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David Anthony KELLY

Findings and Recommendations

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The *Mines Regulation Act 1964* -

Findings and recommendations of reviewers and mining warden following an inquiry into fatal injuries received by David Anthony Kelly at Lead Smelter Gas Cooling Tower on 7 february 1991 warden's court of Queensland Mt Isa 9 march 1992

Before: Mr F W Windridge esquire Warden

Reviewers:

- MR C DESOE
- MR C WOLFF
- MR W BAGULEY
- MR G HUTCHINSON

To assist:

MR E WHEELWRIGHT, principal mechanical inspector.

Appearances:

- MR T P KELLY & S KELLY for next of kin
- MR G MOUSLEY, district workers' representative
- MR R B DICKSON, counsel for MIM
- MR G B FILL, solicitor for mine manager
- MR L A EVANS, solicitor, Gardner Perrot
- MR M FACEY, solicitor, Simon Carves

Witnesses examined: refer transcript and [schedule "a"](#)

Exhibits tendered: refer transcript and [schedule "b"](#)

Findings: refer transcript and [schedule "c"](#)

Recommendations: refer transcript and [schedule "d"](#)

Report of mining warden: refer transcript and [schedule "e"](#)

Schedule "A" Witnesses examined:

- Raymond Alexander SEYMOUR

- Paul Andrew BOUCKLEY-SIMONS
- John Peter CURRIE
- Desmond Gordon JENSEN
- Kevin Darcy McCARTHY
- Stephen Robert NEWMAN
- Kenneth John NASH
- Bevan John ROSSOW
- Conrad Wayne VAN EGMOND
- Max Frederick ROWLES
- John Marshall WELLINGTON
- Richard Phillip CROSS
- Graeme James KNUDSON
- Patrick ROCHFORD
- Malcolm Allan MACRAE
- Graeme Frederick McNAMEE
- Alan David DAVIES
- Frank William GRIGG
- David Leslie FINCH
- Gregory Robert YEOWART
- Darryl George STEPHENSON

Schedule "B" List of Exhibits

| No of Exhibit | Nature of Exhibit |
|---------------|--|
| 1 | Mine Manager's Report |
| 2 | 5 x B/W Photographs of Model |
| 3 | Area Survey Plan |
| 4 | Inspector's Report |
| 5 | Michael Gorey's Statement |
| 6 | Model (Held by Inspector at Mount Isa) |
| 7 | Record Book Entries |
| 8 | Statement - Bouckley-Simons |
| 9 | Statement - Currie |
| 10 | Statement - Jensen |
| 11 | Statement - McCarthy |

| | |
|----|--|
| 12 | Statement - Newman |
| 13 | Statement - Nash |
| 14 | Statement - Rossow |
| 15 | Police Report, Report to District Officer, Post Mortem Report, Post Mortem Examination Certificate |
| 16 | Inspector's Report Part 2 |
| 17 | Statement - Fulwood |
| 18 | Simon Carves Report |
| 19 | Statement - Rowles |
| 20 | Statement - Cross |
| 21 | Statement - Knudson |
| 22 | Statement - Rochford |
| 23 | Statement - Taylor |
| 24 | Statement - McNamee |
| 25 | Statement - Davies |
| 26 | Memo Davies re Design check |
| 27 | Frank Grigg Report |
| 28 | Photographs 4 Albums A-U |
| 29 | Statement - Yeowart |
| 30 | Statement - Stephenson |

Schedule "C" Findings:

We find -

Name of deceased: David Anthony Kelly

Date and time of accident: Between 10-10am and 10-15am on thursday, 7 february 1991

Date and time of death: Because of the severity of injuries sustained by deceased, death was virtually instantaneous.

Location of accident and death: Lead smelter gas cooler tower at the Isa Mine of Mount Mount Isa Mines Limited, Mount Isa.

Nature of accident:

On the morning of the accident, the sinter plant and blast furnace were shut down and a clean out of accumulated dust accretion in the gas cooler tower was commenced. Three men employed by the contracting firm of Gardner Perrott Pty Ltd and using specialised water jet tank cleaning equipment were engaged on this task. The crew consisted of the deceased, David Anthony Kelly acting as nozzle operator, John Peter Currie, radio communications officer, and Graeme James Knudson, water jet pump operator.

Kelly and Currie were on the platform at hopper level near the bottom of the tower. Kelly was directing the nozzle of a waterjet through an access hatch on the south-west side of the hopper washing accumulated dust from the crash bars above the buhler conveyor. Knudson was operating the water jet pump mounted on a truck parked at ground level in the north-east corner of the tower. Currie was acting as contact between Kelly and Knudson.

As Kelly continued to operate the water jet, the sub-structure supporting the tower began to collapse allowing the tower shell to drop vertically. The hopper at the base of the tower shell struck a concrete wall forming part of the old spray chambers above which the tower had been built. The shell then fell over to the north-east taking the downcomer duct with it and pushing over the steelwork on the north side. On striking the east wall of the old spray chambers and the ground, the shell of the tower split around its circumference into two parts.

When the tower began its initial vertical drop, Currie was moving away from Kelly towards the east side of the platform to communicate with Knudson below. He managed to scramble through the handrails and down steps to the ground escaping with little more than shock. Knudson was struck by loose falling steel and knocked to the ground receiving cuts and bruises. Kelly did not get clear. His body was found among collapsed steelwork in the old spray chambers. A post-mortem examination revealed the cause of death to be transection of the cervical spinal cord due to (or as a consequence of) haemopneumothorax.

Cause of accident:

The gas cooler tower was constructed by Simon-Carves Australia, division of Simon Engineering (Australia) Pty Limited and put into operation in late 1978.

From the outset the tower was not self cleaning, and lead dust build-up on the walls became a problem. This problem was relieved from time to time by "clean-outs" by high pressure hoses, firstly by the lead smelter services, and lately by Gardner Perrott.

It appears that records about these clean-outs are incomplete, but we are reasonably satisfied such clean-outs seemed to decrease over the past few years. Between clean-outs there was a constant build up of accretion possibly from 2.5 to 10 tonnes per day, and from time to time, there were falls of accretion, ranging from minor to major.

From the evidence we are satisfied:

At the time of this accident, the sub-structure of the cooler tower and footings were overloaded, and failed.

The sub-structure supporting the shell of the gas cooler tower failed under the combined downward forces exerted by the dead load of the shell and its attachments, the live load of dust accretion adhering to the inside of the shell and in all probability the sudden impact force applied by a large mass of accretion falling from some height and striking the crash bars at the bottom of

the shell.

It appears that the south-west plinth was the most overstressed structural member, and was probably the initial point of failure.

The gantry structure was also overloaded and had the footing been of sufficient capacity to withstand the load, the gantry structure would probably have failed in similar circumstances.

Contributing factors to the collapse were:

The original design parameters were inadequate.

The performance of the tower never met its expectations in terms of accretion build up which in actual practice became excessive.

Attempts to rectify the problems were ineffective.

Reinforcing in the south-west plinth and structural strengthening of the gantry was less than optimal.

In spite of a general awareness of the problems, there was a failure to instigate adequate preventive procedures.

Schedule "D" Recommendations:

The recommendations of the reviewers are as follows:

Where communications of a serious import are received, a mechanism should be put in place for ensuring that positive action is implemented without delay.

For vessels and ducts in which accretion or attrition occurs, records of the rate of accretion or attrition should be kept and used to determine adequate and regular cleaning or rebuilding intervals. Suitable monitoring instruments should be used.

Vessels of this type should be prominently marked with a safe working load capacity.

Consideration should be given by operating companies that the design, construction and modification of major structures be signed off by a qualified structural engineer.

Schedule "E" Report of the Warden:

I concur with the findings of the reviewers as to the nature and cause of the accident.

The inquiry is closed.

13 march 1992

Last Updated 21 October 2007

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Great state. Great opportunity.