

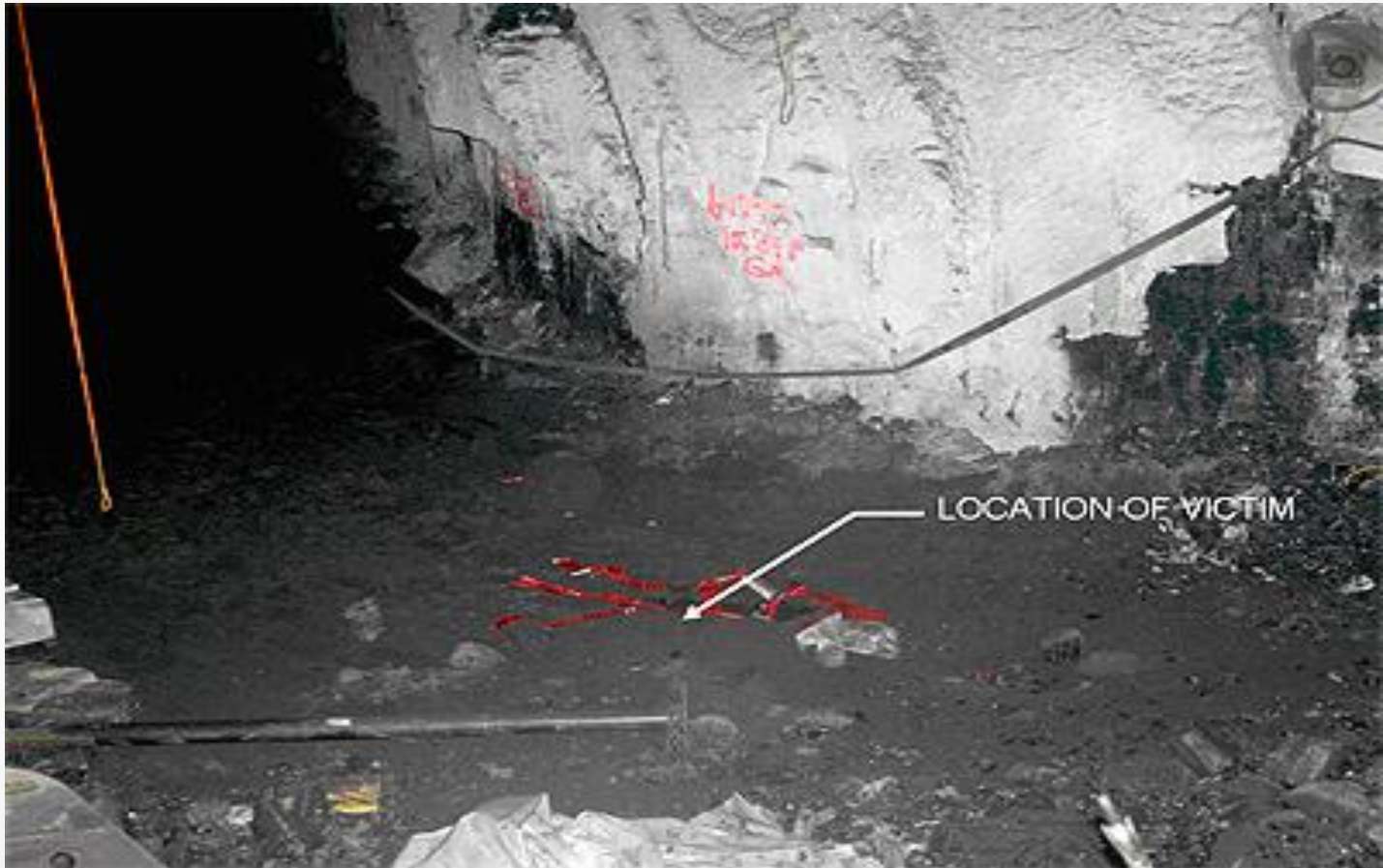
LONE MOUNTAIN
PROCESSING, INC.
CLOVER FORK NO. 1
Holmes Mill, KY

JUNE 16, 2010

FALL OF GROUND FATALITY UG COAL

- A 42 year old Section Foreman with 17 years of mining experience was killed when a portion of rib fell.
- The rib fall dislodged a roof jack, which struck the victim in the head.
- The victim and several crew members were standing in an intersection discussing control measures for the left inby rib corner, which had fallen into the roadway.

ACCIDENT SCENE



ACCIDENT SCENE



FINDINGS

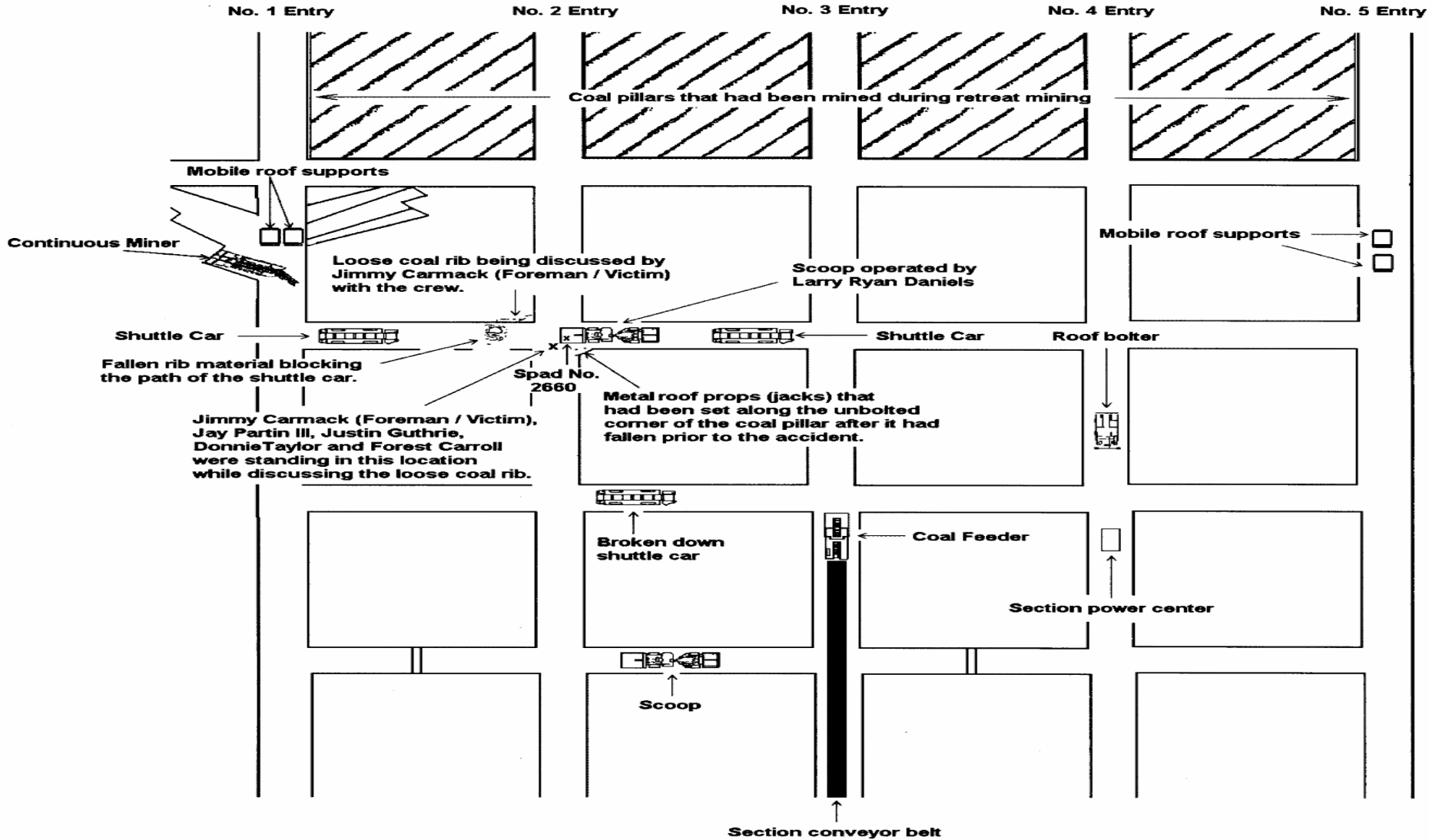
- Six members of the afternoon crew entered the mine via rubber tired diesel mantrip.
- The victim checked the No. 1 entry and directed the continuous miner operator to mine the barrier block left of the No. 1 entry.
- The section was retreat mining at the time of the accident.
- The first shuttle car of coal could not be transported to the dumping point because the left inby rib corner of the No. 2 intersection had fallen out, blocking the shuttle car roadway.

FINDINGS

- The victim directed the scoop operator to remove the fallen material from the roadway.
- The victim was standing in the intersection of the No. 2 entry discussing corrective measures for the area of fallen rib material.
- During the discussion, the right outby rib corner fell, dislodging two large roof jacks.
- One of the dislodged jacks struck the victim in the head, causing fatal injuries.
- The rib of the right outby corner had previously fallen out and three 50 ton roof jacks were installed to limit excess intersection width caused by the fallen rib.

Mine ID 15-18647

001 Section
The Accident Scene - No. 2 Entry

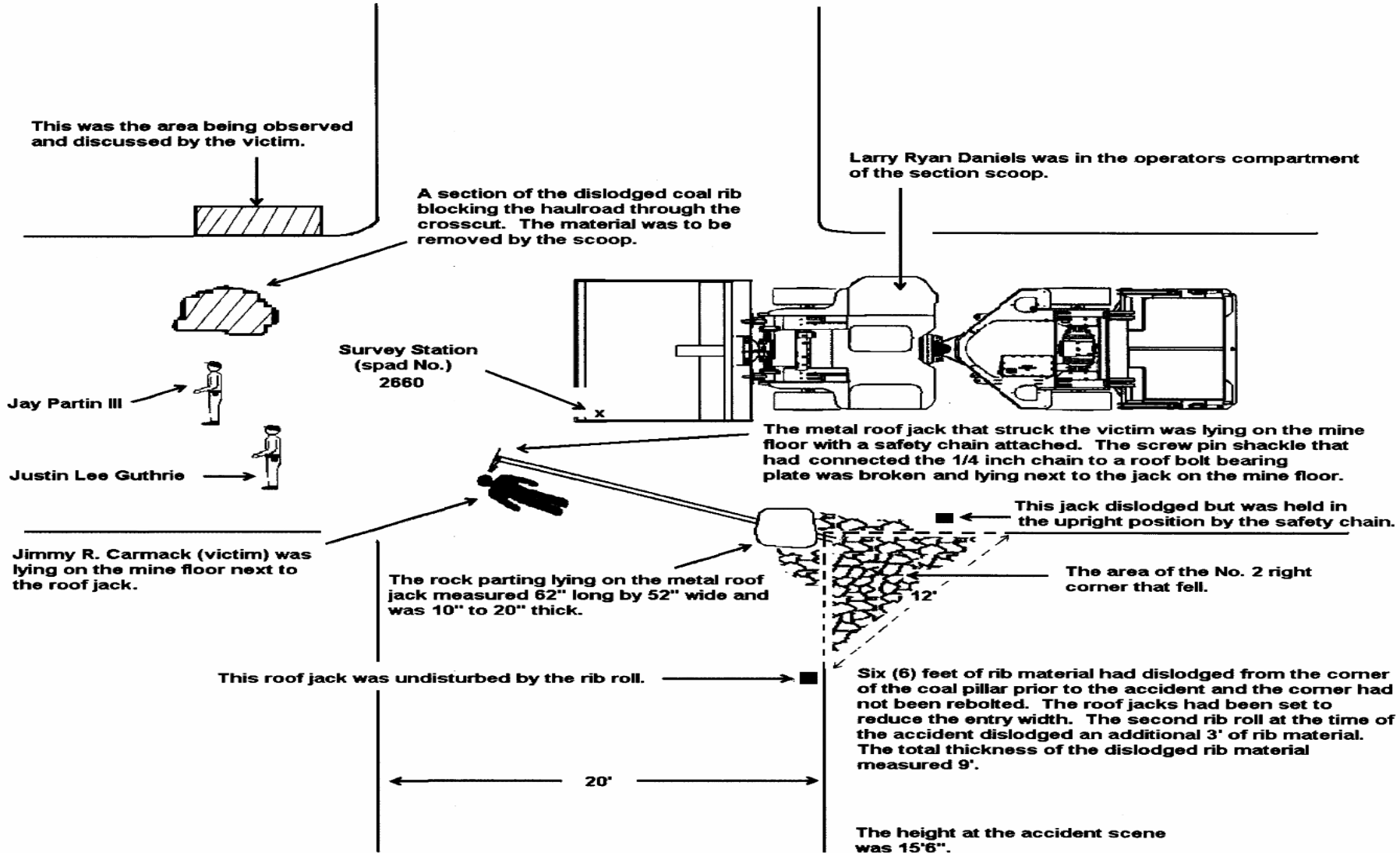


Sketch No. 1
Before The Accident
Not To Scale

**LONE MOUNTAIN PROCESSING, INC.
MINE NO. - CLOVER FORK NO. 1**

Mine ID 15-18647

**001 Section
The Accident Scene - No. 2 Entry**



**Sketch No. 2
After The Accident
Not To Scale**

HAZARDOUS CONDITIONS

**WHAT HAZARDOUS CONDITIONS/PRACTICES WERE
PRESENT?**

MSHA HAZARDS NOTED

- An examination noted extensive hazardous conditions in all five entries of the retreating section.
- Numerous loose and dangerous ribs were present at various locations in the immediate area where miners work or travel.
- Several of the ribs had previously fallen and the fallen material cleaned up with no additional rib support installed.
- No additional support was installed at locations where rib separation was apparent.

MSHA HAZARDS NOTED

- Several ribs were fractured and unstable because parts of the ribs had fallen off, exposing bearing plates and rib bolts, rendering them ineffective.
- Based on the pressure exerted on the coal pillars by the mine roof, it was apparent that adequate Pre-shift and/or On-shift Examinations had not been conducted for multiple shifts prior to the accident.

HAZARDS NOTED

- In the previous 26 shifts on the 001 Section, the record of examination recorded “draw rock/loose ribs” at all five pillars for each of the 26 shifts.
- The Dayshift Foreman stated that he noted “draw rock/loose ribs ten times in the examination record for June 16.
- The Foreman did not have metal support straps installed and did not take down any loose ribs or draw rock where miners were exposed to danger on the day of the fatal accident.

MSHA BEST PRACTICE

- Conduct roof evaluations when entering a previously mined area for the purpose of pillar recovery.
- Support loose ribs or roof adequately or scale down material before beginning work.
- Conduct thorough pre-shift examinations and on-shift examinations of the roof, face, and ribs immediately before work or travel is in an area and thereafter as conditions warrant.



MSHA BEST PRACTICE

- Know and follow the approved roof control plan. Take additional measures to protect persons if unusual hazards are encountered.
- Assure the roof control plan is suitable for prevailing geologic conditions. Revise the plan if conditions change and the support system is not adequate to control the roof, face, and ribs.
- Be alert to changing geological conditions which may affect roof, rib, and face conditions.



UNSAFE PRACTICES

**WHAT UNSAFE PRACTICES OCCURRED LEADING UP TO
THE FATALITY?**

ACCIDENT CAUSE

WHAT WAS THE ROOT CAUSE(S) OF THIS FATAL ACCIDENT?

MSHA ROOT CAUSE

- **MANAGEMENT FAILURES:**
 - Management failed to provide adequate support for the right outby rib in the No. 2 entry at survey station No. 2660.
 - An inadequate pre-shift examination was conducted by the Day Shift Section Foreman. Obvious adverse rib conditions existed in several locations on the 001 Section. The Foreman failed to either recognize or take appropriate actions to correct conditions during the work place examination. The hazardous conditions noted in the record were non specific and did not alert miners of the dangers that existed.
 - An inadequate on-shift examination was conducted by the Section Foreman.
 - The Operator failed to revise the Roof Control Plan when obvious conditions indicated the plan was no longer suitable for controlling the roof, face, ribs or coal or rock bursts.

MSHA INITIATIVE

- **Preventive Roof/Rib Outreach Program (PROP)**
 - Roof and rib falls continue to be a leading cause of accidents and injuries in underground coal mines
 - In 2010 more miners were killed in underground rib failures than in actual roof fall accidents
 - Approximately 100 miners are injured by rib falls every year
 - Approximately three-quarters of the rib fall fatality victims since 1995 were roof bolting machine operators or continuous mining machine operators
 - Rib fall injury rates increase substantially as mining height increases
 - Rib bolts provide the best protection against rib falls and are the most effective when installed on cycle and in a consistent pattern
 - Out of the 22 rib fall fatalities, only two had any rib support installed

Roof Bolter Operators:

Roof Control Begins With You!

- **Examine the roof bolting machine – make sure it is in proper operating condition.**
- **Make sure the ATRS reaches the roof even in the highest mined areas.**
- **Evaluate the roof between the ATRS and bolts – scale if necessary!**
- **Know what support to use in adverse roof.**
- **Know and follow installation procedures for the support to be used.**
- **Avoid shortcuts – spin and hold resin bolts properly.**
- **Remember to respect the ribs!**
- **Talk to your fellow workers about conditions you encounter.**



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RETREAT MINING

- Retreat mining is the last phase of a common type of coal mining technique referred to as room and pillar mining.
- In room and pillar mining a continuous miner bores a network of chambers or rooms into a coal seam, leaving behind an unexcavated pillar of coal in each room to support the roof of the mine.
- Room and pillar mining leaves behind approximately 57% of the mine's coal for support.
- Recovering this coal provides a strong financial incentive for retreat mining.

RETREAT MINING

- Retreat mining is a process that recovers the supporting coal pillars, working from the back of the mine towards the entrance, hence the word “retreat”.
- There are several techniques that may be used to support the mine roof and prevent roof falls like mobile supports or cribbing with wood or hydraulic jacks.
- One of the dangers associated with retreat mining is coal bursts.

RETREAT MINING

- As pillars are removed the pressure increases on the walls and remaining pillars.
- Pressure can intensify to the point that a wall will explode or a pillar will burst shooting material into the mine.
- The result can, of course, be fatal to nearby miners and can be complicated by localized roof fall.
- A massive pillar collapse can also trigger a domino effect on adjacent pillars causing catastrophic failure.

WHAT CONDITIONS DID WE SEE IN THIS FATALITY??

RETREAT MINING

- Retreat mining is almost exclusively a southern Appalachian practice, with 83% of the nation's retreat mining operations in eastern Kentucky, southwestern Virginia and southern West Virginia.
- These areas also account for the most deaths – 14 of the 17 fatalities during the last seven years.
- However in August, 2007 six miners were trapped in the Crandall Canyon Mine in Utah. During the rescue attempt a secondary collapse occurred ten days later, killing three and injuring six. The original miners were never found.
- Retreat mining had been conducted in portions of the mine, however the co-owner stated it was not taking place at the time of the collapse.

COMMENTS FROM KENTUCKY COAL MINERS

- **“YOU RUN FOR YOUR LIFE” (20 year coal miner)**
- **“YOU’RE DEFINITELY PLAYING RUSSIAN ROULETTE”
(Organizer for UMWA)**
- **“YOU REMOVE THOSE PILLARS, THE ROOF IS COMING
DOWN. IT’S INEVITABLE. (20 year coal miner)**