1) Health, Safety & Environment

No reportable incidents.

2) McMurdo Operations

- **Personnel on Site:**
  
  Frank Rack, Dar Gibson, Graham Roberts, Chad Carpenter, Daren Blythe, Justin Burnett, Jeff Lemery, Dennis Duling, Adam Melby, Robin Bolsey

- **Summary:**

  General: Hole melted through ice shelf in approximately 6 hours beginning after lunch (morning spent making final preparations, including establishing flow through main hose reel, mounting drill stem on drill hose, supplying science labs with water, etc). Note that the return water pump was not deployed due to fears that it would entrain salt water in the system (the thickness of the ice shelf was not known accurately at startup) and due to predicted sufficiency of stored melt water. Most of the hole was made using 3 or 4 Alkota units running, which translates to a total flow (split roughly evenly between the drill and the meltwater system) of 25-40 gpm. The day provided good experience with the system and some of its failure modes while successfully completing the hole. Drill crew left camp at about 8 P.M.

  Subsystem performance as follows:

  - The UV light box was only used for a short test run while coming out of the hole and seemed to function normally. System has been programmed to shut off UV whenever hose reel stops. Possibilities for a new mounting arrangement are being considered.

  - The hose washer was assembled and mounted on the drill hose briefly but caused problems with the hose feeding off of the traction drive and was removed. It appears that the supports for the Corelube assembly (ratchet straps) need to be parallel to the drill hose in order to minimize drag on the hose. An arrangement for accomplishing this is being assessed.

  - The Alkota units functioned reliably during drilling; all six were used at different times, but only four were in use at any one time. The hole was drilled using an average pressure of ~1000 psi. Two of the Schrader valves installed by Alkota for blowing out the heating coils failed, one catastrophically. They were removed and replaced with plugs (our current method for dewatering the system does not use these valves)
without having to stop the drill. Fortunately these failures were on the low-pressure side of the system. Also, there may be a bug in the interface of the Alkota units with the e-stop system, as they tend to need 2 or more restarts after an e-stop before they will remain online.

- Gen2 was being used for power during drilling and shut down unexpectedly when drill was between 40 and 50 meters depth. It appeared that the wrong batteries had been installed in the PDM to maintain relay operation between the generator and camp; these batteries were replaced temporarily with some of the spare Kubota engine batteries we had on hand. Power was out for approximately one-half hour.

- Plumbing: A pipe union in the RCU manifold suffered a failure resulting in substantial spray of water. (The e-stop capability was engaged at this point and successfully shut down the system.) Flow was rerouted around this union to allow drilling to continue.

- The 0.2 micron filters in the WFU became clogged, resulting in elevated input pressure to the filtration system. This situation was noticed by drill operators before it became a problem; the filters were removed from the system to allow drilling to continue. Preliminary analysis indicates the clogging is due to dust deposited in the snow by winds from nearby exposed land areas.

- Sensors and controls appeared to operate normally. The load cell indicated a brief spike around 50m, which was likely the result of the drill head re-entering the bottom of the ice shelf.

- The drill hose and drill stem performed as expected. Some stretching was observed but has not yet been quantified. The bottom 20-30m of the hose came back with salt on it which will need to be removed the next time it is payed out. The entire hole was drilled (including the firn) with a conical-spray nozzle.

- The meltwater system was able to meet the demands of the drill with no return water pump recovering water from the hole. However, at peak operation it required 1-2 people with shovels to manipulate snow and manage water distribution between the two tanks, as well as another person continuously dumping snow with the 297. Heat supplied by two Alkota units seems to afford the optimum snow melt rate while not overwhelming the capability of the transfer pump.

- Estimated fuel used during the day was 5/8 of the day tank.

- Camp was left with water in the system at the end of the day; circulation pump was left running and the HPUs were supplied with heaters for the night.

Electrical/Other: Work on day fuel tank automated fill system continues.

3) Upcoming Events/Tasking:

- Address issues encountered during drilling; assist science activities as needed.
4) **General Issues:**
   - See narrative above.

5) **Weather Conditions**
   - Temperatures ranged between 30 and 40°F during the day. Cloudy and warm with calm winds.

6) **Vehicles/Generators**
   - Vehicles in use: Caterpillar 297 skid steer, Mattrack pickup.
   - Generators in use: Both large generators operational; one being used to power camp. One WISSARD 50 kW generator on hand as a backup (the other one is in town for maintenance); portable 3.5 kW and portable 1 kW from ASC.

7) **ASC Interfacing**
   - Two ASC electricians still on loan to help with electrical work.
   - Generator/diesel techs have been on hand for roughly the past week to prep and troubleshoot the big generators.
   - A galley worker has been on hand the past two Saturdays to prepare lunch on the grill. Pre-cooked lunch supplied by the galley is picked up on Mondays and Wednesday mornings on the way to the work site.

8) **Cargo**
   - No cargo delivered to site today.

Compiled by Daren Blythe for the WISSARD drill team