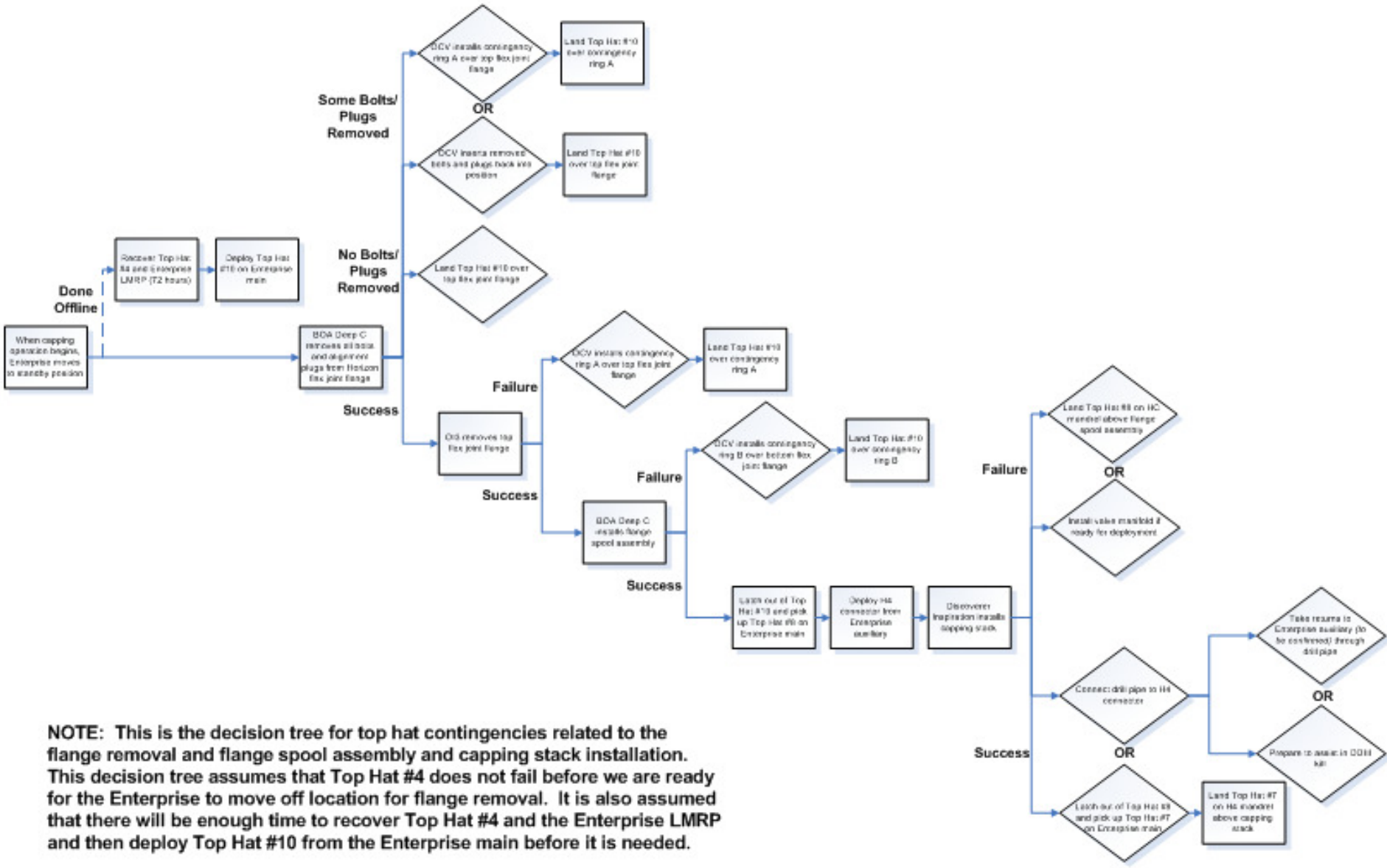


Top Hat Contingency Story Board
(Flange Removal and Flange Spool
Assembly/Capping Stack Installation)

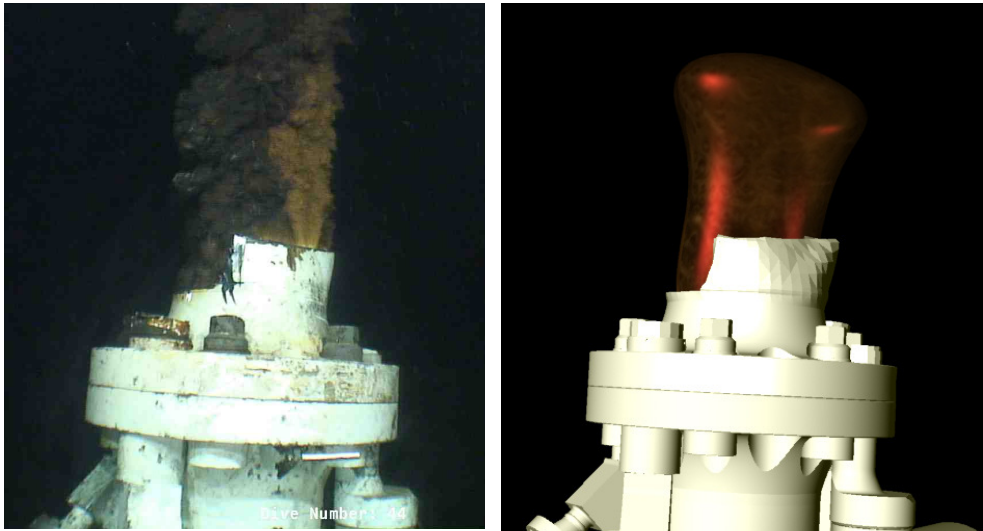
July 4, 2010

Top Hat Contingency Decision Tree

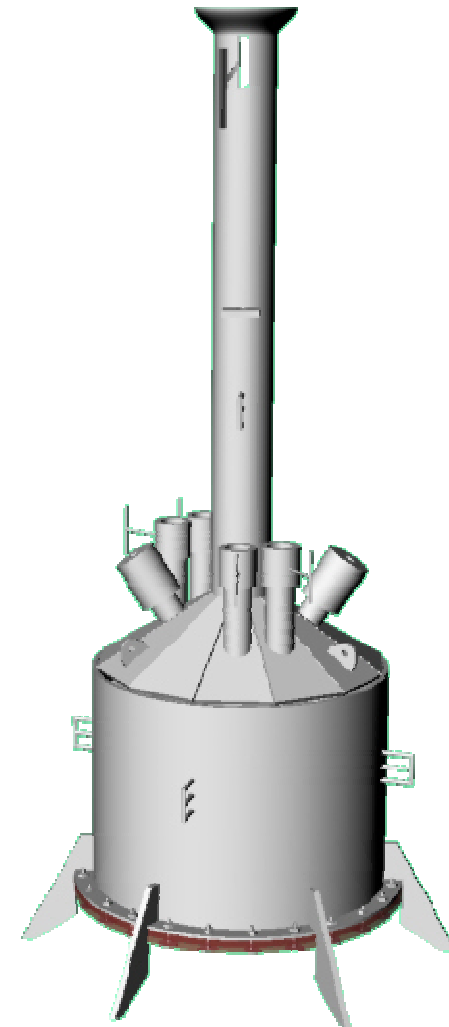


NOTE: This is the decision tree for top hat contingencies related to the flange removal and flange spool assembly and capping stack installation. This decision tree assumes that Top Hat #4 does not fail before we are ready for the Enterprise to move off location for flange removal. It is also assumed that there will be enough time to recover Top Hat #4 and the Enterprise LMRP and then deploy Top Hat #10 from the Enterprise main before it is needed.

Top Hat Contingency Options

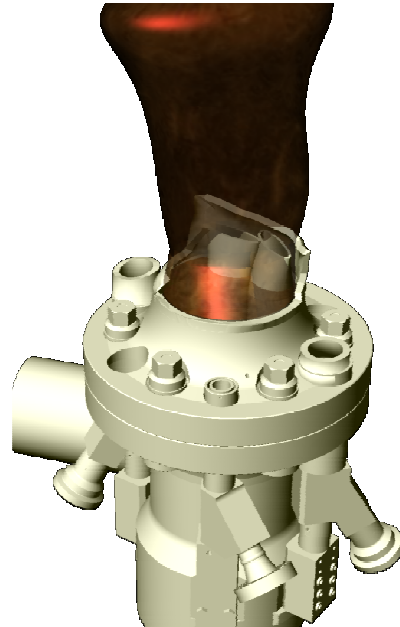


Starting Condition: Top Hat (TH) #4 deployed from *Discoverer Enterprise (DE)* Main. When capping operation begins, *DE* moves to standby position, recovers TH#4 and *DE* LMRP, and then deploys TH#10 on *DE* Main.

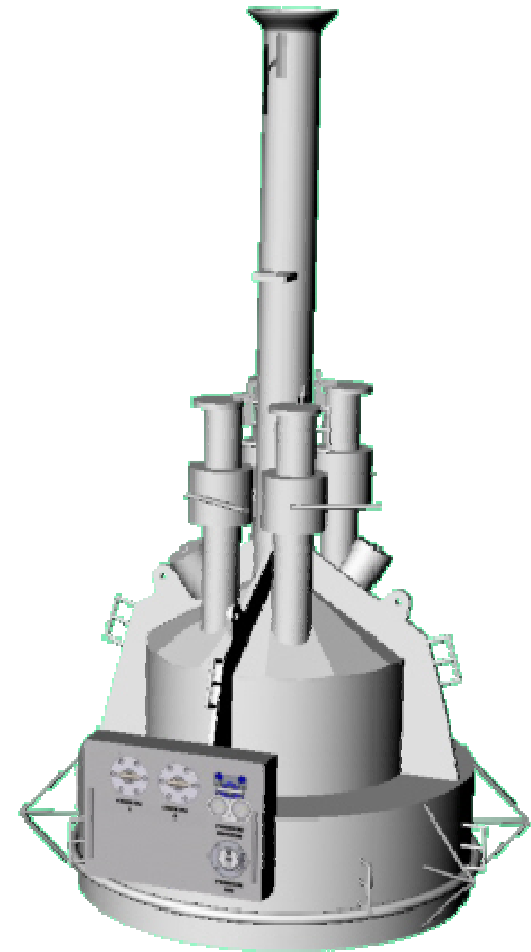


Top Hat #4 on DE Main

Flange Bolt Removal

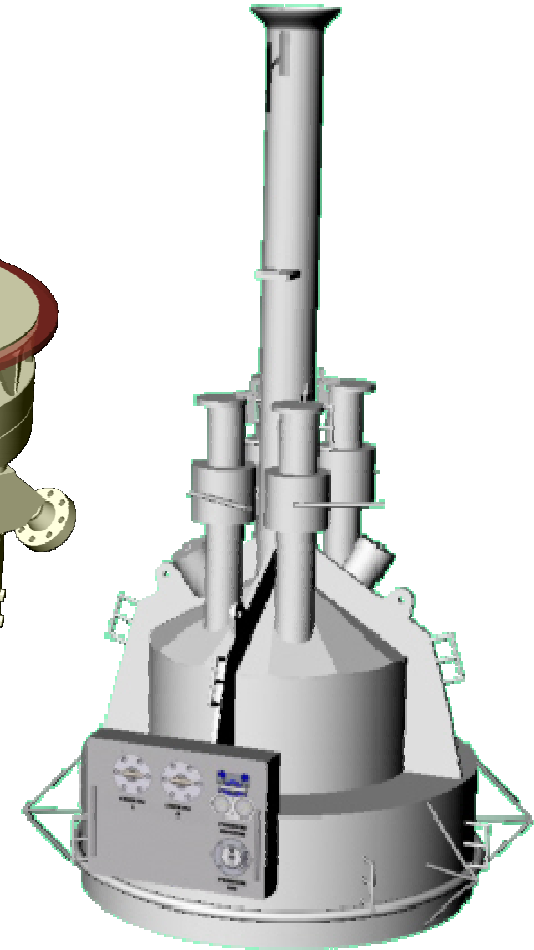
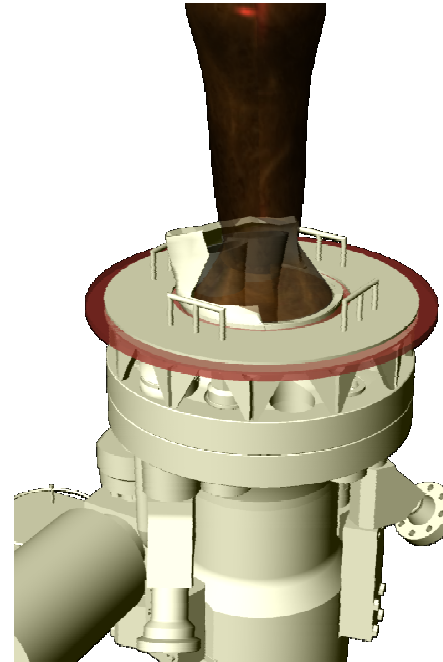
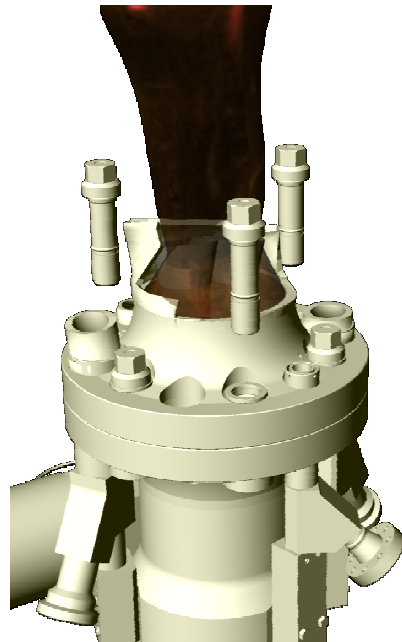
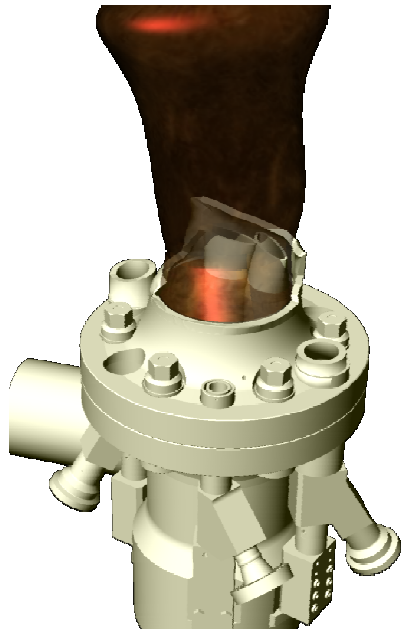


Contingency: If none of the bolts can be removed or if there is a problem and previously removed bolts can be re-installed, land TH#10 over top flex joint flange.



Top Hat #10 on DE Main

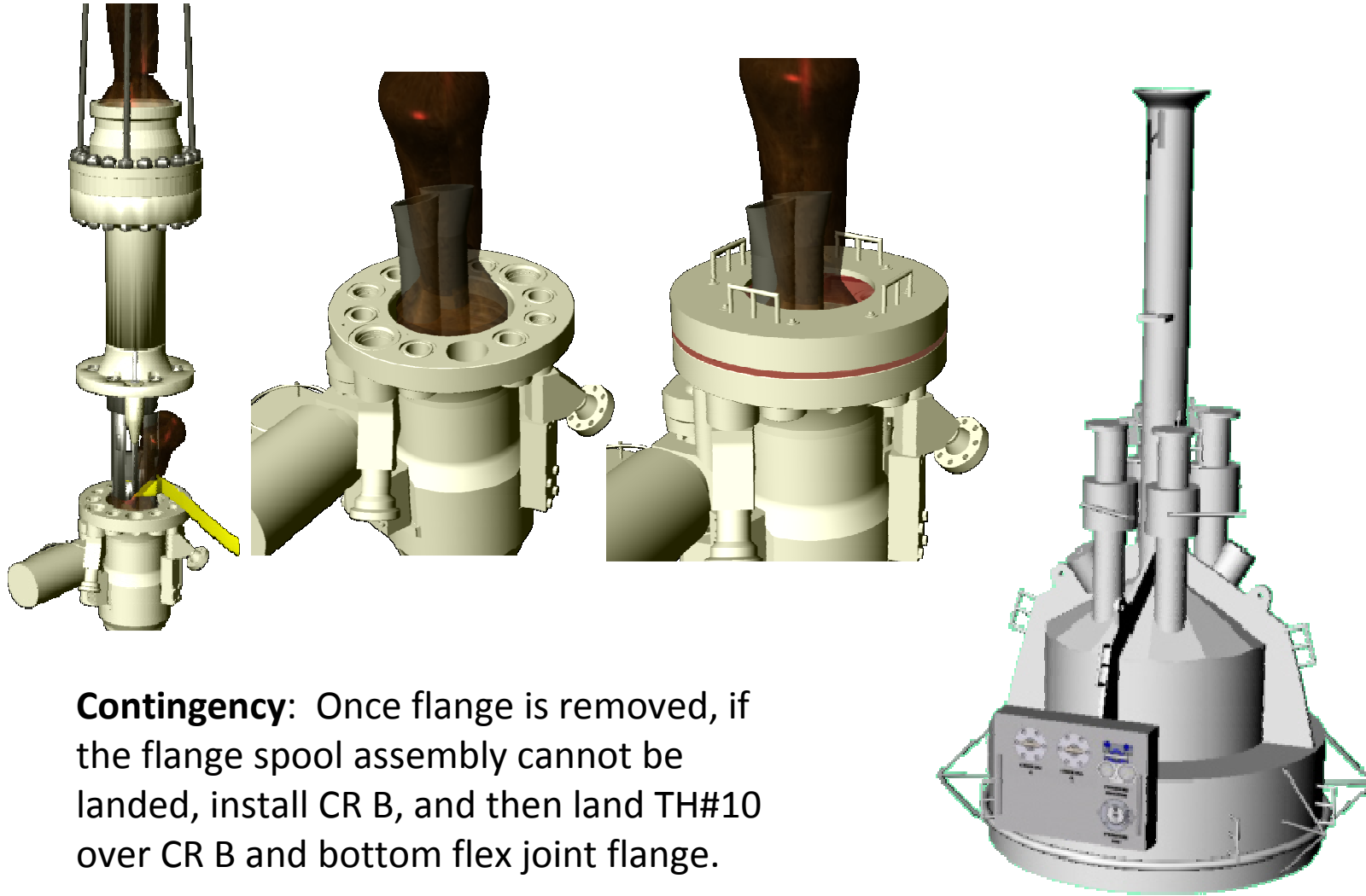
Flange Bolt Removal



Contingency: If only some of the bolts can be removed or if the flange cannot be removed after the bolts are out, install Contingency Ring (CR) A, and then land TH#10 over top flex joint flange and CR A.

Top Hat #10 on DE Main

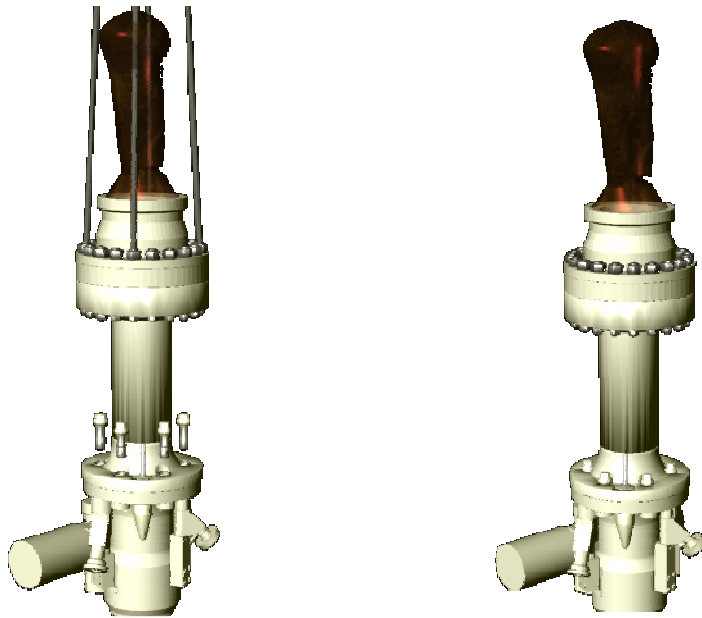
Installing Flange Spool Assembly



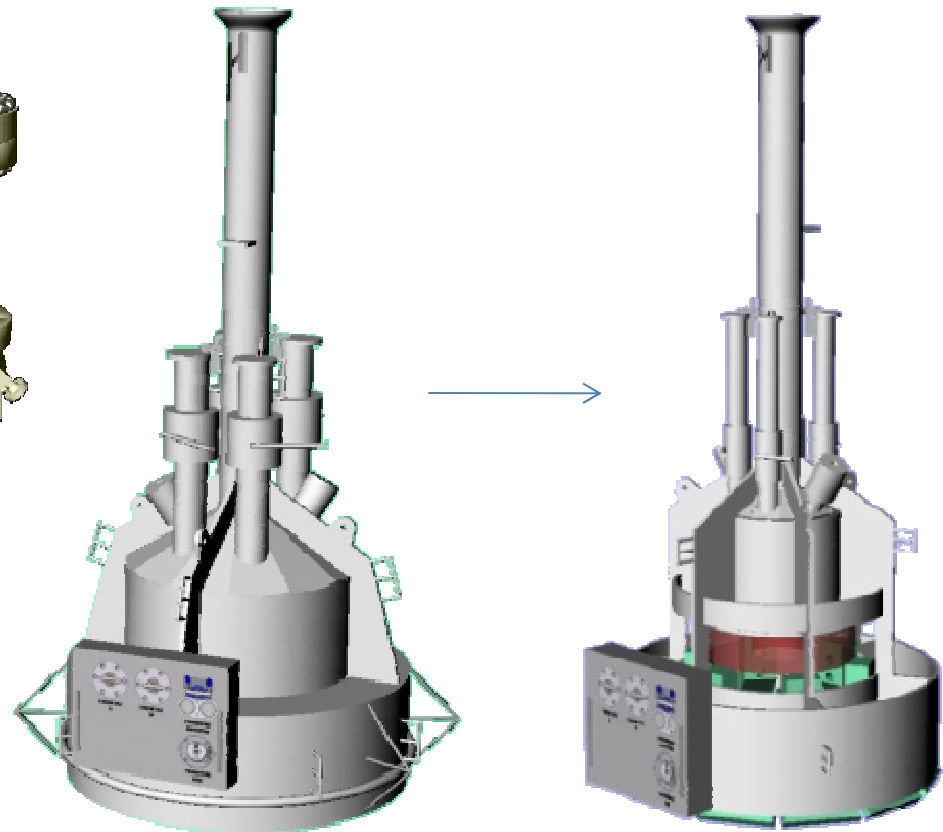
Contingency: Once flange is removed, if the flange spool assembly cannot be landed, install CR B, and then land TH#10 over CR B and bottom flex joint flange.

Top Hat #10 on DE Main

Securing Flange Spool Assembly

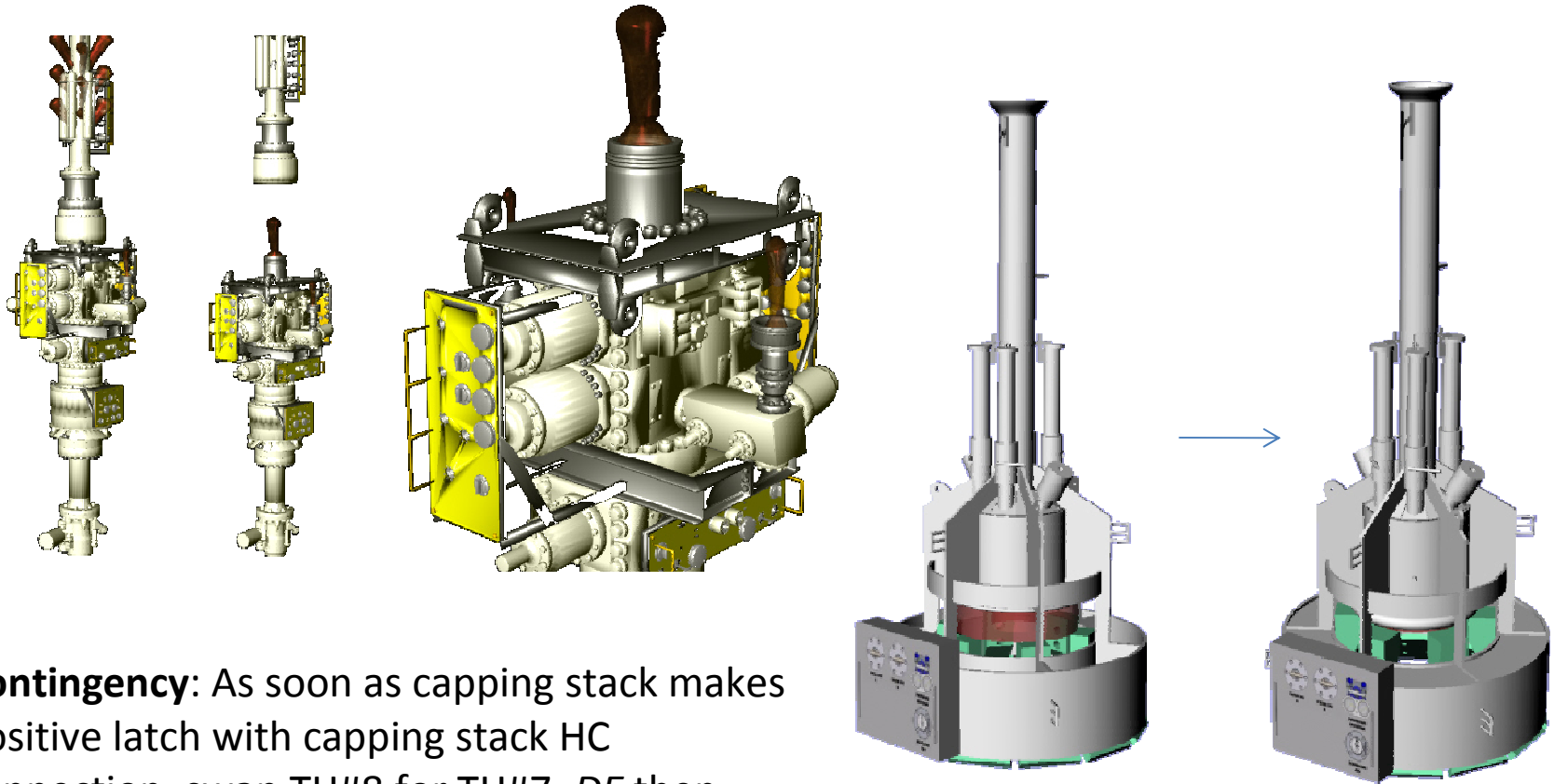


Contingency: Once flange spool assembly is firmly seated, swap out TH#10 for TH#8, ready to be placed on HC connector if capping operation is aborted prior to landing the capping stack. Once TH#8 is latched onto *DE* Main, deploy H4 connector from *DE* Auxiliary.



Latch out of Top Hat #10 and latch into Top Hat #8 (staged on seafloor)

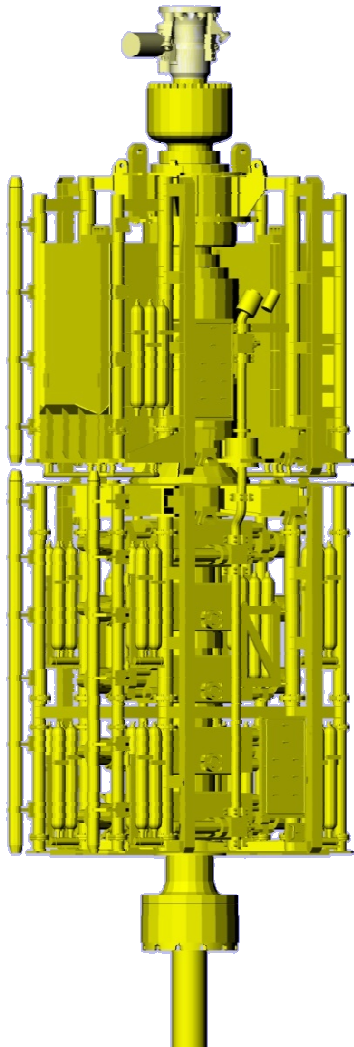
Installing Capping Stack



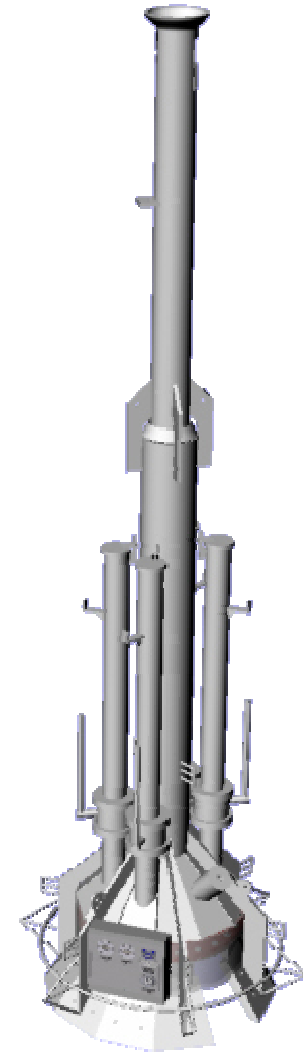
Contingency: As soon as capping stack makes positive latch with capping stack HC connection, swap TH#8 for TH#7. *DE* then moves towards capping stack, preparing to connect to H4 connector or land TH#7 on H4 hub on top of capping stack.

Latch out of Top Hat #8 and latch into Top Hat #7 (staged on seafloor)

Final Contingency: Horizon LMRP Removal



LMRP Removal Contingency:
In the unlikely event that it is decided that the LMRP shall be removed from the Deepwater Horizon BOP, TH #6 should be deployed during the process to serve as the backup containment option while further capping operations are pursued.



Top Hat #6 on DE Main