

BHP Billiton San Juan Coal Company

Enhancing the SCSR Program at San Juan Coal Company
April 21, 2008

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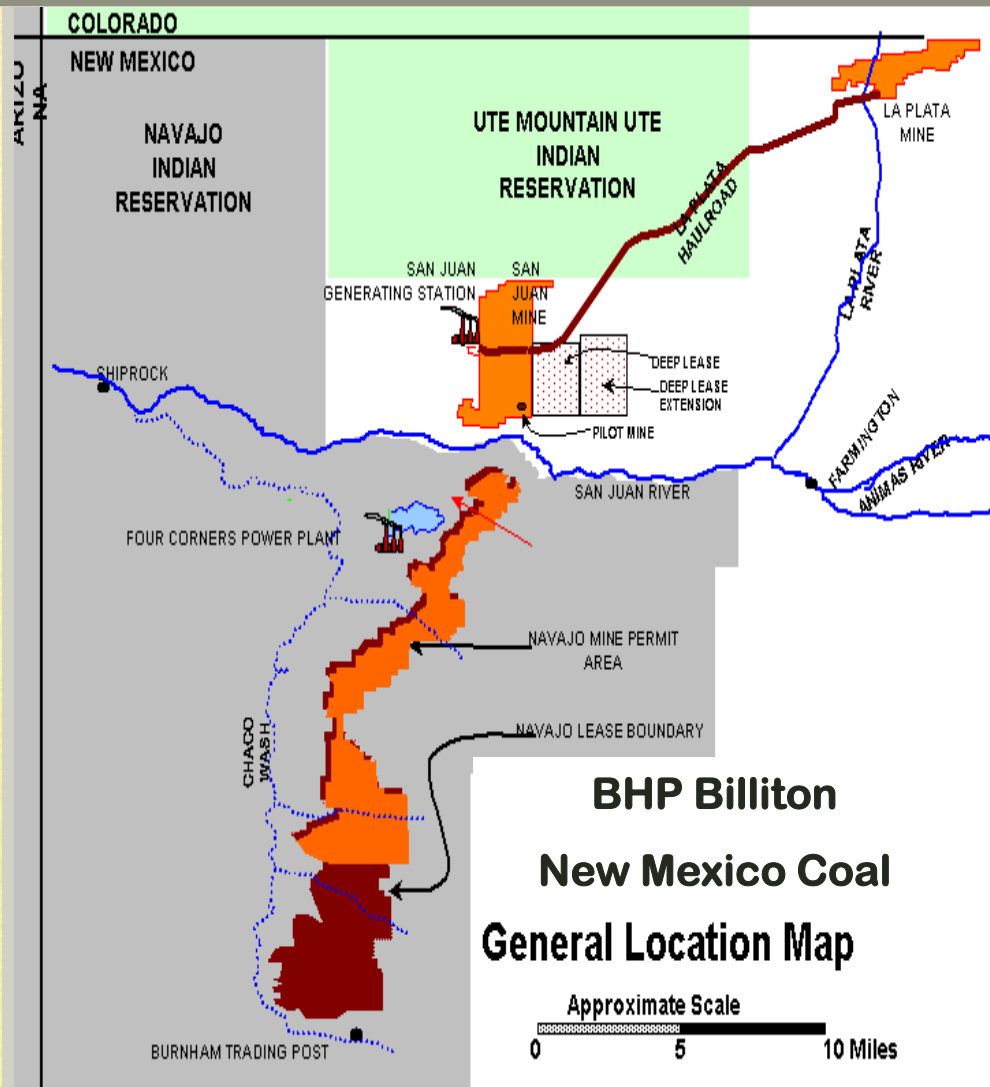
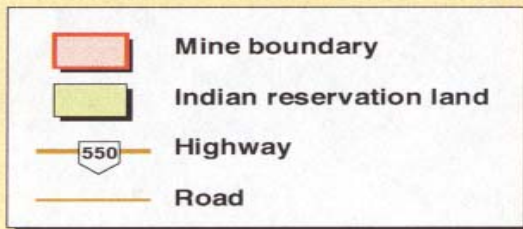
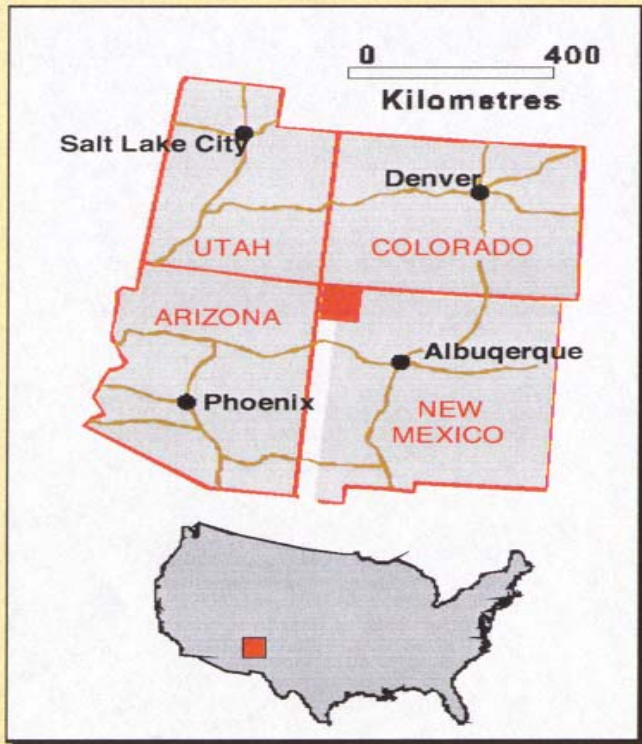


New Mexico Coal Operations

- San Juan, La Plata, and Navajo mines.
- Three sites 100% owned by BHP Billiton.
- San Juan and La Plata mines owned/operated by San Juan Coal Co. supplies coal to San Juan Generating Station
- Navajo Mine located on Navajo Nation lands supplies coal to Four Corners Power Station.



New Mexico Coal



Business Overview

San Juan Coal Company

San Juan Generating Station



San Juan River

6.5-7.0 million tons/ yr.

~~San Juan Mine~~



~~La Plata Mine~~



Underground



Four Corners Power Plant



8.5-9.0 million tons/ yr.

Navajo Mine



Navajo Coal Company

Structure driven by customer needs

Petroleum



Aluminium



Base Metals



Energy Coal



Diamonds & Spec Prod



Metallurgical Coal



Manganese



Iron Ore



Stainless Steel Materials



Moura No2 - 1994 Gas Explosion - 11 killed

Resulted in the following legislative changes:-

Queensland -

Only Self Contained Oxygen supplied self rescuers (SCSR's) will be approved for use in underground coal mines.

Sufficient SCSR's to allow all personnel to escape from the mine, travelling on foot in reduced visibility

Moura No2 - 1994

Gas Explosion - 11 killed

Resulted in the following legislative changes:

NSW -

Sufficient escape equipment to allow safe egress of persons from the mine through conditions of reduced visibility and any irrespirable or irritant atmospheres that may be encountered

Effective September 1999.

Recent Events in the US

- US Coal Industry Impacted by:
 - Sago (12)
 - Alma (2)
 - Darby (5)
 - 29 others
 - 48 Total CY2006
(18 in CY2005)

- Australian Coal Industry - Zero

San Juan Coal Company Emergency Plans

- Overall systems developed to address:
 - Prevention
 - Detection
 - Suppression
 - Recovery
- Events of 2006 triggered review
 - Improvement opportunities identified to enhance the Recovery element.

New Regulations Enacted

- Requirements for additional SCSR devices in various areas of the mine.
 - For San Juan Coal Company it meant an order of 1400 additional units.
 - Old technology.
 - Equipment performance called in to question during 2006.
 - There were known problems with the technology.

Known Problems with SCSR's

- Nominal, Rated and Actual duration varied and limited.
- Inhalation temperatures & Unit become hot
- Talking is limited and not recommended
- Product recall problems - stopping mining operations.
- Difficulty in exchanging to a new unit (1 in 10)
- No indication of oxygen remaining
- Bulky to wear and work with
- Training units not realistic
- Guaranteed life of only 5 years



Consideration of Available Options

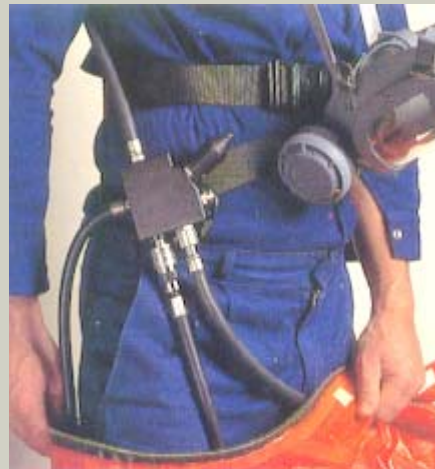
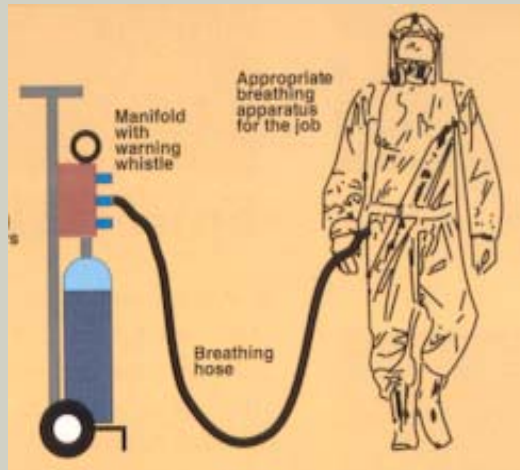
- Additional units of same type?
- Addition of another type?
- Evaluation of alternative systems.
 - Reviewed use of Compressed Air Breathing Apparatus (CABA) by some of our sister mines in other countries.
 - Review indicated that this CABA system overcame most of the problems associated with SCSR's.

CABA/SCBA Systems Investigated

The duration of CABA/SCBA had improved:

- 9 liter cylinder at 300 bar - 67 minutes
- 2 x 6.8 liter cylinders at 250 bar - 84 minutes
- 2 x 6.8 liter cylinders at 300 bar - 102 minutes

Developments in 'Fast Fill' systems added a new dimension.



Benefits of SCBA System

- Proven technology. (Fire Services)
- Positive pressure system. (Improved safety factors)
- Less breathing resistance.
- Less heat produced while wearing.
- System can be refilled while wearing.
- SCBAs can be used over and over, so you can train with the actual unit
- You do not break a seal when filling cylinders.
- Personnel can communicate with the unit on.
- Personnel have their eyes protected from smoke
- Refill stations used to replace majority of Outby SCSR storage.
- Little risk of personnel taking an additional unit
- Air supply is known (gauges) and cool
- Device is approved for fighting fire.
- 15 year service life.

Further Results of this Review

- Early warning systems were in place for both detection and communications (PED)
- In-seam escape aids (lifelines) had been installed in alternate escapeways previously.
- Contacted manufacturer of the Australian system to explore US availability
- Presented concept to MSHA & NIOSH officials.
- Approval for concept received in late 2006.
- Implementation plan approved in March, 2007
- Equipment deliveries began in July, 2007

SCSR Systems

Quarterly

- Physically donning of all types of SCSR's by all employees
- Full evacuation of all personnel.

Annually

- Functional test of 2% of SCSR devices.
- Tested devices must be replaced.

SCBA System

Quarterly

- Physically donning of all types of SCSR's & SCBA devices by all affected employees
- Full evacuation of all personnel.

Annually

- Each employee to wear a SCBA during one quarterly evacuation drill.

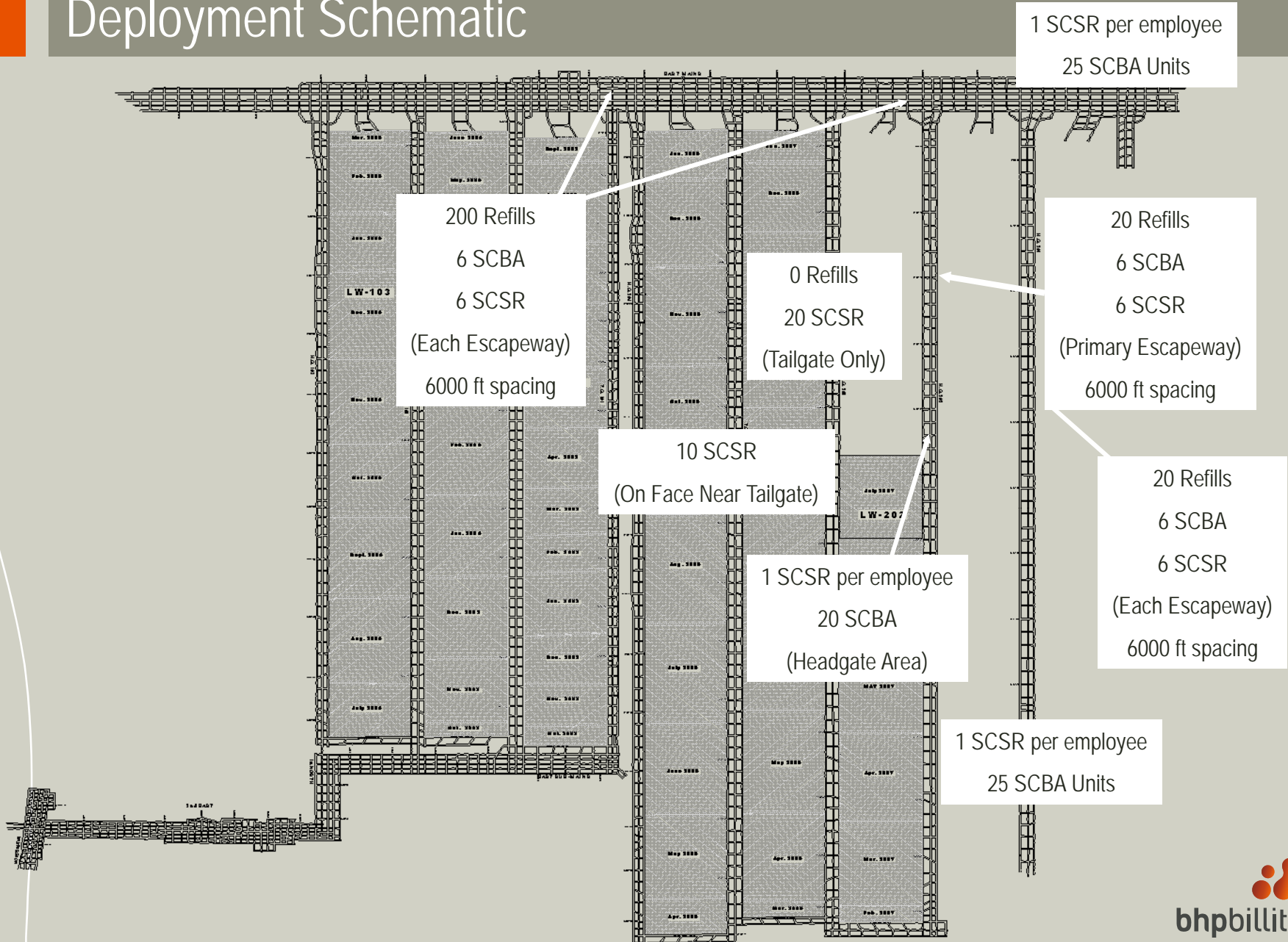


San Juan Coal Company SCBA system

SCBA device is integrated into the escape system and can be refilled during egress.

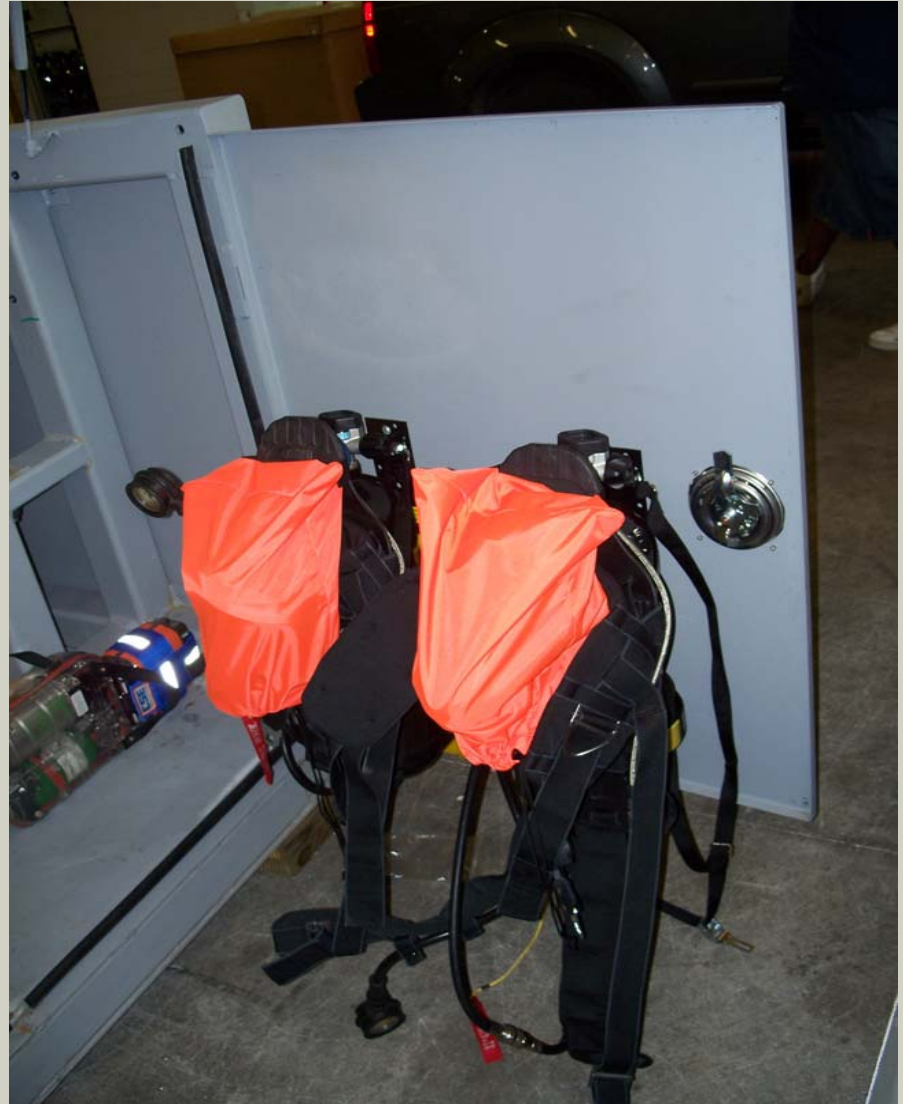
- ✗ SCBA units are integrated into the SCSR escape system.
 - ✗ Miners wear or carry a SCSR device.
 - ✗ SCSR storage along travelway provides a second SCSR during transit.
 - ✗ SCBA devices provide the additional SCSR on each working section.
 - ✗ Refill stations are located in each escapeway at intervals that match SCSR spacing.
 - ✗ Every 6000 feet, in each escapeway.
- ✗ Additional SCBA units are stored in these locations for use by Outby workers. They can also be used for emergency situations such as fighting a fire etc.

Deployment Schematic



SCBA Storage

- Standardized on 20-unit storage
- Other sizes available



Donning SCBA Units



Donning SCBA Units



Refill Station (40 Refills)



Refilling SCBA During Use



Ready In Less Than 2 Minutes

CAPABILITY:

To fill 2 x 6.8 CABA sets :-

- 17 from 50 to 300 bar
plus another
- 17 from 50 to 250 bar
plus another
- 17 from 50 to 200 bar

RESIDUAL IN BANK

(once dropped to 200 bar)

240,000 liters of air

OR

400 man hours at rest.

(10 l/min breathing rate)





Dräger



... as the ability to refill up to 100%

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