

HLOBANE MINE ACCIDENT

Introduction

On September 12, 1944, an explosion rocked the Hlobane coal mine near Vryheid. Fifty-seven workers were killed and six seriously injured. An inquiry into the disaster held at the time revealed that insufficient ventilation - while mining through a dyke (rock in the coal seam) - had allowed methane to accumulate in the mine overnight. When the miner in charge checked for methane, there was so much present that his lamp went out. The miner tried to relight his lamp, but in doing so ignited the methane, causing a massive explosion.

Exactly thirty-nine years later on Monday 12th September, 1983 the tragedy was repeated. Again an explosion tore through Hlobane colliery. In the days that followed the death toll from burns injuries and poisonous gases rose to sixty-eight. The Hlobane disaster is the worst since the Coalbrook colliery disaster of 1960, in which 437 miners were buried alive when the mine working collapsed.

Coal Mining in South Africa

In the past management regarded coal as a poor investment, the "down and out" of the South African mining industry. But the fuel crisis of 1973 changed this.

Profits from coal, climbed dramatically. Many new investments were made by multinational oil companies in joint ventures with South African mining houses. The number of workers on coal mines increased from 73000 to 129000 between 1973 and 1980, and production more than doubled. A quarter of total production leaves as export, making coal South Africa's second biggest foreign exchange earner after gold.

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The extent of South Africa's penetration in some foreign markets is indicated by the country's share of steam coal imports to Western Europe (for electricity generation) which rose from 4% to 37% between 1973 and 1980.

Inquest into the Hlobane disaster

The main danger in underground coalmines is methane gas. Methane is always given off when coal is mined. Regulations under the Mines and Works Act are supposed to reduce the chances of explosions happening.

The evidence at the Hlobane inquest showed that many of the regulations were ignored.

Methane gas explosions don't just happen. Three conditions must be met at the same time for an explosion to occur: there must be sufficient methane present, in a concentration between 5 and 15% , the methane must be ignited, the presence of methane must have gone unnoticed.

1. The level of methane

Air is circulated through the mine to get rid of any methane given off the rock faces.

The air is brought from the surface through "airways" and directed along the working faces by "brattice cloth", a type of curtain. At the inquest the mine ventilation officer, Mr P Shand, admitted that his records showed that frequently the stipulated amount of air did not reach the coal faces.

Even in December 1983, months after the explosion, many of the faces were still not being supplied with enough air.

Shand, claimed that in 11 years as ventilation officer for the Chamber of Mines, he had found that no Natal coal mine provided the correct amount of air to the faces at all times.

At the time of the explosion, mining was taking place through a dyke. Because more than the usual

amount of methane may be released when mining dykes, special safety precautions should be taken.

No action was taken and Shand had not even been informed.

To make matters worse the air reaching the working faces was reduced by more than half by holing into a return airway the Saturday before the explosion.

The effect of the holing was that insufficient air reached the working faces, allowing an explosive concentration of methane to accumulate over the weekend.

A miner, Mr R J Morgan, had been instructed to block the holing but did not do so. Although the mine officials on duty at the time realised the importance of the holing, they did not check that their orders had been carried out.

2. Ignition

Open flames are not allowed underground, and all pieces of machinery that may cause sparks have to be "flameproofed". Of the 29 pieces of machinery found in the section of the mine affected by the explosion, the inspector of machinery, Mr M J Klynsmith, said that 14 were not flameproof.

Any one of these machines could have sparked off an explosion. The court found that one of the machines, a coal scoop, had probably ignited the explosion.

3. Failure to notice the level of methane gas

Before workers enter the workings at the beginning of a shift, the miners and team leaders in charge of a section have to "make safe" and check for the presence of methane.

One week before the explosion, a miner, Mr T J Bezuidenhout, who was killed in the blast, reported that he had found 4% methane and spent half a shift clearing it.

According to regulations, where gas has been

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found in the previous three months, it must be reported by the mine management to the Inspector of Mines for investigation. The shiftboss and mine overseer decided that Bezuidenhout had made the report to cover up poor production. The overseer had scored out the report "to avoid hassles with the loss control department".

The regulations say that flame safety lamps should be used for finding methane. Only four of the ten lamps required by law were found after the explosion. Company officials admitted that the system for issuing lamps was a "free for all".

Mr J T Barnard who led evidence for the state, said the organisation of lamps "contributed to the circumstance of the explosion, where there were not enough lamps to test for gas".

Methane is lighter than air and tends to rise and form layers just below the roof of the workings. Although not required by law, a special tube to suck air from the roof must be fitted to safety lamps to detect these layers. At first the mine manager, Mr D Watson, claimed that nearly all the lamps used at the mine had these tubes.

When he later showed the lamps found in the blast area to the court, he was "disappointed" to find only one of the lamps had them.

In his evidence, Mr Ralph Boswell, Inspector of Mines, said that the death rate was extremely high for a gas explosion. In his view the initial methane explosion had not been severe, but was propagated by burning coal dust and brattice cloth. Workers were killed as far as 450m away from the source of the explosion.

The coal dust had probably not been watered down properly because of the frequent interruptions in the water supply. According to the regulations the brattice cloth should have been fireproof. The brattice material did not meet SABS specifications.

The inquest showed that little attention was paid to safety regulations on the mine. Mr Denis Kuny, who appeared for the families of five deceased workers, handed in a list of 21 Mines and Works Act

regulations which, according to the evidence, had been broken, some a number of times.

On the other hand, compared to other mines, Hlobane appeared to be a safety conscious mine. The mine manager claimed that the management held daily meetings where safety was always discussed. The mine had specific safety instructions and people were appointed to carry them out.

The Inspector of Mines who gave evidence said that Hlobane "was not a bad mine". By Chamber of Mines standards, Hlobane was a model mine. The Chamber awarded Hlobane four stars - five stars being the maximum - at the advanced level of their safety rating scheme.

International standards

NUM arranged for three international coal mine experts to attend the inquest to make sure that the families of the dead miners were properly represented. They found that South African regulations have fallen behind international standards.

For example, Dr R van Dolah, retired research director of the US Bureau of Mines Research Centre, commented that:

- * US ventilation regulations are much stricter than South African regulations.
- * Flame safety lamps are an outdated method of finding methane. In the USA and Europe methanometers are used. They can measure much lower concentrations of methane, and so give earlier warning of potential problems.
- * Many lives might have been saved if workers had been given self-rescue equipment which changes poisonous carbon monoxide to carbon dioxide, or provides fresh oxygen.

Dr H S Eisner, former Director of the Explosion and Flame Laboratory of the Health and Safety Executive, a UK state body, analysed South African coal mining statistics and found that deaths in underground South African coal mines are six times higher than

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in the UK and 1,6 times the USA. Because underground and opencast mining accident statistics were combined, he concluded that "published accident rates are misleadingly favourable".

Workers organise for safety

Black miners are exposed to the greatest dangers by working at the face. White mine workers spend less time at the face, but their wages are linked to the amounts their teams of black workers mine. So white miners have an incentive to neglect safety precautions in order to ensure that the miners spend more time mining.

In the past there was no way workers could demand safer conditions. The situation is changing with worker organisation. The Hlobane accident forced the NUM to take up the issue of mine safety. Since the Hlobane disaster NUM has ensured that workers have been represented at numerous inquiries into fatal accidents.

At West Driefontein, the right of management to force workers to work in unsafe areas was challenged. The mine management fired workers who refused to work in an area they believed was unsafe. NUM took the case to the industrial court and the workers have been temporarily reinstated.

A year ago, NUM applied for representation on the Safety Committee chaired by the government Mining Engineer, but was refused.

In December 1983, the Chamber of Mines announced that individual trade unions would be given representation on their Prevention of Accidents Committee, originally formed in 1913. NUM are now represented on the committee.

At NUM's second annual conference in December 1983, safety was an important issue on the agenda and resolutions were taken to negotiate safety agreements and appoint safety stewards.

The 39 years since the first Hlobane disaster have shown that management's safety rating schemes and regulations cannot be relied upon to ensure safe

working conditions. The Hlobane explosion in 1944 was a tragedy. The repetition of this tragedy in 1983 is a serious indictment of an industry that claims safety standards on a par with the rest of the world.

Johannesburg Correspondent, March 1984.)