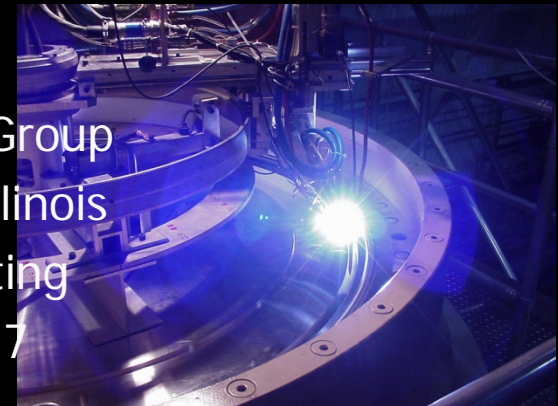


# HI-STORM 100S General Loading Operations at US NPPs



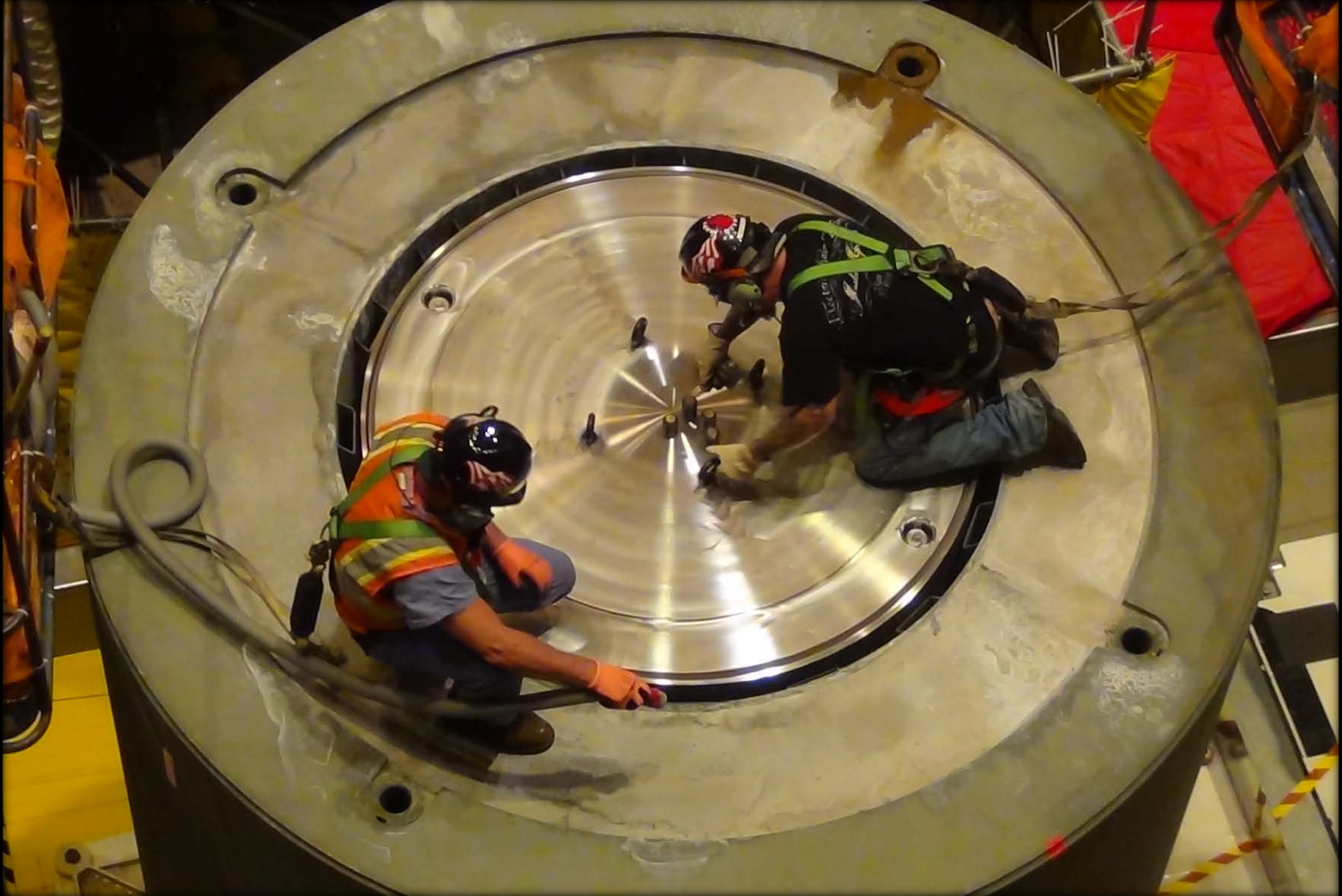
Mike Hale  
Chair Decommissioning Expert Group  
NATC Sr Analyst, University of Illinois  
Joint Plant Life Extension Meeting  
OECD NEA November 8, 2017



# Objective of NATC ISOE Dry Cask Global Dose Project

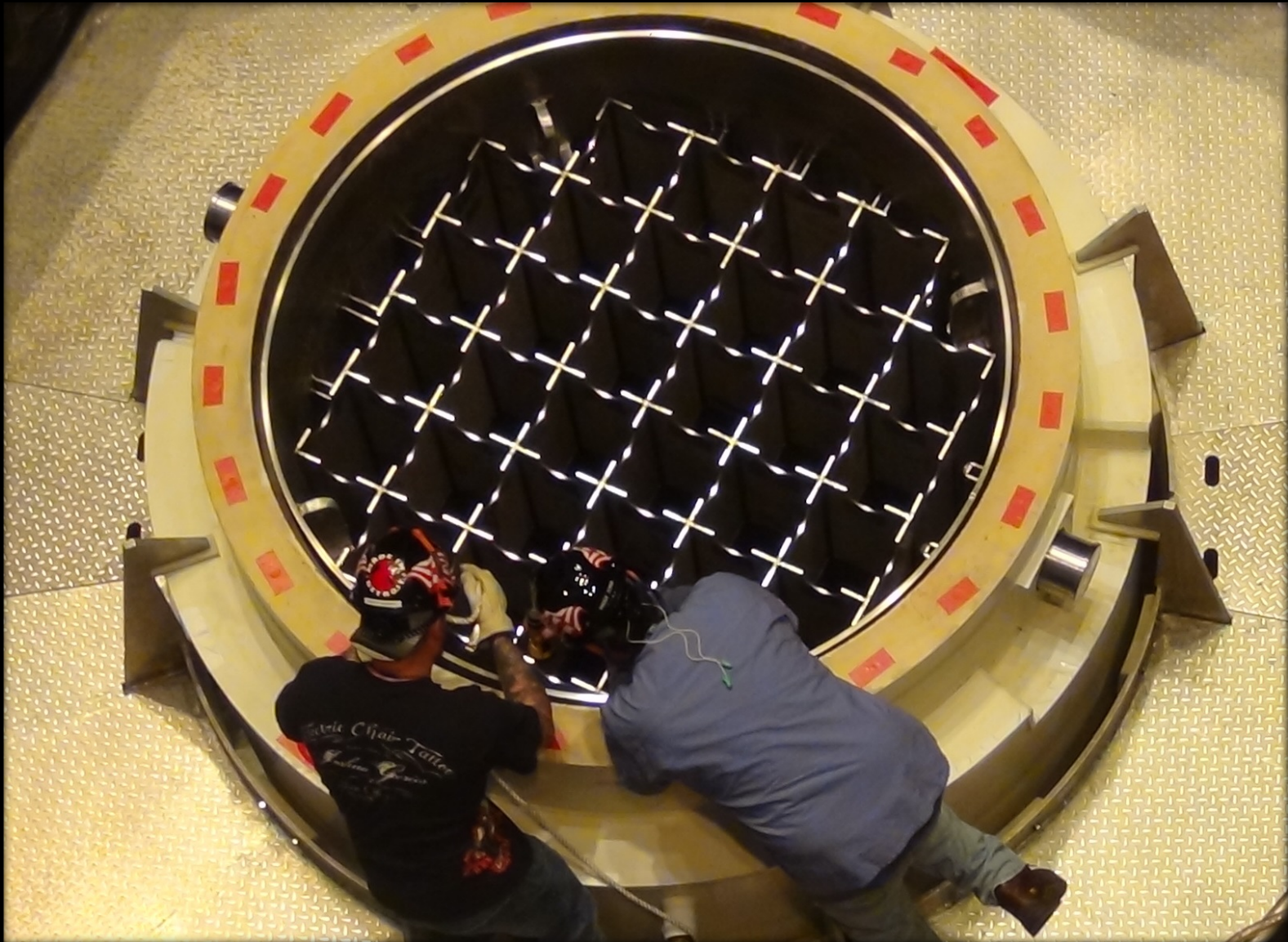
- To standardize RWP (REP) tasks and sub-tasks to facilitate ISOE benchmarking dry cask ALARA information exchange
- To identify and share good ALARA Practices for dry cask campaign worker dose reduction e.g., time lapse video
- To promote ISOE member incentive to achieve the lowest possible dose per cask processing/storage

## Empty MPC Placement Inside HI-TRAC

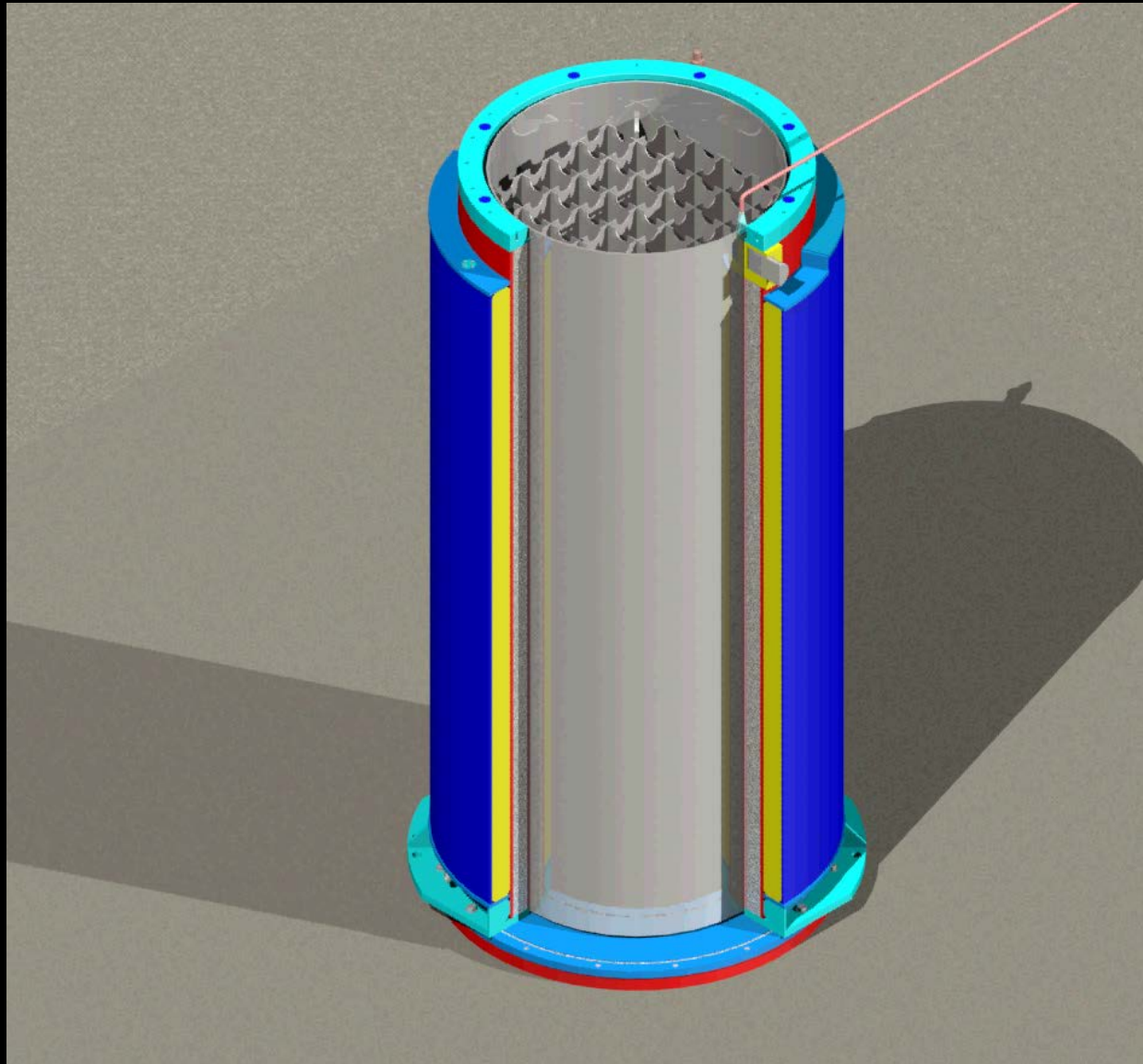




## Prepare HI-TRAC/MPC for Loading Fuel

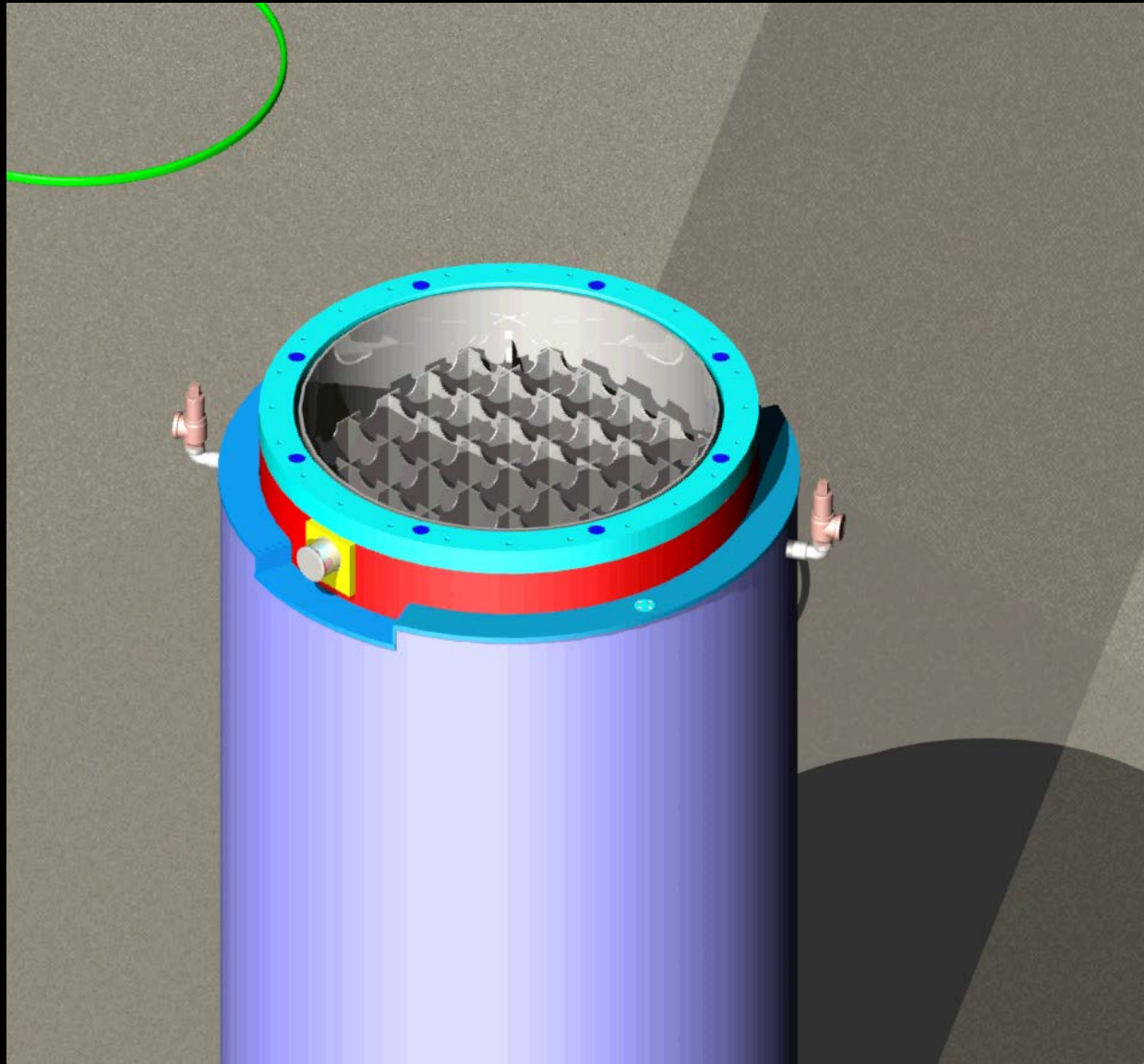


## Annulus Filling with Demineralized Water

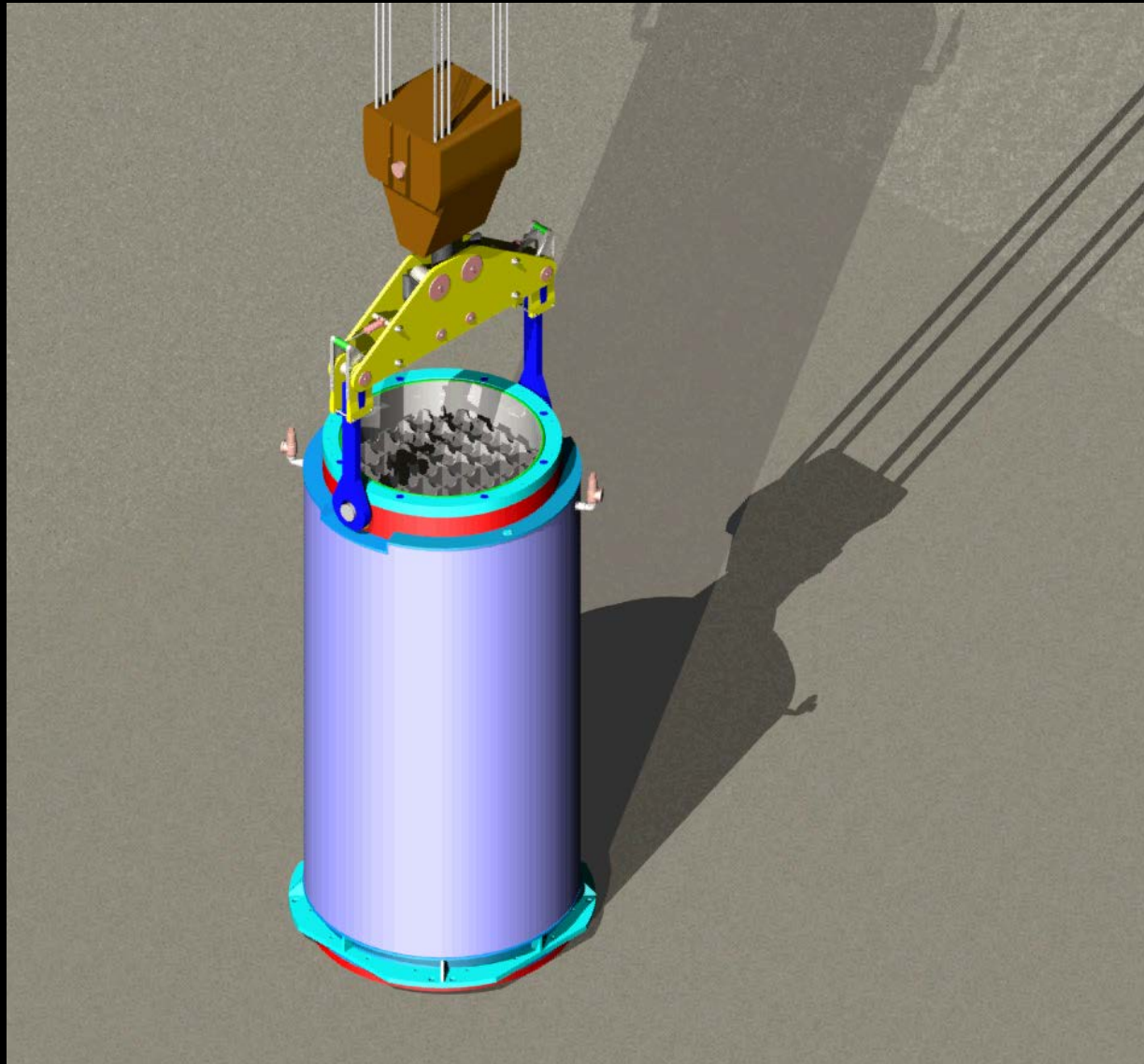




# Annulus Seal Installation



# HI-TRAC Raised to Spent Fuel Pool Floor

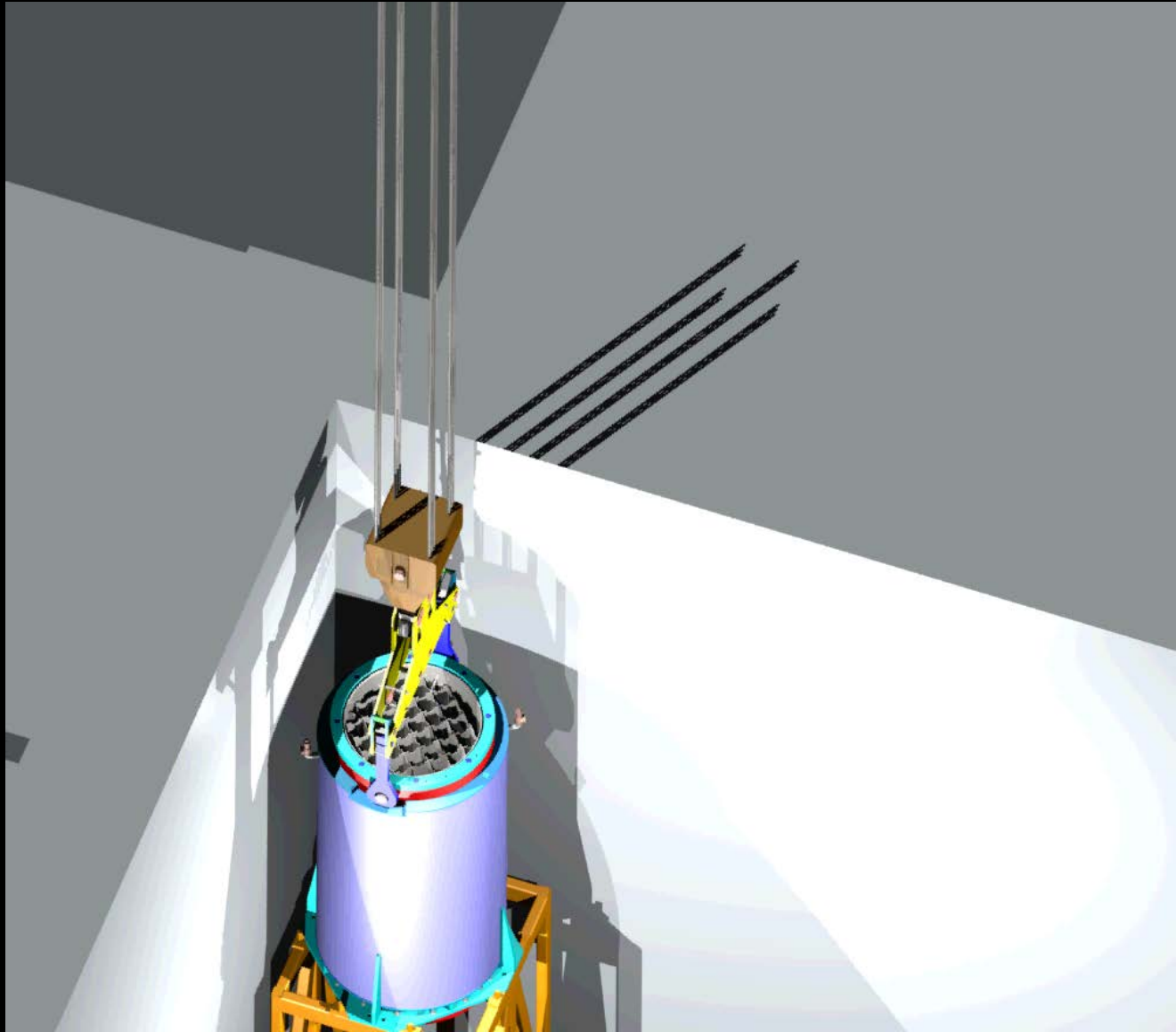


## HI-TRAC Placed into the Spent Fuel Pool

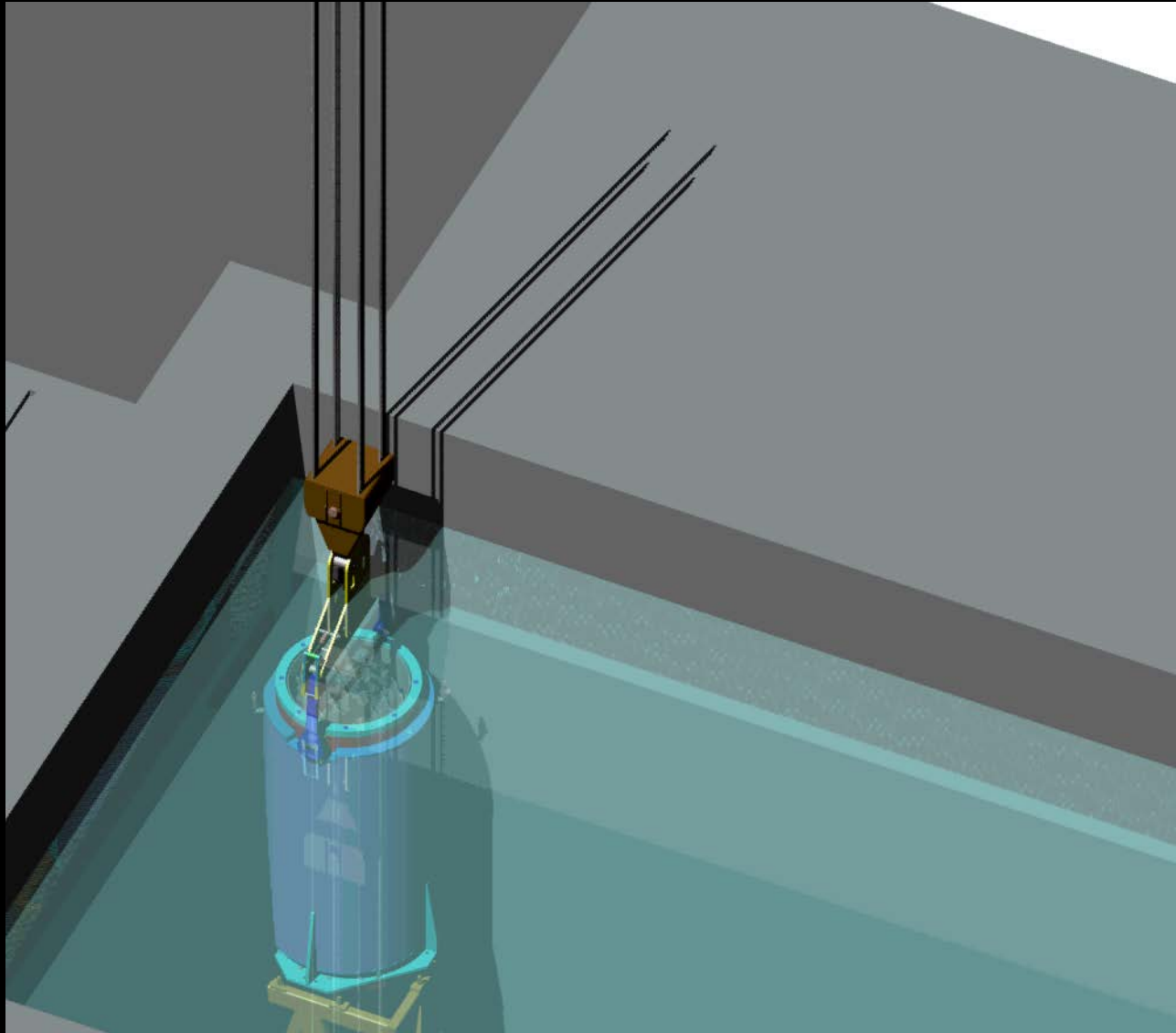




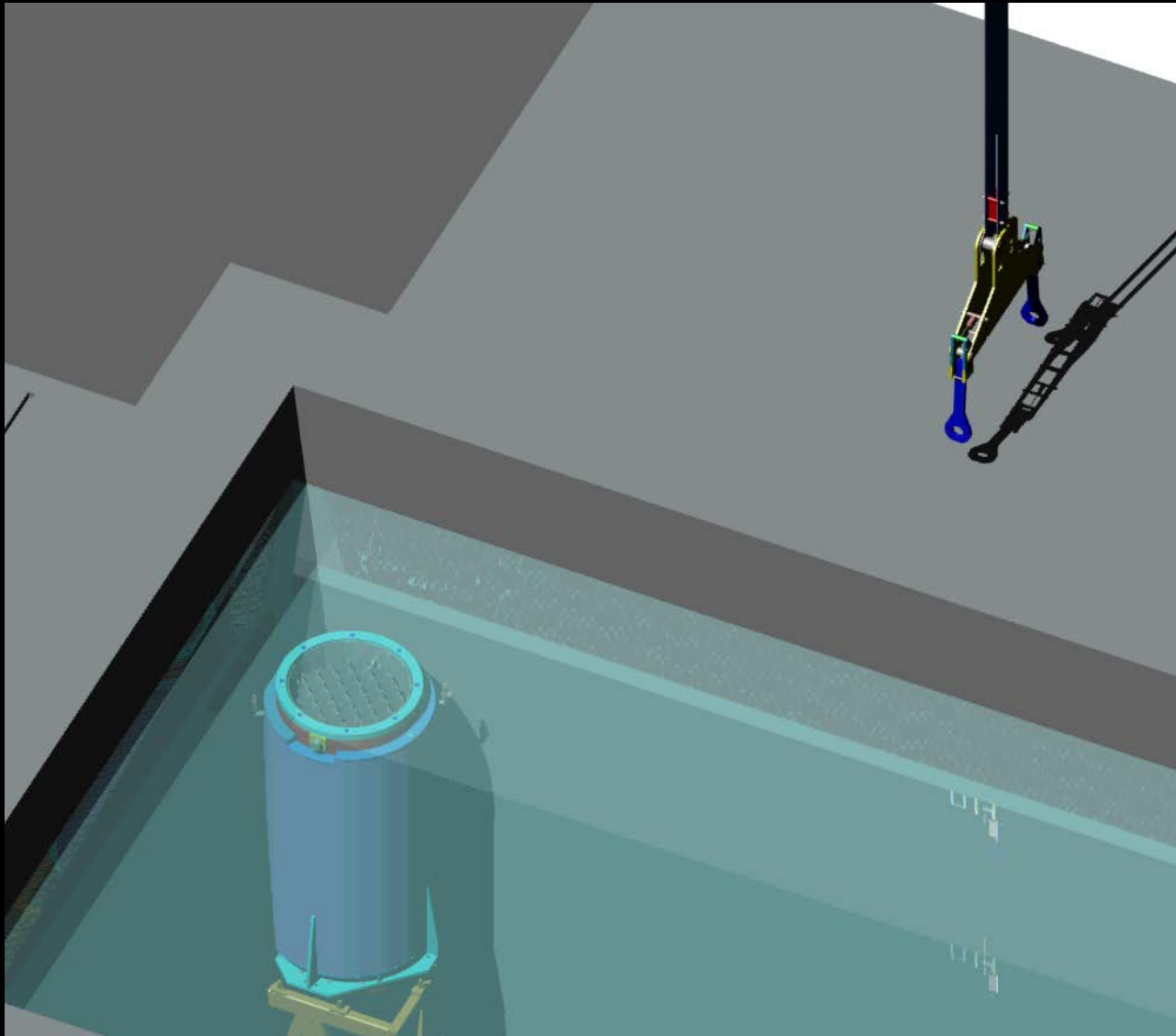
## HI-TRAC Lowered to the Spent Fuel Pool Floor



# Lift Yoke Removal From the Spent Fuel Pool

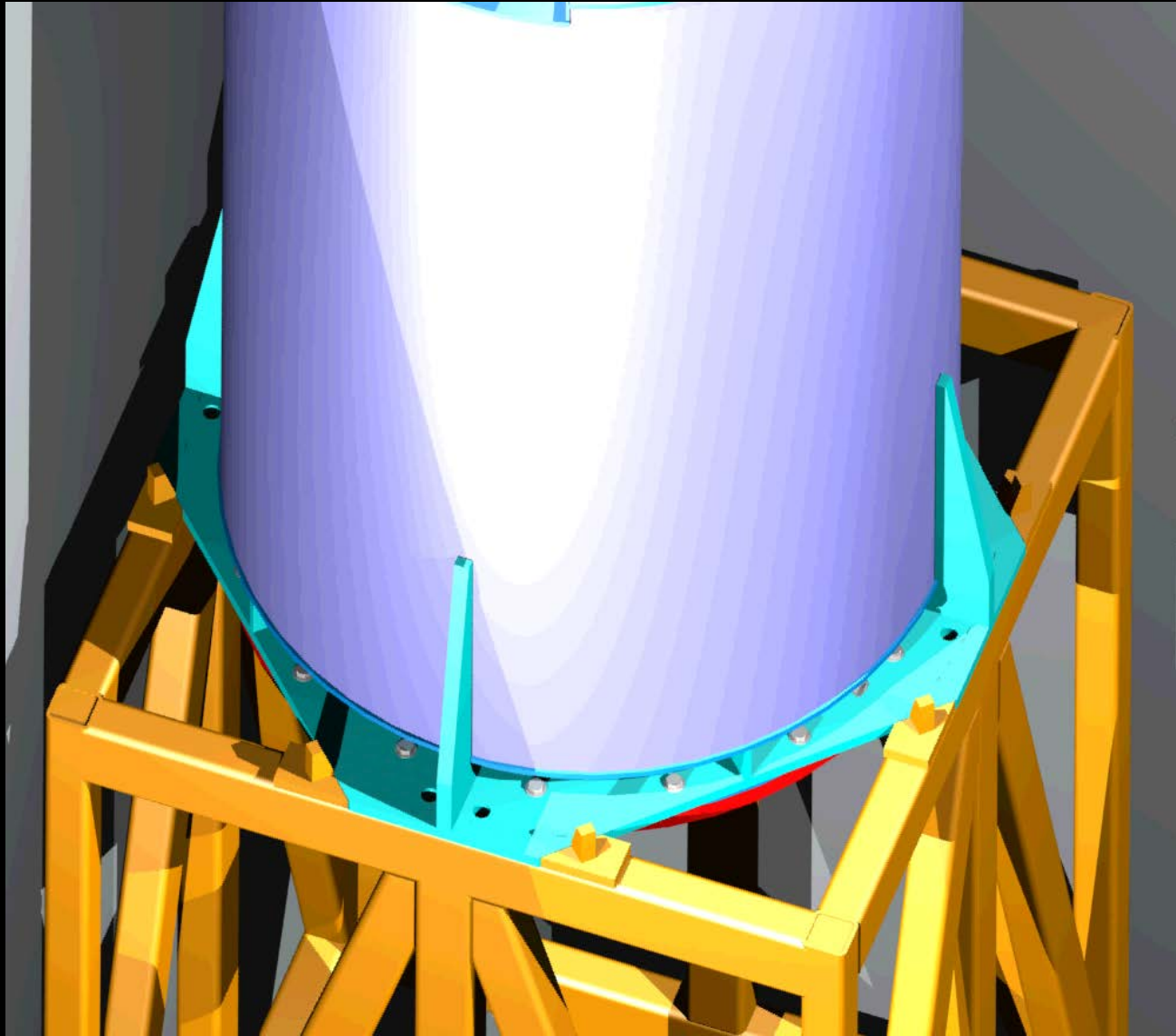


## Add the Lift Yoke Extension

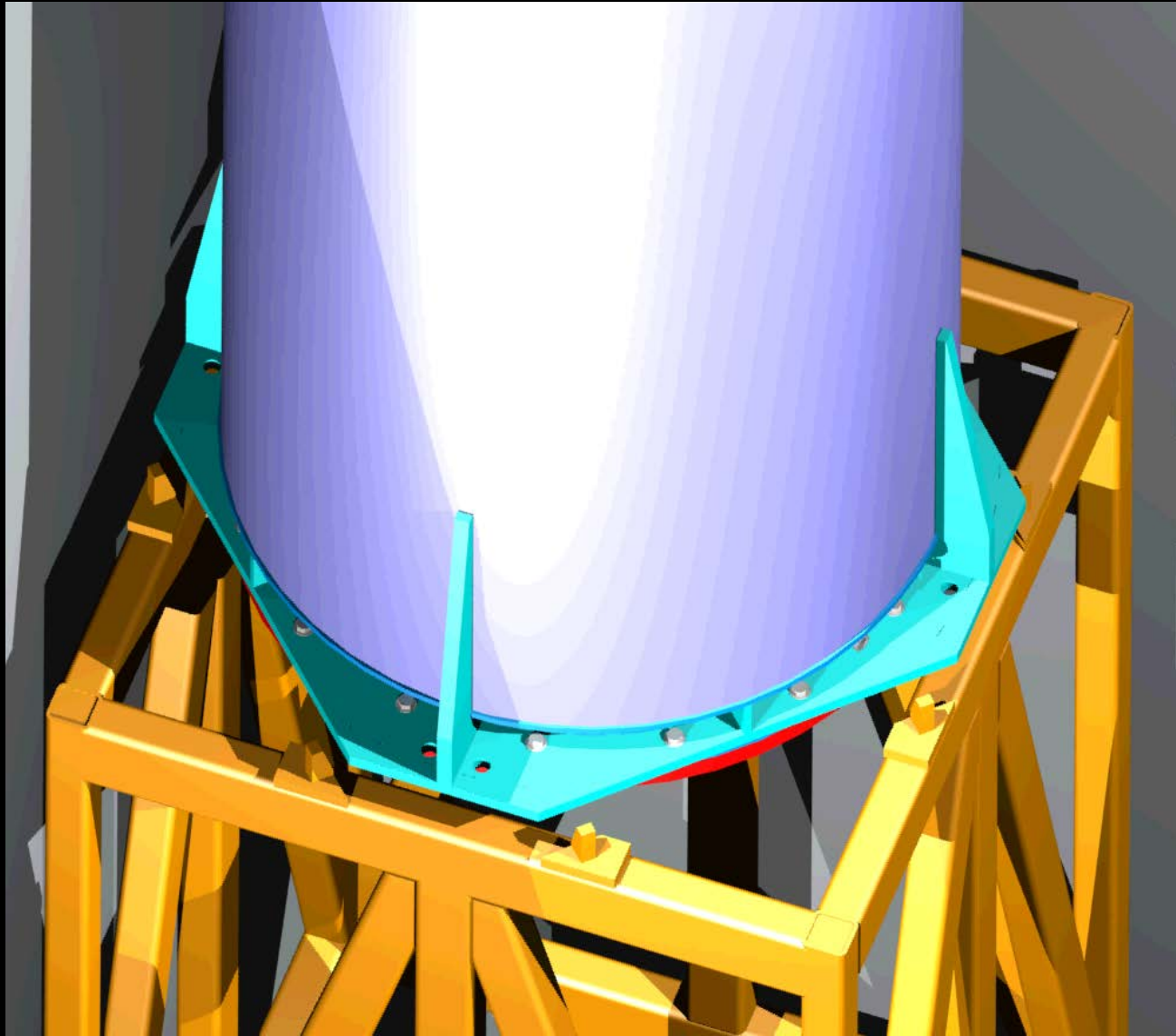




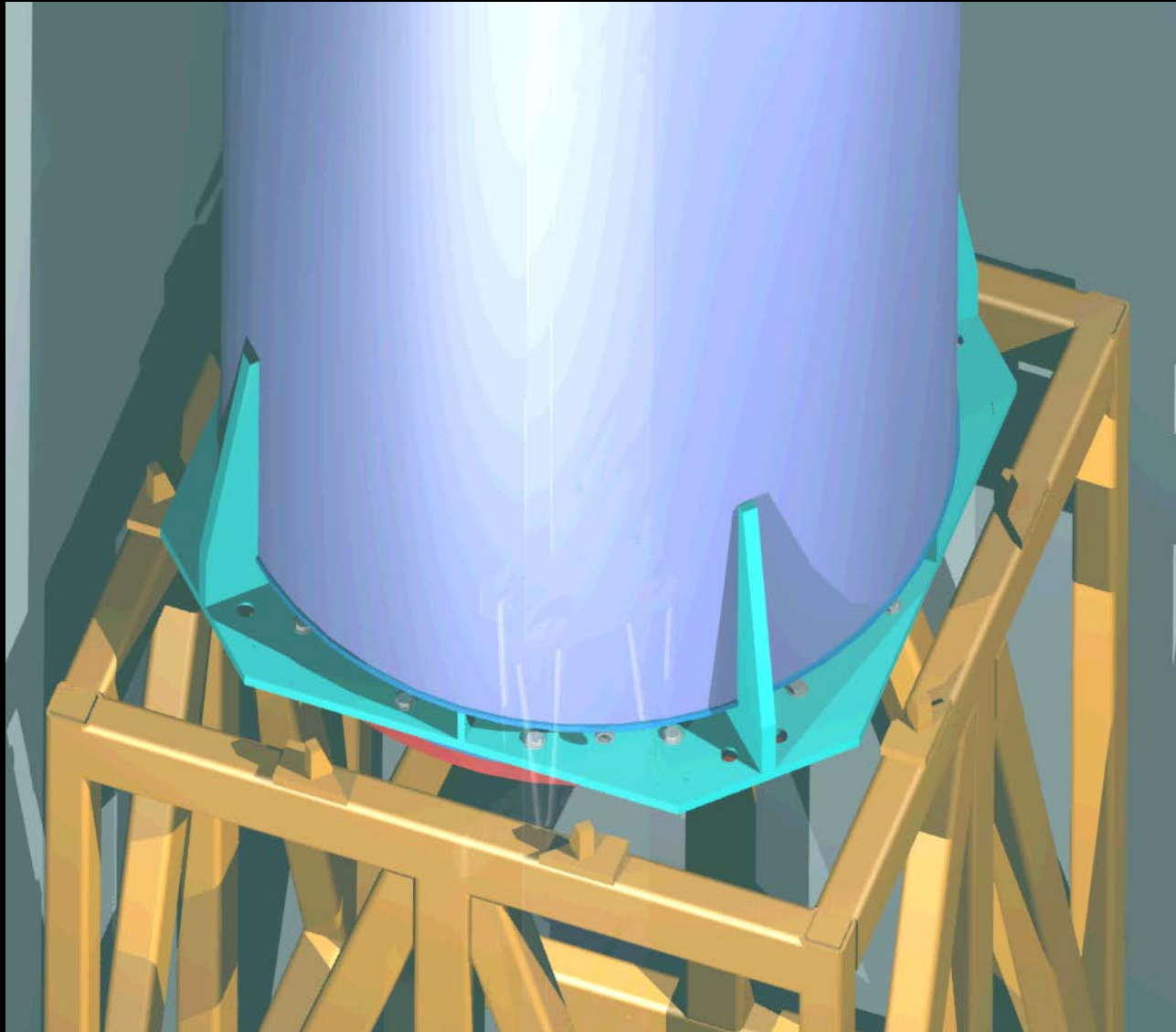
# HI-TRAC and Cask Stand Operations



# HI-TRAC and Cask Stand Operations

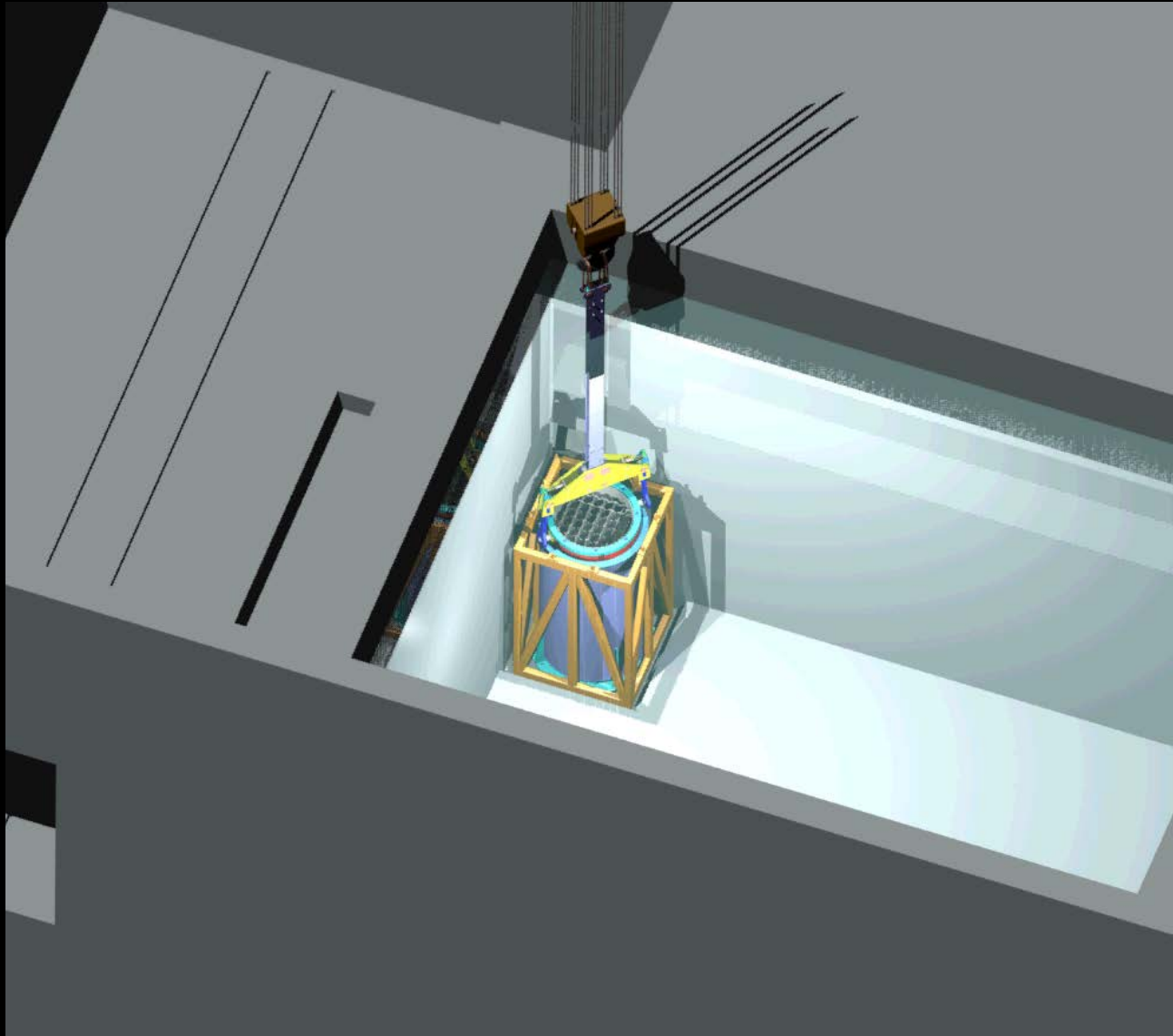


# HI-TRAC and Cask Stand Operations

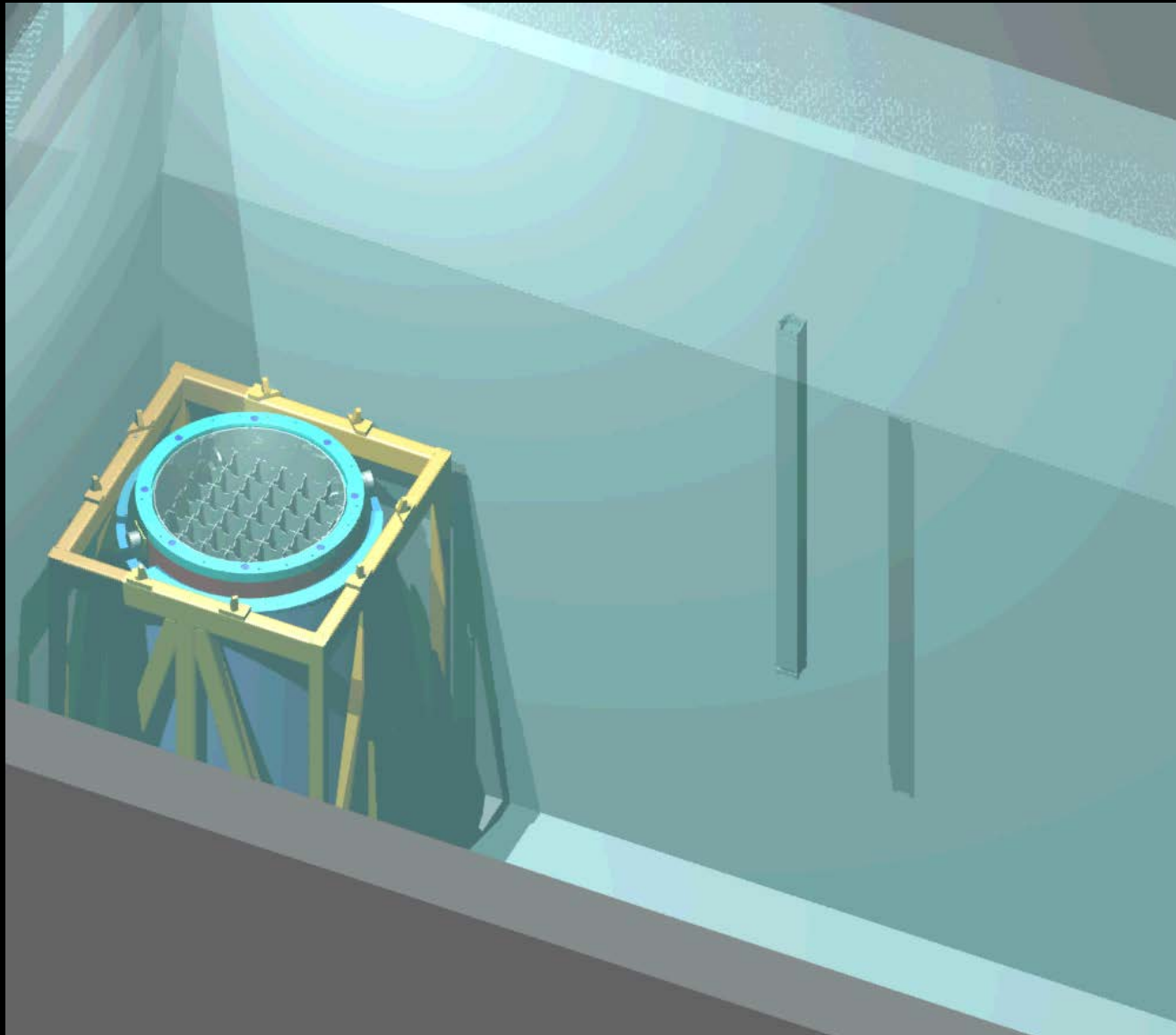




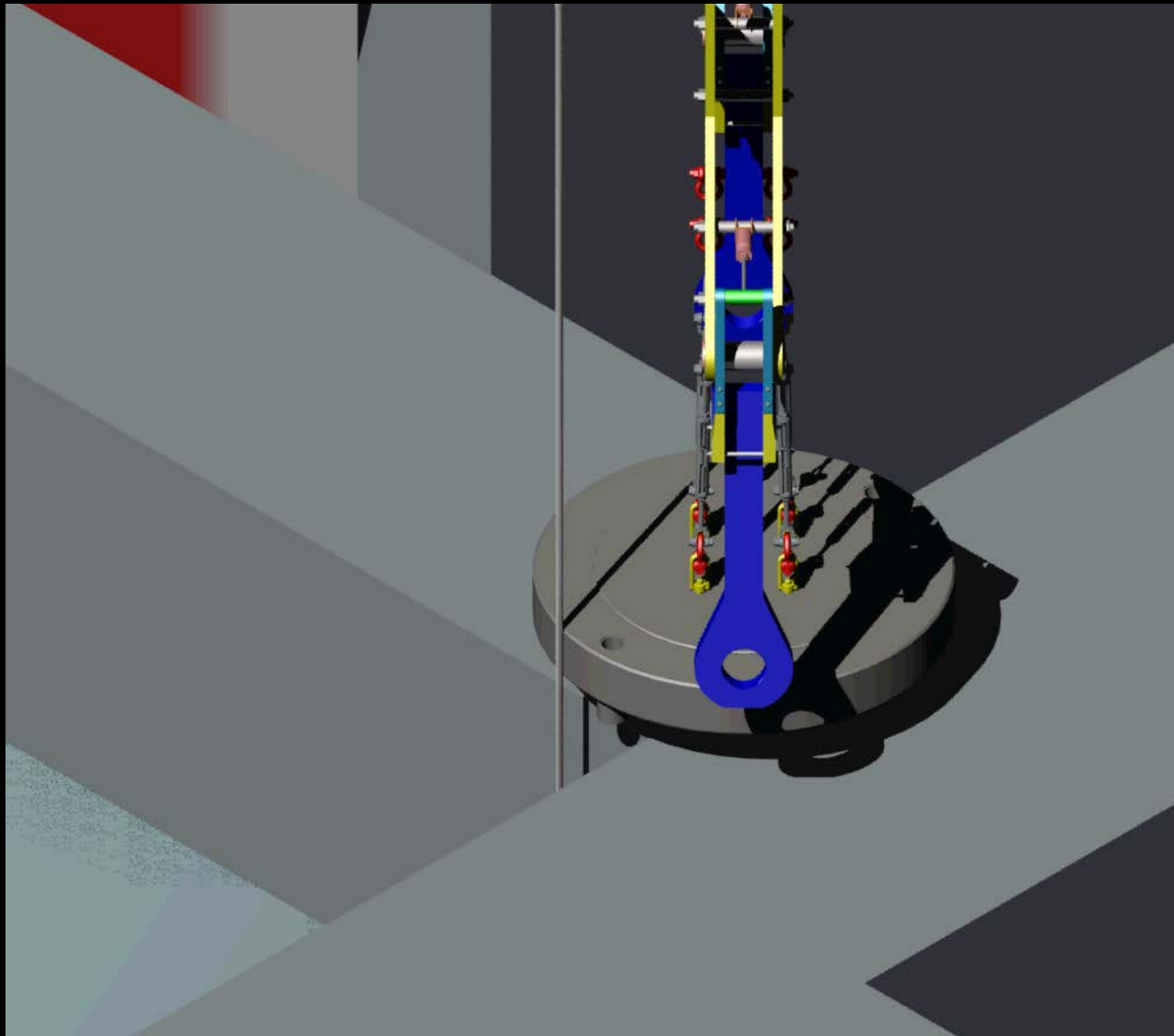
# Lift Yoke Extension Removal



## Fuel Loading in the MPC

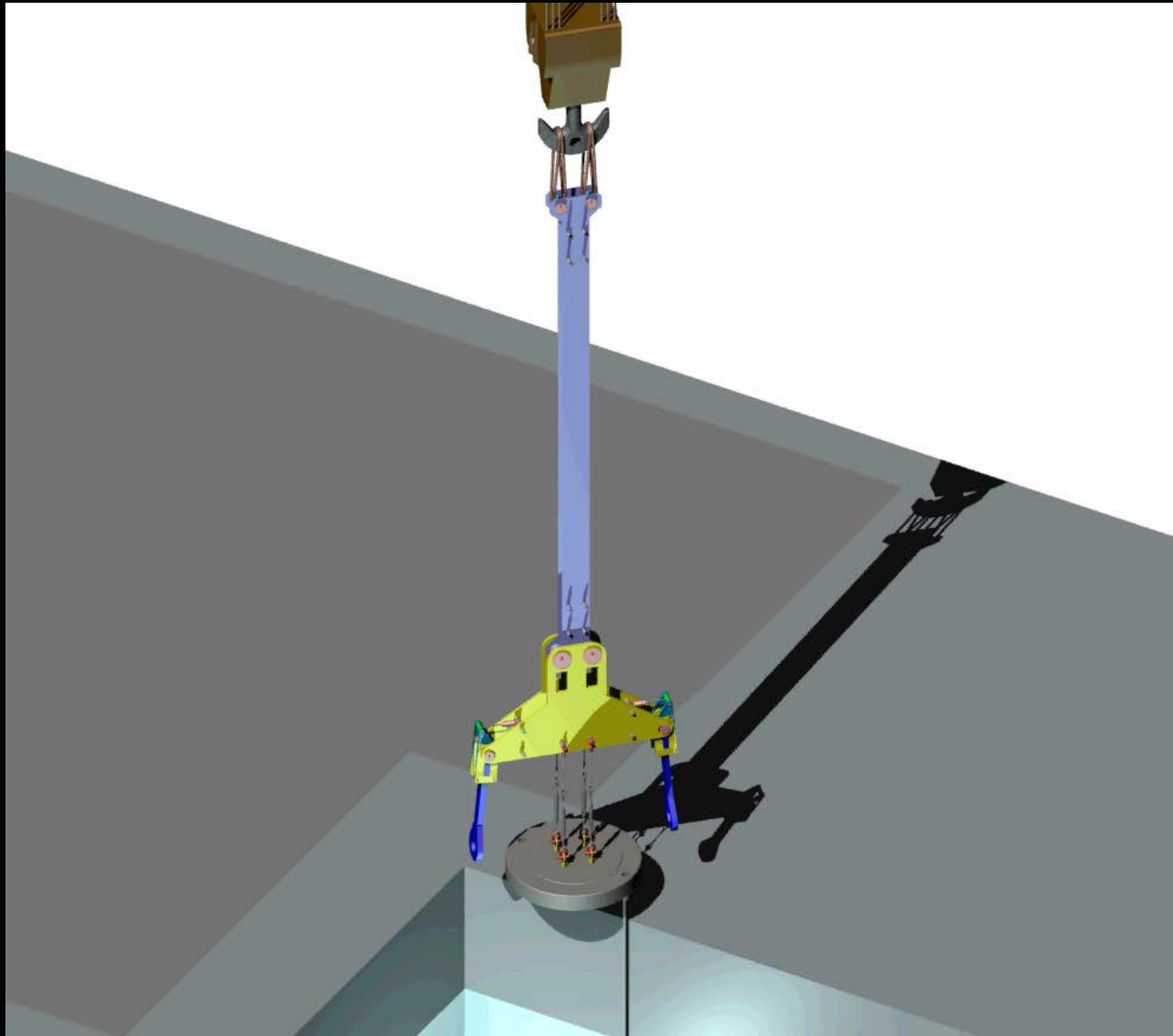


# MPC Drain Line Installation

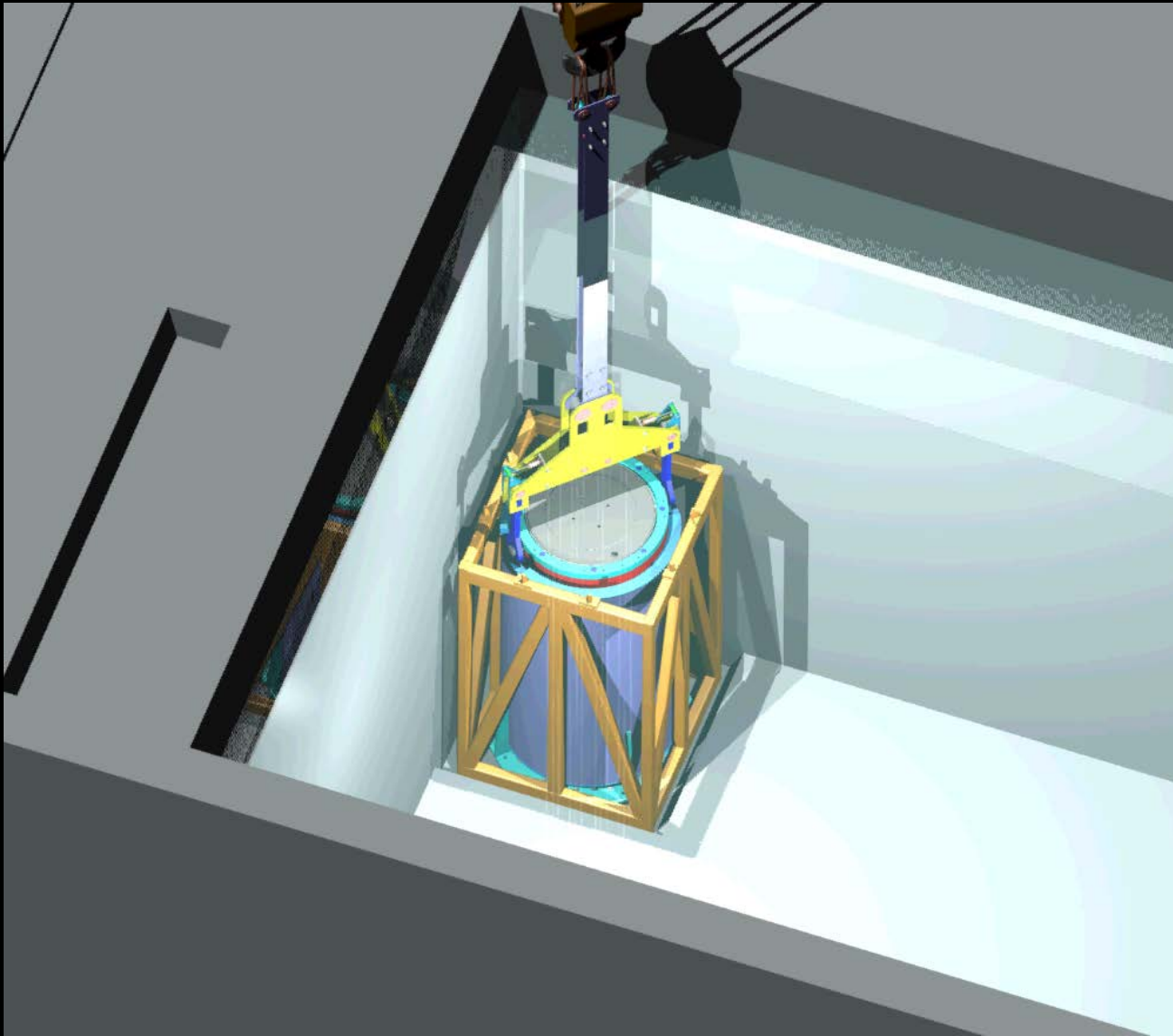




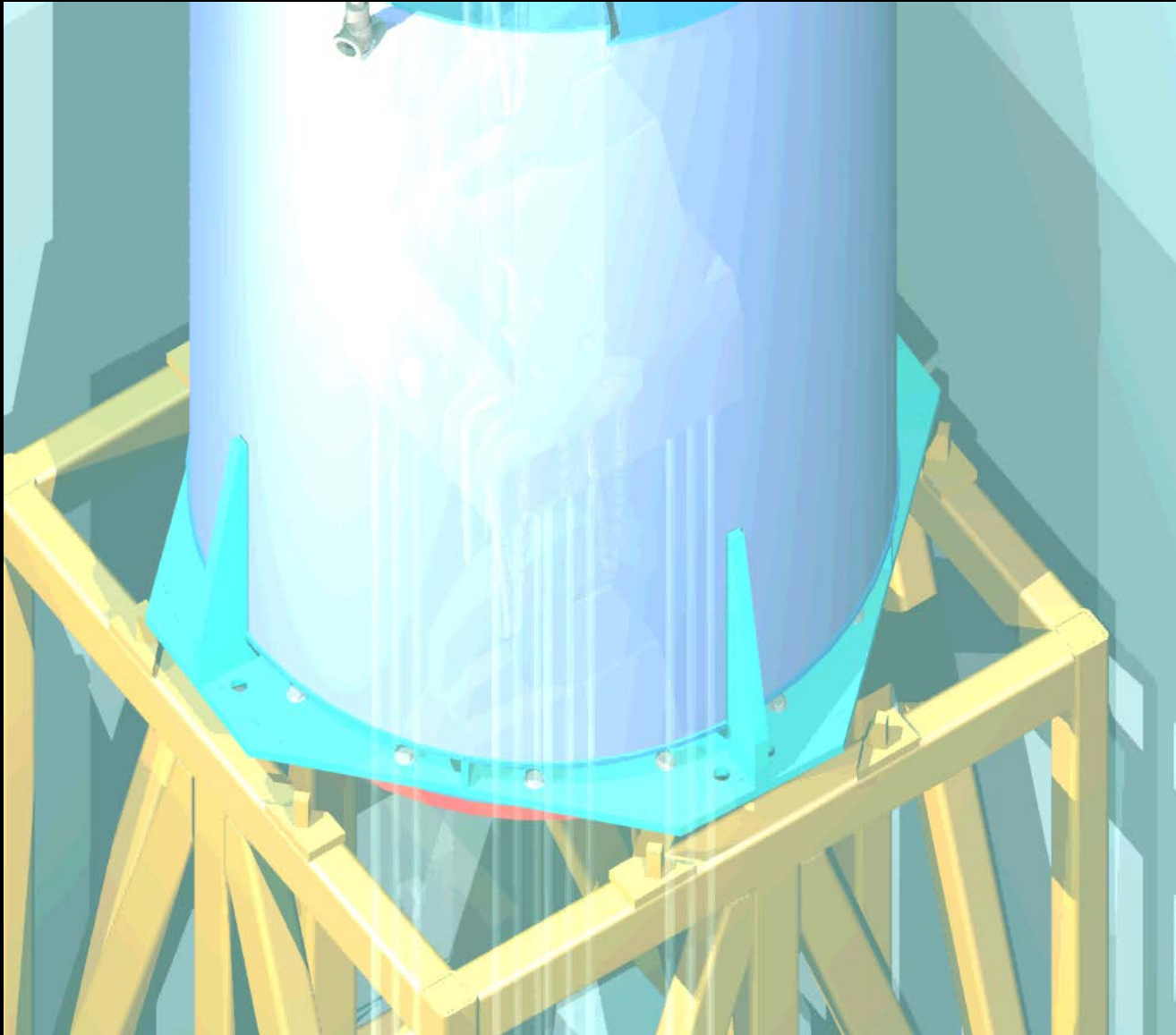
# Underwater MPC Lid Installation



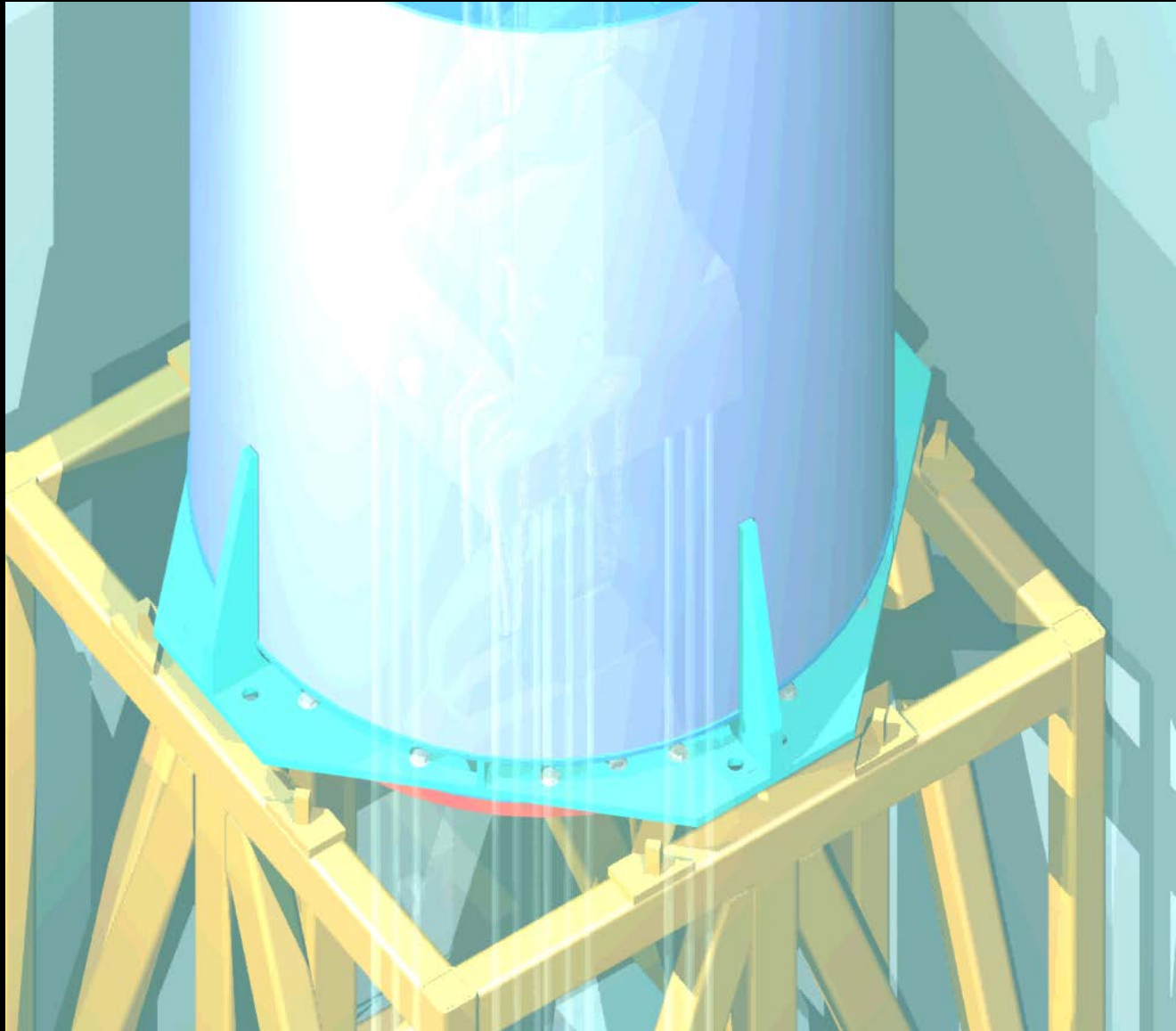
## HI-TRAC Raised from the Cask Loading Area



# HI-TRAC and Cask Stand Operations

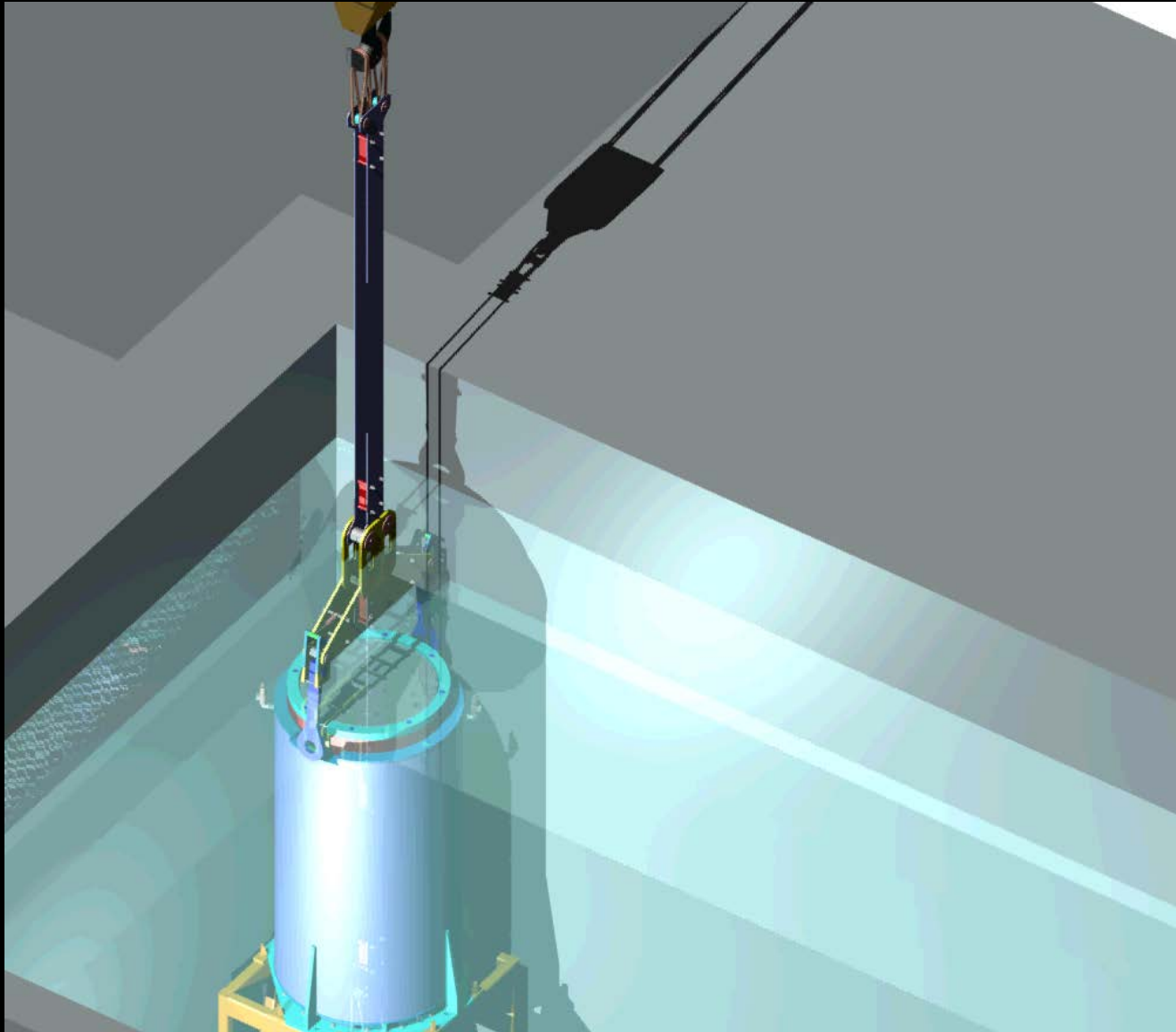


## HI-TRAC Placed Back on the Cask Stand





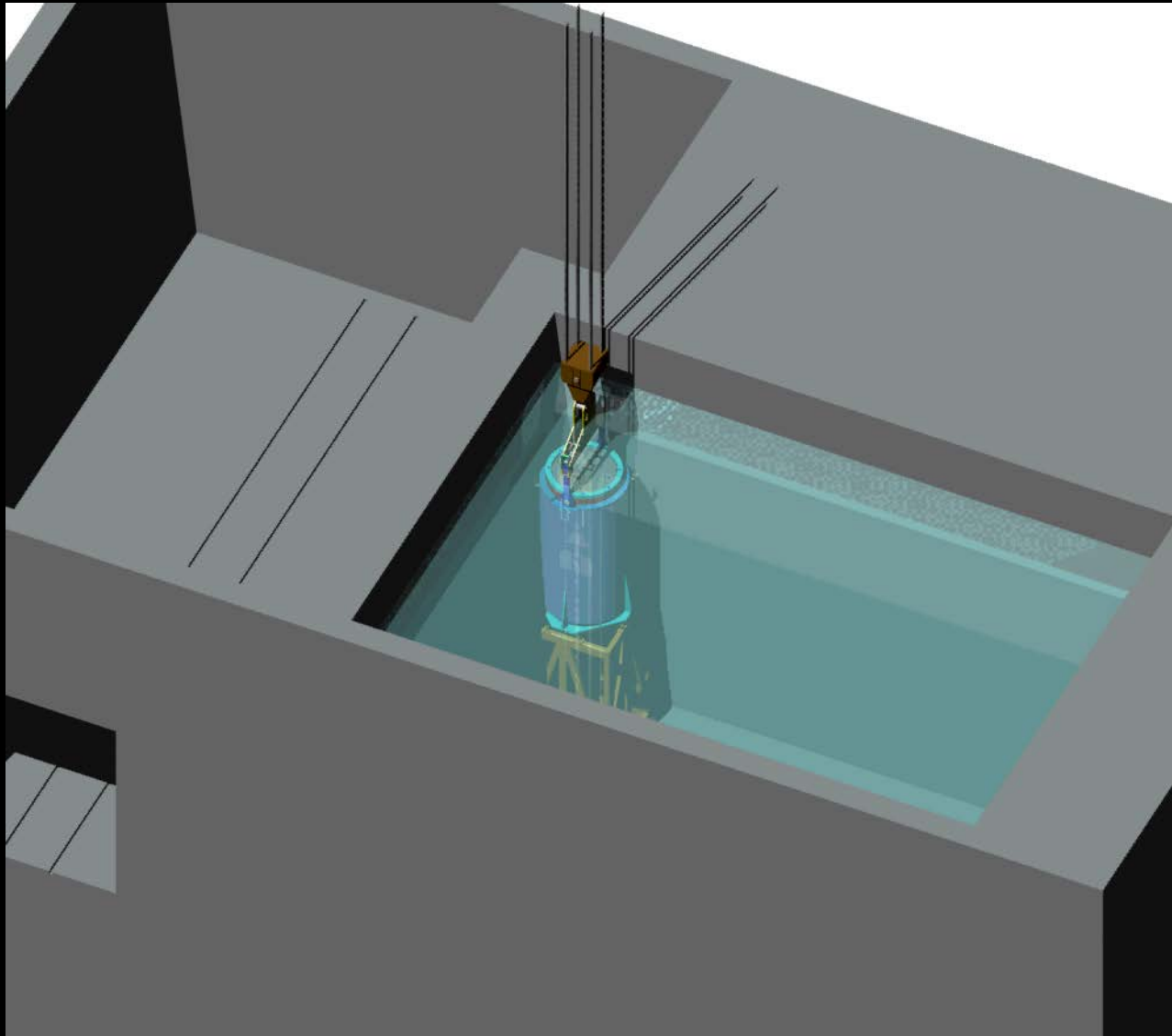
## Removal of the Lift Yoke Extension



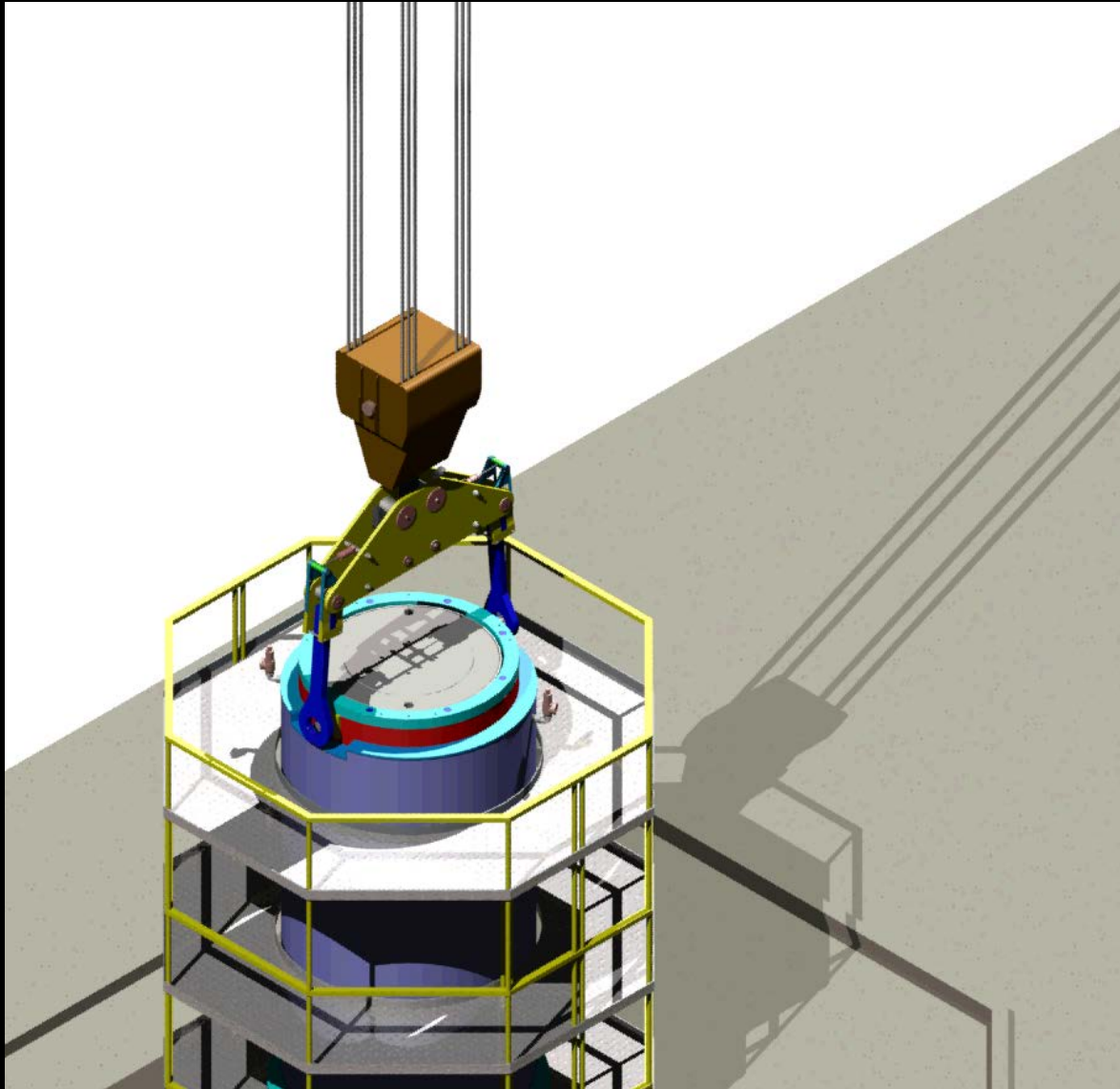
## Reinstallation of the Lift Yoke



## HI-TRAC Movement to the Cask Loading Area

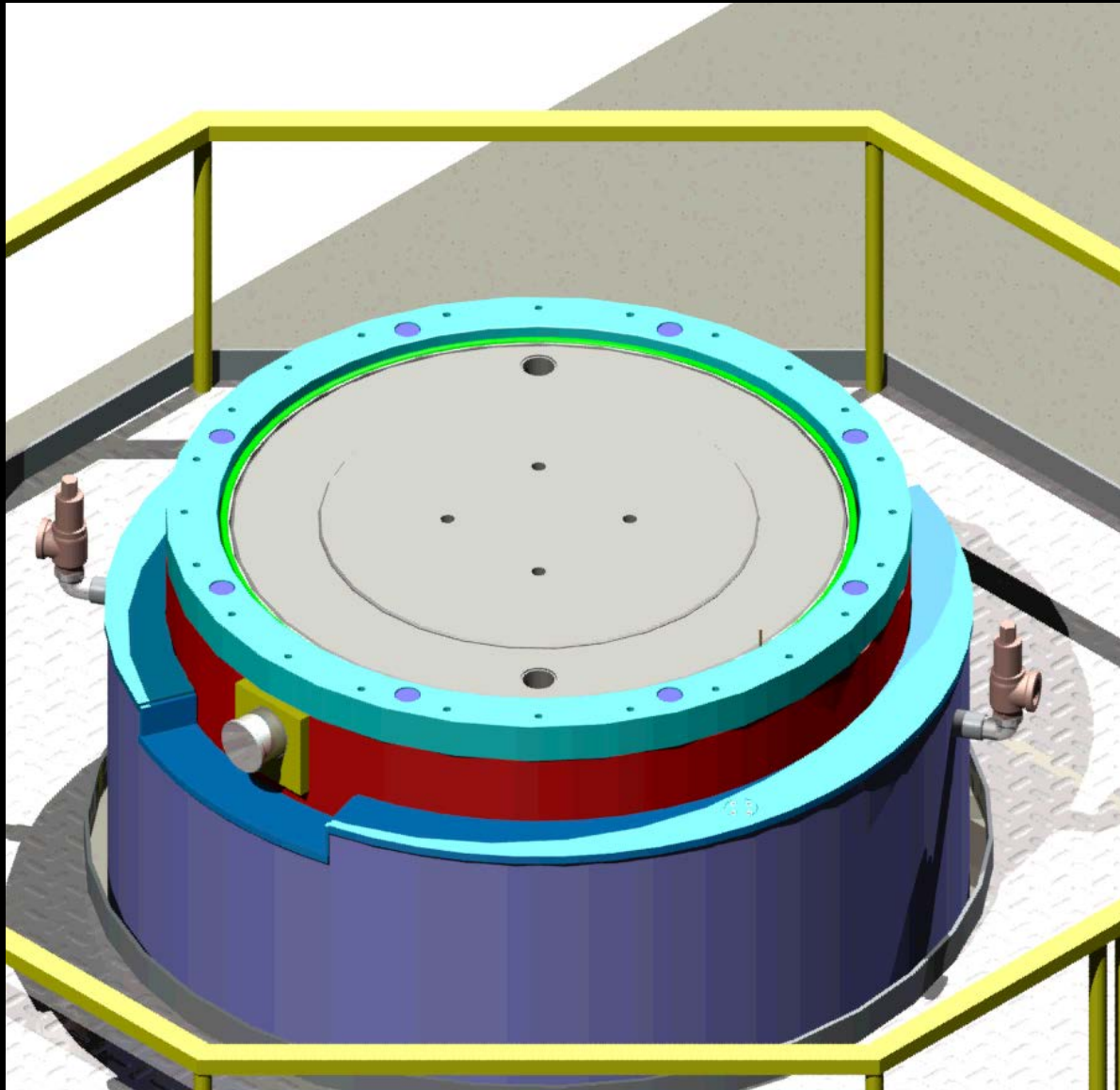


# Lift Yoke Removal

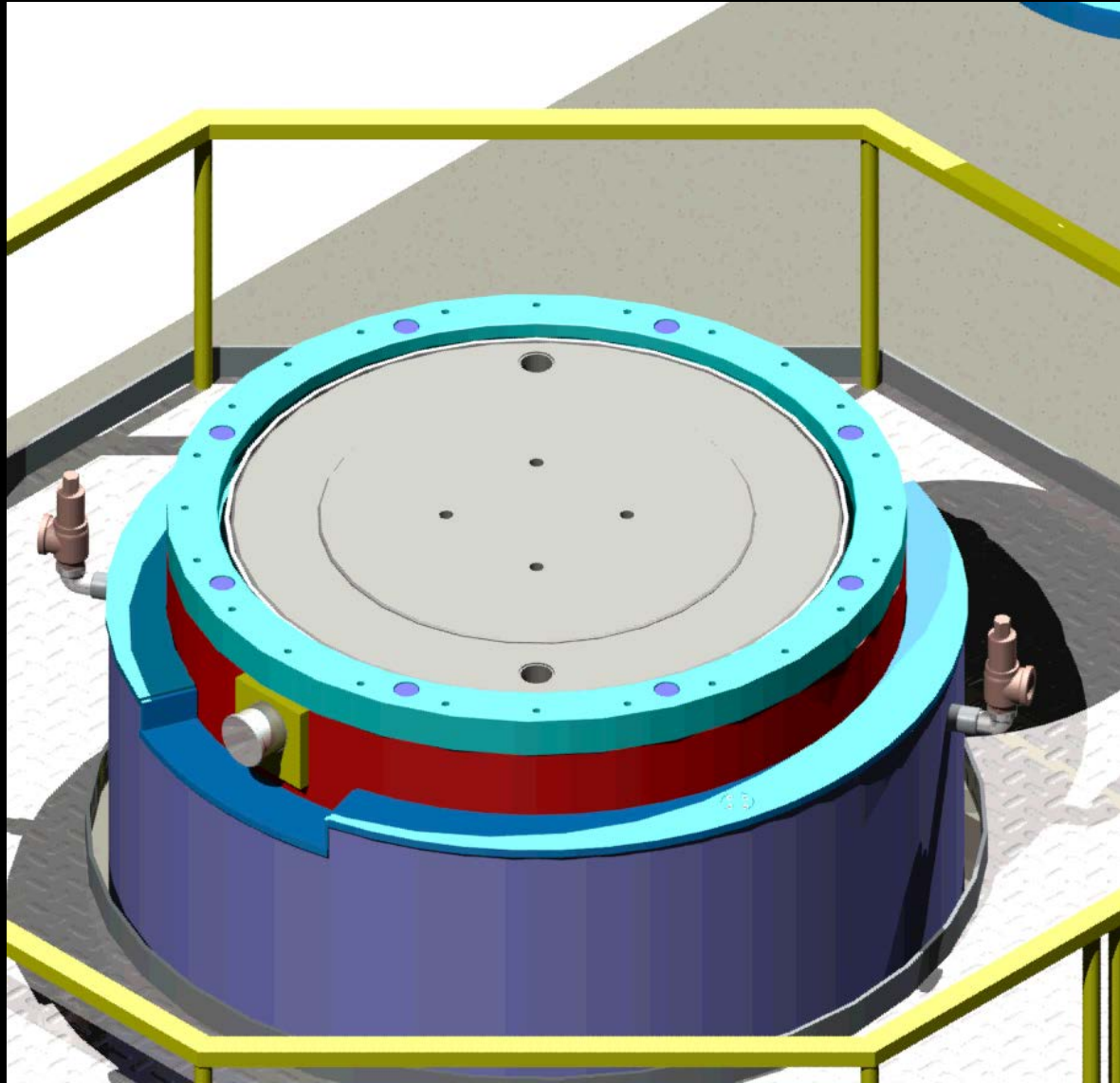




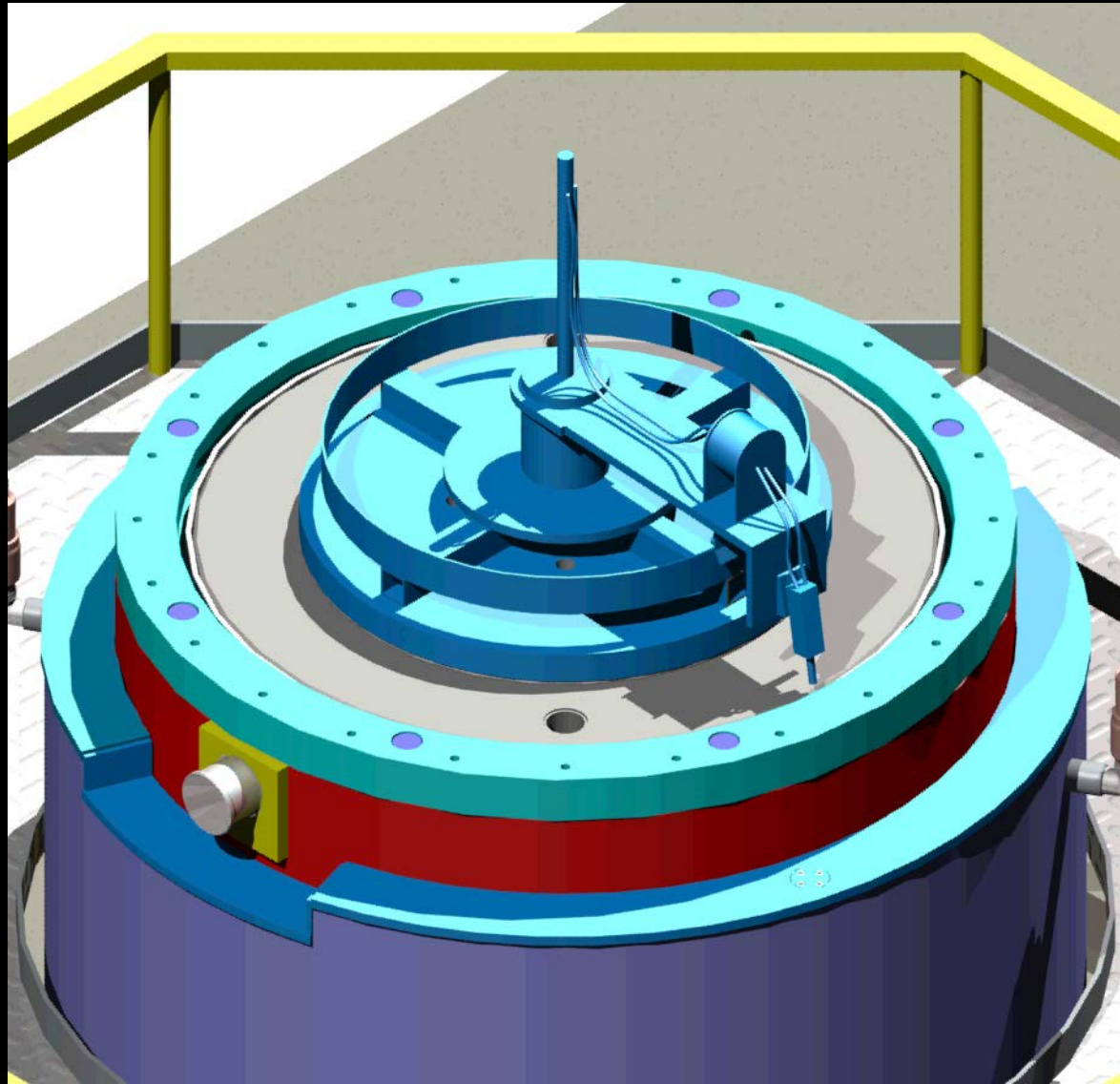
# Annulus Seal Removal



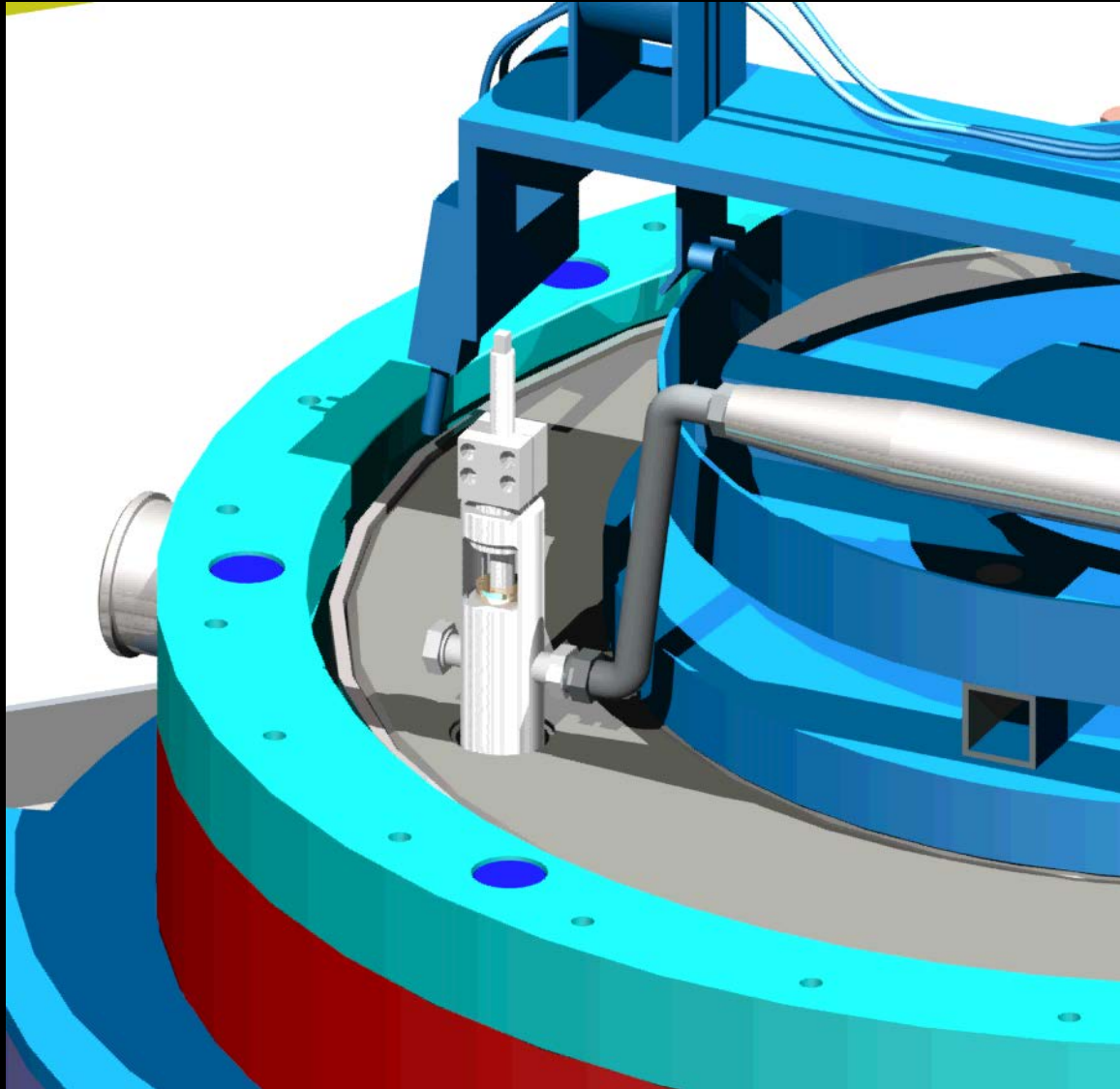
# Install Automated Welding System



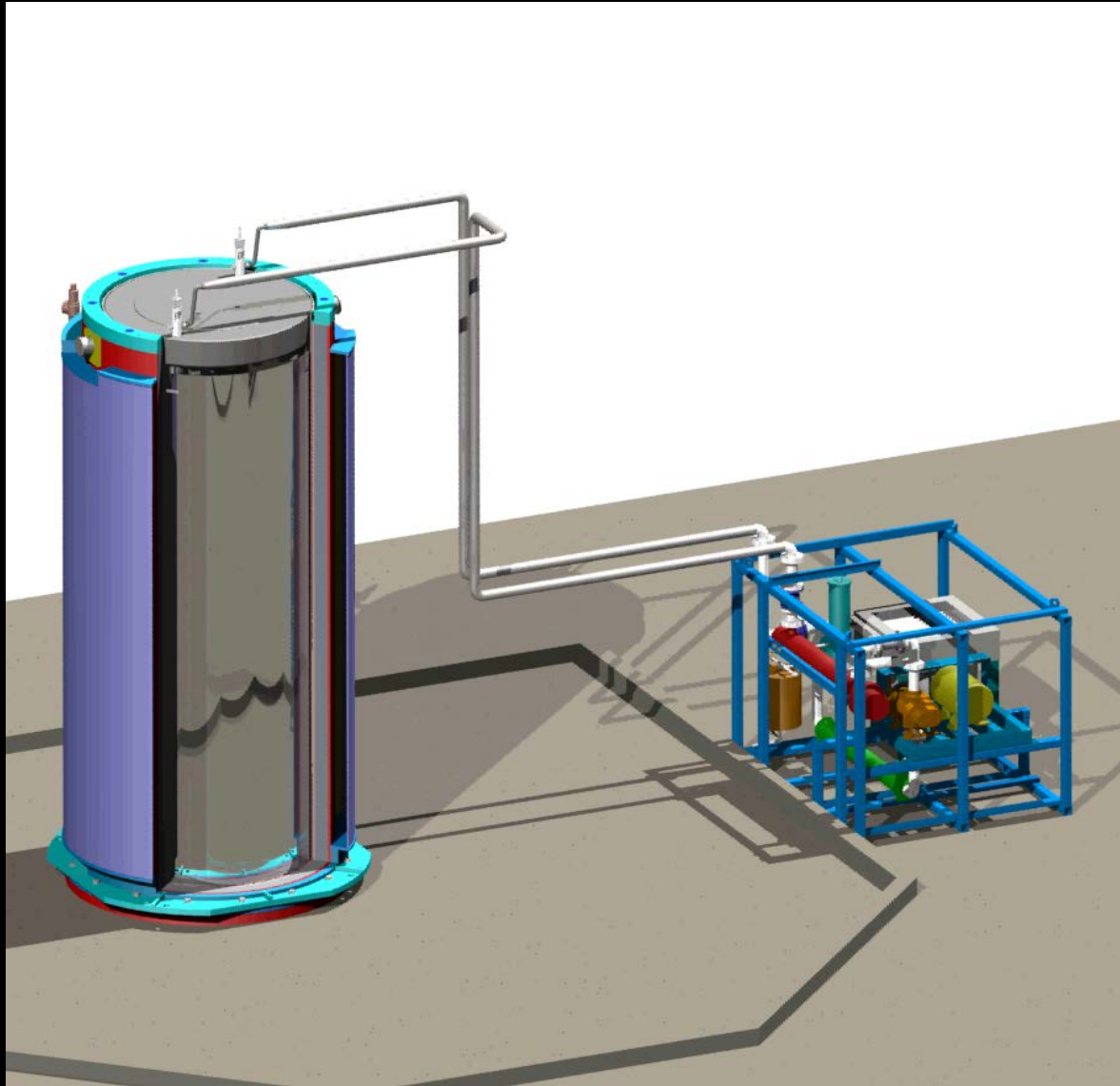
Weld the MPC Lid



## Force Helium Dehydrator Attached to the MPC

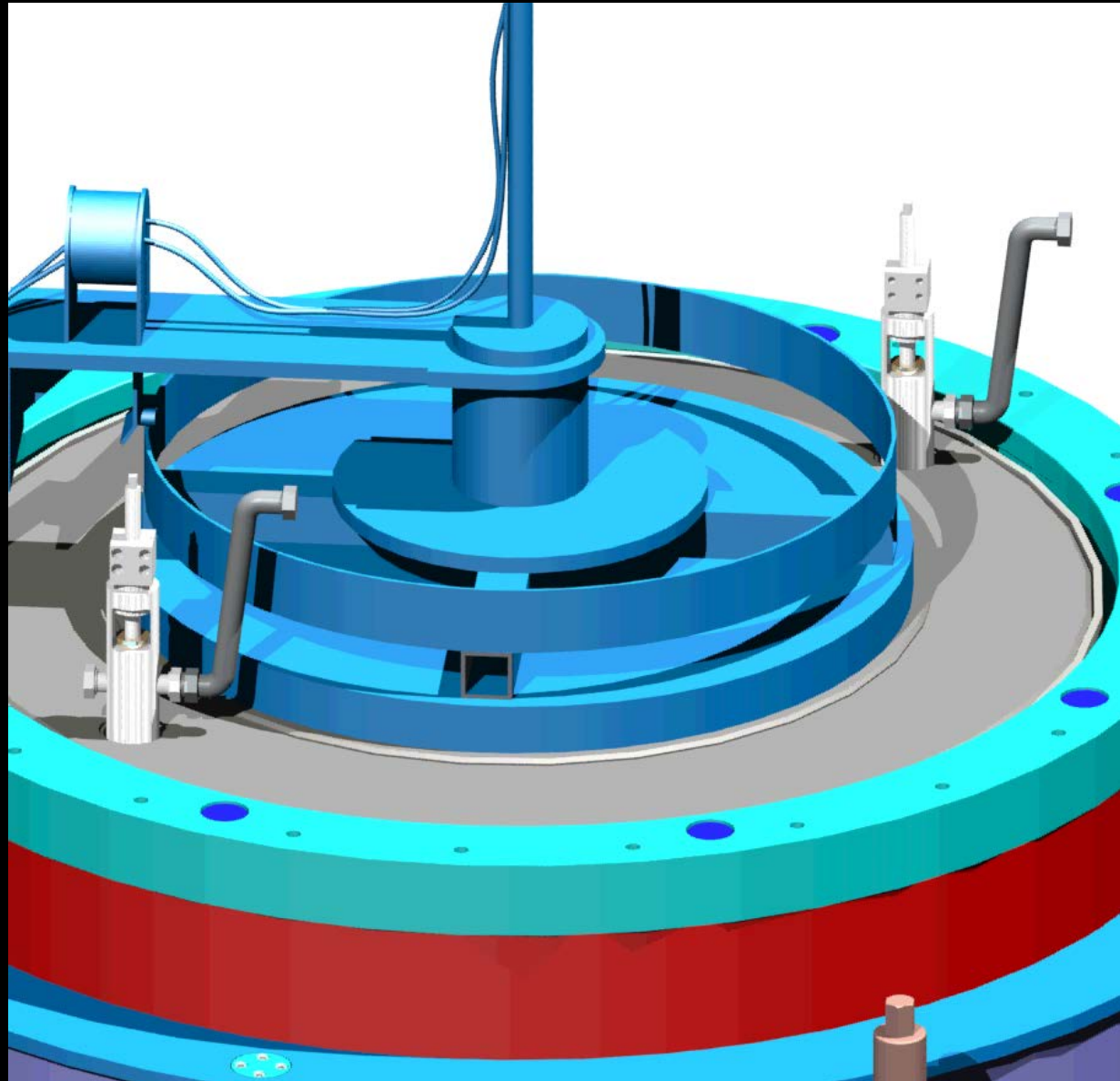


## MPC Draining, Drying and Backfill

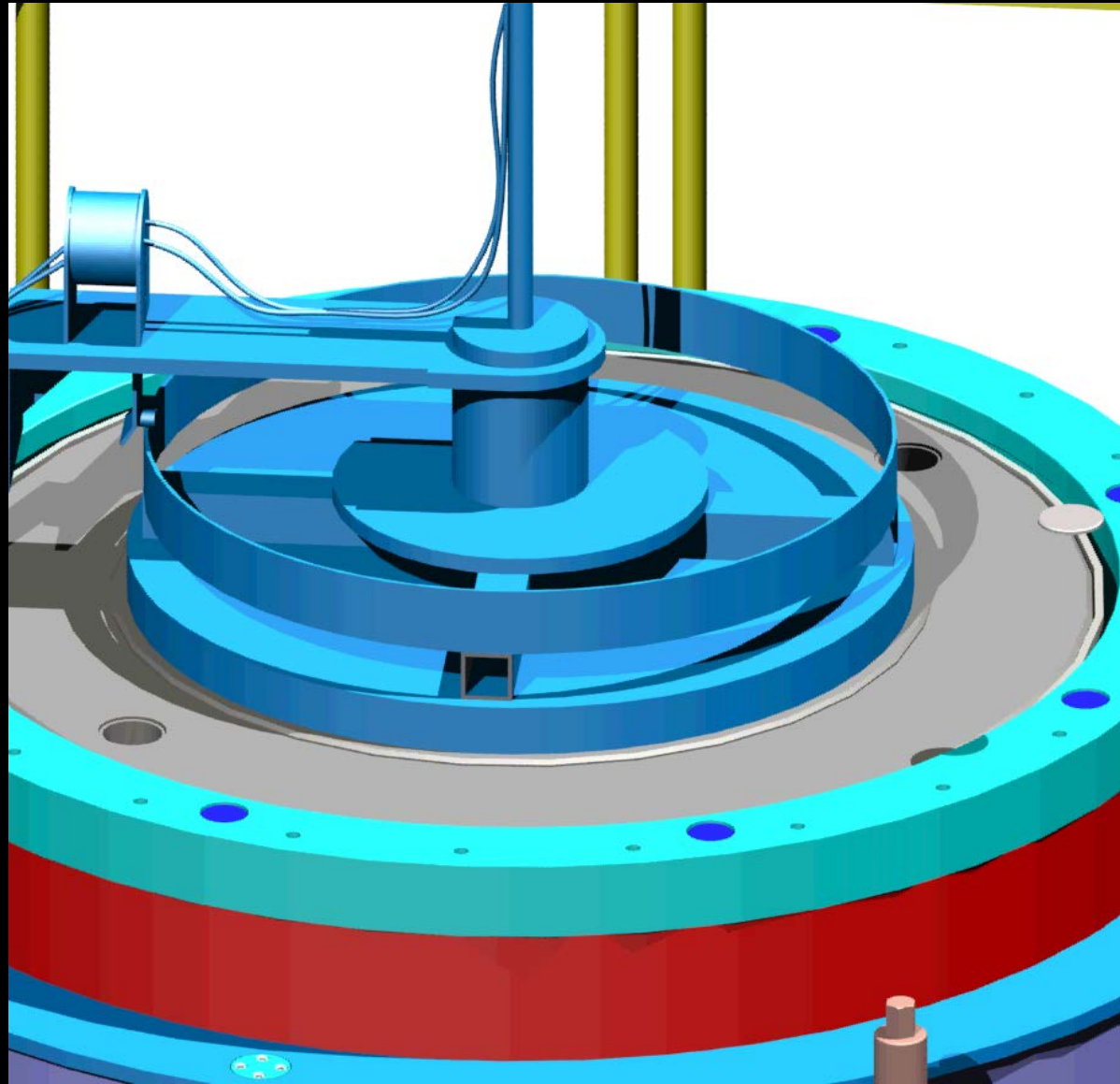




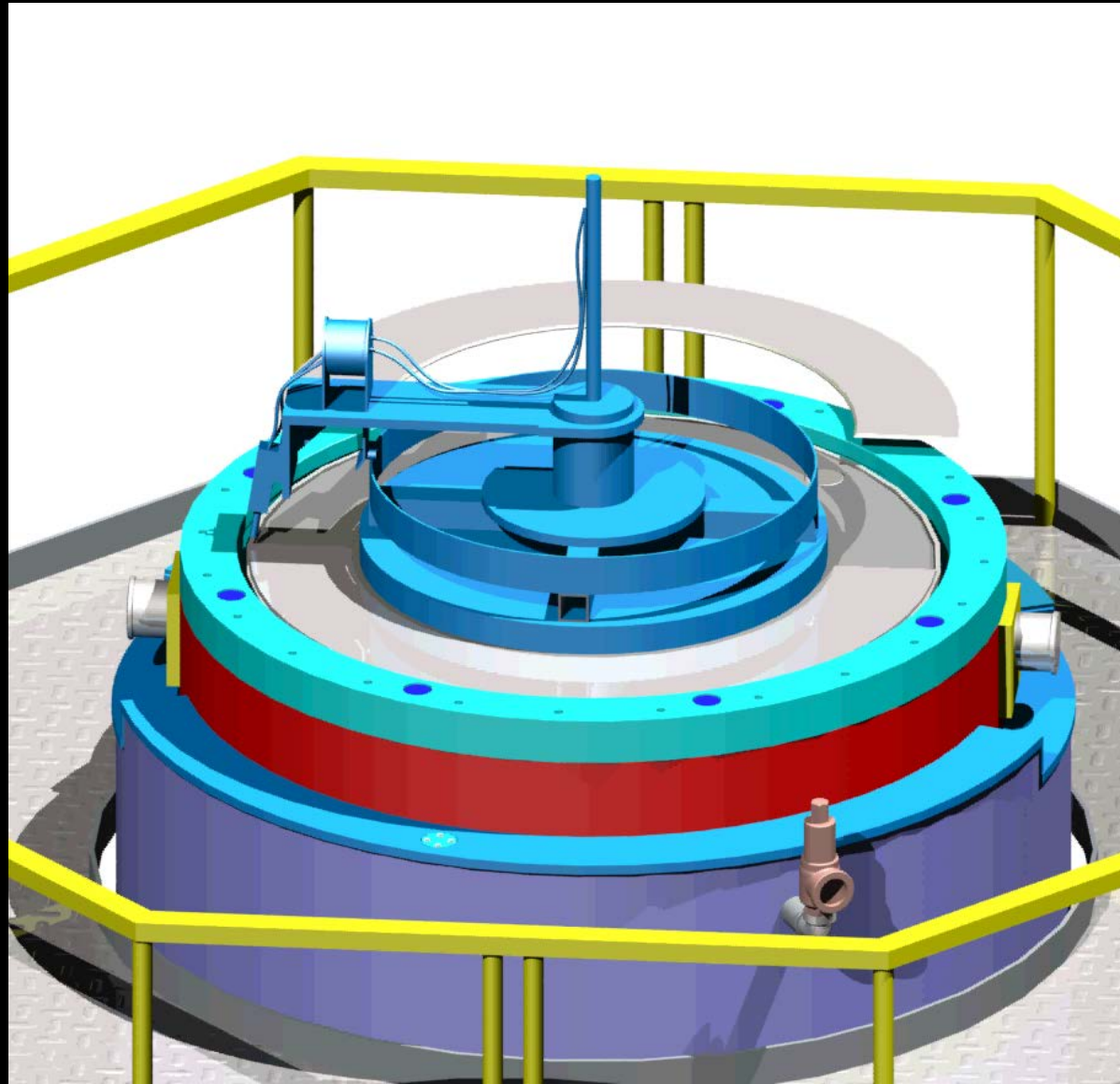
RVOAs Removed



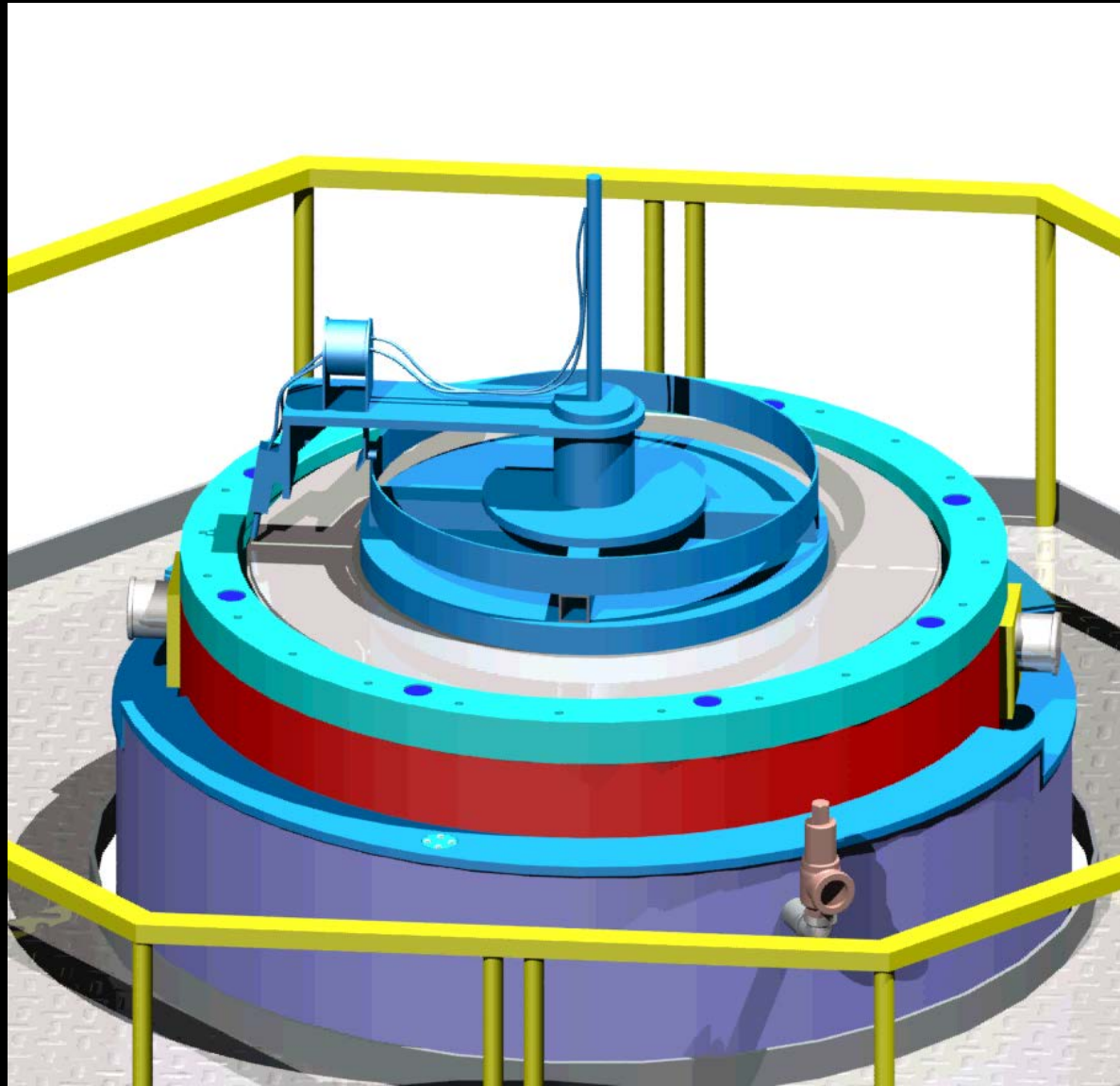
## Vent And Drain Port Covers Installed



## Closure Ring Installed

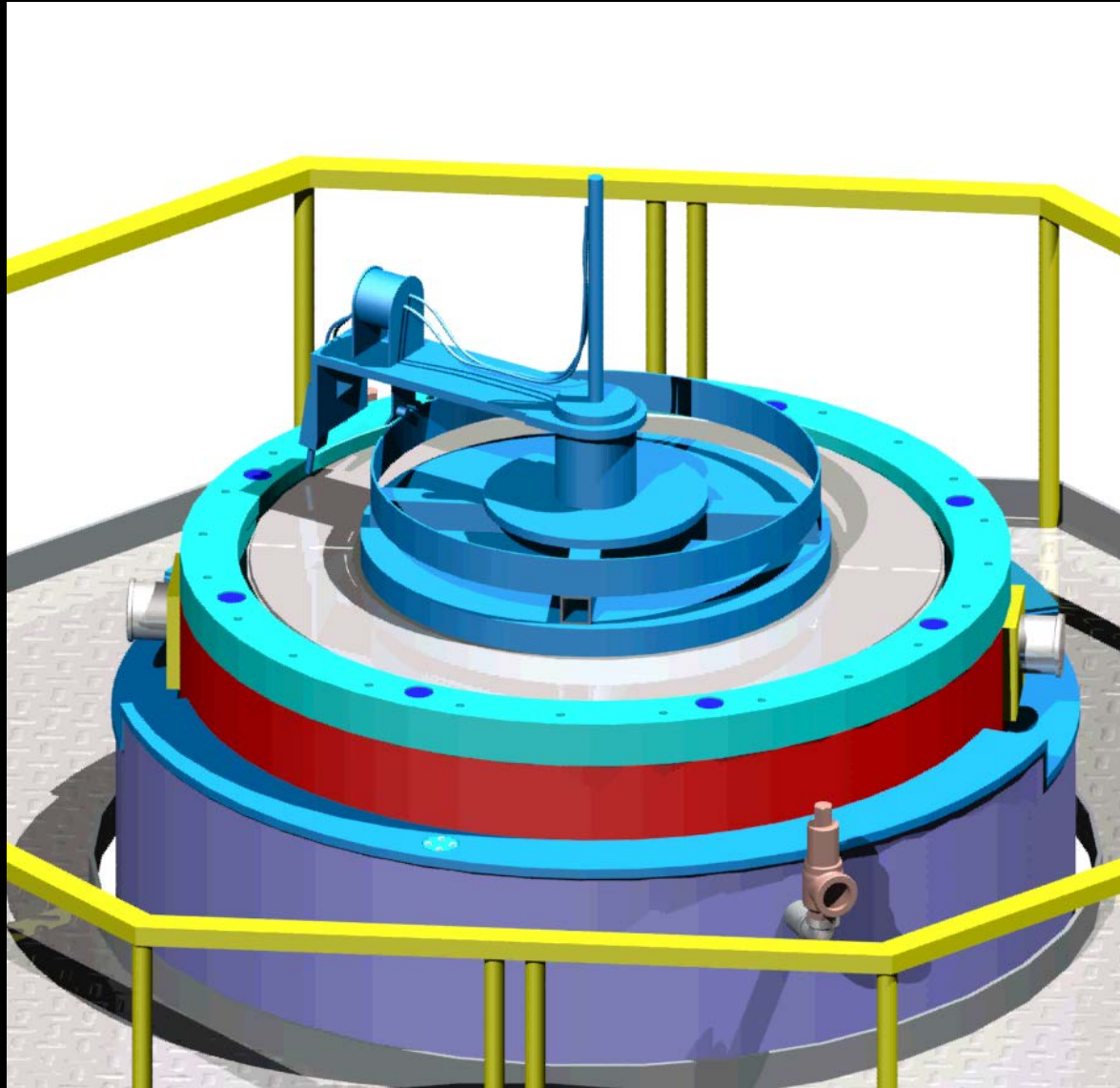


# Closure Ring Welding



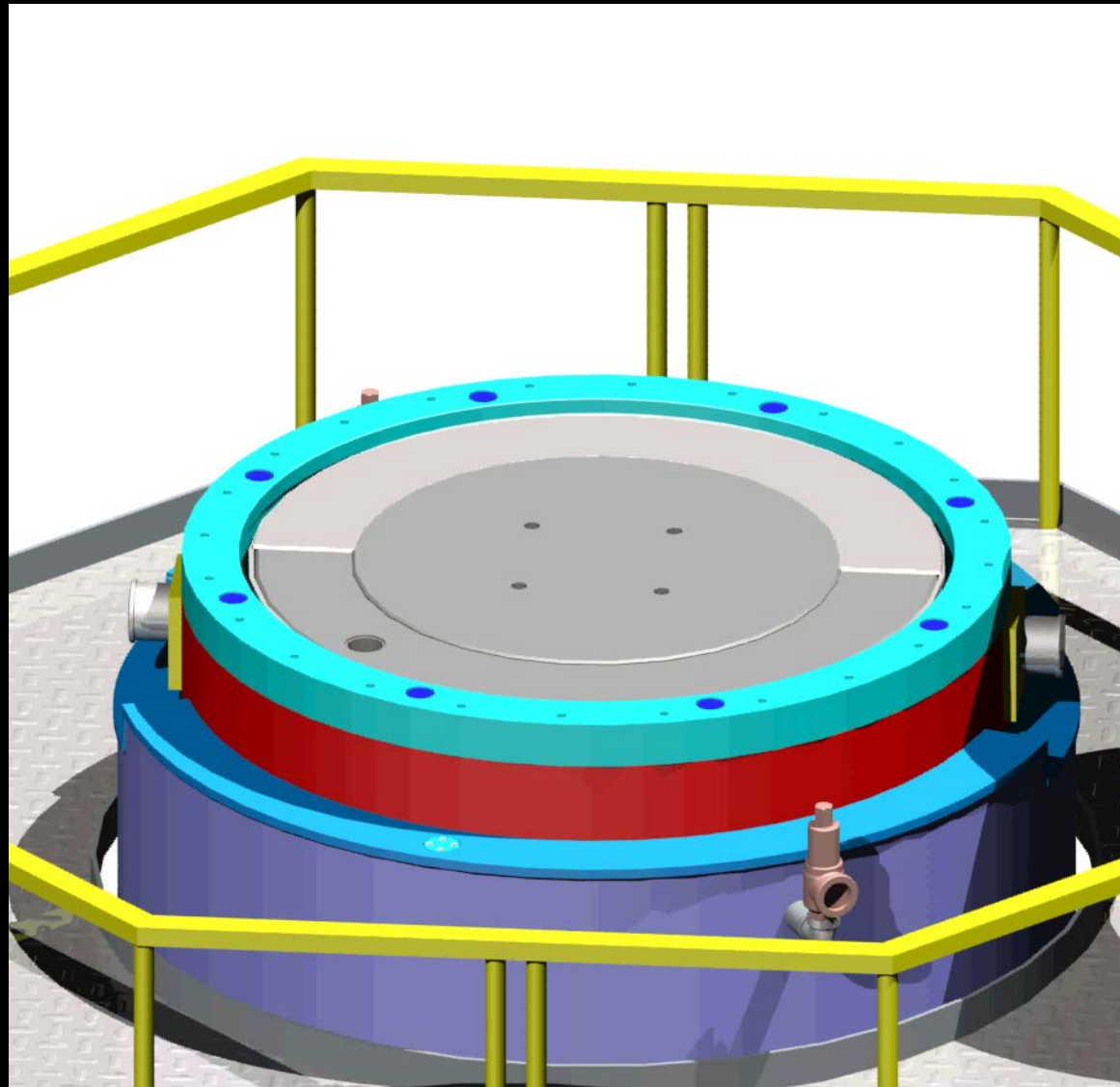


# Automated Welding System Removal

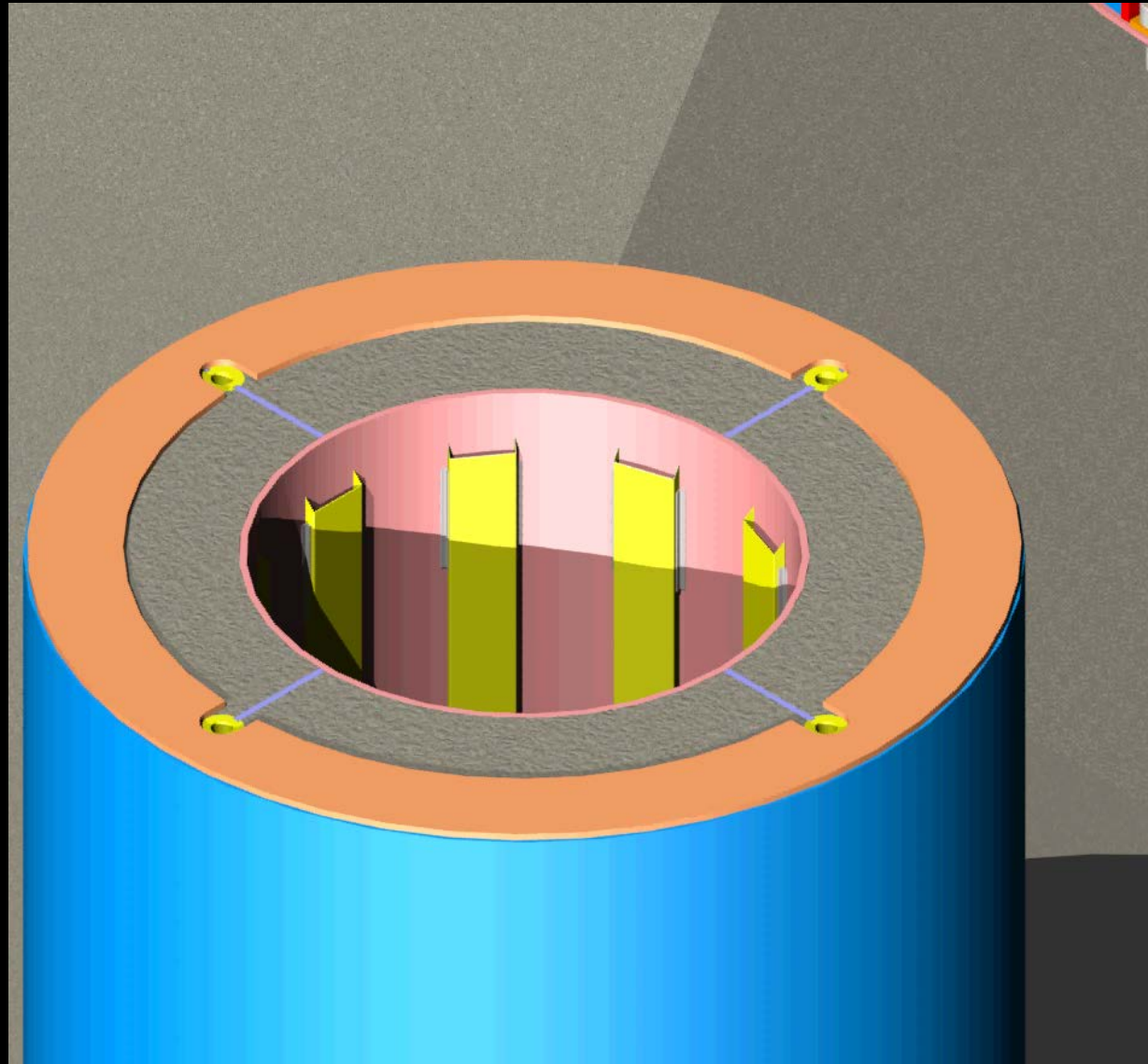




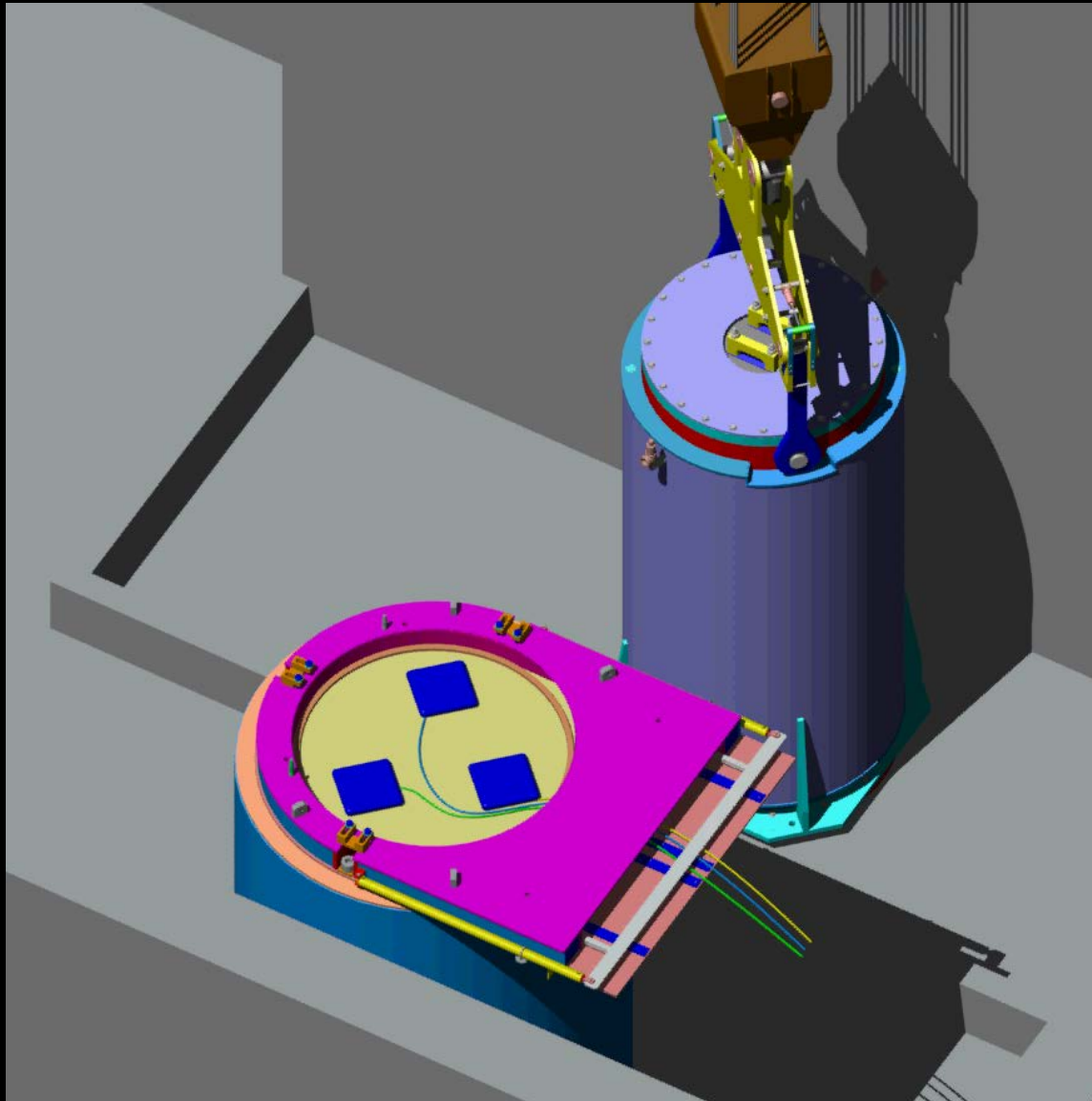
# HI-TRAC Lid and Lift Cleat Installation



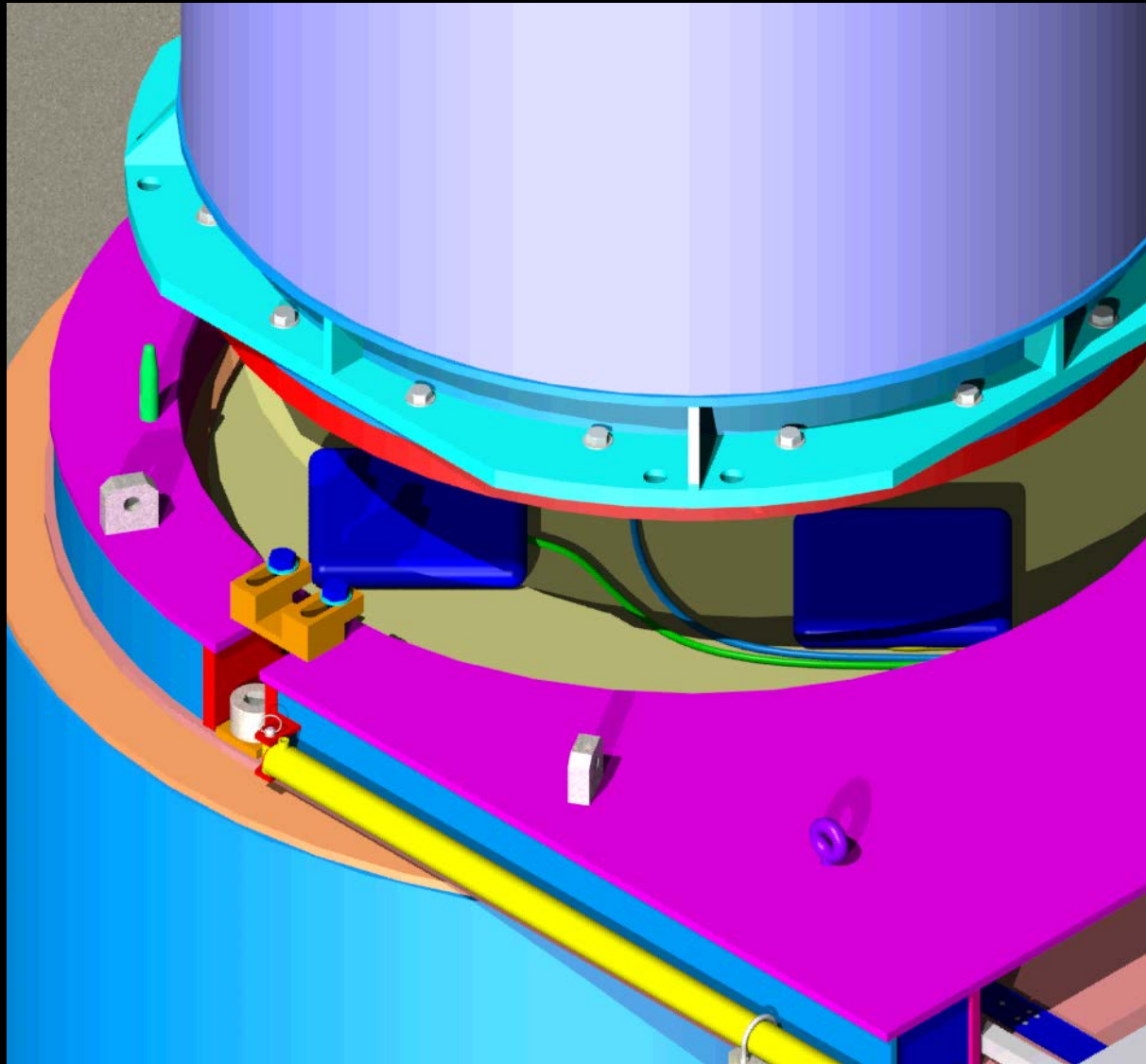
# Mating Device Installation on HI-STORM



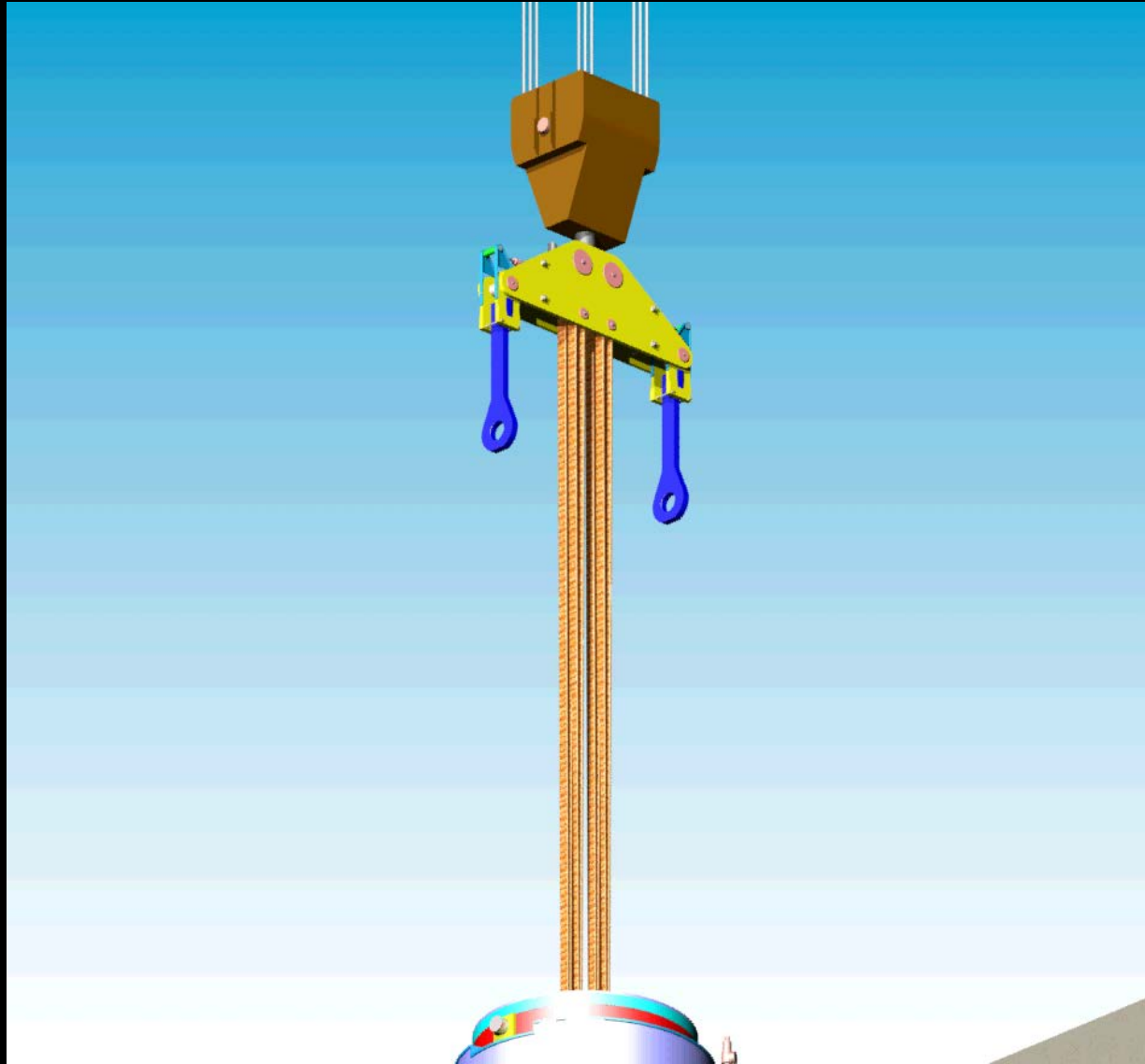
## HI-TRAC Moved to the Transfer Location



# HI-TRAC Mated with HI-STORM

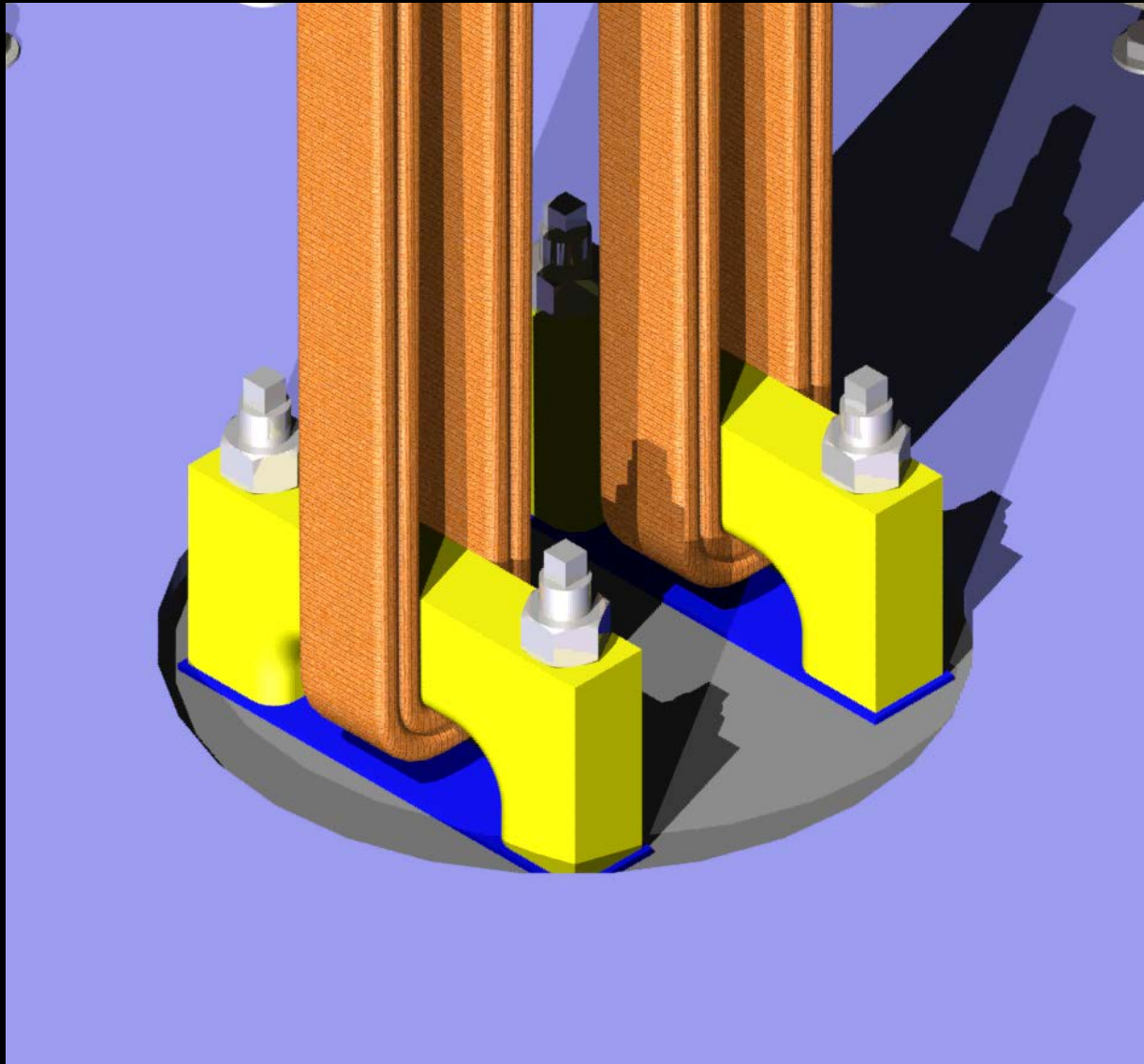


# Downloader Slings Tensioned

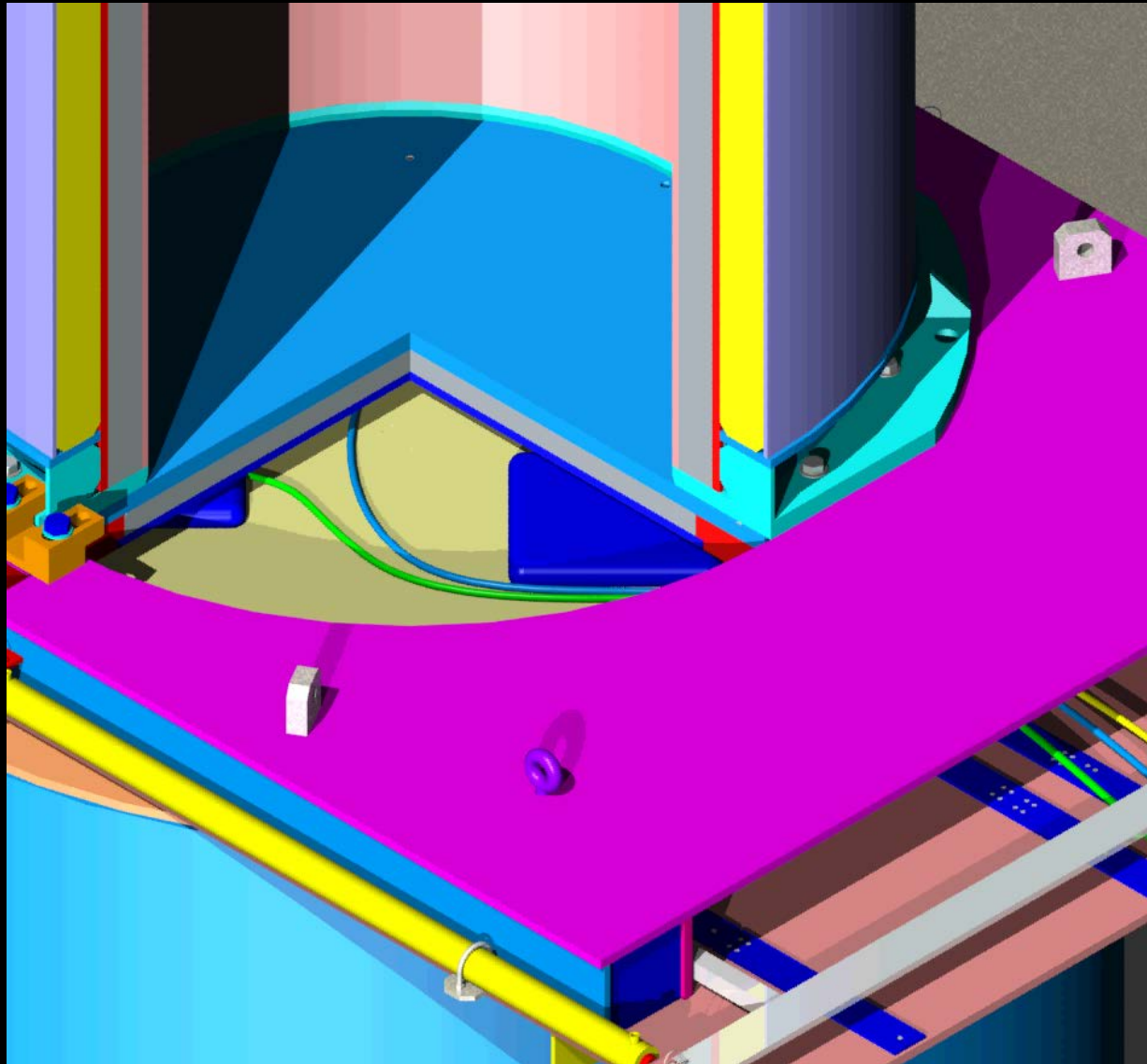




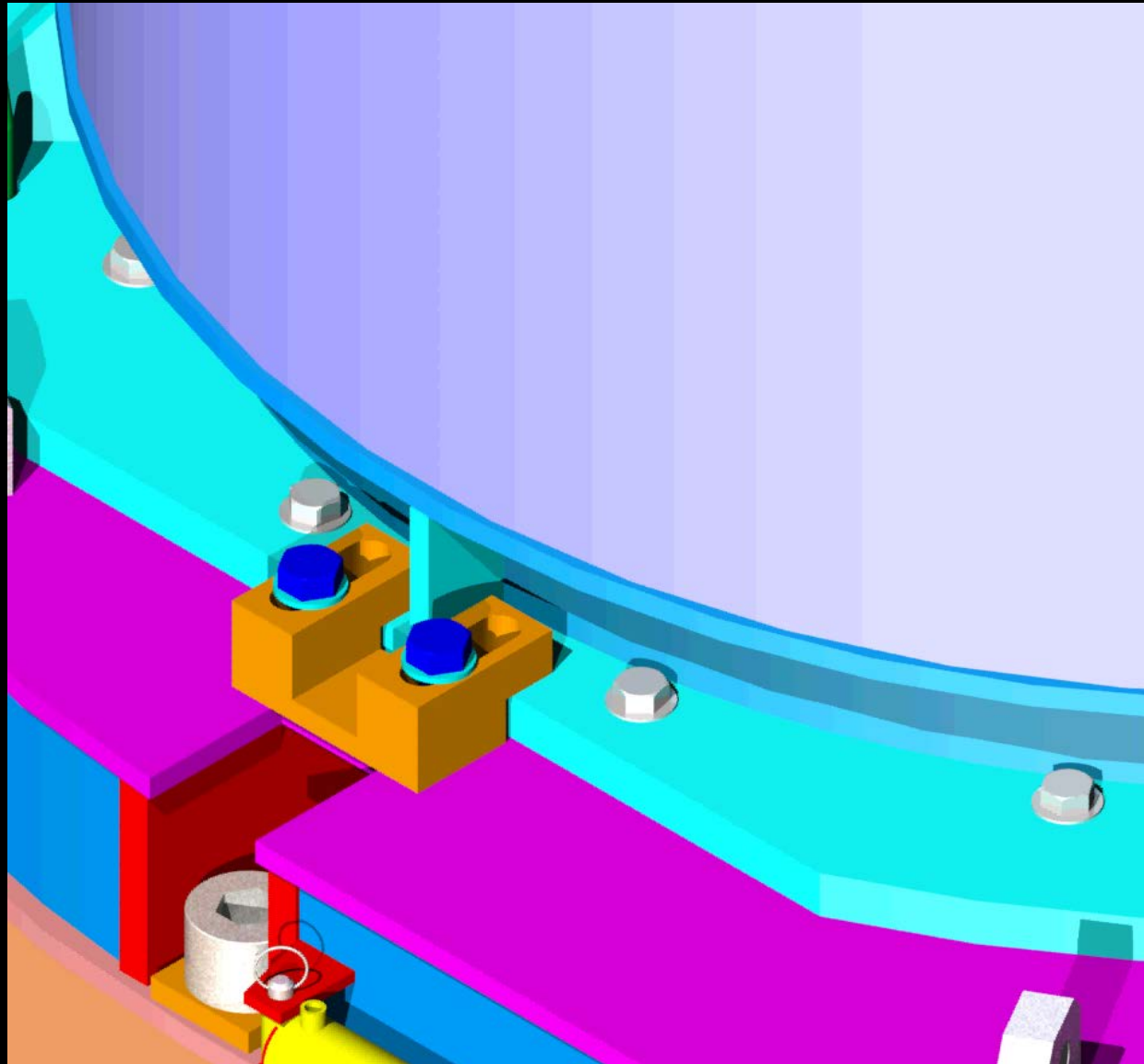
MPC Raised Slightly



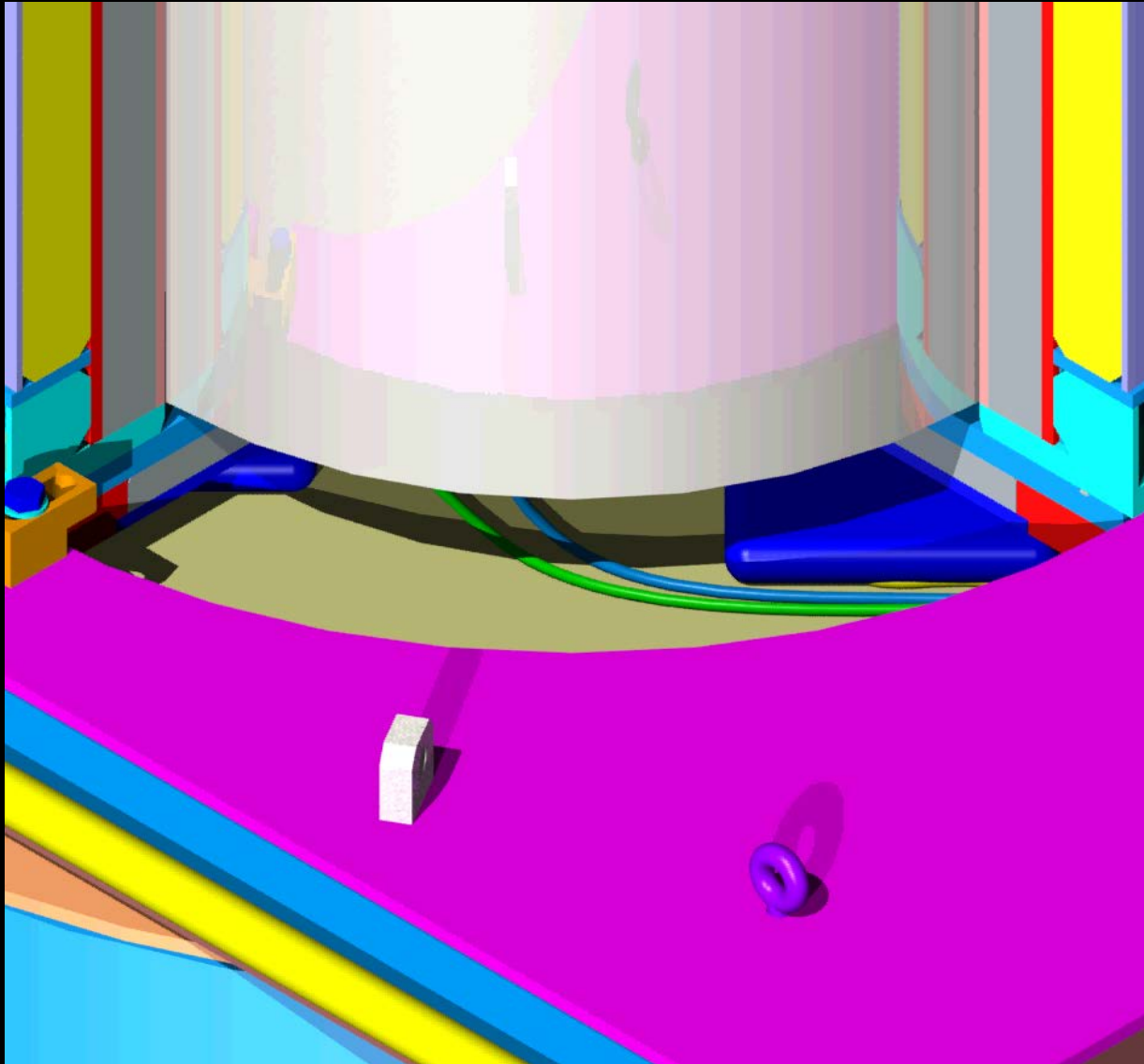
## Lift Bags Inflated



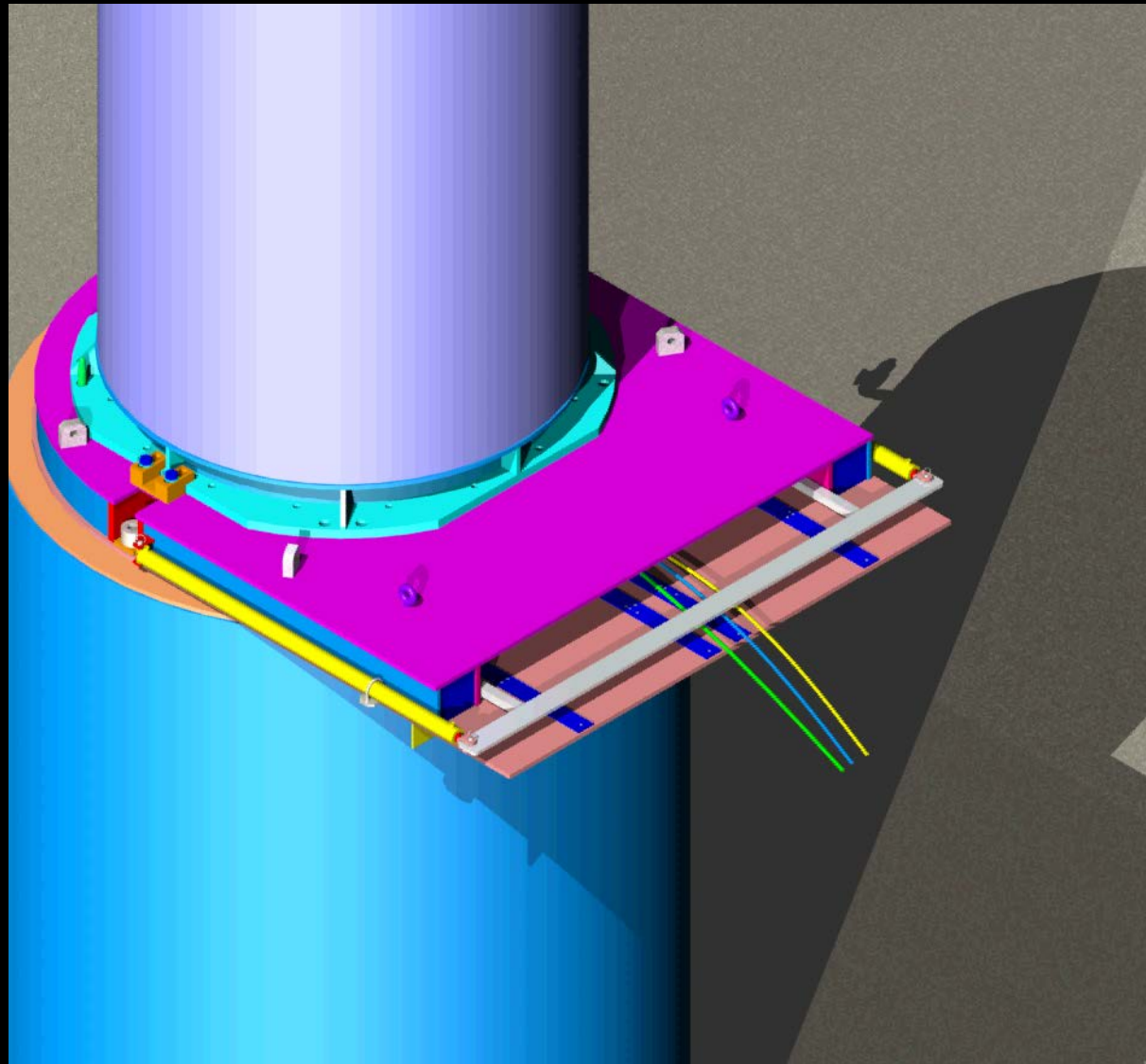
# Pool Lid Bolt Removal



## Pool Lid Lowering

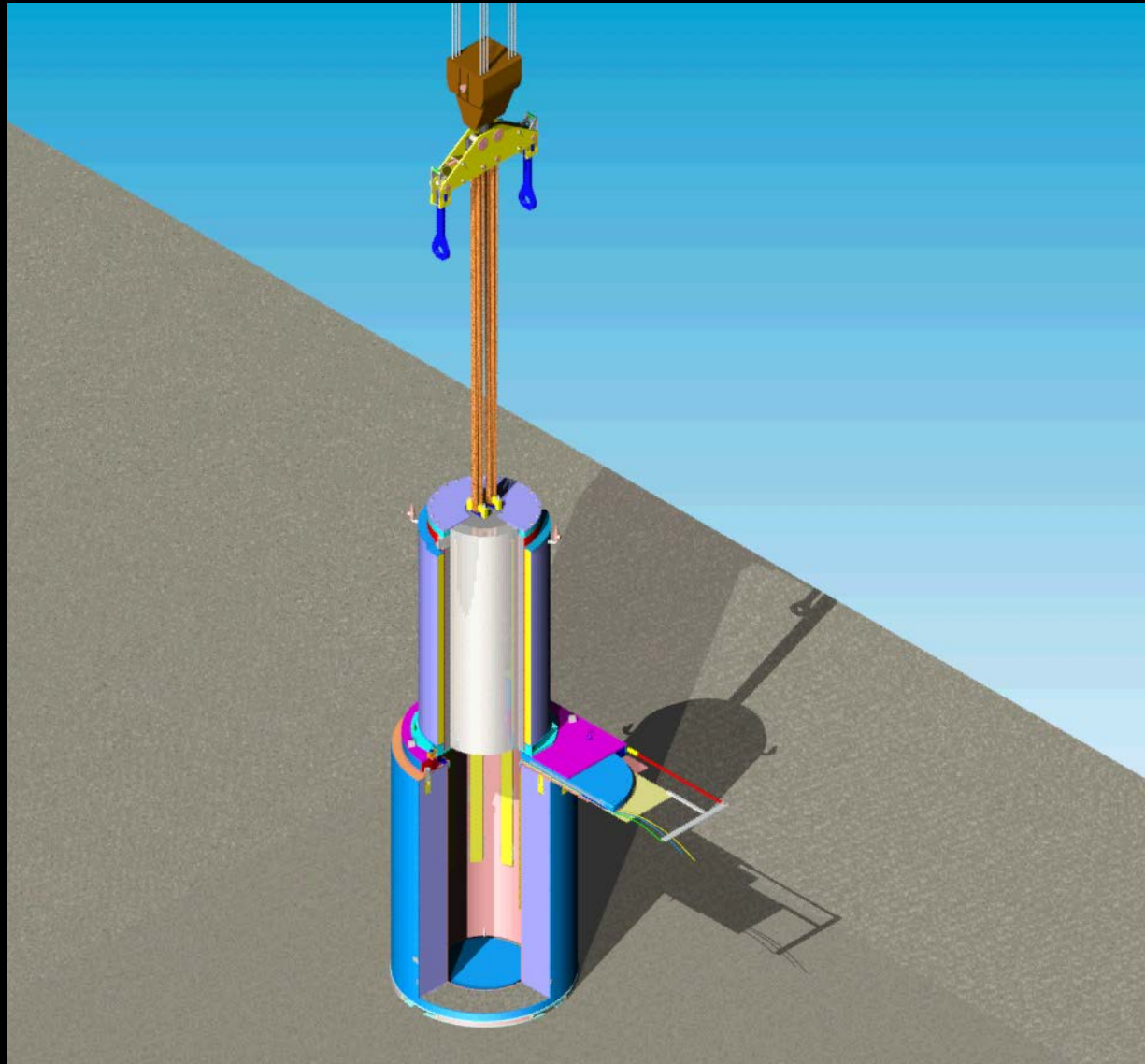


# Mating Device Opened

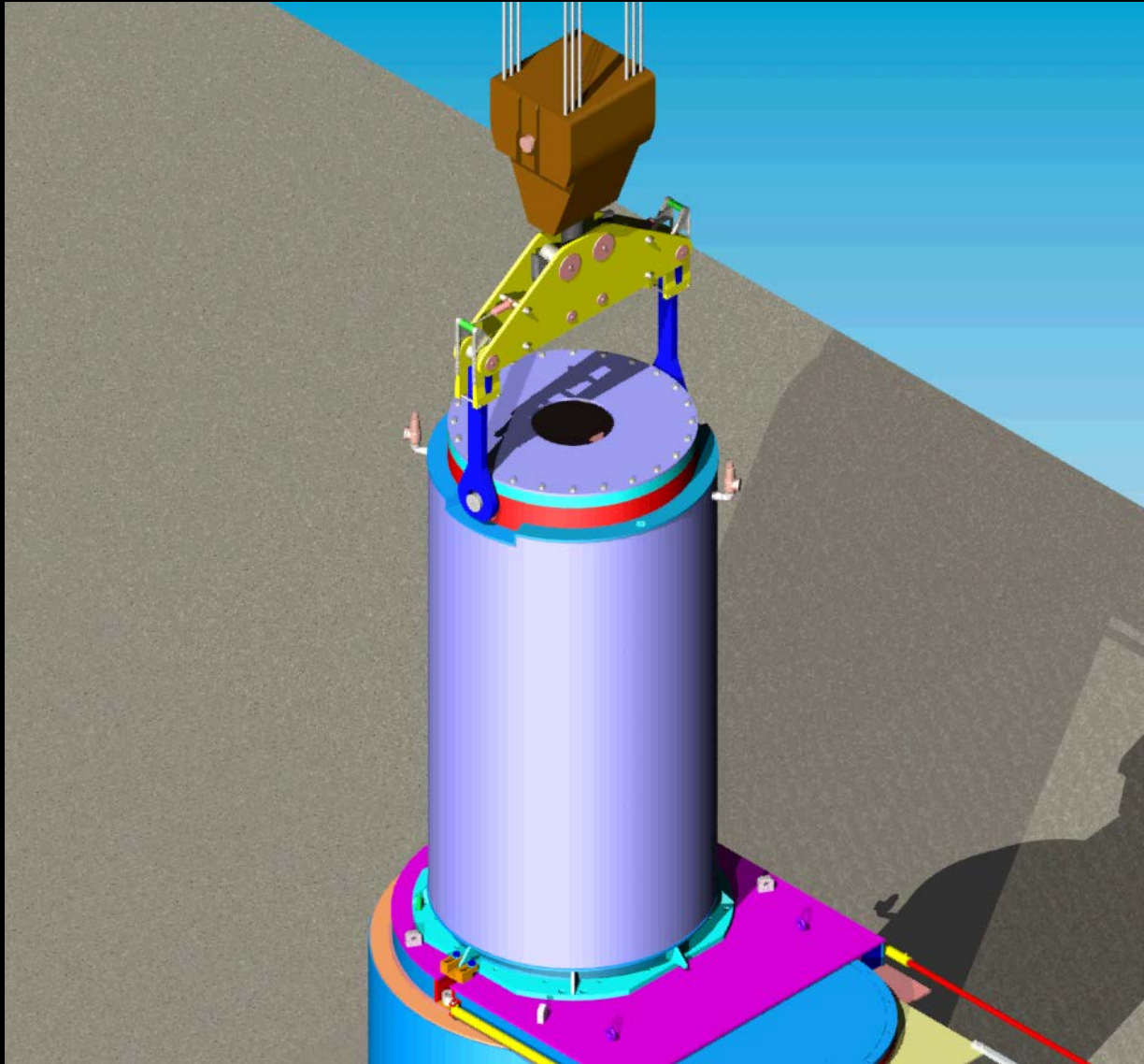




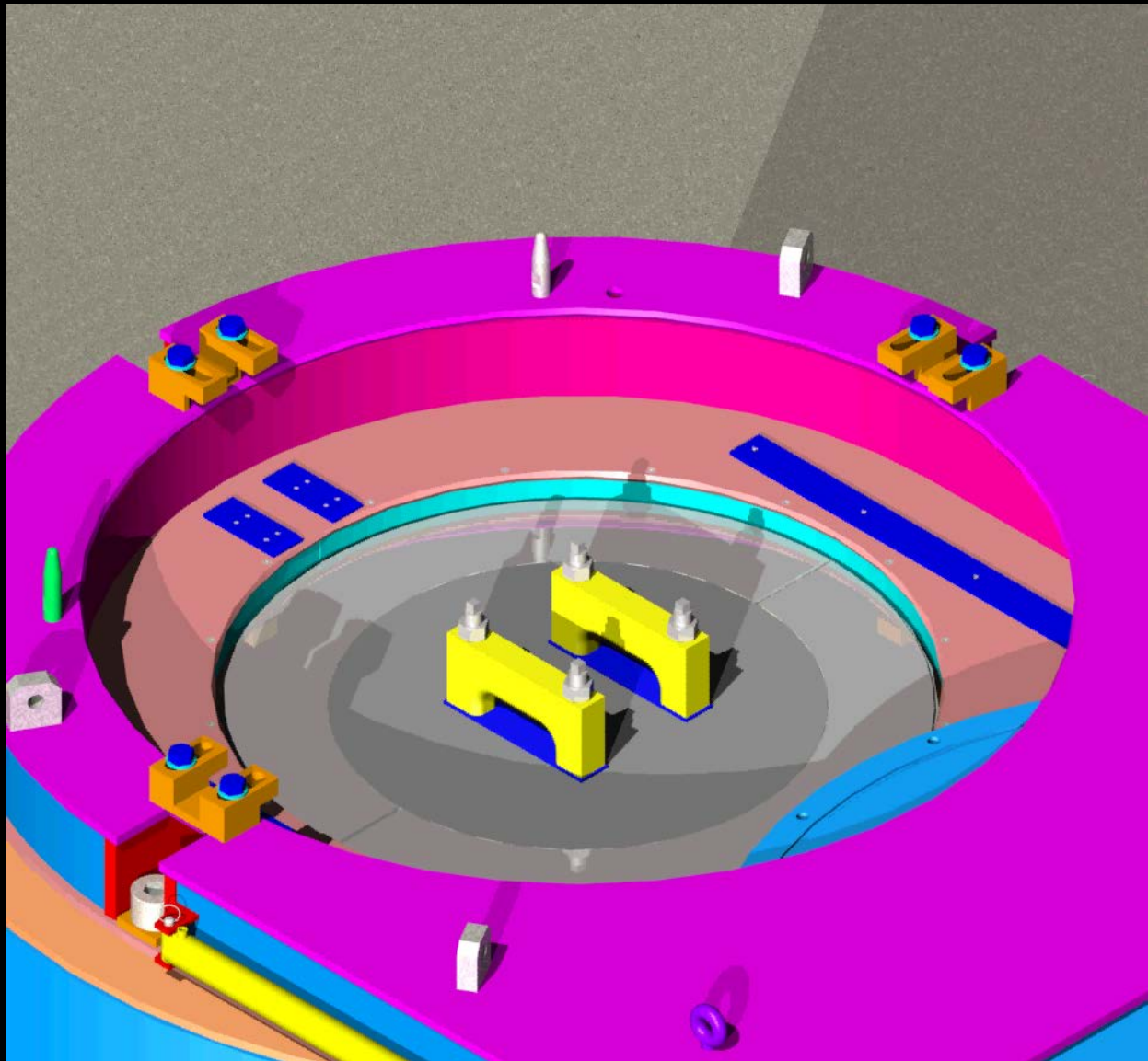
# MPC Lowered Into HI-STORM



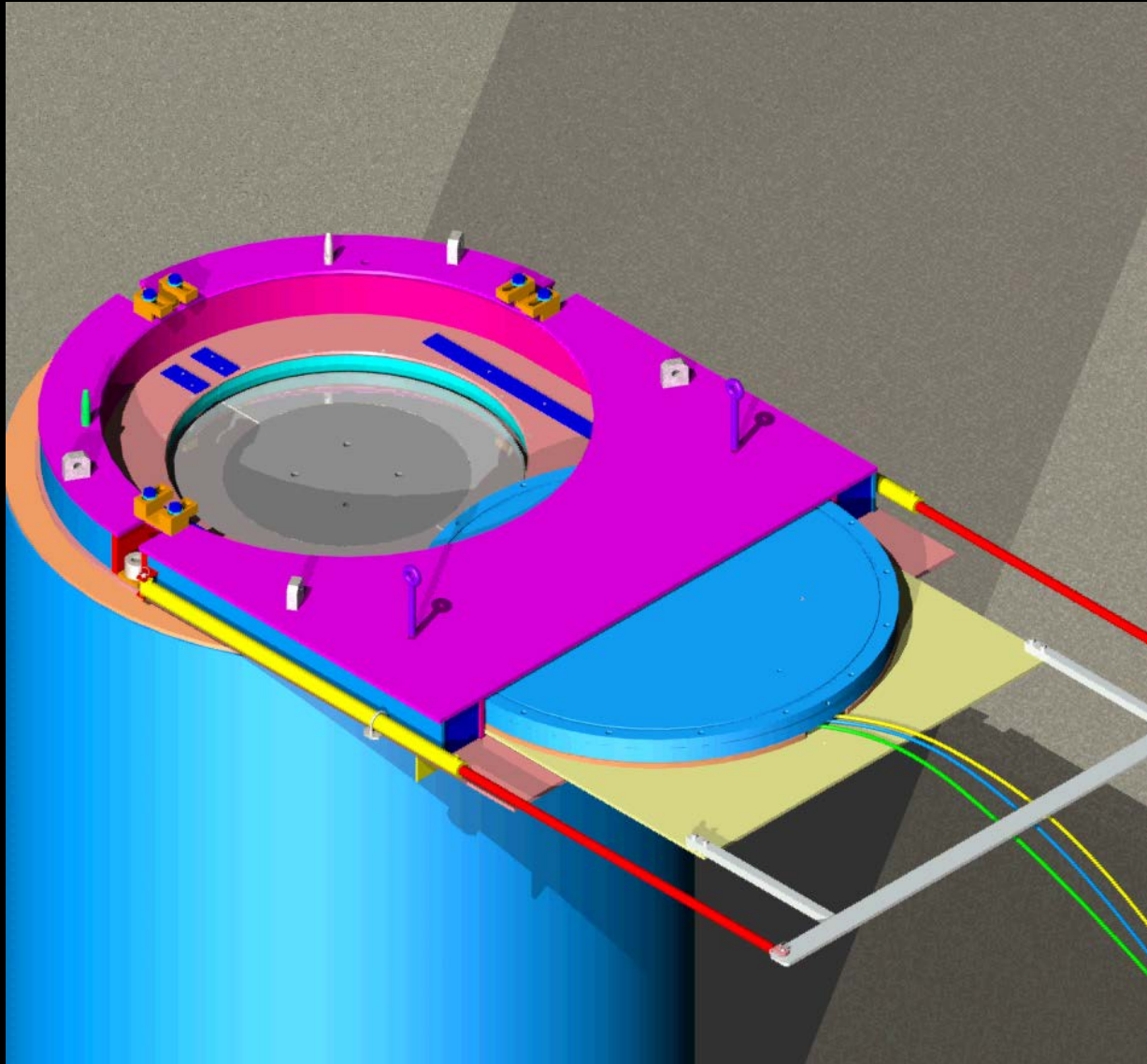
# HI-TRAC Removal from the Mating Device



# Lift Cleat Removal

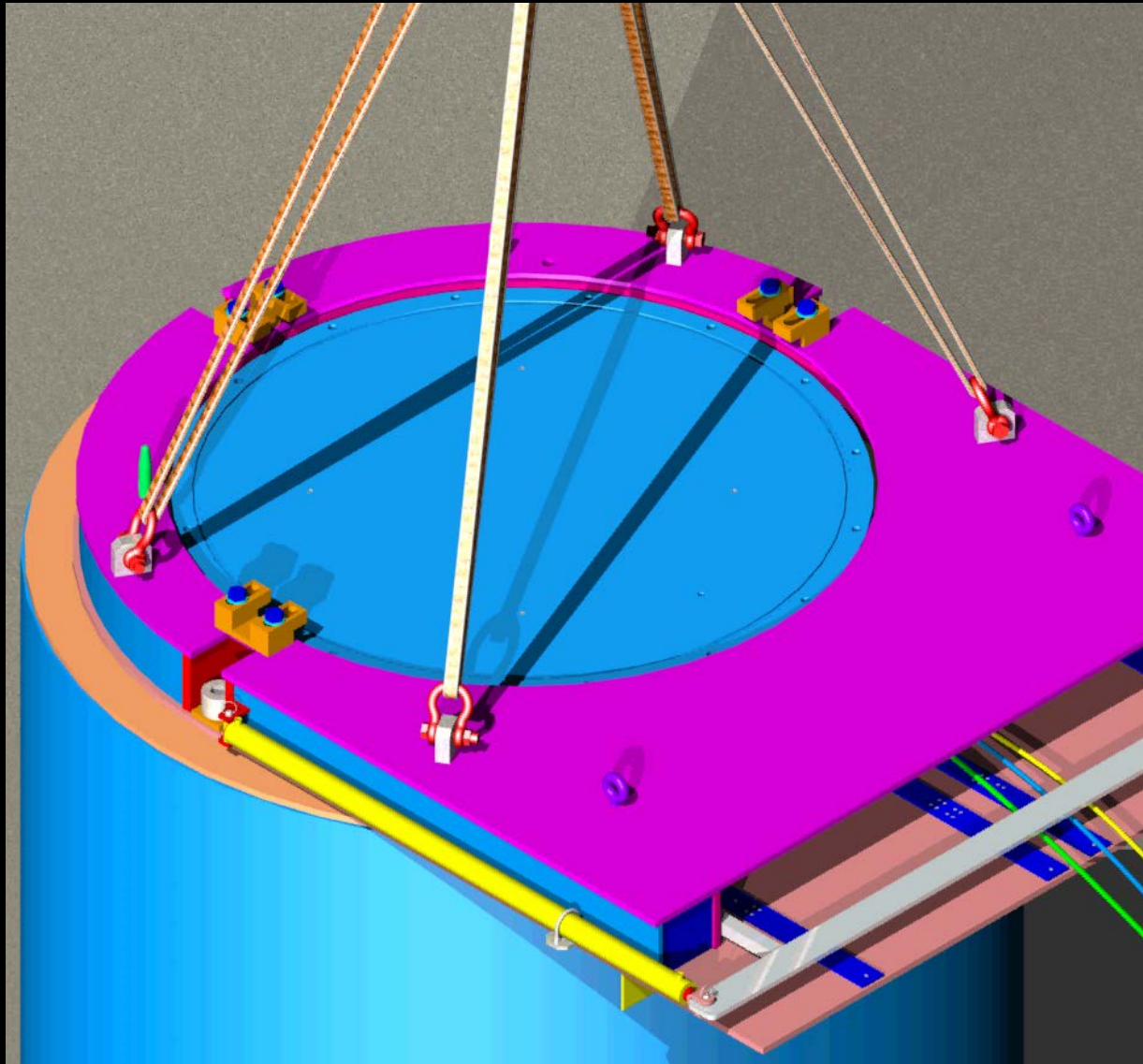


# Mating Device Closure





# Mating Device Removal from HI-STORM





## HI-STORM Moves To The ISFSI



## HI-STORM Moves To The ISFSI



# Questions