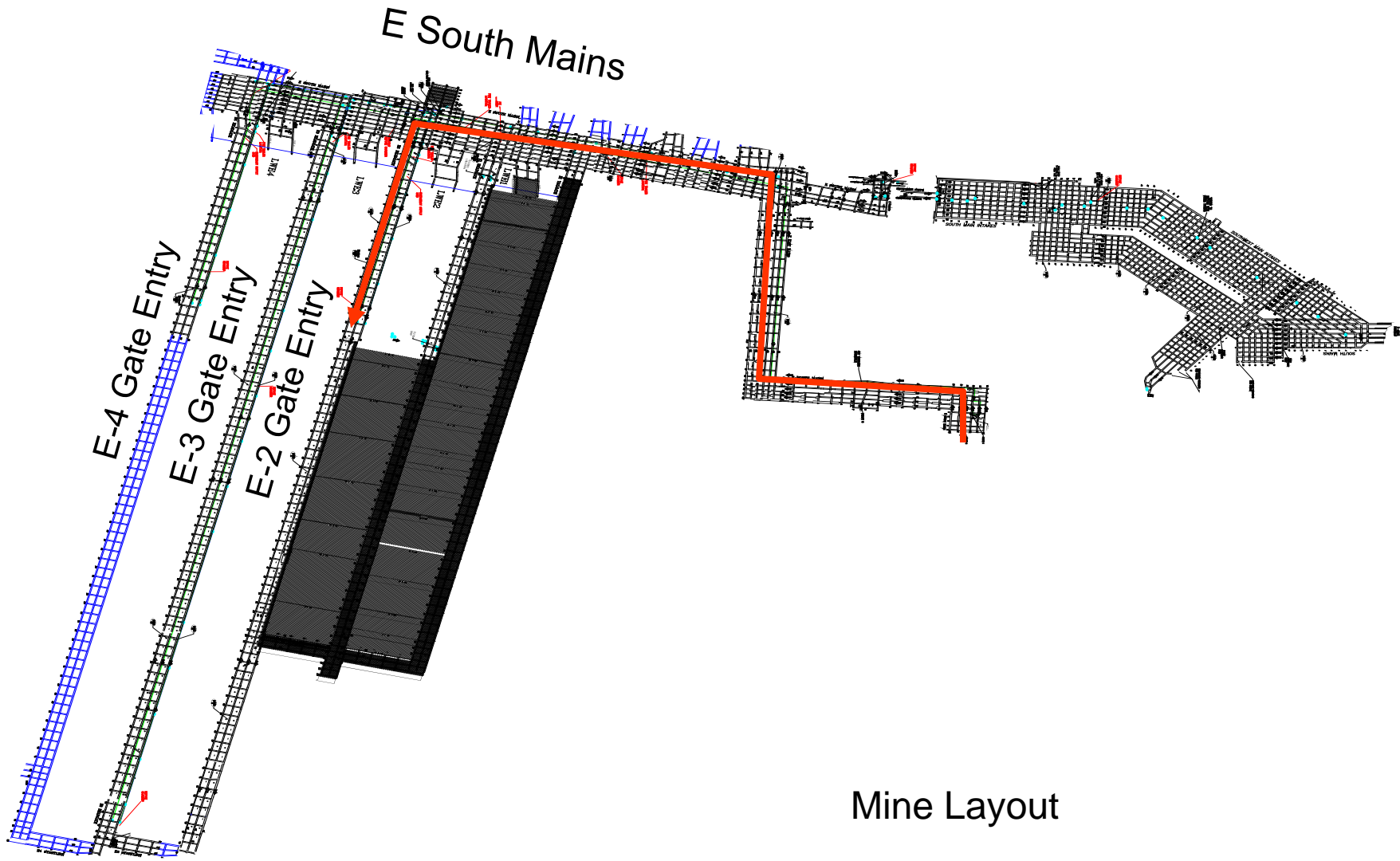
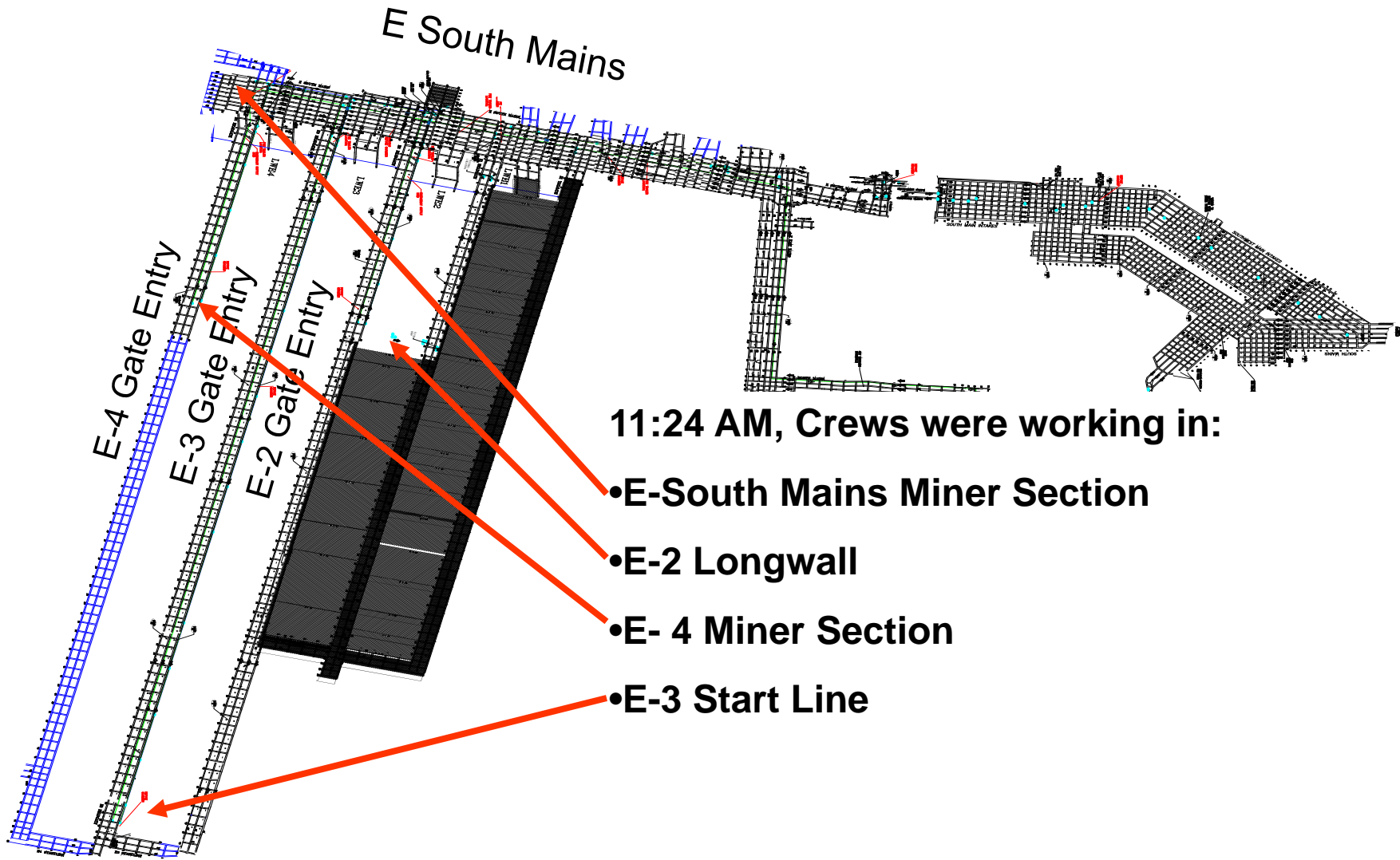
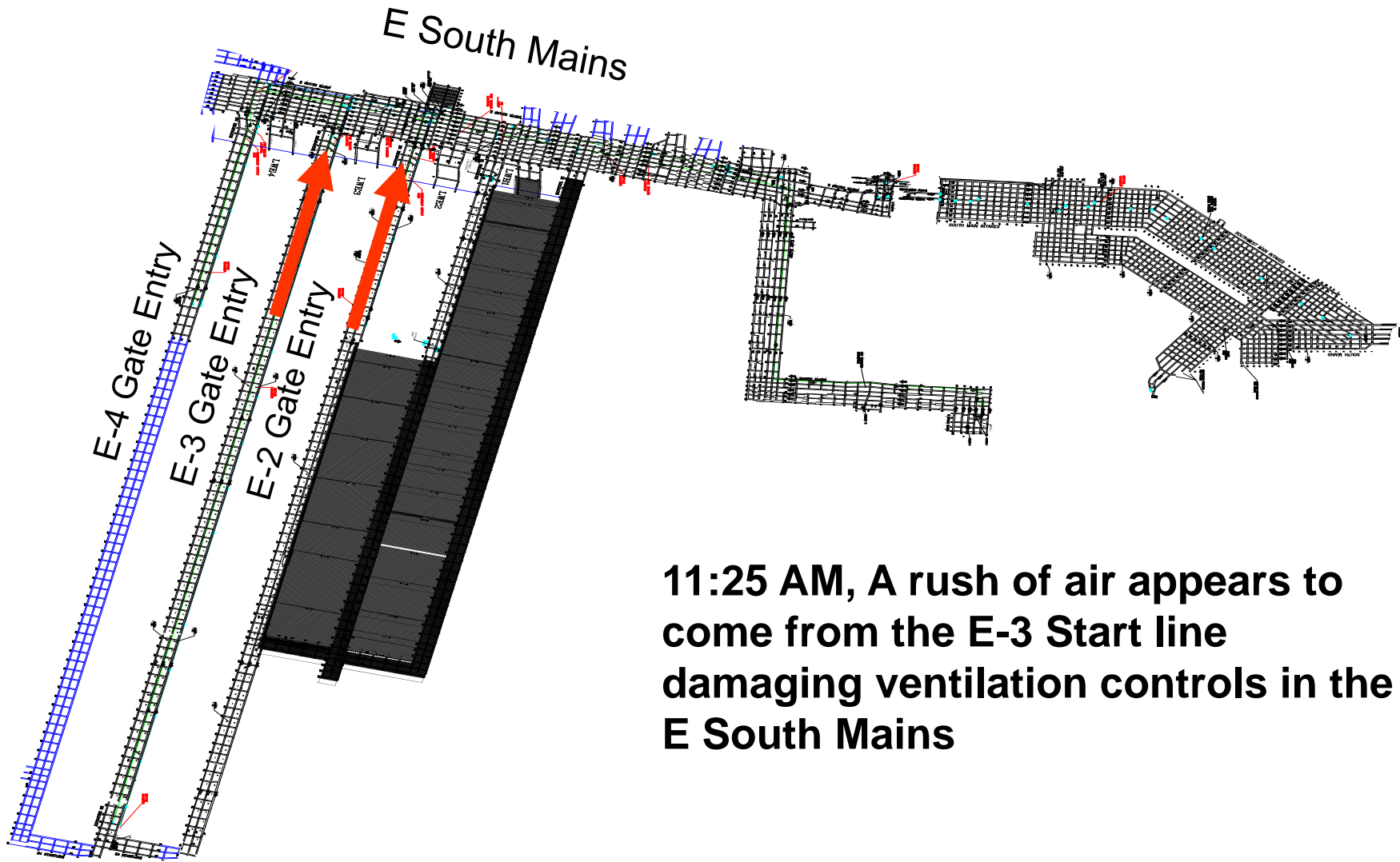


Joint Arch Coal, Inc/MSHA MERD and MEO Exercise at the West Elk Mine, April 20, 2011

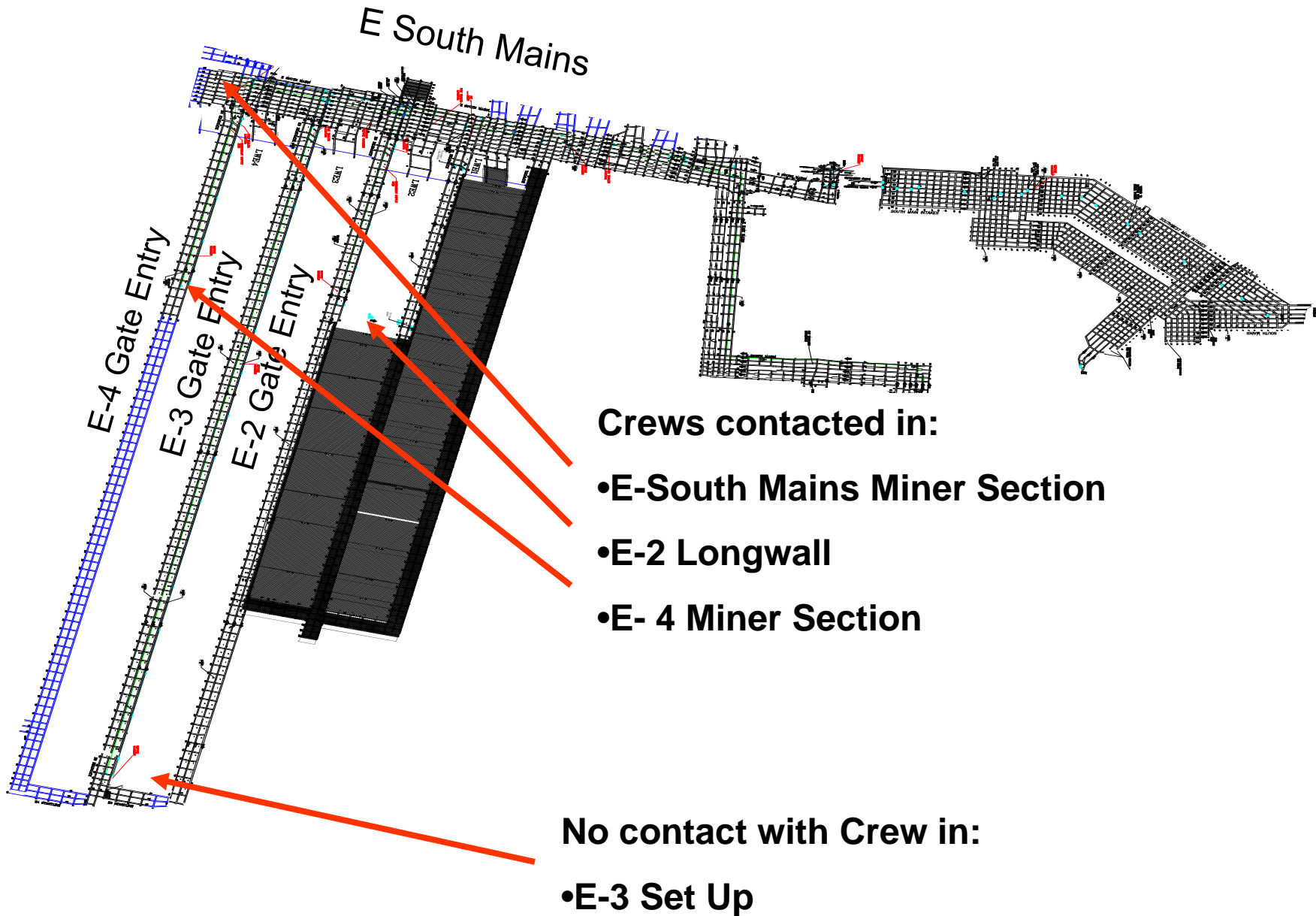


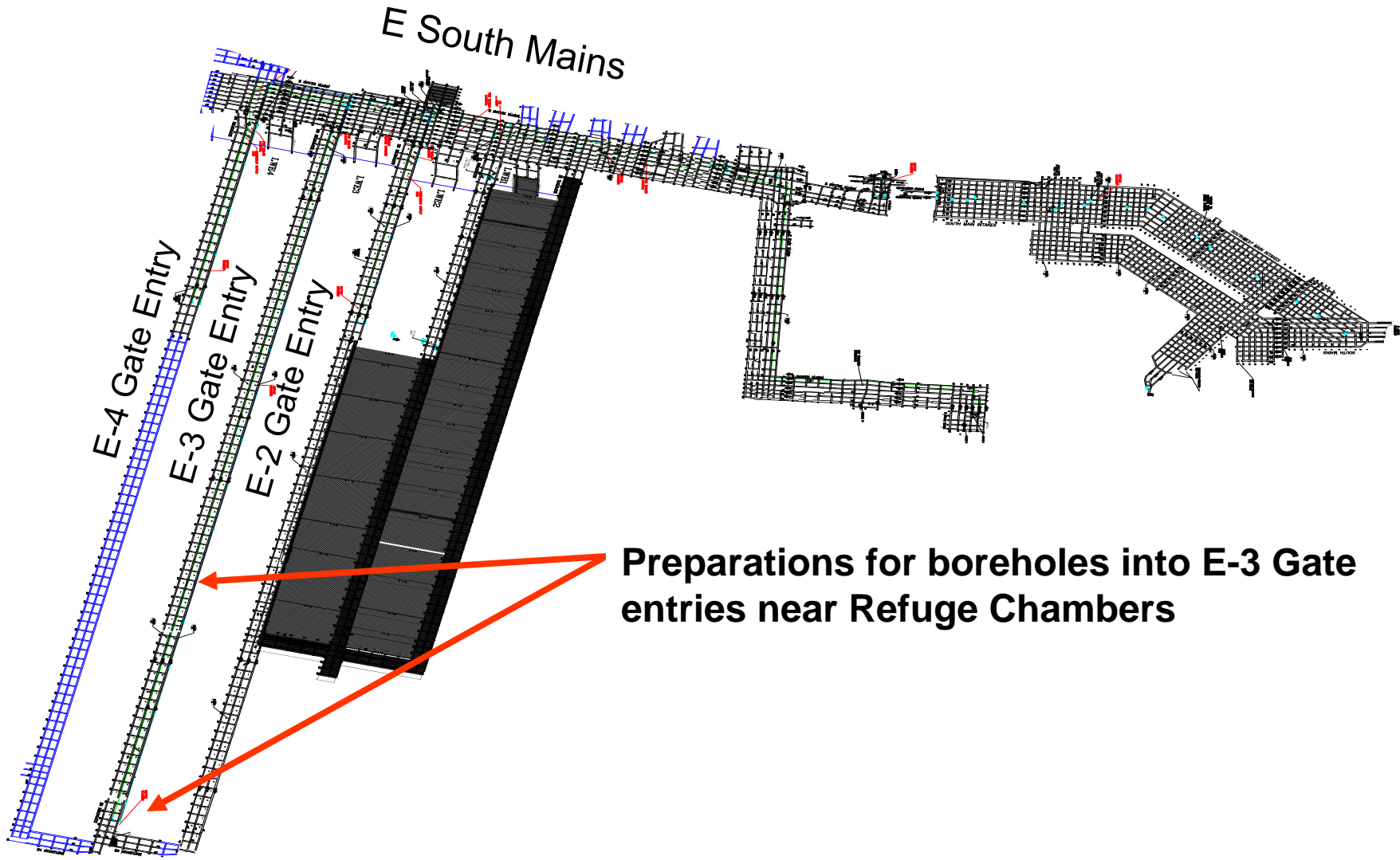


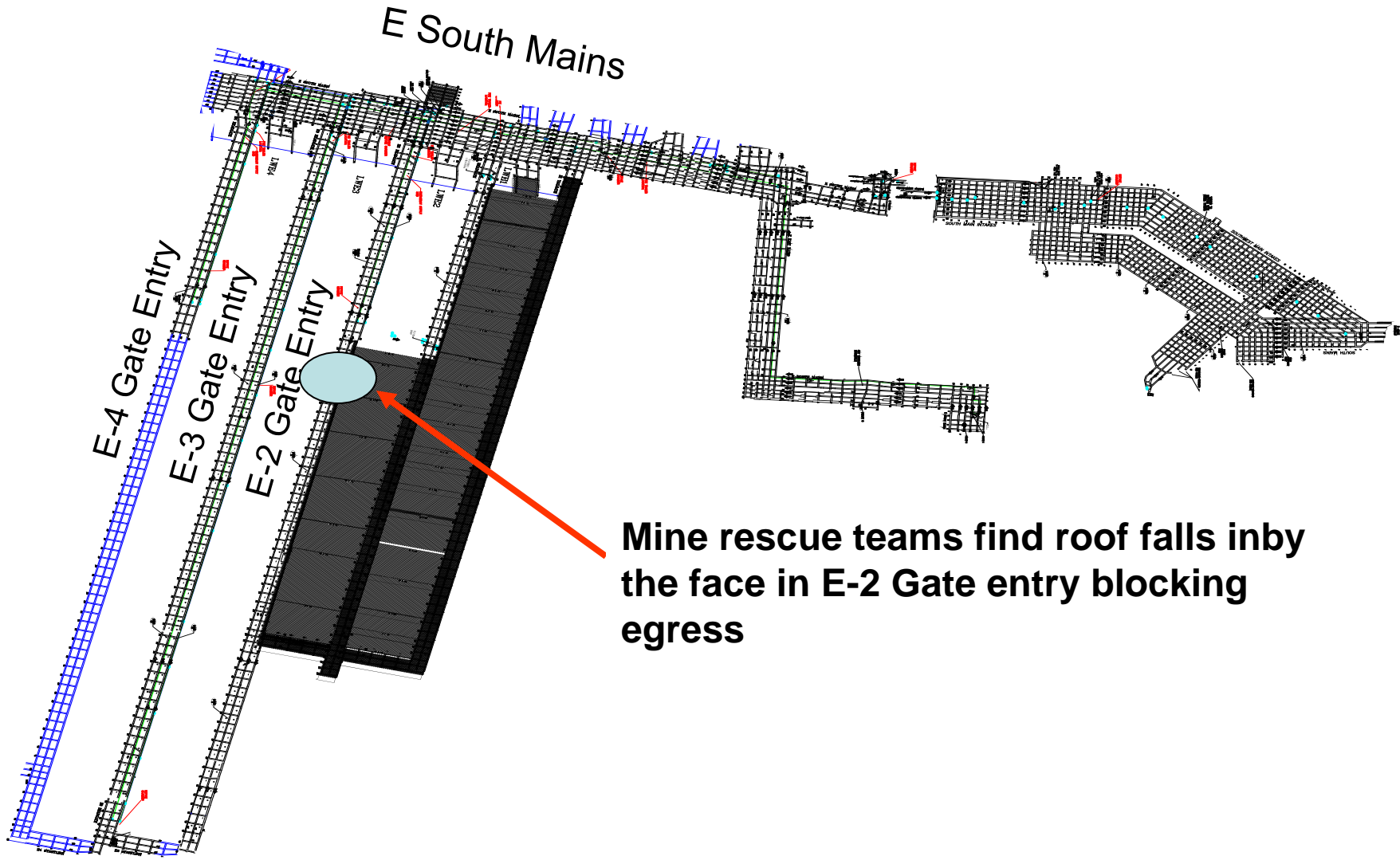




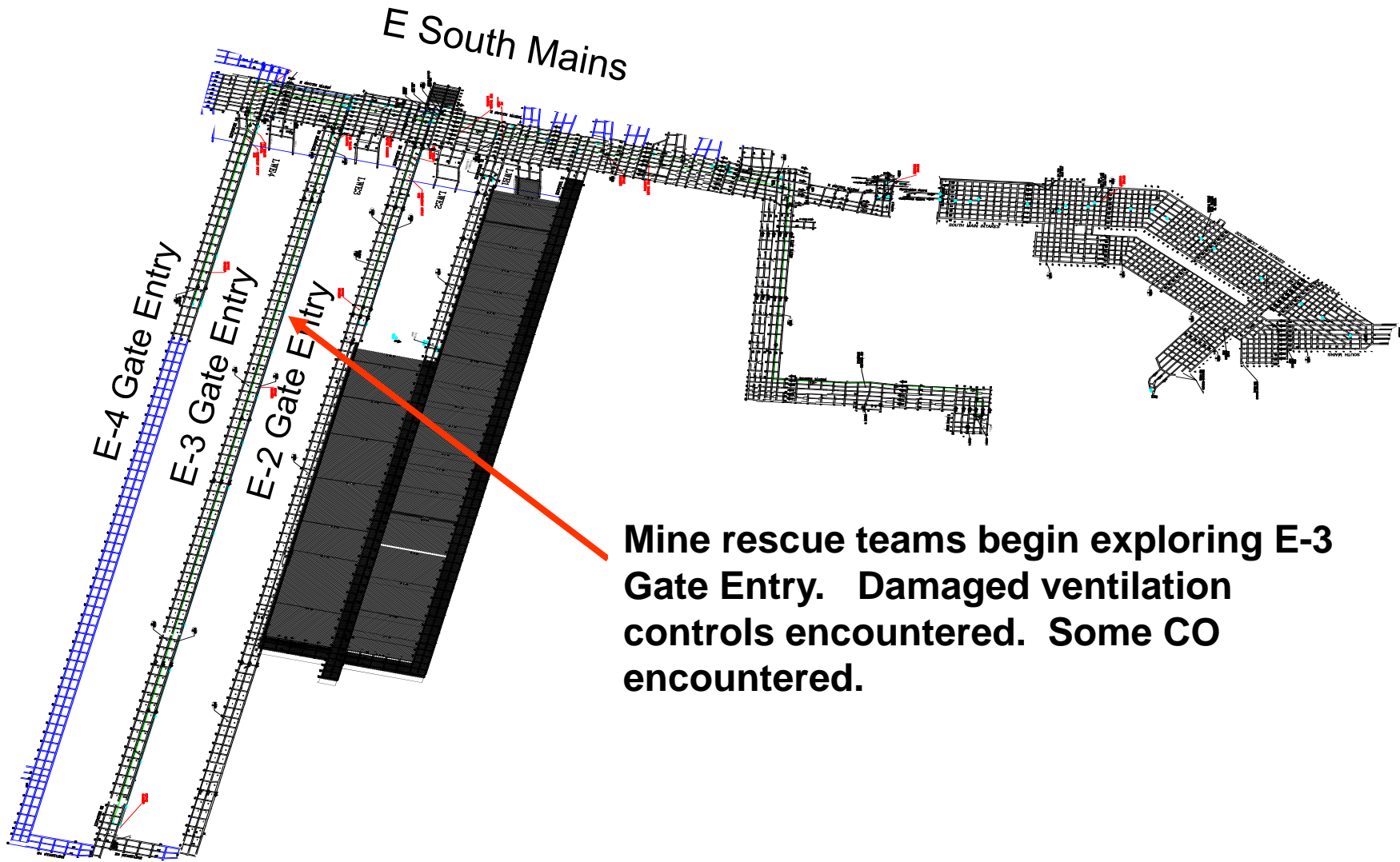
**11:25 AM, A rush of air appears to
come from the E-3 Start line
damaging ventilation controls in the
E South Mains**







Mine rescue teams find roof falls inby the face in E-2 Gate entry blocking egress

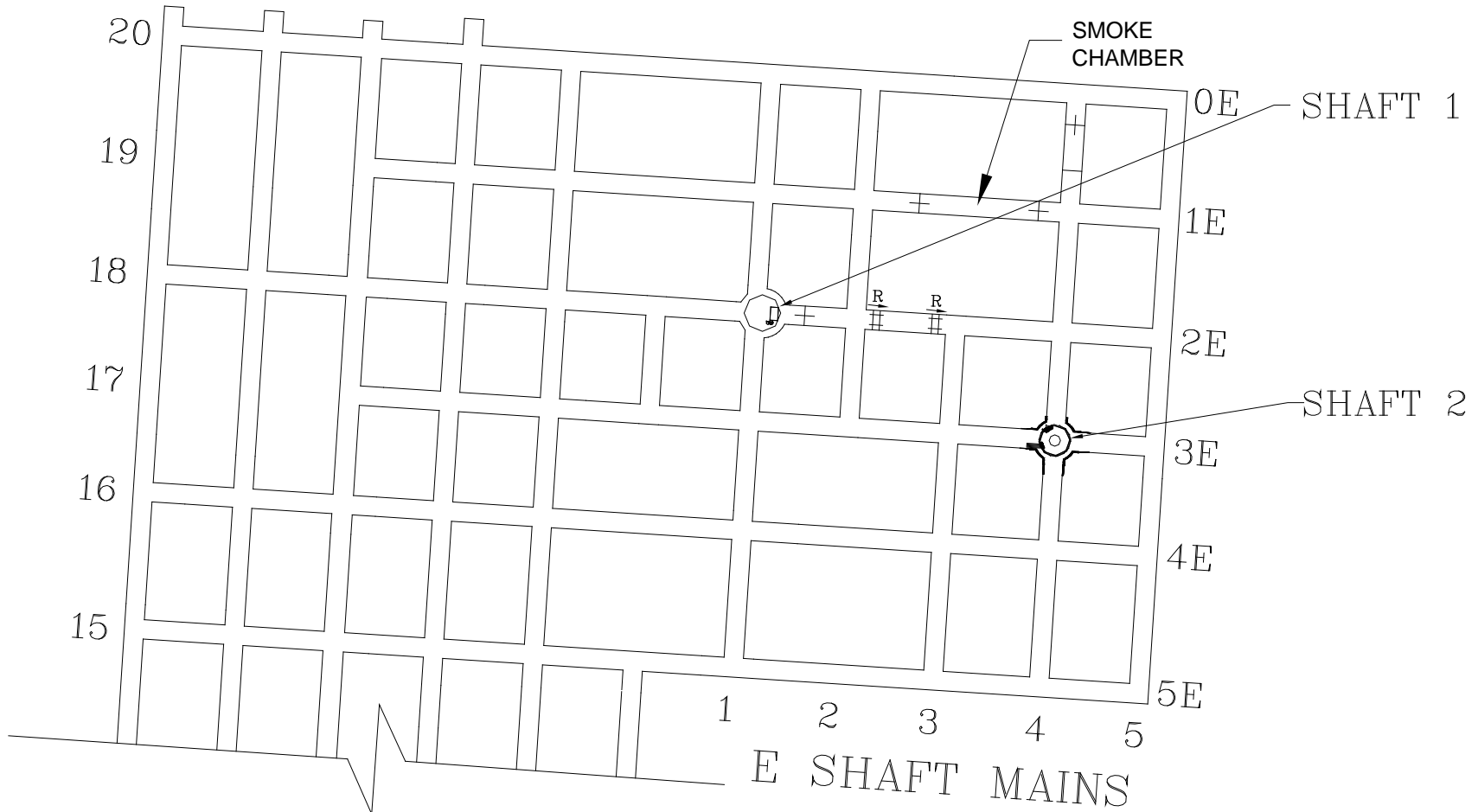


Mine rescue teams begin exploring E-3 Gate Entry. Damaged ventilation controls encountered. Some CO encountered.



Mine rescue teams test computer system using the mines communications and tracking system to communicate between the exploring teams and the command center

While the MERD was ongoing, a separate practice was being conducted in another part of the mine. (Near Mine Portal)



Mine rescue teams explored the smoke chamber and the robot explored the entries near the bottom of the shaft using a shaft drop

Mine rescue teams use MSHA
toughbooks and fiber optic cable to
communicate between underground fresh
air base and surface base at Portal



Price Mine Rescue Team Truck and Robot Trailer set-up near mine portal. The portal was over 1.5 miles and over a mountain from the command center.



First Minesite Practice Deployment for MSHA Command Center





First Minesite Practice Deployment for
MSHA Cisco Communications System

10/22/2005

Mine Portal, Location of Team and Robotic Exercise

Cisco Repeater

Sanborn Creek Access Point

West Elk Mine Office Access Point

Mine Office and Command Center

West Elk Midway Access Point

Cisco Repeater

West Elk Shaft Access Point

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Image USDA Farm Service Agency

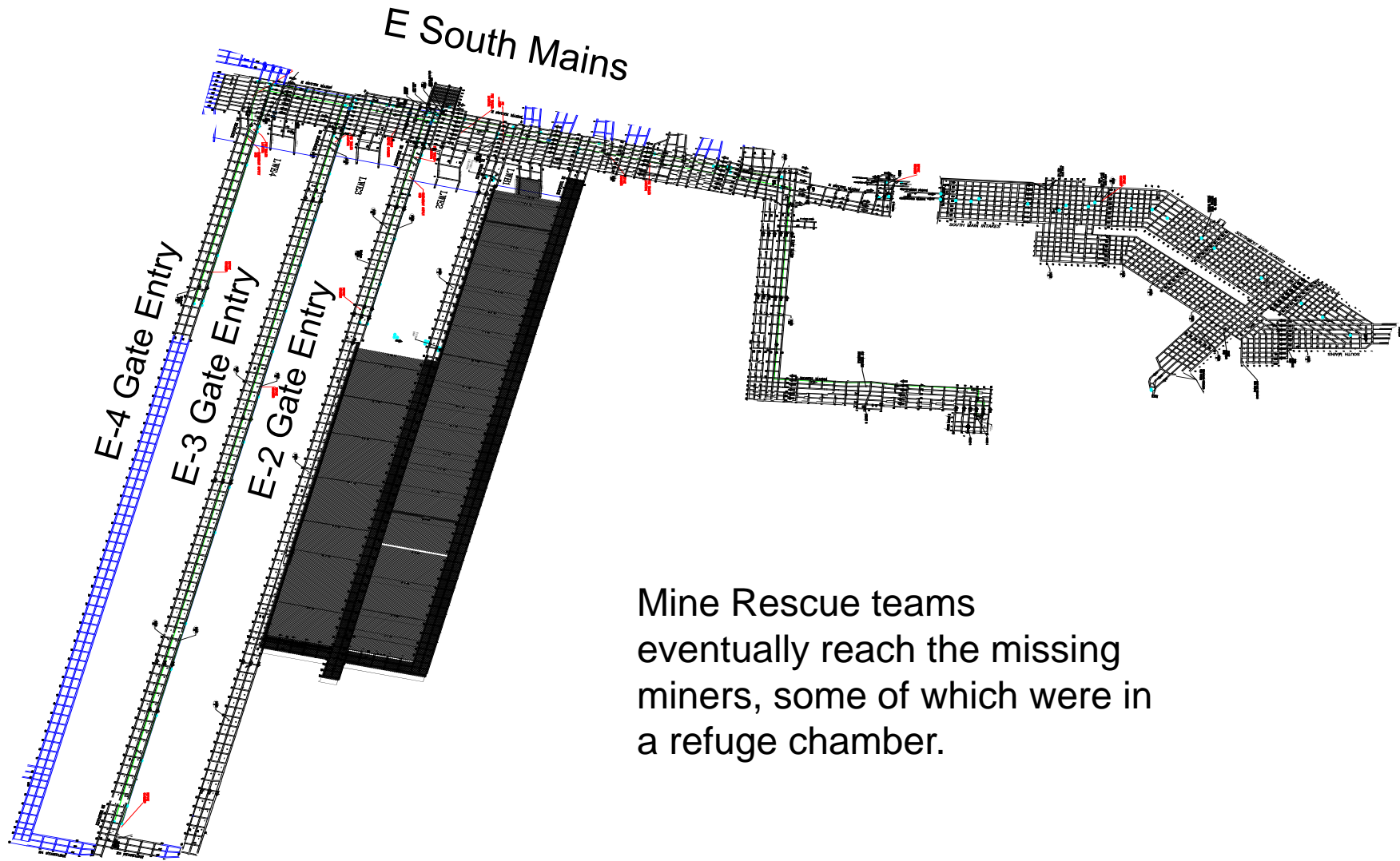
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Cisco Repeater

Mine Office and
Command Center

Cisco Repeater





Mine Rescue teams eventually reach the missing miners, some of which were in a refuge chamber.



Lessons Learned:

- MERD was Successful
- Logbook Modifications
- Cisco worked Great – Optimization – Additional units
- Mine Rescue team communications
- Completion of Command and Control System
- Additional tests

