

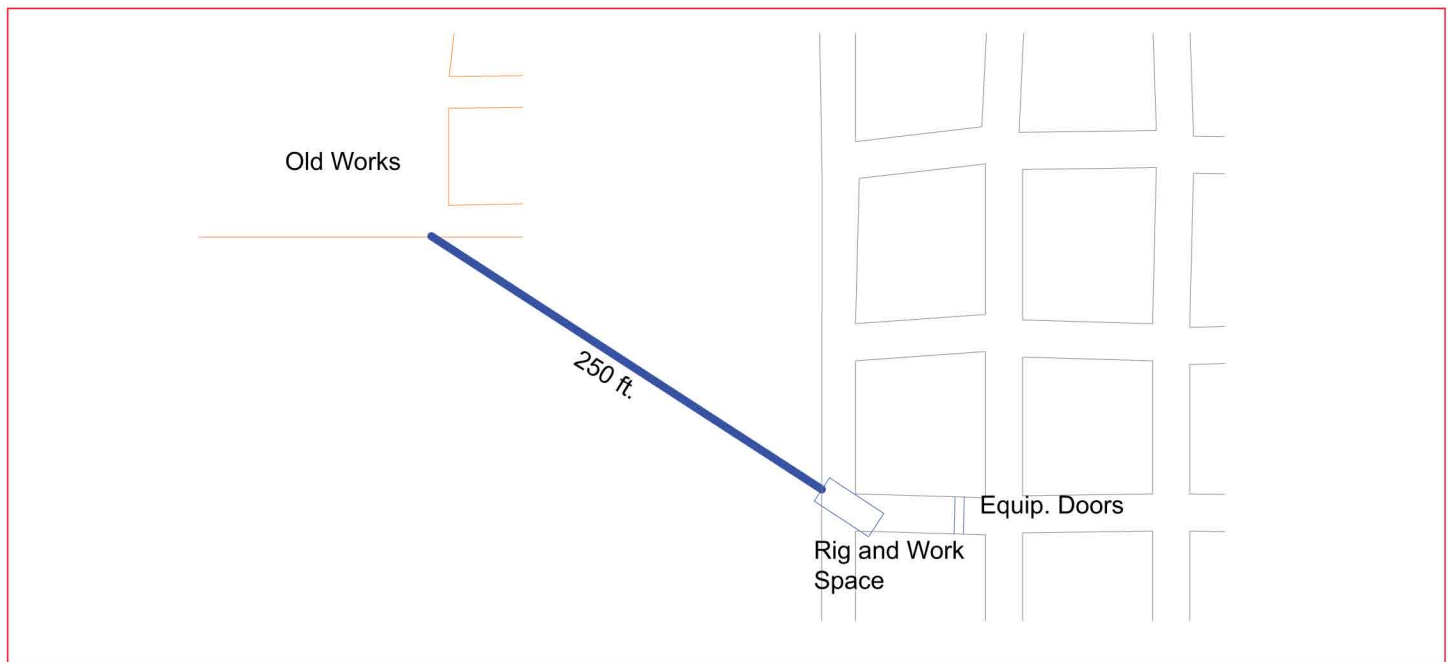
In-Seam Water Drainholes

Horizontal boreholes can be drilled from active mines to abandoned mines for water drainage or storage.

Water Drainholes

Federal Regulations do not permit mining under perched water as is present in a flooded mine. Directional drilling provides a manner to safely drain the water. Often times abandoned mine workings present the ideal water disposal location for an active mine. A directionally drilled borehole becomes the pipeline into the abandoned mine.

- Boreholes can be reamed to 12 inch diameter and extended over 1,000 feet.
- Large diameter collarpipes and wellhead control are utilized to prevent the uncontrolled discharge of water or mixing of atmosphere.
- Drilling can be completed well in advance of mining and without interfering with mining
- Slanted boreholes can be steered to horizontal when intercepting the coal seam
- Horizontal legs drilled in-seam



Borehole From Active Mine Seam to an Abandoned Mine Seam

- Drainage borehole used mine to pump water into an abandoned mine works in the same coal seam
- 12 diameter collarpipes installed 20 feet deep and grouted into place
- Pilot borehole drilled to intercept mine
- Pilot borehole reamed to 10-inch diameter (Boreholes can be reamed to accommodate large casings)
- 6-inch casing installed and grouted in place
- Wellhead control prevents uncontrolled discharge of water