SiD Workshop
Magnet DBD STATUS
SLAC

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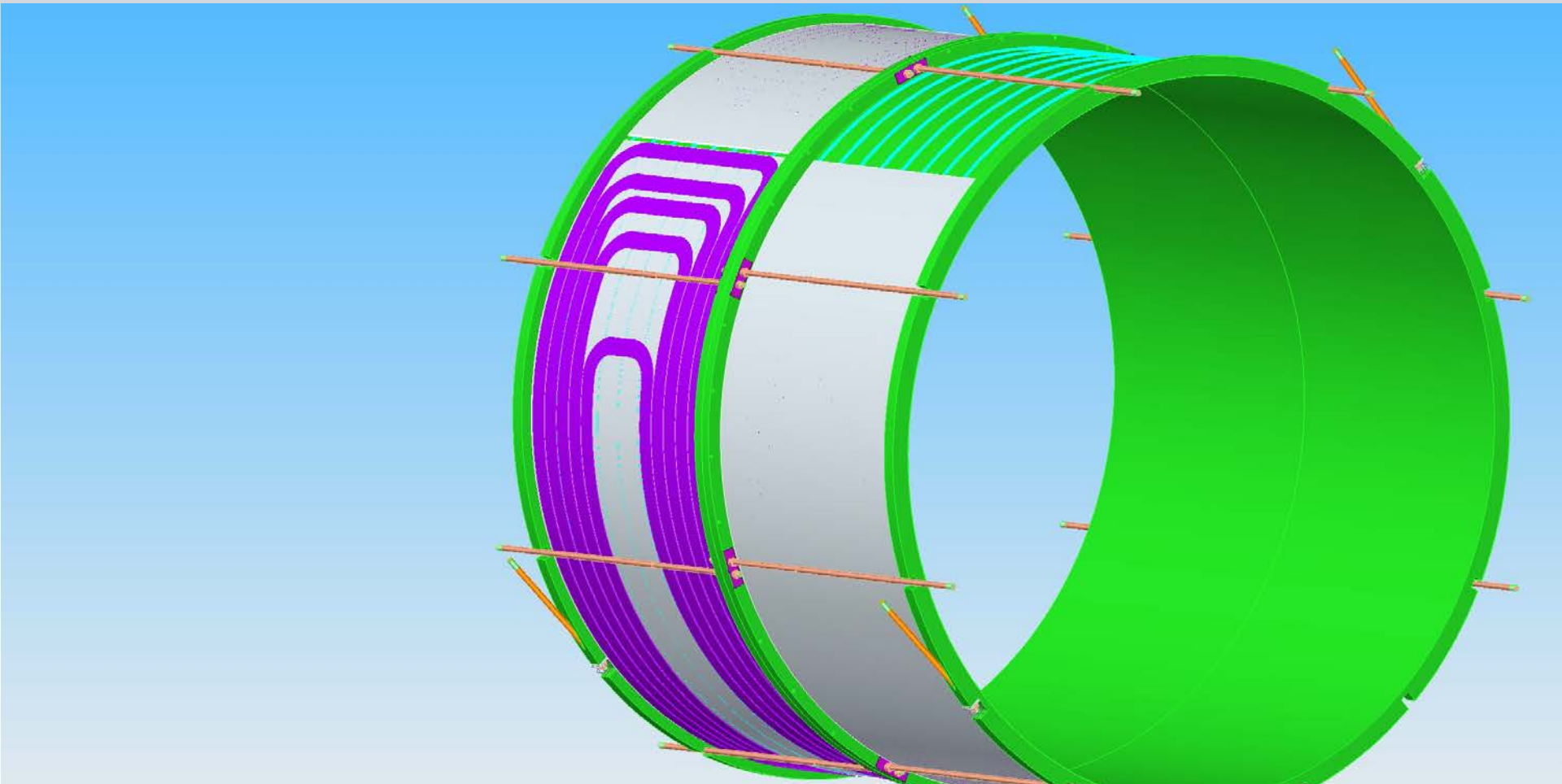
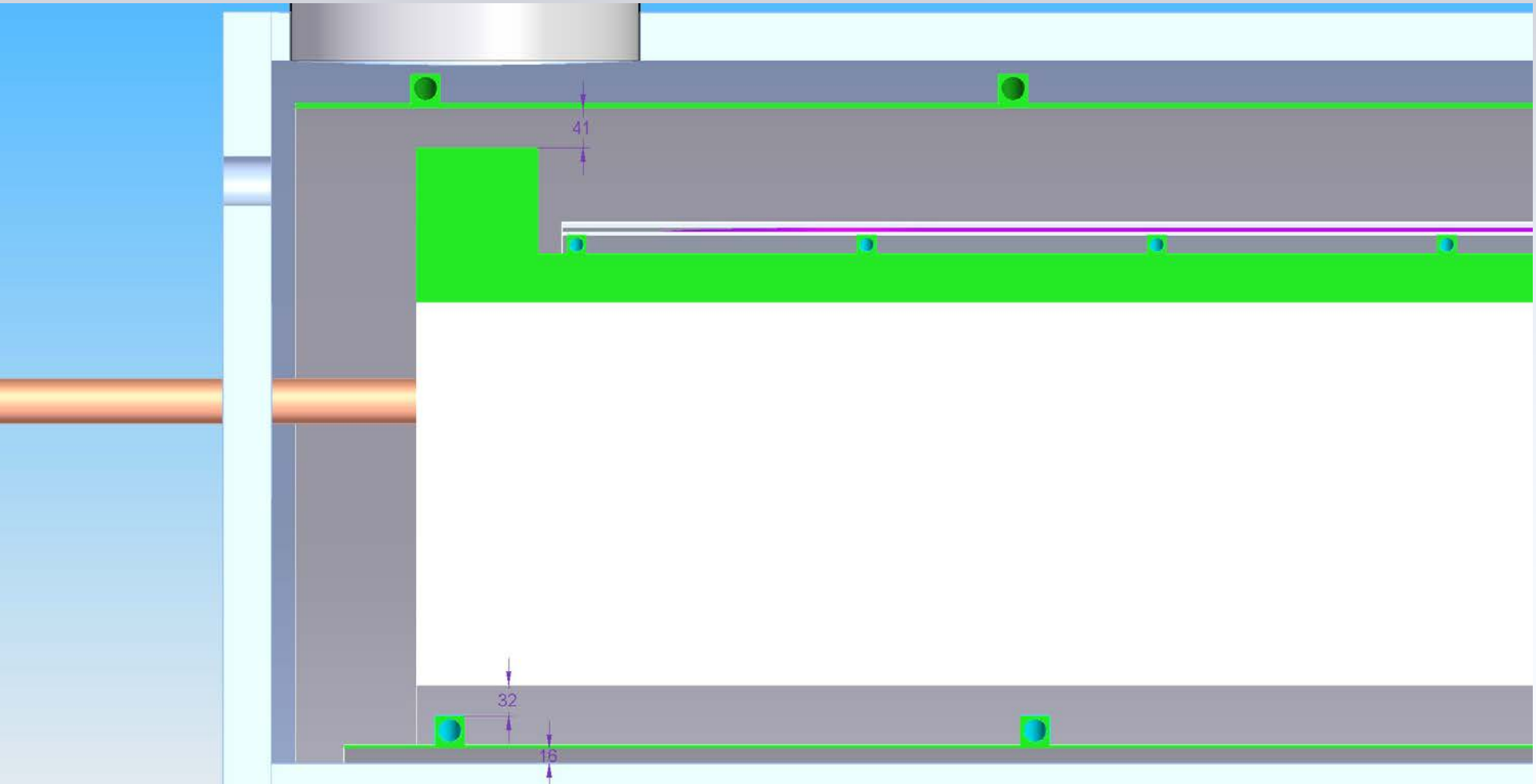
RECENT CHANGES

- **FINAL CRYOSTAT ENVELOPE DIMENSIONS WERE SPECIFIED (Marty, Marco and Wes)**
- **A SOLIDEDGE Model of the Magnet is sufficiently complete to verify that specified dimensions provide enough room**
- **LIQUEFIER POSITION WAS MOVED TO THE DETECTOR**
- **QD0 2 K DISTRIBUTION BOXES WERE MOVED TO NEAR THE TOP OF THE DETECTOR**
- **AN ASSEMBLY PROCEDURE FOR THE MAGNET WAS WRITTEN**
- **FIRST PASS MAGNET DBD WRITTEN IN WORD**




41
32
16

ASSEMBLY PROCEDURE

1) Coil mandrels are precision machined with welding of seamless end rings and cooling loops. Cooling loops are extensively leak checked.
2) Solenoid modules are wound with each layer in alternating direction.
3) The four DID coil modules are wound on a 3 mm thick Al sheet that is mounted to machined cylinder. Internal coil to coil splices for each of the 4 modules are completed. A 5 mm sheet is attached to the OD of the DID coils.
4) DID coils are vacuum impregnated. This is a higher temperature resin than the solenoid resin.
5) DID coils are mechanically attached on top of solenoid cooling loops with screws to the solenoid mandrel.
6) Solenoid modules with attached DID coils are vacuum impregnated.
7) The two mating ends of the solenoid modules are precision machined.
8) Solenoid modules are stacked vertical and joined above ground at the detector site.
9) All 24 solenoid splices are completed above the DID. All DID module to module splices are completed
10) Axial tie rods are attached to the solenoid.
11) Inner and outer thermal shields are mounted to inner and outer vacuum shells.
12) Inner and outer vacuum shells are placed on the solenoid.
13) Vertical and radial tie rods are attached to the outer vacuum shell.
14) All internal plumbing and electrical connections are completed along with mounting of the thermal shield end plates. Piping extends a short distance past the chimney opening. Solenoid lead ends and DID lead ends extend through the vacuum shell current lead opening and are wrapped in a loop.
15) Top and bottom vacuum end plates are welded.
16) All tie rods are tightened.
17) The completed magnet assembly is rotated horizontal on a shaft parallel to the ground using the overhead crane and two pulling cables.
18) The magnet is moved to the detector cavern and lowered vertically into the bottom half of the magnet iron.
19) Current lead and cryogenic chimney pipe assembly are completed and welded.

REMAINING TASKS TO FINISH MAGNET DBD

- FINISH MAGNETIC 3D CALCULATIONS
  - Barrel/Door Spacer Plates + Penetrations
  - Get all forces and fringe fields
- FINISH MAGNETIC 2D CALCULATIONS
  - Coil Stress and Deflection
  - Fringe Fields
- MODIFY AND REDO THE CRYOGENIC FLOW DIAGRAM
- CRYO HEAT LOADS AND LINE SIZES TO CAVERN WALL
- FINISH SOLIDEDGE MODEL
- COSTS ?