CHALLENGING BEDROCK CONDITIONS FOR LARGE DIAMETER TUNNEL IN FRANKLIN COUNTY, OHIO
Project Description
NEW DEEP TUNNELED SEWER

Legend
- **OARS TUNNEL**
- **OSIS**
OARS System

- 23,300 Feet of 20’ Diameter Tunnel
- 180’ Invert Depth
- 6 Shafts
- 3 Relief Structures
- Screen Structure
- Pumping System
Geologic Conditions
Units Investigated for Tunnel
Open Face of Quarry
Fracture Traces
Deep Tunnel Boring Program
Low Angle Fractures
High Angle Fractures
Solutioning and Karst
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Interconnections of Fractures and Caves
There She Blows
Oil in the Bedrock
Erosional Surfaces & Deformed Bedding

LEGEND
- Zones of Natural Petroleum
- Wells Greater Than 0.5'
- Landfill Materials
- Cohesive Soils
- Clay Shale
- Granular Soils
- Marcellus Shale
- Columbus Limestone (Delaire Member)
- Columbus Limestone (Kelleys Island Member)
- Salina Unidentified Colombe

SCALE
1" = 400' Horizontal
1" = 40' Vertical

GENERALIZED SUBSURFACE PROFILE
FIGURE 4.0-1

CITY OF COLUMBUS, OHIO
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF SEWERAGE AND DRAINAGE

GEOLOGICAL SURVEY OF OHIO
Faults

- Offsets in beds suggested movement in the subsurface
- Erosional surfaces also indicated potential zones of weak rock
- Thinning of beds over the deformed area and thickening in the depressed layers also suggested displacement

- A Reflective Seismic Survey of the area found that faulting was present in the suspect area but was in the Sub Lockport Dolomite.
- Faulting did not appear to extend in to the units above the Lockport Dolomite the plastic deformation of the overlying rock appears to have occurred during lithification
X-Section at Shafts 1 & 2

Shaft 1

Fill
Sand and Gravel
Clay
Limestone

Shaft 2

Dolomite
Mining the Shaft
TBM
TBM Insertion
Machine Assembly in Tail Tunnel
Questions?