

**Short Baseline Near Detector Operational Readiness Review, February 21-22,
2024
CHARGE**

The Short Baseline Near Detector (SBND) is the latest detector to begin operations as part of Fermilab's Short Baseline Neutrino (SBN) Program. SBND expects to complete installation and filling of the liquid argon cryostat in early 2024, with the exception of portions of the Cosmic Ray Tracker (CRT), and begin taking data in the Booster Neutrino Beam. The collaboration is planning for stable operations within a few months to collect an initial physics quality dataset during the FY24 accelerator run.

The primary purpose of this review is to assess the experiment's readiness to begin operations and data taking. The committee is asked to review the current status of the experiment, the preparations for running and data-taking, the collaboration plans for maintenance and operations, the associated risks and safety issues and mitigations, and the plans to analyze the recorded data and deliver on the scientific goals with the planned beam delivery. The review should include the current status of the detector, the status of the software to record and analyze data, and the run plan.

The committee is asked to address the following questions:

1. Has the experiment written a completed Experiment Operations Plan (EOP)? The document should include (a) an outline of the Science goals (b) a description of operations tasks and how they will be covered, (c) ES&H activities and how they will be managed, (d) organization charts showing the management structure for the experiment and how it interfaces with the laboratory, (e) Fermilab resources and roles as they pertain to each Directorate (f) the model for data processing and analysis including the computing budget and effort required, (g) a list of the identified resources available, and (h) a description of the roles and responsibilities of each institution together with a list of support required by each institution from funding agencies.
2. What work remains to prepare the experiment to begin physics data-taking?
 - a. The installation of the CRT is not expected to be complete at the start of the commissioning period. Is any other work required to complete the assembly of the detector? When will assembly of the full detector be complete? How will this impact the first physics run?
 - b. Is there a plan for commissioning the detector in preparation for an initial physics run in FY24? Are the roles and responsibilities of members of the collaboration and Fermilab staff clearly defined for this commissioning period?

- c. Is there a plan for monitoring the beam and the data quality and has the infrastructure been tested? If not, what actions are required to complete the data quality monitoring system before physics data-taking?
3. Is there a well-understood run plan for the remainder of FY24, consistent with the planned accelerator schedule and performance? Have adequate resources from the laboratory and the collaboration been identified for an efficient and safe running of the experiment and for maintenance of the detector, and have the responsibilities of the collaboration and Fermilab staff been clearly defined?
4. Are there well-developed plans for data processing and analysis? Have sufficient resources from the laboratory and collaboration been identified to execute these plans?
5. Are there clear goals set for reporting and publishing the results from the experiment in a timely fashion?
6. Are the ES&H (Environment, Safety, and Health) aspects of all anticipated work properly assessed and managed, with clear roles and responsibilities?
7. Does the committee recommend further actions to ensure the successful startup of the SBND program?

The committee is asked to present a draft of their report at the review closeout and to issue the Final Report by Friday, March 1.