

SBS Components in Hall C

SBS in Hall C

Layouts of various SBS experimental setups with target downstream of pivot and between the SHMS and HMS.

How to get SBS between the Spectrometers

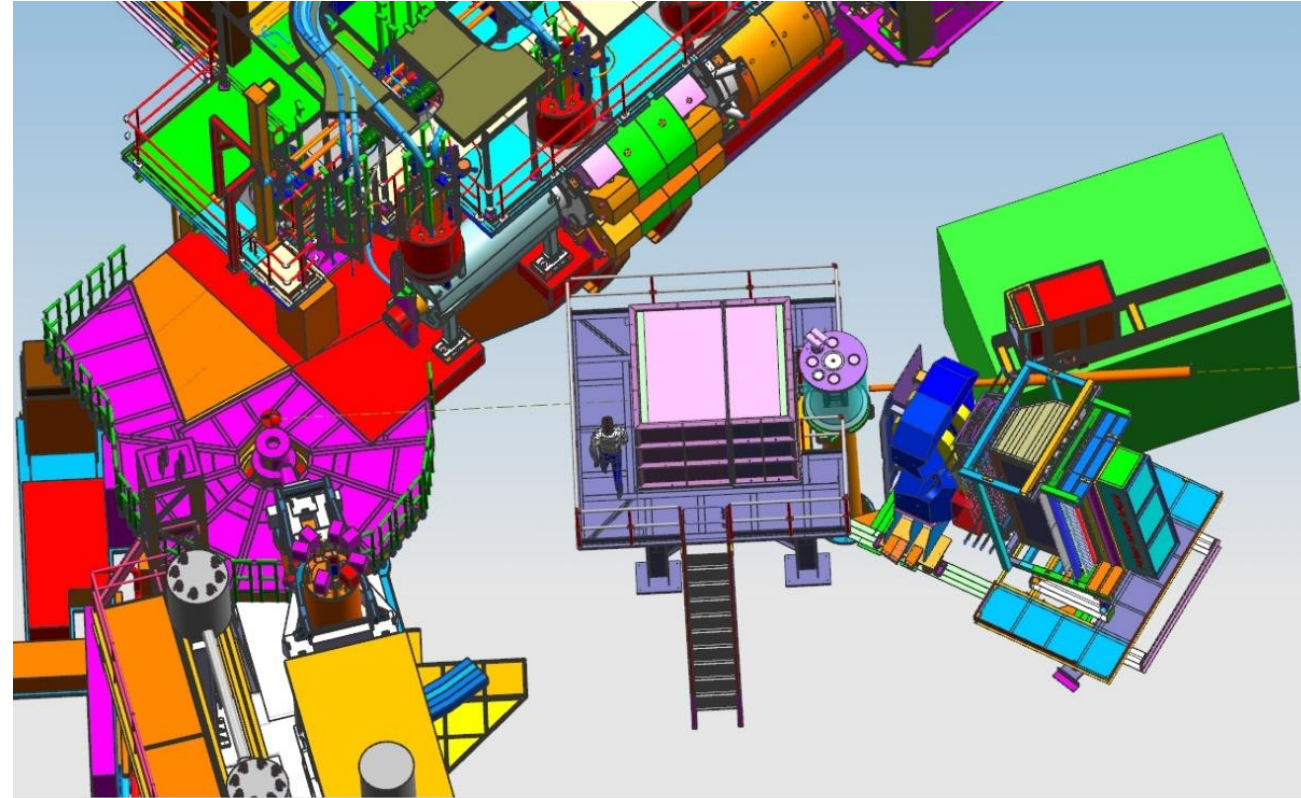
WACS – SBS and NPS Calorimeter

TDIS – SBS

SIDIS – BB and SBS

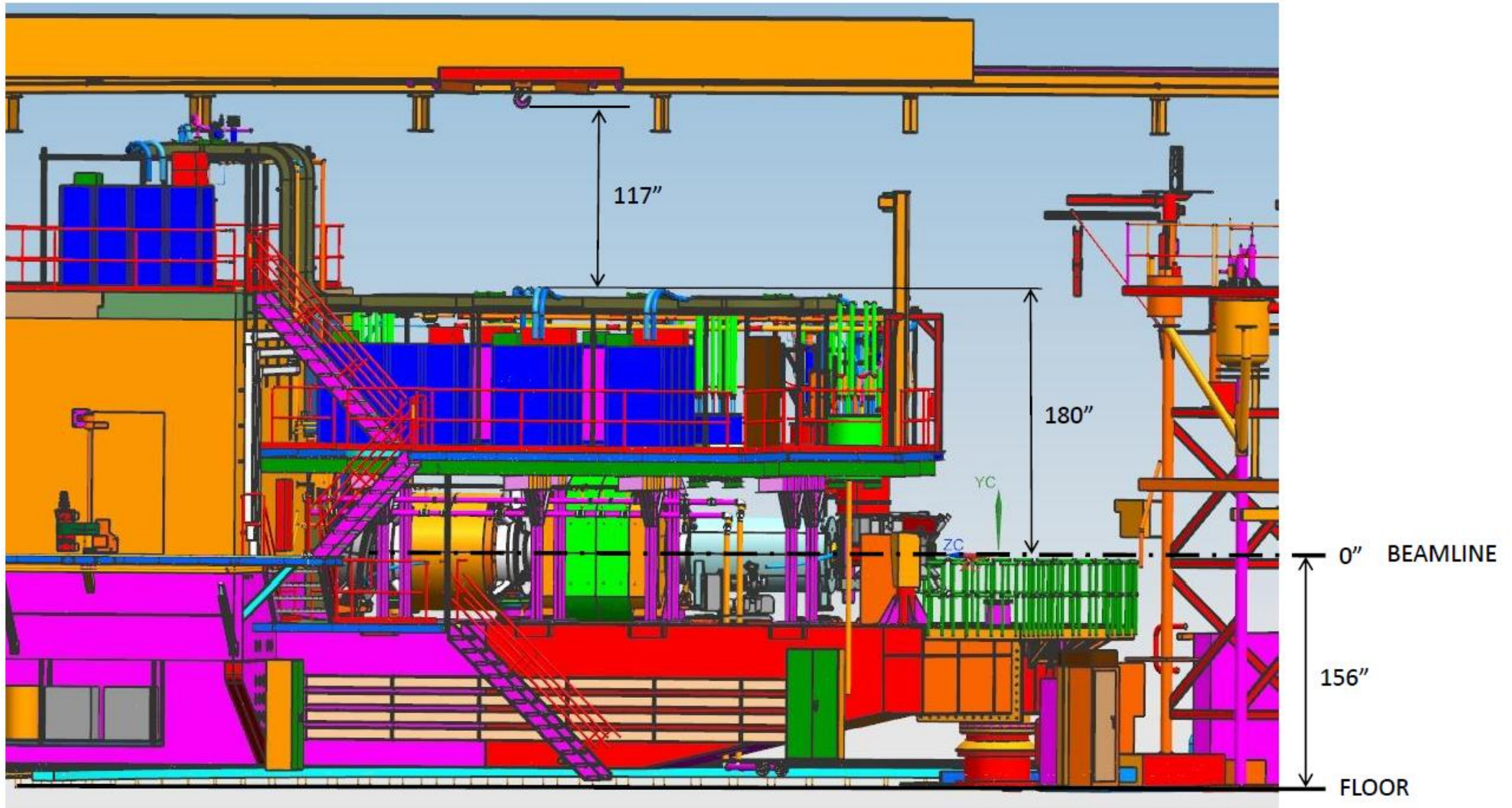
SFF-with reconfigured HCAL Blocks

Steven Lassiter



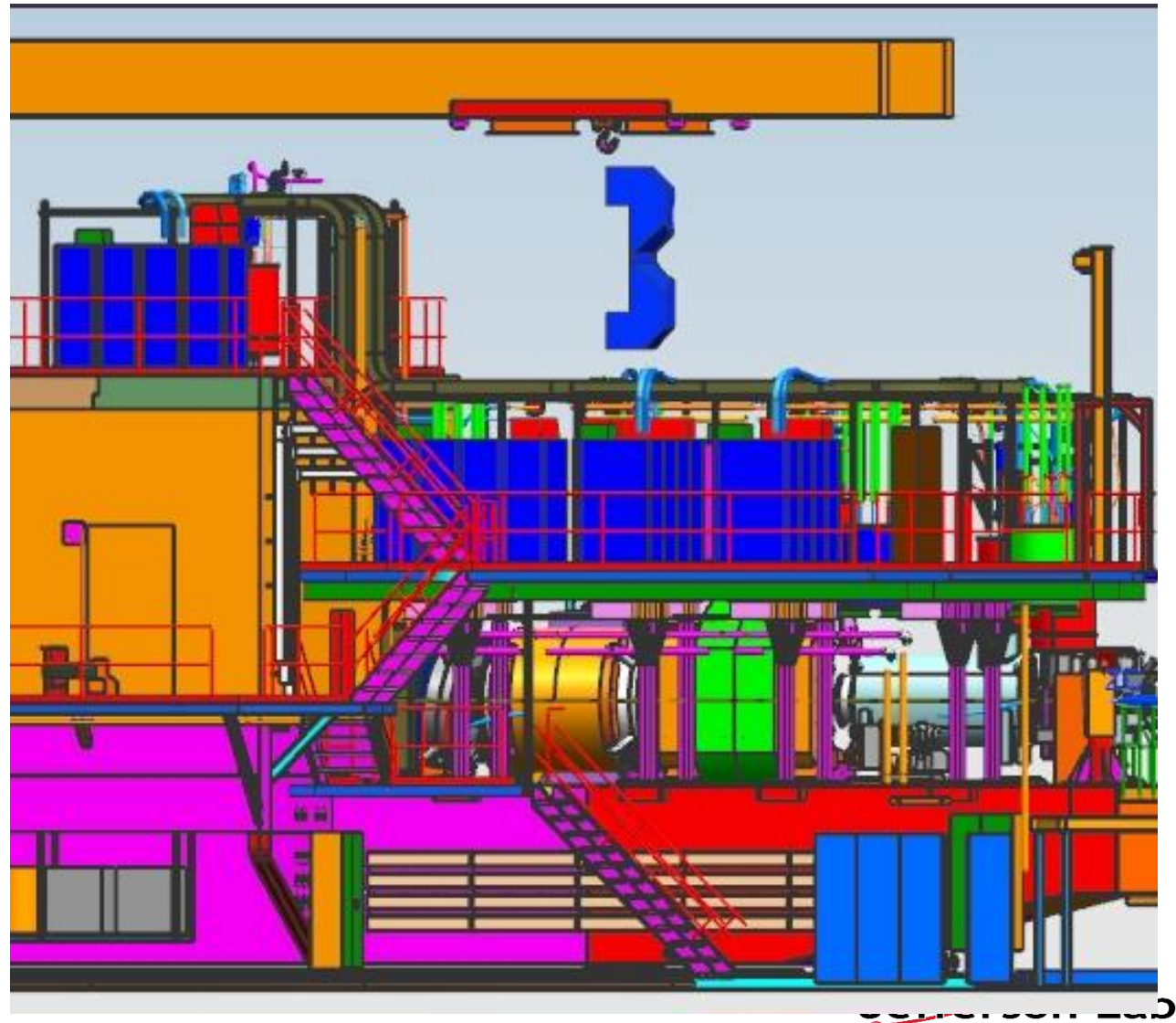
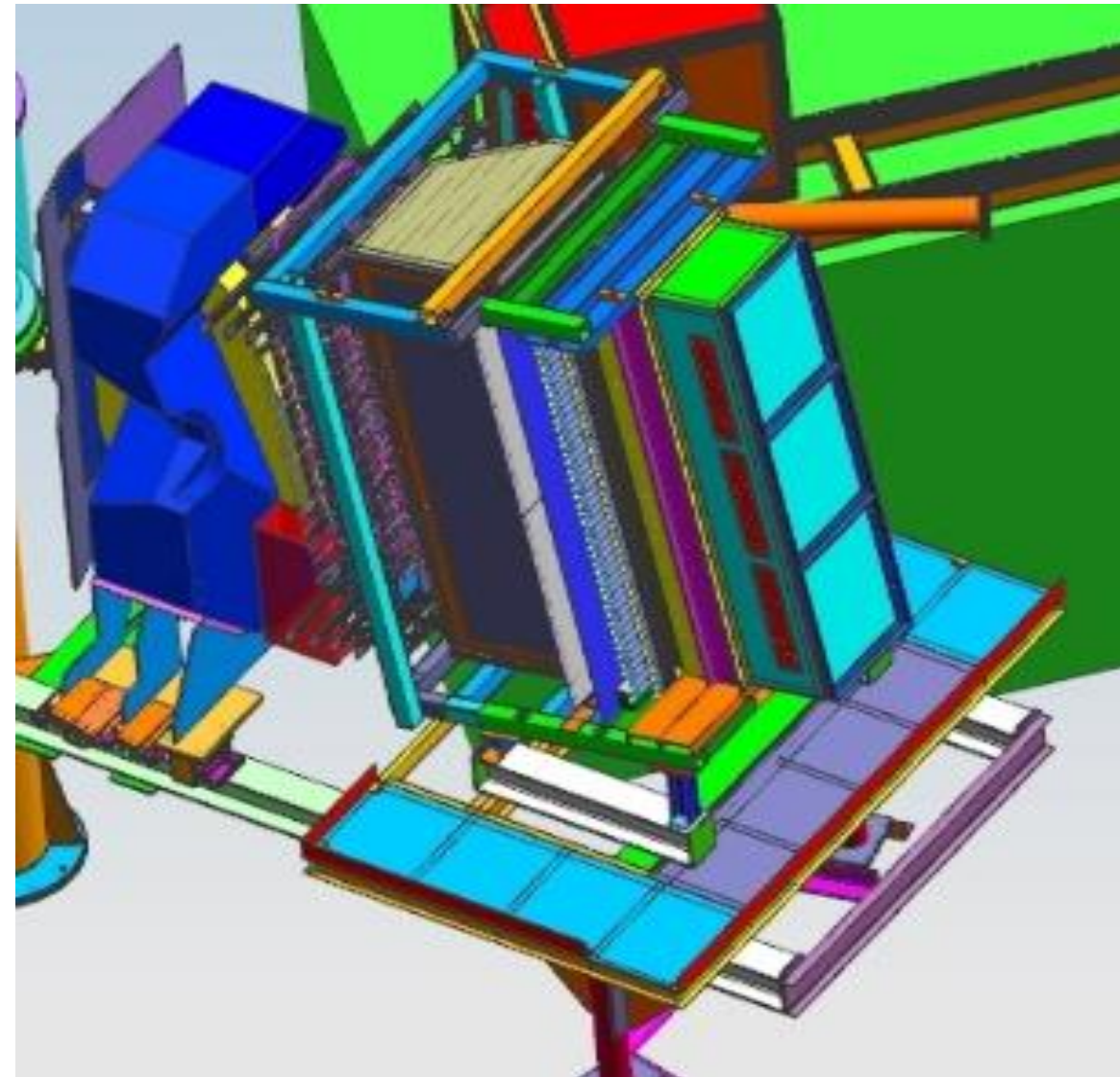
CPS with BigBite and NPS calorimeter

Can it be lifted over the SHMS?

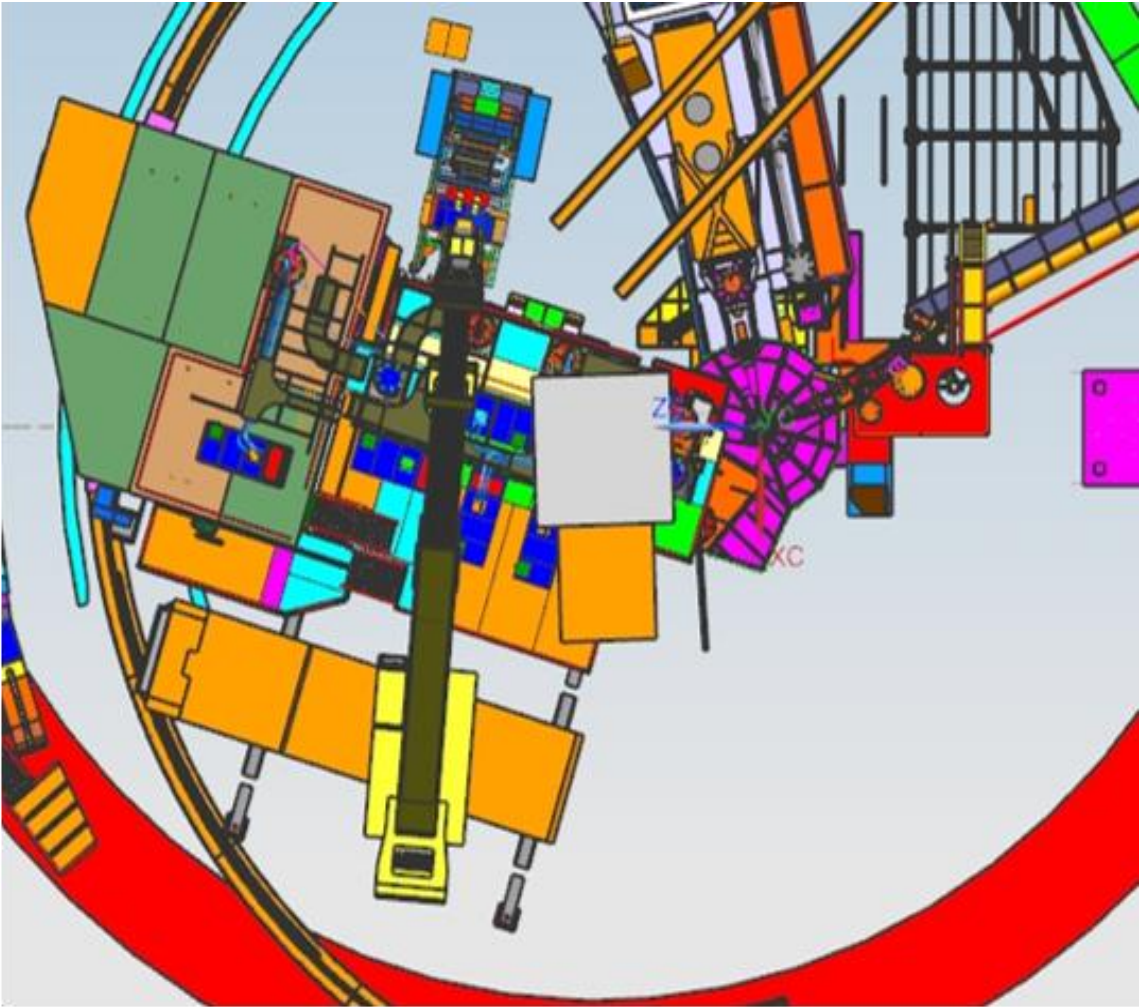


Getting SBS Magnet over SHMS

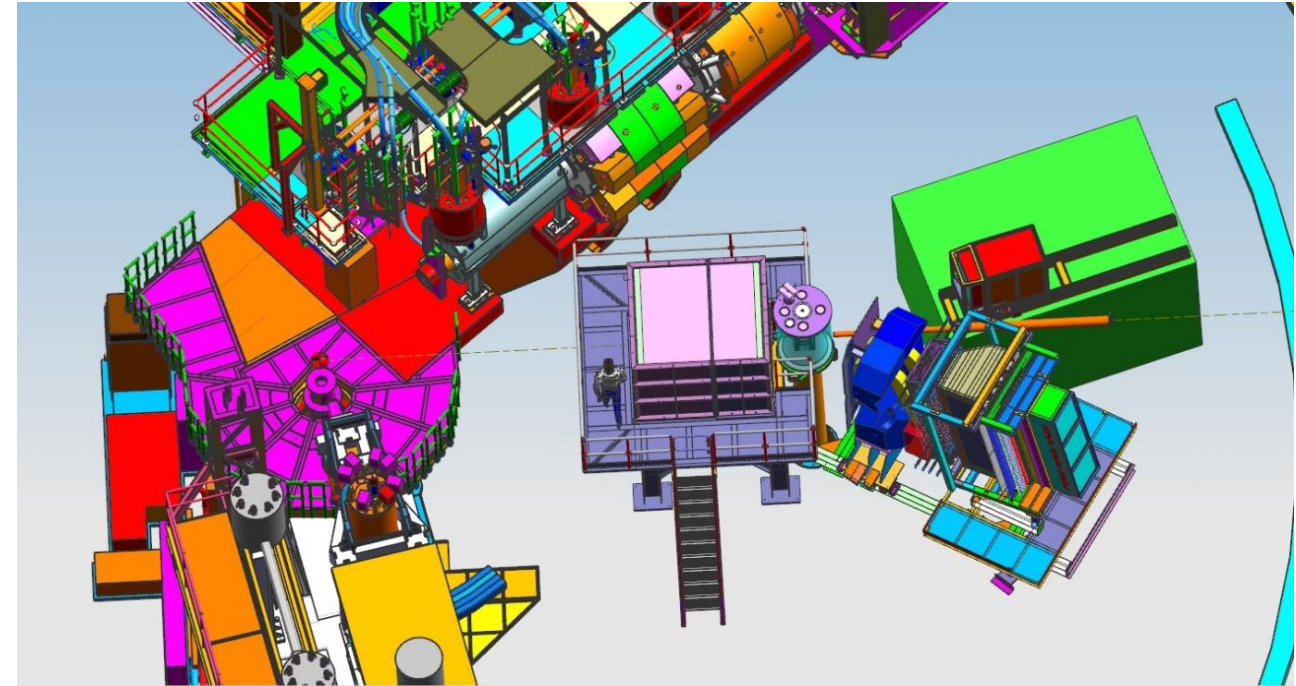
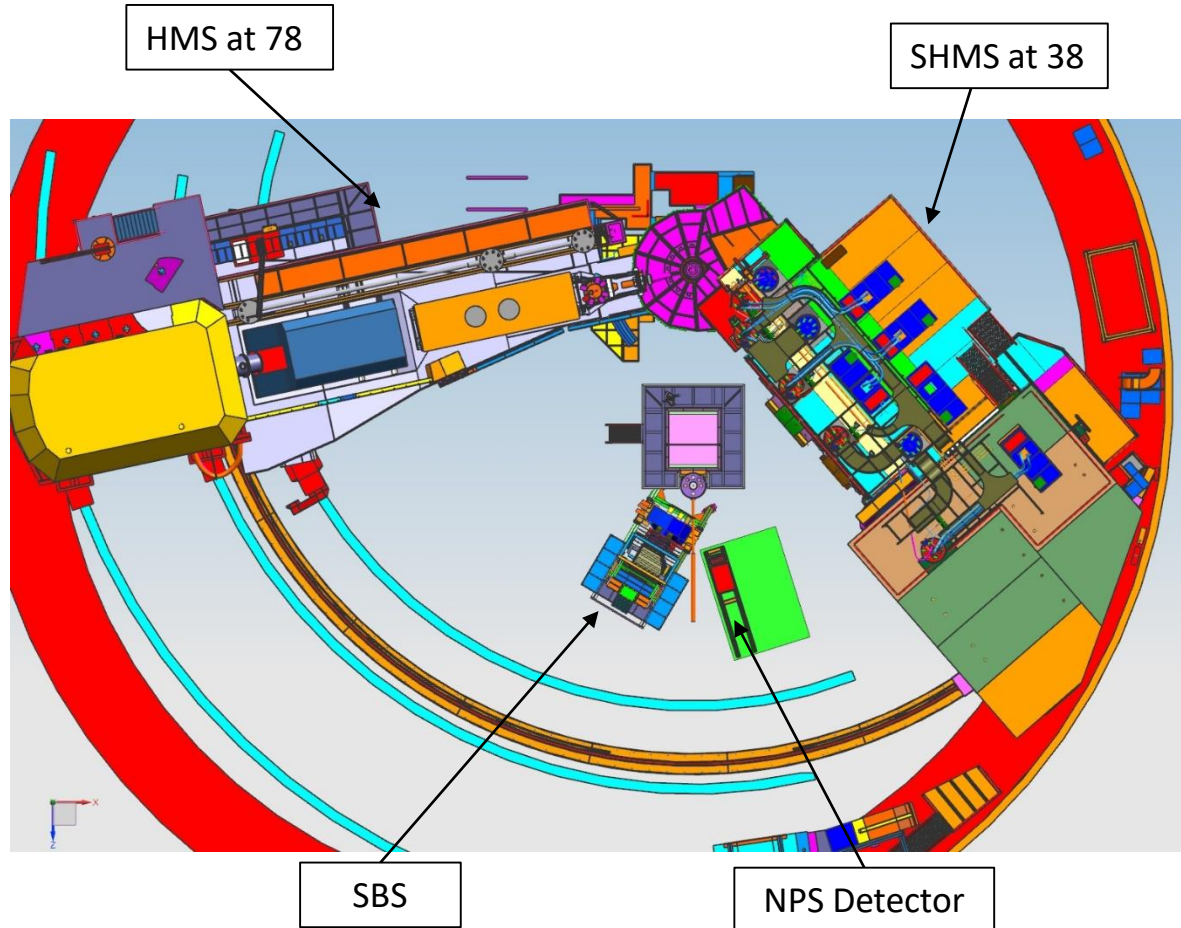
SBS Magnet can be disassembled and lifted over the SHMS with Hall C standard crane



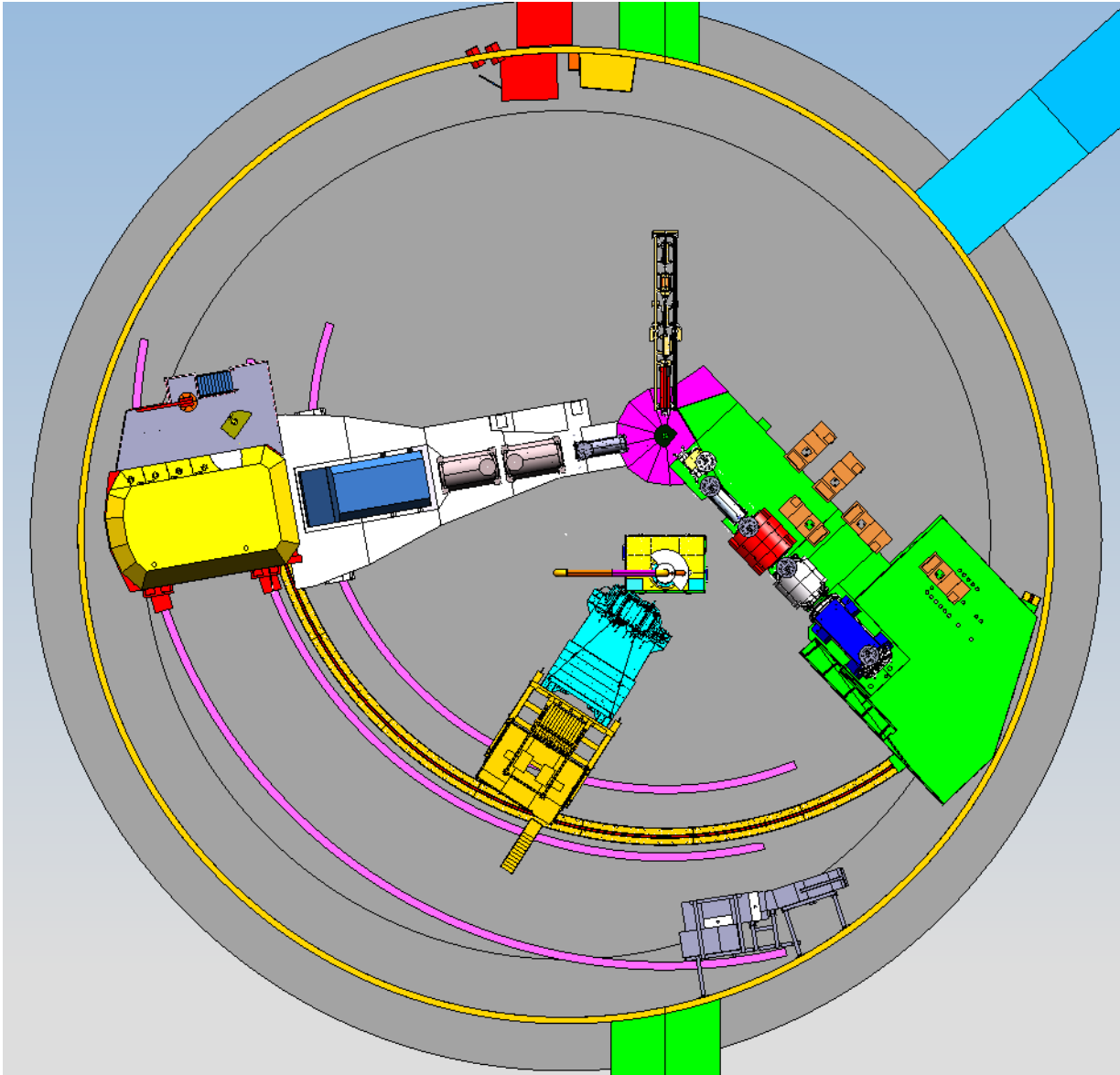
Optional for SBS Magnet to be lifted with a mobile crane



WACS CPS with SBS and NPS Calorimeter



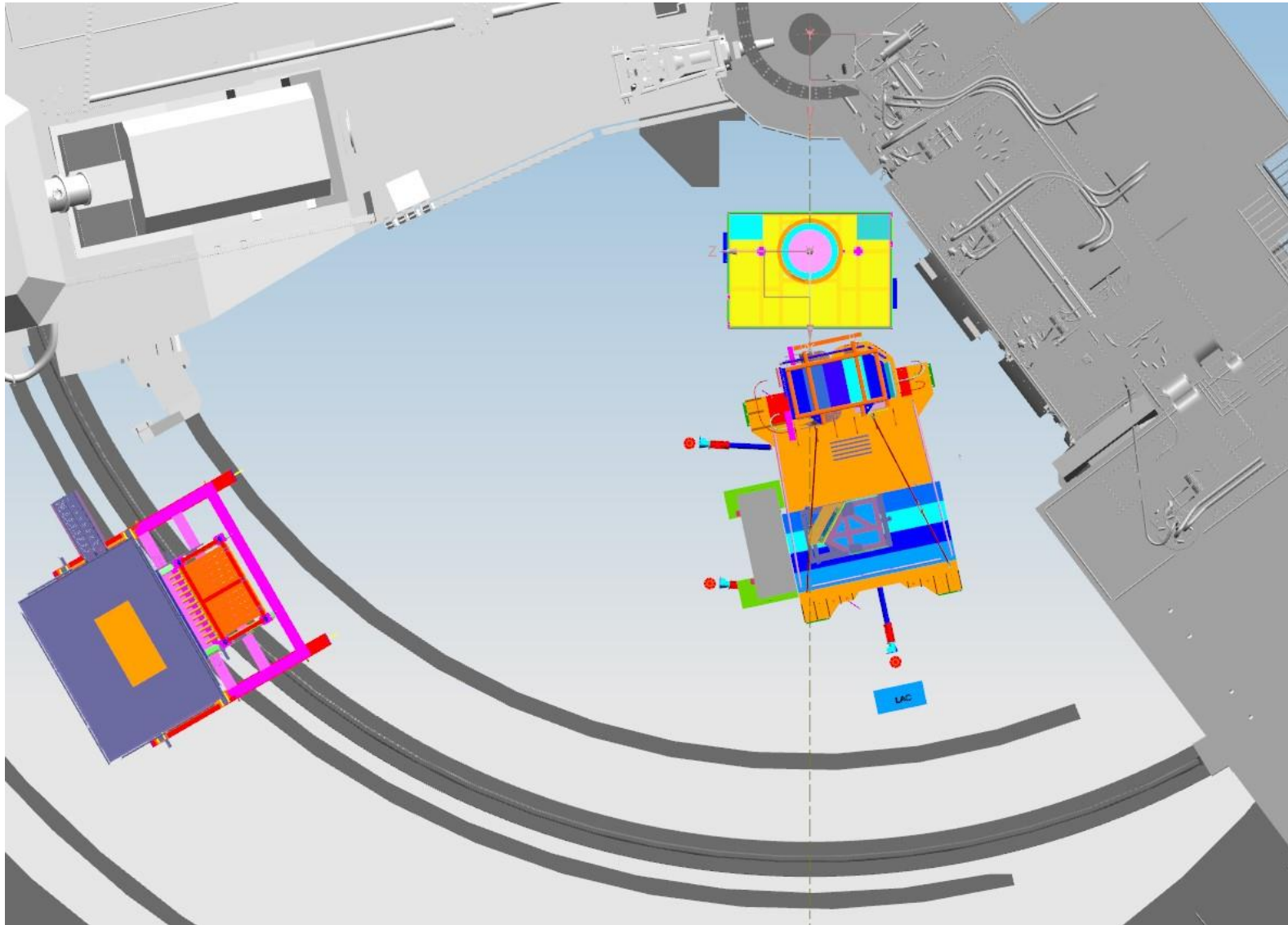
TDIS with BigBite In Hall C



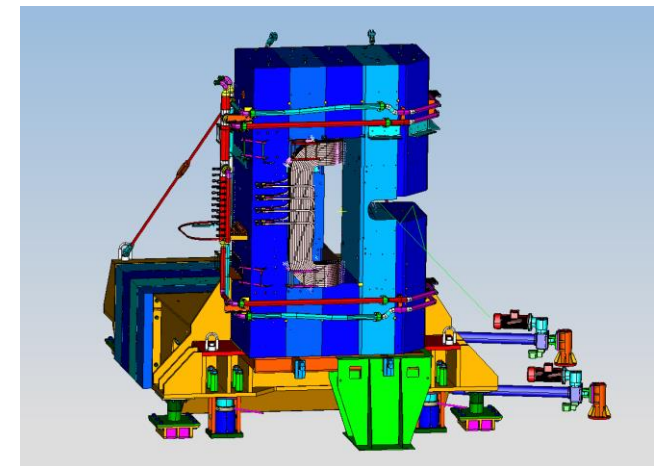
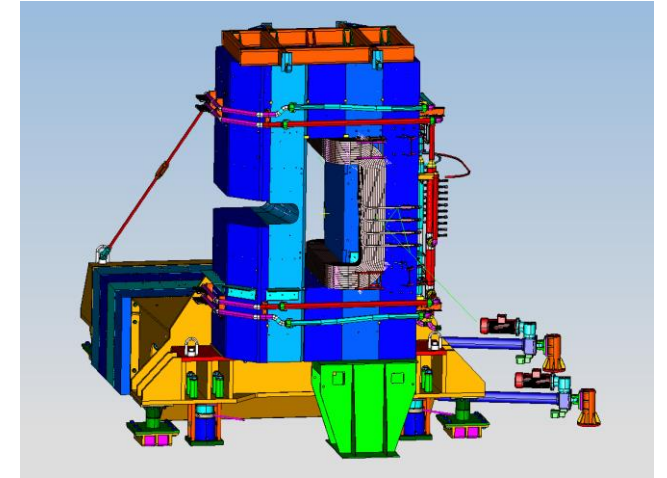
Big Bite & Hcal 2.5m downstream of Polarized target and @32.5 degrees.

Big Bite shown with Hall A's cantilevered support structure (not needed for Hall C but why change a good thing).

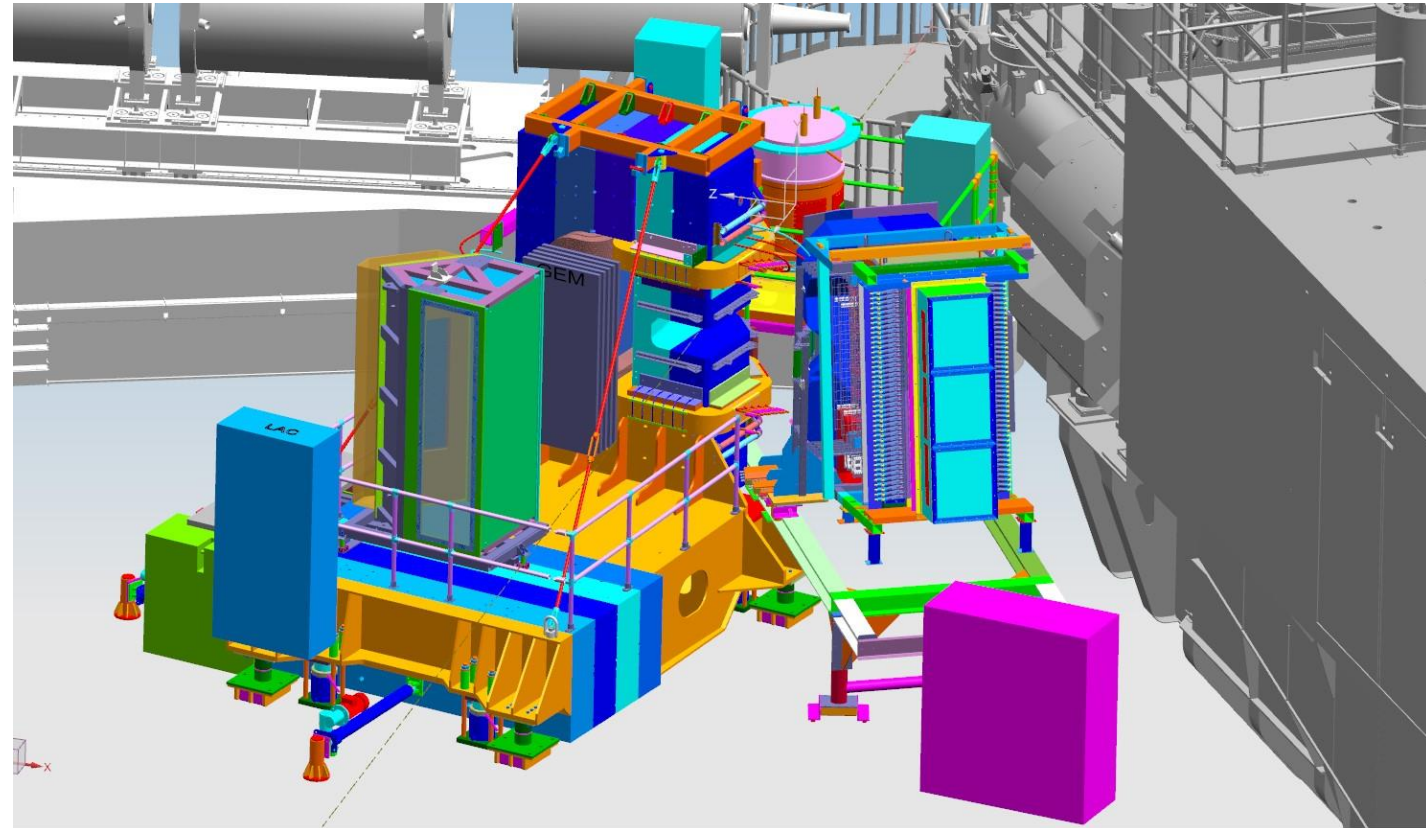
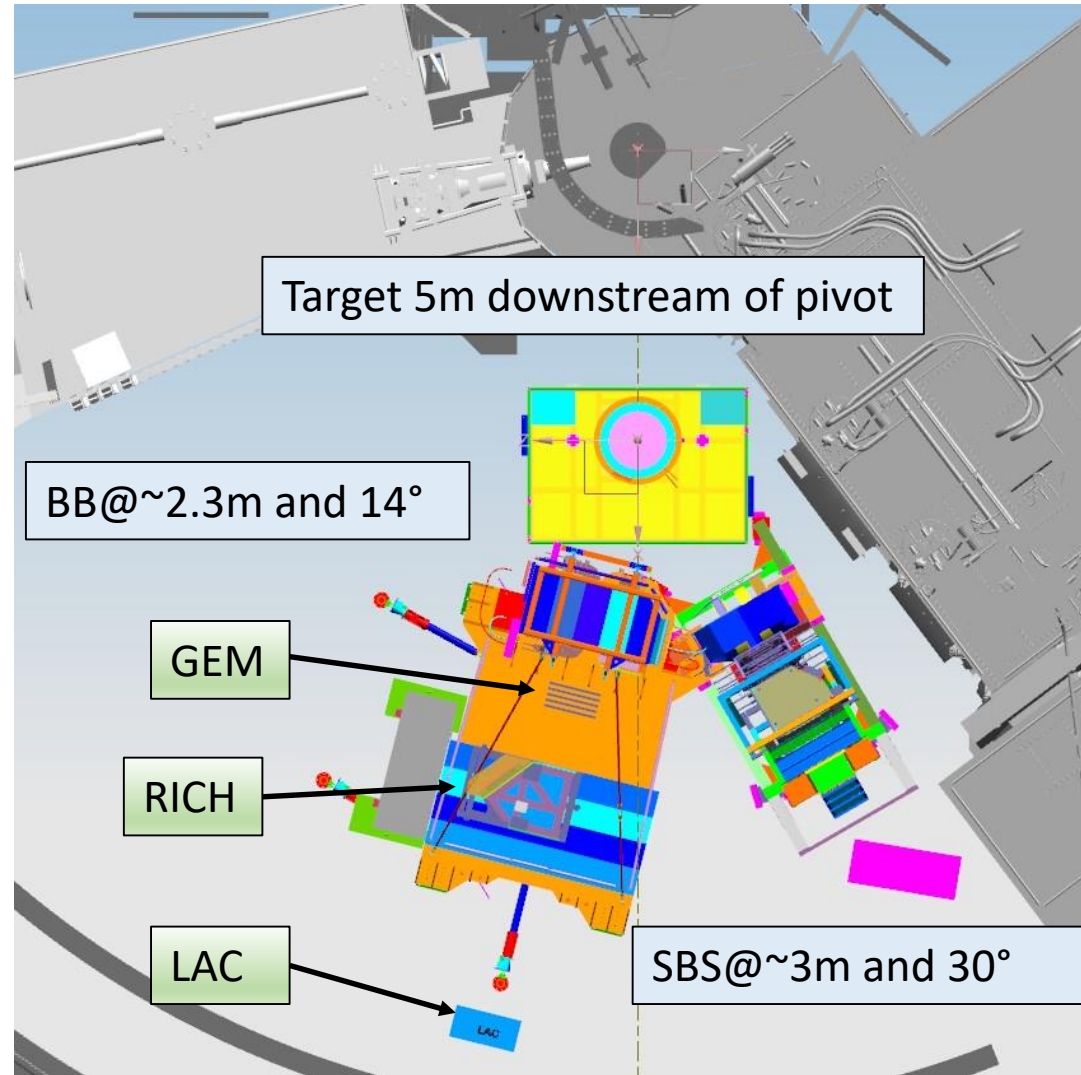
TDIS BigBite with HCAL – Calibration of mTPC



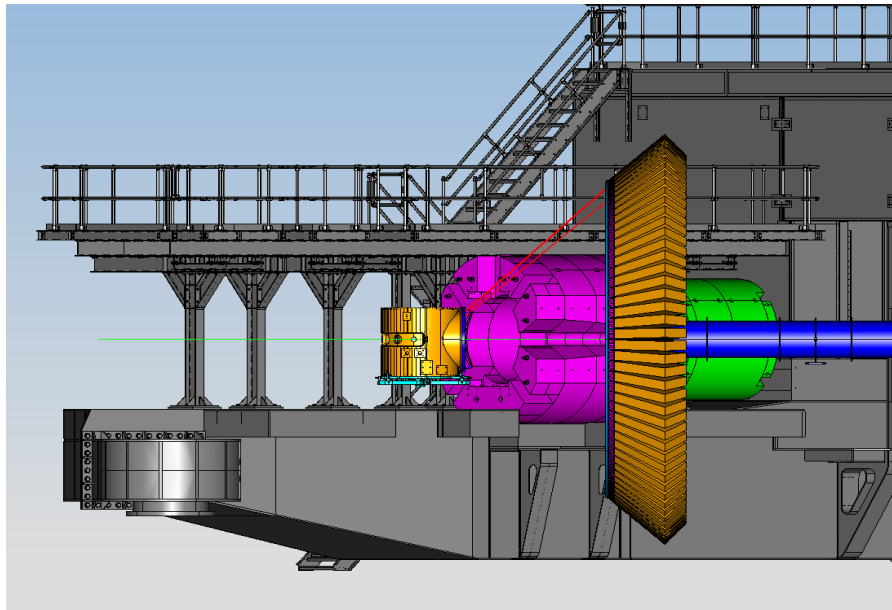
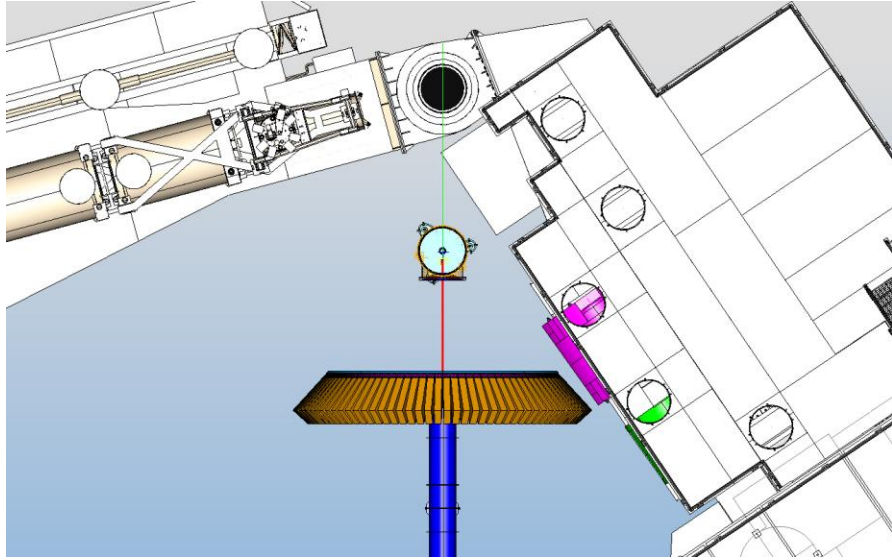
SBS @ 12°
Hcal @ 60° and 15m from target



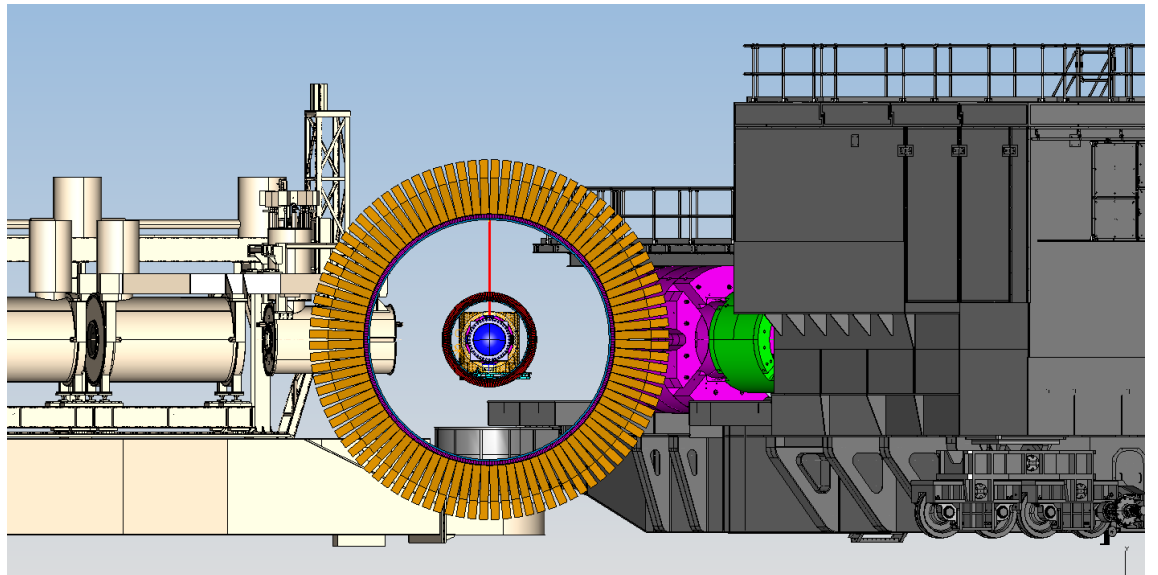
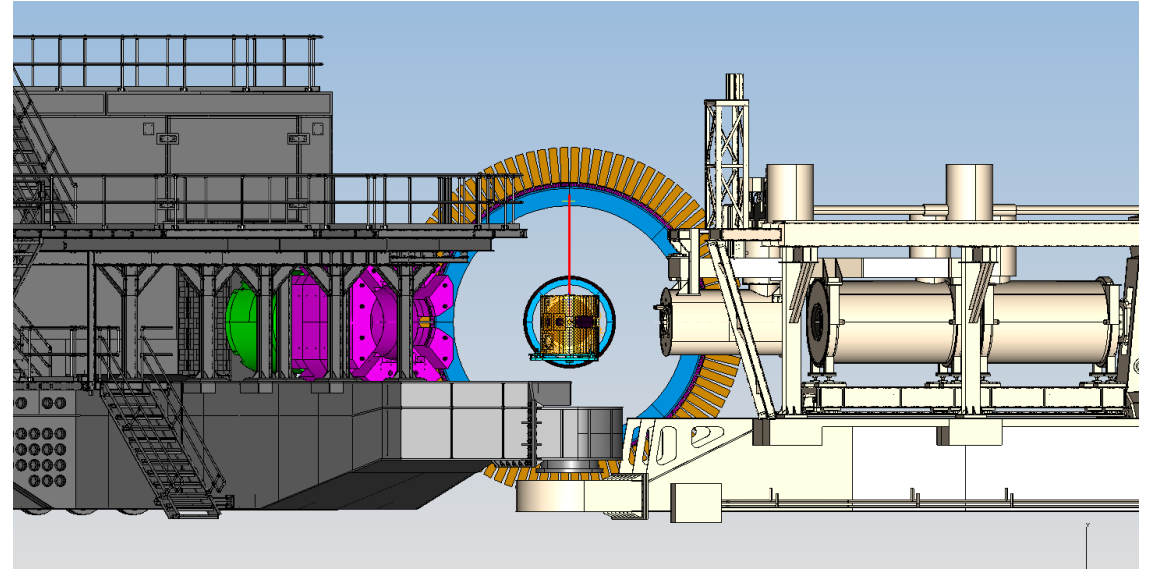
SIDIS with BigBite and SBS



SFF In Hall C



SHMS Q1 and HB not shown in this layout for clarity but will be left on SHMS.



SFF Target and Detectors

ECal

- 1,200 blocks
- Each block:
2x2x20cm (volume=80cc)
- 40x5 blocks make up a sector
- 6 sectors
- 2.96M downstream of target
- Weight: 1,700lb

HCal

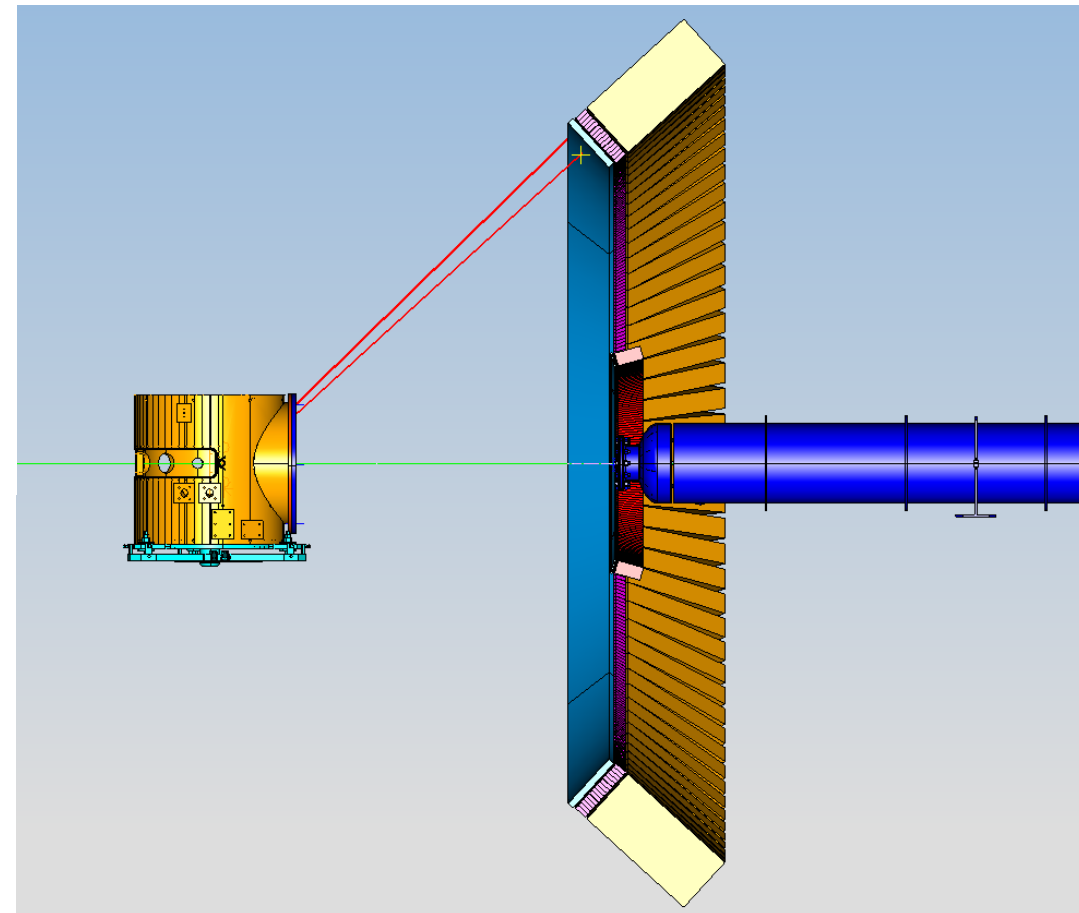
- 288 blocks
- Each block:
15.5x15.5x100 cm (24,025cc)
- 16x3 blocks make up a sector
- 6 sectors
- 3.27m downstream of target
- Weight: 63,504 Lb

Scintillators

- 7,200 blocks
- Each block:
3x3x10 cm (Volume = 90cc)
- 5x5 blocks make a segment
- 48 segments make up sector
- 6 sectors
- Weight: 1,714.6lb

Target Chamber is centered 3.5m downstream of the pivot.

LH2 5cm diameter, 10cm long Target is slightly displaced 25cm downstream of target chamber center line.



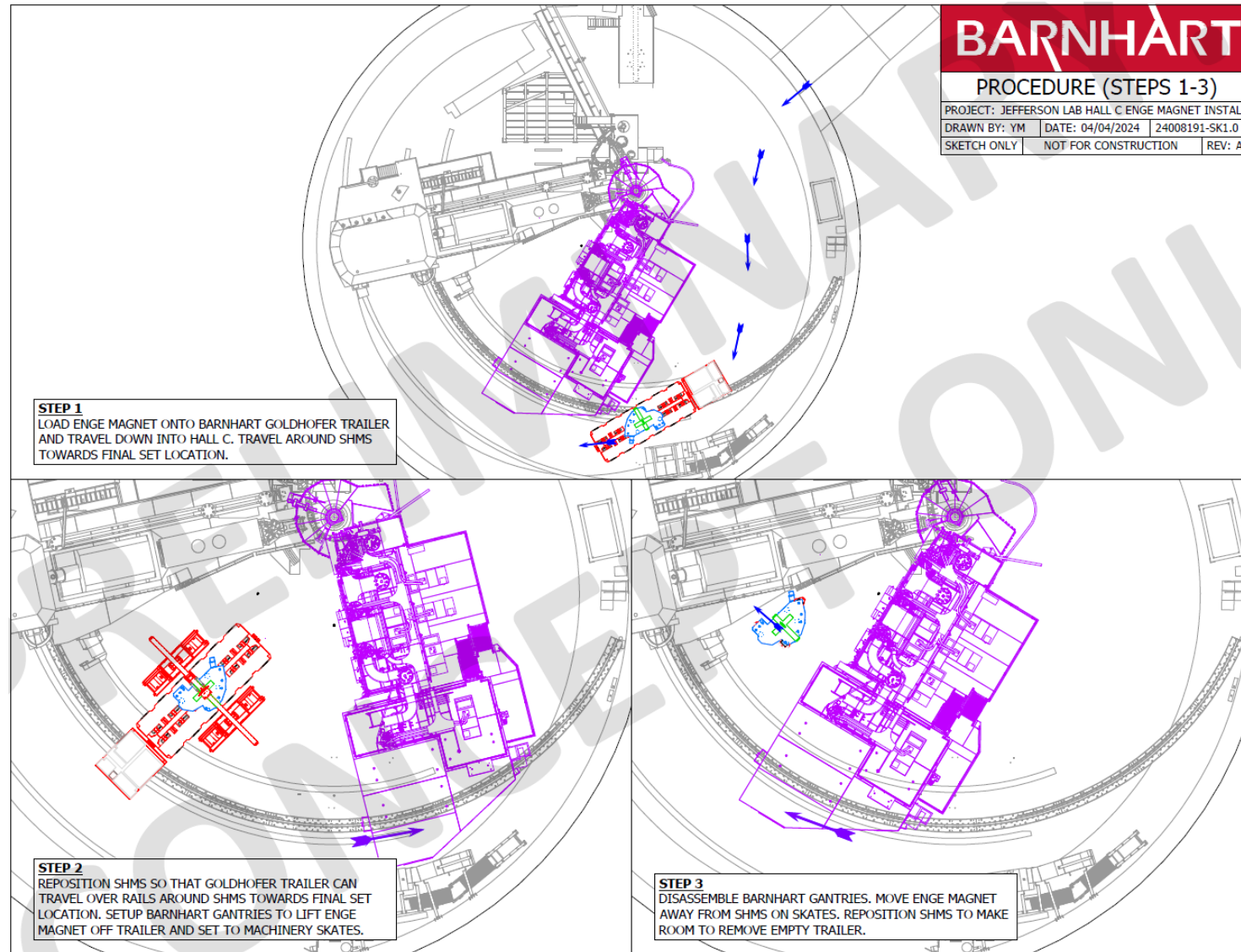
Conclusion

- Conceptual layouts of SBS, BigBite and SFF in Hall C shown.
- Space is available and installation over SHMS is manageable.
- Target will be downstream of pivot.
- Engineering the details and support structures are in our future.

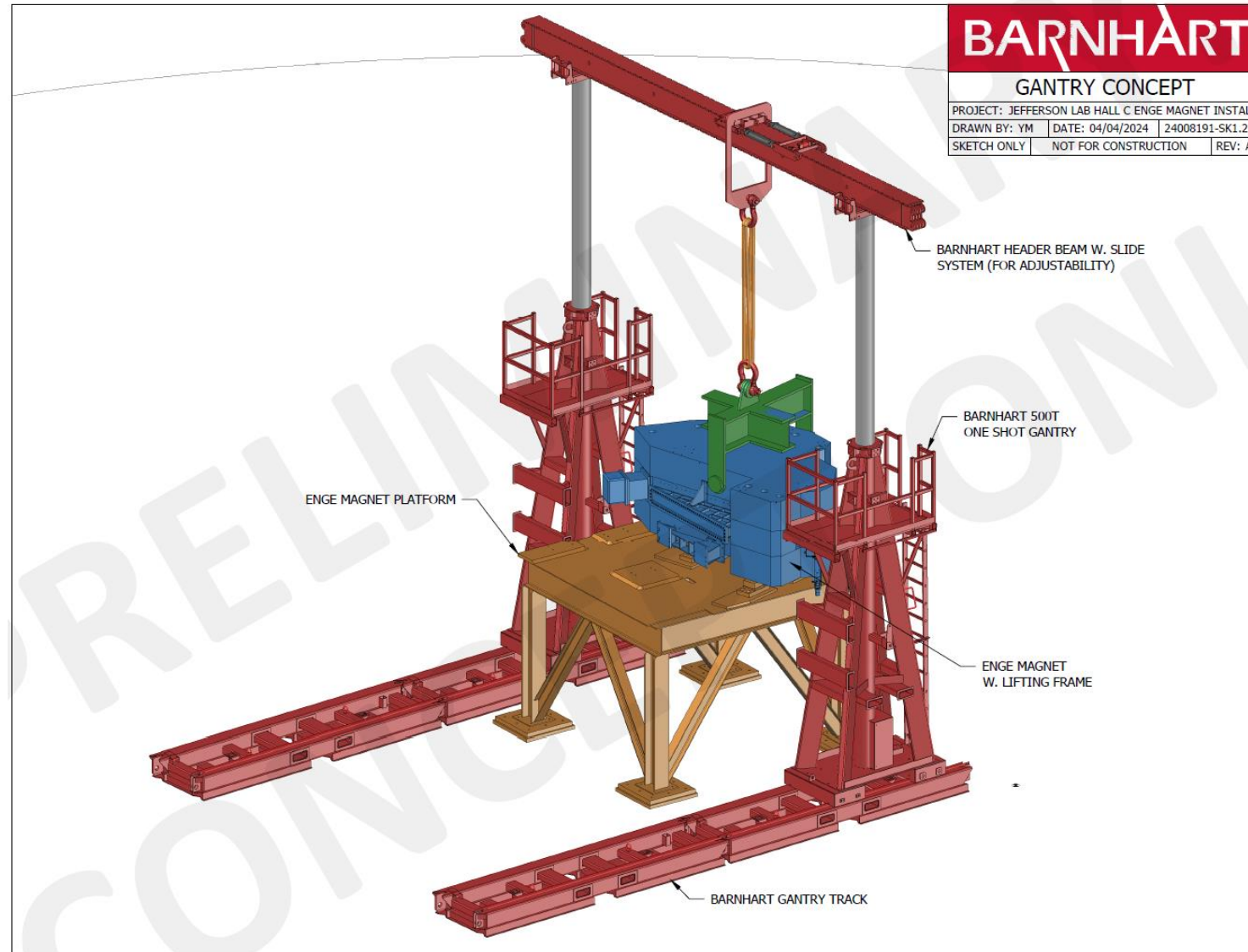
Backup Slides

- Equipment Moving using low profile trailer
- CPS

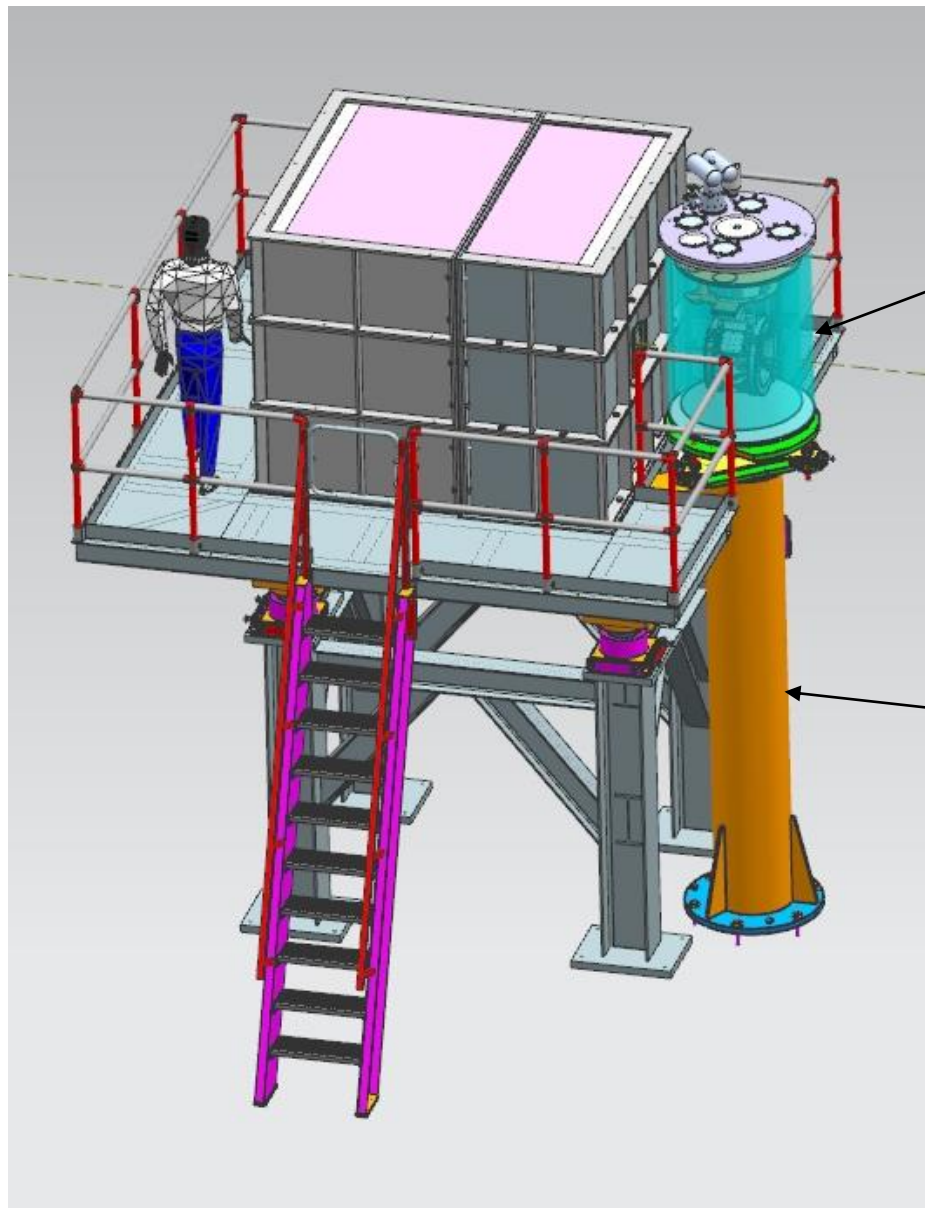
GoldHofer trailer



Lifting Towers



CPS with Polarizing 5T magnet



Target chamber (SCP0157)

Hall C Existing
Target Support
Stand