



DATE: December 20, 2021

TO: Farshid Feyzi, Kael Hanson, Vivian O'Dell

FROM: William Wester, Vladimir Papitashvili

SUBJECT: IceCube Neutrino Observatory Upgrade (ICNO-U) Logistics Review

Dear ICNO-U Project Team:

An NSF charged review of the ICNO-U preparations and planning methods of Antarctic logistical needs was held November 3-5, 2021, and a final review report was transmitted to the ICNO-U project on December 6, 2021. This memorandum transmits a summary of the NSF view of the report and provides guidance towards the project appropriately responding to the report.

Summary Statement:

NSF acknowledges a number of positive findings spelled out by the review committee:

- The project provided high quality presentations and timely answers to questions
- The project has relied heavily on original IceCube project experiences reducing risk
- The project team has acted with teamwork and remains engaged after COVID realities
- Final opinion of the review committee is that the ICNO-U team are “on the right track”

Recommendations and Concerns:

The review report spells out 13 specific recommendations and concerns. NSF supports that the ICNO-U project has created a database of each of these recommendations, is assigning responsible parties to each recommendation, and adding a timeline to provide responses. NSF looks forward to understanding the responses to each of these recommendations well in advance of a Spring re-baseline review.

In addition to those 13 specific recommendations, there are a number of specific recommendations and concerns throughout the document that the project is encouraged to pay attention. NSF would like the project to formally address 6 additional concerns found by the review committee.



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- Improve documentation overall; and including documentation pertaining to (1) on-site personnel needs and (2) spares especially in the context of risk assessment
- Consider risk mitigating scenarios within forthcoming logistical support guidance. Shallow drilling with the FS2 team, reducing the number of strings, or reducing the number of DOMs per string have been mentioned.
- Develop the software toolset to meet the requirements of an integrated master schedule including linkages and dependencies
- Provide better visualization such as float associated with tasks and cargo
- Further develop the on-ice safety plan considering a safety lead at each drilling location
- Refine quality control / assurance processes for packing/shipping

NSF would like to express appreciation of the ICNO-U project team in its preparation of review materials and participation in the review. An additional positive outcome has been the preparation of materials needed by the Antarctic Infrastructure and Logistics team to develop its support planning including contractor support.

Submitted,

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