under negative pressure by an induced draft fan located at the end of the air pollution control system.

The usage of the natural gas fired burner on the heat exchanger does not satisfy the requirement of controlled flame combustion as referenced in 40 CFR part 260.10 definition of an incinerator. Therefore, although the thermal treatment chamber (EU1) combusts hazardous waste, it is not subject to 40 CFR part 63 Subpart EEE, *National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors*.

The previous construction permit for Building #3, permit 012012-001, required modeling for hydrogen chloride (HCl) and Dioxin/Furan emissions. Building #3 contains the Propellant Thermal Treatment System (PTTS), which consists of East Propellant Thermal Treatment Chamber (EU1) and West Propellant Thermal Treatment Chamber (EU2). Dioxin/Furan emissions are not anticipated from the combustion of the new inflators, as they do not contain components that would form Dioxin/Furan compounds during the combustion process. The anticipated uncontrolled HCl emission rate for the new inflators is 1.49 lbs/hr, and with a 95% control efficiency from the control system of dry scrubber, baghouse, and wet scrubber, the controlled emission rate is 0.07 lbs/hr. This value is much less than the modeled controlled emission rate of 2.64 lbs/hr. Therefore, re-evaluation of the previous modeling is not required as part of this project. If the controlled emissions of the new inflators changes in the future, modeling may be required.

EMISSIONS/CONTROLS EVALUATION

Emission sources for this project include the uncontrolled natural gas combustion from the indirect heater (EP12), and the controlled thermal treatment process (EU1). Potential emissions for the indirect heater (EP12) were estimated using emission factors from AP42, Section 1.4, *Natural Gas Combustion, July 1998*. Controlled potential emissions from the thermal treatment process (EU1) were estimated using the parameters shown in Table 3. Previous stack testing indicated an overall control system efficiency of 99.832% for hydrogen chloride and 99.993% for particulates, conservative estimates of 95% for hydrogen chloride and 99.5% for particulates were used in this project. The pollutant concentrations shown in Table 3 were provided by the applicant, who obtained the ash and chlorine content from the inflator supplier. NO_x, CO and CO₂ concentrations are based on testing, and is expected to overestimate emissions because the reaction generating these gases is the same as when an airbag deploys in an automobile. The uncontrolled and controlled potential emissions of the project are shown in Table 4.

Table 3: Thermal Treatment Process Emission Estimation Values

| Parameter | Value | Units |
|---|-------|-------------|
| MHDR Inflators= | 4000 | lbs/hr |
| Ash content= | 1.1 | % by weight |
| Chlorine content= | 0.037 | % by weight |
| Carbon Dioxide (CO ₂) concentration= | 10000 | ppmv |
| Nitrogen Oxides (NO _x) concentration ¹ = | 10 | ppmv |
| Carbon Monoxide (CO) concentration = | 5 | ppmv |
| Particulate control= | 99.5 | % |
| HCL control= | 95 | % |
| Escape rate ² = | 20 | % |
| Exhaust flow rate= | 6400 | dscfm |

Table 4: Emissions Summary (tpy)

| Pollutant | Regulatory <i>De Minimis</i> Levels | Existing Potential Emissions | Existing Actual Emissions (2018 EIQ) | Uncontrolled Potential Emissions of the Project | Controlled Potential Emissions of the Project |
|----------------------------|---|------------------------------------|---|--|--|
| PM | 25.0 | ND | NR | 38.66 | 0.31 |
| PM ₁₀ | 15.0 | ND | 2.24 | 38.66 | 0.31 |
| PM _{2.5} | 10.0 | ND | 1.12 | 38.66 | 0.31 |
| SO _x | 40.0 | ND | 0.14 | 0.01 | 0.01 |
| NO _x | 40.0 | ND | 68.87 | 3.66 | 3.66 |
| VOC | 40.0 | ND | 0.69 | 0.08 | 0.08 |
| CO | 100.0 | ND | 12.10 | 1.92 | 1.92 |
| GHG (CO ₂ e) | NA | ND | NR | 3875 | 3875 |
| GHG (mass) | N/ | ND | NR | 3865 | 3865 |
| HAPs | 10.0/25.0 | ND | 0.61 | 6.51 | 0.35 |
| Hydrogen Chloride | 10 | ND | NR | 6.48 | 0.32 |

NA = Not Applicable; ND = Not Determined, NR=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 particulates are conditioned below de minimis levels by the required use of the air pollution control system.

¹ NO_x estimated emissions are based on the design of the inflator propellants, which generate N₂ gas and almost no NO_x.

² Escape rate is the amount of particulate matter that escapes the inflator body during thermal treatment.

APPLICABLE REQUIREMENTS

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*

SPECIFIC REQUIREMENTS

- *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters, 40 CFR part 63 Subpart DDDDD*
- *Control of Sulfur Dioxide Emissions, 10 CSR 10-6.261*

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 29, 2019, received May 31, 2019, designating General Dynamics Ordnance and Tactical Systems as the owner and operator of the installation.

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 |
| EIQ | 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 | | |

