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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

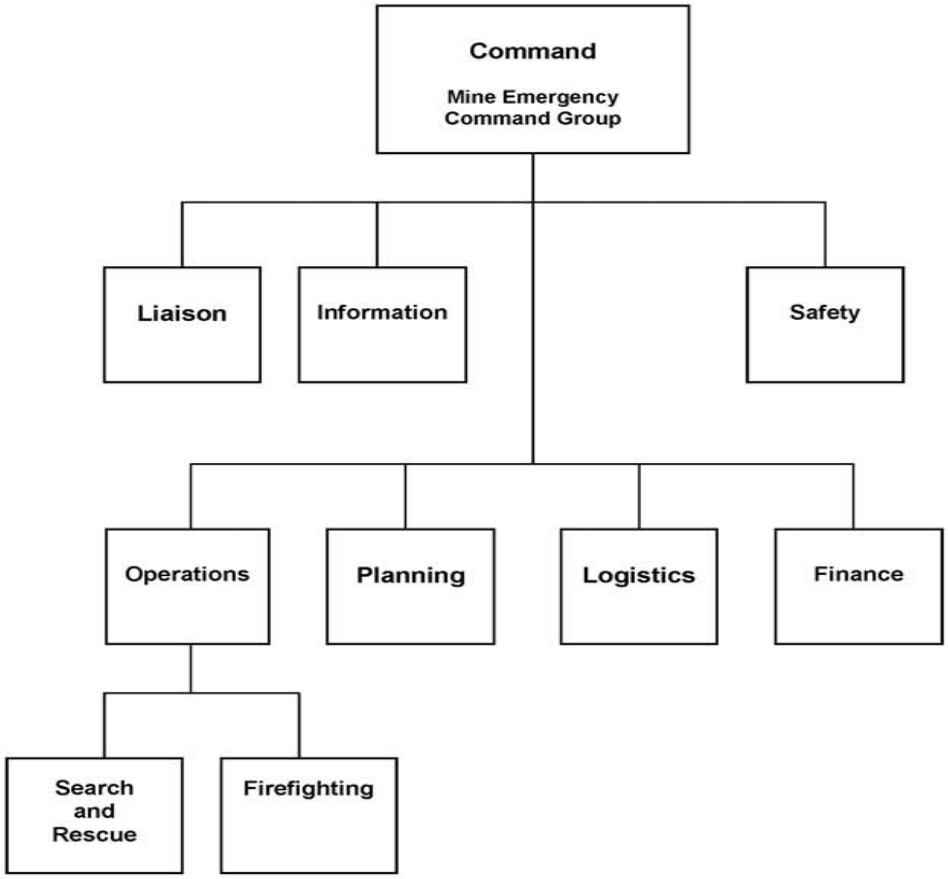
Refuge Alternative Issues

- 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%)

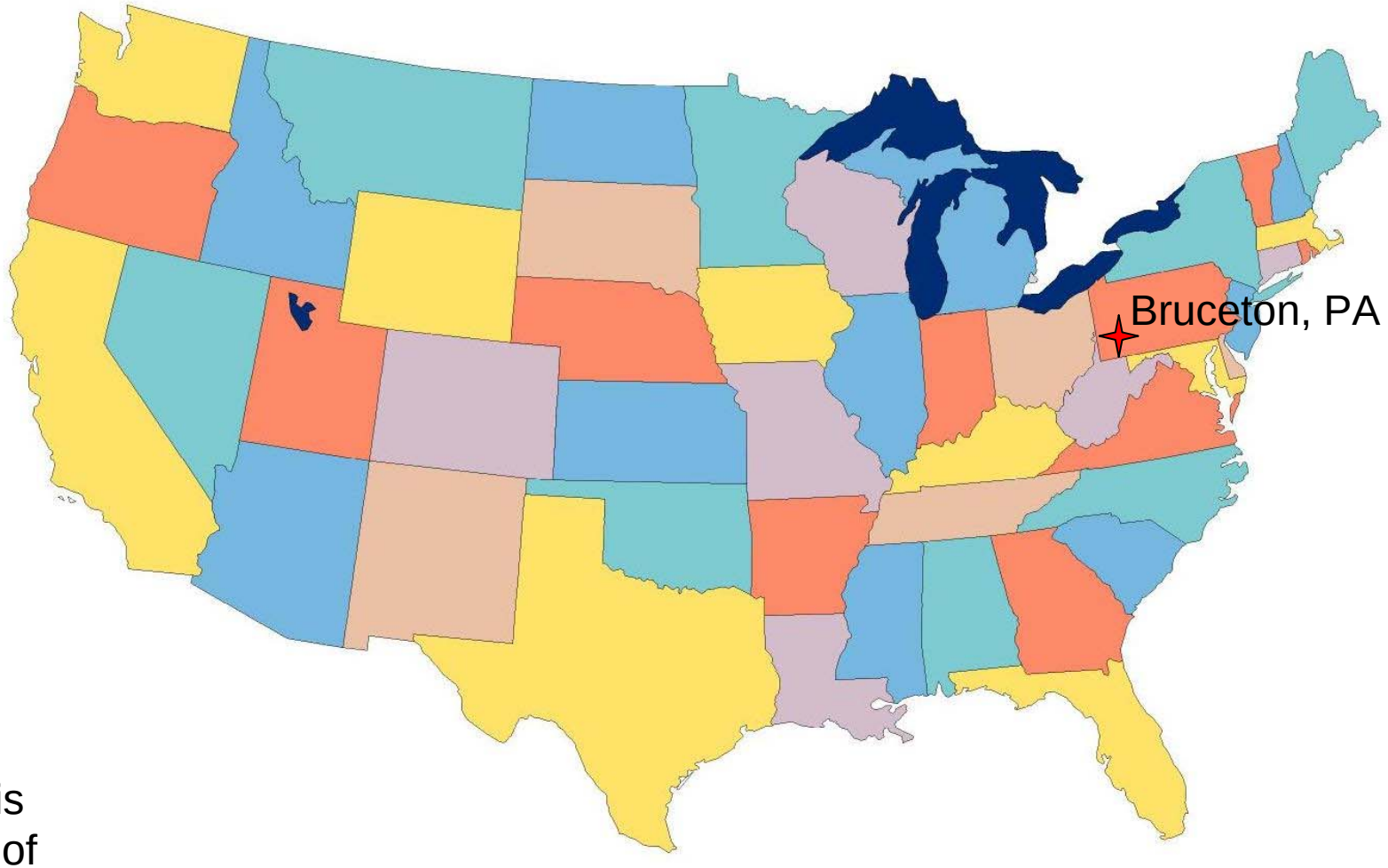
Improved Pre-Shift Inspections

- **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

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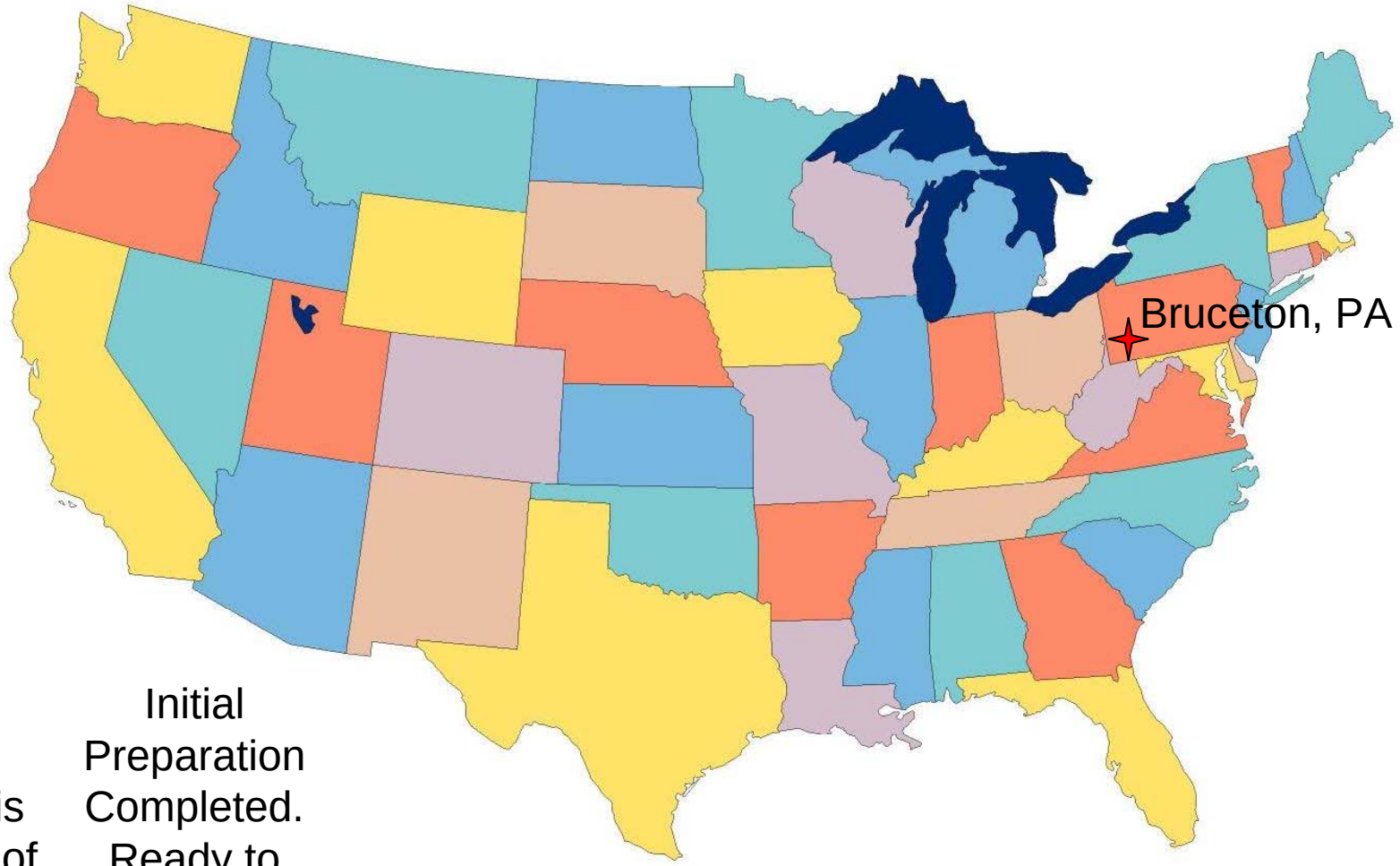
Timeline in Hours

Seismic Vehicle Mobilization From Bruceton, PA



MSHA is Notified of Incident

Initial Preparation Completed. Ready to Deploy

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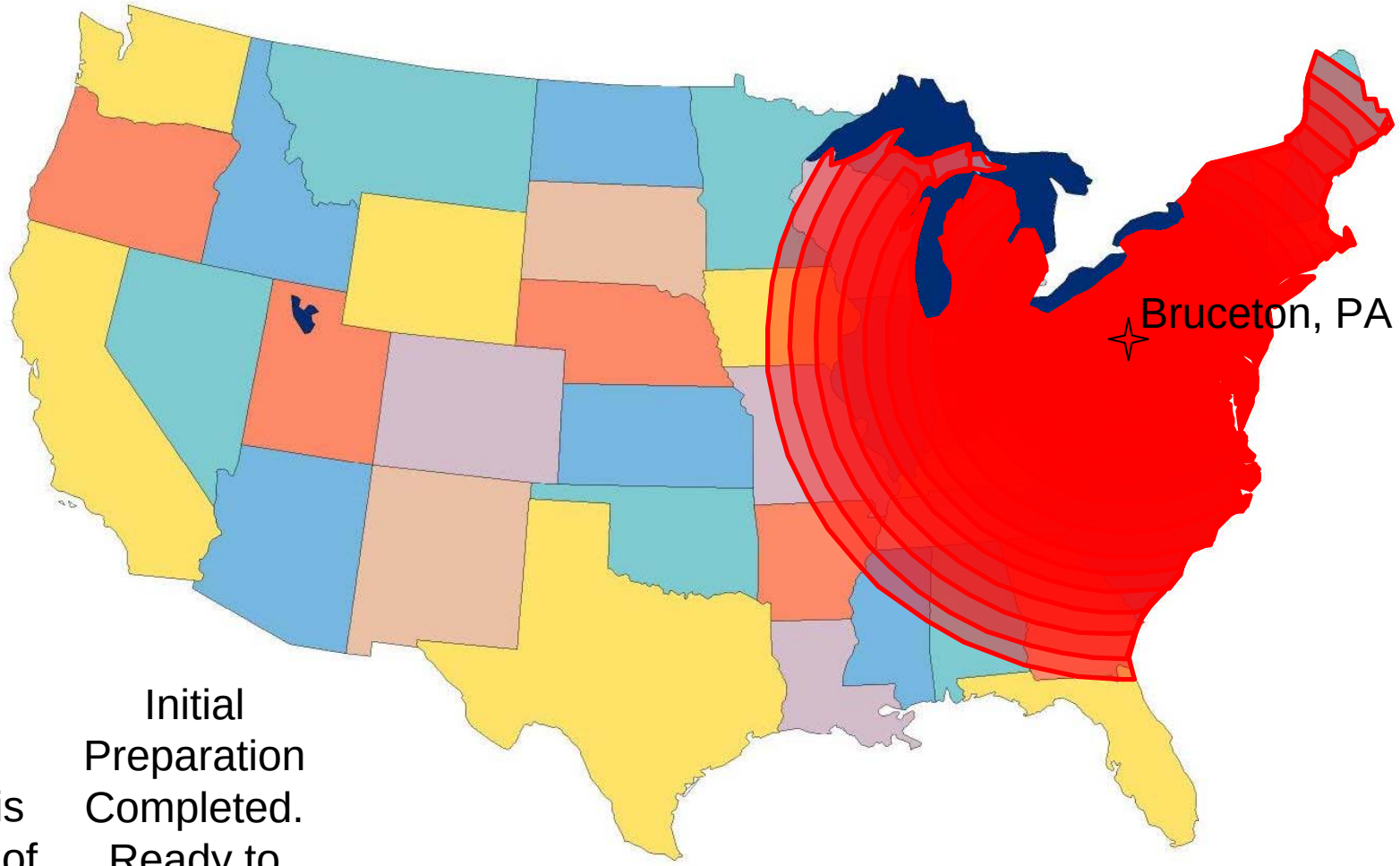
Timeline in Hours

Seismic Vehicle Mobilization From Bruceton, PA



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Initial Preparation Completed. Ready to Deploy

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Timeline in Hours

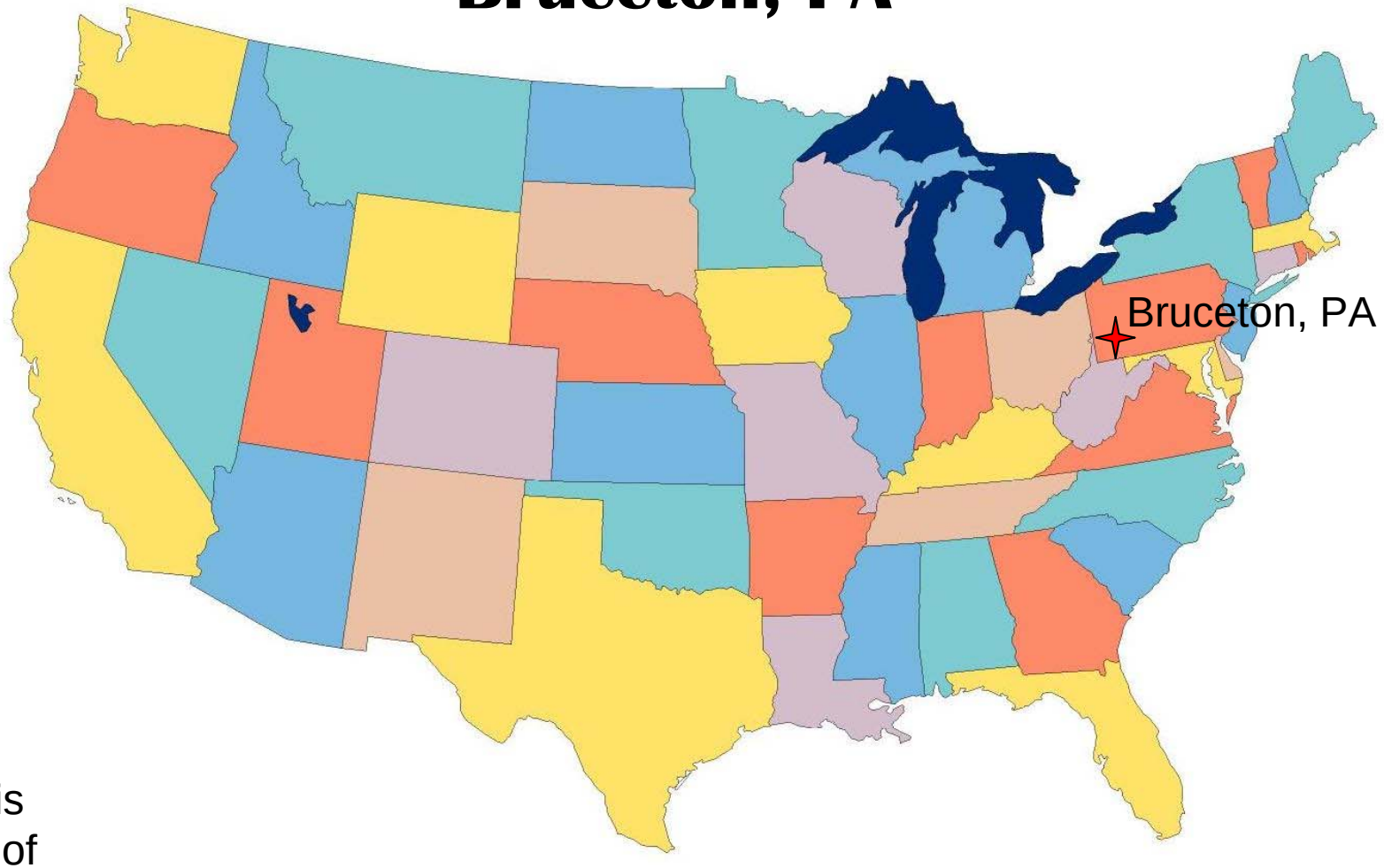
Analysis of Mine Gases

- 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



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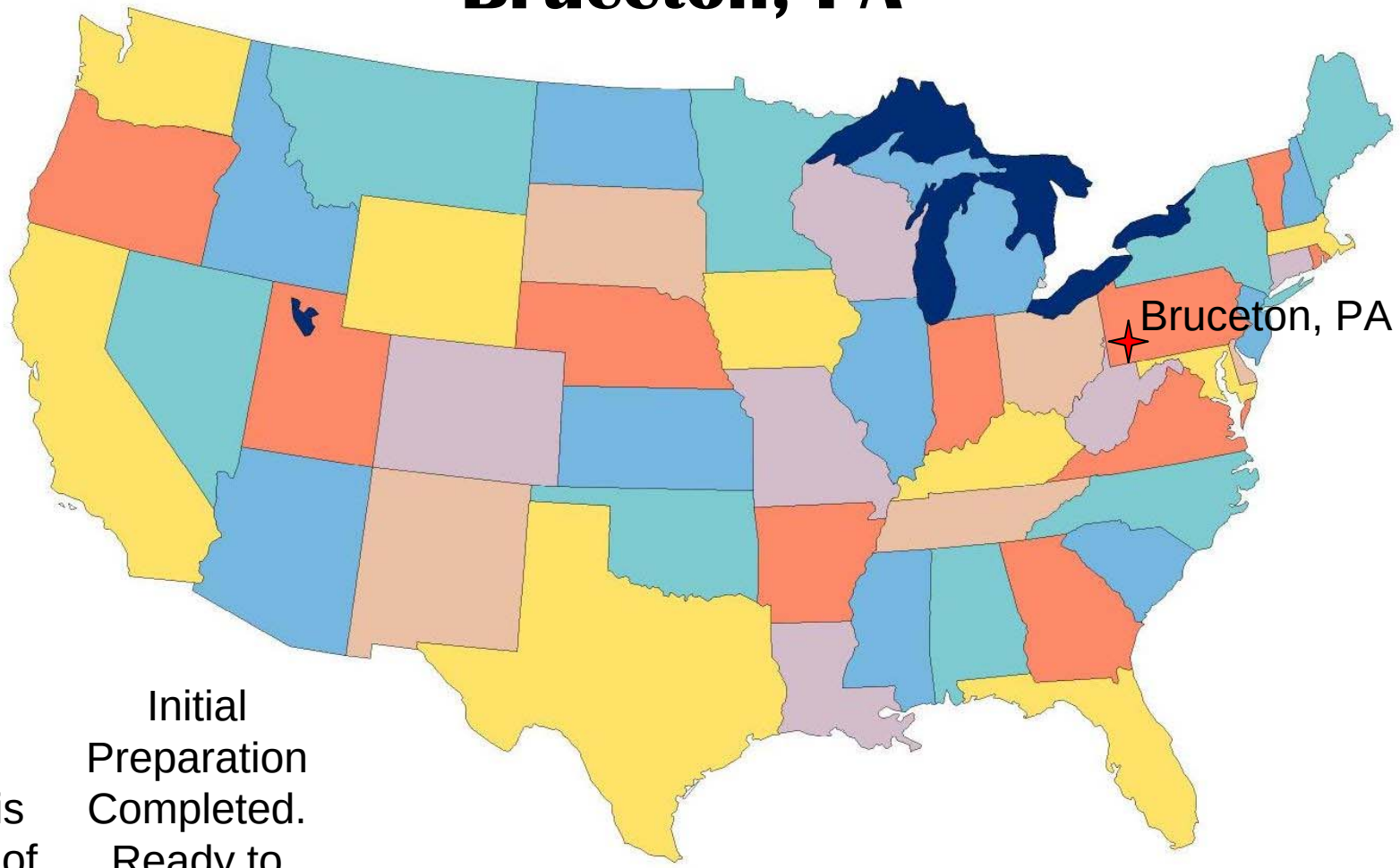
Timeline in Hours

Gas Laboratory Vehicle Mobilization From Bruceton, PA



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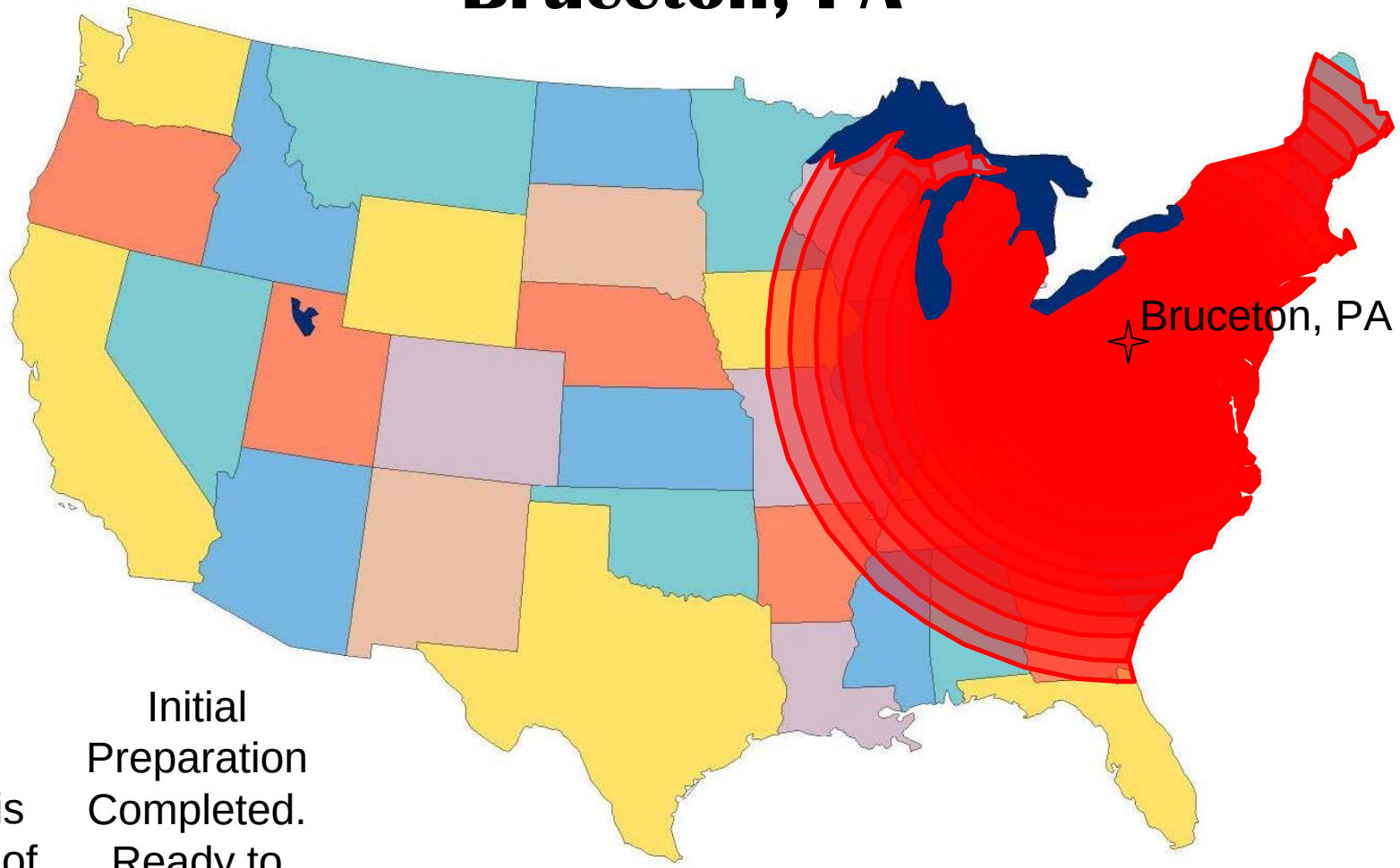
Timeline in Hours

Gas Laboratory Vehicle Mobilization From Bruceton, PA



MSHA is Notified of Incident

Initial Preparation Completed. Ready to Deploy

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Timeline in Hours

G.C. Transport Vehicle Mobilization From Denver, CO

MSHA is Notified of Incident

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Timeline in Hours

G.C. Transport Vehicle Mobilization From Denver, CO

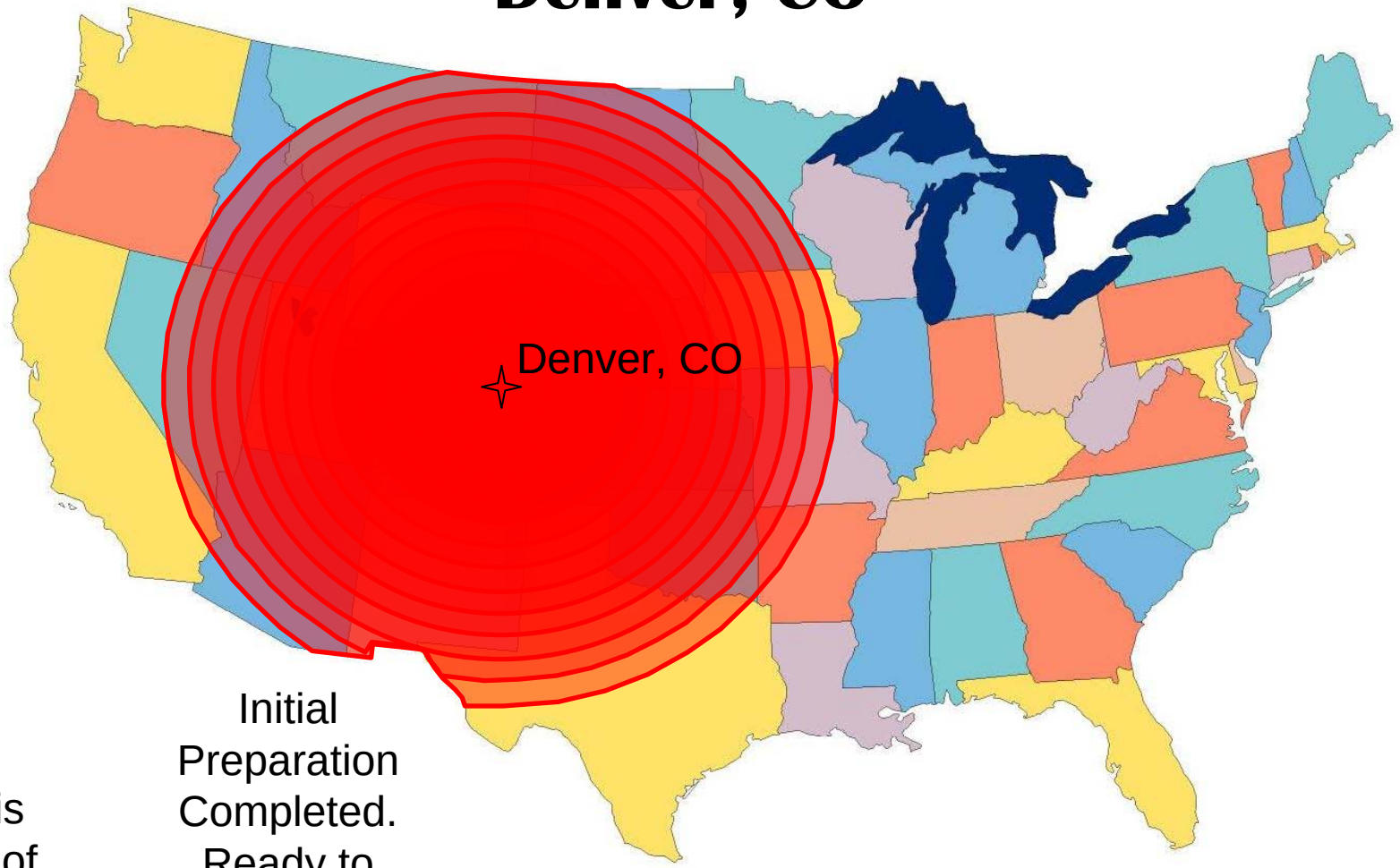
MSHA is Notified of Incident

Initial Preparation Completed. Ready to Deploy

0 1 2 3 4

Timeline in Hours

G.C. Transport Vehicle Mobilization From Denver, CO



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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?