

Trapped Miners Now Have A Chance For Survival!

Mine Escape Planning & Emergency Shelters Workshop

National Academy of Sciences

Washington, DC

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Ed Roscioli, CEO
ChemBio Shelter, Inc.
www.ChemBioShelter.com





Life ShelterTM

...Saving The Lives of Trapped Miners

ChemBio *Life Shelter*TM - the most reliable, economical and technologically advanced way of providing a "Safe Haven".





NEWS: ChemBio Shelter Partners With Industry Leading Emergency Shelter Manufacturer

- Zumro, Inc., Hatboro, PA
- 18 Years Experience
- Rugged Materials
- Soft-sided Construction
- Rapid, Air-Beam Deployment
- Design Flexibility

Rugged

Soft-Sided



Air-Beam Deployed



Design Flexibility



NEWS: DoD Selects Allentown, PA Company For Assessment of Chemical, Biological and Radiological Protection System

- **Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD)**
- **December 2005 – Extensive 5-day Test**
- **Collective Protection for Troops**
- **Simulated Chemical Agent Attack**
- **Flame Retardant**
- **Maintained Life-sustaining Environment**
- **Decontamination Unit**
- **Toxic Free Entry and Exit**



Portable Atmospheric Control Unit

Air Lock



Water Lock





NEWS: *ChemBio Shelter Demonstrates
Emergency Life Shelter at
Bruceton Experimental Coal Mine*

February 8, 2006





The Mine Rescue Need

Ensuring miners have a life-sustaining air supply...

- When,
- Where, and for
- How Long they need it!





The Need: When

Mine Emergency Situations

- Explosion
- Fire
- Collapse
- Contaminated Air

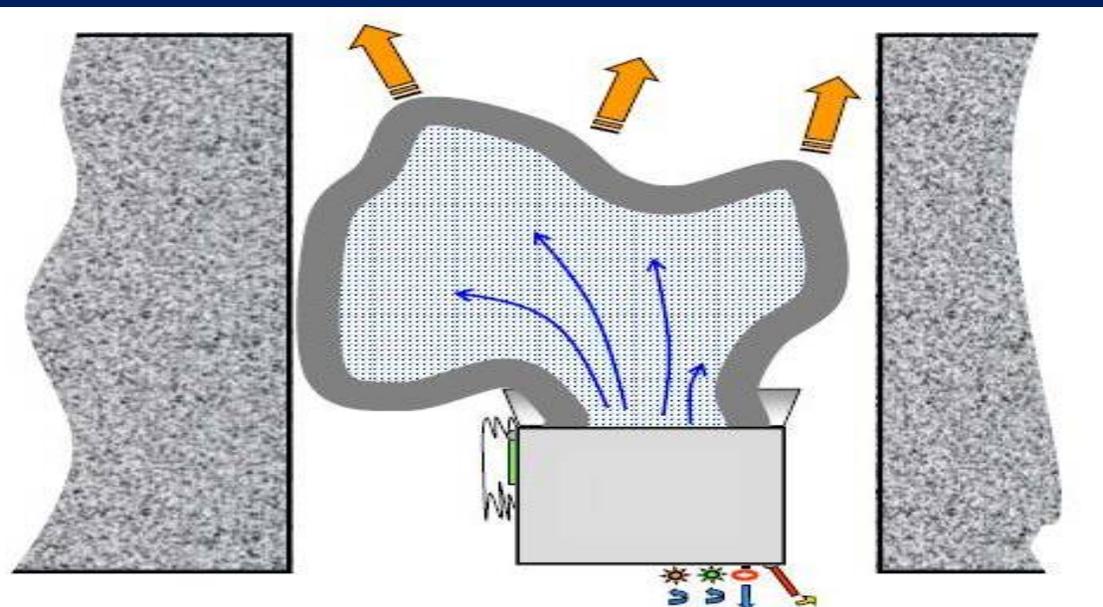
Miners Unable To Exit Mine





The Solution: Life ShelterTM

- Rapid Deployment
(Less than 60 seconds)
- Ease of Operation
- Durability
 - Flame Retardant
(meets UL94-V0)
 - Puncture & Tear Resistant
- Availability



Deployment Sequence

1. Open Panel & Pull Release
2. Open Valve 1
(deploy & fills shelter with fresh air)
3. Open Valve 2
(lifts shelter to available height automatically)



The Need: Where

- Low seam / high seam
- Accessible by all workers
- Within 1000 feet of active workings
- Inby / Outby





The Solution: Life ShelterTM

Mobile

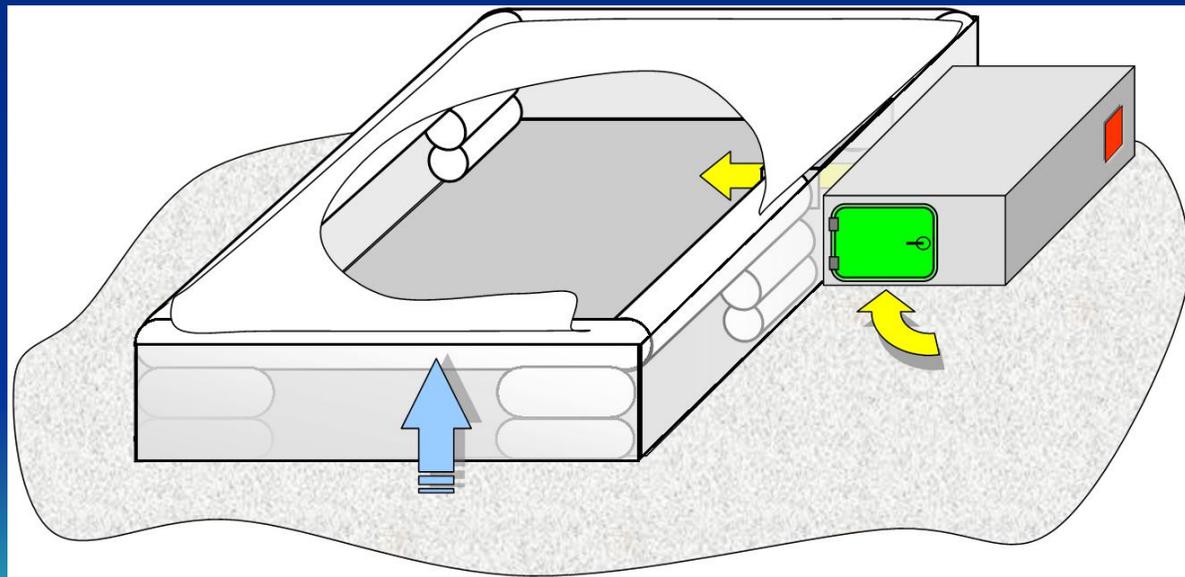
- Skid Mounted

Capacity

- Up to 18 workers

Sizes

- 20" to 36"
- 36" to 60"
- 84"
- Custom





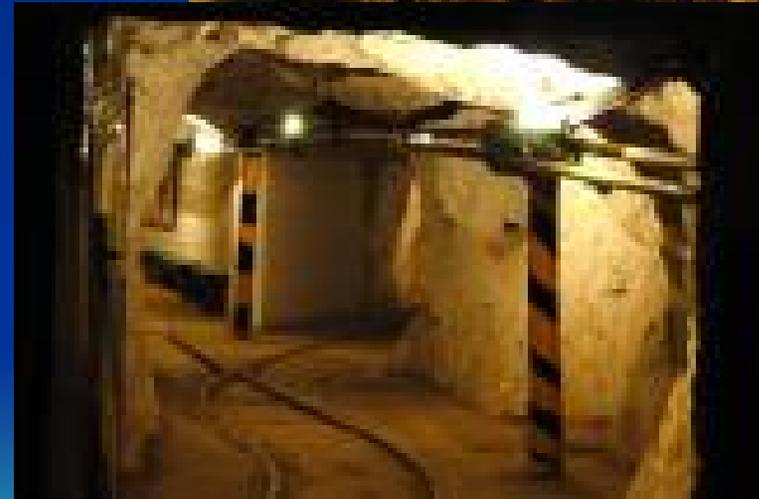
The Need: How Long

Duration of Emergency

- Contaminated Mine Air
- Rescue Team Arrives

Shelter Design

- Duration of life-sustaining air supply
 - Monitoring air
 - Power requirements
- Shelf-life of equipment & supplies





The Solution: Life ShelterTM

Life-sustaining air supply

- 96 hours of protection (or more)
- No external power required
- Air-lock entry system
- Positive pressure

Shelf-life: Equipment

- Shelter (20 yrs)
- Monitors (2 yrs)

Shelf-life: Supplies

- Oxygen generation (2 – 10 yrs)
- CO₂ scrubbing (5 – 10 yrs)
- CO scrubbing (10 yrs)
- Activated carbon filter (5 yrs)





Life Shelter™ Standard Package

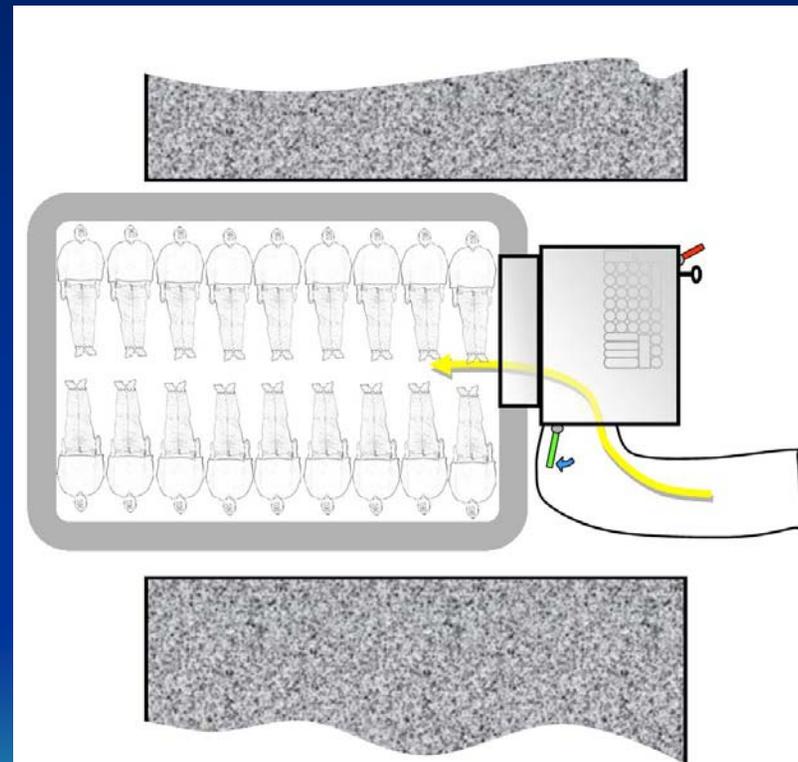
Air-beam deployed, hermetically sealed shelter

- Protects up to 18 people
- Easily stored and moved
- Rapidly deployed
- Air lock for safe entry
- Field repair kit

Air-processing system

(operates without external power)

- Oxygen reactor
- CO₂ scrubber
- CO scrubber



Entry Sequence

1. Open Side Door
2. Enter Thru Air-lock Sleeve



Life Shelter™ Standard Package

Monitors

- Oxygen, CO, CO₂ & temperature
- Intrinsically safe
- Inside / outside monitoring

Emergency Lighting

Consumables

- Oxygen reactor cartridges
- CO₂ absorbent
- Activated carbon filters
- Emergency medical supply kit
- Pre-packaged Meals
- Potable Water
- Chemical Toilet Packs

CO₂ Monitor



CO Monitor



Oxygen Monitor





Life Shelter™

...Protecting You In An Uncertain World.

Thank You
For Your
Interest!



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