

## IceCube Project Monthly Report November 2004

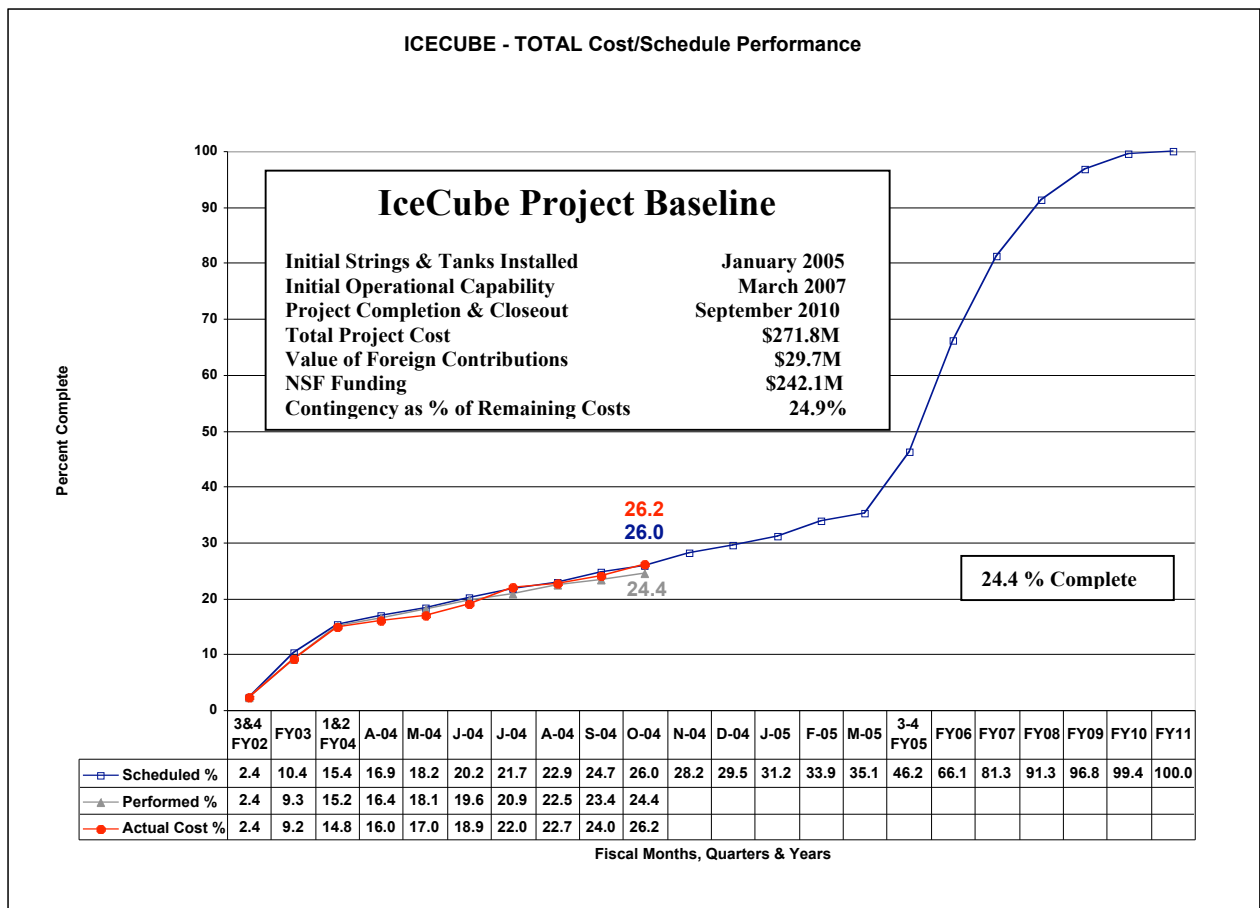
### Accomplishments

The production of the Digital Optical Modules (DOMs) and cables required for the first season of installation is complete and the majority of the instrumentation is now at the South Pole.

System testing with a representative configuration of production DOMs, connectors, and cables is underway at PSL. Test results thus far confirm expectations regarding system performance.

Drill camp assembly, surface tank installation, and DOM acceptance tests at the South Pole are proceeding on schedule.

The first string will be deployed after January 15<sup>th</sup>, later than originally planned. The delay is necessary to comply with a waiting period for public comments on the Comprehensive Environmental Evaluation (CEE) prepared by NSF. The week will be used to operate the drill under a test program.



**Cost and Schedule Performance** – The total cumulative schedule and cost variances at the end of October were less than a few percent. The earned value measurements are consistent with measurements of progress using detailed milestones.

**Drill Construction and Operation** – The IceCube drill team is completing construction of the drill camp and testing all subsystems. Full system testing of the Enhanced Hot Water Drill is scheduled to begin on January 6<sup>th</sup>. If all goes well the first string will be deployed after the CEE public comment period ends on January 15<sup>th</sup>, and the last of four strings on January 30<sup>th</sup>. This is an extremely tight schedule relative to the original plan.

**IceTop Installation** – IceTop installation is proceeding on schedule. All eight of the IceTop surface tanks have been installed and two tanks have been filled with water with the degassing systems in operation. The remaining tanks will be filled before the end of December.

**Instrumentation Production & Testing** – The project produced 379 DOMs by the end of November. Production status as of December 9<sup>th</sup> is summarized in the table below:

|  |     |
|--|-----|
| DOMs Produced  | 379 |
| DOMs Accepted for Shipment                           | 280 |
| DOMs at the South Pole (256 required for deployment) | 260 |
| DOMs Tested at the South Pole                        | 104 |
| Surface-to-DOM Main Cables Shipped                   | 4   |
| Surface Cables Shipped                               | 4   |
| Surface-to-DOM Cable at PSL for System Testing       | 1   |
| Surface-to-DOM Cable Ready for Next Year (vessel)    | 1   |

**Instrumentation System Test Status** - All major system elements were integrated into the formal system test configuration. Initial confidence tests have been successfully conducted using full fidelity DOM hub, DOR cards, patch cables, surface cable assembly, surface to DOM cable assembly, surface junction box, and eight DOMs. Multiple long duration (14 hour) communications stability tests were conducted with excellent results, and the ability to load new software into remote DOMs was successfully demonstrated.

Freezer units were modified to hold the system test DOMs. Twelve test DOMs are equipped with fiber optic light “delivery paths”. The instrumentation configuration necessary to prove timing requirements is being established. Upcoming activities include: a communications stability demonstration, local coincidence demonstrations, system timing tests, and ongoing reliability assessments. These tests will be completed before the first strings are installed.

**Data Systems** – The data handling system for the instrumentation that will be installed this season is now arriving at the South Pole.

**Detector Verification and Commissioning** – The planning documentation is complete and simulation of the first four IceCube strings plus AMANDA is underway.

***Project Documentation, Safety and Quality Assurance*** – There is ongoing effort to formally approve a number of documents currently in final draft form and to complete other documents subject to formal control. The status of this documentation is reviewed each month.

**Future Meetings and Events**

|  |                   |
|--|-------------------|
| DOM Main Board PRR for 2 <sup>nd</sup> Season Procurement                    | December 1, 2004  |
| Monthly Status Meeting   | December 15, 2004 |
| Monthly Status Meeting   | January 19, 2005  |
| Quarterly Status Meeting @ UW (NSF participation invited)                    | February 19, 2005 |
| 1 <sup>st</sup> Season Assessment/Future Year Planning Meeting               | March 3-4, 2005   |
| 2 <sup>nd</sup> Season Final Production Readiness Review for 2 <sup>nd</sup> | March 7-8, 2005   |
| Project Advisory Panel/ Science Advisory Committee Meeting                   | March 9-10, 2005  |
| IceCube Collaboration Meeting  | March 19-23, 2005 |
| International Oversight and Finance Group Meeting                            | March 24, 2005    |

The monthly reports are posted at [IceCube Monthly Reports](#).



First two IceTop Tanks



IceTop Tank Filled with Water