

INNOVATION



**MINE EMERGENCY,
ESCAPE & SHELTERS**

THE PHOENIX CHAMBER



UNDERGROUND EMERGENCY



Stay underground
for
Rescue retrieval
**WHAT IS THE BEST
POSSIBLE PROTECTION?**

**Fight
Or
Flight
Response
WHAT DO I DO?**

**INCIDENT
CYCLE**

**Egress from
Mine either
Primary or Secondary
Escape Routes**

**Non Trained
person reaction?
WHO CAN HELP ME**

**Trained
Response
Timely
and
Rapid
Intervention**



EMERGENCIES

Generally may be divided into three areas.

SELF ESCAPE:-

Usually involves mineworkers with “Little or no Injury” exiting the mine with a potential use of SCSR’s

AIDED ESCAPE:-

Mineworkers who are injured and may be assisted by fellow workers exiting the mine or retreating to a “place of safety”.

MINES RESCUE:-

This historically involves entry into an effected mine by trained personnel wearing appropriate devices to retrieve injured or trapped mine workers and restore ventilation.

(Now may also involve retrieval from a place of safety).

EMERGENCIES



FIGHT or FLIGHT RESPONSE

Danger

THE HUMAN REACTION IS TO DEFEND LIFE OR TO ESCAPE DANGER.

- This inherited reaction is involuntary and as such requires harnessing in an underground emergency. {TRAINING}
- Trained personal are taught to SLAM or **S**top, **L**ook, **A**ssess and **M**anage their environment.
- Underground Emergencies demand all the trained skills to come together in often hazardous environments.



STEP 1



STOP ... *Not so fast!*



Take a look around.

Think through the EMERGENCY.

- Is this a life threatening event?
- Has the gases present been determined?
- Do you need the SCSR's **NOW** or later?
- Can I communicate to the surface?
- Which is the available best escape route?

STEP 2



LOOK ... *Identify the hazards for each reaction to the **EMERGENCY**.*



This step begins before any immediate reactive response occurs.

- Determine the essential steps to maintain life and property.
- Address the issue of identifying noxious or poisonous gas.
- Identify hazards for fitting SCSR's.
- Check **ALL** communication links to the surface.
- Identify any escape routes that exist under present conditions.

STEP 3



ANALYZE ...



Determine if you have the knowledge, training and tools required for the job and identify key people within your group.

- Experience helps to identify potential hazards.
- Assessment should continue throughout the active response to the incident.
- Share identified hazards with others in your group.
- Remember two heads are better than one.

STEP 4



MANAGE ...

Remove or control the hazards and use appropriate equipment.



Utilize established control measures

- **Eliminate** (Remove hazard completely)
- **Substitute** (Re-ventilate from a fresh air source)
- **Engineer** (Enter an established refuge chamber)
- **Administrative** (Follow written response instructions)
- **Personal Protective Equipment** (SCSR's)



TRAINING

MINE OFFICIALS ... Receive training during their years of study but may never the need to use the knowledge. The fall back then becomes the SLAM Philosophy.

MINES RESCUE Personnel receive training and practice in emergency response and utilize this knowledge on a regular basis to instill this skill indelibly.

MINE WORKERS ... Rarely receive practice in emergency response but will have a knowledge base due annual refresher training obligations.

RESPONSE



THE BASIC MINES RESCUE PRINCIPLE is:-



To provide timely, rapid intervention to emergency events that impact the United States Mining Industry

This fundamental principle has its roots in history where the concept of refuge chambers began.

This took the form of teaching the concept of barricading to mine workers awaiting rescue in small mines very dissimilar to the larger mines of today.

Simply put Mines Rescue relies on the physical strength of the trained man to effect a rescue and recovery of individuals from a hostile environment some of which may need to be carried.

EGRESS FROM THE MINE



**From a Refuge Chamber (place of safety)
the endangered miner can:-**

- Be either provide with or have an agreed safe route of egress from the mine with the available communication system.
- Retrieve additional SCSR escape devices or replenish deployed self rescuers nearing the end of their useful life.
- Retrieve stored mine plans to permit an ease of identifying egress routes either primary or secondary which ever is the safest to traveled at that time.
- Be supplied with information from the surface to aid the escape from the hostile environment and/or remain in relative safety.



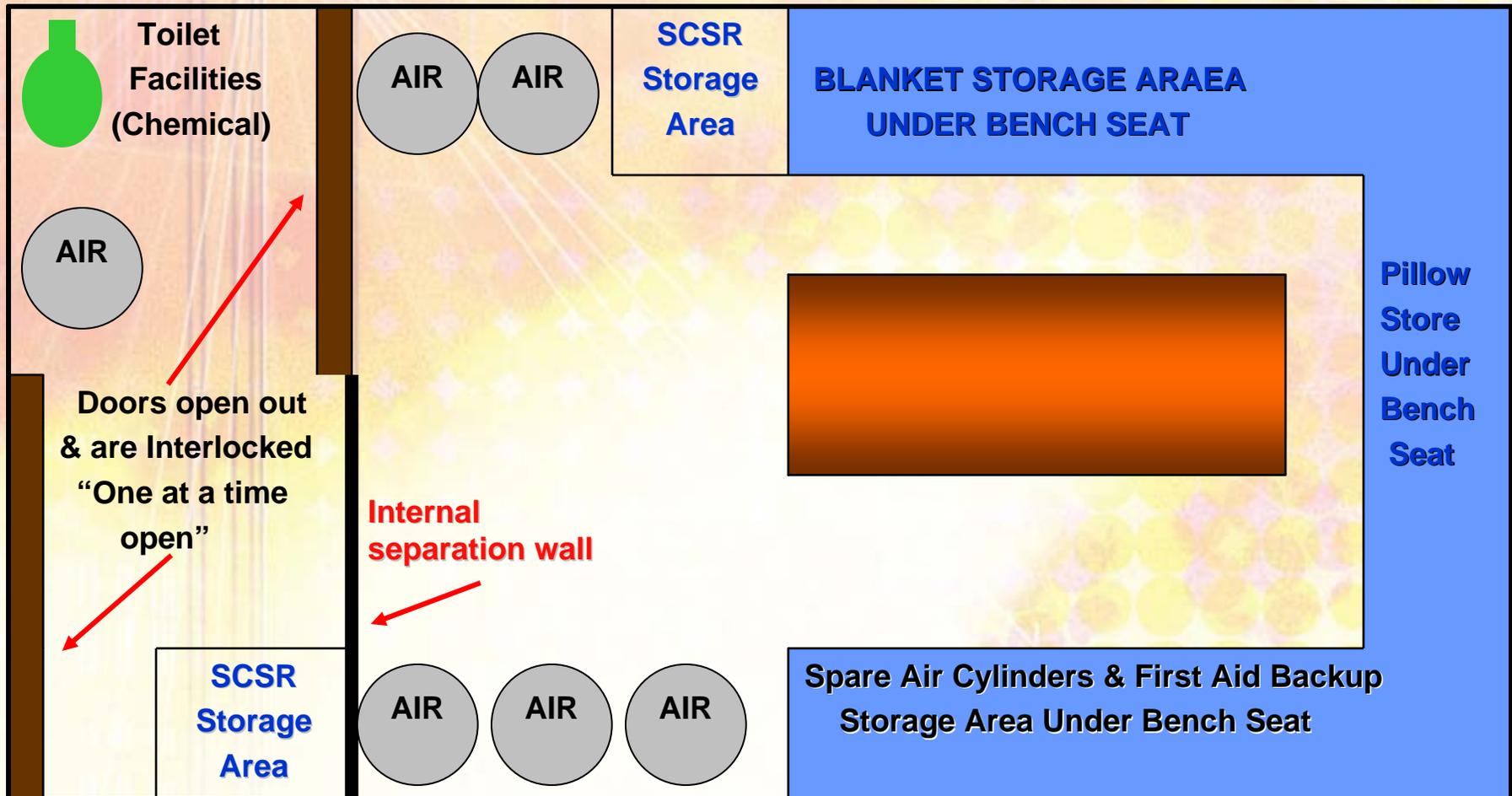
THE PHOENIX CHAMBER

MINES... with established refuge chambers afford greater protection for all people underground.

MINES... can utilize this place of safety as a major communication link to the surface and give the mine worker a safe haven to 'sit it out' if this is the required course of action.

MINES ... in an emergency response mode now have time to plan the rescue and recovery effort that is not as time critical as **MINES** who don't have refuge chambers.

THE PHOENIX CHAMBER





THE PHOENIX CHAMBER

- The outbye door will open out to resist an over-pressure.
- The inbye door will open out to give an airlock arrangement.
- All corners braced for over-pressure resistance.
- The bench seat is to be designed as storage area for additional supplies like S.C.S.R.'s, blankets, first aid supplies, EMT kit for definitive patient care, oxygen (therapy unit), etc.
- Internal wall is filled with foam for insulation and comfort.
- Interlocked entry doors to guarantee an airlock arrangement.

PHOENIX FIRST RESPONSE

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