Staff Report

Devens Enterprise Commission

Date: January 6, 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 reaserch 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.

A concurrent application is before the DEC for CFS-1 - the magnet facility, so that both buildings and associated site improvements can be reviewed independently while viewed together in context to one another and to the campus master plan as a whole.

Project Issues Resolved Since Last Meeting:
Access, Traffic, and Parking: The facility will be accessed via the two new driveways that are being constructed as part of the CFS-1 project. As CFS-2 is proposed to be on a separate parcel, the Applicant will need to ensure that the proper easements are in place to access the site. The CFS-2 project will not have any full-time employee work stations – all employee work stations will be in the CFS-1 building. There are 24 parking spaces in front of the CFS-2 building for visitors, vendors and service providers. The Traffic study prepared for both the CFS-1 and CFS-2 projects concluded that the proposed entrances are located with adequate sight distance for vehicles to safely turn in and out of the site off of Hospital Road with a few minor improvements that will need to be coordinated with MassDevelopment. The traffic study confirms that existing Devens public road network is capable of supporting the projected increase in traffic from both CFS-1 and CFS-2 projects with no off-site mitigation. Based on the results of the traffic study, the Applicant has committed to implementing number of Transportation Demand Management (TDM) Program measure to help reduce traffic that the project will generate. The Applicant has also agreed to have an on-site TDM coordinator who will monitor participation in the program and document the estimated reduction in site-generated traffic associated with these TDM measures and complete an annual traffic monitoring program (TMP) six months after full occupancy of CFS-1 and CFS-2 to confirm the report assumptions and conclusions.

Nitsch Engineering has finalized their review of the Traffic Study and have a few remaining items that will need to be addressed in a final version of the report which will be required as a condition of approval.

***Soil Management*:** The property is subject to certain Land Use Control Implementation Program LUCIP requirements from the Army; permanent use restrictions within a former 37-MM ordinance firing area (UXO); and a specific soil management plan for the Oak and Maple Housing Areas, as well as the Grant Road Housing Area.

Movement of soils between the Oak/Maple and Grant Road Area will need to be approved by the Army, EPA, MA DEP, and MassDevelopment. This will need to be part of Soil Management Narrative required for the site. This narrative will need to be prepared by a Licensed Site Professional and also include a Health and Safety Plan component prepared by a Certified Industrial Hygienist or other qualified individual summarizing appropriate personal protection, engineering controls, and environmental monitoring to prevent worker exposures to contaminated soil. The Applicant will need to ensure they provide unrestricted access to both sites for the EPA, Army, MA DEP, and MassDevelopment for monitoring and enforcement of all associated land use restrictions. MassDevelopment's Environmental Engineer has requested that the plans and supporting materials be updated to reference these details and all appropriate land use controls that this property is subject to. This will be required as a condition of approval.

Project Issues Still being Addressed:

***Public Safety*:**
The Fusion Process: The Tokamak is an air-tight, fully contained chamber where the fusion reaction process will take place. If any air gets into the system it will shut off in a fraction of a second and go back to room temperature. This makes fusion difficult to achieve on earth, but also inherently safe according to the Applicant. For example, if power to the tokamak went out, the machine would turn off and the fusion process would simply stop. If there were any breach in the system, air would get inside and the process would stop.

The fusion fuels used in the device are isotopes of hydrogen – deuterium and tritium. The facility will require low amounts of process gasses such as hydrogen, helium, nitrogen, diborane, and neon. CFS plans to have a small inventory of tritium on site - 10 grams (approximately the size of two quarters). Their device will only use approximately half a gram at any time to run. As it is a radioactive material, Tritium requires special handling on site and a license from the Massachusetts Radiation Control Program (MRCP). This entity will also regulate the safe operations of the fusion device and any decommissioning. The Applicant has indicated that the fusion device will produce neutrons and be fully shielded with concrete to protect from radiation and remain below the yearly limit allowed by the MRCP to ensure no harm to the public. 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". Details on these storage, safety and containment system strategies needs to be documented as part of this application process to ensure that the proper procedures will be in pace to safely deliver, store, handle and dispose of these materials. The DEC will need to coordinate with MRCP and the Applicant before any final approvals for use of this material on site.

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: DEC Regulation require 0.5 footcandles for walkways and driveways. Staff has requested the Applicant review the lighting plan to ensure compliance with 974 CMR 3.04 and 4.04. The Applicant also needs to indicate if any lighting is required to remain on overnight and if so, how it can be minimized (reduced lighting plan required between 11PM and 7AM). Any lighting controls (timers, photocells, etc.) should also be indicated. Light fixture and pole colors also need to be dark earth-tone colors (some are specified as being white).

Noise: The Applicant has conducted background sound measurements to establish a baseline ambient noise level. A noise modelling study of both CFS-1 and CFS-2 is currently underway by the Applicant. As of the writing of this report, we have not received the full report. The building is located in the central portion of the site away from the residential receptors on Grant Road and the majority of utilities are proposed to be behind the building so that they

are shielded from any direct exposure to the residential areas, however, there area lot of utilities proposed. All sound sources, in addition to those at CFS-1, need to be considered in the modelling, along with any required mitigation, to demonstrate compliance with 974 CMR 4.05.

Electromagnetic Interference: While the tokamak reactor is only being tested for 10 second increments and will not be running continuously, the electromagnetic radiation that the tokamak will produce needs to be evaluated in combination with the magnet manufacturing and testing that is part of CFS-1. The DEC's Peer Review Consultants are reviewing this and have asked for some additional information to aid in their review to ensure the magnet manufacturing and testing process will not create any harmful electromagnetic radiation or interference on or off-site.

Air Emissions: More details have been requested on the project's proposed air emissions. Staff is still waiting for a copy of the air quality assessment preformed by the Applicant. This needs to be reviewed by our Peer Review Engineers to ensure it includes all utilities, equipment and emissions from the site prior to acting on this application. .

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 the existing MEPA permit for the redevelopment of Devens.

Note: On January 7, 2021, the DEC Industrial Performance Standards Peer Review Engineers will be providing a list of remaining questions/information that they need to complete their review.

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 abandoned, relocated, reconnected, removed, and/or replaced. As MassDevelopment is both the property owner and the municipal utility for this project, it is important that these issues be addressed.

Stormwater Management: The DEC Peer Review Engineers have requested the Applicant look at additional opportunities to incorporate more Low-Impact Development techniques (LID) throughout the site to comply with 974 CMR 4.08 and minimize pavement/impervious areas and reduce stormwater and urban heat island impacts. Internal road widths and utility areas in the rear of the facility and north of the CFS-2 building could be minimized, while still providing ample space for vehicle turning movements. 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.

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." There are some concerns with the proposed fill area to the north an potential erosion from the steepness of the proposed finished grades. The Applicant is reexamining this to provide additional stabilization for larger storm events. This will 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 modifications required to the erosion and sediment control plans which should also show the limits of clearing, construction laydown and temporary sedimentation basin locations. If there are opportunities for additional reduction in impervious as discussed in the stormwater review, the Applicant will need to revise the landscape plans accordingly. Additional comments regarding plant species selection, stabilization of all disturbed areas, soil compaction and landscape management will also need to be addressed.

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). Staff has requested additional detail on breakdown of the proposed buildings and uses to ensure the full project build-out as shown would comply with the Floor Area Ratio limits for the ITB District. 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 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 were received. 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 but there are still a number of outstanding issues that need to be addressed. Revised plans and supporting information are expected to be provided. Once the Commission and public have had an opportunity to ask any questions or comments, the commission should continue the public hearing to either a special meeting on January 19, 2021 at 6:45PM, or to the next regularly scheduled public hearing on January 26, 2021 at 6:45PM. Which date will depend on when revised plans and supporting information are submitted. As of the writing of this report, they have not.