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Mine Emergency Preparedness and Response

Stakeholder Meeting

May 11, 2010

MSHA, National Mine Health and Safety
Academy

Beckley, WV

Assessment of Needs and Planning

- What if your mine had a Mine Emergency today?
What would you do?
- ARE YOU PREPARED? What can you do to prepare?
 - Provide Risk Assessments/Mitigation
 - Plan for Contingencies in ERPs (What If's)
 - Provide Training
 - Plan ahead – Develop a Mine Emergency Organizational Structure

Risk Analysis and Mitigation

- Identify Hazards That May Cause Explosions, Fires, Inundations, Ground Control Failures
- Perform a Risk Assessment Based on Hazards
- Eliminate, Control and Reduce Risks
- Administer the Risk Management Process

Responsible Persons

- Are your Responsible Persons Ready to handle a mine emergency? How do you know?
 - Need Competency Assessments for Responsible Persons
 - Responsible Person training materials have been developed – “Responding to a Mine Emergency” IG 110
 - Training modules have been developed for Responsible Persons and Command and Control

Mine Rescue Teams

- How quickly will your designated mine rescue teams and other available teams get to your mine?
- Have you determined their availability/level of competency/quality compared to other teams? Do you have pre-arrangements with other mines?

Fire Fighting

- Are you prepared to fight a mine fire?
 - Have you performed a Mine Fire Preparedness Assessment?
- Do you have Mine Fire Brigades?
 - Are they well trained?
 - Are they well equipped?
- Do you have listings of inert gas vendors in your ERP? How quickly can they get to your mine?
- Is the surface area above the mine accessible? Will roads need to be built? Do you have the resources necessary to respond?

Training for Preparedness

- What types of training are available to prepare miners for emergency evacuations?
 - MERD
 - Responsible Persons
 - Command and Control
 - Emergency Response Decision-Making
 - Emergency Communications
 - Leadership Training for Supervisors
 - Team-Building Training
 - Simulated Smoke Training
 - Dealing with Stress
 - Self-Escape

Are You Ready?

- Will your emergency systems work after an explosion or during a mine fire?
- Mines need to Harden Communications, Tracking Systems, and Mine-Wide Monitoring Systems
- Is your mine in compliance with Communications and Tracking requirements?

Surface Surveying

- Have you pre-located key underground locations on the surface above your mine? (Refuge Alternatives, extent of mining, etc.)
- How many mines have done pre-surveys?
- Do you know how to quickly contact knowledgeable surveyors that know your mine?
 - Are Surveyors Listed in your ERP?
 - Are you relying on GPS surveying devices to work during inclement weather?
- Don't depend on surveyors being available when you need them – Get your pre-surveys done!

Borehole Drilling

- Are competent drillers immediately available?
- Are they listed in your ERP? Can they drill both rescue and probe holes?
- What will you do if the hole misses the mine openings? Do you have a back-up plan?
- Have you determined the availability of site preparation resources (surveyors, dozers, etc.)?

Evacuation

- What will your miners do during an **Emergency**
 - Try to escape? Take shelter?
- What can you do?
 - Train, Train, Train

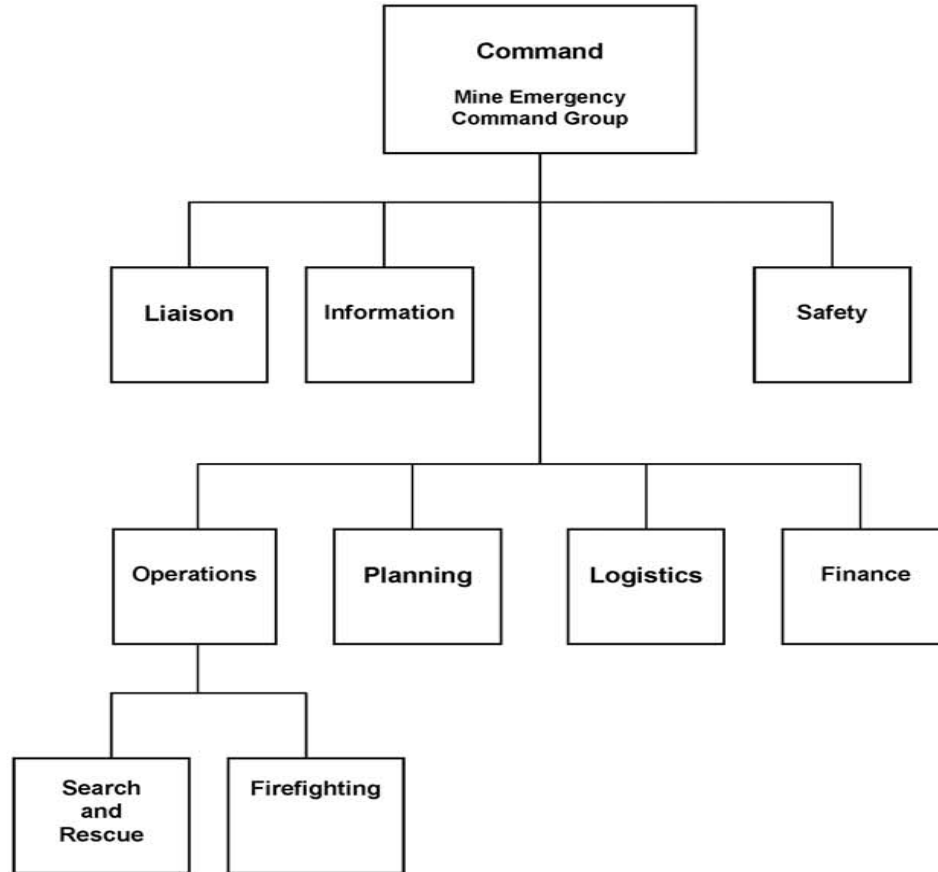
Refuge Alternative Issues

- What New Issues Do We Face Due to the Introduction of Refuge Alternatives in Mines?
 - Can you communicate using a surface borehole ?
 - Can you provide supplemental air from the surface using a borehole?
 - How will you handle communications with family members?
 - How will mine rescue teams extract miners from a refuge alternative?
 - How will injured miners be treated?
 - Do you have extra SCSRs in your refuge alternatives for excursions out of the alternative?
 - Will they withstand a 15 psi explosion?

Command and Control

- Who will manage/staff your Command Center?
Where will it be located? Who is in Charge?
- Are you and your people trained on Command Center Operations? Incident Command System?
- Have you incorporated your Mine Emergency Organizational Structure into your ERP?

Mine Emergency Command System



Are You Doing Good Quality Pre-Shift Inspections?

- Why are improved Pre-Shift Inspections important?
 - Improved Pre-Shift Inspections lead to Safer Mines and Less Citations
- Examples of Most Frequently Cited Standards 2009
 - **30 CFR § 75.400 Accumulation of combustible materials.**
(9,273 Violations, 11.38%)
 - **30 CFR § 75.503 Permissible electric face equipment; maintenance.**
(4,314 Violations, 5.29%)

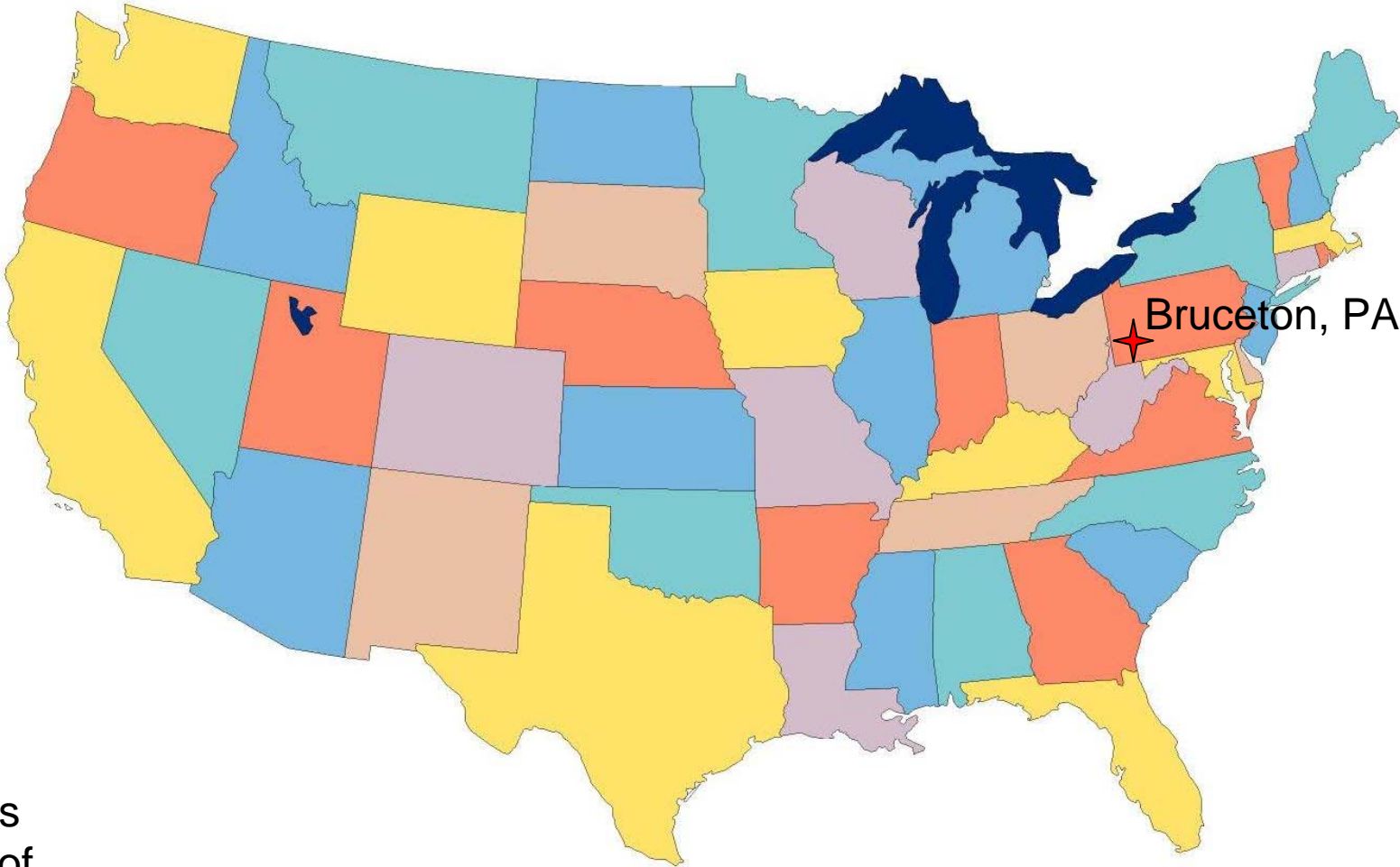
Improved Pre-Shift Inspections

- **30 CFR § 75.370 Mine ventilation plan; submission and approval.**
(4,224 Violations, 5.18%)
- **30 CFR § 75.403 Maintenance of incombustible content of rock dust.**
(1,277 Violations, 1.57%)

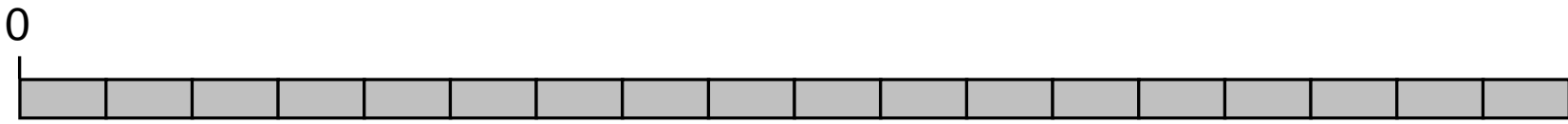
Miner Location

- How will you locate trapped miners?
 - Will your Communications and Tracking Systems work after an incident? Are they adequate? Are they hardened? Redundant?
- MSHA Seismic System
 - Takes time to get to the mine and setup
 - Accuracy is limited to about 100 feet at a depth of 1500 feet
 - Must use location information with accurate mine map/ Needs "Quiet Environment"
 - Needs Surveyor, Driller, Explosives, & Blaster

Seismic Vehicle Mobilization From Bruceton, PA

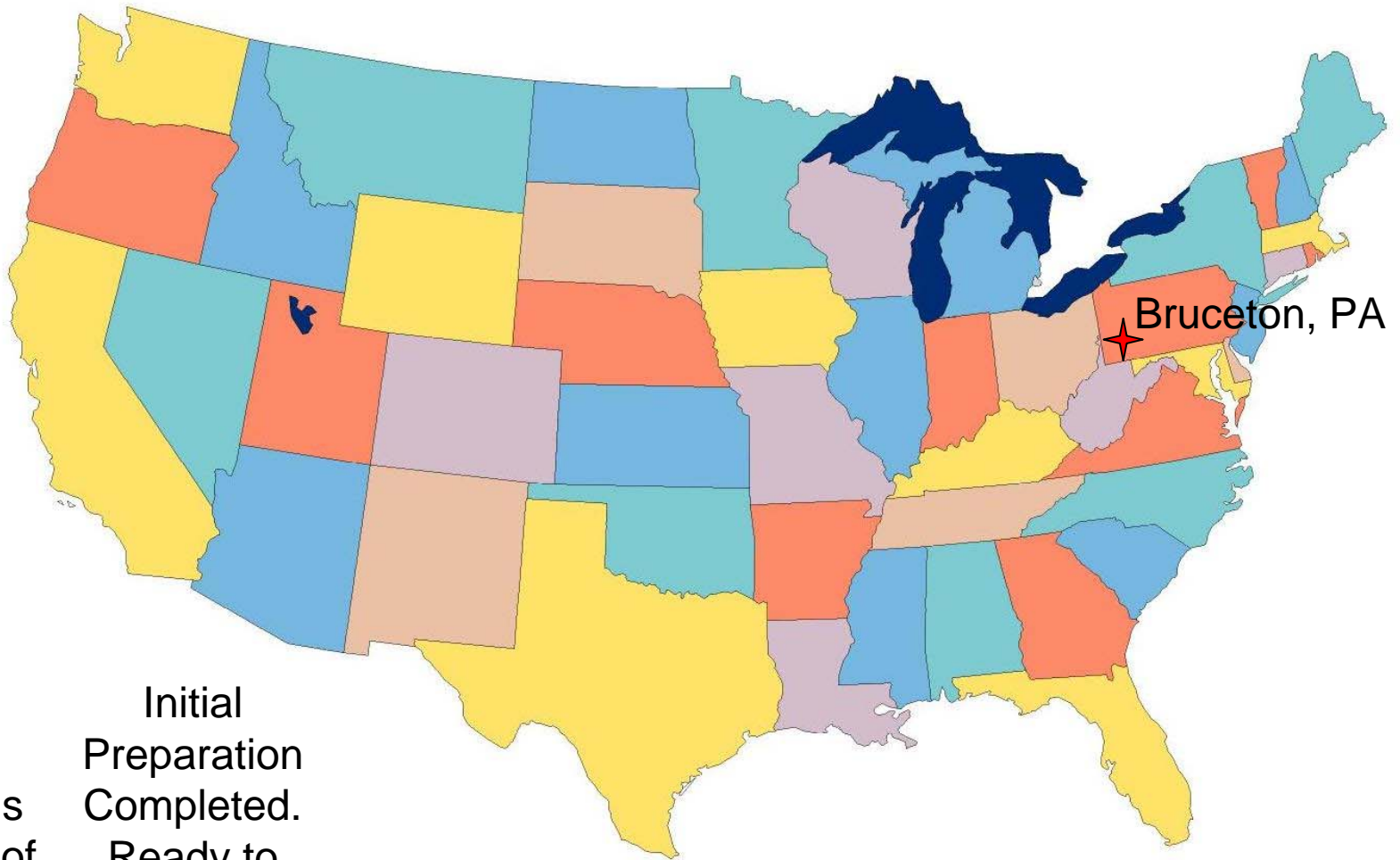


MSHA is
Notified of
Incident



Timeline in Hours

Seismic Vehicle Mobilization From Bruceton, PA



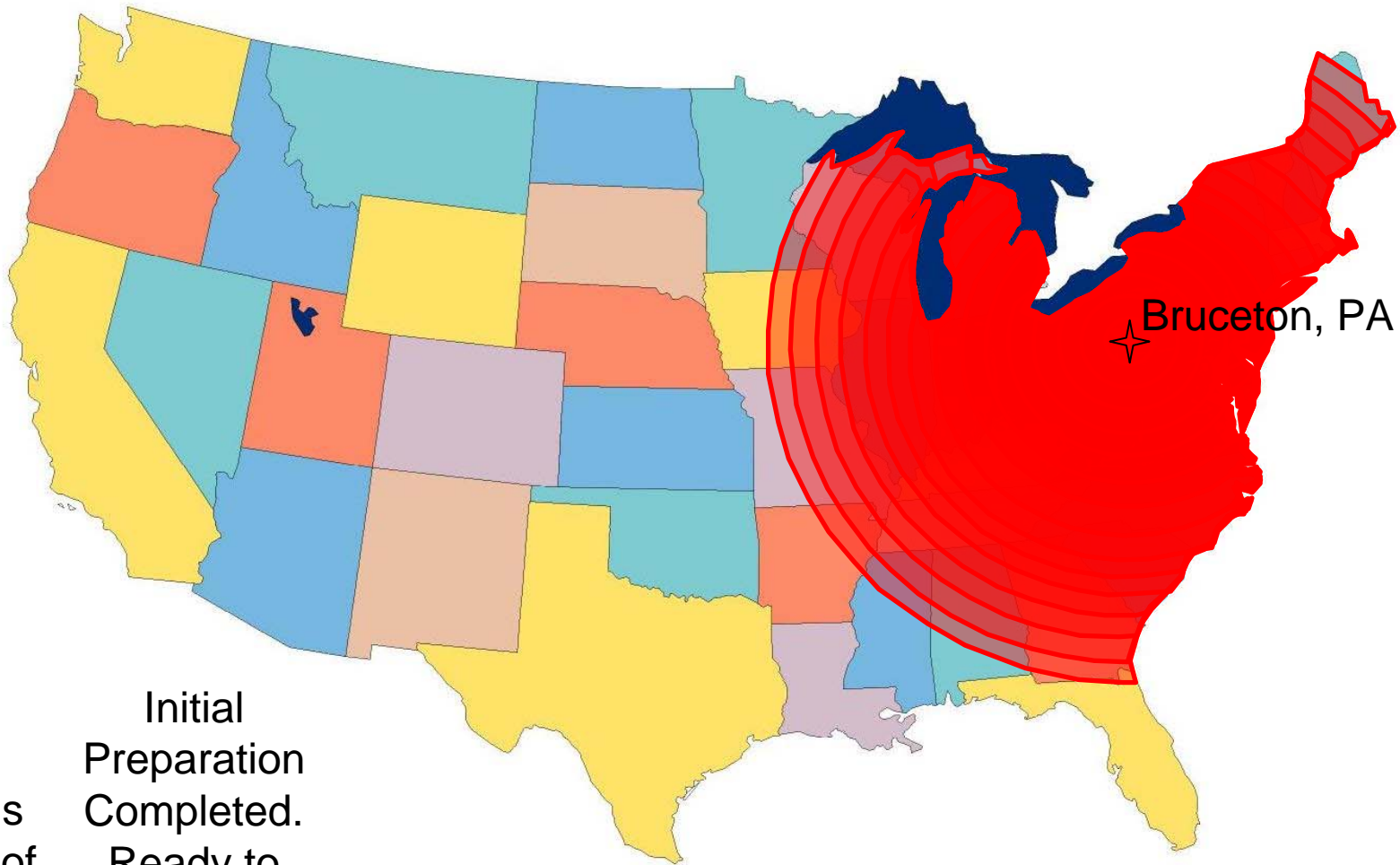
MSHA is Notified of Incident
Initial Preparation Completed.
Ready to Deploy

0 1 2 3



Timeline in Hours

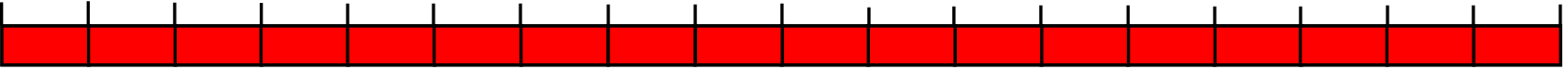
Seismic Vehicle Mobilization From Bruceton, PA



MSHA is
Notified of
Incident

Initial
Preparation
Completed.
Ready to
Deploy

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



Timeline in Hours

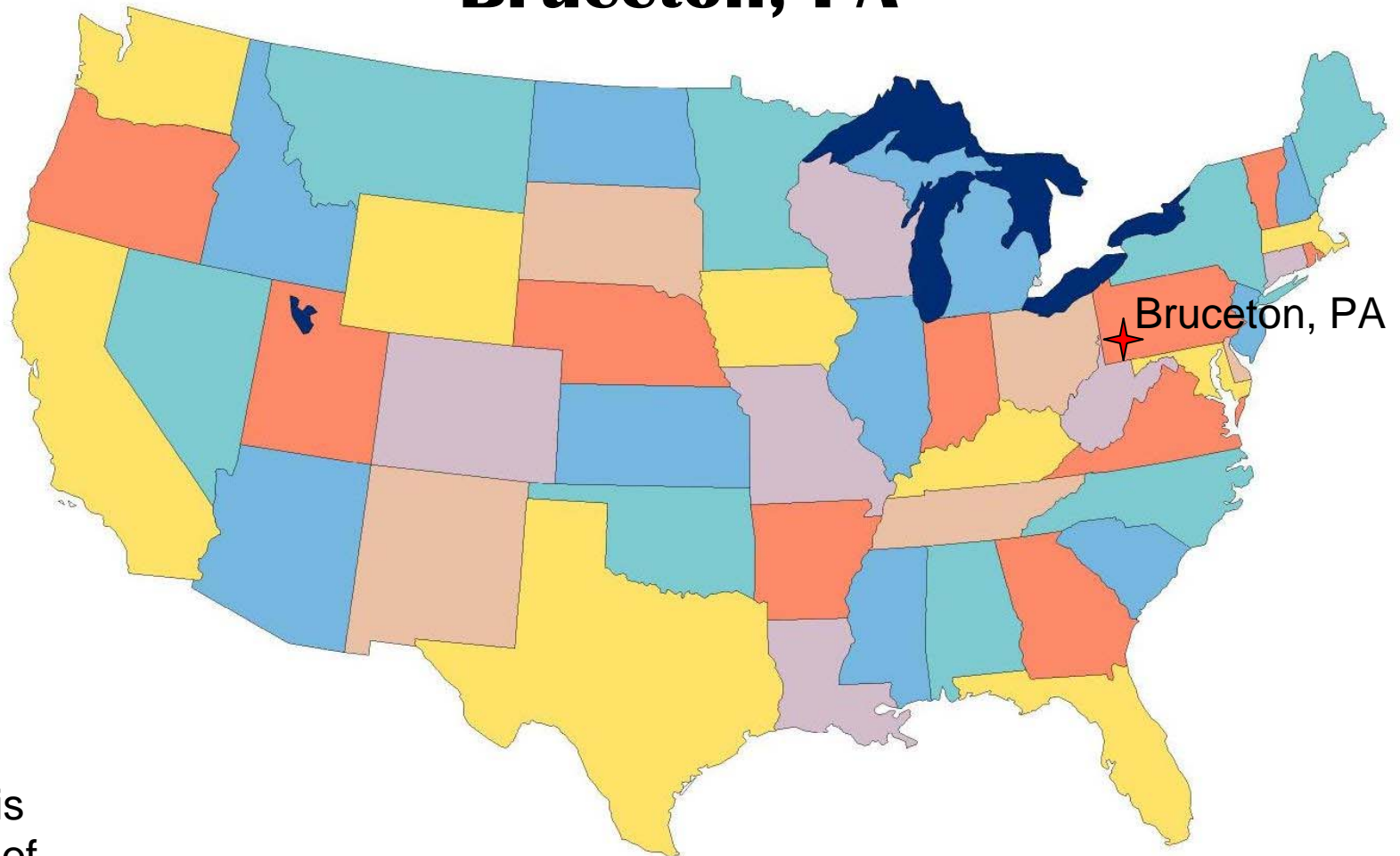
Analysis of Mine Gases

- Do you have the equipment necessary to sample the mine gases from mine fans, boreholes, other areas of the mine?
- Sampling – Do you have explosion-proof pumps, tubing, flame arrestors, sample bags/bottles, generators?
- Do you have adequate gas detectors (Need High Ranges for CO and CH₄)?
- Can your people perform a trend analysis? Do you have the computer capability to display the readings in graphical format?

Gas Chromatographs

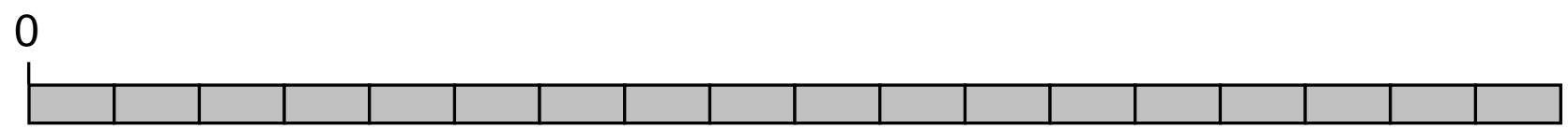
- Do you have or have access to Gas Chromatographs and Operators?
- Have you explored Contracting for Chromatograph Services?
- How quickly can this capability be setup at your mine?

Gas Laboratory Vehicle Mobilization From Bruceton, PA



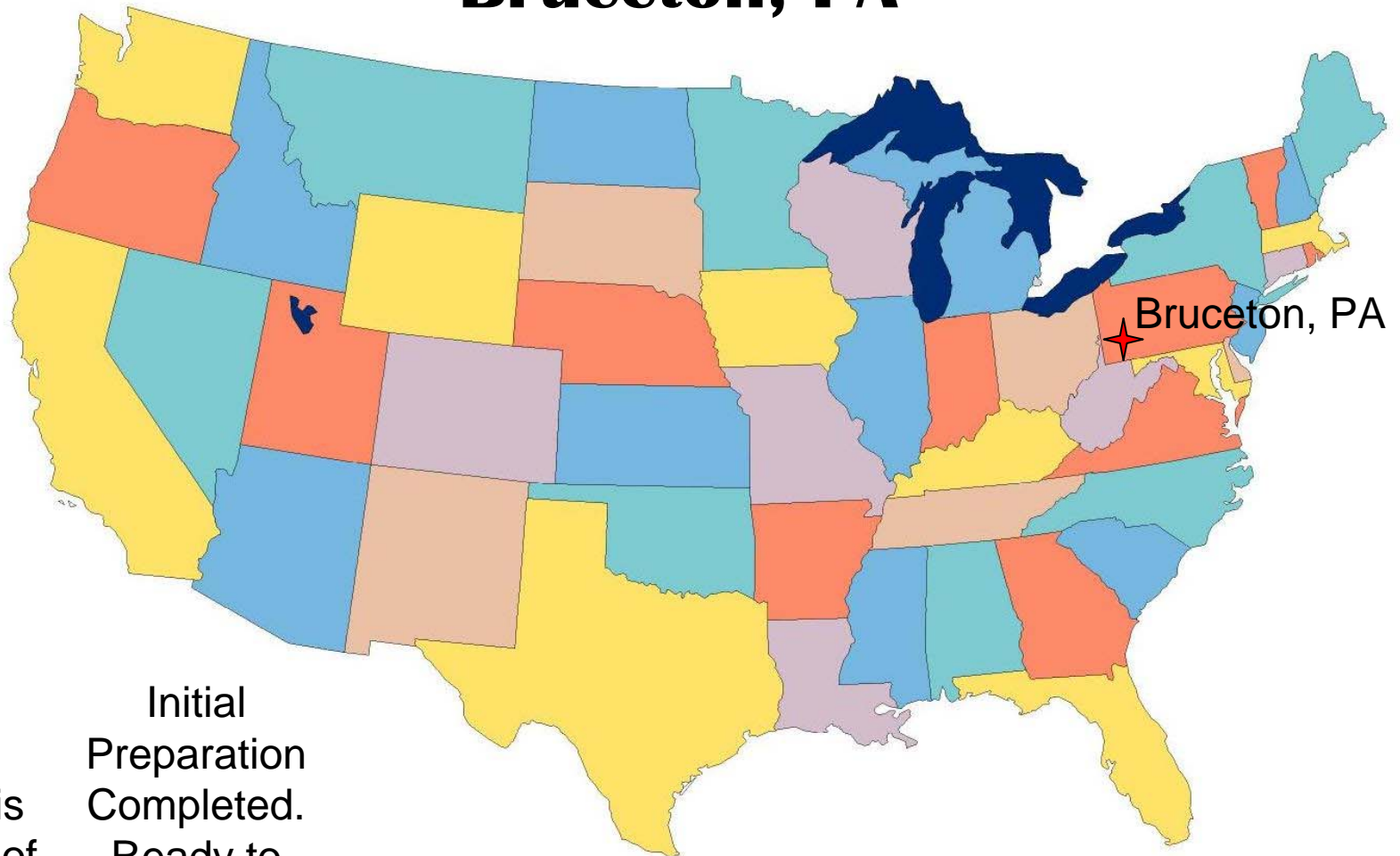
Bruceton, PA

MSHA is
Notified of
Incident



Timeline in Hours

Gas Laboratory Vehicle Mobilization From Bruceton, PA



MSHA is Notified of Incident

Initial Preparation Completed.

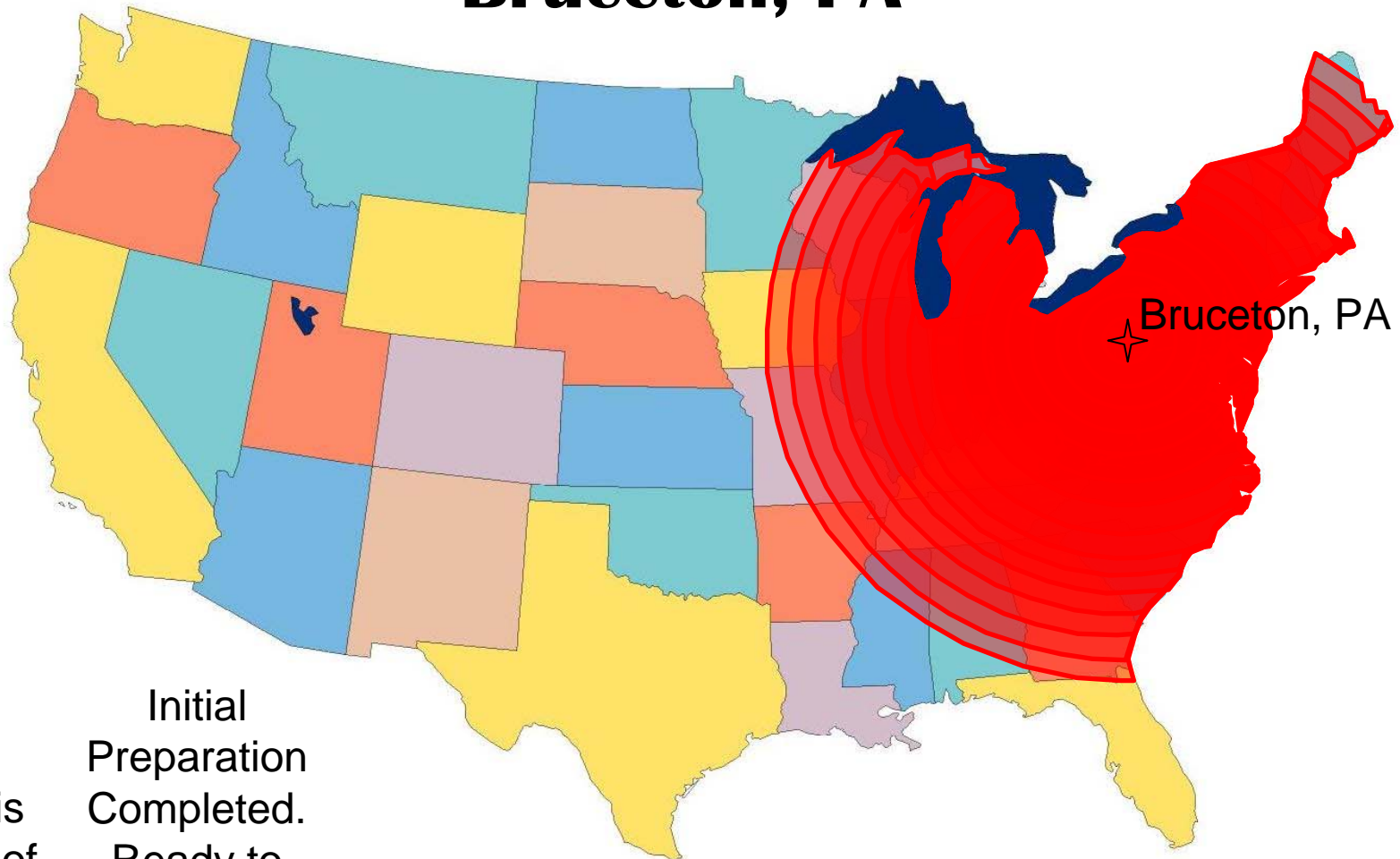
Ready to Deploy

0 1 2 3



Timeline in Hours

Gas Laboratory Vehicle Mobilization From Bruceton, PA



MSHA is
Notified of
Incident

Initial
Preparation
Completed.
Ready to
Deploy

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Timeline in Hours

G.C. Transport Vehicle Mobilization From Denver, CO



MSHA is
Notified of
Incident

0



Timeline in Hours

G.C. Transport Vehicle Mobilization From Denver, CO



MSHA is
Notified of
Incident

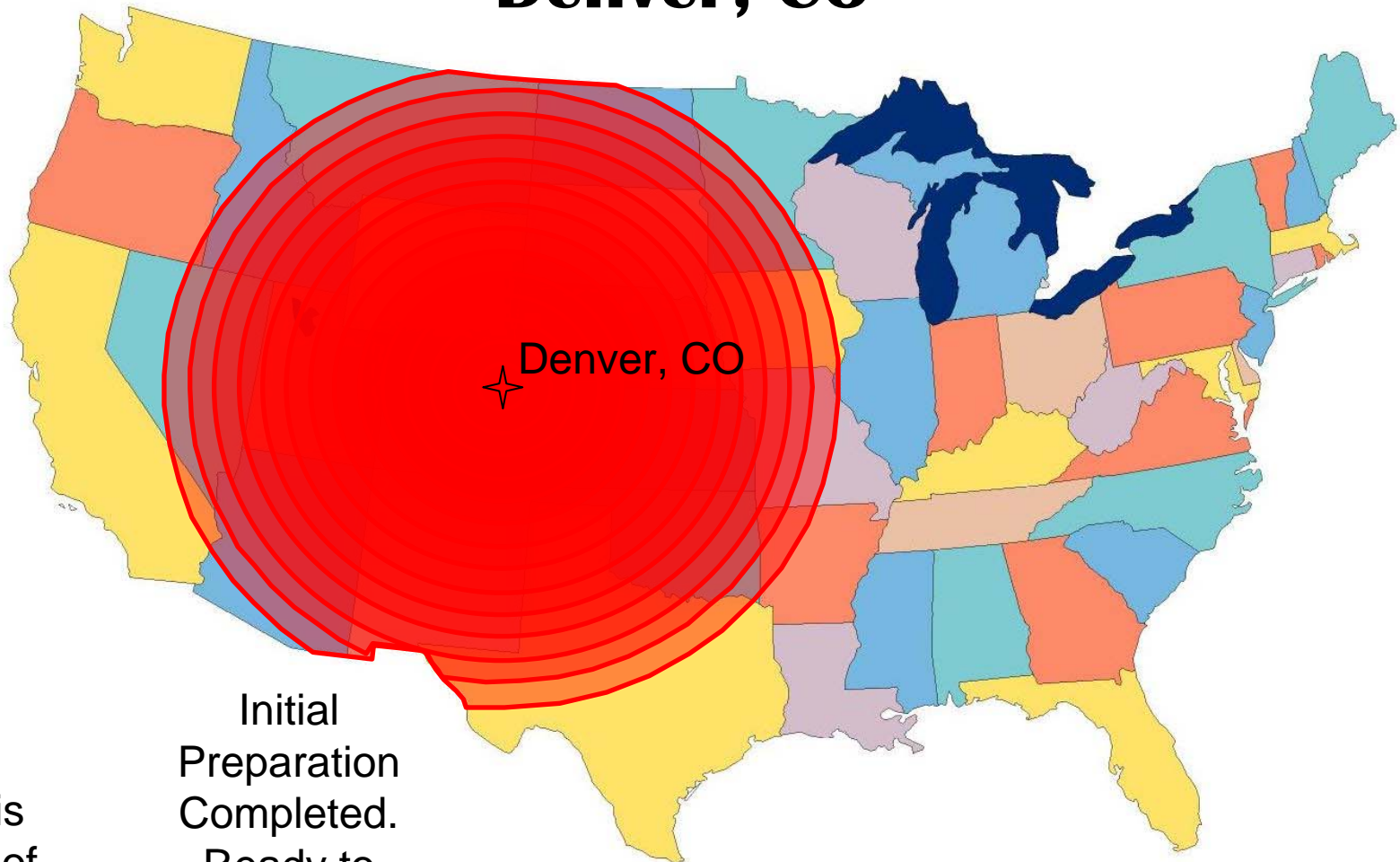
Initial
Preparation
Completed.
Ready to
Deploy

0 1 2 3 4



Timeline in Hours

G.C. Transport Vehicle Mobilization From Denver, CO



✦ Denver, CO

Initial
Preparation
Completed.
Ready to
Deploy

MSHA is
Notified of
Incident

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Timeline in Hours

Family Liaisons

- Are you prepared to supply support for family members and provide the necessary information at regular intervals?
- Have you made pre-arrangements for a facility to be used by family members and clergy? Food? Sleeping arrangements?
- Who will be your family liaisons?

SCSRs/SCBAs (MINER Act Requirements)

- When will new types of SCSRs/SCBAs be available that meet MINER Act requirements?
 - NIOSH has a contract to develop a new SCSR that meets MINER Act requirements
- SCBA Refill System is now available in the U.S., and has been used at a BHP in New Mexico, and at the Henderson Mine in Colorado

Sharing resources with other operators

- Can Chromatographs and other key equipment be shared among mine operators?
- Have you made pre-arrangements for use of mine rescue teams from other operators?
- What other resources can be shared?

ARE YOU REALLY PREPARED?