

Large Riser Installation Project

- Utilizing New Technology -

PMI Project of the Year Nomination 2014

C-105 Single - Shell Tank Retrieval

February 7, 2014

As contracted by:



Office of River Protection



- Large riser (47” diameter) is required to be cut into C-105 dome to install MARS-V.
- Original technology used on previous 55” C-107 cut was not available to project.
- Technologies evaluated for cut:
 - Garnet Abrasive (ruled out by WTP)
 - Olivine (initially approved but later denied)
 - Water jet cutting (ALARA issues due to time)
 - Core drilling with mechanical cutting unit

Dome Cutting Options:



Above Left: Olivine or garnet/water jet cutting method.



Above Right: Rotary cutting method.



Right: Dome cut out

Concrete Pit (05B) Excavation and Removal



Above Left: C-105 Heel Pit
(Original Configuration)



Above Right: C-105 Heel Pit
excavation and blocking.

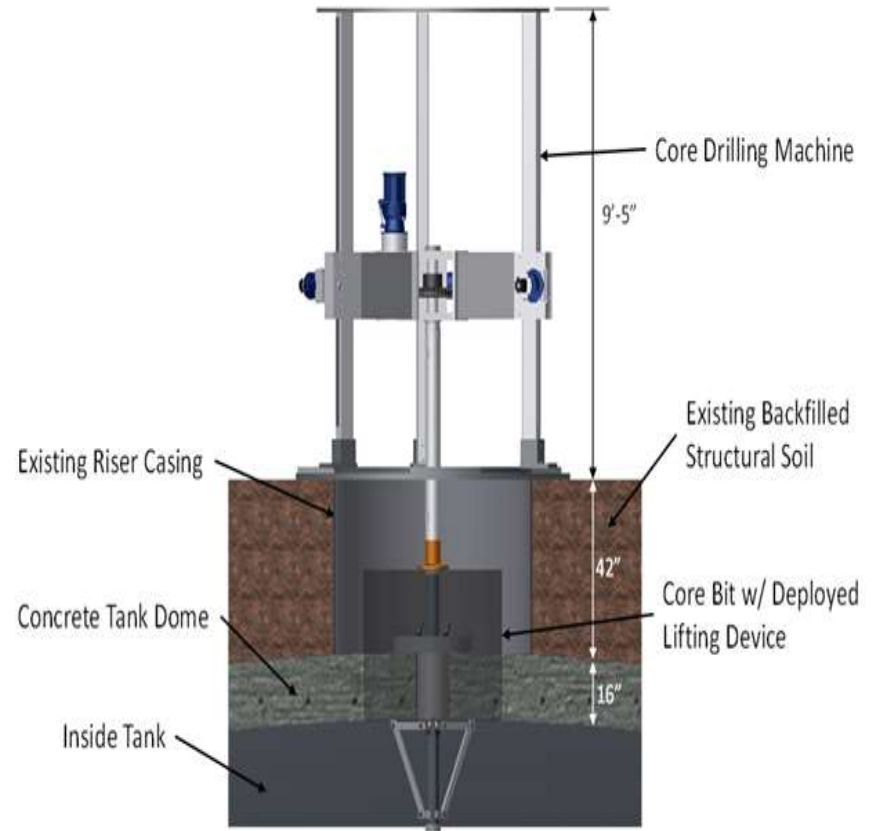
Right: Right C-105 Heel Pit
Removal.



C-105 Dome Cut Design & Mock Up:



Integrated Mock Up
Rotary Cut option.



Core Drilling Machine with
Core Lifting Device.

C-105 Dome Cut and Removal:

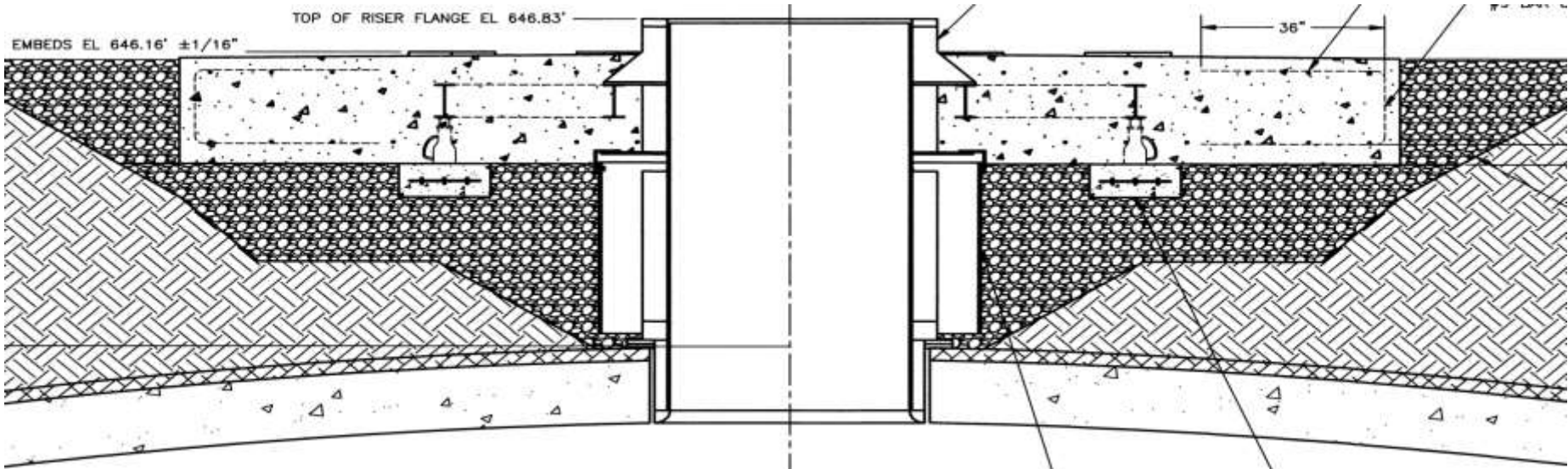


Above: Dome cut in process.

Right: Finished cut with plug lifting device shown during removal.



C-105 Large Riser Install:



Conclusions:

- New Technology was evaluated against existing methods and implemented with great success.
 - Rotary Cut method used the least amount of water and added the least material to the tank.
 - Existing pit structure was removed in whole instead of time consuming and potentially contamination spreading classic D&D practices.
- Worker Safety and ALARA principles were maximized.
 - Total dose for the C-107 dome cut was 2.400 rem and the total dose for the C-105 dome cut was 1.091 rem; this was despite the observed dose rates from C-105 being about 10 times those observed from C-107. In addition, the actual concrete cutting time was reduced from 24 hours to two hours.
- Schedule and cost were maintained to a CPI/SPI of 1.0.
- Stakeholder involvement was requested and utilized throughout the project.
- Owner/Client expectations were exceeded while maintaining a low risk profile.