UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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ATLANTA, GEORGIA 30303-8960

AUG 27 2018

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Mr. Jimmy Johnston
Special Projects, Permitting, and
Regulatory Development
TDEC/Division of Air Pollution Control
312 Rosa L. Parks Avenue
Nashville, Tennessee 37243

Dear Mr. Johnston:

We have reviewed the Prevention of Significant Deterioration (PSD) permit application for BAE Systems Ordnance Systems Inc.'s, operating contractor for Holston Army Ammunition Plant (HSAAP), Expansion Project. The existing ammunition plant located in Kingsport, Tennessee, supplies explosive material and products for the military. With this action, BAE Systems Ordnance Systems Inc. (the applicant) proposes to expand the capacity of HSAAP in three phases. The applicant aggregated the estimated emissions from all phases. The project will add new process lines and buildings and retire the existing coal-fired boilers. The applicant has indicated the proposed project is subject to PSD review for the following pollutants: carbon monoxide (CO), volatile organic carbon (VOC), and greenhouse gas emissions measured as carbon dioxide equivalents (CO_2e).

Based on our initial review of the PSD application, we have the comments below. We provide our comments to help ensure that the proposed project meets federal Clean Air Act requirements, that the permit will provide necessary information so that the basis for the permit decisions is transparent and readily accessible to the public, and that the record provides adequate support for the decisions.

Regulated Pollutants:

1. The application did not include emission estimates for lead. Lead is a regulated New Source Review (NSR) pollutant. The applicant should calculate lead emissions for the proposed project to determine PSD applicability.

2. Particulate matter (PM) continues to be an NSR regulated pollutant, as well as fine particulates (PM_{10} and $PM_{2.5}$). While PM was included for some emission units, it was not included for all, such as the open burning increases. All PM emissions associated with the project should be included.

PSD Applicability & Emission Factors

3. The PSD application appears to use a "project" emissions accounting approach, in which the applicant is including emissions decreases from the coal-fired boiler in the first step of the applicability analysis. In establishing *baseline actual emissions*, the applicant subtracted estimated allowable boiler emissions from the project's estimated total emissions increases. The applicant relied on the current Title V permit limits and AP-42 emission factors to estimate *baseline actual emissions* for the boilers. This approach is best characterized as an allowable to future potential (PTE or projected actual) assessment, rather than an actual to future potential (PTE or projected actual). This approach does not appear to meet the calculation requirements of the State and federal rules.

   To calculate the net emissions, an applicant must calculate the *baseline actual emissions* per 1200-03-09-.01(b)45, "For any existing emissions unit…, baseline actual emissions means the average rate, in tons per year, at which the unit ***actually emitted*** the pollutant during any consecutive 24-month period selected by the owner or operator within the 10-year period immediately preceding when the owner or operator begins actual construction of the project…" In addition, the state and federal rules provide that "the average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emission, in tons per year…" Actual emissions should be based on the most representative actual data from the facility, such as boiler activity (as was used) and fuel use, actual quantity of chemicals/solvents used, but also including representative emission factors, including source test results, and fuel analysis data.

   The existing coal-fired steam generating boilers are subject to 40 CFR 63, Subpart DDDDD: National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters. The facility conducted source testing for these boilers on February 8, 2018 to demonstrate compliance with this standard. Other actual emissions data should also be available for the facility, such as the fuel analysis data supplied with coal shipments. Therefore, the applicant should use results from these and other available source tests to calculate the *baseline actual emissions* of the boilers.

   Likewise, for estimation of potential emissions, the U.S. Environmental protection Agency recommends the use of manufacturer guarantees and engine emission certificates since they are more representative of potential emissions than AP-42 emission factors or emission standards, such as 40 CFR 1039 (which replaced 40 CFR 89). The emissions standards for engines may represent fleet averages or engine duty test cycles, rather than representative emissions for in use operations. In use compliance testing is often allowed an adjustment factor in the applicable engine standard (hence, emissions are expected to be greater than the standard for some in-use applications).

4. The application used a municipal waste emission factor for the calculation of the open burning of the cage burn industrial waste (including plastic, sock filter, and PPE) and the pile burn (including wood, diesel fuel and mixed construction debris). The composition of municipal solid waste is not expected to be consistent with industrial waste and

construction debris. Further documentation that this emission factor is representative is recommended. Given the difficulty in finding representative emission factors for open burning of unique mixed waste, test methods have been developed for these open burning situations. Testing has been conducted using these methods at open burning sites at the Radford, McCallister and Toole Depot facilities.

5. The application indicated that there are no contemporaneous emissions increases and decreases. Given the variability in the release data reported to the Toxics Release Inventory, the EPA recommends verifying with the applicant whether process changes, resulting in contemporary increases or decreases, have occurred.

6. Section 2.1.3 of the application did not identify the emission factors for the required emissions calculations, nor did the tables identified as providing the detailed calculations. Hence, it is unclear how these emissions were estimated. The applicant should provide all relevant information to replicate the emission estimates.

7. The State rules provide that to the extent quantifiable, the applicant should ensure that they included all fugitive emissions in their potential actual emissions and baseline emissions calculations (*see* 1200-03-09-.01(b)38.(i)(II) and 1200-03-09-.01(b)45.(i)(I). However, it was unclear from the provided emission calculations if the emission factors used included fugitive emissions. There did not appear to be component counts included, as would typically be used to estimate emission leaks from valves, flanges, etc, nor could we identify how potential evaporative losses from PPE, filter socks, etc. were addressed. Likewise, Best Available Control Technology (BACT) did not appear to be identified for these emissions sources.

8. The application identifies several new process lines that will be constructed, including new automated lines, as well as the expansion of existing lines. The application also identifies additional facilities constructed to support the production of insensitive munitions that will resist premature detonation, including from blunt impact and fire. Pursuant to section 2.1.7, these new and modified process lines will generate wastes resulting in an increase in open burning pursuant to the State's exemption for open burning of "explosive, shock sensitive, chemically unstable or highly reactive wastes or materials" (including potentially contaminated materials). Open burning conducted under this exception is only allowed where no other safe means of disposal exists (see TCA 1200-03-040.04(1)(k)).

   Given that several of these process lines are new, it was not discussed in the application how the waste/materials generated by these new activities, and resulting in an increase in emissions, qualify as potentially contaminated with "explosive, shock sensitive, chemically unstable or highly reactive" material, nor why there is no other safe means of disposal. The EPA recommends that the applicant address how the new process waste qualifies for this exemption, as well as, address any secondary emission increases that will result from the destruction and open burning of existing buildings and processes associated with the expansion project.

Best Available Control Technology

9. The applicant identified the following units as existing insignificant emission units: open burning, washing facilities, acetic acid recovery facility, and product drying. The applicant included the increases in emissions from these sources in their facility-wide emission total, but did not conduct a BACT analysis. However, per 1200-03-09-.01(j)3., "At the time of construction permitting, a major modification shall apply best available control technology for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit." All sources identified in the application, with the exclusion of the coal-fired boilers, have a "net emission increase." If these sources will also undergo "a physical change or a change in the method of operation" they must undergo a BACT analysis. The EPA recommends that the applicant clarify if these sources will undergo a physical change or change in the method of operation, and perform a BACT analysis, as applicable.

10. The applicant has proposed BACT as the use of an oxidative catalyst to obtain a VOC limit of 0.004 pounds per million British thermal units (lb/MMBtu) for the natural-gas-steam generating boilers. It is our understanding that there are VOC BACT limits currently in natural-gas boiler permits that are lower than that proposed in the application. For example, Grain Processing Corporation in Indiana has a VOC limit of 0.0015 lb/MMBtu. Based on a review of the information available, it appears that a lower VOC limit has been included in permits for similar facilities and should be considered in the BACT analysis for this facility.

11. The GHG BACT determination in Section 4.4.4, proposed an annual emission limit of 678,139 tons of CO_2e on a 12-month rolling total basis for the steam-generating boilers. However, given that the proposed BACT for these units is firing natural gas and using fuel efficiency techniques, an annual limit may not provide assurance that the proposed efficiency of the units is maintained. The EPA believes it is more appropriate to set output-based emission limits (*e.g.,* lbs CO_2e/MW-hour or lbs CO_2e/lb of steam produced) for these combustion units to ensure the efficiency of the units as proposed by the applicant. See *PSD and Title V Permitting Guidance for Greenhouse Gases* (page 46) for additional guidance on setting GHG emission limits.

If you have any questions regarding these comments or need additional information, please contact Ms. Eva Land at 404-562-9103 or Ms. Kelly Fortin at 404-562-9117.

Sincerely,

Heather M. Ceron

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Chief
Air Permitting Section