Geotechnical Engineering Considerations of AML Project

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Outline

- Importance
- Piles in Our Current Districts
- Sampling
- Indicators of Instability
- Methodology
- Findings
- Acknowledgments
- Questions
Importance

- Determine stability of rock piles
- Determine suitability of rock piles to be used as backfill

Photo Courtesy of John Durica
Pile in Our Current Districts

- Currently inventorying mines in the North Magdalena, Rosedale, and Jicarilla Districts
- Relatively Small Waste Rock Piles
- Dumped at Angle of Repose
- Since Deposition, slight cementation of the particles has occurred

Photo Courtesy of John Durica
Bulk Samples are collected from waste piles during inventory if deemed feasible or necessary.

Flags are staked around the pile to ensure the sample accurately represents the pile.

Samples are taken from each flag site and stored in a 5 gallon bucket.

Photo Courtesy of Marcus Silva.
Indicators of Instability

- Lack of Vegetation
- Sloughing
- Creep
- Signs of Previous Failure
- Tension Cracks
- Water
- Bent Fence Lines

Photo Courtesy of John Durica
Methodology

- Using the New Mexico Tech Soil Mechanics Laboratory
- Particle Size Analysis: ASTM Standard C 136
  - Sieves Used: ½ inch, 4, 10, 20, 60, 140, 200, and pan
- If the pile is deemed unstable, further testing is performed
- Further testing on disturbed samples from the cemented rock piles would result in a lower reported strength than in-situ

Photo Courtesy of John Durica
Findings

- Well graded soils
- No unstable piles have been found
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Thank You!

Questions