

DEC Review Comments on Environmental Sound Study DRAFT 2; Commonwealth Fusion Systems – Full Campus, dated December 12, 2025

The revised Draft 2 of the full CFS campus submitted by Cavanaugh Tocci includes sound sources associated with all four (4) buildings, as requested. The following comments are provided and are organized into three sections. The first section contains general questions regarding the sound study itself and should be largely self-explanatory. Please note that many of these questions may be addressed through completion of Part 2 below.

The second section addresses the format and content of the final report. As you are aware, this project includes multiple contributors and owners, each responsible for contributions to the overall sound limit. At this stage, the facility is approaching maximum buildout of the site. Accordingly, it is important that the final report document not only overall compliance, but also the relative contributions of each individual facility primarily because there are multiple owners on one campus. This level of detail will help ensure that, in the future - whether in connection with potential facility modifications or the investigation of noise complaints - it is clear what assumptions and expectations were established for each source at the time of permitting. The intent is not to impose individual sound limits on each facility; however, it is important to recognize the separate ownership and that two of the four facilities contribute materially to the overall sound levels.

The third section includes general questions regarding the proposed mitigation measures, as well as consideration of additional mitigation that could be implemented at this time to provide greater confidence in long-term compliance, particularly in the event of future noise complaints. Tech and the DEC believe it is important for the facility to complete what MassDEP would describe as a “Noise BACT” evaluation. While MassDEP often requires cost analyses as part of this process, Tech proposes that this evaluation be conducted on a qualitative basis. This recommendation stems from the initial permitting effort, during which Tech consistently advised the original consultant to pursue mitigation not only sufficient to demonstrate compliance, but also sufficient to provide a clear margin of compliance such that potential noise complaints could be readily addressed without extensive additional monitoring or analysis. As has been demonstrated in prior projects, when modeled sound levels are very close to the applicable limits and compliance determinations fall within a “gray area,” significant time and expense can be incurred to demonstrate ongoing compliance through continuous monitoring. Ultimately, it is the collective decision of the facility owners whether to provide a reasonable buffer below the sound limits, as the DEC can only require compliance with reasonable worst-case scenarios. However, in a situation such as this, where one or two facilities contribute minimally to overall sound levels, it is in the best interest of all parties to consider, at this

stage, whether additional mitigation could be implemented at minimal incremental cost to protect all facilities over their operational lifetimes. At a minimum, this exercise could help identify potential future mitigation options should modifications to any of the facilities be proposed.

Part 1 – Comments on the Report

1. The study presents “nighttime” operating restrictions (i.e., inactive or 75% speed) for CFS-1 rooftop equipment (page 7), but does not define “nighttime.” The established ambient conditions and resulting limits documented in the December 8, 2022 CTA memorandum define “nighttime” as 10:00 PM to 7:00 AM. Accordingly, these restrictions should apply during those hours.
2. The study indicates that the modeling assumes sound barriers with absorptive surfaces around several CFS-1 rooftop sources (page 7), while also stating that not all of these barriers have been implemented and that further analysis may determine that some are unnecessary. The applicant should identify which barriers have been installed and which have not, and commit to installing all barriers as modeled. In addition, please specify the number of sides and the length of each barrier.
3. The study indicates that cooling tower operation is limited to a maximum of 87% speed during the “day.” The applicant should describe the method by which compliance with this operational assumption will be demonstrated and enforced.
4. The study presents “nighttime” operating restrictions (i.e., inactive or 75% to 87% speed) for CFS-2 rooftop and ground-level equipment (page 8), but does not define “nighttime.” As noted above, the December 8, 2022 CTA memorandum defines nighttime as 10:00 PM to 7:00 AM, and the restrictions should apply during those hours.
5. The study indicates that modeling assumes sound barriers around several CFS-2 rooftop sources (page 8) that have been implemented. Please clarify whether these barriers have been modeled with absorptive treatment, and provide the number of sides and length of each barrier.
6. The study indicates that modeling assumes duct silencers on the air intakes of CFS-2 fans and AHUs, but does not confirm whether these silencers have been installed or will be installed. The applicant should identify which silencers have been installed (if any) and commit to installing all silencers as modeled.

7. The study indicates that modeling assumes a penthouse enclosure for all CFS-3 rooftop equipment (page 8). Please identify the expected materials of construction.
8. The study indicates that modeling assumes a sound barrier around the CFS-4 heat exchange fluid coolers (page 10). Please clarify whether this barrier has been modeled with absorptive treatment, provide the barrier length, and identify the expected materials of construction.
9. The study also illustrates a sound barrier around the CFS-4 rooftop mechanical equipment, although this is not discussed in the text. Please provide the height of this barrier, clarify whether it has been modeled with absorptive treatment, and identify the expected materials of construction.
10. The study presents significant mitigation measures for sound sources associated with CFS-3 (page 8) and CFS-4 (page 10), and the applicant should commit to installing these measures.
11. Appendix B provides specifications and sound source data for most equipment; however, information is missing for the following sources and should be provided:
 - a. CFS-1: Four transformers
 - b. CFS-2: Blowdown compressor
 - c. CFS-2: Four transformers
 - d. CFS-2: Two ground-level pumps
 - e. CFS-3: Thirty-two exhaust fans
12. The study does not provide manufacturers' sound reduction data for the following mitigation measures, which should be included:
 - a. CFS-2: Duct silencers for fans and AHUs
 - b. CFS-3: Sound attenuators and/or duct lining for louvers associated with the penthouse (provide assumed transmission loss for five feet of 2-inch duct lining and an example louver providing comparable attenuation)
 - c. CFS-4: Integral sound attenuators for AHUs
 - d. CFS-4: Integral sound attenuators for EAHUs
 - e. CFS-4: Attenuation package for ACC (identify which option from the data sheet is assumed)
13. The study does not clearly identify the specific locations of CFS-1 and CFS-2 equipment on each rooftop or at ground level. The applicant should provide a plan showing equipment locations to allow the DEC to verify that future operations remain consistent with the assumptions of the sound study.

Part 2 – Final Report Requirements

1. While the appendices provide most of the sound power or sound pressure data for individual sources, please include a consolidated table summarizing all uncontrolled and controlled sound inputs (including speed reductions and other mitigation measures such as silencers, but excluding physical mitigation), organized by facility. The table should also identify the method used to monitor or enforce any assumed speed reductions, where applicable (e.g., via a BMS). These values are not intended to function as individual sound limits, but rather to document permitting assumptions so that, if increased sound levels are identified in the future, it will be easier to determine which sources may have deviated from the original assumptions. Once identified, the facility may reduce sound from the affected source(s) or other sources, provided that overall sound levels are returned to compliance with applicable limits.
2. Please provide an individual plan or map for each facility identifying the sound sources corresponding to the table described above.
3. Please provide a table summarizing the dimensions and materials of construction for all physical sound barriers, and identifying which sources listed in the table above are reduced by each barrier at each receptor. This table does not need to include the specific attenuation values assumed in the model, as those should be addressed in the table described in Item 1.

Part 3 – Noise BACT Discussion

1. Numerous potential noise barriers were discussed during the individual permitting efforts, some of which were eliminated or deferred for various reasons. Please revisit these previously considered barriers and either incorporate them into the current design or provide justification for their exclusion.
2. Please also consider additional noise mitigation measures that could be implemented at minimal cost but would provide measurable sound reduction and increased confidence in long-term compliance.