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KALGOORLIE.

State Mining Engineer, 9th November, 1962.

Mines Department,

PERTH.

Australian Blue Asbestos Pty. Ltd.,

Mine Cave-in.

I was at Wittenoom from 27th to 31st October and togetherwith Inspector Ibbotson made continued inspections relative to the subsidence.

Inspector Ibbotson assisted by Workmens Inspector Hunt had the matter well in hand. Both these officers worked long hours covering all aspects relative to the subsidence and making underground inspections on both day and afternoon shifts in the collapsed and nearby areas, as well as working through the week ends.

District Inspector Ibbotson in his report dated 31st October covered the general position well.

All provisions made by Inspector Ibbotson proved very sound and his anticipation of the sequence of future movement proved correct.

Following discussions with Inspector Ibbotson and Mine Officials who made inspections throughout the duration of the mishap I am of the opinion that the original subsidence which took place on Sunday 21st October between 2 level 2 North and 4 level 2 North could be classed as a normal mine collapse risk. On the plan upon will notice that the lower seam working s in this area stopped between co-ordinates 500N and 700N.

This stope limit was occasioned by a possible faulted or broken area which allowed the ore body to become oxidised and weak and the company decided to allow no risk to be taken.

You will notice that a very wide stope drive was taken out between 2 level 2 North and 3 level 2 North and th few pillars were left in this area. As Inspector Ibbotson reported the stoped position North of this area has been regarded as poor holding ground.

I am confident that this area collapsed on Sunday 21st because of the poor holding quality of the ground in this area. This could have accelerated through insufficient pillars, but nevertheless in this worked out area, it was a normal mine collapse.

After the lower seam collapse in this northern Section much greater stress was applied on the pillars remaining in the area in which both the upper and lower seam had been mined.

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Under normal circumstances this ground would have held sufficiently to allow gradual subsidence over a long period in the worked out area. In this method of mining the ground should be brought down to prevent future air blasts.

An earth tremor was recorded on Monday 22nd Octobe and I agree with Inspector Ibbotson that this could have caused the major collapse. I base this opinion on the follo ing:-

The rock structure is one of stratified seams of different material.

The strata are not held together.

Experience in both the Wittenoom mine and the Colonial mine has shown that when falls do occur the differe strata peel off at different periods and between the pillars The ground flakes and there is no general fall.

There is no indication of any fall taking place in Wittenoom mine over the period under review.

Cracks on the surface some 400 feet above the workings indicate a sudden sharp action which one would not expect in this laminated structure.

Notwithstanding that the majority of the collapse was in a worked out area it was indeed fortunate that much more personal injury did not result. Much as I dislike the narrow workings it was the narrowness of the workings together with the remaining stopes of large area which alloc only a mediocre 'air blast'. The resulting air blast must have been of great discomfort to the men and possibly caused some injury but I found no evidence of an airblast of major proportion.

It was noticed that some pillars were crushed and collapsed whilst others, mainly from the upper seam, were at on one piece although they had been pushed through to the lower seam or level. This does not tell us anything becaus the country is cri ss-crossed with vertical cracks and some pillars would be totallycontained in these cracks.

There will be some more localised settlement subsidence but this will be closely watched by our Inspector and Mine Officials.

The mishap has created the following:-

No. 5 level turnout now provides sole access to th present mine workings.

Very little mining can be allowed eastwards of No. level.

The main exhaust airway of the primary circuit is at present lost.

The company must accelerate development.

The cracked ground can create a severe water problem when rain falls.

District Inspector Ibbotson and I carefully studi the position and discussed the matter in detail. We then conferred with Mr. Broadhurst, Manager Allen, and Undergrou Manager Shanahan.

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Our Mr. Robotson and I agreed that all the mine will have to be closely watched for some time, we would no yet make requests of instructions in writing. Any plans n made would no doubt be later modified, but the present obj would be to ensure an extremely high safety factor.

The company officials wholeheartedly concurred w: our tentative provisions.

Arrangements are:-

Milling:

In order to keep the mill operating and maintain employment, it is necessary to produce 300 tons of fibre p week. With this in view we made arrangements for mining.

Mining:

The No. 5 level turnout is now the sole access t the areas which may be mined. The upper seam which has be mined was 50 feet above the back of the drive here and the lower seam 30 feet above. A little of the lower seam has been mined out here but no more mining will take place over this section. The turnout drive junction is being heavily timbered.

Lower Seam:

The areas coloured green on the accompanying pla are at present the areas under consideration in which large areas will be left for pillar support. It is not intended that all this ground be left and Inspector Z Botson who is carefully watching the position will outline buffer pillars at least 150 wide when he is satisfied with the settling pattern. There will be little mining Eastwards of No. 5 le but some connections will be necessary for ventilation purp

All future access way will be protected by buffe pillars.

Upper Seam:

Mining on the upper seam will be carried out Westwards of No. 6 level.

I would prefer to leave more buffer pillars east No. 7 level but to keep the mine in operation it is necessa to have some working faces immediately. The buffer pillar to be left in the lower seam near No. 5 level will stabilis the ground and ensure safe working.

I had previously instructed the Company that on account of ventilation problems no further blind underhand stopes were to be made below No. 7 level. I now find that keep the mine producing I must for a while allow these stop to be advanced. I have not however withdrawn my instructio this will not be enforced until sufficient development is completed and whilst ventilation is maintained at the stope face.

Past Mining:

The Company's past theoretical system was to leav 6% of the ore body as pillars, but a study of the plan in the collapsed area shows that this did not eventuate in practice.

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If the pillars were 40 ft. by 40 feet then 9% of the ore body would have been left, however there are very few pill of this size, the majority being much smaller and consequer not enough support has been left.

Mining methods involve working the upper seam and later follow up by mining the lower seam some 20 feet below. No effort has been made to regulate the piller system so that the upper pillars are directly above the lo pillars. This is an insufficient support and unwise practi

Future Mining.

Mining Advances very quickly over a large area and therefore it is essential that sufficient pillars of adequa dimension be left remaining in a regular pattern.

If 10% of the ore body be left as pillar support in a controlled pattern, adequate support will be given. Th pillars should be 40ft. by 40ft. and spaced at 33 feet cent or with 23 feet clearance. Pillars in the upper seam shoul be directly above the respective pillars in the lower seam.

If larger pillars with greater spacing were left t ground would flake off the backs during mining operations a create a hazard.

Because such a vast area is to be mined I consider it a hazard to attempt to support the total area indefinite and mining methods will have to be altered. Both our Mr. Ibbotson and I consider that the safestway th mine this deposit is to develope to the required stoping boundary and on the retreat. The lower seam stopes would follow about 100 feet behind the upper seam stopes. Pillars would be le in a planned pattern and all pillars would be drilled. These pillars would later be fired and the stope collapsed. It may be necessary to leave buffer pillars in some areas.

Development is now lagging so in the meantime min methods must continue more or less on the old pattern but pillar size and design will be controlled, access ways protected and buffer pillars left.

Inspector Ibbotson is closely watching the matter, he will as soon as practicable, give specific instructions to the mine management and I have assured hi of our assist ance and support.

I must place on record my appreciation for the manner in which Inspector Ibbotson has tackled this unusual problem; I have every confidence in his work but then the Company has recovered from its initial set back I think we may have to give Ibbotson further personal support to see that his instructions are followed.

The collapse has upset the primary ventilation circuits, and as soon as Inspector Simons returns from Collie I will send him to Wittenoom to survey the problem and have new systems made.

Whilst at Wittenoom I noticed that the Mill dust was very bad. Most of the dust was produced from dry ore which was being supplied under unusual circumstances.

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Mr. Broadhurst however assured us that the Company was going ahead with the installation of the New Nylon bag filter system and would spend between £120,000 and £140,00 on the project.

SENIOR INSPECTOR OF MINES.