

PROJECT SITUATION REPORT

DISC Drill 2011-12 Season

Project: T-350-M

Project Principal Investigator: Dr. Charles Bentley

Report No. 8 for period: 1-1-12 **through:** 1-7-12

Prepared by: Jay Johnson **Date:** 1-8-12

IDDO Personnel Onsite:

- Kristina Dahnert
- Josh Goetz
- Mike Jayred
- Elizabeth Morton
- Paul Sendelbach
- Chuck Zander
- Chris Gibson (arrived at WSD on 1/3/12)
- Jay Johnson (arrived at WSD on 1/3/12)
- Nicolai Mortensen (arrived in McMurdo on 1/2/12)
- Steff Bo Hansen (arrived in McMurdo on 1/4/12)

ACTIVITIES DURING PERIOD

- Chris and I arrived at WAIS Divide on Tuesday after the Monday flight to WAIS was canceled due to weather at WAIS.
- Nicolai was on a flight to WAIS on Thursday, but it was diverted to Byrd and then it returned to McMurdo due to weather at WAIS.
- Krissy and Paul were scheduled to leave this week along with the borehole logging team, but they are all still here due to poor weather canceling flights.
- Unpacked all replicate equipment.
- Modified the FED for use with the smaller diameter replicate core.
- Set up and aligned the core transfer truss for use with the replicate coring barrels and core.
- The WOB issue has been resolved. The problem was due to a wiring mismatch in the instrument sections. The K instrument section (for replicate coring) and engineering model have been corrected. The remaining replicate coring instrument sections will be updated as time permits.
- LabView code was modified to provide a faster update time for the WOB sensor.
- Logging was completed on Wednesday and the floor level sheave was removed.
- The K instrument section was fitted with a higher accuracy inclinometer that has .1 degree resolution. The firmware was also updated.
- The K instrument section was also fitted with a cable that can be pulled out of one of the vent plugs so the firmware can be changed without disassembling the instrument section. This will allow us to change the replicate coring firmware if needed without having to remove the drill from the tower.

- Instrument section K was reassembled and connected to the actuators and motor section for testing. The cutter and pump motor tested ok, but the actuators were not working. It was determined, when powering up, the I²C bus would not establish communication. However, if the circuit was reset, actuator operation was regained. This reset has to be performed every time power is interrupted via a set of pins on the RCM board. This can be done through the programming lead that was added, however it means having to open up the vent plug and pulling out the lead each time the power is interrupted. Not very convenient. The original firmware was reloaded and the actuators worked, however the inclinometer would drift since the code was not correct for the updated sensor circuit. Chuck changed a clock setting to solve this problem. Now the I²C bus has the same boot up issue as described above. Nicolai has been working with us from McMurdo to resolve the problem. Sridhar Anandakrishnan also helped on Saturday by using his expertise in C to trouble shoot the code.
- Assembled the borehole camera system. The fiber optic transceivers are not sending a signal over the drill cable. It looks like the combination of cable length and losses through the optical slip rings and connection are too much for the transceivers. We are working with people back at IDDO and also the IT and Coms groups in McMurdo to come up with a solution. If we are unable to get the fiber transmission working we are looking into a backup plan of recording the video on a device that can be placed in the camera pressure vessel.
- Removed a 1m truss section from the tower.
- Began setting up the tower rollers for the replicate drill.
- Set up the broaching head and bumpers.
- Assembled the replicate screen section. The screens didn't fit into the barrels because the centering pads were too thick, so they were set up on the lathe and turned down.
- The screen cleaning table was changed over for use with the replicate barrels.
- Made a photo inventory of our cargo. The inventory is broken down by where each piece is to go at the end of the season. This will make it easier for camp and RPSC personnel to identify items.
- Made up return shipping labels and blank inventory lists for returning equipment.
- The replicate sonde is fully assembled and will be ready to go on the tower after a few final screws are torqued. On Monday it will be placed on the tower along with the core and screen barrels for aligning of the tower rollers.
- Jeff Severinghaus requested that we bring the borehole fluid level up to 45m from the surface to pressure balance the hole. It was brought up to 46.7m on Saturday and will be brought up the remaining 2.4m once we refill the bulk fluid tanks.
- The slot drip pans were cleaned and a new hole cover was installed.

SAFETY

- Turned the ventilation system down to 45 Hz. Less ventilation is required when we are not drilling and it helps reduce the amount of snow that is pulled in through the air intakes.

- Elizabeth attended a three hour emergency response training with camp personnel.

COMMENTS

(Problems, Concerns, Recommendations, Etc.)

- The D4 is back up and running.
- The Piston Bully is still down.
- On Saturday night one of our two generators went down and it needs parts to be repaired. Our operations will continue as planned unless there is a failure of the second unit. A contingency plan has been put in place with camp and SCO for what to do if the second generator goes down.
- The wind and blowing snow continued throughout the week. Drifting around doors and tents requires frequent attention.
- We checked with Michael Davis and Cara Ferrier on the status of our request for Comair that was made on Oct. 13 with Deborah Roth. Neither of them found any record of the request being made. Cara is now working on it.