



CATHODIC PROTECTION DIVISION



HORIZONTAL DIRECTIONAL DRILLING

LINEAR ANODE BED & REFERENCE CELL INSTALLATIONS

Affiliate Members of:



Challenger Drilling, Inc.'s HS&E and Special Training

The safety and health policy of Challenger Drilling, Inc. is to perform the highest quality service as efficiently as possible, while maintaining the safety and health of employees and client personnel. Challenger Drilling Inc. maintains affiliated memberships with the [National Compliance Management Service, ISNetwork and N.A.C.E.](#)



Employees meet the required NCCER Operator Qualification standards, as well as receive additional training through the Houston Area Safety Council, and in house training.

Employees conduct regularly scheduled Toolbox Safety Meetings to review OSHA safety laws and regulations as well as API/COOQ Approved Liquid/Gas Covered Tasks with reference to NCCER pipeliner training and assessment tools.

Challenger Drilling, Inc. is 100% National Compliance Management Service (NCMS) qualified.

Challenger Drilling, Inc. is a member of ISNetwork, a web-based contractor database that helps satisfy governmental and operator specific record keeping requirements. This system also manages training and record keeping requirements.

Partial Facility Operator Client List

Hunstman
Valero
TransMontaigne
Colonial Pipeline
Exxon
Sunoco

ConocoPhillips
Diamond Shamrock
Atlanta Pipeline
Kinder Morgan
Explorer Pipeline



The end result of utilizing the expertise of Challenger Drilling Inc.'s Cathodic Protection Division is an efficiently and safely installed Cathodic Protection system.....



Cathodic Protection Division

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AST Reference Cell Installation by Horizontal Directional Drilling Process

Directional Drill Rig and Drilling Mud Mixing/Pumping Truck set up on AST location. Directional Bore plan under AST is determined, laid out and drill head is spud in. The Directional Bore pilot hole is tracked and logged.



Once the Directional Bore pilot hole exits the opposite side of the tank, the Custom Slotted PVC Pipe is made-up, drain sleeve installed, placed on rollers and connected to the hole opener attached to the drill stem. Once all is connected, the Directional Drill Rig pulls the assembled conduit into the bored hole.



After the assembled conduit is pulled into place under the AST, the conduit assembly is disconnected from the drilling tools and drill stem.

The reference cell is placed into the conduit with 3/4" PVC pipe, the reference cell cable is connected to the test head, the test head is attached to the 3/4" PVC pipe. An access cap assembly is placed on the end of the conduit assembly to protect the test head.

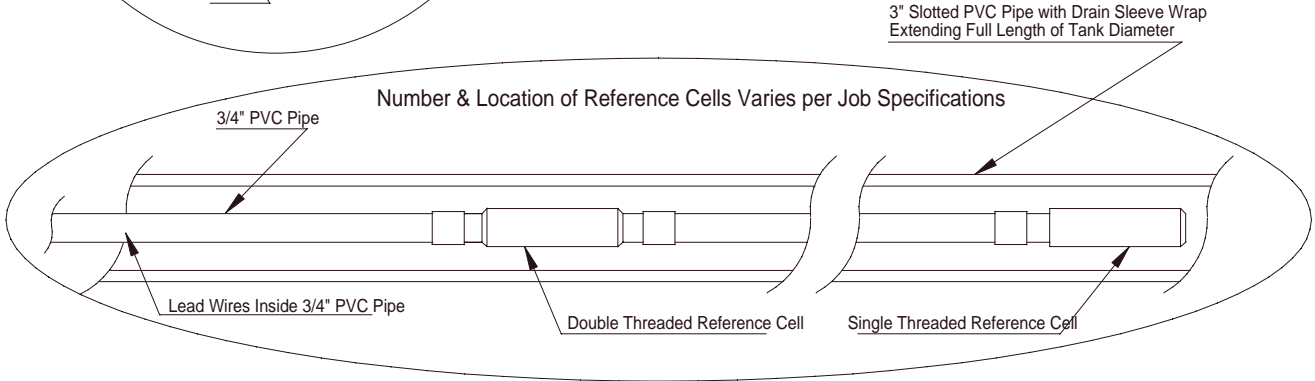
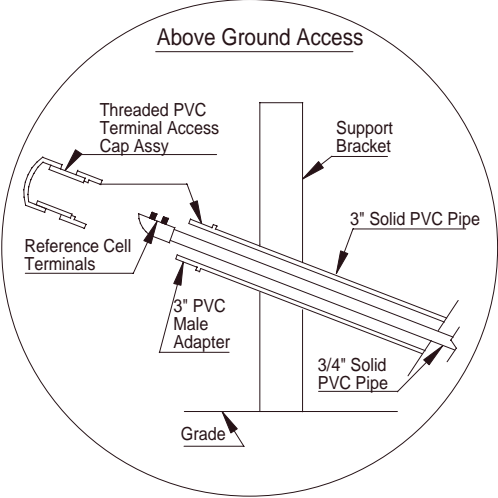
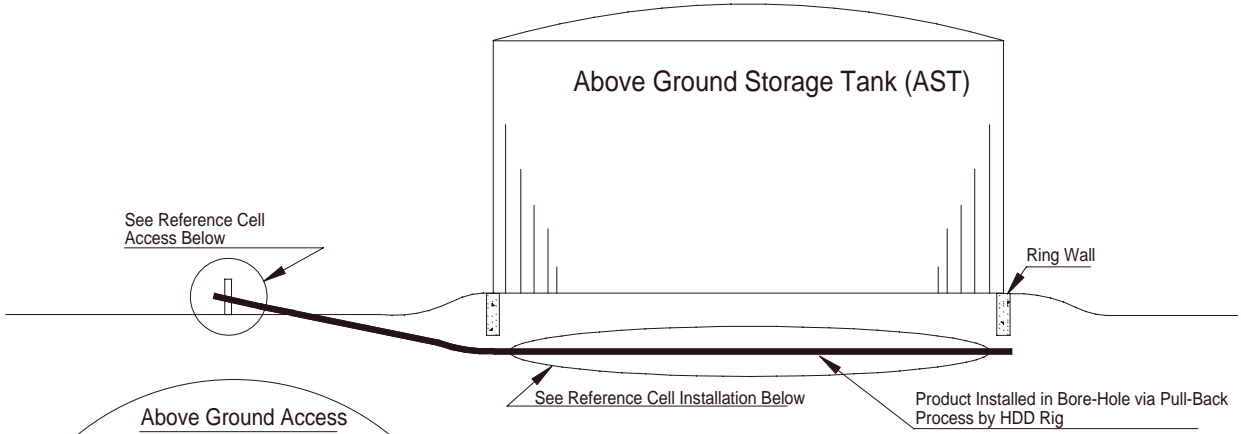
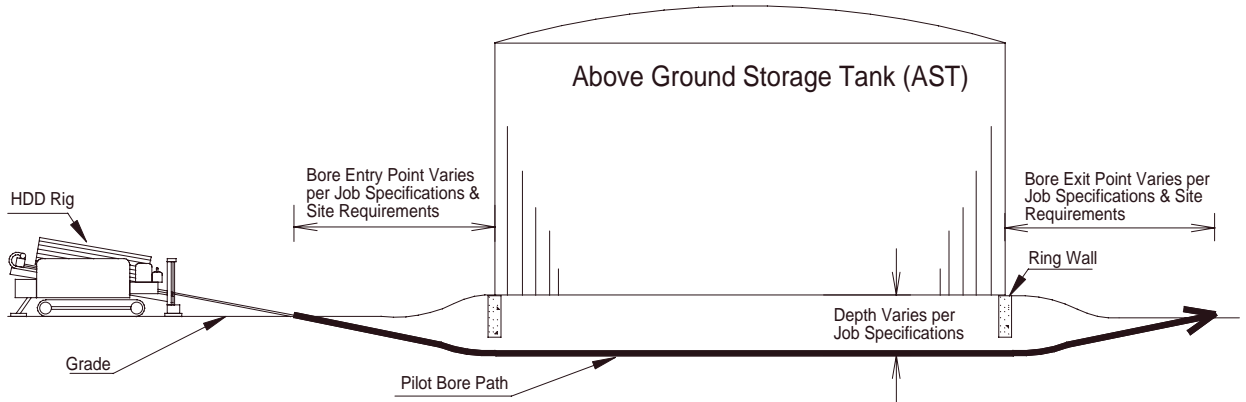


Bore pits and trench excavations are back-filled and site is cleaned.





AST Reference Cell Installation – Option 1





AST Under-Tank Anode Installation - Typical

