Removal of obstructions above Bag 43

1. Electronics ladder. The downstream electronics ladder on the top of the CTARG is above Bag 43.

   Plan:
   
   a. Disconnect power connections – DONE July 24
   b. Disconnect cooling water lines – DONE July 25
   c. Unscrew the ladder from the support rails (requires temporarily removing three TFB plates) – DONE July 25. Brass screws stored in box for later replacement (only 4 of 6, 2 were not installed)
   d. Lift ladder using the ladder lifter and move downstream sufficiently far to provide access to the top of Bag 43 – TESTED July 25

2. MPPC cables. The MPPC cables for the MPPCs on the south side of P0Dules 27 and 28 will cross the top of Bag 43 once the ladder is moved downstream with the ladder lifter. These MMPCs are connected to TBFs 4X3U, 4X4U, 4X5U, and 4X6U.

   Plan: Disconnect the MPPC cables at the TFB end. This operation will require some unbundling of MPPC cables. Dress the cables out of the way.

   DONE July 23-24. A small number of cables (20 total) connected to P0Dule 29 were also disconnected, as they were part of the same bundle as cables connected to P0Dule 28. They were dressed out of the way separately.

3. Electronics ladder support rails. The south support rail runs above the top of Bag 43, and the central support rail will block sufficient clearance for Bag 43 removal operations.

   Plan: Lift both electronics ladders on top of the CTARG using two ladder lifters. (One ladder lifter is on site, second to be built.) Dismount and remove all three electronics ladder support rails. Install modified support for upstream electronics ladder on CTARG.

4. TFB-to-RMM connections for TFBs mounted on the downstream electronics ladder on top of the CTARG. Connected to all TFBs on this ladder and dressed along the upstream side of the TFB plates.

   Plan: Disconnect from TFB. Undress cable bundle and move out of the way. – DONE July 24.

5. TFB-to-RMM cable bundle for TFBs mounted on the side downstream electronics ladder. This bundle is dressed along the downstream side of the TFB plates of the top electronics ladder.

6. Cooling water elbow. One of the cooling water elbows that connects the side and top electronics ladder will block sufficient clearance for Bag 43 removal operations.

   *Plan:* Disconnect the elbow from the side electronics ladder and remove. DONE July 25. Elbow stored in box.

7. Temperature sensor connected to TBF 4X4U – cable crosses top of Bag 43 after ladder is moved.

   *Plan:* Disconnect from TFB, dress out of the way – DONE July 25

8. Water drain and fill tubes (white) from Bag 43.

   *Plan:* Disconnect at the top of the water bags, pull out to the other side of the P0D.

9. Water sensor connections (in yellow sleeve) for Bag 43.

   *Plan:* Disconnect from the sensor board and remove completely.

10. Various water sensor electronics. On the north end, only sufficient clearance to lift and move the electronics ladder is needed. On the south end, more clearance is required for Bag 43 removal operations.

   *Plan:*

   a. Dismount the two water sensor boards mounted above TBF plates on the electronics ladder – DONE July 25

   b. For the ladder lifting test, there is sufficient slack in all the cables to simply move these boards out of the way to give sufficient clearance to lift and reposition the ladder. – DONE July 25

   c. On the south end, recommend that Scott Davis completely disconnect and remove the water electronics board.