

PROJECT SITUATION REPORT

DISC Drill 2011-12 Season

Project: T-350-M

Project Principal Investigator: Dr. Charles Bentley

Report No. 3 for period: 11-27-11 **through:** 12-3-11

Prepared by: Kristina Dahnert **Date:** 12-4-11

IDDO Personnel Onsite:

- Kristina Dahnert
- Josh Goetz
- Mike Jayred
- Elizabeth Morton (logging)
- Paul Sendelbach (arrived MCM on 12/1/11)

ACTIVITIES DURING PERIOD

- Sunday, 11/27/11, was a day off for everyone in camp
- Leveled and cleaned lathe and mill in MECC
- Borehole loggers (Anandakrishnan, Clow, Greschke, Kluskiewicz, Miller, Urban, Waddington) arrived at WAIS Divide on Tuesday, 11/29/11, along with the DISC Drill winch cabinet crate and the blue sonde crate.
- Orientation of Arch and nearby facilities held for all logging personnel
- Hole cut in Arch roof and roof logging sheave mounted in place; box built by carpenters to cover sheave and keep out blowing snow
- Logging winch tent erected and logging winch and levelwind assembled
- All four logging tools tested and are working well
- Final grooming behind Arch and ramp down into large drill side doors complete
- Slot excavation work completed on 12/1/11
- Additional borehole loggers (Bay, Peters) arrived at WAIS Divide on Thursday, 12/1/11
- Paul Sendelbach departed CONUS on 11/27/11, arrived in Christchurch on 11/29/11 and arrived in McMurdo on 12/1/11; pending flight schedules, he is scheduled for arrival at WAIS Divide on Tuesday, 12/6/11, as originally planned
- Removed new spool of drill cable from Arch
- Unpacked all cargo from DNF winch cabinet crate
- Unpacked necessary items from blue sonde crate
- Removed winch cabinet from crate with 953 stinger; set cabinet in place with blue crane and hooked up cables; have yet to power up
- Placed and hooked up Glassman power supply rack and drill control computer rack in control room; have yet to power up
- Organized control room
- Hung air monitor
- Set up freezer

- Crane rail shims arrived from McMurdo and are being installed; the project is ~75% complete at the time of this report
- Mounted borehole logging sheave at floor level across slot and centered logging winch cable over casing
- Along with assistance from Jay Johnson back at IDDO, we established a 'zero' depth reference for the borehole logging winch. This was calculated and checked using two methods. In essence, we needed to determine the exact length of the drill (without the drill set up at this point), as we know the historical offset for the drillers 'zero' to be 9.845m of drill hanging below floor level when floor level was originally measured as 'zero' back at the initiation of the DISC Drill project at WAIS Divide. The difficulty posed by this question is that the drill is the only zero reference we have for the Arch at WAIS Divide, as the floors, casing, etc. have badly and unpredictably heaved over the years.
 - At WAIS Divide, we reviewed upper sonde assembly drawings (anti-torque section + instrument section + motor pump section) and found this length to be 3.659m. The current screen barrel configuration was measured at 7.806m and the current core barrel configuration with J4 cutter head was measured at 3.800m to cutter tips. This produced a total drill length of 15.265m. The known historical offset of 9.845m was then subtracted from 15.265m equaling 5.420m. We then measured 5.420m down from where the top of the drill engages the soft limit switch on the drill tower. This was marked as the 'zero' for borehole logging.
 - Back in Madison, Jay Johnson, who has greater access to DISC Drill drawings was able to independently determine the length of the drill to be 15.268m (0.003m difference from our actual measurements onsite). The system works!
- Borehole logging began on Saturday, 12/3/11, around 15:30 with Gary Clow's temperature logger

SAFETY

- Chief Scientist Don Voigt, Camp Manager Dean Einerson and I keep monitoring changing safety concerns both within and around the Arch and camp. Blowing snow and new drifting continues to be an issue every few days, but the camp staff is keeping up with flagging of dangerous areas and cliffs. Camp is continuously groomed and rope lines strung between town buildings and tent city during inclement weather.

COMMENTS

(Problems, Concerns, Recommendations, Etc.)

- Borehole logging has begun! DISC Drill cable unspooling, spooling and termination operations should begin this next week.