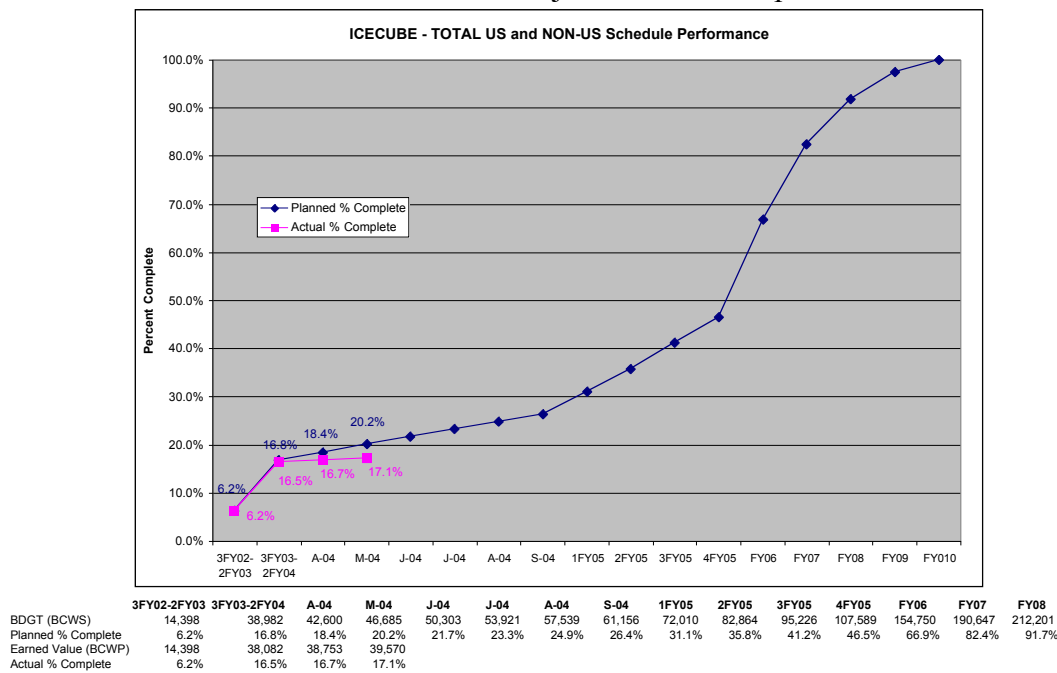


# IceCube Project Monthly Report June 2004

## Accomplishments

- Demonstrated suitability of the current drill hose for the first drill season.
- Launched DOM production for up to four strings to be installed in January 2005.
  - Completed design qualification testing of ten pre-production DOMs
  - Completed a Production Readiness Review for the initial DOMs
  - Started DOM pre-assembly
- Delivered to NSF a report on the IceCube start-up phase and a proposal supplement that addresses the IceCube construction phase.

IceCube Construction Project Percent Complete<sup>1</sup>



## Status and Issues

**Logistics, Drilling, and Installation**– The drill is on schedule for successful completion of testing by the end of July. A critical issue has been the suitability of the drill supply hose. Recent testing results demonstrate that the hose will be acceptable for use in the first drilling season when the project will drill up to four holes. A manual process of banding the drill cable to the hose using tape has proven successful and the maximum loading on the hose can be maintained within 100 lbs of 750 lbs. Additional tests indicate that the hose will neck at loads on the order of 2,200 lbs. This necking is not significant enough to interfere with drilling.

The test well constructed at PSL was critical to demonstrating that the current drill hose can be used safely and reliably for at least four drill holes. The project will purchase a new supply hose for use during future drill seasons.

<sup>1</sup> Percent complete = budgeted cost of work performed/budgeted cost of work scheduled (BCWP/BCWS).

Drilling, installation, and safety training is planned for July 12<sup>th</sup> through 23<sup>rd</sup> at PSL. The training program will include UW staff and contractors, IceCube collaborators, and Raytheon Polar Services Company staff.

Final packing is planned for late July and early August. The bulk of the drill shipments from PSL to Port Hueneme, California, will begin on August 15<sup>th</sup>.

**Digital Optical Module Production** – The Production Readiness Review (PRR) for the initial strings was held June 8-9<sup>th</sup> at UW-Madison and the report from the review is now available. Pre-assembly of production DOMs has started and the first DOMs that will be installed in the ice will be completed the week of July 12<sup>th</sup>. Initial production rates will be limited by the availability of the main circuit boards that are provided by LBNL.

**Digital Optical Module Testing** - Initial design verification was completed on ten DOMs with only minor problems uncovered.

- Leaking DOM penetrator seal – developed new attachment hardware and O-rings
- Penetrator connector breakages – used 'safe-to-mate' procedure and revised test plug
- Gel crazing – reverted previously proven gel degassing procedure
- Low-temperature communications problems – revised firmware protocol
- Low-temperature sensitivity problems – optical fiber system revised

The High Voltage (HV) functional test was developed and testing of the HV subsystem will be conducted at the fabrication house prior to shipment to production sites.

**IceCube Project Baseline** – The table below provides project baseline information.

Initial In-Ice Strings & IceTop Tanks Installed	January 2005
Initial Operational Capability	March 2007
Project Completion & Closeout	September 2010
Total Project Cost	\$271.8M
Value of Foreign Contributions	\$29.7M
NSF Funding	\$242.1M
Contingency as % of Remaining Costs	23%
# Strings/Tanks	≥70/140

**Quality and Safety** – There is one final code waiver for the drill pending with the NSF. A safety plan for “on-ice” activities is being developed in collaboration with Raytheon.

**Future Meetings and Events**

Simulation Integration Workshop @ LBNL	July 1 and 2
Drill and Installation Training @ PSL	July 12-23
Quarterly Review Meeting (NSF participation) @ UW	July 14
IceTop Surface Array Design Review @ Bartol Research Institute	July 29
Monthly Status Meetings @ UW	August 8, September 15
NSF Semi-annual Review (cost baseline basis) @ UW	October 25-27