# PROJECT SITUATION REPORT
# DISC Drill 2011-12 Season

**Project:** T-350-M
**Project Principal Investigator:** Dr. Charles Bentley
**Report No.** 6 **for period:** 12-18-11 **through:** 12-24-11
**Prepared by:** Kristina Dahnert **Date:** 12-25-11

## IDDO Personnel Onsite:

- Kristina Dahnert
- Josh Goetz
- Mike Jayred
- Elizabeth Morton
- Paul Sendelbach
- Chuck Zander

## ACTIVITIES DURING PERIOD

- Tested resistance between opposing ends of the drill cable; results are 14.1 on the outer conductor and 13.2 on the inner conductor
- Assembled drill on cable; current configuration is anti-torque section 'A', instrument section 'J', and motor pump section 'X'
- Drill powered up on bench; all communications gave a green light!
- Slot ventilation ducting installed
- Ventilation system VFD installed by camp electricians; system powered up and is working well
- Chip hopper placed near back doors of Arch; lids, vacuum hose and filter bags attached
- Chip vacuum system hooked up and tested
- Jig transit used to align core transfer trusses, FED (fluid extraction device) and core cutting table
- Reinstalled window on bulkhead wall between core processing and drilling sides of the Arch, as the window was removed and cut back for truss alignment purposes
- Overhead ventilation on bulkhead wall adjusted for clearance with yellow gantry crane
- New borehole fluid hose adaptor mounted on casing
- Hole cover switch wire repaired
- Installed new filter screen on crown sheave drip pan hose
- Borehole fluid level tested using two methods; recorded as 68.15 meters using Gary Clow's logging winch and as 68.58 meters using the DISC drill float/tape measure method
- Drill hung on tower and run down into borehole fluid for communications testing; all systems working well except the new WOB (weight on bit) sensor, which is retracted and reads 0 N when the tower is horizontal and extends and reads 20000 N (max) when the tower is tilted and the drill is hung vertically

- Screen drying box rewired to a new breaker and a switch installed, as the original cable had been recommissioned for borehole logging power
- General cleaning of Arch and drill slot
- Sent the drill down hole for the first time on Friday, 12/23/11. Pump set at 2100 rpm for the trip down and the cutters were turned on at 1530 meters for the smaller diameter portion of the borehole (between 1530m and the bottom, when the thinner kerf core barrel was originally deployed); substantial reaming encountered; several cutter dropouts, likely due to high reaming speed; pump function declined around 3170 meters and the drill was returned to the surface
- Second borehole trip initiated on Saturday, 12/24/11; cutters again turned on at 1530 meters; substantial reaming again encountered below 2500 meters and the feed rate slowed; time in borehole was approximately 6 hours, and thus the motors added heat to the borehole fluid; after several attempts, penetration was gained and approximately 0.759m of core was drilled. Upon return to the surface, the core dogs were found to be frozen closed (due to the increased heat and extended time down hole) and the core was left in the borehole.
- Sridhar Anandakrishnan presented a science talk at our Monday night science lecture series
- A delicious Christmas dinner was enjoyed on Christmas Eve, followed by a white elephant gift exchange

## SAFETY

- Seasonal PM checklist and WAIS Startup safety checklist completed.
- Wind and blowing snow continue to plague WAIS Divide this season. The Pisten Bully is still down as well as the D4, so necessary snow removal around Arch doors is being done with the 953 bucket. Town is still kept in exceptional shape using the Tucker groomer.

## COMMENTS
## (Problems, Concerns, Recommendations, Etc.)

- The new WOB sensor is not working in anti-torque section ‘A’. While we have spare section ‘B’ onsite, we do not want to disassemble the cable from the drill simply to test section B at this time. Risk to the optical fibers outweighs the need to have a working WOB sensor at this time. Drill operations will continue using cable tension readout.
- Reaming of the borehole below 1530m has certainly been more extensive than anticipated and greater than in previous season. Borehole fluid density will be revisited, but clear travel has now been achieved to the bottom.