

SMA/jrw

29th January, 70

B/O The Chief Inspector of Coal
Mines.

For your information,

The Warden,
Mount Morgan District,
Court House,
East Street,
ROCKHAMPTON. 4700*G.E. Hardie*
G.E. Hardie
4-2-69

Dear Sir,

Gas Ignition Sirius Creek No.1 Mine
21st November, 1969

As you will be aware from previous newspaper reports, an ignition of methane gas took place underground at Sirius Creek No.1 Mine on Friday, 21st November last. The ignition resulted in the six persons associated with it being taken to hospital for treatment for minor burns to the exposed parts of their bodies. All of the persons involved were discharged from hospital within three weeks of the occurrence, but as they remained on compensation they left the Blackwater area to recuperate, and accordingly were not available to offer details in respect of the occurrence until mining operations recommenced this year. All persons have now resumed.

The persons involved were Messrs. O. King, Underground Manager, Sirius Creek No.1 Mine, A. Wrigley, Mine Deputy, W. Llewellyn and E. Lunn, Miners, B. Coleman, Fitter/welder, and F. Bird, Welder's Assistant.

The circumstances surrounding the ignition are detailed hereunder.

During the course of 1969 attempts were made to provide a second means of access and ventilation way from the underground workings to the surface at Sirius Creek No. 1. These attempts were associated with sinking a ventilating shaft from the surface into the workings. Beyond the sinking shaft it was the Company's intention to provide a second shaft to be developed by a system known as rise drilling.

Rise drilling is accomplished by using a rise boring machine which drills a hole approximately 10" in diameter from the surface into a working place underground in the mine. When the drill breaks through into the mine the drilling bit is detached and replaced by a reamer which, in the case of Sirius Creek, was some 7' in diameter. Rotation of the drill rods is recommenced and the reamer cuts its way back to the surface leaving the developed shaft behind it. Rock which is cut by the reamer falls into the mine and has to be loaded and taken back to the surface. The above system is entirely new to the coal mining industry in Queensland, but is a method regularly used in metalliferous mining. The only other mine known to have attempted rise drilling in coal measures is located in the U.S.A. and in this instance a rise of some 1,200' was established.

The 10" pilot hole drilled by the rise drill broke through into the workings on the 1st November. The bit was detached and reaming commenced somewhere about the 3rd November. Whilst the ground to be drilled was hard and dry, advance of the reamer was most satisfactory, but at a point approximately 200' from the surface, the machine encountered soft clay material and

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minor water flows. Such a situation presented a materials handling problem in the mine because the clay material which fell from the shaft was too soft to be handled by the regular equipment provided. Such was the situation on Friday the 21st November.

On this day the men employed underground were experiencing extreme difficulty in loading the clay-like cuttings on to the scraper chain conveyor for transport from the mine. This was brought about because the clay had to be scraped up a ramp and through a grizzly screen made up of four sections of railway rail. The grizzly screen is designed to prevent excessively large lumps of material from falling on to the conveyor and causing possible damage. In an attempt to ease the position, the Mine Manager instructed that two of the bars of the grizzly be removed before the start of the day shift on the 21st November. The intention was to increase the gap between the bars and so let the material pass through with less difficulty. The bars were removed but failed to produce the result desired. It was thus concluded that all the bars would have to be removed if the material was to be handled in an efficient manner. It was elected to cut away the remaining two rails using an oxy-acetylene torch during the mid-day crib break.

The manager authorised the use of the oxy-acetylene apparatus as was required by Rule 146b of the Second Schedule to the Coal Mining Acts, so that the work could proceed. Whilst the rules associated with oxy-acetylene welding and cutting do not require it, there is a policy at coal mines that such work is only done with all personnel out of the mine, and only those associated with the actual job remain on site. For this reason the fitter/welder and his assistant were required to do the actual cutting, the miners were retained to provide labour as required, and the two officials, the underground manager and deputy, remained on the site to be assured that safe conditions prevailed while the welding proceeded. As was required, the mine deputy thoroughly examined the whole of the area for the presence of inflammable gas (methane) using both a flame safety lamp and a methane detector, capable of determining fractions of a per cent. of such gas. As he could not find gas anywhere in the area, he permitted the oxy-acetylene torch to be lit and the cutting to commence.

One rail was cut and the torch extinguished. The cutting tip on the torch was cleaned and the flame relit, preparatory to making the next cut. With the flame alight a fall of ground occurred in the rise ventilating shaft, which was some 40-50' away and on the return air side of the cutting site. The fitter/welder, Brian Coleman, heard the fall and realising that gas may be brought down by it, went to extinguish the flame, but before he could do so, gas was swept over the cutting site and was ignited. All persons at the site suffered burns to their arms, legs and faces. Burns were largely either first or second degree. King, the underground manager, organised the men and arranged for their transport from the mine.

Prior to the fall which brought the gas from the rise shaft, there had not been any evidence of massive falls of material from such shaft and those on the site had not anticipated that such would take place. They were, however, aware that the rise could contain methane because such evolves from the coal seam at Sirius Creek and the strata adjacent to it. The gas would be expected to remain in the rise because it is only half as heavy as air and normally migrates to the highest point in any working place. Attempts had been made to keep the developing rise free of gas by a suction fan installed on the rise boring machine at the surface. Such fan was designed to extract the gas from the hollow centre of the drill stem. While this arrangement worked successfully for the first half of the shaft, it failed following this, in all probability due to the openings in the drill stem

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being choked with fine cuttings.

The gas which was brought down the rise by the fall would have been almost pure and would have required dilution by the mine atmosphere to put it in the range where it would burn. For this reason it is assumed that only the gas which came into the workings was associated with the ignition, and any gas which remained up in the shaft would have been too pure to burn.

Following the ignition several more large falls of ground took place from the rise shaft. The falls were of such magnitude that the manager would not permit persons to remain underground until some stability could be achieved in the shaft. This was attempted by having the mine drill on the surface started up and drilling the remaining 200', allowing the cuttings to fall and accumulate in the mine. This operation took until the 24th November and with the shaft holed through to the surface it was evident that cavities existed in the shaft sides because of the failure of several clay bands. Beyond this, a water bearing horizon was intersected and a flow of water assessed at 5,000 gallons an hour poured into the mine. To seal off the water flow and stabilize the clay horizons, a steel circular liner was lowered down the shaft and attempts made to introduce concrete behind the liner. This caused further shaft side failure with the loss of the concrete filling. The mine has filled with water and it is believed that the concrete has plugged the shaft bottom.

Recent inspections have revealed the workings to be almost completely filled with water and work is presently under way dewatering the mine. The site of the ignition has, for this reason, not been inspected, and will possibly not be available for inspection until the latter end of February.

I am confident, however, that the details set out in this report are generally correct in that they have been derived following discussions with all persons associated with the incident. I have taken statements from the Mine Deputy and the fitter/welder and have received reports from the Mine Manager and Mine Underground Manager, and all generally indicate a similar appreciation of the occurrence. Beyond this I have discussed the ignition with the other persons on the scene at the time, but because their appreciation is similar to that already detailed in the statements, I have not taken statements from them.

It is not my intention to request that a mining inquiry be held into this occurrence as I am satisfied that all relevant data has been revealed and beyond this, the Department has already taken action in respect of future requirements in respect of rise drilling. The matter of the use of oxy-acetylene welding equipment underground is the subject for early amendment so that this aspect requires no further clarification.

For your information I attach hereto, (a) copy of the advice received from R.J. Fraser, Mine Manager, Sirius Creek No.1; (b) copy of the report to the Mine Manager from C.J. King, the underground manager, Sirius Creek No.1; (c) copy of the statement Arnold Wrigley, Mine Deputy; (d) copy of the statement, Brian Coleman, Fitter/welder; (e) copy of the plan of mine workings, Sirius Creek No.1, showing various details associated with the incident.

Yours faithfully,

G. E. Hardie

G. E. HARDIE
Inspector of Coal Mines