Staff Report

Devens Enterprise Commission

Date: January 19, 2021

To: **Devens Enterprise Commission**

Cc: Peter Lowitt, DEC Director;

From: Neil Angus, Environmental Planner

RE: **111 Hospital Road – CFS-2 Level 2 Unified Permit – Continued Public Hearing**

Owner/App.: MassDevelopment Finance Agency/ Commonwealth Fusion Systems, LLC.
Location: 111 Hospital Road, Devens, MA
Zoning: Innovation & Technology Business District, Watershed & Aquifer Water Resources Protection Overlay District

Proposed Project Recap:
VHB Engineering, on behalf of Commonwealth Fusion Systems (CFS), has submitted a Level 2 Unified Permit for the development of a +/-147,000 sf fusion energy research and development facility (CFS-2) and associated site improvements. This application also seeks conceptual approval for the overall campus master plan (general size, location and layout) for future development phases as well. CFS- 2 will be home to a compact fusion device (SPARC) that will prove fusion can work as a clean, reliable power source. To safely research and develop fusion power at this facility, the applicant is proposing to construct a tokamak - a fully contained magnetic bottle that simulates the vaccum of space and uses magnets (from CFS-1) to confine a super-heated plasma in which fusion occurs. As the proposed project is a research and development facility (not a power plant), it will also include the equipment and instruments needed to operate, monitor and maintain the device.

Project Issues Resolved Since Last Meeting:
Access/Traffic and Soil Management. These items are addressed in the draft conditions of approval.

***Public Safety*:**
The Fusion Process: The Tokamak is an air-tight, fully contained chamber where the fusion reaction process will take place. The facility will require low amounts of process gasses such as hydrogen, helium, nitrogen, diborane, and neon, as well as a small amount of tritium on site - 10 grams. Their device will only use approximately half a gram at any time to run. CFS will have systems in place that they state are "significantly more robust than what's required by regulation, with built-in redundancies and layers of protection". There are a number of state permits that will be required for this facility prior to it being permitted to begin operations. Staff participated in a joint call with the Applicant and representatives from MassDevelopment, the MA Environmental Policy Act (MEPA) office, Massachusetts Radiation Control Program (MRCP), and Massachusetts Department of Public Health (DPH). While CFS-2 is a research facility and not a power plant, these agencies will be using similar processes to review the facility operations - including emissions, types of equipment, environmental monitoring, exposure risk, radioactive and hazardous materials handling protocols, emergency plans, accident response, and decommissioning. These comprehensive reviews will be important to ensure safe operations. The DEC will continue to engage with MRCP and DPH, as well as our Industrial Performance Standard Peer Review Consultants as part of these reviews.

A Hazardous Materials Spill Response Plan and Spill Pollution Prevention Control and Countermeasures Plan will be required as a condition of approval and will need to specify the materials, types, quantities, location and method of storage/containment, handling and disposal as per 974 CMR 4.09.

Industrial Performance Standards:
To help avoid potential nuisance conditions, the Applicant has designed the facility with due consideration for the surrounding land uses. The closest sensitive receptors include the new housing on Grant Road, New England Studios, Aspire Adult Daycare facility, and the US Fish and Wildlife Service Oxbow National Wildlife Refuge

Visitors Center. From a regulatory perspective, both CFS-1 and CFS-2, as well as future build-out of CFS-3 and 4 have to be considered together/cumulatively when assessing potential environmental impacts with respect to traffic, safety, hazardous material storage, emissions and other industrial performance standard issues.

Lighting: The Applicant has incorporated lighting conservation measures where feasible to reduce lighting levels in building and site areas that are not regularly occupied (motion-sensor, timing, photocell, etc…). A reduced lighting plan for the site between the hours of 11PM and 7AM has been requested as a condition of approval. The Applicant has proposed Architectural lighting on the upper portion of the Tokamak building. While this is not in the viewshed, any lighting at this height could be visible from the residential neighborhoods in the winter months so Staff has requested that it be removed. The stack and other protruding rooftop elements should be non-reflective to help prevent any off-site glare at the upper heights of this building.

Noise: The Applicant has conducted background sound measurements to establish a baseline ambient noise level. A preliminary noise modelling study of CFS-2 was just completed on 1-18-21. The preliminary review of this sound study confirms that CFS-2 could operate with operational restrictions on the "pulse" transformers as defined in the 1-18-21 revised Vibrasure Sound Study (no use of "pulse" transformers at all on weekends and holidays, nor on weekdays between 10:00PM and 7:00AM). Any operation of the pulse transformers outside of these hours will require further sound mitigation, modeling, review, and approval by the DEC's Industrial Performance Standards Peer Review Consultant prior to any expansion in hours of operations.

Electromagnetic Interference: The tokamak reactor is only being tested for 10 second increments ("pulses") and will not be running continuously so it will not be producing a continuous source of electromagnetic radiation. Similarly the magnet manufacturing facility will be testing magnets periodically. The Applicant has provided an analysis and evaluation that indicates the magnetic field intensity at the property line will be below typical background levels and therefore mitigation is not required. This information will need to be reviewed by the Massachusetts Radiation Control Program and Department of Public Health as well to ensure there are no short or long-term impacts both on and off-site based on the actual combined operations and frequency of field generation.

Air Emissions: The Applicant submitted an Air Quality Assessment for CFS-2 with the original Unified Permit application. The Assessment concludes that the CFS-2 Project will not exceed any of the Air Quality Permit threshold requirements. CFS-1 has conducted a preliminary assessment and does not anticipate exceeding Air Quality Permit thresholds. The Applicant will need to document a comprehensive Air Quality Assessment for both facilities. This should be required prior to issuance of a building permit to ensure compliance with 974 CMR 4.02. The facility will also be required to comply with the Massachusetts Anti-Idling law (5-minute restriction). Posting signage at all loading docks and drop-off areas notifying drivers of this requirement is helpful.

Greenhouse Gas Emissions: Future build-out of the campus is expected to generate 3,122 weekday trips (mobile emissions). As previously mentioned, these types of impacts have to be considered cumulatively for the entire project. 974 CMR 4.11 requires projects that generate more than 2,000 average daily trips to comply with the MA Stretch Code (780 CMR 120AA) as amended. The Applicant is also in contact with MassDevelopment and the Massachusetts Environmental Policy Act Office to determine if any additional state approvals will be required for this project, beyond amending the existing MEPA permit for the redevelopment of Devens.

Staff has included a number of proposed conditions to address these issues and continue coordinating with the Massachusetts Radiation Control Program and Department of Public Health, and the Applicant to follow-up.

Devens Engineering and Utilities: Devens Engineering and Utilities have a number of comments regarding proposed parcel boundaries, easements, existing and proposed utilities. Due to the existing previous development (roads and former army housing), there are a number of existing utilities that will need to be preserved, abandoned, relocated, reconnected, removed, and/or replaced. This will require close coordination with MassDevelopment. Staff has included a condition of approval to address this in the draft record of decision.

Stormwater Management: The revised plans submitted on 1/7/21 incorporate additional Low-Impact Development techniques (LID) throughout the site to comply with 974 CMR 4.08 and narrower internal roadways to minimize pavement/impervious areas and reduce stormwater and urban heat island impacts. A Construction General Permit from the EPA and a Stormwater Pollution Prevention Plan still need to be provided to the DEC prior to the commencement of any activity on-site. This has been included as a proposed condition.

Slope Resource Areas: No work is proposed within the SRAs or within 15 foot No Disturbance zone. However, construction is proposed within the outer 35 foot buffer near the northwest corner of CFS Building 2 service yard where grading and a retaining wall is required for service and fire truck access around the building. Haley & Aldrich, the project team's geotechnical engineer, conducted a slope stability analysis to determine if any soils stabilization mitigation is required. The study concluded that "construction of the proposed retaining walls and soil slopes within the 50-ft buffer zone (as currently designed) will not adversely affect the factor of safety of the soil slopes within the existing Slope Resource Area." A Finding has been added to the Draft ROD to address this. There are some concerns with the proposed fill area to the north and potential erosion from the steepness of the proposed finished grades. The Applicant has provided additional stabilization to this slope area to help prevent any washing out or undermining of the bottom of the natural slope areas that this fill material drains towards.

Landscaping: The DEC's peer review Landscape Architects have reviewed the plans for compliance with 974 CMR 3.04(8). There are a number of minor modifications required to the plans to ensure the limits of clearing, tree protection and screening are provided.

Phasing: The first phase of the CFS-2 development includes the SPARC facility which will be home to the tokamak research and development facility. As CFS plans to make this site their world headquarters, future expansion is anticipated. The Applicant has included an overall Master Plan for the campus showing potential future growth and investment at the site. This growth would include an expansion to the CFS-2 SPARC facility, as well as additional buildings (CFS-3 – industrial facility similar to CFS-1; and CFS-4 and 5 - Research and Development Support, office, and warehousing). The master plan also includes a future potential outdoor gathering/meeting space in the woods for connecting employees with nature. This future growth is conceptual at this stage and would require separate Level 2 Unified Permit(s) to ensure full compliance with the Devens Bylaws and Development Rules and Regulations.

Waiver Requests:
The Applicant has requested the following waiver:

974 CMR 3.04(3)(a)1.h.: There shall be bicycle storage facilities provided on site for all developments.
There are no full time work stations in CFS-2. Employees will be stationed in the CFS – 1 and bicycle storage is provided there. Staff has no concerns with this waiver request.

Application and Process: VHB, Inc., on behalf of Commonwealth Fusion Systems, LLC., submitted the Unified Permit Application on November 12, 2020 and the Determination of Completeness was issued on November 20, 2020. Copies of the application were received by the surrounding Towns on November 24, 2020. Legal notices were placed in Nashoba Publications on November 27, 2020 and December 4, 2020. All abutting property owners were duly notified by certified mail. The 30-day Town comment period expired on December 25, 2020. No comments have been received other than those from MassDevelopment and our Peer Review Consultants. The public hearing opened on December 15, 2020 and was continued to January 7, 2021 and continued again to January 19, 2021. The 75 day review period for the DEC to act on this application ends on February 3, 2021.

Recommended Action: The 30-day town comment has expired. The Applicant's revised plans submitted on January 7, 2021 address a number of comments previously raised. The remaining open items can be addressed as conditions of Approval if the Commission is ready to act on this application. Once the Commission and public have had an opportunity to ask any questions and comments, the commission should either close the hearing, or continue it to January continue it to the January 26, 2021 meeting at 6:45PM if there is additional information still required. Staff has prepared a draft record of decision for the Commission's consideration this evening.