



## PROJECT SITUATION REPORT

**Project:** DISC Drill Test-Summit Greenland  
**Project Manager:** Alex Shturmakov  
**Report No:** 11 **For period:** 7-03-06 **through** 7-08-06  
**Prepared by:** Jay Johnson **Date:** 7-09-06

**Weather Conditions:** Temperature range  $-28^{\circ}\text{C}$  to  $-6^{\circ}\text{C}$ , wind 0 to 17 knots.

**ICDS Personnel on Site:** Jay Johnson  
Kristina Dahnert  
Michael Jayred  
Bill Mason  
Nicolai Mortensen  
Paul Sendelbach  
Scott Haman  
John Fowler

**Other Personnel on Site:**

### ACTIVITIES DURING PERIOD

- Drilling – This week we drilled a total of 58.8 meters. The bore hole depth is 757.5 meters. Average core length was 2.38 meters. The average core length is a little bit shorter than in past weeks because we intentionally drilled several ~2 meter cores. Between the depths of 734.3 and 740.3 three ~2 meter cores were saved by NICL to be used for the brittle ice acceptance test. These three cores will replace the sample cores we drilled last week. Other than the cores that will be drilled during the DV visit, this week marked the end drilling operations for the season.
- Scoop cutter test – Three more coring runs were done with the scoop cutters this week. Each run was done with different cutter speed/feed combinations. All cores had a ribbed helical pattern on the outside. The pitch of the helix was cutter speed dependent. Aside from the helix pattern the surface of the cores had less surface fractures than cores drilled with the sharp or radiused corner cutters. The helical pattern is most likely being caused by the cutter head wobbling in the bore hole. We have guides on the outside of the cutter head to keep it from wobbling, but I suspect that scoop cutters are either cutting a larger diameter than the guides or the guides aren't large enough. This is just my theory. This next week I will indicate the cutter head to see what diameter the scoop cutters are cutting verses the diameter of the guides.

- Modified screen barrel test – Bill was interested to see what effects leaving screens out in the lower portion of the screen barrel would have on the drills ability to collect and store chips. I made a ring that bolted in between screen barrel sections to retain screens in the upper part of the barrel and leave the lower part of the barrel totally open for chip collection. Test runs showed no gains from leaving screens out. In fact core lengths got shorter as more screens were taken out. A second test we did was shortening the core barrel to 3.1 meters and adding two screens to the screen barrel. Cores drilled with this barrel configuration were no longer than ones drilled with two less screens, ~2.7 meters. We saw less of a chip pack on top of the core, but the screens weren't fully packed. With two extra screens we should have been able to drill a full 3 meter core. Have we found the pump's limit? What effect is drilling without the densifier having on chip transportation and packing?
- Power monitoring – Correction from last weeks report. Nicolai is using data logging software from Multitek, the manufacture of our power monitor, not Labview. He is generating graphs from the raw data using Mathcad. Data has been logged from several drill runs through out the week.

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