MINING INQUIRY – BOX FLAT COLLIERY

REPORT, FINDINGS AND RECOMMENDATIONS

Before commencing its deliberations on the evidence which has been given before it, the tribunal must keep firmly in mind that the purpose of the inquiry is to investigate the nature and cause of the occurrence at Box Flat Colliery on 31st July, 1972, with the consequent loss of 17 lives, with a view to preventing any occurrence of a similar nature in the future. While it is obvious that this will involve a consideration of the conduct of various persons, together with the correctness, and possibly, reasonableness, of decisions made by them, it is not incumbent on this tribunal to make findings of negligence, or to apportion blame. However, this must not be taken to mean that we feel ourselves precluded from making adverse comment on the conduct of individuals should we consider such comment necessary.

The occurrence, the subject of this inquiry, was an explosion of considerable magnitude. The effect of this explosion was seen in all outlets of both No.5 and No.7 mines, which were subsequently sealed at the surface. The initial task of the tribunal is to consider what caused the explosion. In order to do so, it is necessary to traverse, briefly, the evidence relating to events leading up to the explosion.

Mr Hardie, Inspector of Mines, gave evidence that he went to the colliery in response to a telephonic advice from Mr. Lawrie, manager of the mine, that a fire was burning in the mine. It was described to Mr Hardie as a small fire when first seen by Mr Lawrie at about 6 p.m. Mr Lawrie described the fire as being of 3 to 4 square feet in area when he first saw it. By the time Mr Hardie went down, accompanied by Mr Lawrie and others, the fire was burning fiercely, and was much bigger. At this stage, the movement of air was very brisk, to use Mr Hardie's words, although the ventilation had been reduced some time earlier. He went on to say that the air was flowing at a great velocity. He further said that it was apparent to him that the fire would not be extinguished by the application of water. After they been down for some time, Pat Farrell advised him that there was smoke coming down the intake, and advised getting the men out. All returned to the surface at about 10.20 p.m.

The presence of the smoke indicated re-circulation to Hardie. This was attributed to a change of pressure differential along the return airway, resulting in the opening of a pair of doors between intake and return, situated some 40 yards out-bye of the underground haulage. Mr Hardie, with others, went back into the mine at about 11.15 with a view to reaching the doors concerned and correcting the position. However, they were unable to reach the doors on account of smoke. A further attempt was made to reach the doors by travelling by way of the pit bottom using self contained breathing equipment. This attempt also proved abortive. Mr Hardie said, "At this juncture, it was apparent that our underground attempts to get around this fire in No.5 were finished. We had to try another avenue." He later added the remark, "We actually were in retreat from the fire, rather than advancing on it." They again returned to the surface, the time then being about 12.15 a.m. After further discussions, it was decided to investigate the practicality of cutting off the air intake from 7 to 5, which was feeding the fire in 5. Mr Hardie, Mr Lawrie and others boarded the No.7, man and supply rake, and again entered the mine. They returned to the surface at about 1.20 a.m. A further discussion took place. Basing their findings

on conditions observed in No.7, it was decided that it was feasible to make an attempt to control the fire by temporarily sealing off stone drives from 7 to 5, some 500 yards from the surface. A team of men entered the No.7 tunnel with the intention of carrying this decision into effect. A short time afterwards, John Roach, a member of the team, rang the surface and advised that smoke was backing against the intake in No.7, where previous airflow had been normal. Just after this, the explosion occurred.

We were satisfied, and accordingly find, that the causes of the disaster were:-

1. A spontaneous heating occurring in a pile of fallen coal in No.2 level of No.2 South Section in No.5 mine of Box Flat Extended Collieries on the weekend of 29th/30th July, 1972.

2. This heating was assisted by the eleven hour fan stoppage, during which period the reduced air flow allowed the heat generated to accumulate to a point of self-ignition.

3. Fumes from the fire became evident in the intake airway.

4. This heating developed into a large fire, which was assisted by the increased air flow when the mine fan was started.

5. Efforts to extinguish or seal the fire were unsuccessful.

6. An explosive mixture of gases generated from the fire, and possibly accompanied by water gas, was ignited. Coal dust was active in the explosions that propagated throughout the mine.

There is little doubt in our minds that re-circulation played a most important part in the events that night. It is clear that it was present at an early stage; certainly some hours before the explosion. Apparently, the significance of this condition did not impress itself on the minds of those responsible for the conduct of operations, or, if it did, they did not accurately assess the potentiality of danger arising from it. Further consideration must be given to this aspect, as the significance to be attached to the presence of re-circulation is of considerable importance.

Regarding re-circulation, it must be observed that it appears that no one questioned the course of conduct proposed, from which it follows that all present were apparently in agreement with the assessment of the position made by the manager, the Inspector of Mines and other members of the team when they conferred from time to time. There were other experienced men present, who were aware that re-circulation was taking place, but it seems that they did not direct their minds to the potential danger of explosion inherent in this condition; rather, it seems that they were more concerned with the danger of being overcome by smoke and gases contained in it. It appears that the failure of all these people to advert to the distinct possibility of danger from explosion stems from widespread lack of knowledge of the danger associated with conditions which prevailed that night. That they thought that there was still a chance of controlling the fire by underground sealing is made manifest by their going underground on the last occasion. Mr.Roach's conversations with the Inspector of Mines and the Mine Manager immediately before the explosion serves to confirm

this. It will be noticed that, even at this late stage, the efforts of all concerned and were directed to attempting to contain the fire.

Whether a more accurate assessment of the position should have been made, and the men withdrawn, is, no doubt, open to question, but the fact remains that not a single person put forward a contrary proposal at any stage. This takes us back to the proposal already enunciated, that lack of knowledge played a part in the events. It appears that this lack is general in the district, in as much as experienced and qualified personnel from other collieries comprised part of the Mines Rescue Team that night, and none of them appears to have adverted to the danger of explosion. This leads us to the conclusion that this is an area where the education of all personnel associated with mining might be improved.

Turning to the question of stone dusting, it is observed that the requirements of the Acts and Regulations were not complied with. Whether full compliance would have made any difference in the circumstances is not known, but the fact remains that there was not full compliance. According to the evidence, this is general in the district. Immediate steps should be taken to rectify this position.

With regard to Mr Sturmer's evidence relating to the previous smelling of 'fire stink', it is somewhat unfortunate that the investigation that followed did not include a sampling and analysis of the atmosphere in that vicinity.

We make following recommendations:

1. That, in conjunction with the New South Wales coal mining industry, a Safety in Mines Organisation be established.

   It is envisaged that the Organisation would not carry out the extensive research programmes dealt with in the establishments in the U.S.A., Great Britain or Europe, but rather that emphasis be placed on the practical demonstration of matters related to safety in coal mines and in giving mining personnel the opportunity of gaining first hand experience in the correct methods of dealing with full scale underground mine fires and the hazards associated with the varying conditions that may occur.

2. Because of the urgency of the matter, the following intermediate steps are recommended:

   a) That a literature review be performed of material concerning the fighting of mine fires and that a concise, easily read manual covering the cardinal principles of dealing with mine fires be produced and circulated.

   b) That senior personnel from all branches of the coal mining industry be brought together in groups to be advised by a fully competent person on the developments in techniques in fire fighting, of new equipment available, of explosive mixtures generated by a fire, of the production of water gas and on kindred matters.

NOTE:

The NSW coal mining industry should be invited to participate in the above matters.

3. COAL DUST

That there should be a complete review of the Act with regard to the treatment of coal dust, in accordance with up-to-date world wide knowledge on the subject, with special emphasis being placed on the application of stone dust in working and back-bye places.

The relevant sections of the N.S.W. Coal Mines Regulation Act could form a basis for the initial review.

4. FIRE FIGHTING

That fire fighting arrangements be instituted to include:-

a) Action Procedures.
b) Emergency communications:
   i. Special public telephone.
   ii. List of telephone numbers of key personnel and services.
c) Establishment of underground fire fighting depots.
d) Establishment of stone dust supplies underground, with reserve supplies on the surface.
e) Availability of a mine plan, accurate to within three months.
f) Provision of a duty roster for leaders and personnel.

That immediate withdrawal of all personnel from underground be effected once uncontrollable re-circulation of inflammable gases is detected.

5. MINE GASES

a) That detector equipment for immediate assessment of gases be available at mines.
b) That qualified persons and equipment for rapid analysis of gas samples be available in times of emergency.
c) That there be regular atmospheric sampling, analysis and recording of return airways and sealed areas.
d) That provision be made for atmospheric sampling from fan ducts and sealed areas.
e) That means be provided for the early detection of spontaneous heatings in mines so effected.

6. VENTILATION

a) That provision be made for the rapid sealing of districts and mines.
b) That unventilated dead-ends be avoided wherever practicable.

c) That periodic ventilation surveys be made to determine leakage between intakes and return.
d) That, where practicable, non-combustible materials be used in the construction of all doors, etc, between main intakes and returns.
e) That all mines should be continuously ventilated by a mechanical contrivance, unless otherwise authorised by the Chief Inspector.

7. FOAM GENERATORS

That the practicability of foam generators as fire fighting devices be examined.

8. SPALL FROM RIBS

That all efforts should be made to reduce spall of coal ribs to a minimum.

9. That any person who is appointed to make technical decisions that effect the Manager's authority regarding the safety of the mine must be qualified as a Manager under the Act and shall be responsible under the Act.

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I agree with the above findings and concur with the recommendations.

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WARDEN.
7th November, 1972.