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MSHA Perspective

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Abandoned Coal Mines

State	No. of Abandoned Mines
Kentucky	150,000
West Virginia	100,000
Pennsylvania	40,000
Virginia	6,000

Undetected Mine Voids Can Present Hazards to:

- Active Mines

Active Mines: Inundation Accidents

- From 1995 through June 2002, mine operators reported 181 mine inundations.
- Of these, at least 107 were unplanned cut-throughs that resulted in water inundations.

Notable Example: Quecreek Mine Inundation Accident, July, 2002

Mine Voids Can Present Hazards to:

- Active Mines
- **Impoundments**

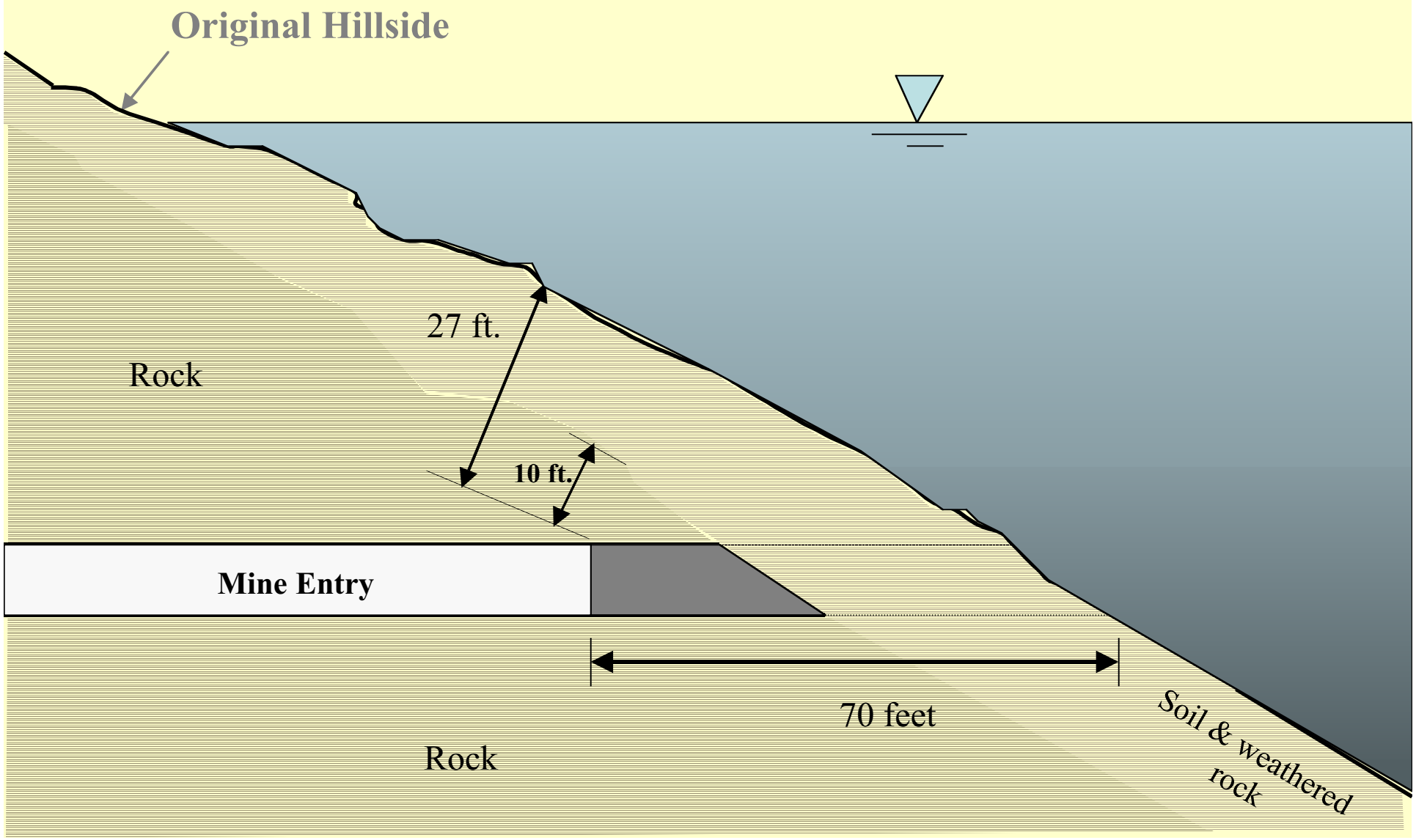
Impoundment Breakthrough Incidents

Recent Examples:

- Miller's Cove, Lee Co. VA, August, 1996
- Miller's Cove, Lee Co. VA, October, 1996
- Buchanan, Buchanan Co. VA, November, 1996
- Big Branch, Martin Co., KY, October, 2000


Big Branch Refuse Impoundment
Over 300 million gallons of slurry released into underground mine in October, 2000.

Example of potential for breakthrough created by mine workings located near an impoundment.



Example: Verification of mine workings by drilling at KY impoundment site in 2001

The area had been surface mined in the 1970s.

Room and pillar mining took place in the area from 1985 to 1995.

Mine opening uncovered in impoundment area. →

Results of horizontal drilling shown on next slide.

Outcrop Barrier Distances Taken From Mine Map Versus Drilling Results

Expected horizontal distance to mine workings from highwall, based on mine map, feet.	Actual horizontal distance to mine workings from highwall, based on drilling, feet.	Discrepancy, that is, workings were actually this much closer or farther from highwall than shown on mine map.
40	37.5	2.5 feet closer
122	92	30 feet closer
137	89	48 feet closer
27	67	40 feet farther
67	41	26 feet closer

MSHA has addressed the Impoundment Safety issue by:

- Providing training at Annual MSHA Impoundment Seminar.
- Increasing emphasis, during impoundment plan reviews, on ensuring that:
- 1. Sufficient exploration is done to accurately locate mine workings near impoundments;
- 2. Appropriate engineering analyses of potential impacts are performed;
- 3. Adequate breakthrough prevention measures are taken; and
- 4. Site performance is adequately monitored.

Improved Mine Mapping

- MSHA is working with the Interstate Mining Compact Commission (IMCC)
- A Steering Committee had been formed.
- A workshop is being planned to discuss:
  - Improving mine map accuracy,
  - Digitizing mine maps

MSHA Initiative:

"Symposium on Geotechnical Methods for Mine Map Verification"

- Held October 29, 2002 in Charleston, WV
- Eighteen presentations covering a variety of methods.
- Panel discussions.
- Display booths for related products and services.
- Attended by 400 people.

Projects to Demonstrate Technologies for Detecting Underground Mine Voids

- Congress allocated funds to MSHA for this purpose.
- MSHA published a Pre-solicitation on May 8, 2003.

B -- Technology in detecting underground mine voids

General Information

Solicitation Number:	B2532516
Posted Date:	May 08, 2003
Original Response Date:	May 22, 2003
Current Response Date:	May 22, 2003
Original Archive Date:	Jun 06, 2003
Current Archive Date:	Jun 06, 2003
Classification Code:	B -- Special studies and analysis - not R&D

- Purpose: “The U.S. Department of Labor, Mine Safety and Health Administration is seeking sources to conduct demonstration projects for advancing the current state of technology in detecting underground mine voids.”

- An “Industry Day” will be held in the near future with presentations from interested bidders.

Updating of “Engineering and Design Manual: Coal Waste Disposal Facilities”

- Original “Design Manual” published in 1975.
- Important issues, such as breakthrough potential, and the use of geophysical methods, not addressed in detail.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