

## Pipeline Integrity

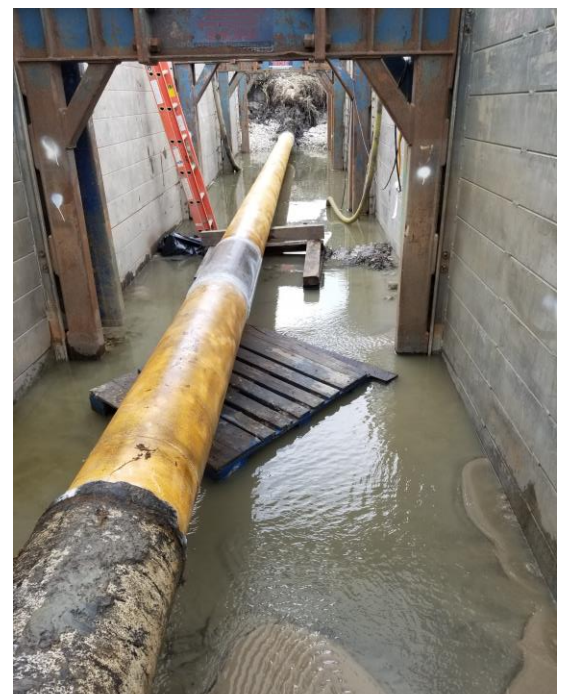
RedHorse Environmental has been involved in pipeline integrity projects for over a decade. We conduct GIS based screenings for clients that identify locations where pipeline maintenance may impact environmental resources, conduct field assessments of those sites, and secure environmental permits from State or Federal agencies when needed.

Redhorse Environmental has secured permits for our clients for pipeline projects in Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, and Iowa. These have included State issued permits and USACE Nationwide permits for encroachment into wetlands, streams, and rivers for pipeline maintenance projects by way of open cuts and for directional drilling projects.

Permitting typically includes assessments for sensitive species at both the State and Federal level, comprehensive site-specific erosion prevention and sediment control plans, and post-project site restoration. In some instances, pipeline sites require native community establishment and follow-up monitoring.



Composite timber mat road through wetland





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## PETROLEUM PIPELINE DIRECTIONAL DRILL, BRACEVILLE OHIO

RedHorse Environmental partnered with Golder Associates and Michels Corporation to complete a \$1.4 M, 2,800' Horizontal Directional Drilling (HDD) under a wetland and stream in Portage County, Ohio.

The location contained a Category III wetland and a tributary to the Mahoning River. RedHorse Environmental coordinated with Golder Associates USACE, and Ohio EPA to develop the HDD plan. Following the identification of sensitive water resources the HDD design avoided wetland impacts and stream encroachment while allowing for the placement of the necessary drilling equipment to complete the project. This was all achieved with **no environmental permits** following a comprehensive review of on-site resources and extensive preparation with USACE and Ohio EPA.

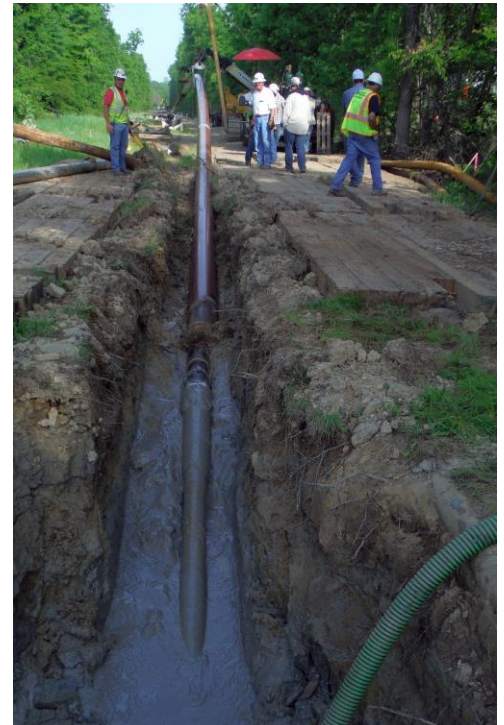
RedHorse Environmental worked with Michels Corporation to oversee the environmental aspects of the project during drilling under the Category III wetland and perennial stream. Continual monitoring identified and managed inadvertent returns return containment, clean-up and site restoration (shown below). The project was completed on schedule and on budget in early June 2017.



Direction Drill Rig



Inadvertent Return Cleanup



Replacement pipe pullback

For additional information contact Dr. Bruce Dickson at 814-806-6073 or [bdickson@redhorseenvironmental.com](mailto:bdickson@redhorseenvironmental.com)

