



August 10, 2026 | Oak Ridge, TN

Target and MRA Installation

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MRA Lead Engineer

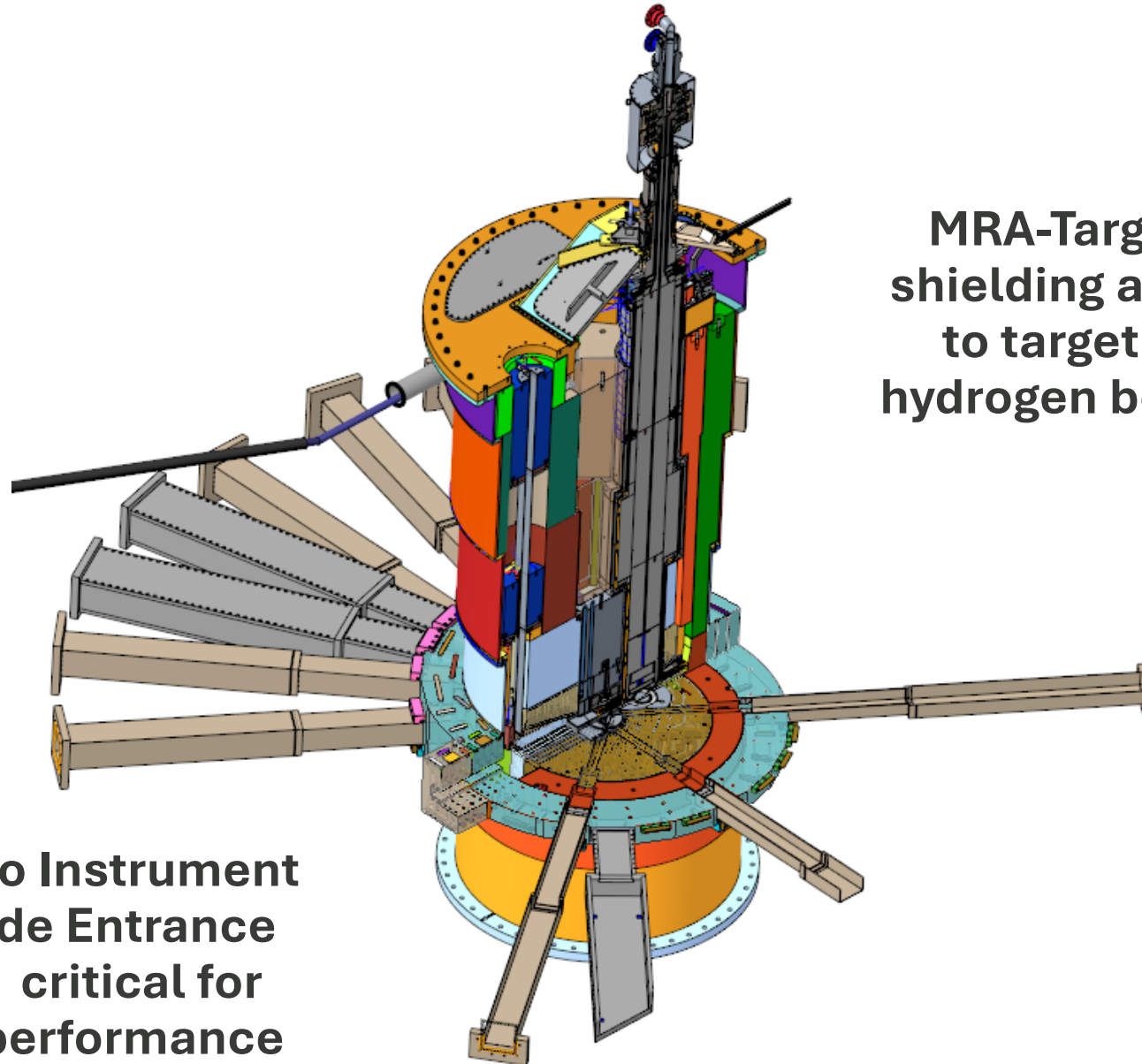


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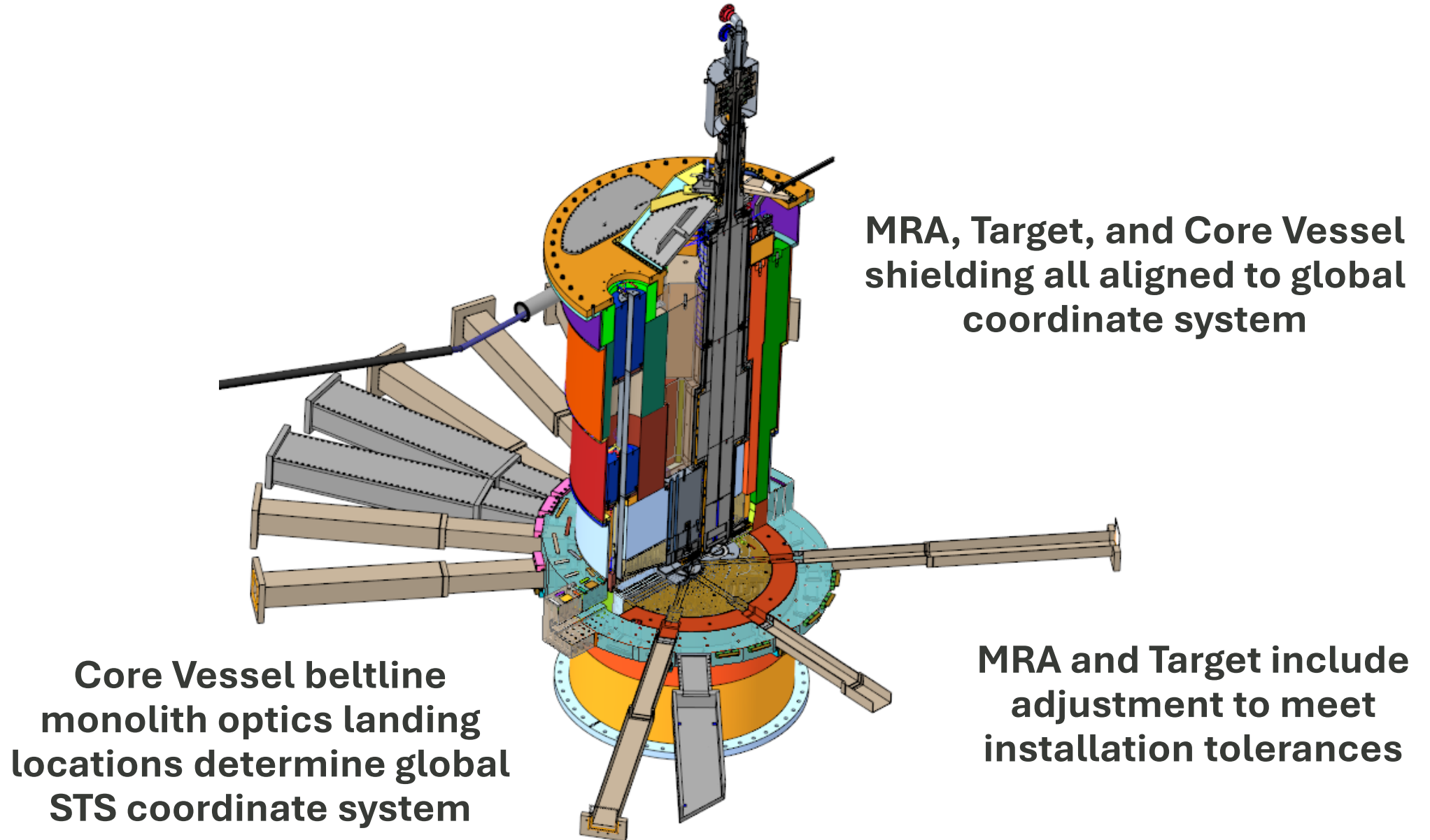
MRA and Target Installation Philosophy



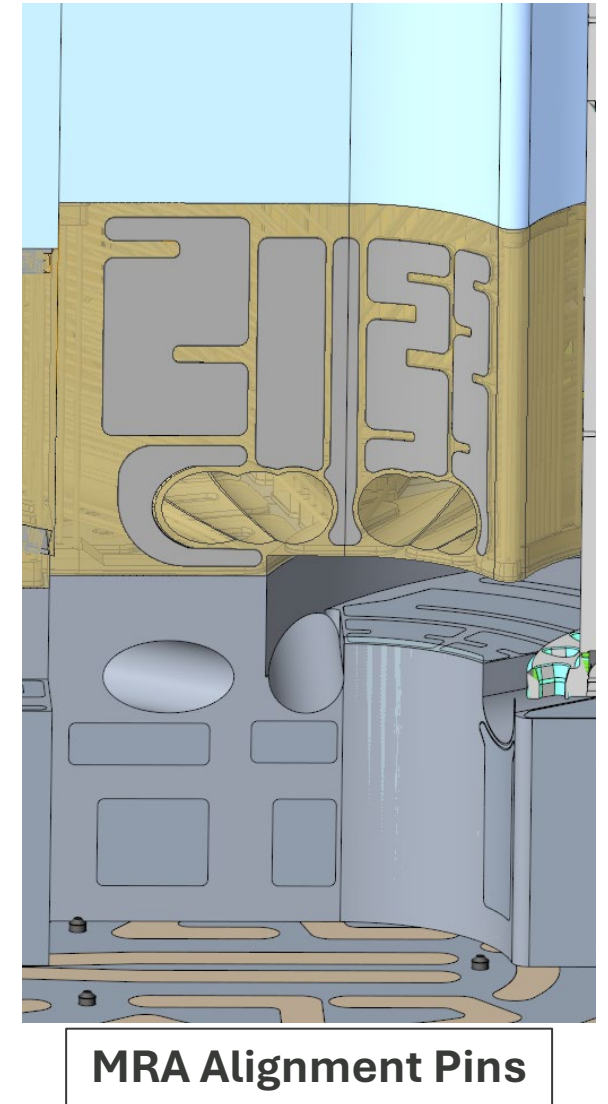
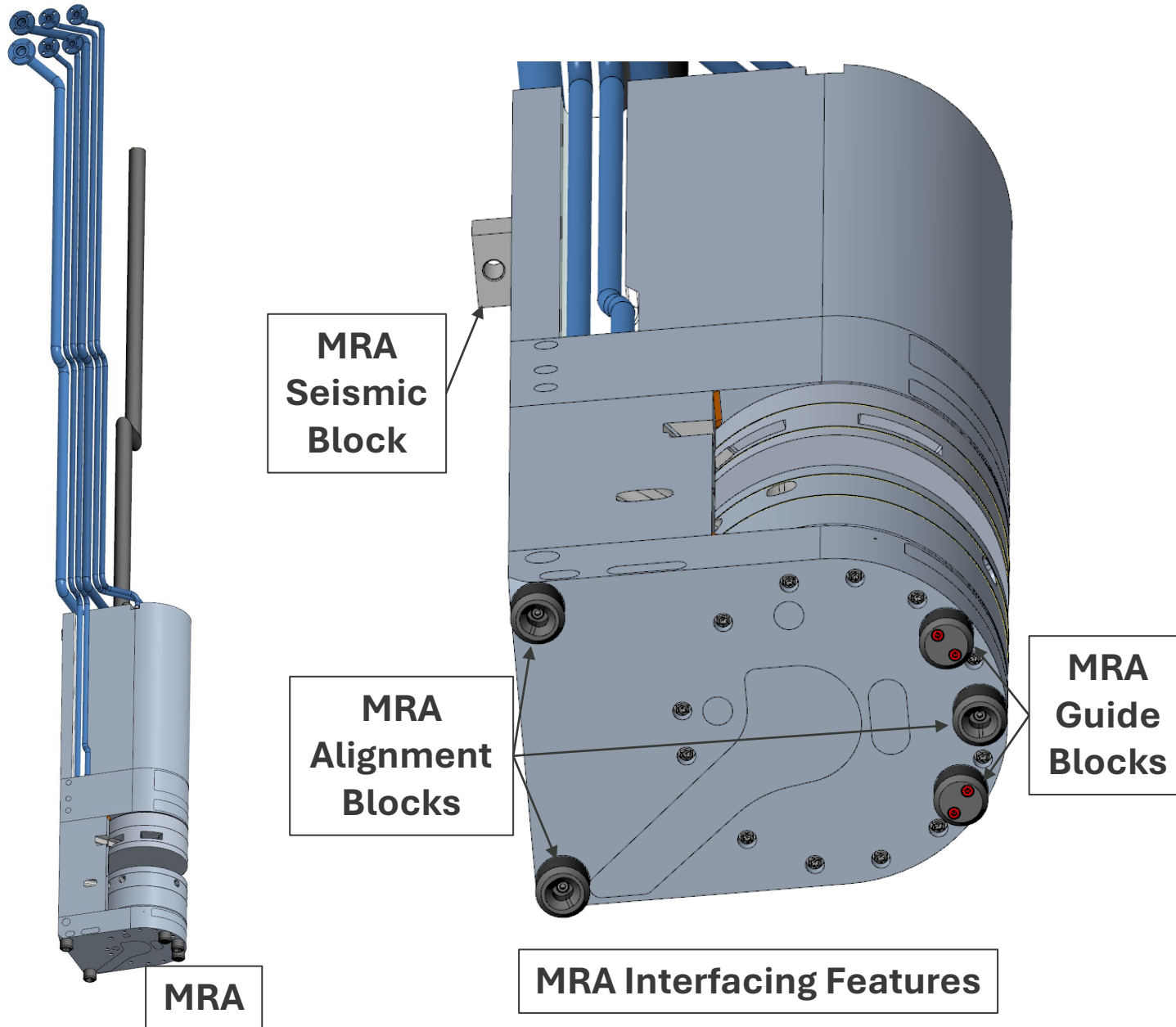
**MRA-Target-Core Vessel
shielding alignment critical
to target operation and
hydrogen boundary integrity**

**Moderator to Instrument
Optics Guide Entrance
alignment critical for
neutronic performance**

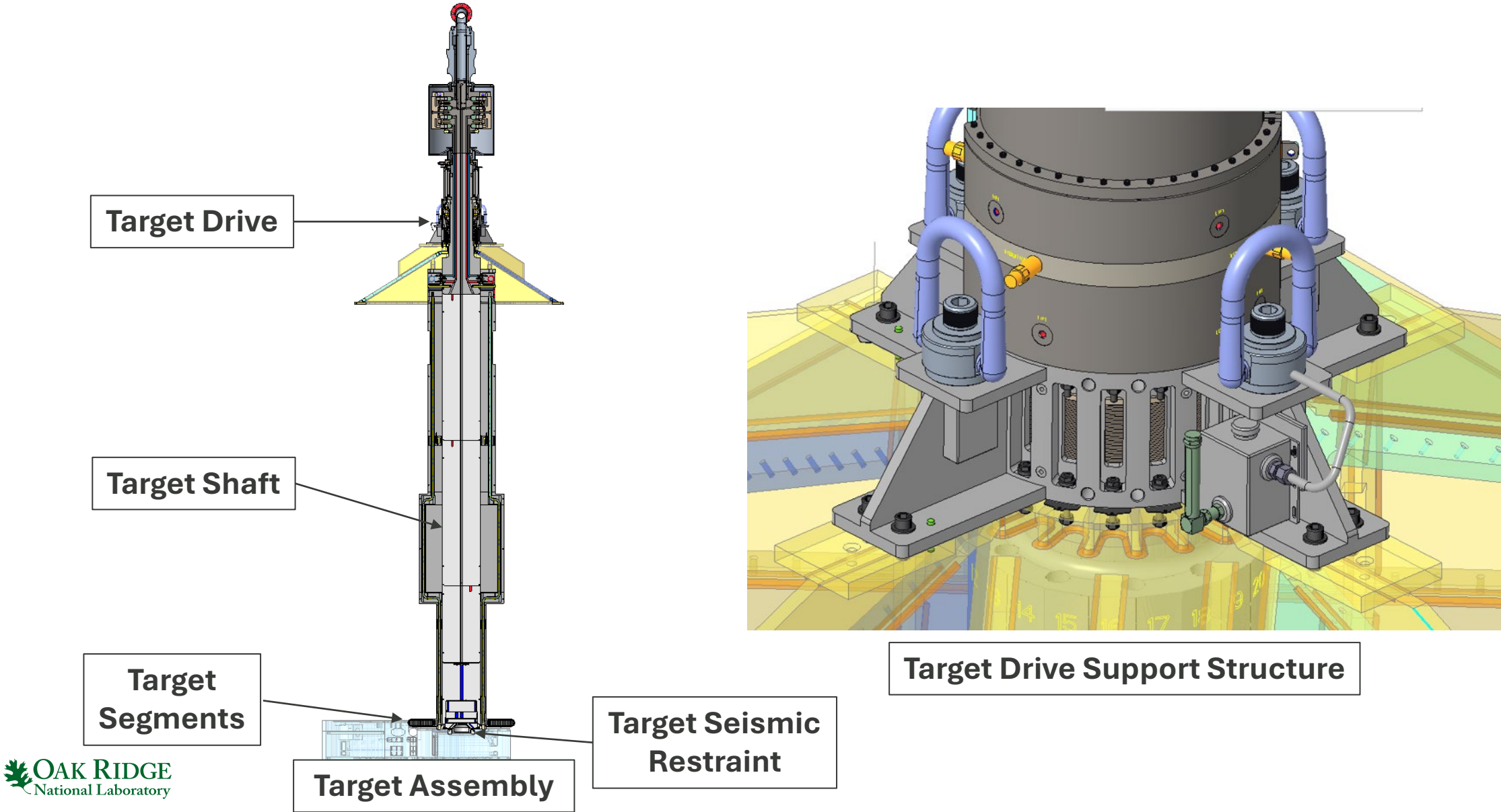
MRA and Target Installation Applied Philosophy



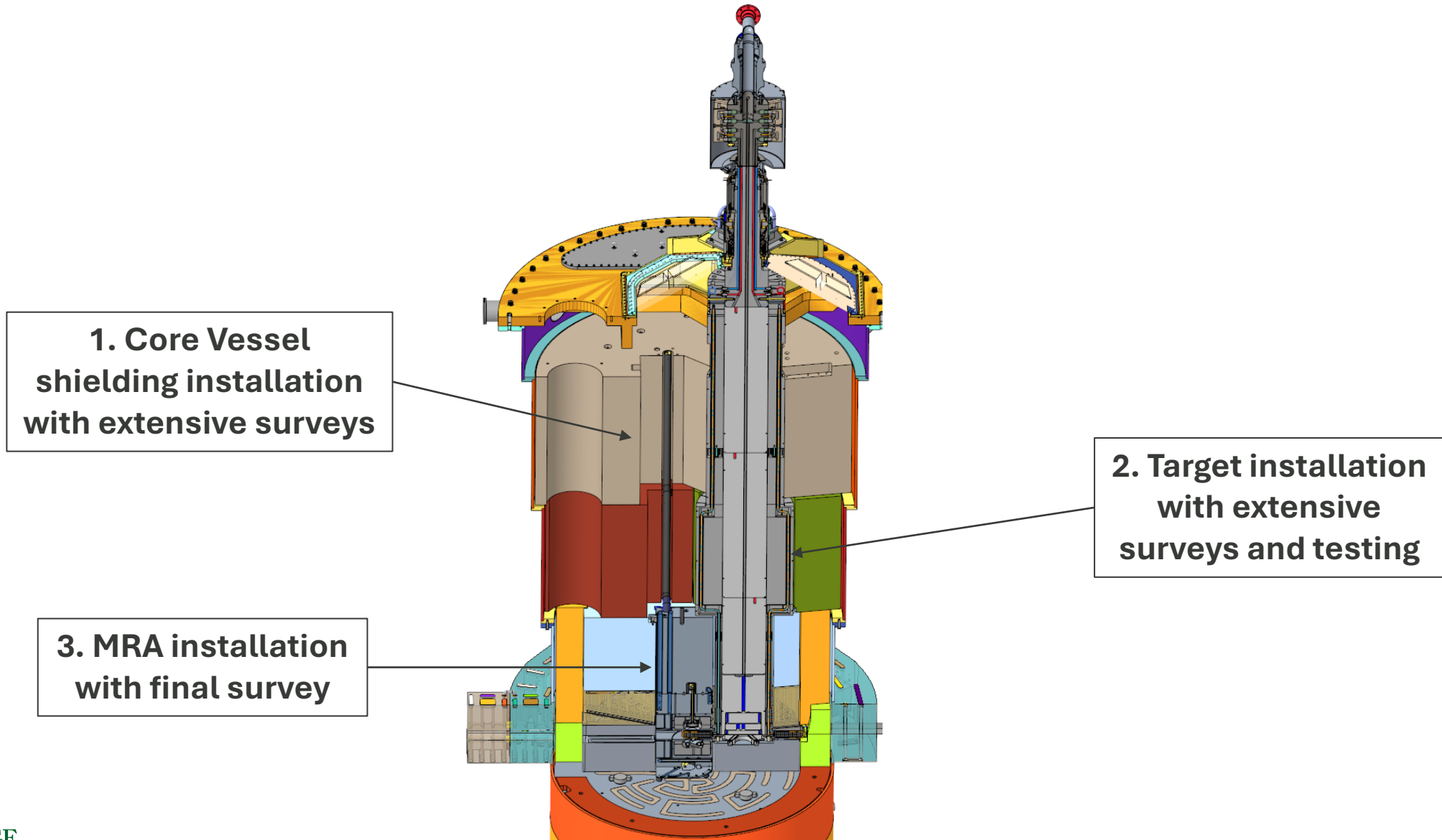
MRA Aligned by 3 Pins in 3 Aligned Slots



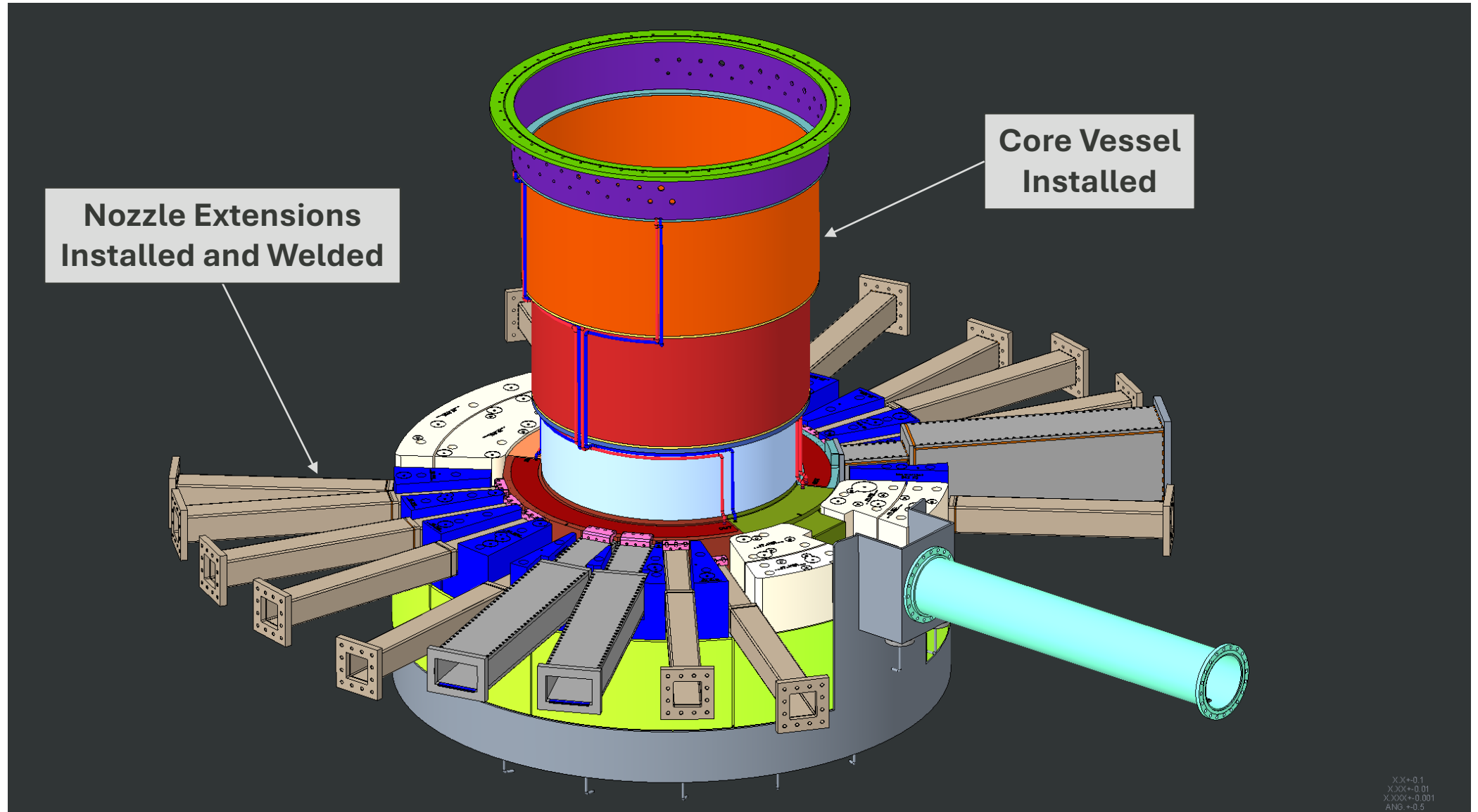
Target Aligned from the Bottom Up



MRA and Target Installation Sequence Overview



Monolith Status at Start of MRA and Target Installation



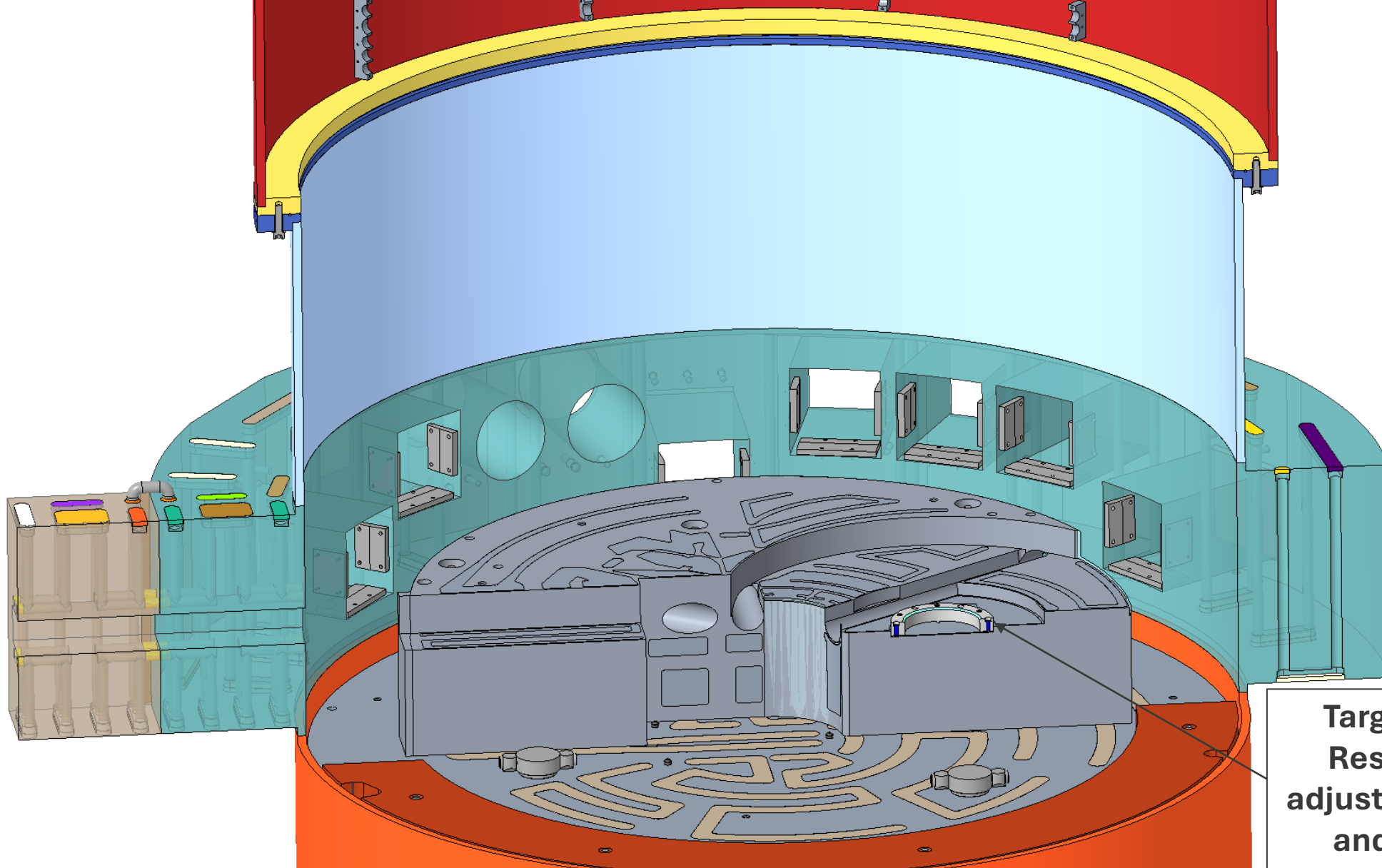
Global Coordinate System Established by Beltline Landings

Core Vessel beltline landings surveyed to establish STS global coordinate system

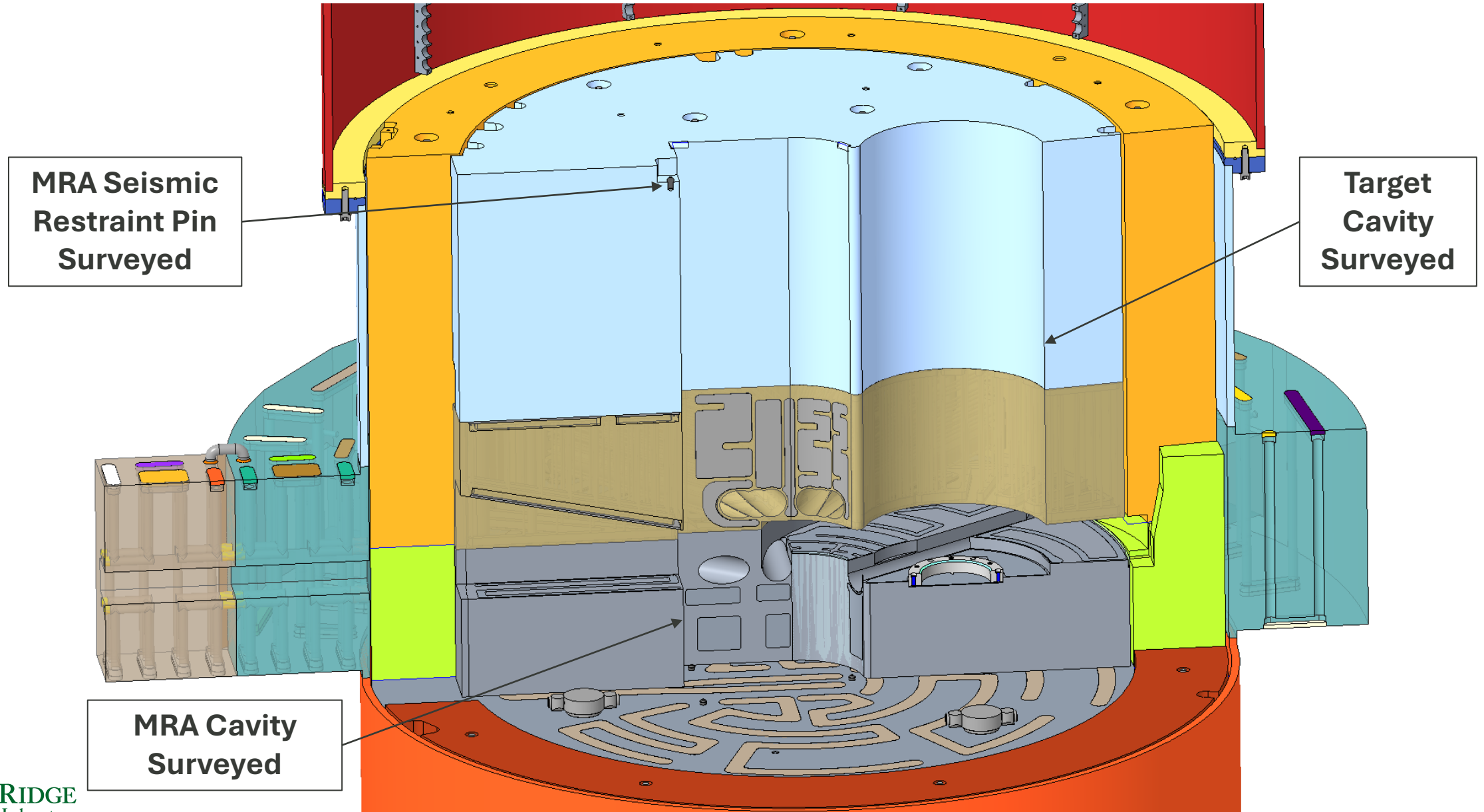
MRA alignment pins surveyed

Target Seismic Restraint Ring recess surveyed

Target Seismic Restraint Ring Adjusted and Installed



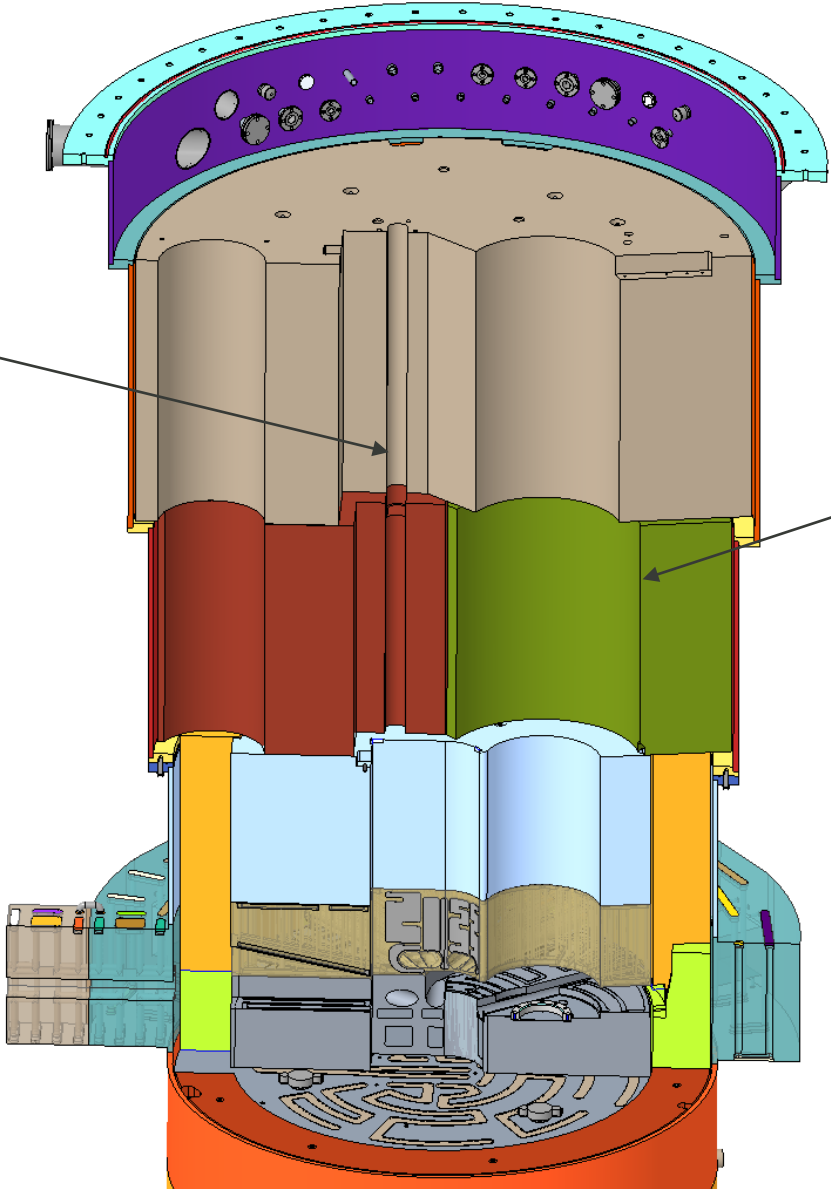
Core Vessel Layer 2 & 3 Shielding Added



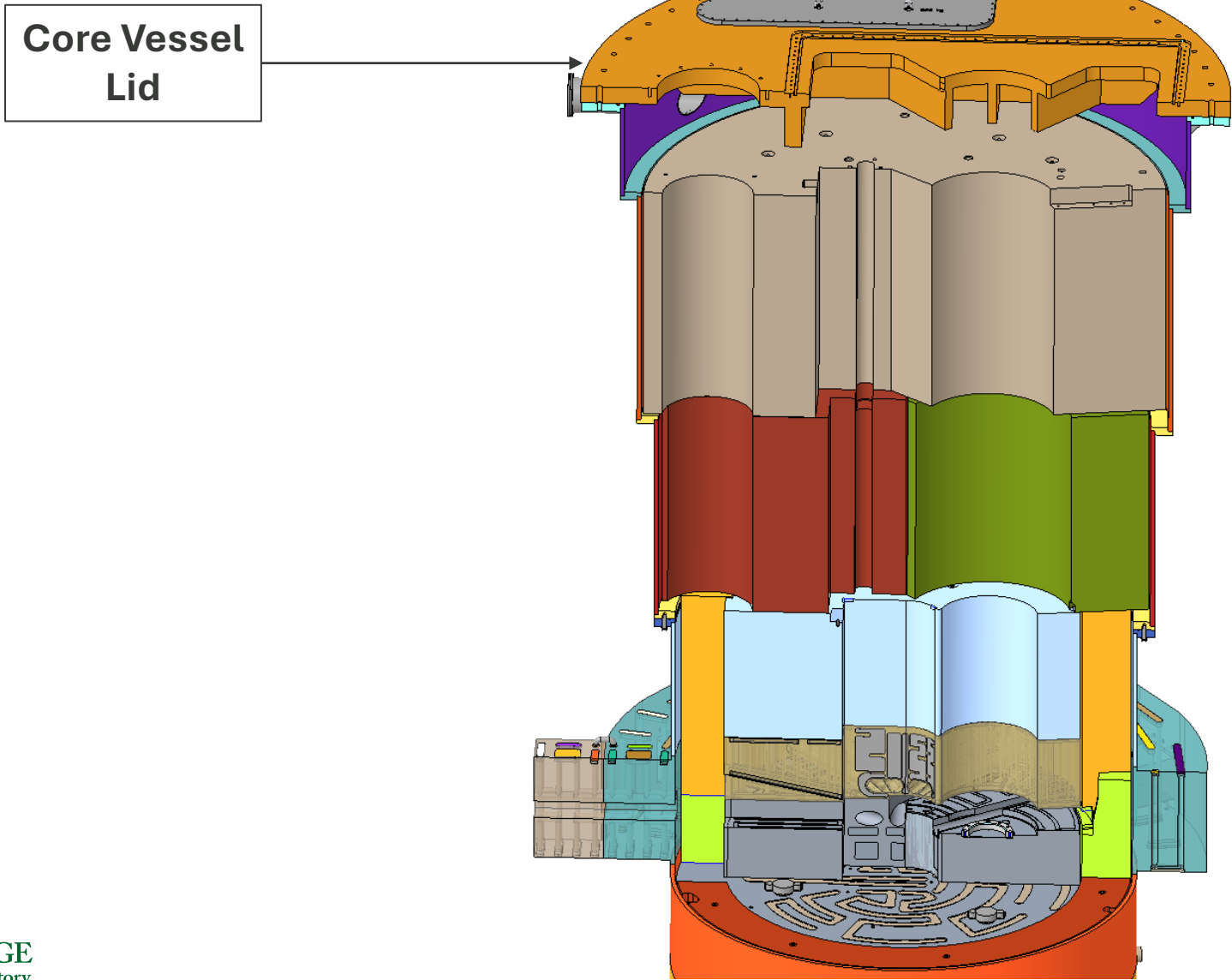
All Core Vessel Permanent Shielding Stacked

MRA Piping
Chases
Surveyed

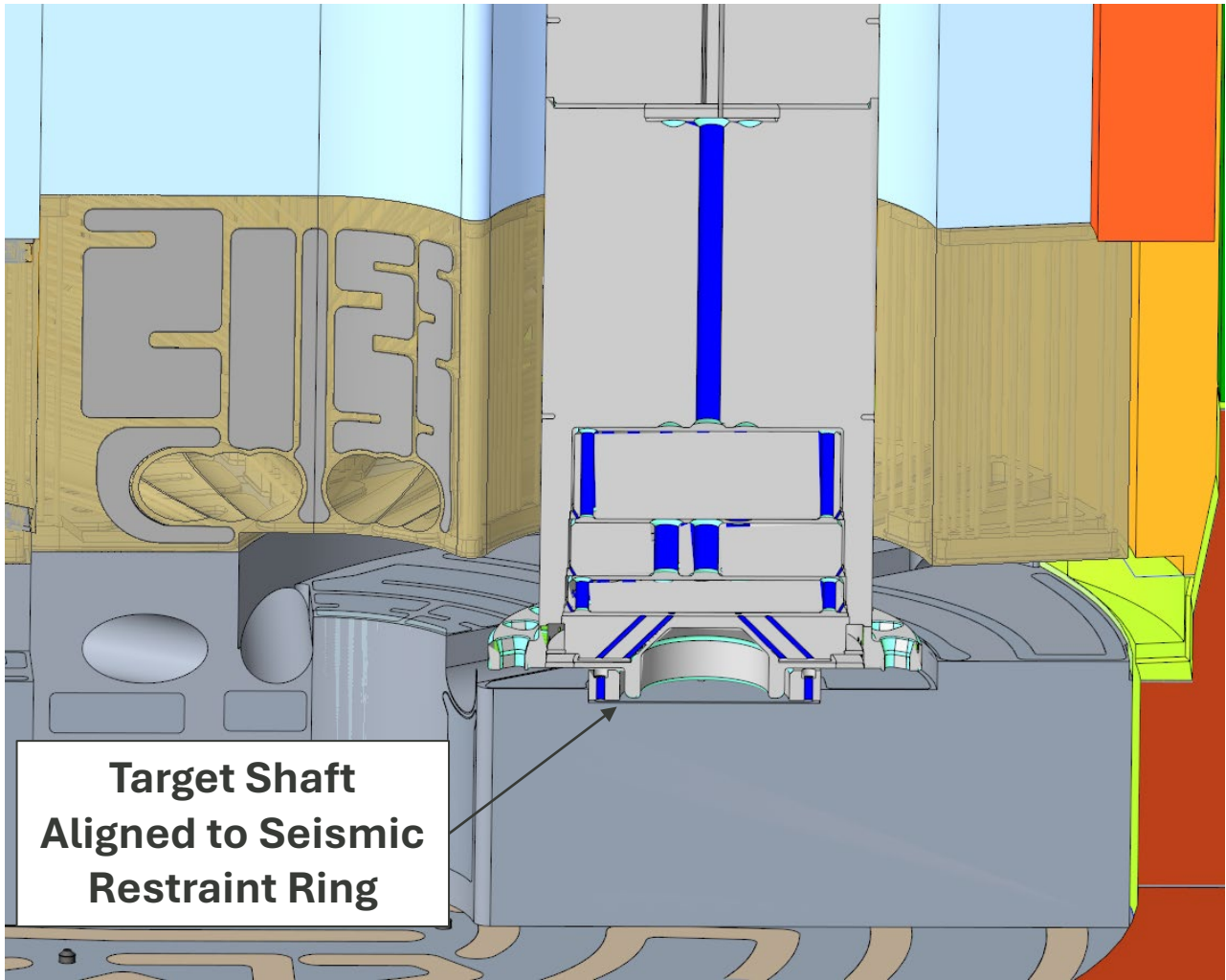
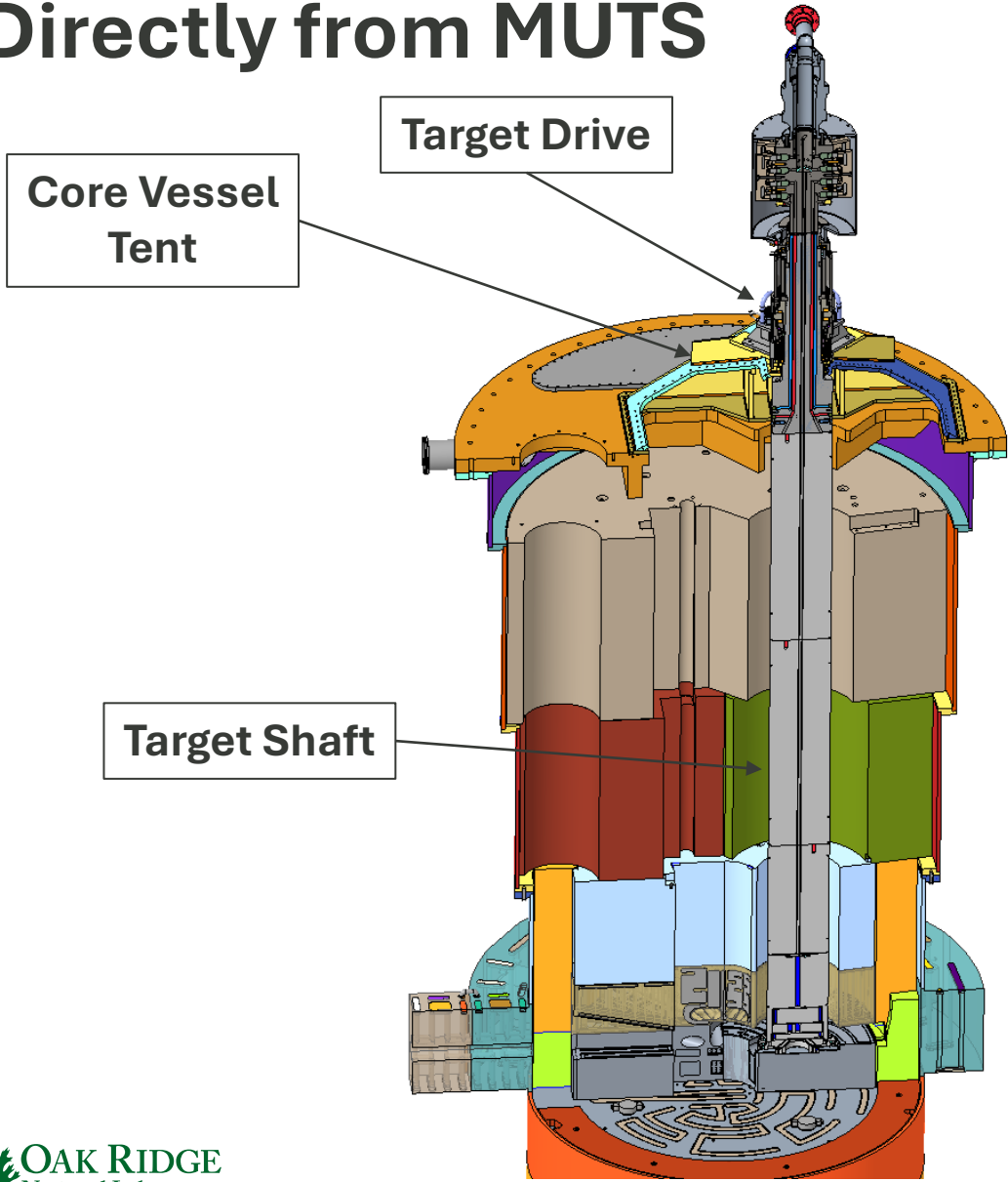
Target
Cavity
Surveyed



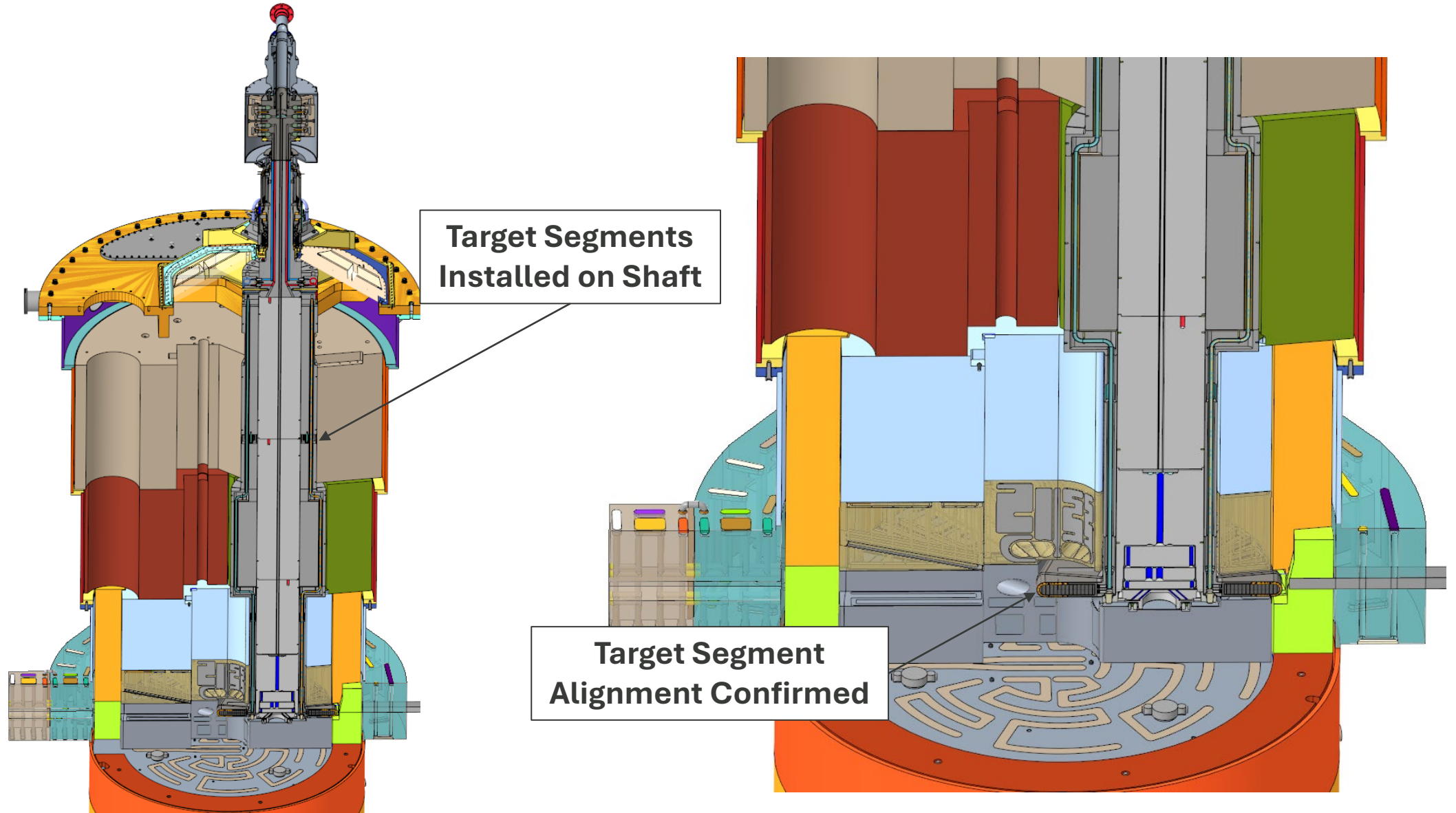
Core Vessel Lid Installed



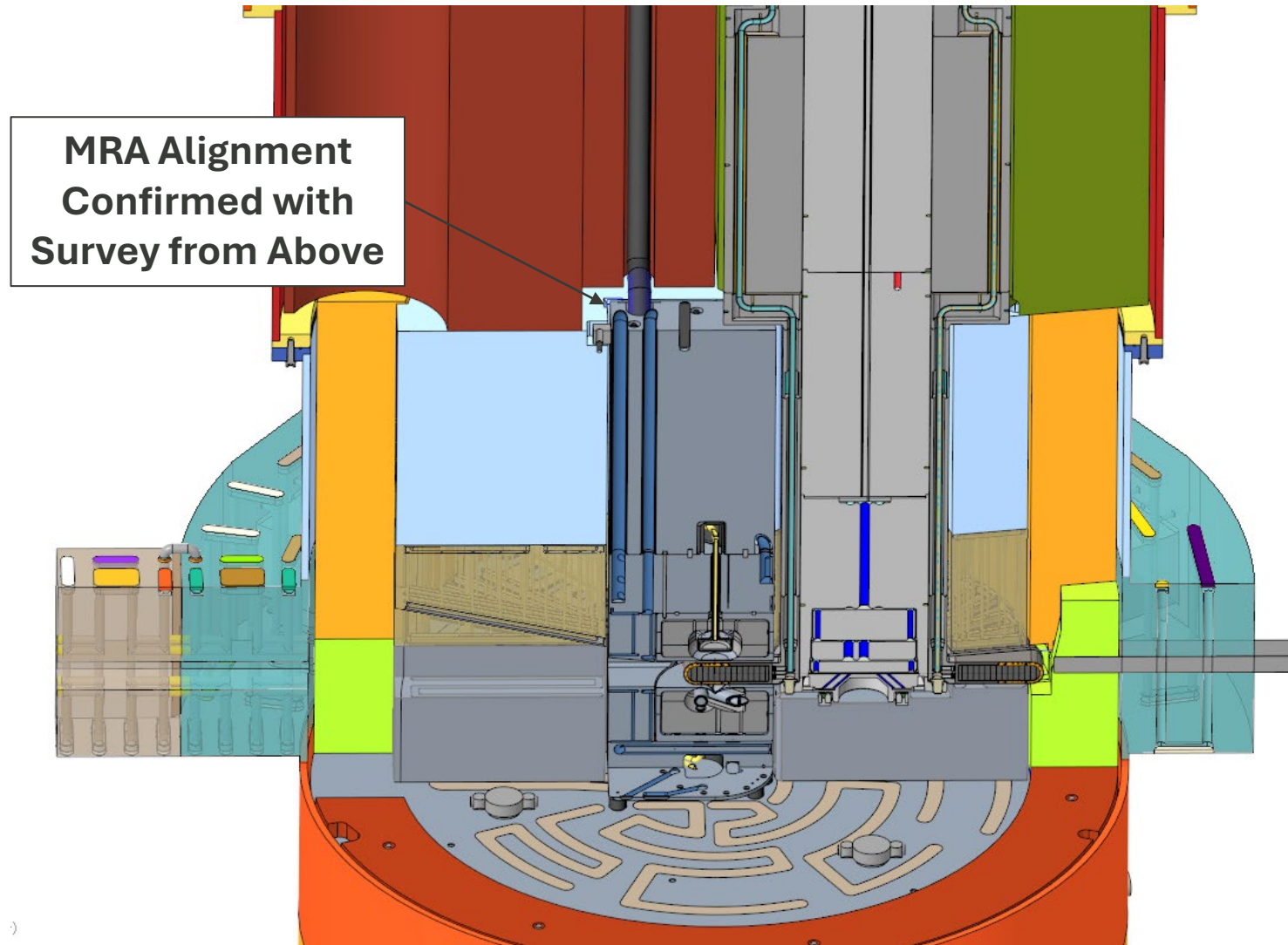
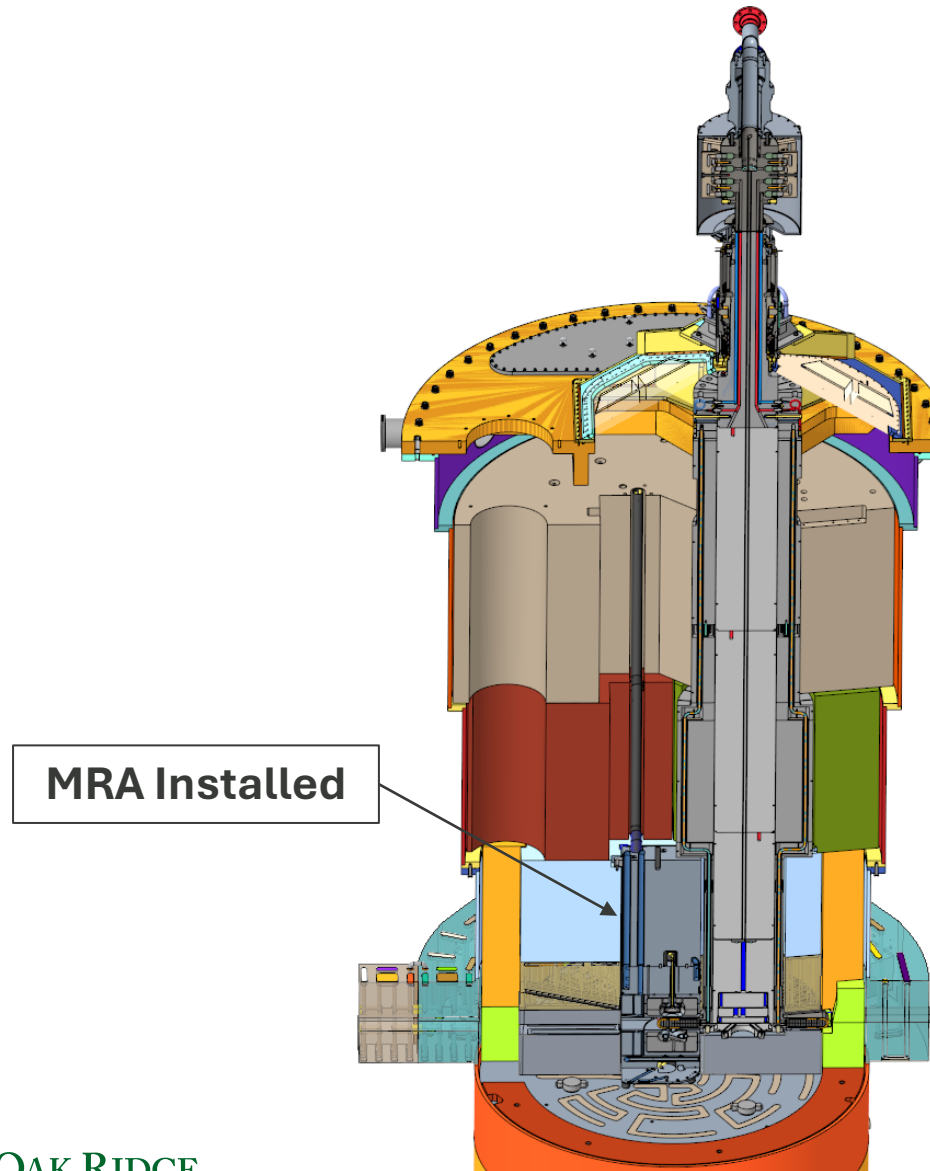
Target Shaft and Drive and Core Vessel Tent Installed as a Unit Directly from MUTS



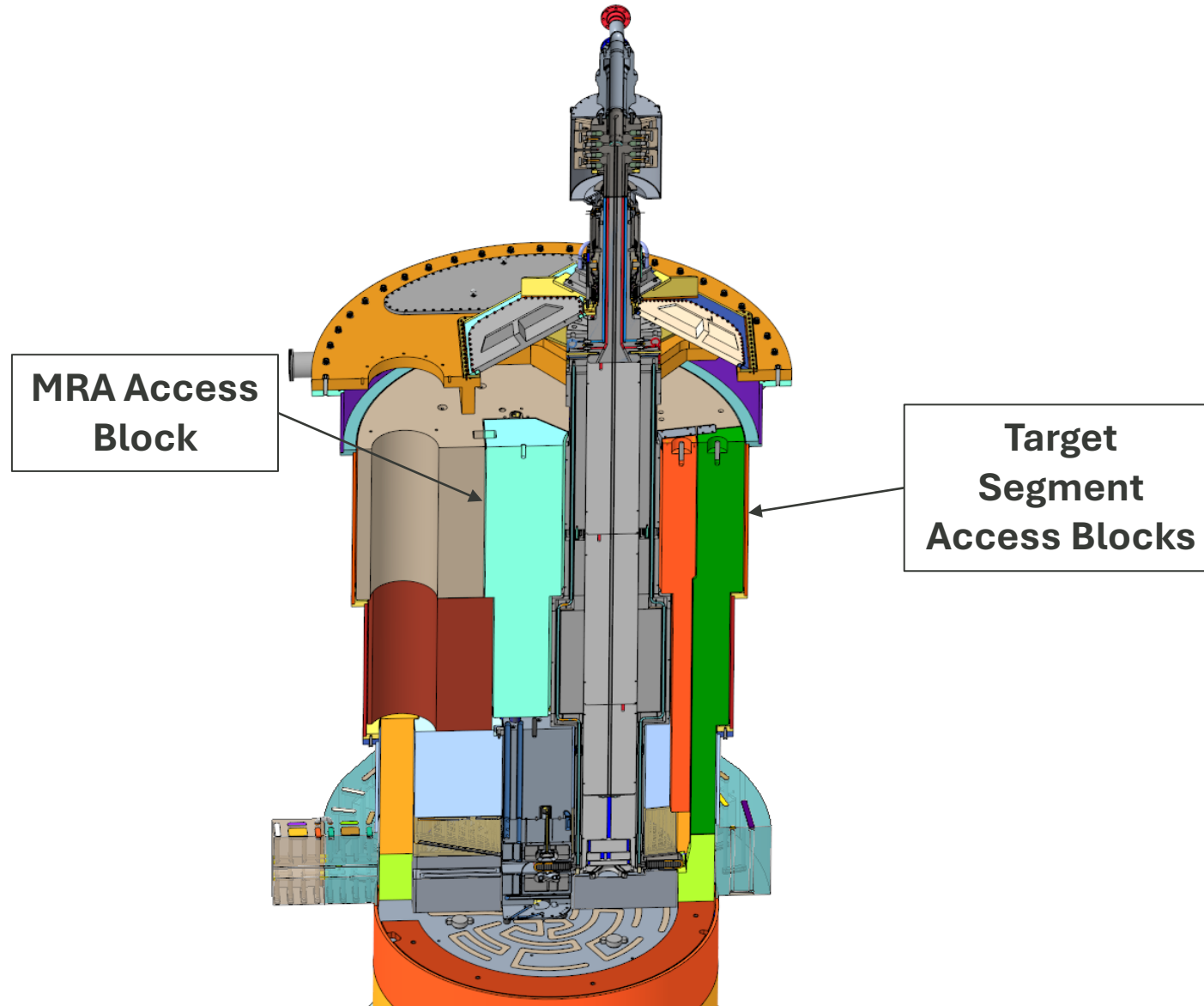
Target Segments Installed Onto Shaft and Tested



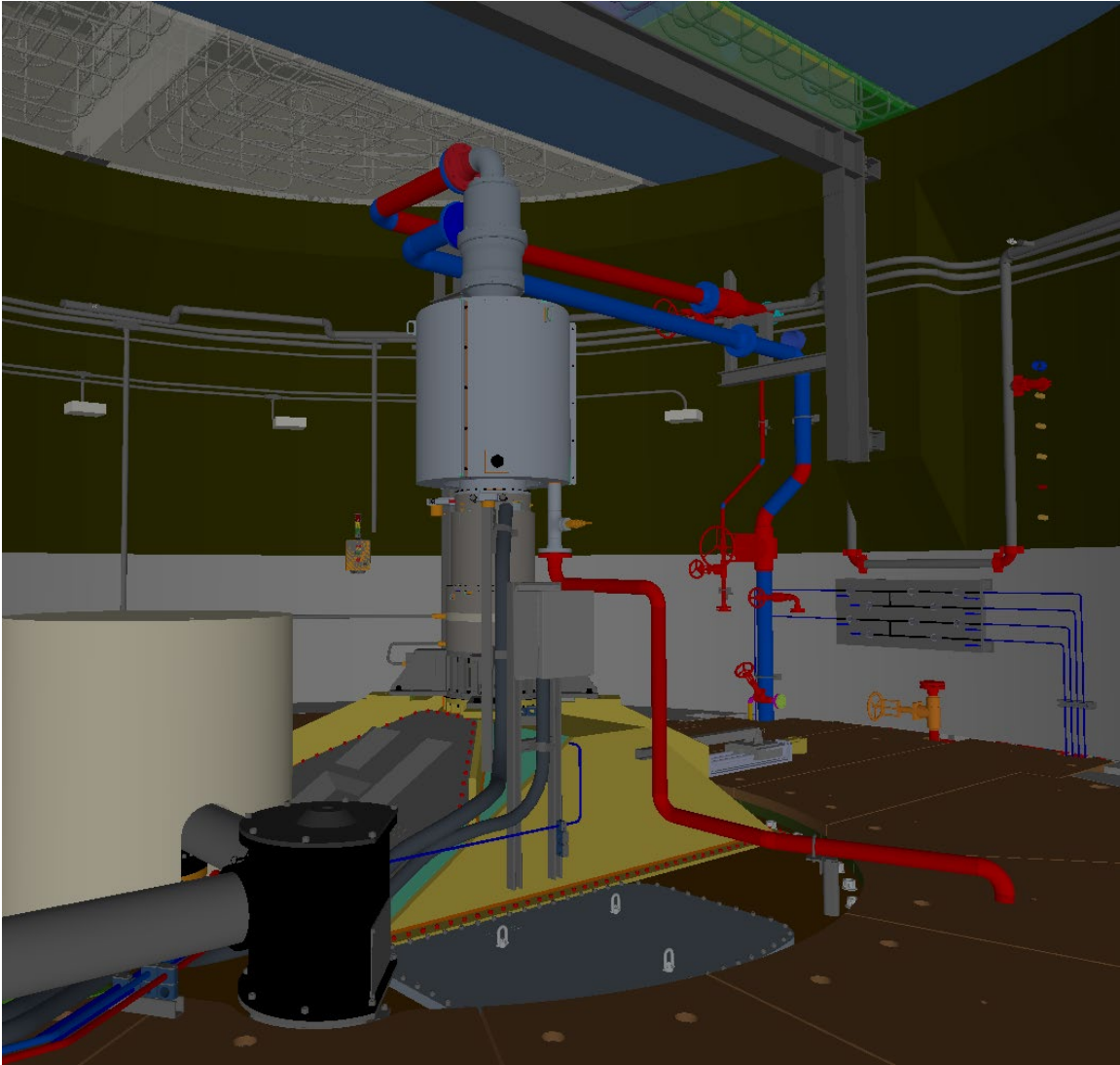
MRA Installed After Temporary Removal of 3 Target Segments



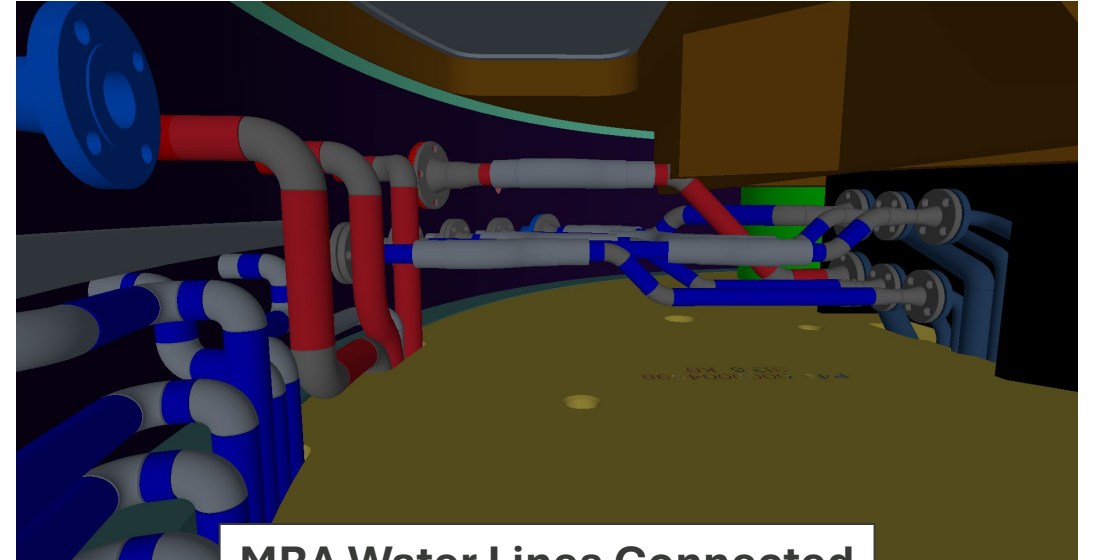
MRA And Target Access Blocks Installed



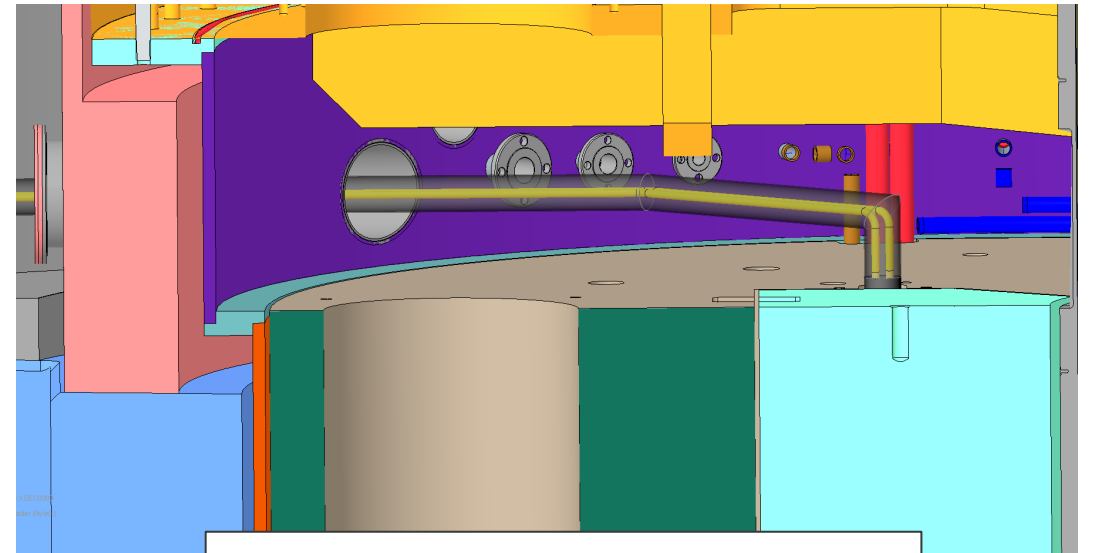
MRA and Target Utilities Connections



Target Utilities Connected



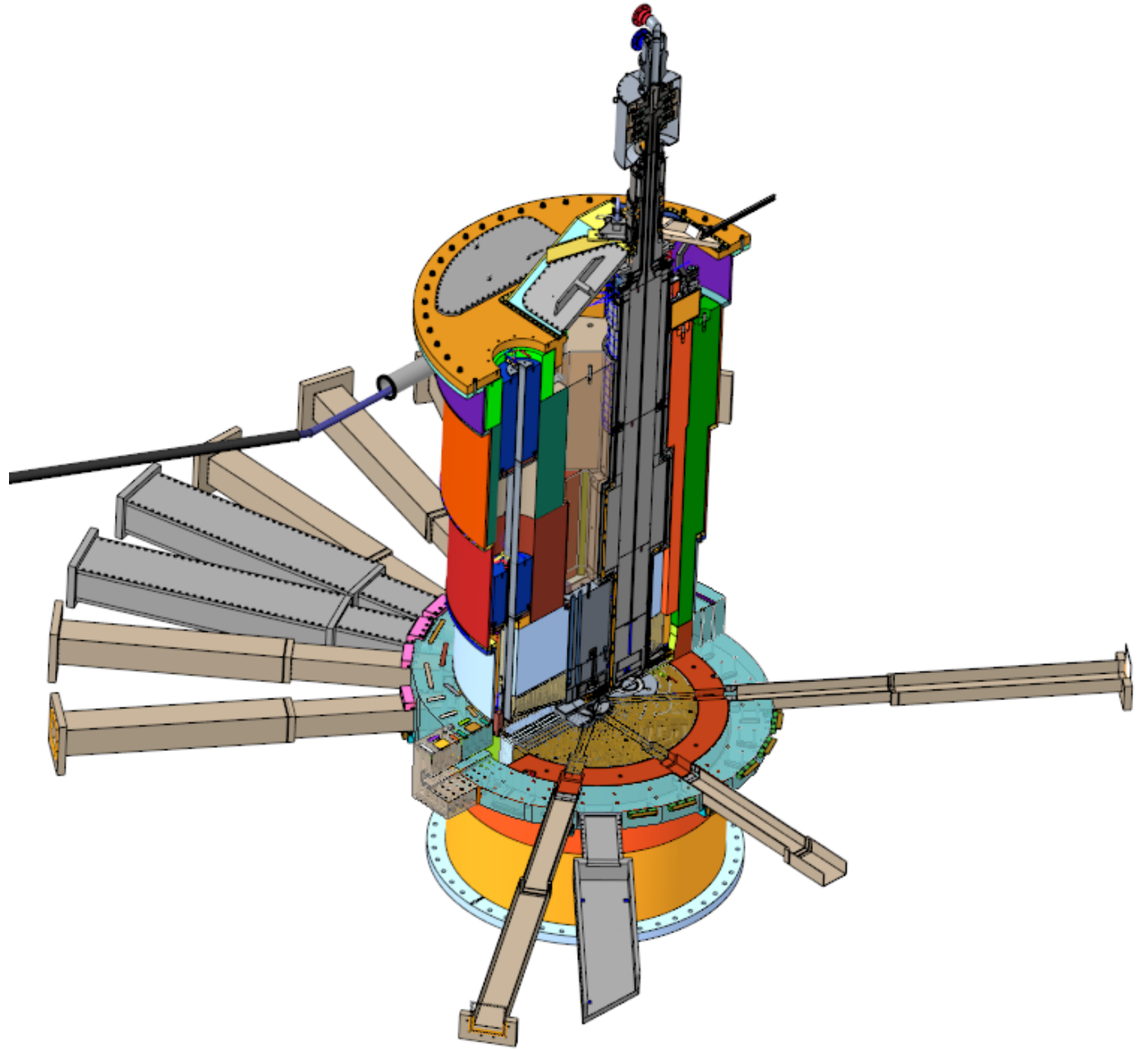
MRA Water Lines Connected



MRA Hydrogen Line Connected

Conclusions

- Alignment of Core Vessel, Target, and MRA during installation is critical to STS performance, operations, and safety
 - Adjustability built into designs to meet alignment requirements
- Core Vessel, Target, and MRA installations must be coordinated for success
 - Detailed planning to occur within Monolith Installation WBS



Thank You

