BEACONSFIELD INVESTIGATION REPORT

ANNEXURE "BD"

REPORT ON OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT AT THE BEACONSFIELD JOINT VENTURE GOLD MINE, TASMANIA UP TO AND INCLUDING THE TIME OF THE ROCK FALL INCIDENT AT THE 925 LEVEL OF THE MINE THAT OCCURRED AT AROUND 9.23PM ON 25 APRIL 2006, RESULTING IN THE DEATH OF LARRY PAUL KNIGHT AND THE ENTRAPMENT OF TODD ANDREW RUSSELL AND BRANT GEORGE WEBB

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Abbreviations Used (and some key definitions)

2CG	- Middle conglomerate unit within Salisbury Hill Formation
ALX	- Allstate Explorations (joint party venture with BGM)
AMWU	- Australian Manufacturing Workers Union
AS	- Australian Standard
AWA	- Australian Workplace Agreement
AWU	- Australian Workers Union
Back	- Ceiling or roof of an underground opening
Backfill	- Waste material used to fill void created by mining
BBS	- behaviour based safety
BGM	- Beaconsfield Gold Mine
BMJV	- Beaconsfield Mine Joint Venture
Brow	- Threshold (edge) of an open stope
CFMEU	- Construction, Forestry, Mining and Energy Union
CG	- Conglomerate
CHF	- Cemented Hydraulic Fill (mix of 10% cement with hydraulic fill)
COZ	- Conglomerate Overlap Zone
CRF	- Cemented Rock Fill (a mix of 5% cement slurry and waste rock)
Crown Pillar	- Traditionally term used to describe the regional pillar to isolate ground surface influence from the near-surface underground workings at the time of mining. Term has been extended to refer to regional barrier pillars between previous overlying mine workings and the workings at the time of mining.
Decline	- Sloping underground opening for machine accessing level to level
EBA	- Enterprise Bargaining Agreement
ESR	- Employees' Safety Representative (under Tasmanian *WHSA*)
FAC	- fresh air current
FoG	- fall of ground
Footwall	- Wall or rock on the underside of a vein or ore structure
GAT	- ground awareness training
GCMP	- ground control management plan
Hanging wall	- Wall or rock above a vein or ore structure
(iw)	- Indistinct word (in transcript of record of interview)
JSA	- Job Safety Analysis
KPI	- Key performance indicators (specific measures of organisational performance)
LTI	- Lost Time Injuries
LTIFR	- Lost Time Injury Frequency Rates
Map3D	- Software for modeling the stress response of rock mass to mining
MARCSTA	- Mining and Resource Contractors Safety Training Association
MIAC	- Mining Industry Advisory Committee (WA)
mL	- metre level (below ground)
M_L	- Magnitude Level (of seismic event)
MSAC	- Mine Safety Advisory Council (NSW)
MTI	- Medically Treated Injuries
Offset Fault Zone	- Zone where F1 Footwall Splay separates from the Tasmania Reef
OHS	- Occupational Health and Safety
OHSM	- Occupational Health and Safety Management
OHSMS	- Occupational Health and Safety Management System

Pillar	- Block of solid ore or rock in place to structurally support the hanging wall. It should be noted that pillars will not always be left permanently in place as some mines adopt 100% extraction method.
PPE	- Personal Protective Equipment
RAC	- return air current
ROI	- Record of Interview (carried out by the Investigation)
SCR	- Safety case regime
Sill pillar	- A long thin pillar left as one stope is mined out toward an upper stope. The pillar thickness must be sufficient to maintain a safe base of operation above and below to withstand the retort after the fragmented mass is formed as a result of production blasting
Stope	- Excavation in a mine from which ore is being extracted
SWP	- Safe Work Procedure
TL	- Team Leader
Wet Beds CG	- Upper conglomerate unit within the Salisbury Hill Formation
WHSA	- Workplace Health and Safety Act (Tasmania), 1995
WST	- Workplace Standards Tasmania

Investigation into the mine collapse at the Beaconsfield Gold mine on 25 April 2006

Scope of Investigation

With the objective of ensuring that there is a full and proper investigation of the cause of the incident at the Beaconsfield Gold Mine (`the mine') on 25 April 2006 which resulted in the death of Larry Paul Knight and the trapping of Brant George Webb and Todd Andrew Russell (`the event'), the investigation is to consider and report on:

1. The cause of the event;
2. The adequacy of processes and procedures established by the owners and operators of the mine and Workplace Standards Tasmania to ensure that the obligations imposed by Workplace Health and Safety Act 1995 were adhered to;
3. The steps that should be taken by the owners and operators of the mine to ensure that the health and safety requirements of the Workplace Health and Safety Act 1995, including measures to prevent or lessen the risk of a repetition of the event or similar events, are maintained at the mine;
4. Matters incidental thereto.

In considering and reporting in accordance with the above terms of engagement, the investigation is to include but not be limited to consideration of whether the following factors caused or contributed to the event, namely:

a. the design of the mine;
b. operating standards, practices and policies;
c. maintenance standards, practices and policies;
d. corporate managerial and administrative arrangements;
e. management practices and policies;
f. the employment regimes in place at the mine, and the opportunity for safety training independent from the employer;
g. risk management procedures including risk assessment methods;
h. emergency procedures including procedures for escape and rescue in force at the time of the event;
i. any relevant changes in the standards, practices and policies referred to in sub-paragraphs (a) to (g) including which had taken place before the event;
j. whether any previous incidence of seismic activity in the area of the mine was properly taken in account in relation to sub-paragraphs (b), (c), (d), (f) and (g) inclusive;
k. whether the mining work in the mine did or was likely to cause or increase seismic activity in the area of the mine; and
l. whether there was any breach of, or non-compliance with, the requirements of any relevant statute or regulation in the operations of the mine.

The investigation is to engage experts as considered necessary to fully investigate and report in accordance with the above terms of reference.

Without limiting its scope, the investigation is to seek evidence from the family of Larry Paul Knight, Brant George Webb and Todd Andrew Russell, the Australian Workers Union and the owners and operators of the Beaconsfield mine.

The report on the outcomes of the investigation and all materials and information collected as part of the investigation which are relevant to causation are to be made available at the earliest opportunity for the consideration of the Coroner and, if considered necessary, the Director of Public Prosecutions. These matters are to be given priority in the conduct of the investigation to ensure that the Coronial investigation is not delayed. .

The investigation will have available to it all powers available to inspectors under the Section 36 of the Workplace Health and Safety Act 2005.

Sources used in this Report and Citing Conventions

This report is drawn from a number of sources.

First, analysis of documents provided by the Beaconsfield Mine to the Investigation as a result of requests made to the company, including the reports of consultants engaged by the company, minutes of meetings, memos, emails, statistics, audit results, seismic data, mine plans and a range of other material. Summary of toolbox minutes, including information on ground support and other matters relevant to the inquiry are to be found in Table 2. A more select set of toolbox minutes material together with summary information from shift supervisor and management meetings, consultant's reports, rockfall reports, company memos, investigations of incidents and other material deemed relevant to the evolution of OHS management at the mine, the issue of seismicity and dealings with WST are included in Table 3. Table 3 is arranged chronologically to provide a timeline of developments.

Second, analysis of documents (including electronic records such as emails etc) provided by Workplace Standards Tasmania (WST), pertaining to their contact and dealings with the Beaconsfield Mine. Additional information, including statements by two inspectors, who visited the mine both before and immediately after the incident, and responses to specific questions posed by the Investigation were also examined. Information pertaining to WST contact with the mine is summarised in Table 3.

Third, analysis of WST and coronial records relating to investigation into fatalities in Tasmanian mines over the past decade, particularly where the fatality was caused by a rock fall. Other WST material deemed relevant, including a report prepared by Kathryn Heiler on OHS and hours of work in Tasmanian mines was examined.

Fourth, recent government reports/inquiries into safety in mining in other Australian jurisdictions (such as the 2004 Ritter report in Western Australia and the NSW Mine Safety review completed in 2005) were examined. A number of documents produced as a direct consequence of these inquiries were examined. Reports and statistics relating to mining safety, major hazard events, risk management and related matters in other Australian and overseas jurisdictions were also examined, as was both industry and government guidance material pertaining to rockfalls.

Fifth, direct interviews with all relevant managers at the Beaconsfield Mine (from shift bosses and engineers through to the underground mine manager, Patrick Ball, the head of the mine's geotechnical division, Peter Hills and the resident mine manager, Mathew Gill). Information was also sought and obtained from a number of former management staff at the mine. Shift supervisors were also interviewed. Given the smaller number of persons interviewed, the views and statements of individual managers and supervisors shift has been reproduced in some detail in this report (as a result it was not felt necessary to summarise these views in a table as was the case with 41 workers interviewed).

Sixth, direct interviews were conducted with Brant Webb and Todd Russell. In addition, interviews were undertaken with 39 other workers who were employed at the mine at the time of the incident on 25 April 2006 for which transcripts were made (a number of other workers were spoken to but only brief notes made because, for example they were mill workers, and their response although useful in contextual sense added nothing of substance in relation to the incident or OHS management at the mine). Workers interviewed covered a wide range of occupations at the mine (the overwhelming majority employed underground) as well as levels of tenure at the Mine (from 6 months to 11 years) and levels of experience in mining (from no prior experience to over 20 years prior experience in hard rock mining). Those interviewed included workers who had taken redundancy or left the mine following the incident as well as those still engaged at the mine at the time interviews were conducted, union members and non-union members, and direct employees of Beaconsfield as well as contractors (including labour hire mineworkers engaged for Webb Mining). While the Investigation was not able to interview all mineworkers that were approached (the address of some former employees was unknown and others had left Tasmania) interviews were pursued to the point where clear patterns of opinion had emerged and additional contacts were not revealing new information pertinent to the investigation. Interviews included all those with direct knowledge of the incident of 25 April 2006. Worker interviews were analysed and responses to a number of key issues were summarized in Table 1 (along with any other comment deemed relevant to this report) that has been attached to this report. Despite some divergence of views (that is to be expected) clear patterns of opinion emerged and there is no reason to believe the responses obtained from the workers were in any way unrepresentative of workforce opinion. For example, in relation to the issue of pillar removal experienced mineworkers expressed a similar view, irrespective of whether they belonged to a union or were direct employees of the Mine or contractors. Further, the mineworkers unable to be contacted included persons that there was some evidence that they might hold negative attitudes to the Mine or its management as well as those where no such deduction could be made. At various stages during the Investigation it was suggested that criticism of the mine, including its approach to safety, was confined to a small and unrepresentative minority of workers (notably a group of union members). This was not the case and the report has identified the employment and union membership status (where known) of all workers cited.

It might be suggested that to provide a summary of worker viewpoints in Table 1 but not include a summary of interviews on the same issues with managers is unbalanced. In response to this suggestion it should be noted that many of the questions asked (and reproduced in Table 1) were specific to the experience of mineworkers and would have had limited relevance for many if not most managers interviewed (for example evaluating the adequacy of their induction and training, whether they raised issues at toolbox meetings, their use of rock noise report cards, whether they felt confident to leave an area they believed to be unsafe, whether they had accepted redundancy due to safety concerns and their attitude to the bonus system). Moreover, the Table was a way of summarising mineworkers' attitudes to a number of issues that were critical to safety at the mine (or needed to be tested in this regard), information from which the report could then draw on without cluttering the main body of the report with repetition. It was also a basis of

demonstrating that those comments and viewpoints incorporated into the body of report were not unrepresentative. The report had to distil the views of 41 mineworkers interviewed and the Table was useful in this regard, as well as providing a point of reference to those reading the report. No such summary was required with regard to the four shift supervisors and six managers engaged at the mine whose views are extensively canvassed in body of the report (in addition to the training officer Paddy Hampton, Rex Johnson's assistant Craig Large, and Carolyn Russell).

Seventh, direct interviews with officers of all unions with members at the Beaconsfield mine including the Australian Workers' Union (AWU), Construction Forestry and Mining Union and the Australian Manufacturing Workers Union. In addition, the AWU/Knight Family made a written submission to the investigation, which in part summarized information obtained from interviews it undertook with workers. At relevant points, issues raised or claims made by the AWU submission have been included so that they can be evaluated in the light of the evidence (as have a number of contentions made by the Mine) and this inclusion should not be interpreted as indicating that these views have been accepted. Whether these points have been accepted is made clear by conclusions drawn at various points in this report (either by direct reference or default). The AWU/Knight Family submission identified a number of serious concerns about safety at the Mine and as such they needed to be raised and explicitly addressed so far as was possible by both the Investigation and this report. The union also supplied, with the approval of the workers involved, preliminary statements of a number of workers it obtained in relation to the incident (Garth Bonney, Mark Crawford, Philip Malkin, Chris McKay and Peter Schleich). These statements pertain to workers not interviewed by the Investigation (hence there is no overlap with the interviews summarized in Table 1). Further, Dr Yossi Berger, OHS officer with the AWU provided two statements dealing with the incident and the views expressed at a meeting of (according to Dr Berger) around 68 Beaconsfield workers held on 12 May 2006.

Eighth, direct interviews were undertaken with or information obtained from other persons, having knowledge deemed relevant to the terms of the reference of the investigation including Shane Knight (Larry Knight's brother), Caroline Russell (Todd Russell's wife who was also employed in the OHS office of the Beaconsfield Mine), former WST inspectors, the former general manager of WST, current WST inspectors, the author of a report into working hours at Tasmanian mines (Kathryn Heiler), and consultants who had undertaken tasks at the mine.

Ninth, information was obtained from a report on the mine prepared by a geotechnical expert, Mr Scott Marisett, who had considerable experience in seismically active mines and geotechnically-based mine design in both Australia and Canada.

Tenth, other information deemed relevant for making an assessment of OHS management at Beaconsfield and the terms of reference for the Investigation were examined, including research into OHS management and mining safety, and reports on the mining inspectorates in other jurisdictions. The Investigation also sought and obtained additional

information from mining inspectorates in other jurisdictions (and would like to thank them for their cooperation).

Finally, it should be noted that in drawing on interviews considerable use has been made of direct quotations. All quotes have been put in italics. Repetition, non-essential points or the interspersed questions of the Investigation have been deleted wherever possible to keep quotes short without changing the sense or meaning of what was said. Where deletions have been made the point has been clearly indicated by the insertion of three dots (ie *"he stated...that the only reason"*). When selecting quotations for inclusion I have sought to draw on as wider array of individuals as possible so that the views expressed by mineworkers in the report can be seen as genuinely representative. Reference to the occupation or work group of an individual (such as Jumbo Operator or Service Crew member) refers to the position held at the time of the incident. When citing the page number of the Record of Interview (ROI) is quoted (eg p6 ROI). Where an interview has been transcribed in two parts the relevant part of the transcript is identified (eg p6 of part 1 of ROI). Where a person has been interviewed more than once by the Investigation and the statement is taken from a subsequent interview this is clearly identified (eg p6 of 2nd ROI). Where there is no designation of the transcript being taken from a subsequent interview in the case of a person interviewed more than once it should be presumed that the statement is cited from the first ROI. Finally, persons are identified by their full name in the first instance but their middle name is thereafter excluded (there being no instances where two persons referred to in the report had identical first names and surnames).

References in the Tasmanian Workplace Health and Safety Act 1995 and Tasmanian Workplace Health and Safety Regulations 1998 to Risk and duties of employers

Workplace Health and Safety Act 1995

9. Duties of employers

(1) An employer must, in respect of each employee employed by the employer, ensure so far as is reasonably practicable that the employee is, while at work, safe from injury and risks to health and, in particular, must –
(a) provide and maintain so far as is reasonably practicable –

(i) a safe working environment; and
(ii) safe systems of work; and
(iii) plant and substances in a safe condition; and

(b) provide facilities of a prescribed kind for the welfare of employees at any workplace that is under the control or management of the employer; and

(c) provide any information, instruction, training and supervision reasonably necessary to ensure that each employee is safe from injury and risks to health.

(2) Without limiting subsection (1), an employer must so far as is reasonably practicable –

(a) if hazards exist and have been identified to the employer, in writing, by the Director, monitor the health of employees in their employment with the employer to ensure the prevention of work-related injuries and illnesses; and

(b) keep records relating to work-related injuries and illnesses suffered by employees in their employment with the employer and retain those records for such period as is prescribed; and

(c) provide information to the employer's employees, in such languages as are appropriate, in relation to health, safety and welfare in the workplace (including the names of persons to whom the employees may make inquiries and complaints about matters affecting occupational health, safety or welfare); and

(d) ensure that any employee of the employer who is to undertake work of a hazardous nature, which, to the employer's knowledge, the employee has not previously performed, receives proper information, instruction and training before the employee commences that work; and

(e) ensure that any employee of the employer who is inexperienced in the performance of any work receives such supervision as is reasonably necessary to ensure the employee's health and safety; and

(f) ensure that any employee of the employer who could be put at risk by a change in the workplace, in any work or work practice, in any activity or process or in any plant –

(i) is given proper information, instruction and training before the change occurs; and
(ii) receives such supervision as is reasonably necessary to ensure the employee's health and safety; and

(g) ensure that any responsible officer, manager or supervisor appointed by the employer is provided with any information, instruction and training reasonably necessary to ensure that each employee under his or her management or supervision is, while at work, safe from injury and risks to health; and

(h) monitor working conditions at any workplace that is under the control or management of the employer; and

(i) ensure that any accommodation, or eating, recreational or other facility, provided for the benefit of the employer's employees while they are at work, or in connection with the performance of their work, and under the control or management of the employer, either wholly or substantially, is maintained in a safe and healthy condition.

11. Duties of responsible officer

(1) A responsible officer must perform the duties of his or her employer under this Act at the workplace for which he or she is the responsible officer.

Penalty: Fine not exceeding 250 penalty units.

(2) A responsible officer is not to be taken to have failed to perform any duty of his or her employer under this Act if –

(a) it was not reasonably practicable for the responsible officer to perform that duty; or

(b) the failure to perform the duty was due to causes over which the responsible officer had no control and against the happening of which it was not reasonably practicable for the responsible officer to make provision; or

(c) the responsible officer used all due diligence to prevent the failure to perform the duty; or

(d) the responsible officer was unaware that he or she had been appointed, or was taken to have been appointed, as the responsible officer.

(3) Nothing in subsection (1) relieves the employer of performing the employer's duties under this Act.

(4) A responsible officer may be proceeded against and convicted of having failed to perform the duties of an employer under this Act whether or not the employer has been proceeded against or has been convicted of having failed to perform the duty.

14B. Service providers

A service provider must, so far as is reasonably practicable, ensure that in the provision of a service no person is exposed, or is likely to be exposed, to a risk to his or her health or safety.

Workplace Health and Safety Regulations 1998

15. Consultation

(1) An accountable person, so far as reasonably practicable, must ensure that consultation occurs with any relevant health and safety committee, employee's safety representative or employee –

(a) in complying with any identification, assessment or provision of these regulations; or
(b) if a proposed change in the workplace is likely to have a significant detrimental effect on the health, safety or welfare of any person.

Penalty: Level 2.

(2) The accountable person must give proper consideration to the outcome of any consultation undertaken.

Penalty: Level 2.

17. Hazards and risks in workplace

(1) An accountable person, as far as is reasonably practicable, must –

(a) identify all hazards arising, or which may arise, in a workplace; and
(b) assess the risk associated with those hazards; and
(c) implement appropriate measures to control that risk.

Penalty: Level 3.

(2) In identifying a hazard and assessing and controlling a risk, the accountable person must consider –

(a) any relevant code of practice approved under section 22 of the Act; and

(b) any standard, rule, code or specification relating to the hazard of which the person ought to have been aware.

Penalty: Level 3.

18. Risk assessment

(1) An identification and assessment of the risks associated with a hazard must be undertaken at the following times:

(a) as soon as reasonably practicable after the commencement day;
(b) before the introduction of any plant, or substance for the first time at a workplace;
(c) before work of a type not previously performed at a workplace is commenced;
(d) when there is a change in the type of work, work practices or plant at a workplace;
(e) when new information becomes available concerning work, work practices, plant or substances at a workplace that may impact on the health or safety of an employee or other person at the workplace.

Penalty: Level 2.

(2) An accountable person must ensure a risk assessment which adequately addresses the hazards identified is undertaken by a competent person.

Penalty: Level 3.

(3) The accountable person must ensure that the risk assessment is reviewed and, if necessary, revised –

(a) as soon as practicable if there is evidence to indicate that it is no longer valid; or
(b) at intervals not longer than 5 years, if there is no such evidence.

Penalty: Level 3.

(4) If the assessment indicates a significant risk to the health or safety of any person, the accountable person must keep a written record of the assessment.

Penalty: Level 2.

(5) The accountable person must –

(a) keep the record of any assessment for a period of 5 years after the last revision; and
(b) on the request of a person who is or may be exposed to a risk to which the record relates, make the record available to that person.

Penalty: Level 2.

(6) A risk assessment may be carried out –

(a) on individual items of plant or substances; or
(b) if multiple items of plant or substances of the same design or composition are installed and used under the same conditions, on a representative sample unless the risk may vary from operator to operator.

19. Control of risk

(1) An accountable person must ensure that the exposure of any person to an identified hazard at a workplace –

(a) is controlled to eliminate or minimise the risk to the health or safety of the person; and
(b) does not exceed the relevant exposure standard.

Penalty: Level 3.

(2) The control of risk arising from a person's exposure to a hazard is to be achieved through the progressive application of the following control measures until the risk is minimised:

(a) firstly, the elimination of the hazard from the workplace;
(b) secondly, if elimination is not reasonably practicable, the substitution of the hazard by something that is a lesser hazard;
(c) thirdly, if substitution is not reasonably practicable, the isolation of the hazard from the person being put at risk;
(d) fourthly, if isolation is not reasonably practicable, the control of the hazard by engineering means;
(e) fifthly, if engineering means are not reasonably practicable, the control of the hazard by administrative means, including the adoption of safe working practices;
(f) sixthly, if administrative means are not reasonably practicable, the use of personal protective equipment.

(3) Where a significant risk remains after the application of the control measures set out in subregulation (2), the accountable person must apply a combination of those measures until the risk is minimised.

Penalty: Level 3.

(4) The accountable person must –

(a) adopt the highest ranked control measure or measures practicable; and
(b) provide proof that a higher ranked control measure was not reasonably practicable, if required by an inspector to do so.

Penalty: Level 3.

20. Provision of information

(1) An accountable person, if requested by another person, must provide to that other person any relevant health and safety information that is not commercially sensitive or of a personally confidential nature and that is necessary for that other person to fulfil his or her work-related obligations at that workplace.

Penalty: Level 2.

(2) Subregulation (1) does not apply to information that the other person could reasonably obtain by other means.

21. Monitoring

(1) An accountable person must ensure that a hazard at a workplace is monitored if –

(a) an assessment under regulation 17 indicates that monitoring of a person's exposure to the hazard is required; or
(b) personal protective equipment is required at the workplace to control the risks associated with the hazard arising from exposure to noise or airborne substances.

Penalty: Level 2.

(2) An accountable person must ensure that any measures applied under regulation 19 are monitored to ensure that they are operating effectively and providing an appropriate level of control.

Penalty: Level 2.

(3) The accountable person must ensure the hazard is monitored by a competent person.

Penalty: Level 2.

(4) An accountable person must keep a record of the results of all monitoring undertaken for a period of 5 years from the date of the last monitoring, unless otherwise required by these regulations or an approved code of practice.

Penalty: Level 3.

(5) An accountable person must ensure that an employee who is at risk of being exposed to a hazard which is subject to monitoring –

(a) is provided with results of the monitoring; or

(b) has reasonable access to any records of the monitoring.

Penalty: Level 2.

23. Action on reports of hazardous situations

When notified of a hazardous situation at a workplace, the accountable person in charge of the workplace at that time must ensure that action is taken as soon as is reasonably practicable to minimise any risk associated with that situation.

Executive Summary

1. This report describes and assesses the adequacy of occupational health and safety (OHS) management of the underground operations of the Beaconsfield gold mine in the period leading up to the rock fall incident of 25 April 2006, which resulted in the death of Larry Knight. Overall, the implementation of OHS management at the mine, while having a number of strengths, also suffered from a number of limitations. The report assesses whether these limitations contributed in any material way to the incident. It also makes assessments and recommendations in relation to the scope of the independent Investigation.

2. At the time of the incident Larry Knight, Todd Russell and Brant Webb were in the 925 west level near the stope brow constructing an AVOCA stope backfill barricade (bund wall with a mesh and wire rope wall installed above) to minimise backfill in the void between the 915 and 925 level created by mining (ie the removal of gold-bearing ore). Following the mine's procedures both Mr Russell and Mr Webb had checked for evidence of seismic activity before entering the area. After creating a two metre high bund of waste rock near (ie ½-1m) the stope brow, Mr Russell and Mr Webb were in the basket of the Telehandler (a versatile service vehicle with an extendable boom and lifting tynes like a forklift truck) driven by Mr Knight undertaking the task of installing eye pins into previously bored holes and then installing the mesh and rope wall. At 9.23pm a seismic event occurred, causing a series of rock falls that trapped Mr Russell and Mr Webb and caused the death of Mr Knight. Both Mr Russell and Mr Webb subsequently told the Investigation that there was no warning sign whatsoever of this. The Mine Rescue Brigade responded quickly and within a matter of hours a major recovery and rescue operation had been mounted. The body of Mr Knight was recovered three days after the incident and the trapped miners, Todd Russell and Brant Webb, were rescued 11 days later through a specially constructed tunnel.

3. At the time of the incident other mineworkers were engaged underground, including a number working at lower levels (ie below the 925 level). The seismic event caused rockfalls at different points in the 925mL in addition to the ones that killed Mr Knight and trapped Mr Russell and Mr Webb as well as further falls of ground at the 915mL and (according to a later report, Coffey, 2006 at page 22) at the 965mL. Shift supervisor Gavan Gregory Cheesman had visited the men shortly before the incident. As already indicated other falls of ground were associated with the seismic event on the 25th, including one near the access to the drive where Mr Knight, Russell and Webb were working that buried a bogger. A slight difference in timing could have had more severe consequences or it could have resulted in no injuries, as had occurred several times in the past. In this regard, it is worth noting that the substantial rockfalls at the 915mL associated with a significant (2.1 magnitude) seismic event on 26 October 2005 – about six months prior to the Anzac Day incident could also have resulted in serious injuries and fatalities but for fortuitous circumstances. Indeed, resident Mine Manager Mathew Damien Gill told the Mine's administrator, Mike Ryan, as much in correspondence

following the 26 October 2005 incident. The Mine has stated that the event on the 26th could not have resulted in an injury as it occurred in a designated no-entry zone. However, this statement needs to be seen in context. In his memo to mine administrator Mike Ryan dated 1 November 2005 entitled "Seismicity/Ground Control Management Status Report which deals with the October events under the heading 'preliminary observations' Mr Gill states *"Re-entry times were not a safety control measure at the time of the 26th event i.e. people and/or equipment could have been in the area at the time, but for the fact that it occurred at Firing Time, and ground support re-hab plans had yet to be issued following the event in the same heading on the 24th ...The size and surprise of the 26th event is a cause of major concern."* Further, at other points the Mine clearly acknowledges the October incident was a 'near miss', citing it as example of its use and responsiveness to a near miss reporting system.

4. The deceased, Larry Knight, was universally viewed both by workmates and management as a dedicated and competent mineworker – a reliable operator who would not take risks or cut corners in relation to safety (and it should be noted also very highly regarded as a person by his workmates). Larry Knight, Todd Russell and Brant Webb were undertaking their activities according to specified safe work procedures at the time of the incident and there is no evidence that their actions or inattention with regard to safety in any way contributed either to the rock fall or to their injuries.

5. There was a widespread view amongst workers and others (including managers and some consultants) that seismicity had been increasing at the mine for the 12 to 18 months (if not over a longer period) leading up to the incident of 25 April 2006. Increasing seismicity had, indeed, been fully expected by management as mining operations proceeded. A number of reports prepared by consultants also pointed to increasing seismicity at the mine both in terms of the frequency and magnitude of incidents (as did the report prepared by Scott Marisett discussed below). A significant number of mineworkers, especially experienced mineworkers, and the majority of shift supervisors, held concerns about mining and ground control methods, especially the removal of pillars, for some time prior to the incident of April 2006. The term pillar is used throughout this report (see definition in Abbreviations and some key definitions) as this is the term widely used by both managers, mineworkers and others in interviews and in the extensive documentation examined in the report (including consultants' reports). However it should be noted that pillars are not necessarily a permanent support feature of mining operations, depending on the extraction method (such as the 100% extraction method used at the Beaconsfield mine) or particular circumstances. Indeed, allowing pillars to collapse over time or the deliberate removal of pillars to redistribute the stress associated with mining may be critical to managing seismicity and the safety of mines. At the same time, as this report documents (see also Table 1) a significant number of mineworkers were concerned at the removal of pillars and the removal of some pillars in particular because they believed it compromised the structural integrity of the mine. The underground manager if not other members of the management team was aware of these concerns but despite some efforts had failed to allay them.

6. The Mine has argued that evidence from toolbox meetings; shift supervisor notes; weekly shift supervisor meetings; Zero Committee meetings; ABFA cards; incident, accident or near-miss reports; complaints to other staff, the AWU or WST do not indicate seismicity (and presumably related issues) was a significant issue for workers prior to the Anzac Day incident and nor was the matter raised at crew talks held by the Resident Mine Manager, Mathew Gill, or at monthly scheduling meetings. There are indeed few references to such concerns in written records of meetings. On 27 October 2005 following a rock fall in the 925 levels on the 9th, two seismic events in 915 on the 24th and a further seismic event/rock fall at the 915W level (the most serious the mine had experienced to date) a minute of the Cheesman crew toolbox minutes records Peter Purdon as having stated that no-one should be sent into 915/925. Further, there is a weight of evidence (in terms of statements made to the Investigation) that mineworkers held concerns about seismicity and mining methods prior to the Anzac Day incident, in interviews cited in the report itself and in the summary of responses of workers to be found in Table 1. These concerns were not confined to union members or direct employees of the mine and knowledge of these concerns was not confined to those who may have held grievances against management. Reference was made to the matter being discussed in crew meetings and at the pub as well as, the more disputed venue of toolbox meetings (where some mineworkers were emphatic the matter had been raised, and confirmed by one shift supervisor, but no manager attending these meetings could recall this). Todd Russell stated concerns about safety at the mine had caused him to considering resigning around Christmas 2005 – a statement corroborated by his wife and father-in law (who indicated Mr Russell had had concerns for 12 months prior to the incident). Another mineworker, Darren Geard, stated he put a note to the underground manager Pat Ball indicating that the 815 stope be left before someone gets killed – a note he said Mr Ball confirmed receiving. Most shift supervisors interviewed confirmed that they were aware of these concerns and indeed three of the four also held concerns about the safety of mining methods. Stephen Homan stated he went on extended leave after viewing the 26th October 2005 rockfall because he believed the mine was no longer a safe place to work. A third shift supervisor, Gavan Cheesman raised concerns at the removal of crown pillars with Pat Ball, an action observed by two other shift supervisors Dale Burgess and Stephen Homan and known to and generally approved of by a number of mineworkers (although I could find no record of it in the minutes of shift supervisor meetings). Other members of staff at the mine were aware of these concerns. Asked about mineworker concerns, Craig Large OHS technician assisting Rex Johnson told the Investigation (ROI p19) *"They were certainly following the October (2005) incident, I hadn't heard very much about it prior to that."* The fact that the resident manager was unaware of these concerns (he did attend a meeting where Purdon's concerns about 915/925 were minuted) could be taken as being consistent with other evidence about problematic communication at the mine. In sum, there is convincing evidence that mineworkers held concerns about the safety of mining operations prior to Anzac Day 2006 and had raised these with the underground manager. The limited documentation of worker concerns needs to be seen in the context of considerable evidence of inadequate consultation and participatory practices at the mine presented in this report. Other issues were identified as being difficult to raise or have discussed at toolbox meetings (like hours of work/shift rosters).

7. Over a number of years the Mine had engaged an array of expert consultants to help it track and management seismicity. Following event of 26th October 2005 management of the mine took a number of decisive measures, temporarily closing a number of stopes and engaging a number of expert consultants to assess the events and provide advice on stress measurement, suitable extraction methods and ground control measures to address the safety risks associated with seismicity. This included seeking an additional independent assessment from Peter Mikula. The recommendations of these consultants in relation to managing seismicity were largely adopted by the mine, with a number being implemented at the time of the April 2006 incident. The mine introduced checkerboarding in a modified form and also made changes to ground support in the 915, 925 and other levels of the mine, including the use of modified cone bolts in the 915mL though not the 925mL. A number of consultants alerted the mine to potential problems. Dr Glenn Sharrock stated that further significant events could be expected notwithstanding the introduction of a change to extraction sequencing referred to as checkerboarding (Dr Sharrock also questioned the depth of ground support although he was not engaged to review this). Another (Frans Basson at page 17) stated that for the mining proposed in April 2006 the two stopes on the 915mL and the stope on 925mL could mobilize the hangingwall fault and recommended the three stopes not be not be mined simultaneously, but in different periods of the month (for a fuller discussion see Marisett report).

8. The 26 October 2005 2.1 magnitude seismic event occurred in the Offset Fault zone of the mine while the 2.3 magnitude seismic event that occurred on 25 April 2006 (Anzac Day) is believed to have occurred between this zone and another known area of seismic activity, the conglomerate overlap zone. These zones had been identified for some considerable time as the most seismically active areas of the mine. Although seismic events in the conglomerate overlap zone had been comparatively small prior to the incident of the 25th April 2006 significant rockfalls had occurred in this zone well before the fatal incident (a fall the mine estimated at between 30 and 50 tonnes in the 840W drive 3 December 2004 and a fall estimated at 300 tonnes 840W/850W intersection 12 days later) and the risks associated with this zone were sufficient for warnings to be issued when mining operations approached it at least nine months prior to the incident. The substantial falls of ground associated with seismic events in October 2005 occurred in close proximity to the rockfalls in 925W (there were also associated falls in the nearby mining area) that buried the Telehandler, trapping Todd Russell and Brant Webb, and causing the death of Larry Knight. In the view of Scott Marisett (discussion with author) the April 25 falls of ground just referred to were located approximately 15 metres from rockfalls associated with a seismic event on 9 October 2005 and approximately 20 metres from rockfalls associated with seismic events on 26 October 2005 (the Mine has disputed this, indicating the distance in both cases, arguing it was around 25 metres). Another substantial rockfall that occurred at the 915mL on 3 March 2006 – about seven weeks prior to the fatal incident – was located approximately 10 metres directly above the rockfall that buried the Telehandler on 25 April 2006. Thus, in the six months prior to the fatal fall on 25 April 2006 there were three significant falls of ground (two in October 2005 and one in March 2006) in relatively close proximity in the 915 and 925 levels. These falls all occurred at times when the affected areas were designated 'no-entry' but were regarded as significant by management (resulting in major actions in October 2005

and the completion of a rockfall incident report in March 2006). The Chief Mines Inspector Fred Sears also indicated to the Investigation that he regarded all three rockfalls as significant and had he been notified of the fall of 3 March 2006 he would have regard this as a potentially serious matter in the context of the October 2005 events warranting follow-up and a visit to the mine.

9. This report makes reference to the report of Mr Scott Marisett, the geotechnical expert engaged to assist the Investigation, in order to contextualise, via an independent expert assessment (beyond my qualifications) whether there was any justification (even if only partly understood) to the concerns about mining methods and ground support held by some mineworkers prior to the Anzac Day incident. Mr Marisett's report also provided further expert insights into other matters relevant to this report, including whether there were any warning signals that should have alerted management to the likelihood of a serious incident, and the extent to which seismicity and related activity had been incorporated into the OHS management system at the mine (and whether a thorough risk assessment had been undertaken after the October 2005 and the role of consultants in this). As such, at a number of key points Mr Marisett's findings have direct relevance to this report. Mr Marisett's report identifies a number of deficiencies in mine design/mining methods, ground support and the monitoring and assessment of seismic risk (including rockfalls) in the period prior to the Anzac Day 2006 rockfalls (notwithstanding a significant upgrade of seismic assessment in 2005). According to the Marisett report, some evidence of these deficiencies was available to management prior to the Anzac Day 2006 and the mine had not undertaken a thorough geotechnical risk assessment following serious seismic events in October 2005. The role of expert consultants in providing advice to the mine on seismicity is also assessed in the Marisett report. According to Mr Marisett's report, based on his analysis of seismic data supplied by the mine, there was a significant an increase in micro-seismic activity in the mine and in the 940 mining block in particular in the week prior to the Anzac Day 2006 event. In Mr Marisett's view this 'spike' in seismic activity represented a significant increase in seismic activity and was abnormal compared to previous oscillations in seismic activity at the mine. In Mr Marisett's opinion, seismically active mines usually set an upper bound that triggers actions if it is exceeded as well as a process called Omori analysis which looks at the decay of the occurrences of seismicity after blasting or large seismic events. The Omori procedure had been used at the Beaconsfield mine on specific occasions but not for every stope. According to management it was still being implemented at the time of the incident. The Marisett report findings indicate that mineworkers had reason to feel concerned about the safety of operations at the Beaconsfield mine prior to the incident of Anzac Day even if their understanding of the deficiencies was incomplete or flawed. The Marisett report findings are also consistent with findings of this report in relation to limitations in the assessment of the risk of rockfalls at the mine (notably the number and nature of rockfalls prior to the Anzac Day event, the failure to undertake a thorough risk assessment following the October 2005 seismic events, the absence of 'red flag' protocols and ambiguities in the relationship between mine management and consultants. It should be noted that the mine has disputed virtually all of key findings of the Marisett report just mentioned (for example, contending that seismic activity prior to Anzac Day was expected and activity declined in the day immediately before the incident).

10. The Mine has argued that seismic events are unpredictable, a retrospective examination of data by consultants (Coffey, 2006) stated the Anzac Day incident was not predictable (in the executive summary at pi Coffey states *"...analysis performed on all data prior to the 25th April event indicated that the Beaconsfield environment had the potential to generate events with local magnitudes in excess of 2.0ML, however, it was not possible to predict either the time or location of large events"*) and the seismic hazard domaining study undertaken in early 2006 by another consultant engaged by the mine (ACG) amounted to a sophisticated 'red flagging' exercise. It is acknowledged that the mine went to considerable efforts to try and better understand seismicity, engaging a series of consultants over the years to do this, undertaking a major reassessment (including engaging a new independent consultant) following the serious seismic events in October 2005 and also undertaking back-analysis following the Anzac Day 2006 event. I claim no expertise in seismicity but as a matter of logic even accepting that specific seismic events may not be predicted there would seem to be little point in collecting seismic data at all if it had no precautionary value in terms of alerting to an increased risk of significant seismic events and clearly the mine was already using this data to close stopes, alter re-entry times and to enable shift supervisors to make informed judgments. From an OHS perspective the issue that was of some concern to this report was that there did not appear to be protocols in place that when seismic events in particular areas increased beyond those levels normally associated with firing this would result in the extended withdrawal of mineworkers from these areas and/or an urgent meeting of appropriate managers to consider if any action was warranted. The Beaconsfield mine may be in no way unique in this regard and this issue is raised as much in terms of the general improvement of OHS in the mining industry as to understanding the specific events of Anzac Day 2006.

11. In addition to trends in seismicity there was an ongoing pattern and problem with rockfalls (also referred to as unplanned falls of ground) at the mine. Between January 2004 and up to and including the fatal fall on the evening of Anzac Day 2006 there had been at least 24 recorded rockfalls (actually more because several entailed multiple events/falls), including 9 in 2004, 9 in 2005 and 6 in the first four months of 2006 – an average of around one rockfall every five weeks (or one fall of 50 tonnes or more every ten weeks) with no fall off in frequency. A significant number of falls at the Beaconsfield mine prior to Anzac Day 2006 were of a size that could be expected to entail serious injuries or fatalities were workers to be in this area at the time. The Chief Inspector of Mines indicated that the frequency of serious falls at the Beaconsfield mine would have been of concern had he known of this prior to the Anzac Day incident.

12. It must be stressed that under the *Workplace Health and Safety Act* as it is currently framed there was no requirement on the mine to report a number of these falls (in several cases whether the fall should or should not have been reported is a subject of disagreement between the Mine and the Chief Mines Inspector) . It should also be noted that management made a commendable effort to record rockfalls at the Mine, efforts it was suggested were not necessarily matched by other mines. Nonetheless, while many of these rockfalls occurred at times when miners were excluded (for example during firings)

and therefore did not expose mineworkers to risk, the frequency of falls is indicative of problems in terms of mining methods/ground support. Further, a number of falls did potentially expose workers to risk in addition to the fall on 26 October 2005, including several small falls that resulted in minor injuries and at least one event in days leading up to the Anzac Day rockfall (one on the 23rd where a jumbo crew was withdrawn from the 980mL. In the view of this report, the frequency of rockfalls should have alerted management to serious issues prior to the October 2005 falls and ongoing falls after this time (especially as active mining was reinstituted) should have indicated that the measures adopted after October were insufficient. There is no evidence either the ongoing occurrence or clustering of rockfall events was considered as a potential 'red flag' indicator by management either prior to or, more particularly, after the events of October 2005. As noted in the report (paragraph 704), there is contemporary evidence that at least one senior surveyor at the mine (as distinct from mineworkers) was concerned at the level of failures in the sill drive backs and saw this as connected to the inadequate thickness of pillars.

13. The report compiled by Scott Marisett identified three factors that he believed contributed to the seismic event and rock fall/s that caused the death of Larry Knight and trapped Todd Russell and Brent Webb. In order of significance these were first, inadequate mine design (in both the case of the initial AVOCA design and the application of the checkerboard method) for the ground conditions; second there was less than adequate ground support for the changing ground conditions; and third there were inappropriate procedures to manage the ground conditions (hazard assessment, re-entry inspections and training). In Mr Marisett's view, alternatives were available but not considered possibly due to the advanced development state of the decline. Further, management should have foreseen both the deficiency in mining methods and its potential consequences some time prior to the incident. Both Mr Hills and Mr Gill had geotechnical qualifications, and Adrian Penney was in the process of obtaining similar qualifications. Mr Marisett's report indicates that consultants spent a relatively limited time on site visits to the mine. The Mine has disputed Mr Marisett's interpretation, indicating that for example, it followed the advice of consultants in relation to mining methods and ground support. These matters are addressed in Mr Marisett's report. Mr Marisett's findings are presented here as they are relevant to a consideration of mineworker concerns about safety prior to the Anzac Day incident.

14. There is clear evidence of a significant communication problem at the mine, particularly in relation to the ability of workers to feedback some of their more serious safety concerns to management and have these treated with due regard, as well as a level of mistrust between at least a significant part of the workforce and management. In the course of the Investigation the Mine supplied copious documentation attesting to its efforts to communicate with its workforce. Other evidence considered by the Investigation indicated that the mine's efforts at communication were less effective than management appears to have believed. Further, except in the restricted sense of routine or daily safety issues little of the information provided by the mine constituted evidence of genuine consultation in the sense of two-way exchange of views, and where the views of mineworkers are given serious consideration. As documented in considerable length in this report, mechanisms for consultation and worker involvement in OHS at the mine,

such as they existed, were fragmented, individualized and inadequate. Individualised mechanisms included hazard reporting cards (ABFAs and noise report cards). The latter addressed seismicity but mineworkers interviewed by the investigation often didn't fill these in and those that did indicated they received little feedback. Crew specific toolbox meetings were generally viewed as worthwhile in dealing with specific and routine issues (machinery malfunctions and the like) but not broader issues. In 2000, 2002 and 2004 the Mine undertook surveys of the workforce to gauge safety climate as part of its Behaviour Based Safety initiative (and focus groups were used to elicit further information in relation to the latter). These surveys were of value in identifying a number of worker concerns in relation to safety, including the level of commitment amongst management. Management used the surveys to make a number of improvements (although at the time of 2004 survey responses in many areas still ranked well below industry benchmark data). As far as can be determined, the appropriate response to survey results was decided by management and was not a subject of consultation with the workforce. Critically, as the last survey was conducted in 2004 when seismicity problems were only beginning to assume importance this instrument provided no insight into worker views about seismicity issues in the mine in 2005 and 2006. Late in the Investigation process the Mine indicated it was critical of the failure of the Investigation to interview Dr Rob Long when drawing conclusions about communication at the mine. Dr Long may well be called to give evidence before the Coroner. However, given the absence of a survey of workforce views for almost two years prior to the incident it is not at all clear what light Dr Long could shed on worker views in the critical period leading up to Anzac Day 2006. Dr Long could have provided additional insights into behaviour modification and training, but as this report concludes neither mineworker behaviour nor their training contributed to the Anzac Day incident.

15. Apart from a brief period (in 2005) the mine lacked a site-wide OHS committee and duly appointed health and safety representatives to represent the workforce on OHS matters. A 'Zero Committee' that operated for 8-9 months in 2005 had representatives of underground mineworkers (but not contractors or above-ground workers) was not successful. Though there are considerable disagreements about why it failed it is worth noting that a number of early suggestions by members were not adopted by management and members did not receive any formal training in OHS. The committee appears to have been waning for some time and lapsed soon after the October 2005 rockfalls. It needs to be stressed that under current legislation there was no obligation for the Beaconsfield mine to establish or maintain a committee unless requested to do so by mineworkers. A request for the establishment of a committee is documented some time prior to the establishment of the Zero Committee (though not such as to require the establishment of such a committee).There were no formally appointed employee safety representatives at the mine. It is worth noting that communication problems/inadequate participatory structures at the mine were longstanding, having been identified by a WST inspector who visited the mine in 2000, work undertaken by Kathryn Heiler for WST in 2001, and a review undertaken for the Mine by a safety and risk consultant from CGU Workers Compensation in 2005. As detailed in this report, Mine Management displayed a distinct lack of enthusiasm in relation to accepting criticism of communication or consultation/participation structure problems (although some changes were made to the

toolbox meetings) or maintaining a site wide health and safety committee. The Mine has challenged this interpretation, referring to SAFEmap and the WorkWise process as well as Mathew Gill's report *Safety Management at Beaconsfield 2005*. The SAFEmap surveys have already been addressed and Mr Gill's report, while evidence of his commitment to OHS, was not referred to by any worker interviewed for the Investigation. There can be no doubt that the Mine attempted to communicate with its workforce and also sought feedback through SAFEmap surveys (2002-2004). The key issue here is whether the communication methods and survey feedback (as distinct from participation via a committee) were effective in enabling workers to articulate any concerns they had in relation to the safety of the mine. Most critically, none of the points raised by the Mine address worker perceptions of the quality of communication and participation at the mine – arguably the most critical test of their effectiveness – and matters that were extensively canvassed during interviews for this Investigation (see Table 1). Nor do they address the observations of CGU Workers Compensation Report in 2005.

16. The management structure at the mine also limited the options in terms of workers expressing grievance about OHS, particularly in relation to more fundamental concerns about seismicity and mining methods/pillar support. The report cites a number of examples of workers expressing the view that there was no point raising these concerns as they would not be treated seriously (see also Table 1) and this frustration is also evident in interviews conducted with three of the four shift supervisors. The report explored the issue in some depth, teasing out the pivotal position occupied by the underground manager, his receptiveness to issues, and the likelihood that matters could be raised through alternative venues or persons such as the OHS officer. While the investigation revealed a number of strong personality conflicts at the mine – hardly unusual for any workplace – the reasons for the communication problem or disconnect were predominantly structural, notably the flat management structure, the absence of effective forms of worker representation in terms of OHS at the mine, and a level of mistrust between many workers (not just a vocal minority as was sometimes claimed) and management that resulted from the poor industrial relations climate at the mine. The mine had not experienced a strike in the eleven years of its operation though records indicate industrial action was threatened on at least one occasion (by Nigel Webb's crew in September 2001 see Table 3) and the mine pre-empted a stop-work meeting in November 2005. However, the absence of strikes is not necessarily an indication that there are no morale problems in a workplace. As noted in the report (amongst other evidence of this poor industrial relations climate) there had been an extended struggle over the introduction of collective bargaining, the bonus system had been a source of complaint and there is evidence the engagement of workers doing similar jobs under different employment arrangements and pay was a source of some tension. The report also refers to other evidence of poor morale at the mine (see also Table 1). For example, Dale Burgess, a shift supervisor, stated that morale was so poor he had begun to apply for jobs at other mines (verified by emails enquiring about jobs sent in November 2005 and January 2006) and that he was aware of 10-15 other mineworkers looking for jobs elsewhere.

17. As the issue of seismicity grew at the mine, especially after events in early 2004 and more particularly after the serious seismic events in October 2005, the weight of

evidence is that mineworkers were not involved in the risk assessment process. Consultants who visited the mine did not speak to workers to gain the views of even more experienced mineworkers, although the short-time frame of visits and infrequency of visits gave them limited opportunities to interact. Mineworkers were provided with limited information drawn from consultants' reports, and as far as can be determined the information passed on did not include more problematic areas of concern raised in some of these reports (such as references to pillar thickness and likelihood of further large seismic events). Very few workers interviewed referred to receiving feedback from consultant's reports. Further, there were significant differences between the amount of information provided in a memo to the mine's administrator Mike Ryan following the 26 October rockfall and the memo issued to the workforce in relation to these events. In contrast to a memo written to Mr Ryan two days earlier the memo to workers does not state the magnitude of the event (2.1 M_L), that this was by far the biggest event then experienced by the mine and indicated a recent increase in the magnitude of seismic activity, was both a surprise and major concern to management (though the latter might be read into the response), was reviewing checkerboarding, or that the mine was also looking to review pillar support and thickness. The problem was not confined to mineworkers. Questioning the mine's senior surveyor, Simon Arthur, also indicated a limited amount of feedback both before and after the October 2005 events. Management provided limited information to workers and there is little evidence it sought their views and ideas in terms of control measures (and no record of the feedback to indicate it had been given serious consideration). The report could identify no record of or even passing comment pertaining to worker views on measures to manage seismicity or discussions of worker feedback during consultation processes either before or after the October 2005 rockfalls in the extensive documentation provided by the mine (including emails between managers). Consultation is a two-way process and the absence of any written comment or assessment on the part of management, even to suggest workers were satisfied with the measures being implemented, is inconsistent with the Mine's contention that the absence of written records of worker concerns about safety prior to the Anzac Day incident casts doubt on the reliability of statements by mineworkers that they held such concerns when interviewed by the Independent Investigation.

18. Communication problems, in terms of both horizontal and vertical flows of information, and resulting failures to obtain, transmit or react to knowledge within the organisation, have been identified as significant and recurrent contributor to serious incidents in high hazard workplaces since the late 1970s (Turner, 1978; Hopkins, 1999; Baker, 2007). In the case of Beaconsfield it remains a matter for conjecture as to whether better communication flows to workers (including the results of consultants' reports) and more consideration of their concerns about mining methods would have led to any modifications that would have avoided the tragic events of 25 April 2006. It is not a matter of conjecture that better communication and meaningful consultation would have been a step towards ensuring everything reasonably practicable was done to prevent the rockfall at the Beaconsfield Mine. Even if worker concerns were poorly articulated or conceived of in terms of the actual limitations in the existing mine design and mining methods, open consideration of all views at least held the prospect of a more fundamental rethinking of mining methods/ground support and a somewhat different outcome being arrived at than that actually adopted. The requirement for and importance of meaningful

consultative processes in risk assessment is clearly enunciated in Regulation 15 (and annotated notes to it) of the *Workplace Health and Safety Regulations, 1998*. Nor is it, in my view, a matter for conjecture that the communication problems at the mine weakened the implementation of the OHS management system more generally, because to be effective such systems require effective information flows, independent monitoring and feedback loops. As a hazardous workplace in particular, workers at the Beaconsfield mine, should have been better informed and fully consulted about decisions that had the potential to materially affect their health, safety and wellbeing. The concerns a number of mineworkers held, including very experienced miners and shift supervisors, should have received more serious consideration than is evident from the information obtained by this Investigation.

19. As far as I am able to ascertain, the OHS management system at the Beaconsfield Gold Mine was not inferior to those found at a number of other Tasmanian mines – something that should be borne in mind in relation to a number of the recommendations in this report (most notably with regard to the need for a safety case regime). Taken as a whole, the OHS management system at the mine had a number of strengths and weaknesses. On the positive side, management at the mine had a commitment to OHS, the plan addressed a wide array of hazards and management had adopted a multi-faceted approach to dealing with issues (detailed below). Induction and training procedures had been progressively upgraded in recent years and were generally viewed positively by mineworkers, including contractors. Overall, induction and training at the mine were adequate (with special measures for inexperienced workers that went beyond industry practice and had been nominated for a safety award). The mine had a matrix to track training of different personnel. A careful consideration of the evidence in relation to induction and training indicates that there were no deficiencies in this regard that contributed to incident on 25 April 2006. Mr Knight, Mr Russell and Mr Webb were suitably trained and experienced in the tasks they were undertaking and, as has been mentioned, Mr Russell and Mr Webb had assessed the area for evidence of seismicity before entering it. Some mineworkers were critical of ground awareness training at the mine but this was by no means a prevailing opinion and training appears to have matched industry standards. While further improvements in this area may well be of benefit to both the mine and the industry as a whole as far I could determine an enhanced ground awareness training regime would not have directly contributed to preventing the incident on Anzac Day 2006.

20. To its credit the Mine had also introduced an array of tools for identifying hazards and assessing risks in the mine (some such as JSAs were still being implemented at the time of the incident and as a result mineworker familiarity with them was limited). For example, most miners were familiar with the StepBack card for risk assessment for undertaking unfamiliar tasks and a number had made use of the cards although there was a difference of opinion as to how valuable and reliable a tool the cards were. Issuing the cards can be seen as a very positive measure on the part of management to encourage a risk-based approach to undertaking unfamiliar tasks, notwithstanding the limitations identified. Overall, workers expressed positive views about a number of these tools

though no-one interviewed indicated they saw them as a means for raising concerns about seismicity/pillar removal. A number of these measures (such as ABFA cards) and training activities had the potential to be used as a basis for positive performance measures.

21. The mine had also implemented a relatively comprehensive set of safe working procedures (SWPs) that could be reviewed when required and were monitored to ensure compliance. A major revision of SWPs had been undertaken since 2003 (using expertise and knowledge garnered from other mines) and SWPs were evaluated, revised or new ones introduced on a continuing basis. This process involved worker input and compliance with SWPs was also monitored on a regular basis. Overall, workers were supportive of SWPs (apart from complaints about 'signing off' on changes during crib breaks – a practice the mine denies occurred). An assessment of the SWPs relevant to the activities being undertaken by Mr Knight, Mr Russell and Mr Webb at the time of the fatal Anzac Day incident identified no deficiencies in SWPs or compliance with them that in any way contributed to the incident.

22. Similarly, despite some criticism the maintenance of plant and equipment at the mine was adequate, compliance was monitored and, with some exceptions, mineworkers interviewed agreed with management that any deficiencies were promptly rectified. There is no evidence that poor equipment design or maintenance in any way contributed to the death of Mr Knight (though the telehandler has yet to be recovered) or the injuries sustained by Mr Russell and Mr Webb. Indeed, there is evidence that the robustness of the cage in which Mr Russell and Mr Webb were located at the time of the rockfall contributed to their survival.

23. The mine had experienced a number of problems with improperly installed ground support and problems in relation to backfill. However, overall the evidence suggests management made diligent efforts to attend to these matters. Available evidence indicates that neither backfill no poorly installed ground support played a discernible part in the events on Anzac Day 2006.

24. Management had implemented an array of tools for enhancing safety behaviour at the mine. As already noted, the Mine undertook periodic surveys of worker perceptions (SAFEmap) and used these in conjunction with a focus on behaviour-based safety (BBS) that included training of both managers and workers to address some negative perceptions, risk-taking and non-compliance with SWPs or other safety-related procedures at the Mine. The Mine used a safety incentive scheme (scratchies) to raise safety awareness, reinforce/acknowledge safe work practices and reward the reporting of OHS problems. Senior management and a significant number of mineworkers saw the scheme as effective in raising OHS awareness although this view was not shared by other mineworkers, and several supervisors and managers expressed mixed opinions on the effectiveness of this measure. Overall, the weight of opinion was that it was a positive measure that could be improved. The Mine operated a discipline policy with graduated penalties to reinforce safe working practices amongst workers and shift supervisors. Overall, evidence indicates this policy was implemented with care and in an effective manner. The mine also went to some effort to integrate contract mineworkers into its

operations in terms of OHS (and its efforts here might even serve as a model for other mines in this regard).

25. The Mine had a policy that mineworkers could leave any area of the mine if they felt unsafe and the overwhelming majority of mineworkers interviewed were aware of this policy. Despite misgivings/inexperience amongst a number of mineworkers, most mineworkers felt confident about exercising this right and a significant number stated they had done so on occasion. There is no evidence that a deficiency in the policy contributed to the event on Anzac Day 2006. Both Mr Russell and Mr Webb had assessed the area before entering it and both indicated they had absolutely no warning of the rockfall that trapped them and resulted in the death of Larry Knight.

26. In terms of managing catastrophic risk, as noted below the Mine had undergone a catastrophic risk management exercise in 2004 with resulting priority actions including addressing fire risks in the Hart shaft and upgrading emergency procedures (and overall these appeared to have worked well following the Anzac Day incident). With regard to seismicity and rock falls the mine had introduced a Ground Control Management Plan in 2004 (which was subsequently revised/updated) and had significantly upgraded its seismic measurement system (J Map) in 2005 (the information from this system was 'real-time' and could be viewed by shift supervisors and workers in the crib room). The mine also had a rock noise report card system (reporting appears to have adversely affected by the introduction of J Map) and a rock fall incident reporting system (that recorded 25 falls between January 2004 and 25 April 2006 not including the fatal fall). In 2005 the mine introduced a rock fall card system (to mirror the rock noise report cards) but only one of these was filled out prior to the fatal incident (in relation to 925W on the morning of the 25th approximately 12 hours before the fatal fall occurred).

27. On the negative side, there were a number of deficiencies, including (as already noted) inadequate worker communication and consultation mechanisms, a problematic focus in OHS performance indicators (particularly the failure to evaluate process indicators and the number/frequency of rockfalls at the mine prior to the incident), as well as re-entry procedures. Further, there was no independent or external audit of the mine safety management plan as whole to identify any deficiencies or evaluate the effectiveness of its implementation. The review undertaken by CGU Workers Compensation in December 2005 was (in the view of its author) an overview rather than a detailed audit and as already noted the Mine did not adopt a number of its six key recommendations (most notably establishing a workplace health and safety committee).

28. As noted in the report, deficiencies in safety management systems auditing have been identified as a significant contributing factor to a number of major hazard events in workplaces (Hopkins, 1999, 2000; Baker, 2007). The mine used consultants to provide advice on a number of aspects of its response to the increasing problems of seismicity. Consultants used included, ACG, which the Mine viewed as the pre-eminent expert on seismicity in Australia. Mike Turner/AMC provided advice on mining extraction sequencing, pillar thickness and ground support measures. Mr Turner also took part in assessing the auditing of ground support. Evidence indicates that management adopted

this advice. Consultants were also brought into provide advice, as part of a risk assessment process, following the serious seismic events in October 2005. A fundamental question is whether the activities of consultants amounted to a systematic and comprehensive audit of mining methods, ground support, re-entry and inspection practices? When asked this question by the Investigation, no consultant indicated that they had been asked to do this. The Mine engaged Peter Mikula to review seismicity, mining methods and ground control practices following the October 2005 events. This was seen as a critical part of the risk assessment process. As part of his review, Mr Mikula undertook data analysis, had ongoing contact with management and made a single two-day visit to the mine (this was consistent with the scope of tasks identified by the mine). The latter entailed discussions with management but as far as could be determined no detailed discussion with shift supervisors or mineworkers. While Mr Mikula's report constituted a valuable additional opinion it is at least questionable whether it could be seen (or was viewed by Mr Mikula) as a comprehensive independent review of mining methods and ground support. Whether a genuinely comprehensive review would require a more extended visit to the mine, detailed discussions with experienced underground workers, careful assessment of the Ground Control Management Plan, and knowledge of other matters such as a detailed record of previous rockfalls (near misses) at the mine together with collection of more technical information is a moot point. From an OHS management perspective, the matters just mentioned would seem to represent an appropriate if not essential component of a thorough and independent assessment of mining methods and ground support following a serious incident.

29. There is no evidence linking the use of contract workers, fatigue or the mine's production bonus payment system to the incident of 25 April 2006. There is some evidence (including specific examples cited by several workers) that the bonus scheme had compromised safety at the mine at other times (and it is not inconsistent with findings about breaches of safe work practices disclosed in earlier SAFEmap workforce surveys). The imposition of a bonus penalty in relation to absence from work appears inconsistent with an employer fulfilling their duties under the *Workplace Health and Safety Act* as it arguably provides an inducement for persons to attend work when ill, potentially endangering themselves and others. The issue of incentives was relevant to an overall assessment of the effectiveness of OHS management at the mine and the absence penalty was raised by several mineworkers as a matter of concern during interviews conducted by the Investigation. It is not difficult to conceive of scenarios where incentive schemes may induce behaviour that compromises ground conditions at a mine (the report contains specific references to this by workers) or where a worker suffering an illness might place themselves or others at risk.

30. During the course of the Investigation repeated suggestions were made by mineworkers, some shift supervisors and others (the AWU) that production pressures/gold recovery considerations and the financial difficulties experienced by the mine had compromised safety. There is no compelling evidence that the financial circumstances of the mine affected expenditure on equipment or staffing levels in ways that may have compromised safety. Despite being under administration, there is no evidence that the Mine compromised its OHS budget and, indeed, funds were devoted to securing expert

advice from consultants, especially in relation to the issue of seismicity. Following the rockfalls in October 2005 the Mine closed a number of stopes temporarily while it engaged consultants to assess the problem and suggest solutions. A repeated claim by mineworkers (and some shift supervisors) interviewed by the Investigation was that production/gold imperatives had influenced the decision to remove pillars and, to a lesser extent, ground support and the decision to continue mining in the 915 and 925 levels in the lead up to Anzac Day. Again, I could find no evidence to support these claims. The mine followed the recommendations of the experts it engaged with regard to mining methods. From an OHS perspective, the mining of four stopes (with two being extracted at the same time) in April 2006 in areas of the mine that had already experienced significant seismic events (see Marisett report) did not seem consistent with risk minimisation but, again, there is no evidence this decision was made for financial reasons (the adequacy of mining methods, including the selection of extraction sequencing is a matter for the Marisett report).

31. In terms of implementation, the mine safety management plan had a strong focus on 'routine' injury risks (as measured through lost time and medically treated injuries) and behaviour modification (of both managers and workers) with arguably less attention being given to less routine or catastrophic risks. An imbalance or deficiency with regard to the balancing of routine and catastrophic risks has been identified in connection to mine management safety regimes and OHS management systems more generally in high hazard workplaces (Hopkins, 1999; Baker, 2007; United States Chemical Safety Board, 2007b). In the case of the Beaconsfield mine, catastrophic risk was by no means ignored – rather the concern of this report is with the balance between and integration of routine and catastrophic risks in the OHS management system. In 2004 the mine engaged a consultant, SP Solutions, to facilitate a catastrophic risk review (based on Australian Standard 4360) with the risk of fire in the timber-lined shaft being (understandably) being highest in the 12 rankings but (less understandably) with ground control ranked fifth. The Mine has contended that this ranking was the outcome of a thoughtful process by experienced people, including direct knowledge of fatal incidents at other mines (such as the Renison rockfall in 2003), but managers appeared to be unaware that rockfalls were single most significant cause of death amongst underground mineworkers in Tasmania over many years (accounting for around half all fatal injuries). While the development of a Ground Control Management Plan was as an important outcome from the exercise(other outcomes such as enhanced fire and emergency procedures were being progressively implemented at the time of the Anzac Day incident) the risk ranking of ground control was not adjusted after the serious rockfalls in October 2005. Over a number of years annual risk reviews of the Mine were undertaken by Hawcroft Consulting (with an apparent gap in 2004-2005) took an insurance risk focus that included considerable OHS information (in geotechnical issues) but did not amount to a dedicated and comprehensive investigation of OHS risks at the mine (mine visits occurred over a two day period and did not involve as far as can be ascertained interviews with mineworkers). While the most recent review – a draft dated April 2006 – makes reference to the seismic events of October 2005 it did not see these events as warranting a significant alteration to risk ratings in relation to ground conditions at the Beaconsfield mine. Like management's

failure to reassess the risk ranking of ground control after October 2005 (despite the obvious concerns this caused and actions taken) this judgement seems surprising.

32. Considering OHS management at the mine as a whole a number of points can be made with regard to whether the rockfall of 25 April 2006 was foreseeable and whether the mine had done everything reasonably practicable to prevent such an incident.

33. With regard to the question of foreseeability it can be noted that management was aware that rockfalls represented a serious hazard at the mine. The mine had experienced rockfalls on a relatively regular basis (ie about every five weeks and a fall of 50 tonnes or more averaging every ten weeks) since January 2004) with no apparent drop off in frequency when changes to mining methods were implemented after October 2005. The mine had experienced a number of significant rockfalls in the same levels as the Anzac Day 2006 falls (915 and 925) prior to 25 April 2006. The October 2005 and March 2006 falls were in relatively close proximity to the fatal falls on Anzac Day though the latter did not occur within known areas of risk (the conglomerate overlap zone and splay offset fault) in the mine. The rockfalls of 26 October 2005 were related to a significant seismic event and several expert consultants (Mike Turner and Dr Glenn Sharrock) informed mine management that further significant seismic events could occur, notwithstanding the changes to mining methods. There is evidence the mine continued to experience significant seismic events after it had begun implementing the changes recommended by consultants following the October 2005 events. In sum, while a specific seismic event and rockfalls on 25 April 2006, including one at the precise location where Larry Knight, Todd Russell and Brant Webb were working, may not have been foreseeable, I think the evidence indicates that possibility of further significance seismic events in the mine in 915 and 925 metre levels was foreseeable. Reinforcing these observations, the Marisett report has concluded that analysis of the level of seismic activity and the number of rockfalls did not indicate that seismic risk and rockfall risk was being addressed.

34. With regard to whether the mine had done everything reasonably practical to avoid an incident such as that which occurred on Anzac Day 2006 the following observations can be made. The mine recorded both rockfall and seismic activity and undertook detailed investigation into a number of rockfalls. The mine operated a rock noise reporting system and in 2005 significantly upgraded its seismic measurement array (J Map) to provide more accurate and 'real-time' information that could be used by both senior management and shift supervisors to minimise the risk of exposure of mineworkers to falls of ground. The mine had also developed a Ground Control Management Plan that was upgraded progressively and employed expert consultants to provide advice on mining methods and ground support. Following the serious seismic events/rockfalls in October 2005 the mine acted decisively, closing a number of stopes, engaging an array of consultants to review seismicity and provide further input on extraction sequences and ground support (including an additional independent opinion), and modifying extraction sequencing and ground support before re-opening the affected areas.

35. At the same time, the response to October 2005 did not entail a thorough or systematic risk assessment that was duly documented for review, monitoring

implementation of control measures and revision. The risk ranking of ground control in the Catastrophic Risk Assessment implementation was not reassessed or revised in the light of this event, the GCMP was not subject to an independent audit (duly documented. See Marisett report), GAT was not assessed, and the same point can be made in relation to re-entry protocols (although practice was adapted in the light of the new seismic array and with Omori analysis being implemented). The mine did not develop a set of formal protocols in relation to determining 'red flags' for worker withdrawal, suspension of firing/stoping or urgent consideration in relation to seismic activity. Nor is there evidence that the mine reviewed the history of rockfall activity at the mine since seismicity had emerged as an issue to determine whether the frequency or location of falls indicated the need for additional measures (or should be used to determine 'red flag' action points in the future). Finally, the weight of evidence indicates workers were not genuinely consulted as part of a risk assessment process following the October 2005 events. The mine sought to communicate information on the seismic events (though memos written in early November indicate not as much safety-related information was conveyed to them as was provided to the mine's administrator) and its proposed solutions. However, there is no record mineworkers' views and experience was sought, duly recorded and factored into management's deliberations (even if to be discounted).

36. Arguably, all the above measures were reasonably practicable and a number were required under the *Workplace Health and Safety Act, 1995* and *Workplace Health and Safety Regulations, 1998* (such the requirement to undertake a systematic risk assessment following the incident and to consult with the mine workforce with regard to this). The evidence available is not sufficient to state with confidence that the measures just identified, either individually or in combination, would have prevented the seismic event and rockfalls on the evening of 25 April 2006, or at least prevented workers being in the affected areas at the time. What can be concluded is that undertaking these measures would have constituted steps towards minimizing the likelihood of the event and its tragic consequences.

37. Workplace Standards Tasmania inspectors had monitored the Beaconsfield mine over a number of years. Overall, WST played a constructive in improving OHS management practices in a number of areas of the mine (including outcomes of a comprehensive desk top audit in 2002). In relation to seismicity and ground control interventions by inspectors were less effective. While inspectors monitored conditions at the mine (via emails, phone calls, correspondence and some visits) limited resources prevented inspectors from visiting the mine as often as might have been desirable. Further, most of these visits were concerned with matters other than mining methods and ground control issues (such as in relation to incidents leading to injury underground and the failure of a hoist in the mill) and do not appear to have involved regular inspection of underground conditions or discussions with mineworkers.

38. The seismic event of 26 October 2005 clearly amounted to a serious incident that should have warranted an independent investigation by WST, including interviews with workers and consultants engaged by the mine. Again, resource limitations (including the demands of a major investigation/prosecution at another Tasmanian mine) appear to have

precluded this occurring. There is no evidence that a lack of diligence or professionalism on the part of WST inspectors contributed to the incident of 25 April 2006. Inspectors worked to their fullest capacity in a difficult situation. Similarly, there is no evidence that the Chief Mines Inspector and senior management at WST made anything but highly professional decisions in the context of the resources and policy parameters (for example, in terms of the need to address high priority tasks at another mine, and salary ranges that could be offered in relation to advertised posts) available to them. The Investigation found evidence that while WST ensured mining was relatively well resourced compared to other Tasmanian industries in terms of the number of inspectors per workplace/employee this level of resourcing still compared unfavourably to that of virtually every other mining inspectorate in Australia. Both prior to and since the incident of 25 April 2006 efforts have been made to redress the shortfall in inspectoral resources. However, in the view of this report WST was not adequately resourced to carry out its tasks in relation of mining safety in the lead up the Anzac Day incident. Further efforts are urgently required to address the resourcing situation.

39. The resourcing problems experienced by WST do not affect or exculpate the responsibility of others. Ultimately it is the responsibility of management, such as the management of the Beaconsfield mine, to ensure that safe systems of work are in place and comply with their other duties under the *Workplace Health and Safety Act.* Having an adequately resourced inspectorate (in terms of numbers and skills mix) to monitor compliance (through regular workplace visits to observe operations; hold discussions with workers, managers, consultants and other relevant persons; providing advice where appropriate; and obtaining additional information) and enforcing the legislation is a critical safeguard that employers and other duty holders are meeting community standards this law is designed to protect. It is also imperative that WST inspectors speak to workers during workplace visits to see if they have OHS concerns. While inspectors already do this the events at the Beaconsfield mine reinforce the need for a greater level of contact. Such contact takes time and this needs to be built into the resourcing of inspectoral activities. It also requires measures to ensure workers feel free to raise issues without fear of subsequent victimization. Although this was not an issue at the Beaconsfield Mine, there is evidence that WST inspectors (across a range of industries) and their counterparts in other jurisdictions (such as Victoria and Western Australia) have identified fear of victimization as inhibiting worker complaints about OHS to them.

40. A number of unions had members at the Beaconsfield mine, including the Australian Manufacturing Workers Union (AMWU), Construction Forestry, Mining and Energy Union (CFMEU) and the Australian Workers' Union (AWU), which covered the bulk of mineworkers. Union members included workers who had held concerns about safety at the mine for some time prior to the incident, such as Todd Russell, Garth Bonney and Robert Sears. Both the CFMEU and AWU had pursued OHS matters in relation to mining in Tasmania (notably in connection with several fatalities at other mines). Around 2002 the CFMEU had advised members who wanted an OHS committee at the mine (for jurisdictional reasons it was unable to directly represent them in this matter) and in late 2004 the AWU had organized a meeting to elect safety representatives at the Beaconsfield mine. However, the concerns of Beaconsfield mineworkers were apparently not

communicated to union officials prior to 25 April 2006 with the possible exception of a meeting held between AWU officials, its Beaconsfield delegates and the Mine held soon after the events of October 2005. While the troubled industrial relations climate at Beaconsfield (disputed by management but detailed elsewhere in this report) appears to have absorbed considerable resources and energy on the part of unions, the Beaconsfield incident highlights the need for unions to take a more vigorous and proactive role in identifying and raising member concerns with regard to OHS. It should be noted that the union safety representative system trialed following the Anzac Day incident was complaint-based so representatives could not proactively visit a mine to hold discussions with workers and identify if there were any outstanding OHS concerns. Reliance on a complaint-based system is problematic given the low level of union membership in most Tasmanian mines.

41. This report makes a number of recommendations within the scope of this investigation, based on its findings, to address problems identified in relation to the management of OHS at the Beaconsfield mine and to improve OHS in the Tasmanian mining industry. In this regard, the findings and recommendations should be viewed in the context of other fatal rockfall incidents as Tasmanian mines in recent years as well as other recent inquiries into mining safety in Australia.

42. With regard to BMJV is recommended that the mine (and other mines where indicated):

- maintain an on-site OHS Committee (representing both employee and contract workers) and implement other measures to enhance genuine two-way communication over OHS
- mineworkers be provided with information on trends in rock noise/seismic activity and rock falls on a regular basis and be kept informed and have a chance to express views in relation to deliberations on changing mining methods (including changes to pillar thickness, extraction sequences and the like);
- and other mines need to give more attention to using other OHS performance indicators, including compiling, analyzing and reporting all rockfall incidents/trends;
- and other mines should take explicit account of changes to work processes including mining methods as an integral part of their mine safety management plan, including documenting the risk assessment and consultation process undertaken in conjunction with this change;
- and the Tasmanian mining industry examine the adequacy of ground awareness training;
- give urgent consideration to developing a 'red flag' protocols in relation to seismic activity and rockfalls;
- review the application of the bonus systems with a view to eliminating any adverse effects on safe work practices.

43. With regard to current legislative arrangements, the role of government and WST it is recommended that:

- The *Workplace Health and Safety Act* should be amended to require Tasmanian mines engaging 100 or more workers (employees and regular contractors) to adopt a safety case regime. This is the preferred option for reasons specified in this report. With regard to smaller mines, the Tasmanian *Workplace Health and Safety Act* should be amended to include a requirement that mines must adopt OHS management systems along lines of similar provisions in the Queensland *Coal Mining Safety and Health Act, 1999* and the *Queensland Mining and Quarries Safety and Health Act, 1999*. The OHS management system should specifically address non-routine risks and high hazard events and include clear monitoring mechanisms. The *WHSA* should also require all Tasmanian mines with 50 or more workers regularly engaged (ie including labour hire) to arrange for an independent audit of their OHS management system every three years. Independent auditors should be approved by WST.
- That a review be undertaken of the current array of regulations governing OHS in the Tasmanian mining industry as well as supporting guidance material (and best practice in other Australian jurisdictions) to identify gaps or areas (such as ventilation, risk assessment and the management of rockfalls) needing revision and make recommendations to Minister. Consideration should be given to establishing a separate set of mining regulations under the auspices of the *WHSA* or complementary legislation (as is the case in New South Wales).
- That the Tasmanian government provide for the appointment of at least one additional WST inspector with general mining responsibilities. The establishment should include at least two inspectors who are qualified mining engineers (in addition to the chief inspector) and one inspector with specialized expertise in OHS management systems and safety case regimes. It is recommended that funding be set aside and an arrangement reached with another Australian mining inspectorate so that geotechnical expertise could be drawn on as and when required. Mining inspectorate pay, resourcing (of administrative support, travel expenses and skills maintenance) and staffing levels should be benchmarked against best practice in other Australian jurisdictions but with due recognition that the small number of mining inspectors in Tasmania provides little scope for economies to be achieved through task specialization. Consideration should also be given to resourcing of major investigations and preparing information for prosecutions within WST.
- That the *WHSA* and WST protocols be amended to require inspectors to endeavour to make contact with employee safety representatives or a member/s of the health and safety committee if they are present on site during their visits and that they seek to identify, clarify the status of and review the operations of health and safety committees on a regular basis. Inspectors should also seek the views of workers (especially where there is no ESR).
- That the Tasmanian government/WST establish a tripartite mining industry advisory council along lines similar to bodies in Queensland, Western Australia and New South Wales.
- That s10 of the *WHSA* re appointment of responsible officer for the workplace be amended so that only one responsible officer may be appointed in a workplace, namely the person with overarching responsibility/managerial control of that

workplace. Any deviation from this requirement should only be permitted on application to the Director of WST.

- The current requirements to notify WST of dangerous incidents under s47 of the Act are inadequate as are other record keeping requirements (monthly accident summaries) for high hazard workplaces. A new procedure is required so that mines will notify WST of all rockfalls (that is, uncontrolled or unplanned falls of ground), whether they are judged as dangerous incidents or not. As indicated in the report, potential solutions to this problem include action by the Director under s25 of the Act or amendment of Regulation 64 (or introduction of a new regulation pertaining to the reporting of all rockfalls in Tasmanian mines).
- The current legislative requirement for designated workplaces to keep a record book, which inspectors can make entries into and then require copies of to be placed in a place accessible to the workforce is a potentially important mechanism of communication between inspectors and the workforce and should be retained. It is further recommended that legislation be amended to enable employees' safety representatives to make entries into the record book.
- Strengthen provisions within the *Workplace Health and Safety Act* relating to the establishment of OHS committees and the appointment, role and training of ESRs and OHS committee members. Serious consideration should be given to measures that make workplace OHS committees mandatory in mines and would encourage the election and presence of ESRs at all Tasmanian mines. ESR should receive training that is independent of management.
- Strengthen consultation provisions within the *Workplace Health and Safety Act*, including the duty to involve all workers in risk assessment, especially in the context of proposed changes to work methods or evidence of a change to the level of risk. One means of doing this would be to move the consultation requirements of Regulation 15 (suitably revised so that it is no longer confined to employees) into the body of the Act.
- Give consideration to moving requirements for hazard identification, risk assessment and control from Regulations to the general duty provisions of the Workplace Health and Safety Act (as is the case in Queensland). This would give these requirements greater prominence and correspondingly greater penalties in the case of non-compliance. (a less onerous alternative would be to confine this requirement to designated workplaces).
- The trial scheme of union appointed safety representatives in the Tasmanian mining industry should be extended to a permanent footing with such representatives being given the power to visit mines and hold discussions with workers, even where complaints have not been lodged. Such representatives should be empowered to visit a mine a maximum of once every six months where no complaint has been lodged by worker/s at that mine during this period.

- That WST or the government take measures to prohibit the practice of imposing bonus penalties in relation to authorized or sickness related absence from work.
- That WST review the application and safety implications, if any, of the use of production bonus schemes in Tasmanian mines, drawing on independent research currently being undertaken in NSW.
- That WST prepare a guidance note on the use and responsibilities of consultants under the Workplace Health and Safety Act.
- It is recommended that any ambiguity under the *Workplace Health and Safety Act 1995* as to the status and responsibilities of administrators and major creditors when a workplace is under administration be clarified (with suitable revisions or explanatory material as required).

Introduction

44. This report is principally concerned with OHS management of the underground operations and considers other areas (such as the mill) only in as much as they reflect on the effectiveness of OHS management procedures at the mine generally or in other ways reflect on issues relevant to the investigation. The report assesses the effectiveness of OHS management at the mine. It tries to assess both the strengths and weaknesses of the procedures in place, and whether any deficiencies identified contributed to the incident of 25 April 2006 or warrant attention in terms of securing a general improvement in mine safety in Tasmania. This report also examines contact between the Mine and Workplace Standards Tasmania (WST) – the government agency responsible for overseeing compliance with the *Workplace Health and Safety Act, 1995* (the legislation governing OHS at the mine). As part of the scope of the investigation, the report also examines WST's operations, structure and resourcing as they pertain to mine safety, comparing this to other Australian jurisdictions. The report also identifies whether there are any parallels between the findings of the Beaconsfield Investigation and recent inquiries into mining safety undertaken elsewhere in Australia. A specialist report has been prepared on geotechnical issues at the mine by an expert consultant engaged by the Investigation, Mr Scott Marisett.

45. Although other reports describe the incident in some detail for the purpose of this report it is worth giving a brief overview here. At the time of the incident Larry Knight, Todd Russell and Brant Webb were in the 925 west level near the stope brow constructing a backfill bund wall (a mound of dirt with a mesh and wire rope wall installed on top) to minimise backfill in the void between the 915 and 925 level created by mining (that is, the removal of gold-bearing ore). According to the Mine (Response to Item 3 Schedule 2 of the Notice of 8 June 2006 under s36 of the Workplace Health and Safety Act 1995) prior to this both the geology department and survey department had inspected the area (the first to sign off that all ore had been mined) and the second (to do a final survey for the mine's records) and a jumbo (a mobile percussion drilling machine used to drill holes) had bored pin holes near the stope brow. As noted in Mr Marisett's report, after the stope itself (which is a non-entry area for mining personnel), the stope brow (an area where mineworker access was required at the Beaconsfield mine) experiences the highest change in ground conditions (ie is most likely to experience rockfalls). The company stated that prior to work commencing Mr Russell conducted a safety check that included reviewing ground support and listening for rock noise. In an interview conducted by the Investigation Mr Webb indicated that he had listened for noise and looked for evidence of ground movement. After creating a two metre high bund of waste rock near (ie ½-1m) the stope brow, Mr Russell and Mr Webb were in the basket of the Telehandler driven by Mr Knight undertaking the task of installing eye pins into previously bored holes and then installing the mesh and rope wall. At 9.23pm a seismic event occurred, causing a series of rock falls, one of which trapped Mr Russell and Mr Webb and caused the death of Mr Knight (other falls occurred on the 925mL as well as falls on the 915mL and 965mL, Coffey, 2006). The Mine Rescue Brigade responded and within a matter of hours a major rescue operation had been mounted. The body of Mr Knight was recovered three days

after the incident and the trapped miners, Todd Russell and Brant Webb, were rescued 11 days later through a specially constructed tunnel.

46. The next section of the report will examine OHS management at the Mine. It commences by examining management structure and a brief history of OHS management at the mine. Key elements of the mine safety management plan are then examined in turn, along with evidence of worker concerns in relation to mining methods (and other matters). Key elements had to be examined separately (but also in related groups) to assess their adequacy in terms of the overall management of OHS and whether any deficiency in these elements contributed to the events of 25 April 2006 or provide a basis for making recommendations to improve OHS in the Tasmanian mining industry in the aftermath of this event. At the same time, while each element is examined separately the interaction between them is also recognized and addressed (for example the interaction of both training and auditing with the Safe Work Procedures system). All OHS management systems operate in a regulatory and institutional context. Hence this report considers both the input of workers and unions and how the system was influenced by the current regulatory framework in Tasmania, including the role played by the inspectorate, Workplace Standards Tasmania. Further, the OHS management system must be viewed as a whole and not simply as a series of elements (note the point already made regarding interaction) and final sections of the report evaluate the performance of OHS management in the lead up to Anzac Day (drawing on earlier findings) in two key areas, namely reviewing risk assessment at the Mine in relation to seismicity/rockfalls and also whether the Anzac Day incident could have been anticipated and avoided by reasonably practicable steps on the part of mine management. This is followed by a set of overall findings and specific recommendations.

Management Structure

47. At the time of the incident the mine had a relatively flat organizational structure, with only three tiers of management above that of workers in the mine. According to the Mine, the flat structure was designed to facilitate communication. At the mine the site mine manager Mathew Gill had overarching responsibility for managing the mine, including occupational health and safety. In terms of the OHS of underground operations, immediately responsible to Mr Gill were Pat Ball (underground manager), Peter Bernard Hills (Head of Geotechnical services) and Rex Scotney Johnston (OHS officer). Like department heads responsible for other activities such as the mill, all three reported directly to Mr Gill.

48. As underground manager, Mr Ball (p4 of part 1 of ROI) described his role as to *"safely economically run the Mining Department...Prepare budgets, safety systems."* The mining department included all underground workers apart from maintenance, geology, survey and waste. According to the resident mine manager, Mathew Gill (ROI), the underground manager Pat Ball was the responsible officer nominated under the *Workplace Health and Safety Act 1995* (hereafter referred to as the *WHSA*) and his duties were clearly defined *"in terms of the control and direction and safe operation of the underground mine, the development of training, safe work procedures..."* The mine did not have a mine foreman. This position had been abolished following a management review by Allan King in 2001 as it was seen as dated and an impediment to communication. Stephen Craig Saltmarsh, senior mine supervisor, three engineers responsible for mine design and planning (Diego Barua, Savas Sahin and Jamie Karamatic) and two training officers, Paddy Hampton and Charlie Williams, assisted the mine manager, Pat Ball. Mr Hampton stated (p4 ROI) his duties were to *"do inductions of new employees coming on the site, write up safe work procedures, train people on the safe work procedures and train them on the equipment underground."* The training officers were also responsible for auditing safe working procedures in the mine. Asked whether he saw his position as part of the workforce or as part of management in the mine Mr Hampton stated (p15 ROI) *"I've always – because I worked as an employee underground for so long and then when I took on this job – well even when I was shift boss I still considered myself as one of the guys underground and when I took on this job as training I kind of still thought, you know, meself as one of the guys but after awhile it – you kind of think you're part of management*

49. The immediate supervision of underground workers (including OHS) was the responsibility of four shift supervisors (Stephen Homan, Dale Ian Burgess, Brett Andrew Cresswell and Gavan Cheesman) who reported to the underground manager, Pat Ball. Describing his relationship to Stephen Saltmarsh and Pat Ball, Stephen Homan who had been a shift supervisor (a position also referred to as shift boss) at the mine for over five years stated (p2 ROI) *"He's (Pat Ball) the site manager and any major decisions always went through Pat...Any minor decisions, you'd go through Salty or if there was a major decision to be made if Pat was not on site...(and when asked about safety issues he wasn't able to address himself) That happens a lot. That would be Pat Ball. Pat Ball alone."*

Another shift supervisor, Brett Cresswell, also saw Pat Ball as his critical reference point in relation to safety (p14 ROI).

50. As OHS officer, Rex Johnson had responsibilities with regard to the mine, mill and other facilities on site (such as the office). Mr Johnson had held this position since 2002 (prior to that he was a mining technician). In interview Mr Johnson described his responsibilities as (p3 ROI) *"The duties of the occupational health and safety officer are to liaise with department managers with regards to day to day safety issues, compliance of statutory requirements to do with occupational health and safety and other issues on site that be against Australian Standards or relevant legislation. Look after mines rescue functionalities on site as well as overseeing training from the training officers, making sure data is collected and captured and maintained. Organise medicals and ongoing medicals for employees and health surveillance, those sort of things. It's a fairly extensive list. Everything is occupational health and safety if you really want it to be."*

51. Assisting Mr Johnson was an OHS technician, Craig Rodney Large, who helped Mr Johnson with policies and procedures, risk assessment, hazard reporting (including administering the database), emergency response training, training of the mine rescue team and being a member of the rescue team (Craig Large pp3-4 ROI). Mr Johnson also had an office assistant, Caroline Russell (the wife of Todd Russell), whose responsibilities included entering records in relation to scratchies, incident and accident reports, sick leave and training.

52. Asked how the activities of the underground-training officers (Hampton and Williams) interacted with his own in terms of OHS, Mr Johnson stated (p5 ROI) *"They report to Pat but there's also – there's no obstacles in working with me. It's a fairly open relationship. If I've got a requirement to get some specific training, it's taken on board. All their training material then comes through our clerical section in the occupational health and safety department, make sure it's recorded on our training matrices and for direct employees it goes onto a work database which just captures the information and then that information is then filed."*

53. Geotechnical Services at the mine was headed by Peter Hills. According to information provided by the Mine Mr Hills' responsibilities included providing overall management in the technical support areas of geology, survey, input into mine design and planning, management of seismicity and other geotechnical matters, into production methods and scheduling, safety and environmental management (Responses to item 26 of schedule 2 of the notice of 8 June 2006 and items 4 and 5 of schedule 2 of the notice of 25 October 2006 under s36 of the *WHSA 1995*). Adrian Penney, a production geologist assisted Mr Hills. Mr Penney described his duties as (p3 ROI) *"Production geology was primarily grade control, identification of the roof and ore waste, you know, get around operators to the mine along the roof. We had monthly reporting duties. Diamond drill logging. On the geotechnical geologist side, geotechnical mapping from underground, some ground support design work, modelling, numerical modelling, the loader would be carrying more into in the seismicity and stress modelling, there wasn't much seismicity modelling but seismicity data collection and basic interpretation."*

54. In addition to the management and reporting structure described above there were a number of mechanisms for communicating and coordinating management activities with regard to safety. First, safety was an agenda item (first item) at daily morning meetings of the senior management team at the mine, including the resident mine manager (Mathew Gill), the OHS officer (Rex Johnson) and various departmental heads (including Pat Ball and Peter Hills as well as the mill manager). According to Mathew Gill (ROI) the aim of these meetings was to consider any immediate or pressing issues including recent incidents like seismicity/rock falls. Second, since 2002 more formal meetings of departmental heads (and subsequently the Senior Management Safety Leadership Group) focusing on 'big ticket' items regarding safety were held every couple of months according to Mr Gill (according to the mine a total of 24 in four years). Third, in terms of underground operations safety was a component of shift supervisor meetings held every Thursday by the underground manager, Pat Ball.

55. In his evidence to the Investigation (p6 of part 1 of ROI) Mathew Gill described Rex Johnson's role as one of providing and assisting departmental heads *"with specific areas of training that might cover the site, for instance confined space or working at heights training. Rex was also the keeper of a lot of training files and data and was also the key person to ensure the mine had a competent trained mines rescue service."* Asked about the relationship between the underground manager and Rex Johnson's role in terms of seniority Mathew Gill stated anyone on site *"can obviously and should be aware that they can stop a job or activity if its unsafe so there's no hierarchical (sic) ...but in terms of the ultimate discharge of that duty, that was with the responsible officer so it was with Pat."* Similarly, when asked about coordinating the roles of Peter Hill and Pat Ball the resident mine manager stated *"Peter Hill's role is in some way that (of) technical advisory assistant to Pat, similar to Rex's advisory role on safety. So, Peter in the geotech area in particular had people in the technical expertise to assist and advise Pat with those aspects that impacted in that area."*

56. In sum, in the view of Mr Gill while Peter Hills, Rex Johnson and Pat Ball all reported to him, Pat Ball was the nominated responsible officer in charge of making critical decisions in terms of underground operations while the role of Peter Hills and Rex Johnson was essentially advisory. The Investigation spent some time investigating the perceived role of different members of the management team because this could exert a critical impact on information flows at the mine. Workers were asked what they understood the role of particular members of the management team was. Their view - which corresponded with shift supervisors responses (see for example evidence of Stephen Homan, p2 ROI) – was that Pat Ball was the critical decision maker in terms of operations, including safety. Asked if there was a mechanism to take a safety issue if he didn't believe Mr Ball had treated it seriously Mr Homan (p11 ROI) replied "*Not to my knowledge*". Mr Homan (p13 ROI) described communication channels at the mine as limited and comparing it to other mines stated *"this is the third place I've been a supervisor and this was the hardest to get communication or change on safety issues. It was the hardest of the three."*

57. Despite his key role in mine rescue and his approachability Rex Johnson was seen essentially as someone who promoted safety but was not a significant presence in terms of underground operations (for example only attending a small number of toolbox meetings which management saw as a major venue for workers raising OHS concerns). For example, Michael William Day, truck driver and charge hand stated (p20) he saw Mr Johnson less than once a month (See also evidence of Darren Athol Geard, p7 ROI). A number of workers compared Mr Johnson's role (See Table 1) to that of the underground training officers (Paddy Robert Hampton and Charlie Williams). Walter John Hvala, a contractor for Webb Mining stated (p9 ROI) *"I think his role was more awareness of becoming - people becoming lax in certain areas, and - which is great, because the people need to be reinforced...He's a very approachable fellow, and he'd - he'll take it all on board and he deals with the issue at the time."* Asked to describe Mr Johnson's role, underground manager Pat Ball stated (p34 of Part 2 of ROI) *"His department is an adviser – he's in an advisory role, if you like."*

58. Two workers described Mr Johnson as working for Mr Ball. Michael John Borill, a jumbo operator, stated (p26 ROI) *"Pat's his boss I think."* Another, Trent Thomas Clayton, a contract miner for Webb Mining, pp19-20 ROI) expressed a similar view *"everyone's under Pat."* Mr Ball was almost universally described in terms that made it clear he was a strong personality. Patently, a mine needs a clear authority structure and underground mine managers are unlikely to win popularity competitions given their need to make hard decisions – something appreciated by a number of mineworkers interviewed including Brant Webb. What the Investigation was seeking to establish was how the authority structure at the mine affected communication flows. In this regard it needs to be noted that both the formal structure and informal dynamics of interaction of the mine were such that Mr Ball occupied a pivotal position that effectively left workers little or no alternate avenues for raising a concern if they were unhappy with his response to an OHS issue. The Mine has disputed this interpretation and pointed to a number of other options. Several of these options such as the SAFEmap surveys have been dealt with elsewhere in this report. Another option raised was shift supervisors. As documented elsewhere in this report, shift supervisors at the Mine stated they were indeed aware of mineworker concerns about seismicity/pillars, three of the four shared these concerns and one had raised the matter with Mr Ball – to no effect (nor apparently was information on this complaint referred to Mathew Gill by Mr Ball). The issue here is not whether there were other options (or whether issues were taken to other managers on occasion – and evidence on this is included in the report) but whether workers believed there was any effective scope to take a complaint beyond Mr Ball. With the exception of Mr Gill, none of those mentioned (engineers, geologists, shift supervisors etc) were really in a position to challenge Mr Ball's authority in relation to the conduct of matters underground. It is unlikely that mineworkers would be unaware of the authority structure in the mine and the likelihood that an issue rejected by Mr Ball would be resolved by referring it to a more subordinate manager or one not directly responsible for underground operations. This situation also affected a number of reporting systems, with ABFA cards for example being referred to Mr Ball. As the mine indicates, unions presented another option and this issue – which does not pertain to management structure – is addressed elsewhere in the report.

59. The appointment of Pat Ball as the nominated responsible officer under the *Workplace Health and Safety Act 1995* requires some comment. In recognition of the hazardous nature of the industry, mines were declared 'designated workplaces' under the Act, requiring the employer to nominate a 'responsible officer' as well as to report specific incidents and accidents directly to the Chief Inspector of Mines. Section 10(1) of the Act requires the employer to appoint a responsible officer for each workplace where that employer carries out a business. Section 10 (3) of the Act requires the employer to ensure that the responsible officer has sufficient authority to perform their duties under the Act. Section 24(1) requires the employer to notify the Director of the name of the person appointed as responsible officer while s24(2) indicates this officer must be competent and have qualifications as prescribed (it is understood no qualifications have been prescribed in this regard). In the case of the Beaconsfield Joint Venture, Mathew Gill was originally designated as the responsible officer in 1995. In 1997 Mr Gill wrote to Workplace Standards to inform them that he had appointed Peter Hills and K Kaestner to be acting responsible officers in his absence (according to the Mine Peter Hills had already been appointed responsible officer for Area 3). In 1998 Mr Gill wrote to Workplace Standards that he had appointed Ian Reeves, Barrie Hancock and Peter Hills as responsible officers for three designated areas of the mine site. In 2000 Mr Gill wrote to Workplace Standards appointing Richard Holder as responsible officer for the treatment plant and tailings dam. In 2002 Mr Gill wrote to Workplace Standards notifying them that Peter Hills would henceforth be responsible officer, and the underground manager Pat Ball would henceforth be responsible officer for the mine.

60. It is understood that WST initially formed the opinion that this notification was not in accordance with the legislation. It does not appear that Mr Gill was formally notified of WST's viewpoint although it did act in accordance with this viewpoint. In connection with an incident relating to Dean Fuhrmann at the Beaconsfield Mine in March 2004 (referred to elsewhere in this report), Senior Mines Inspector Mark Smith wrote a letter on 24 March 2004 to "The Responsible Officer, Mr Mathew Gill, Beaconsfield Mine Joint Venture). Further, following the Anzac Day 2006 incident, on 19 May 2006 a section 39 Notice was issued on the development of a *Case to Manage Underground Safety at the Beaconsfield Mine* (a safety case in relation to recommencing mining operations) which nominated Mathew Gill as the Responsible Officer (on the same day Mr Gill emailed the Chief Inspector of Mines, Fred Sears, to inform him that records would indicate that Pat Ball was the responsible officer for underground operations). The initial interpretation of WST would seem to be the logical one since the very notion of appointing a responsible officer would have little meaning unless that person so appointed exercised overall control of the workplace and could therefore make critical decisions in relation to OHS not simply recommend them, be part of them, or make some decisions but not others that might affect safety. For example, as responsible officer Mr Ball was a participant in decisions on mine design and mining methods – decisions that have a critical effect on the safety of underground workings – but he was not the only or final decision-maker. Evidence presented later in this report demonstrates that decisions about these matters were made a by group of senior managers and were not an area where Mr Ball exercised exclusive authority. Similarly, decisions made 'above ground' in relation to the mixing of ground support materials could affect the safety of underground workings but Mr Ball did

not have control of that operation. Ultimately, any critical decision about mining operations had to be 'signed off' by the resident manager Mathew Gill.

61. At the same time, Beaconsfield is not the only designated workplace where the responsible officer has subsequently appointed other subordinate managers as responsible officer for workplaces 'on site' (other mines with this arrangement include Zinifex Rosebery and Renison Tin). WST has subsequently obtained legal advice that multiple responsible officers could be appointed for the one worksite where there was a major functional separation of activities, involving discrete and defined activities. The advice indicated each case would need to be decided on its merits. For its part, the Mine has argued that overall control of the mine was vested in the Joint Venture committee rather than Mr Gill and devolving the responsible officer role had advantages even for relatively small operations like Beaconsfield in terms of the allocation of workloads and achieving an effective combination of skill, focus and contact in the tasks undertaken. If the intention of the responsible officer provisions in the legislation is to provide a focal point for regulatory compliance responsibility in relation to high hazard workplaces the appointment of multiple responsible officers for a workplace (even one entailing a series of arguable discrete operations) poses a number of serious problems. First, as indicated by examples given in relation to the underground mine manager above, apparently discrete activities may mask areas of decision-making where the 'responsible' officer is not the final or only decision-maker for these areas, leading to disarticulation in terms of matching responsibility with control. If a responsible officer does not have exclusive control of those areas for which they hold responsibility the very logic of identifying a responsible officer would seem to be suspect in terms of achieving the objectives of the legislation. Second, high hazard worksites dealing with hazardous substances and potentially hazardous work processes require an overarching OHS management regime that integrates control measures in relation to particular areas (whether that be the use of hazardous substances in mineral processing above ground or the hazards of underground mining). Appointing multiple responsible officers with discrete areas of responsibility may be conducive to compartmentalization rather than integration. This report provides some evidence that compartmentalization of OHS management did occur at the Beaconsfield Mine, despite efforts at integration. Third, the question needs to be asked as to what are the implications of the manager in control of worksite, such as Mathew Gill at the Beaconsfield Mine, appoints a series of subordinate managers as responsible officers? Does it mean that the executive manager of a designated worksite – the person with ultimate control of that worksite – has passed on their obligations to others and has no obligations as a responsible officer under the *WHSA*? If so, this would hardly seem consistent with the objective of identifying a person at a designated workplace to be the focal point for ensuring compliance with the Act. If not, the result would be to effectively create responsible officers with overlapping responsibilities (ie one for the site as a whole and one or more others responsible for particular workplaces within that worksite). This would seem to be a recipe for confusion, fragmentation of legislative obligations and even 'risk shifting'. WST informed the Investigation that a problem has already arisen in relation to proceedings before the court where in defense of a worksite responsible officer charged under s11 of the Act a mining responsible officer has stated that he was responsible for the mine and hence the site responsible officer has no case to answer. For

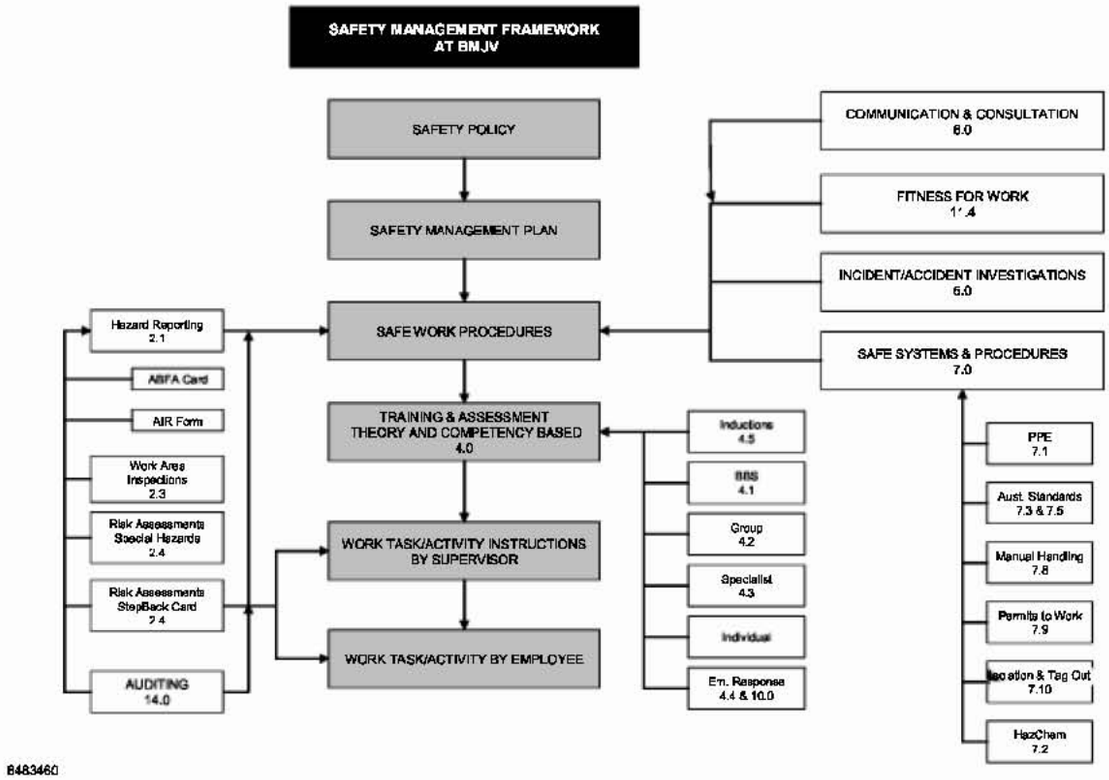
all these reasons it is recommended that the legislation be amended as a matter of urgency so that only one responsible officer can be appointed to a worksite – the person with overarching direct managerial control of that worksite. If there are compelling circumstances for the appointment of multiple responsible officers at a workplace – and it is hard to conceive of these – the appropriate process should be making an application for special consideration to the General Manager of WST, who could then rule as to whether an exception is justified.

The Mine Safety Management Plan

62. The key document outlining procedures for managing OHS at the mine at the time of the incident was the BMJV Safety Management Plan (see Figure 1). In formal terms, the role of the plan was an umbrella outlining areas of activity designed to implement the Company's Safety Policy. The safety policy stated that mine was committed to achieving a safety performance of "zero significant injuries and to strive to provide a work environment that ensures the health of "all employees. It is further stated that the policy is based on the belief that no objective takes priority over safety, risks can be identified and continually reduced, all injuries/incidents are preventable, everyone has responsibility for their own safety and that of others, management is responsible for ensuring a safe system of work, training of employees to work safely is essential, working safely is a primary condition of employment, and legal obligations are the minimum requirement of the mine's health and safety standards.

63. Development of the BMJV Safety Management Plan was commenced in 2003 in response to a desktop audit by Workplace Standards Tasmania (WST) in 2002 (for details see below) that suggested BMJV develop a management plan as "an umbrella to its existing Safety Policy, policies, standards and procedures (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p3). Development of the plan was completed in April 2004 and was subsequently amended prior to the incident of 25 April 2006. Like OHS management systems elsewhere, such plans can never be regarded as finalized because they must be adapted to meet changing circumstances (such as changes to work processes) and knowledge. Resident Mine Manager Mathew Gill agreed the mine safety management plan needed to be seen as work in progress (p17 of part 1 of ROI). Asked if there were issues with the plan he had identified and wanted to consider prior to the incident of 25 April 2006, Mr Gill stated (p17 of part 1 of ROI) *"there were no issues that had concerned me about the safety management plan or its content and if there was we would be working on addressing, discussing and whatever the deficiencies we were working to resolve those.* Asked to identify his biggest safety concern prior to the Anzac incident, Mr Gill stated it was seismicity (p18 of part 1 of ROI). Asked where seismicity ranked in terms of the catastrophic risks identified by mine management Mr Gill stated that ground control was in the top five (p19 of part 1 ROI).

Figure 1: Structure of Safety Management at the Beaconsfield Gold Mine



64. In order to understand the operation of the mine safety plan it is essential to provide a short history of OHS management at the mine. Lost time and medical treatment injury records for the mine indicate spikes in early 1997, early 2000 and 2002 with an overall decline in frequency rates thereafter until early 2006 when the trend appears to have stalled if not gone into reverse. For reasons identified below interpreting these trends or relying too heavily on them as an indicator of OHS performance needs to be treated with caution. In a review of safety management at Beaconsfield Mr Gill (2005) stated the mine experienced a poor injury record during the dewatering, shaft rehabilitation and mine development phase (1995-1999) but that this began to improve from 1997 – something he attributed to enhanced operational and training procedures. It is worth noting that investigation interviews with former and current mineworkers attested to a significant improvement in induction and training procedures at the mine though much of this was seen to have occurred in the past five years. In his review Mr Gill (2005) identified another deterioration from mid 1999 as the mine entered full production and a processing plant was established (with associated hazards from manual handling, plant and chemicals) – developments that did not go smoothly. Again, injury rates fell but by mid the 2001 the placing of the mine under administration was seen to have had a significant adverse affect on safety performance – something readily agreed to by mineworkers and

supervisors in interviews referred to later in this report (see the section on the financial precariousness of the mine).

65. According to Gill (2005) the deterioration led to a re-focusing of the safety management strategy to "help ensure the ongoing viability of the operation. Utilizing the services of a consulting organisation, SAFEmap, the new strategy was a behaviorally focused approach that involved employees understanding "the concept of risk-taking and its management. This included the introduction of hazard awareness and risk management at the employee level on a daily basis and the coaching of supervisors as well as the use of an employee perception survey to gauge progress. The survey undertaken in December 2002 revealed a number of serious issues including a belief amongst workers that management didn't take safety seriously and they were not consulted, safety training was not highly rated and the workforce didn't receive recognition for working safely (these and other findings from workforce surveys are discussed in more detail below).

66. First, to address workforce concerns that management didn't take safely seriously it was resolved to change ground support procedures, review/rewrite safety audits so they involved more employees and identified deficiencies were addressed; review/rewrite the Accident Investigation Report process; establish consistent processes to ensure hazards raised at toolbox meetings were acknowledged, assessed and actioned and feedback provided; identify and eliminate unacceptable work practices/short cuts perceived to be condoned by management; make standards required and accountabilities explicit to those not complying; and improve communication through the use of whiteboards.

67. Second, with regard to concerns about consultation, the management team agreed to focus on the structure, content and running of toolbox meetings; and better employee involvement in the review/development of procedures, accident investigation and hazard analysis. It is worth noting in passing that there was no move to establish a mine-site OHS committee to improve consultation, the Mine's preferred approach being to involve all workers through a variety of other mechanisms (the effectiveness of these measures is examined at length later in the report).

68. Third, with regard to safety training not being highly rated, management resolved to involve employees in the review and simplification of existing procedures; review the induction process; and provide more formal and scheduled training based on needs (and release employees for training irrespective of production demands)

69. Fourth and finally, with regard to the need for the workforce to receive recognition for working safely management resolved to introduce a safety reward tool that focused on recognizing positive behaviour (to compliment existing disciplinary tools); and to coach supervisors/managers to assist in developing a proactive approach.

70. Behaviour-based safety was a critical component of the revised approach adopted in 2002. In additional to behaviorally-focused training for management and workers key changes introduced as part of this strategy were the development of a number of hazard

identification/risk assessment and hazard/near miss reporting tools for workers (the StepBack hazard identification/risk assessment card, the ABFA Hazard Card and the "Near Hit report Card); a "Scratchy safe behaviour reward scheme; a structured "Greenhorn program for employees without previous mining experience; and a revised safety audit process so Safe Work Procedures (SWPs) were physically audited against activity underground. As part of the development of the Safe Management Plan in 2004 a Senior Management Safety Leadership Group was established, consisting of the senior management team. There were also weekly meetings of shift supervisors at the mine where safety issues could be raised and similar management meetings were held at the Mill (BMJV response to item 18 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* 1995).

71. In assessing the effectiveness of these measures in October 2005 (Gill, 2005) the Resident Mine Manager Mathew Gill identified a number of positive trends in OHS performance measures, notably a declining lost time injury frequency rate (LTIFR), an improved workers' compensation claims record and a reduced employee turnover rate. It should be noted that subsequent data for the remainder of 2005 and the period to April 2006 indicated a continued decline in medical treatment injuries (MTI) but a trending up in lost time injuries (LTI) and the LTIFR. There is also evidence that the number of lost time injuries was causing some concern regarding compliance with safe work policies at the mine. Item 6 of a shift bosses meeting held on 3 March 2006 observed *"7 LTIs in the last 2 months. Most have been incidents where people weren't following issues policies. The focus over the near future will be re-learning the rules and enforcing them. Just as a reminder, long sleeves are compulsory. Carrying of gloves is compulsory as is their use in situations such as scaling and using saws. Scaling of faces prior to charge-up is also important and should be enforced."* The Allstate Exploration Activities Report for the Quarter ended 31 March 2006 noted the trend stating that safety performance *"as measured by the number of Lost Time Injuries ("**LTIs**") and Medical Treatment Injuries, which are referrals to a doctor ("**MTIs**"), experienced a reversal in the previous strong downward improvement during the quarter. While none of the incidents were of a serious nature, the focus on continuing to improve the historical decreasing injury trend remains, with commitment to the well-established behaviour-focused safety and risk awareness programme being a cornerstone of this objective. Back to basics refresher training was conducted in this regard."*

72. The upward trend just referred to remains after excluding those claims directly-related to the Anzac Day incident (including the fatal injuries to Larry Knight, the non-fatal injuries to Todd Russell and Brant Webb and six other BMJV employee mineworkers experiencing anxiety, insomnia or stress) but the period is too short to draw any significant conclusions regarding OHS performance at the mine (*BMJ Safety Performance: Lost Time Injuries and Medical Treatment Injuries 12 Month Rolling Average August 1995 to April 2006*).

73. Before proceeding to examine key elements of the mine's safety management plan it is important to make comment on the use of LTIFRs and MTIs. In his review of safety management at the Mine Mathew Gill acknowledges that LTIFRs have limitations before

using them as a reference point (and the company's additional use of MTIs certainly had value). LTIFRs and MTIs were a focal point for assessing safety performance at the mine, being used in weekly reports, monthly reports, quarterly reports to the stock exchange, as well as the OHS indicators in spreadsheets of overall key performance indicators for the mine and a range of other internal and external documents (such as periodic compilations of OHS statistics and OHS reports prepared by OHS officer Rex Johnson). Even with the caveat just mentioned, serious concerns have been raised about the value and use of these as measures of safety performance by recent reviews of mining safety or mining inspectorates in Australia. For example, in his inquiry into the Western Australian mining industry Mark Ritter (2004) stated that while widely used by both the Department and industry, traditional key performance indicators such as LTIFRs were inadequate measures of safety performance. Ritter's findings were repeated by the interim report of the tripartite Mines Safety Improvement Group (Bradley, 2005:25) which stated *"Apart from being recognised as lag indicators, they are viewed by most informed commentators as having no relevance in the regulation and management of Major Hazard Facilities. Ritter believes that continuing use of (declining) LTIFRs as positive indicators of safety performance is of questionable value."* LTIFRs are referred to as lag indicators because like illness or hazard exposures they record events that have already occurred or outcomes. Another set of measures are referred to as leading, process or positive performance indicators because they try quantify measures taken to prevent injuries, illness or incidents occurring, including the number and quality of worker training, the number of inspections carried out and evaluation of risk assessment activities.

74. Studies or inquiries into a number of occupational disasters have found that the focus on injury records can detract attention from health hazards (such as exposure to chemicals) and as well as the factors that may lead to catastrophic incidents. Lost time injuries may provide no meaningful information in relation to health-related exposures or a major rock fall due to seismicity. In his study of the Esso Longford gas plant explosion in 1998 OHS expert Andrew Hopkins (1999: 70-71) makes reference to the potential danger of focusing on lost time injuries in high hazard workplaces, including mines *"firms normally attend to what is being measured, at the expense of what is not. Thus, a focus on LTIs can lead companies to become complacent about their management of major hazards. This is exactly what seems to have happened at Esso...Precisely the same phenomenon contributed to the explosion at Moura. By concentrating on high frequency/low severity problems Moura had managed to halve its lost-time injury frequency rate in four years preceding the explosion, from 153 injuries per million hours worked in 1989/90 to 71 in 1993/94. By this criterion, Moura was safer than many other Australian coal mines. But as a consequence of focusing on relatively minor matters, the need for vigilance in relation to catastrophic events was overlooked."* At the Beaconsfield mine four workers (one each in 2003 and 2004 and two in 2006) were injured by falling rocks (and as this report will indicate a number of others experienced 'near misses'). The Beaconsfield Mine has rejected any suggestion that a focus on injury records detracted attention from catastrophic risk, pointing to its catastrophic risk management exercise, SWP auditing, cyanide management, behaviour-based training, near miss reporting and response to the October 2005 rockfalls. These measures (apart from cyanide management) and rockfalls are addressed in detail later in the report, where it is argued (amongst other

things) that the Mine failed to appreciate the importance of a mounting number of rockfalls at the mine as a critical OHS performance indicator and one relevant to preventing incidents such as that which occurred on Anzac Day 2006.

75. The limitations of using lost time injury frequency rates and related indicators of harm (such as fatality frequency rate and disabling injury frequency rate) as key OHS performance indicators have received increased recognition within the mining industry. The Minerals Council of Australia document *Positive Performance Indicators: A Practical Guide* noted that these outcome measures gave no indication of risk management efforts (just failures of control or to manage risks), low numbers made establishing trends more difficult, gave no indication of how to tackle key risks/addressing problem areas and that a low LTIFR is not necessarily linked to a low risk of fatality. Consistent with points already made, the Guide goes on to identify LTIFR as a lagging indicator – a measure of failures experienced – and that if industry was seeking a workplace free of occupational injury, illness and disease an approach employing more proactive measures – positive performance indicators – was required. The guide identifies examples of positive performance indicators including the proportion of JSAs/SWPs completed for critical activities; proportion of risk assessments completed and controls implemented; proportion of workplace inspections and actions arising from completed; indicators of induction/training completed and compliance; timeliness of incident investigation and corrective actions; findings of employee perception surveys; and the holding, attendance and outcomes of toolbox meetings.

76. The Beaconsfield Mine's safety management plan indicates that other key performance indicators are to be implemented. As will be detailed in this report the Beaconsfield Mine had implemented several measures (such as the SAFEmap employee perception survey and SWP audit records) and had the base infrastructure in place to implement others (such as induction/training and toolbox meetings). The Mine also used a rock noise report card system as well as a system to detect and measure seismic events. The effectiveness of these measures in terms of managing seismic risk at the mines is examined later in this report (see also the Marisett report). The mine saw these devices as relevant to managing both routine and catastrophic risk. However, there is little evidence that these measures were operationalised in the sense of aggregating long term data or using records of activities to undertake detailed qualitative or quantitative analysis to identify trends or patterns and present these results to senior management meetings, making decisions on OHS performance. Around the time of the incident some statistics were being prepared for analysis in the OHS office. While reference to auditing of SWPs is included in monthly reports produced by the mine (along with a discussion of seismicity and reference to some rockfalls), the only OHS indicators included within the table of KPIs in these documents were lost time and medically treated injuries. If other performance indicators were as important as the mine claims it seems odd that a number were not included in the table of KPIs. Further, the mine had received independent advice about limitations in relation to its use of KPIs prior to the Anzac Day incident. As discussed later in this report, in December 2005 one of the six areas for recommended improvement identified by an overview of the mine's OHS management system undertaken by CGU Workers Compensation was the measurement of safety performance.

CGU recommended that the mine adopt a wide array of performance indicators, including positive process indicators such as number of corrective actions completed and training courses undertaken by staff.

77. It is worth noting that the Minerals Council Guide referred to above pointed to organizations and bodies promoting the use of such indicators, including Pasminco, Rio Tinto, the NSW Minerals Council and WA Chamber of Minerals and Energy. The Tasmanian Minerals Council had also given attention to this issue prior to the Anzac Day rockfall. The Mine has stated that as chair of the OHS Committee of Tasmanian Minerals Council, Mathew Gill had been promoting the use of positive performance indicators. The point at issue here is not whether the mine endorsed the use of positive performance indicators but rather how they were used and what indicators were pivotal in evaluating the overall level of safety at the mine, and therefore the management system in relation to this. In relation to the events of Anzac Day 2006 two relevant potential performance indicators were the mapping of both short and long terms trends in seismicity and the incidence of rock falls at the Mine. These are examined later in the report.

78. In gauging OHS performance, there is a need to consider process indicators (such as number of problems identified and number resolved, completion of major accident risk assessments, closure of major 'accident' risk group recommendations), which provide insights into how particular outcomes were achieved. The importance of a process safety focus rather than focus on individual/personal safety or injury has been highlighted by recent investigations into a number of OHS management system failures that had catastrophic consequences such as the explosion at BP's Texas City refinery that resulted in the death of 15 workers. In assessing BP's approach to safety in connection with the incident the *Report of the BP US Refineries Independent Safety Review Panel* (Baker 2007: xii) stated *"BP has an aspiration goal of 'no accidents, no harm to people.' BP has not provided effective leadership in making certain its management and its US refining workforce understands what is expected of them regarding process safety performance. BP has emphasised personal safety in recent years and has achieved significant improvement in personal safety performance, but BP did not emphasize process safety. BP mistakenly interpreted improving personal injury rates as an indication of acceptable process safety performance at its US refineries. BP's reliance on this data, combined with inadequate process safety understanding, created a false sense of confidence that BP was properly addressing process safety risks."* One of the key recommendations of the Panel (No.7 at page xvii) was the need for both leading and lagging performance indicators. In addition to several already mentioned, 'near misses' have been viewed as a valuable predictor of actual injuries or serious events (and it could be suggested the mine experienced a number of seismic event/rockfall 'near misses' both prior to the serious rockfall events in October 2005 [itself a near miss] and the falls of 25 April 2006 six months later). Further, as noted by Australian Offshore Petroleum Safety Case Review (Institutional Form Working Group, 2002: 54-55) LTIs do not work well "for all major accident type events – an important consideration in high hazard workplaces such as mines. As demonstrated later in the report, rockfalls account for relatively few lost-time injuries in the Tasmanian mining industry but about half the number of underground

fatalities. Thus, lost-time injuries provided no real basis for minimizing the risk of serious seismic events or their tragic consequences at the Beaconsfield mine.

79. The ongoing focus on injuries by Beaconsfield management (in addition to the prominence placed on it in various mine documents already referred to) was typified in naming the OHS committee set up in 2005 as the Zero Committee (for "zero accidents, zero harm in the words of Mathew Gill p16 of part 1 of ROI) and the prominence given to a notice on the injury record of the mine adjacent to the administration offices near the entrance to the mine site. The Mine has indicated that the 'zero' notion was consistent with the OHS Vision of the Minerals Council of Australia of an industry free of fatalities, injuries and disease. The report is not contending that a committee labeled as a Zero committee could not act as an OHS committee or indeed consider, as it should, injury risks in the workplace. The point being made is that this title implies a narrower focus than what would seem desirable, and reflected management's conception of safety performance, notwithstanding an awareness of its limits. When asked how the mine communicated its performance in relation to safety within management, externally and to the workforce Mr Gill largely referred to injuries and workers' compensation claims (pp16-17 of part 1 of ROI). The Mine has emphasised the important role of the Senior Management Leadership Group in terms of its evaluation of OHS performance but it is difficult to draw conclusions about how OHS performance was assessed because the meetings of this group viewed by the Investigation were not closely minuted. Meetings cover a wide range of matters (see Table 3 for examples) but the minutes (often consisting of a single entry sentence or phrase in a series of boxes) make it difficult to determine the detail in which matters were discussed (except from a crude count of agenda items), points raised/evidence considered, or how decisions taken related to an overall assessment of OHS performance. The Minutes provide no clear guidance as to what performance indicators were seen as critical – the point at issue here. Without prejudging what is to follow in this report it is recommended that over-reliance on injury rates as an indicator of OHS performance in the mining industry should be discouraged in favour of array of both outcome and process, positive/negative and quantitative and qualitative indicators (such as a balanced scorecard approach), complemented with specific planning for known high impact events. The latter would include 'red flag' indicators or protocols based on the precautionary principle along the lines, for example, the requirement to evacuate or exclude miners from coal mines in Queensland when they go through the explosive phase of a heating (see Cliff, 2007) though the response can be flexibly geared to more complex circumstances. It is understood a review of performance indicators is currently the subject of consideration in the Queensland mining industry.

80. Two final points need to be made with regard to performance indicators. First, this report is not suggesting that injury records have no value in terms of evaluating OHS performance but rather that such measures need to be interpreted with caution and used in conjunction with other measures. Second, in dealing with catastrophic risks in particular there is a need to look beyond measures of performance within a specific workplace because these catastrophic incidents are rare and have not been experienced by many workplaces. In this regard, evidence taken from previous events at other workplaces or broader industry statistics is of value. As the report observes later, rockfalls have been the

single most important source of fatal injury to underground mineworkers in Tasmania over many years and this has not changed over the past decade. It appears this information was not used in the catastrophic risk assessment process undertaken by the Mine in 2004.

Assessing key elements of the mine safety management plan as at 25 April 2006

81. The mine safety management plan contained a number of steps and areas of designated activity, namely:

Step 1 – health, safety and environment management commitment

Step 2 – systems to define and assess operations (hazard reporting, work area inspection, risk assessment – special hazards)

Step 3 – performance targets and objectives

Step 4 – training (including induction and contractor & visitor training)

Step 5 – incident/accident management and investigation

Step 6 – information retention and analysis (including injury and incident analysis, workers' compensation claims analysis, hazard and risk analysis and audit results)

Step 7 – safe systems, work processes and procedures for site (including PPE; hazardous substances/dangerous goods; electrical equipment; design, maintenance and repair; cranes, hoists and lifting equipment; machinery and guarding; housekeeping; manual and material handling; permit and work systems; tag out, lock out and isolation; visitor safety; noise management; pneumatic equipment; and fleet safety)

Step 8 – communication and consultation (including senior management health and safety committee, employee toolbox meetings and safety communication tools)

Step 9 – purchasing (including supplier agreements and new product trialing)

Step 10 – emergency preparedness (including first aid; on-site injury management; site emergency plan; emergency response team, equipment and facilities; fire extinguisher training and evacuation trials)

Step 11 – preventative health and hygiene programs (including health surveillance and hygiene sampling; health promotion; fitness for work [drug and alcohol, fatigue and working in heat])

Step 12 – recruitment and placement (including pre-placement and intra company health assessment)

Step 13 – rehabilitation and workers compensation management

Step 14 – auditing (including audit program, work area safety audits and external audits including statutory compliance, insurance and catastrophic risk)

82. ALX also produced a compendium of its policies covering absence management, discipline, drug and alcohol program, eye protection, BMJV roster package, Department of Health, Tasmania – smoke free areas legislation, employee assistance program and confined space entry (Response to items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *Workplace Health and Safety Act 1995*).

83. The remainder of this section will examine management practices in relation to a number of key areas in terms of OHS management in the period leading up to the incident of 25 April 2006.

Induction and training

84. Under s9(2)(c) of the *WHSA* the employer has a duty to ensure that a employee performing hazardous work receives proper information, instruction and training before commencing that work. Section 9(2) (d) imposes an additional duty to ensure any employee who is inexperienced receives such supervision as is necessary to ensure that employee's health and safety. Induction and training was covered under step 4 of the mine safety management plan. The Beaconsfield Mine had a compulsory induction scheme to cover all those entering the mine for work-related purposes, including employees, contractors and visitors. Induction included both site-specific and generic components. Single job contractors (such as truck drivers delivering goods to the site) had to complete a short-term contractors' induction. Mine employees and other contractors had to complete, in addition to site specific induction, generic induction needed to be achieved to the level of MARCSTA Surface and Underground or its equivalent (with the former being preferred). The Mine also required periodic refresher courses.

85. For some time prior to the incident of 25 April 2006 the BMVJ had adopted the MARCSTA induction system (developed by the Mining and Resource Contractors Safety Training Association in Western Australia) for all workers commencing at the mine. This induction occurred over two days. In addition to MARCSTA the underground operations had two specialist-training officers, ground awareness training (GAT) and a special scheme to ensure workers new to the industry were trained and closely supervised during their initial period of employment (the Greenhorn scheme).

86. The training officers were involved in delivering site specific training (such as teaching mineworkers the appropriate SWPs), auditing operators understanding of their training and helping to develop or revise SWPs as required. One of the two underground training officers, Paddy Hampton (p22 ROI) indicated that the mine used a matrix to ensure everyone had the training relevant to their tasks and so that changes in SWPs could be tracked *"Yeah, we've got a matrix with everyone that works here on it and – we've got a matrix and with all the procedures that are relevant to the guys and if there's changes*

to that procedure, you know, it's marked on the matrix." A copy of the training matrix provided by the Mine to the Investigation confirmed this, and it needs to be acknowledged seemed a very worthwhile device for tracking training - one worthy of emulation by any mine that doesn't already use this practice.

87. Paddy Hampton described his auditing activities at the mine (p4 ROI) *"Oh, yeah, audits – there are monthly audits and daily audits, audits of the safe work procedures. Each safe work procedure has an audit and I have to do, well whatever I can each month or try and audit each one each month. Sometimes it's a bit hard you can only get around so many of them but on an average I suppose would be, I don't know, twenty five to thirty audits per months done on safe work procedures."*

88. The AWU/Knight family submission noted a number of criticisms of training at the mine, namely that it was too focused on paperwork rather than on practical training; training was not directed at individual needs; MARCSTA training was provided late and out of date ticketing was subsequently backdated; and charge up work was undertaken without a ticket (p18).

89. The overwhelming majority of mineworkers interviewed for this investigation - both those that were experienced and those were relatively inexperienced at commencement - expressed the view that induction and training at the mine was adequate. Of the 41 mineworkers interviewed, 29 (70.7%) expressed general satisfaction with induction and training, six (14.6%) made some criticism (though even here the views expressed were often mixed rather than uniformly negative) and for the remaining six (14.6%) no opinion was expressed.

90. Asked to rate the training at Beaconsfield, Gavan Cheesman a shift supervisor stated (p4 ROI) *"It's on a par. Probably – there was more emphasis – probably more here than from what I can remember at Renison, as far as - you know, like they'd have to be signed off at their module, (iw) on the board, and you're not supposed to go and do a job unless they're trained to perform that job. I suppose there might have been a few fell through the net."*

91. In general, the role of the two underground training officers was viewed in a positive light by mineworkers. A number of experienced mineworkers, both direct employees and contractors, expressed the view that induction and training was superior to other mines where they had worked. For example, Graham Lanham, a miner who had spent 13 years at Renison Bell before joining Beaconsfield 18 months prior to the incident (and took a redundancy package) assessed the induction/ training as (p3 ROI), *"They were better than most, actually."* Similarly, Gray Reginald Jacques, a decline and service crewmember working for Webb Mining who had worked in mining since 1980, commented (p4 ROI) *"I think it's very good, very good...I was a contractor for most of my time on the mainland which was twenty years, and we got more thorough training here than most mines."*

92. Others noted considerable improvements in training over the period they had been at the mine. Corey Willem Verhey who had worked at the mine for five years (p4 ROI), stated "*training when I first started there was nowhere as good as what it is now. The training has improved over the years but I found when I first started there, new blokes weren't given a lot of training before they was asked to do different tasks.*"

93. A number of mineworkers interviewed praised the Mine's "Greenhorn scheme for supervising inexperienced mineworkers. This scheme entailed mentored supervision during the early stages of employment as well as the provision of particular SWPs (such as SWP 179 Basic Ground Reading Awareness for Greenhorns and SWP 189 Basic Explosives Awareness for Greenhorns). Indeed, the scheme received recognition in the annual state safety awards in 2005.

94. Relatively few workers identified gaps in their training. Two underground maintenance workers (Shane Langford p4 ROI and Donald George McCredie p6 ROI) stated they had not been given training to familiarize them with new machines. Carl Hudson, who had been employed at the mine for only six months and had no prior mining experience (pp14-15 ROI), claimed the course he took to drive a Telehandler did not include the need to drive the Telehandler in reverse when carrying a bin *"driving a Telehandler - with a bin or something on the front...I mean you don't have very good vision, especially coming down you've got a bit of a blind spot there...And it was more an issue about radio use with... people calling the levels ...there was the potential for an incident...I asked and found out that if you've got something on like that then you should be driving in reverse..."*. As this appeared to be a potentially dangerous omission in training, and a Telehandler was being used at the time of the Anzac Day incident (though there is no suggestion it was being driven in reverse at the time of the incident), the investigation requested further information from the mine on the training of Telehandler drivers and the practice of carrying loads that obstructed driver vision. In response (Response to Items 1 to 10 of Schedule 2 of the Notice of 13 September 2006 under s36 of the *Workplace Health and Safety Act, 1995*) it was stated that ALX required workers operating Telehandlers to attend a two-day Tasmania Development and Resources: Industry Safety and Mines "*Non-slewing mobile crane course* conducted on-site at the mine by Laurie Appleby, a duly certified third party assessor with Workplace Standards Tasmania. With regard to driving with a load that blocks vision it was stated that it *"is very rare for a member of ALX's workforce to travel in a Telehandler with a load that blocks vision. On the rare occasions when a member of ALX's workforce is required to travel in a Telehandler with a load that blocks vision, that member will either drive forward with a spotter directing travel, or drive in reverse, depending on the circumstances."* While this response answered part of the Investigation's queries it did not explicitly address whether the training package specifically addressed the issue of driving Telehandlers with blocked vision or indicate where in terms of a SWP, for example, the precautionary practices to be used in these circumstances were identified or in other ways transmitted to the operator.

95. Negative criticisms of training or suggested areas of improvement also included the need for more in depth or practical training (and a not unrelated criticism of paperwork),

time-off for training and being required to read and sign off on changes to SWPs during crib breaks. Michael Borill, a jumbo operator who had worked at the mine for seven years, stated (pp4-5 ROI) *"this would have to be the most paperwork company I've ever worked for ...they give you courses to do with safety while you're having your dinner... they'll say, we've changed an amendment here, this highlighted part is the new menu...read that and sign down the bottom here...the method they had was all right, it just needed not to be rushed through on the blokes"* The Mine rejected the contention that that crib breaks were used for training (although mineworkers might be contacted to organize a session at this time) and also indicated that paperwork is inevitable in a large organisation. The allegation of training in crib breaks was not explored with training officers and no other worker interviewed referred to this. Further, complaints about paperwork were relatively muted and must be seen in the context of the need for documentation and the real risks posed without an adequate paper trail in relation to training. On the other hand, criticism about having to read and sign off on changes to SWPs during crib breaks – a point also made by Mr Borril - was a recurring complaint amongst mineworkers interviewed by the Investigation.

96. Criticism about having to read and sign off on changes to SWPs during 40 minute crib breaks was not confined to those critical of training more generally but was made by number of mineworkers who believed their training and induction was adequate. Daniel John Piscioneri (p7 ROI), for example, stated *"We - yeah, we usually get them in our - in like training forms, they come down and they'll be highlighted in different procedures, like trucking, bogging and jumbo, and they'll be highlighted and we just have to read them and sign off them - sign off on them, but that there was - I don't think was very adequate because you'd be having your lunch and you'd have these papers to sign and that was actually you signing to say yep, I understand and accept my responsibilities for bogging and everything and that was a bit overwhelming because you had - you was doing that every day."*

97. Only one mineworker interviewed stated he liked the crib time sign off on changes (because it gave him something to do) while others found it an imposition on their time - a number admitted signing off on changes without fully reading them. Jason Anthony King, a service crewmember working the contractor Nigel Webb Mining (ROI p21) stated *"I don't like signing anything with - they give you this thing to read, and you read it, and you agree with it, and you sign it, and what if you stuff up? Does it come back to you or what? That's what - you know, I don't like really signing anything...Someone covering their arse up here."* Ricky John Payne, a long-hole driller (p10 ROI) stated *"...experienced guys know what it is but yeah, if it was truth, I'd sign off on a few – stupid."*

98. During the course of the investigation issues were raised in relation to the adequacy of particular areas or aspects of training. The AWU/Knight family submission indicated workers had provided information to the effect that experienced operators struggled to balance completing their duties with safety mentoring of inexperienced workers, that training provided by in-house training officers was less effective than that provided by expert external trainers and that training was sometimes done by training officers not

expert in the particular machinery (p24). As mentioned elsewhere in this report, a number of Beaconsfield mineworkers not interviewed by the Investigation provided statements to the AWU and these statements were supplied to the Investigation with the consent of the workers concerned. Overall, like the interviews undertaken by the Investigation these statements made positive observations about induction training at the mine although also pointing to limitations – largely echoing those already referred to, such as insufficient practical training prior to certification (see for example the statement of Mark Crawford at page 2-3). One exception was Philip Malkin (statement at page 2), an experienced mineworker who indicated he had received no training to assist him undertake the task of acting shift supervisor. Mr Malkin's criticism was rejected by the Mine, which stated that his personnel file indicated he had signed off on receiving instruction in the meaning of accountable persons under the Act, his position and responsibilities (including statutory responsibility), supervisor's position description, supervisor's checklist, expectation for reporting incidents and accidents, and his responsibility under the open firing system.

99. Another potentially important issue is the extent to which mine management ensured workers were trained in tasks they were asked to undertake. In December 2004, Jason Stevenson was injured when he drove a loader off the edge and into a stope at the 840mL while engaged in backfill operations with another mineworker, Gary Andrew Round. This was the first time Stevenson had undertaken this task and he had not been signed off in backfill procedures. Though Round was a very experienced mineworker and had undertaken backfill operations many times he too had not been signed off on backfill procedures. As a result of this incident the shift boss (Gavan Cheesman) involved was severely reprimanded (see paragraphs 578), the right of workers to refuse tasks they were not trained for was reinforced and backfill procedures were amended. Mineworkers interviewed for this investigation gave no indication that this problem had recurred when asked to comment on any deficiencies or weaknesses in the Mine's training regime. On the one hand, this incident supports the Mine's contention that mineworkers were not permitted to perform specific tasks until they had been duly certified as competent to undertake them. On the other hand, WST was called in to address the matter following a complaint from Mr Stevenson and Mines Chief inspector Fred Sears was concerned at the mine's belated response to this issue (see paragraphs 578).

100. The investigation examined whether Messrs Knight, Russell and Webb had been adequately trained for the tasks they were undertaking at the time of incident. In short, were the men by reason of training and experience considered competent to build the barricade when being assigned the task. Larry Knight had been duly certified to operate a Telehandler and had experience in this regard. The tasks associated with building the barricade were covered by the Mine's Safe Work Procedures (or SWPs – the general operation of SWPs is examined later). According to the Mine (Response to item 3 schedule 2 of notice of 8 June 2006 under s36 of the Workplace Health and Safety Act 1995) six SWPs (AVOCA stope conveyor and mesh installation [SWP 150]; performing work from a platform or loader basket [SWP 130]; assessing ground conditions and manual scaling operations [SWP 180]; assessment for assessing ground conditions and scaling [SWP 181]; stope re-entry procedure [SWP 236]; and development heading re-entry [SWP 237]) and a safety policy (working at heights) applied to the tasks being

undertaken by Todd Russell, Brant Webb and Larry Knight at the time of the incident. All these SWPs and safety policies had been written or revised since January 2004 with SWP 150 being dated 5 April 2006 – just 20 days prior to the incident. In its response the Company further stated that SWPs 130, 180, 181 236 and 237 had all been recently audited; Messrs Russell, Webb and Knight were trained in SWPs 130, 180, 181, 236 and 237 and safety policy (working at heights); Messrs Russell and Webb "at least had performed similar tasks in other areas of the mine; and that the shift supervisor, Gavan Cheesman, had inspected the area where the men were working shortly before the incident and had found nothing "untoward. No specific evidence challenging these statements or suggesting a failure in the SWPs and safety policy being applied at the time of the incident had not been followed or was inadequate – and this inadequacy contributed to the incident - was presented to the Investigation. Examination of company records confirmed Larry Knight had been trained in a number of SWPs including SWP 130, 236, 237 as well as completing a BMJV ground reading and awareness course (including completing a questionnaire test in 2001 around the same time as Todd Russell). Examination of company records indicates that Todd Russell had received training in SWP 130, 180, 181, 236 and 237. The mine training matrix (item 10 of e copy only of Addendum 3) indicates that Brant Webb had only been trained in the old version of SWP 180 and 181 and none of the men had been trained in SWP 150.

101. The investigation sought additional information in relation to SWP from the Mine, which (Addition to response to Item 3 Schedule 2 of the Notice of 8 June 2006 under s36 of the *Workplace health and Safety Act 1995*) responded that SWP 150 was a new SWP that had been signed-off on 20 April 2006 only 20 days prior to incident (with training scheduled but having not yet occurred). The Mine also stated SWP 150 was the result of ongoing revision and upgrading of SWPs, which built on existing SWPs – the contents of which were relevant to the tasks covered by SWP 150 and for which Messrs Russell and Webb had been trained. Specifically, the Mine's response stated that *"Mr Russell's previous training (including with respect to a number of SWPs and specifically SWP 341 "Tipping bund, CRF and Stope Filling", and SWP 335 "R1300 Line of Sight - Remote loader operations") and experience (including experience with installing mesh walls with wire rope), he already had knowledge and experience with respect to the material tasks the subject of SWP 150 which were relevant to the work he was performing; and Mr Webb's previous training and experience (including with respect to a number of SWPs and specifically SWP 341 "Tipping bund, CRF and Stope Filling") and experience (including experience in installing mesh walls with wire rope), he already had knowledge and experience with respect to the material tasks the subject of SWP 150 which were relevant to the work he was performing."* The Mine went onto state there were no new or unique procedures in SWP 150 and the training and experience of Messrs Russell and Webb made them 'adept' in the tasks set out in this procedures. During interviews, neither Mr Russell nor Mr Webb expressed any misgivings in relation to the adequacy of their training or experience in relation to undertaking the task of building a barricade on 25 April 2006. Nor did any other mineworker interviewed by the Investigation express concerns about the training or competency of Mr Webb, Russell or Knight to undertake the tasks they were assigned on that day.

102. With regard to training in ground support/awareness and changes to mining methods, the AWU/Knight family submission it was also stated that training had not been given to all "necessary workers on the use and installation of new rock bolts adopted after the October 2005 rock fall (p11). It was also alleged that sufficient training was not provided to workers on the nature and implications of the checker-boarding mining method that was being implemented in response to concerns to incidents associated with the pre-existing mining method (modified AVOCA). The union was unclear as to whether checkerboarding had actually commenced at the time of the incident of 25 April 2006 (p11). This confusion was shared by a number of underground mine workers interviewed in the course of this investigation. Section 9(2)(e) of the *WHSA* imposes a duty on the employer "to ensure any employee who could be put at risk by a change in the workplace, in any work or work practice…is given proper information, instruction and training before the change occurs and receives such supervision as is necessary. Confusion about whether or the extent to checkerboarding had been implemented was also revealed in interviews with mineworkers carried out for the investigation.

103. The adequacy of ground awareness training has been raised as a serious issue, following fatal incidents at another Tasmanian Mine. A 2001 WST investigation (Sears and Las, 2001) into a rock fall that killed two young and relatively inexperienced mineworkers (one had joined the mine about a year earlier and had been trained "by association with experienced miners while the other had joined the mine less than three months before and was a trainee miner) at the Renison Bell mine in June 2001. Sears and Las recommended that training in ground support "be formalized and based on appropriately structured development, delivery and assessment. The Beaconsfield Mine had a formalized system of Ground Awareness Training system, the documentation and procedures in relation to this, being supplied to the Investigation.

104. Asked whether the workforce was given any training to develop their skills or their ability to apply in stress conditions in the mine, the Underground Manager Pat Ball replied (p14 of Part 2 of ROI) *"A lot of the people have done a ground awareness package, which is one of the SWPs. Myself, on multiple times have addressed groups and individuals on stress and geomechanic 101 was (iw). There was a more formal, early this year, about March, I think, Adrian Penney went underground and did a formal ground awareness session. There was multiple instances of others going through the seismic reactive heading procedure, people – roughly, we were to expect the worse of the seismicity, precautions to take, giving them authority in what to do, like extra bolts, meshing cases, pull out if you feel uncomfortable, report to your supervisor and get it fixed."*

105. Some workers interviewed confirmed that they had undergone detailed ground awareness training. Gary Round, a service crewmember (engaged by Webb Mining) who worked at the mine for over seven years (no prior mining experience) stated (p19 ROI) he had undertaken a proper ground reading course (theory and practice) and added "most miners that come underground had to get a proper ground reading and scaling ticket. Similarly, Stephen Maxwell Burrows, a truck driver and charge hand, stated (ROI p5) that ground reading was one of "the first things you do when you come down although he

noted his inexperience made it hard to make a judgement about when to withdraw *"its hard because...it's the only mine I've ever seen & its hard to read the ground...when you haven't had the timeframe to see a lot of stuff...haven't had the experience to read it."*

106. Other workers were more critical. Jerry Kahmann, a jumbo offsider who had worked at the Mine for 8½ years (p5 ROI), argued there was not enough practical follow up to training and he had witnessed others struggle *"I don't know if it gets to ground support and things like that and you've got to wonder"* Probing in interviews by the Investigation identified some apparent limitations in ground awareness training (GAT), notably that some interviewees claimed to have received none and for others it appeared to consist of watching a video, followed by question and answer and attendance sign-off (and without the opportunity for direct observation or testing knowledge of specific phenomena). For example, training officer Paddy Hampton when asked whether there was any follow up where the people given the training would actually go to the face and audit the understanding of the training course with the people working on the face, replied *"Not that I'm aware of."*

107. Interviews I was present for or have read transcripts of confirmed the two points just referred to, namely that some mineworkers stated they did not receive ground support training and others believed it largely consisted of watching a video. Statements provided to the AWU by Beaconsfield mineworkers (Mark Crawford at page 3, Philip Malkin at page 3 and Peter Schleich at page 2) and passed onto the Investigation (with consent) were also critical of training with regard to ground reading/seismic awareness, raising concerns similar to those already canvassed (ie no formal training or they only received a video).

108. Consistent with the last point, a memo from Adrian Robert Penney to Underground Shift Bosses dated 11 October 2005 (and identifying a schedule of training for crews over the succeeding fortnight) stated that *"training is primarily a 45 minute video called 'Reading the Ground' covering most aspects of ground awareness in a basic and easy to understand way. There will also be some time after the video for any questions to be raised and answered (where possible)."* On 25 October 2005 Mr Penney emailed Peter Hills and Pat Ball stating that *"all underground crews and maintenance crews have gone through the ground awareness training DVD with about 20 minutes of questions and answers after the movie. 5 session have been run in total and all names of people attending have been recorded...Do you think it would be worth running 1 or 2 more session on surface to get all technical and mining staff (Geology, Engineers, Surveyors, etc), and other people who go underground from time to time (ie maintenance, stores, OH & S, etc). Please let me know and if we wish to do this, I can try to organise the times to suit."* The issue of ground awareness training was explored further with Mr Penney (p4 3rd ROI) who indicated that two formal trainings were provided consisting of pictures or examples via a PowerPoint presentation plus *"lots of informal ones as well."* Mr Penney went on to confirm that the training did not involve direct observation of evidence of damage or other relevant conditions in the mine and that training had involved crews of between 10 and 30 mineworkers, rather two or three individuals. On the other hand, Pat Ball indicated direct observation was involved (p7 of 3rd ROI) *"basically it's one of our*

bigger training packages. It's a series of three videos. It's all sorts of material... It was so big that we normally did guys in groups of three plus, because it was just too much for one person. A lot of paper work, a lot of videos, underground to look at practical examples. It typically took a full day or even more than a day."

109. The Marisett report noted that while the content of ground awareness training material at the Beaconsfield mine was at the very least comparable to those found at other underground mining operations in Australia, the delivery of GAT had a number of limitations. The limitations identified by Mr Marisett included the generic (rather than BGM specific) nature of the package, the geotechnical qualifications of those presenting the program (Ball and Penney), mineworkers who claimed they had not to have received GAT, GAT refresher procedures appeared to consist of a video and question/answer session, and the absence of follow up to assess workforce understanding and application of this knowledge to their particular tasks. It is not clear whether the ground awareness training regime implemented at the mine fully met the recommendations of the WST investigation following the double fatality at the Renison Bell mine in 2001 (especially in relation to assessment, see paragraph 103). Another question is whether additional measures might be necessary where a significant part of the workforce is inexperienced or lacks experience of other mines (though note the mine's 'greenhorn' program in this regard). Better training in ground awareness should enhance the ability of mineworkers to make informed judgements about ground conditions, including when rock noise or other phenomena warranted retreat from an area (as well as the quality of information in rock noise/rock fall report cards).

110. This leads to the significant question as to whether better training would have made a difference to the incident of 25 April 2006. Based on the available evidence the answer here would seem to be no. Company records indicate that Todd Russell, Brant Webb and Larry Knight had received ground awareness training on 17 October 2005 or about six months prior to the incident (nine days prior to a major rock fall – by far the most serious that had occurred at the mine prior to that of 25 April 2006). All three were experienced mineworkers, with years of experience underground at the Beaconsfield mine (and Mr Knight had prior experience in hard rock mining in Western Australia). In their evidence to the Investigation both Brant Webb and Todd Russell indicated they had no absolutely no warning of an impending rock fall. Their shift supervisor, Gavan Cheesman, had also visited and spoken to the men shortly before the incident.

111. In describing the lead up to the incident Brant Webb stated that he had checked the area for unusual noise or other danger signs (ROI at page 44) *"You pull your earplugs out and have a listen and just sort of wander around and look at the ground and that, and Todd went into the back of the ute - I think he went to the back of the ute for something, I don't know, or was on the footwall side, you know, and being you know old charge up and that you always sort of check out where your brow is going, you're not working under a veranda or something like that. So I said to Larry, "I'll just stand there, I'll sort of have a quick squiz out here," you know, well you're not supposed to have a squiz, but you just put your head around, you know with your light and have a look, oh yeah, that was a nicely shaped back and looked like a really good stope actually, you know, like it wasn't straight*

up and down, they're the problem ones they're going to fall off, you know because there's nothing holding them, but it... had a nice, you know dip on it... you sort of had a fair few scats in there and everything, but no, it looked all fine there was no major ground movement and there was no water running through the ground, you know like they're all the things, there was no dust coming you know in your light, there was dust, so there was no there was fretting. So it all looked good to me."

112. Brant Webb then stated (at pages 55 to 56) that after they had commenced work Larry Knight grounded the basket and turned off the Telehandler while he went to get water bottle for Todd. Mr Webb then went on the state (at pages 57-59) *"You know like, yeah he sort of passed the water bottle, and then Cheesy turned up and then he said to Larry, when Cheesy left, he said, "Grab a couple of sheets of mesh." I'd tensioned the wire up. Todd put his dog clamp on there and started tightening that up to hold the wire, because it was in one length...And then yeah, then I woke up with lighter going (makes noise) (iw) I'm fucked (and re hearing air blast)...Yeah, but there was, yeah like something blew up, you know like one of the tyres had blown, that's why I thought the tyres had blown you know. But it was just a stope must have collapsed behind us...Yeah, the air blast and the noise was like it was instantaneous..."*

113. For his part, Todd Russell stated (p 21 ROI) "*We were in the basket, I'd asked Larry to grab my water bottle, which was located in a light bin, Larry brought my water bottle back to the basket. At this stage we'd - we were just tidying up the dog clamps on the wire and had finished tensing the wire. I then asked Larry if he could grab a sheet of mesh. I said to Brant to have a smoke and not have a drink of water while Larry was getting the sheet of mesh. I turned my back to grab my water bottle and that's when everything happened."*

114. Their evidence of an absence of warning signs seems in keeping with a number of other serious rock falls at the mine. One miner (Kerry Stephen Artis, p5 ROI) with considerable experience in other seismically active Tasmanian mines when asked to rate safety at Beaconsfield expressed the view *"...training-wise not too bad but it's horrible ground in the area down there. Its hard ground to pick and in other mines where the ground is softer you get a dribble or whatever and a sort of warning but here...its different...about twelve months ago when we was having a lot of rock bursts, rock was actually flying out of the walls and the backs...I'd never seen that until I came here."* It is worth noting in passing that Mr Artis was one of a number of mineworkers cited in this report who referred to rock bursts/rockfalls – not all of which appear to have been reported or recorded in the mine's rockfall incident reports.

115. Drawing the above information together, the following conclusions can be drawn in relation to induction and training practices at the Beaconsfield mine. Available evidence – including the views of mineworkers themselves – indicates that induction and training practices had improved in the years leading up to the incident, and taken as a whole was at least adequate. The two-day MARCSTA induction and the "Greenhorn schemes were strengths. These strengths need to be balanced against criticisms, including the need to improve the mix of formal and practical training and, most notably the need to sign-off on

changes to SWPs during crib breaks. The Mine has denied the latter practice has occurred although a number of workers referred to or confirmed the practice (including one who approved of it). The matter was not explored with training officers or the underground manager and may require further investigation.

116. Ground awareness training appears to have matched industry practice although there is evidence of shortcomings in terms of implementation identified in the Marisett report and the evidence of some mineworkers cited in this report. Only a minority of mineworkers (overwhelming the more experienced ones) appeared conversant with the new checkerboard mining method being implemented and some additional information/training here would have seemed advisable. It needs to be stressed that there is no evidence that shortcomings in GAT played a direct part in the incident of 25 April 2006. Having said this, there seem to be grounds for management reconsidering the nature and implementation of GAT at the mine, especially in the context of varying levels of workforce experience and knowledge (such as maintenance workers). There also appear to be grounds for independent auditing of GAT. Finally, even if inadequacies in GAT did not contribute to the incident on 25th April 2006 the findings of this investigation, and the number of past mine fatalities in Tasmania and elsewhere caused by rockfalls, reinforce the need for rigorous GAT at mines in Tasmania.

Plant/equipment suitability and maintenance

117. The proper use of suitable and properly maintained plant and equipment is a critical aspect of a safe system and therefore a key element in an employer meeting their duty of care to workers under the *WHSA*. Thus, under section 9(1)(a)(iii) of the Workplace Health and Safety Act 1995 the employer must provide and maintain so far as is reasonably practical plant and substances in a safe condition. Associated duties also fall on the designers, manufacturers and suppliers of plant and equipment.

118. Plant and equipment was largely dealt with under step 7 of the mine safety management plan. The Mine has indicated that employees were required to complete a pre-start checklist before using any equipment (including notification of defects and tagging out of any problem specified as such in the checklist). As part of its mine safety management plan, there was an 'audit' system, one component of which was a fixed plant or fixed system audit that included fuel bays, magazines, escape ways and pumping installations. According to the Underground Manager, Pat Ball on a monthly basis the two training officers took audit sheets and then went around and audited various items of plant against the checklist. Matters requiring attention would be directed to the Maintenance Manager and the checklist results were also sent to Ball to examine. Mobile equipment was 'audited' - a practice confirmed by interviews with maintenance workers, the maintenance manager and examination of extensive audit records (item 14.3 of Addendum 3 of information provided by the Mine).

119. The AWU/Knight family submission (p21) stated that it had obtained information from mineworkers indicating that machinery was poorly maintained, there were serious maintenance problems in the backfill plant, there was corrosion of some bolts due to

being stored outside in weather prior to their use, and that the decline was poorly maintained. Evidence pertaining to most of these claims is considered below. Issues in connection to the backfill plant are discussed later in this report in the section dealing with ground support and backfilling operations.

120. During interviews carried out by the Investigation, several mineworker raised maintenance issues, mainly in connection with it being an issue regularly raised at toolbox meetings (see for example interviews with Dennis Robert Newson and Corey Vehey in Table 1), a viewpoint that an examination of toolbox minutes tended to confirm (see Table 2). By and large, the maintenance issues raised are not indicative of serious failings in the maintenance system and in general faults appear to have been promptly attended to. Serious equipment failures, notably in relation to a hoist, had occurred at the Mine's mill and changes were made to a number of items of equipment, such as the charge-up basket following an incident (albeit re-design of the basket took some time to achieve - see Table 3 for summary information on these and other incidents). Notwithstanding several serious incidents, evidence does not suggest that there were systemic problems in relation the equipment used at the mine or its maintenance. An exception to this can be found in an email from shift supervisor Dale Burgess to Chris Newett (cc'd to Pat Ball and others) on 4 February 2006 headed 'poor service' and which stated: *"It is with great regret (and frustration) that I have to compile this correspondence for your attention. Of late the availability of the 104 jumbo's has been poor (or though the manipulated data may not suggest that!). We are constantly let down by the failing of the Montabert drifters, particularly once they have just come out of the workshop after re-build etc. The mining crews are wasting valuable time and resources running the jumbos down the mine, only to find the units failing – at times immediately. Then we are expected to tram the jumbo's back to the work shop to "try again". You may not be aware that a large percentage of the mining crews workload involves mechanized re-habilitation of the levels, and therefore we require both jumbos to be going simultaneously for the greater part of any given month. This ongoing sub-standard situation is unacceptable and not sustainable. We cannot seriously be expected to achieve production targets and deliver acceptable operating profits to the share holders and corporate interests. There is something obviously wrong with the repairing/servicing/re-building process of the drifters as it currently stands. Please assist us remedy the situation at your earliest convenience."*

121. As Table 3 indicates, WST inspectors closely monitored serious equipment failures or equipment shortcomings identified following an incident at the Mine to ensure the matter was rectified and also forwarded information relating to incidents (including those pertaining to equipment) at other mines they deemed relevant to management of the Beaconsfield mine.

122. Although the Telehandler involved in the incident of 25 April 2006 has not been recovered for inspection due to hazardous conditions at the site of the rock fall no evidence presented to the investigation, including the evidence of Todd Russell and Brant Webb has indicated that equipment failure contributed to the incident. Indeed, a number of those interviewed (including union members) expressed positive viewpoints about the basket being used on the Telehandler. Several expressed the opinion that an upgrading in

size and strength of the basket used may well have contributed to the survival of Todd Russell and Brant Webb. For example Jumbo Operator, Michael Borill, stated (ROI p23) *"So you've got blokes with these baskets, they'd run into them with boggers. So what they'd do is they'd go and build a bigger one. This is what saved these boys lives in a way."* For its part, the Mine has indicated that the basket had not been upgraded but that the cage was sufficiently robust as evidenced by the survival of Mr Russell and Mr Webb.

123. The failure to recover the Telehandler means no judgement can be made about the status of Telehandler cab and whether Larry's Knight's chances of survival would have been materially altered had he been in the cab at the time of the rock fall.

Hours of Work, Shift Rosters and Fatigue

124. Fatigue, hours and fitness for work was covered by step 11 in the mine safety management plan. Workers at the mine were engaged under a 12 hour rotating shift. In terms of managing extended hours and fatigue, the Mine made use of MARCSTA documents, *Extended Working Hours and Your Health and Safety* (2005), a training manual for both employers and employees and *Managing shiftwork lifestyle: a personal approach*. The mine also had a fitness for work: fatigue management policy. The Mine used the South Australian Centre for Sleep Research tool for assessing the risk of fatigue due to roster patterns. The mine also produced a SWP on shiftwork for new employees (SWP 140 Basic Shiftwork Lifestyle Awareness for Greenhorns).

125. As can be noted by the statements in Table 1 summarising worker responses, as well as references to the Heiler report elsewhere in this report, hours of work had been an issue at the mine at several points in the past. However, hours of work were not identified as a significant issue in the context of this investigation. This should not be taken to mean that rotating twelve-hour shifts were seen as unproblematic. Several workers raised concerns about fatigue and the roster system at the mine. When asked if there was any issue he had wanted to raise but felt he couldn't Jason King a contract mineworker (for Webb Mining) in the service crew referred to working hours, saying that despite having more days off he found the rotating twelve hour shift system at Beaconsfield disrupted his sleep more than the five ten hour shifts he worked at Rosebery (p22-23 ROI) *"oh, working hours maybe, twelve hour night shifts and stuff. It's a bit tough at times, especially the first night shift sort of thing. People are tired, and stuff like that... I get crabby with me missus and stuff at times...(and when asked about safety effects). Not that I've got personal knowledge of, no. I've seen people asleep underground. Other than that, no."* In connection with workers not raising the issue of working hours it is worth noting a comment made by Rex Johnson in relation to issues raised at toolbox meetings, and cited later in this report.

126. There is no evidence that fatigue played any part in the rock fall of 25 April 2006. The rock fall occurred relatively early in the shift. Neither Brant Webb nor Todd Russell reporting feeling tired prior to the incident.

Hazard identification, risk assessment and safe work procedures

127. The mine had a number of procedures in place to identify hazards, assess risks and implement safe work procedures (steps 2 and 7 of the mine safety management plan).

Safe Work Procedures (SWPs)

128. Essentially, Safe Work Procedures (SWPs) are a set of procedures that identify the appropriate steps for undertaking particular tasks in the mine safely and have been built up over time to cover more hazardous activities including the operation of particular types of machinery like Jumbos and Boggers (boggers or loaders are machines for transferring excavated ore or waste rock). SWPs have been a component in OHS management at the Beaconsfield Mine over a number of years (being introduced prior to 2000) and were regarded by the company as "the most dynamic component of the safety management plan (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p4). As noted below (in the section dealing with SWPs), the mine had a process for establishing or revising SWPs, including the creation of hazard teams. This process was documented. A copy of this document dated July 2003 (item 7.13 of Addendum 3 of documents provided by the mine), makes no reference to ground conditions, support or steps to avoid rock falls in the check list of hazards to be considered although a review of SWP records for 2004 indicates these aspects were included in the hazard identification process and particular SWPs (such as SWP 114 Cable Bolt Installation; SWP 115 Ground Support Operations; SWP 150 AVOCA stope conveyor and mesh installation; SWP 240 Post-Blast Inspection and Mis-Fire Management; and SWP Hand Held Bolting Machine) certainly refer to steps designed to mitigate these risks. The omission of specific reference to ground conditions in the hazards checklist may be because the list is a generic OHS hazards list, not specifically adapted for underground hard rock mining. Whatever the reasons, it would be preferable if ground conditions and support measures were incorporated in the checklist in future, even though as already noted there is no evidence this omission caused these factors to be omitted or excluded when SWPs were being developed.

129. The OHS officer Rex Johnson (p21 ROI) referred to the training component in SWPs *"I was just going to say, with regard to the safe work procedures that part of that is the training and assessment. The guys are trained in the safe work procedure. A lot of that is a written training but what we do here is, we also do on most procedures, do an assessment, so practical assessments so the trainers actually go underground and make sure the guys – you know, if you're training a truck driver, you don't just get him to read a document and say, off you go. You make sure that the guy is confident in the operation of that piece of equipment and he goes through a series of assessments and that index will show those assessments and they're on files, if you wish to look at any of them. So, that's for a range of things, like, all your licences for vehicles and that underground."*

130. The SWP system had been built up over a number of years, including the development of new SWPs and revision of existing ones. In 2003/4 a major revision of SWPs was undertaken. According to Pat Ball, an employee perception survey (see below)

had identified limitations, which triggered revision of SWPs (p12 Part 1 1st ROI) *"I mean we had a little bunch of SWPs we thought, okay, we look impressive, it was about that thick. Probably ran into the same – came to the same conclusion most companies do... 'it looks impressive, it must be good', and the workforce said "Well your SWP was crap.' ... 'They're hard to read' and I had to agree with some of them...and so we made them easier to read, made them smaller, made them more operator friendly, so we cut out all the big words..."*

131. In late 2003 Dale Burgess, a miner of considerable experience who had written safe work procedures at the Henty Mine (p12 ROI), and who later joined BMJV as an employee and was at the time of interview a shift supervisor (he has since left the Mine's employment), was contracted to review and consolidate SWPs, drawing on practices at other mines, historical incident reports and the assistance of hazard teams of relevant personnel (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* pp4-6). As part of this Mr Burgess read every incident report at the mine between September 1994 and December 2003, enabling him to identify patterns indicating gaps in SWPs or poor adherence to SWPs. On 18 February 2004 Mr Burgess sent a memo to Pat Ball (with copies to Rex Johnson and Paddy Hampton) with an analysis of results. Seven key areas were identified, one being hit by rocks and failure to check scale prior to commencing work (another issue were back injuries due to poor road conditions – see discussion of toolbox meetings later in this report). Burgess noted that while this was covered in all current and new SWPs adherence was very poor and he suggested this was a both a real issue and significant liability (*"Only a matter of time before someone wears a big one. You may want to investigate all the 'it came through the mesh' claims..."*) that warranted closer auditing of jobs.

132. The processes established by Burgess (including the creation of hazard teams with a range of background and experience to undertake hazard identification, risk assessment and risk management based on the hierarchy of control [ie beginning with elimination of the risk, then substitution with a lesser hazard risk, isolation/engineering, administrative means and the last and least preferred option if all others are impractical being personal protective equipment or PPE) formed the basis for procedures up to and immediately after the incident of 25 April 2006. In addition to the expertise of the hazard team, safety Alerts from various Australian regulators was used in the development and review of SWPs. SWPs had to be checked against a Safe Work Procedure Checklist (in terms of compliance with relevant standards, listing all potential hazards etc) and was then sent to the relevant department head (in the case of underground mining, the Underground Mine Manager) for comment and sign-off.

133. SWPs were subject to a review process consisting of monthly "auditing by mine training officers by reference to the hazard identified in the SWP. Describing this process, one of the training officers Paddy Hampton stated (p8 ROI) *"Oh, well it's not only that, in the audit – sorry, I'm not really – well I don't know whether you've seen any audit sheets or not but they – it doesn't only audit the machinery it's an audit of first it's operator and if they're not wearing seatbelts, say for instance, or not wearing safety glasses or, you know, they're all mentioned in there, in the audits."*

134. In its response to the investigation the Company stated that while training officers had not been able to achieve an "audit of every SWP once a month SWPs were "audited a number of times each year (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p10).

135. As noted earlier, training officer Paddy Hampton indicated that they tried to do between 20 and 30 audits per months. Asked to elaborate on the process he stated (p17 ROI) *"with the audit it would depend on what the guys were doing that day. We would go down and we'd have our folders, we'd just have a heap of reports in our folder with us, and if I go down and you're doing services, all right I would audit you – would just say to the guys, that whoever was doing it, "I'm doing an audit on the services, on your guys doing these services", and that's what we'd do. It was a matter of catching who was doing what at the time. When it came to bolting a truck them ones were pretty easy because there was always someone bolting a truck. With the others some things get done once a day some things get done once a week and it was just a matter of catching who was doing what... Well the audit is of the procedure and the person that is actually doing that procedure... Yes. It's – the procedure itself it's got – score a one or a zero for, "Is this operator wearing a seatbelt?", and it's one or if it's not it's zero. And then – and if he's not and then we come up and write on a sheet, "Such and such wasn't wearing a seatbelt", and a copy of that goes to the shift boss concerned, his shift boss, and a copy goes to Pat."*

136. Mr Hampton was also asked to describe the auditing process in relation to the installation of roof support (p18 ROI) *"Yeah, well the geos they went through – because we only have – we have I think it's one procedure to cover our bolting, rock bolting, and every time a new bolt that was tried out the geos would revise that and that would be revised and updated and so forth... I – Charlie (Williams – the other training officer) or meself would do audits on the ground support installation. As for any different type of ground support installation and that Adrian and the supplier they used to – they would actually come in and train the guys how to install it and that."*

137. Interviews with both mineworkers and shift supervisors by the Investigation tended to confirm that audits of SWPs did occur on a regular basis and this is further confirmed by tables summarizing auditing activities in the Mine's monthly reports. Shift supervisor Brett Cresswell indicated that he would be notified of the audits to be undertaken and also the results of those audits (p17 ROI) *"they would inform me of what audits they require for that month and where they could potentially find blokes doing their tasks or performing their tasks they do their audit on... Sometimes they report back, it depends on what they find, yes. If there's a safety breach, they'll bring you up straight away and if it's not life threatening or miner or something hasn't been done, it will got to Pat and Pat will report it to me and it's my job to fix it and (indistinct words)or whatever may be the case...I think it was very effective."*

138. Where a breach of a SWP was observed it resulted in *"written notification to the relevant supervisor, copied to the underground manager and follow up training,*

retraining or disciplinary action, as appropriate" (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p6). According to the Underground Manager, Pat Ball, he would reviewed the results over time to identify patterns, 'easing' off on those that were well-followed and focusing on those where compliance was flagging (p11 Part 1 1st ROI). Asked if this information was fed back to the workforce at toolbox meetings or other venues Mr Ball replied *"It might be a toolbox meeting. If I saw three audit sheets came up all with the same breach we would mention them at toolbox meetings and certainly to shift bosses."*

139. The AWU/Knight family submission contained a number of criticisms of the SWP system, including that it was a tool designed to protect management if something went wrong; the large number of SWPs made it difficult for workers to remember every detail in them; a worker returning from long service leave was required to read and sign-off on a large number of SWPs and non-compliance with SWPs was tolerated and even occasionally directed by management (p18). Garth Bonney, a senior miner (with considerable mining experience), provided a statement to the AWU (later supplied with consent to the Investigation) that stated (at page 3) that inexperienced workers did not always follow SWPs, citing the case of operators not using a cuddy when remote bogging and indicating this matter had been raised at toolbox meetings. Failure to use cuddies during remote bogging can be extremely dangerous because boggers have been known to reverse out of control and crush the operator. References to this problem are identified elsewhere in this report and there is independent evidence that the problem was raised at toolbox meetings (see Table 2). Chris McKay, who provided a statement to the AWU, also identified breaches of SWP in relation to remote bogging as well as referring to having to sign off as many as 15 SWPs in a crib break (at page 2). Mark Crawford, another mineworker (who had no mine experience prior to Beaconsfield) supplied a statement to the AWU (again, supplied to the Investigation with consent) stated (at page 4) that SWPs were well-written but difficult to remember because there were so many. Philip Malkin, an experienced miner, who supplied a statement to the AWU indicated (at page 3) that he, too, found the number of SWPs difficult to cope with. He believed compliance with SWPs was generally good although it was occasionally impossible to do tasks in accordance with an SWP because problems were encountered outside the scope of the SWP.

140. In general, mineworkers interviewed by the Investigation indicated familiarity with SWPs. While not always effusive about the value of SWPs, and despite some cynicism, most mineworkers seemed to accept them as an integral part of safety management at the Mine. No general view was expressed that there were too many SWPs. Indeed, one mineworker, leading hand electrician Alan John Wright who had worked at the Mine for over 12 years, believed there were too few (p11 ROI) but this appears to have been an isolated viewpoint *"I mean SWPs are a bit lacking here. That's one of the parts of our system that hasn't really got on very well...(and when asked if this just pertained to the electrical side?) Oh, all over I'd say."*

141. Anthony Peter Meneghetti (service crew, not a union member, p11 ROI) indicated he had helped to write SWPs and went on to say *"I don't do any task unless you've read*

your procedure and signed off." Roger David Williams, leading hand service crew (not a union member, p7 ROI) also noted the capacity of workers to have input into the development or revision of SWPs at several points *"When you do the SWP's, if you're not happy with the wording or if you feel there should be more added or some information, there's opportunity on the back to put down your suggestions... Paddy's (Hampton – one of the underground training officers) got an open door and if you've got a problem it's not an issue to go and see the training officer about anything."*

142. Paddy Hampton confirmed that it was not uncommon for workers to suggest changes to SWPs (p30 ROI) *"Oh, I've had people come to me and say, 'Oh, this is not relevant', or, you know, 'this needs changing because of such and such', and, yeah, we go through the changes with them. Actually on the back page of the procedure – I'm actually doing some changes now, one I give to the guy the other day, on the back page it's got, 'I wish to suggest such and such changes', or, 'I do not suggest', and, yeah, it's quite often"*

143. Workers were asked about the relationship between SWPs and ground awareness and support procedures at the Mine and a number, such as Walter Hvala (supplied by Webb Mining and employed in the decline crew p20 ROI) expressed positive views about the link up.

144. Interviews with mineworkers confirmed that SWPs were audited although responses were not systematic enough to indicate whether there were any gaps in this process. Nevertheless, interviews indicated audits were not isolated or rare occurrences. Anthony Meneghetti (service crew, not a union member, p9-10 ROI) stated *"I know they do safety audits and that's - like that can be on your personal self or whatnot, you know, any of the safety training officers or anyone can come up to you and do a check on you to see that you're carrying the right safety gear, so you wear your safety glasses, got your self rescue on you at all times, that can happen any time...I've had it done to me like prior to the incident three or four times."* Similarly, truck driver Theo Clemance Maria Visser (who had worked at the mine for a year and had joined the AWU after the incident of 25 April 2006, p13 ROI) *"Yeah, I've been audited on the truck many occasions"*

145. Two matters in relation to safe work procedures deserve particular mention in connection with the rock fall of 25 April 2006 and the death of Larry Knight. The first concerns whether Larry Knight, Todd Russell and Brant Webb had received training in the appropriate SWPs for the tasks they were undertaking at the time of the incident. This matter was dealt with in the section on induction and training in the report. The second issue concerns whether the men were working accordance with these SWPs at the time of the incident. The evidence, again discussed elsewhere in this report, indicates that they were and it should be noted that the shift supervisor had visited the men shortly before the incident. However, one subsidiary question in relation to SWPs and the incident that warrants attention is the fact that Larry Knight was not in the cab of the Telehandler at the time of the rock fall. As noted elsewhere in the report, Larry Knight had left the cab to fetch a water bottle for Todd Russell. Mr Knight returned with this and had then gone to get a sheet of mesh when the rock fall occurred. This appears to have been a not

infrequent action as at least one other Telehandler operator (Shane Joseph Marshall p12 ROI) interviewed by the Investigation referred to leaving the cab in order to obtain a tool or some other item for men working in the basket. In terms of safe work procedures Telehandler operators were not to leave the cab while men were working in the basket unless the basket had been lowered and was resting on a solid surface at or close to ground level and the engine of the Telehandler was switched off. Evidence to the investigation by Todd Russell and Brant Webb (some of which is cited elsewhere in this report) indicate that Larry Knight had followed these steps before leaving the Telehandler. According to Brant Webb (pp55-56 ROI) Larry Knight grounded the basket and turned off the Telehandler when he went to get the water bottle for Todd Russell and after returning with this went to get a sheet of mesh. As noted above, until the Telehandler is recovered and inspected no determination can be made as to whether Larry Knight may have survived had he been in the cab at the time of the rock fall. However, the absence of Larry Knight from the cab was not a breach of safe work procedures and Mr Knight was under supported roof at the time of fall.

146. In sum, the SWP system was well understood by mineworkers, covered a wide array of tasks and, as far as can be ascertained, was – notwithstanding some flaws - generally implemented in an effective way at the Mine (including periodic revision with worker input and systematic auditing – actually monitoring - of compliance). Management had used the services in late 2003 of a miner, experienced in SWPs (Dale Burgess) to revise the system to make it more user-friendly and available evidence indicates this process was carried out effectively. Evidence presented to the Investigation indicated that the SWPs being applied at the time of the incident were being followed. There is no evidence that the SWPs being applied were deficient in any respect that contributed to the incident or in other ways compromised the safety of Messrs Russell, Webb and Knight. Further, no compelling evidence was presented to the Investigation or uncovered that indicated that the number of SWPs was so large as to cause confusion. It also needs to be recognized that management needed to achieve a balance between having enough SWPs to cover significant work tasks at the Mine (ie not leaving significant gaps) without inundating workers with a level of paperwork that mineworkers might find confusing. On the other hand, the practice of reviewing and signing off on changes to SWPs during crib breaks – a practice that management has disputed - was disliked by the workforce because they saw, with justification, that it imposed work-related activity into a rest break. One consequence of this, according to mineworkers, was that the changes did not always receive adequate attention. This system should be changed at Beaconsfield and any other mine where the practice is employed. No worker interviewed volunteered information in relation to having to review a large number of SWPs after returning from long service leave (raised by the AWU/Knight Family submission) and this matter was not specifically investigated in interviews (only a few workers at the Mine had sufficient service to entitle them to long service leave). Nonetheless, prudent management practice would be to ensure care was taken acquainting workers returning from extended leave (be that holidays, sickness-related or long service leave) be carefully acquainted with changes to SWPs relevant to their tasks and area of work.

Job Safety Analysis (JSAs)

147. Minutes of Shift Bosses Meetings indicate the JSA card system was launched in June 2005 but initiating/implementing this appears to have been a slow process (item in shift bosses meeting minutes and repeated in July, August, September, October and November 2005). According to senior mine supervisor Stephen Saltmarsh (p24 ROI) *"It wasn't very big in our mine. It had only more or less just started and actually no one has really been trained on it...There's probably ten JSAs out there...(and referring to their purpose) Identify the risks"*

148. This helps to explain why workers interviewed for the Investigation were more familiar with SWPs or the StepBack Card than JSAs. Don McCredie, leading hand fitter, said (p8 ROI) he was familiar with JSAs because they had been introduced at Savage River where he worked previously but he hadn't used JSAs at Beaconsfield. Another mineworker, Anthony Meneghetti (service crew, p15 ROI) had also used JSAs in his previous job at Comalco but had also made use of them at Beaconsfield *"Yeah, they've been doing - yeah, well that's what I say, a risk assessment from JSA and they follow on from each other. JSA is the formal one, which I did yesterday, and I've dealt with them well, you know, the last six years in Comalco and what not. Any job you do at Comalco you've got to do a JSA and risk assessment on. It's good, 'cause it just jogs your memory and makes you stop and think and check it out and we've had - since I've been here we've always had the card and the smaller step back card just to tell you to step back and stand and have a look at the job before you jump in and do it."*

149. Anthony Meneghetti was also able to use his prior knowledge of JSAs gained when he worked for Comalco to apply them at the Mine (pp14-15 ROI) *"Oh (iw) from a step back, you go to do a task, do what a JSA risk assessment on it. State what you're going - what the task is, list all steps and then follow on from that, any hazards that may occur from step one to step ten and then try and override them and come up with a solution to make it safe. I did one the other day again, I've done several on working in the FAR shaft, not this shaft but the one over the road. It's easy, step one, make sure you have good communication, so yeah, no - and correct procedures on signal bells and use radio... Yeah, they've been doing - yeah, well that's what I say, a risk assessment from JSA and they follow on from each other. JSA is the formal one, which I did yesterday, and I've dealt with them well, you know, the last six years in Comalco and what not. Any job you do at Comalco you've got to do a JSA and risk assessment on. It's good, 'cause it just jogs your memory and makes you stop and think and check it out and we've had - since I've been here we've always had the card and the smaller step back card just to tell you to step back and stand and have a look at the job before you jump in and do it."*

150. In sum, the JSA system was still in its early stages, few workers expressed great familiarity with it, and it appears to have exerted a very limited impact on operational safety at the mine.

StepBack Card

151. The StepBack card was introduced during behaviour based training in 2002 and work-shopped to ensure relevance before being implemented in 2003. In 2005 additional behaviour based training on risk assessment and minimizing risk including communication sessions about the use of the StepBack card (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p11-12). The StepBack Card was developed to enable workers to stop and ask six questions to assess the possibility of a hazard and then take appropriate action to the short risk assessment of a task prior to commencing it, especially where there was no SWP. The card contained a simple risk calculator (based on a matrix that considered both the likelihood of incident and the potential severity of its consequences).

152. The AWU/Knight family submission stated that information from mineworkers it received indicated that the StepBack system was not used (p18).

153. Interviews with mineworkers indicated that most were aware of the scheme, had been trained in its use (although there were exceptions see Table 1), and carried StepBack cards. A number of workers stated they had used the cards, with some indicating that they found the cards valuable. For example, winder driver Anthony Mervyn Hinds (AWU member) stated (p8 ROI) *"I think they're great. I used to always carry one in the helmet until I had to get a new helmet and I lost it. They were good."* Similarly, David Hartley Taylor (Service person 1 and AWU member who had been at the mine for ten years) stated that he used StepBack all the time and that management had reinforced its use (p16 ROI) *"I use it most of the time...(and with regard to management reinforcing its use) In a way I must say, yes. Every now and then when someone gets hurt, management jumps on it heavily. A lot of new blokes that we bring in, we probably don't call it - miners don't call it step back. We take them in, show them and say, 'Look up first before you go anyway and don't forget to look down because while you're looking up you'll trip over'."*

154. Others indicated they preferred to make their own judgements or had encountered difficulties trying to use the StepBack card. For example, Peter John Brennan (service person 2 and AWU member, p14 ROI) stated *"Yeah, I can't honestly say - I don't actually take the card out and actually do it...Well I don't go through it, like I have done it but as a general rule usually you can sort of do it in your head if you know what I mean, when you step back and just say, oh you know, you've got to observe the ground and all that sort of stuff and - yeah."* Similarly, Shane Patrick Langford, responsible for maintaining underground mobile equipment (and an AMWU member. p10 ROI) stated that while he had received training in StepBack he preferred to make his own judgement about whether a job was safe or not although sometimes he felt didn't have an option but to do the task *"I must admit I don't use it a lot. I think if I'm doing a job I'll use me own judgement on whether it's safe or not. And if I don't think it's safe well I'll go about it in another way so it is safe. But until it's safe to do well it doesn't get done. But there are jobs that you've got to do unfortunately which you've got to do regardless, you haven't got a choice... (and when asked to give an example) Oh, just if you've got a machine break down, it's tore off a break hose or something like that, it could be right over the top of a*

creek, you know, a good supply of running water, and you can't move it, you can't get nothing in there to move it so you might have to bloody whack a few rocks behind it even though you know it can't move because of the system, the (iw) breaking system, they are rather good on machines, but you've still got to get underneath it and do the job, you know, to get it going again. Which is not ideal but then it's a situation where you look at it and say, 'Well it can't go anywhere you're going to get drowned, wet as a shag', but you just get in and do it...You still make a judgement (that it's safe enough to do). You don't do it – you don't deliberately go ahead and do it and say, 'Bloody oath this is dangerous but I've got to do it', you know."

155. Other reasons given were that the assessment of severe consequences would have precluded activity in too many circumstances to be practical, or that application lacked consistency (Table 1). Stephen Burrows, truck driver and charge hand (not a union member) stated using the scheme was (p18 ROI) *"hard because you can...make it a high risk or a low risk...a while back...they gave us a scenario and got us to fill one out & everybody came up with a different scenario."*

156. In sum, evidence indicates that most miners were familiar with the StepBack card for risk assessment and a number had made use of the cards although there was a difference of opinion as to how valuable and reliable tool the cards were. At the same time, issuing the cards can be seen as a very positive measure on the part of management to encourage a risk-based approach to undertaking unfamiliar tasks, notwithstanding the limitations just identified.

The ABFA Hazard Card

157. The ABFA card was, according to its chief instigator Pat Ball (p7 Part 1 1st ROI), a hazard recognition reporting system. The card contained a series of procedural steps, including describing the hazard, risk assessment, identify short term and permanent solutions implemented, discussions with worker's supervisors, timeframes and what to do in the case of disagreement. It was introduced in November 2003 to "assist formalize the hazard identification, risk assessment and rectification process for those hazards normally beyond the resources of the individual to rectify at the time. Where the StepBack Card was a self-observation tool the ABFA Hazard Card was more formal (Gill, 2005). The Card gave employees and contractors who identified a hazard "a mechanism to raise, record and action any hazard concern Each card was numbered, recorded on a spreadsheet and a Hazard Card Report summary was displayed on notice boards so workers could see hazards raised and their status (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p12). According to Pat Ball (p8 ROI) all ABFA cards were referred to him. He took it to the safety officer (Rex Johnson), who registered it, and then it was given to the person nominated to fix the hazard. Mr Ball stated an audit process was being developed to ensure the hazards were fixed.

158. According to Mathew Gill (2005) the ABFA Hazard Card was introduced to address the perception that issues raised with management were not acted upon, to establish a consistent process for dealing with issues raised at toolbox meetings and to

involve employees in hazard rectification. The ABFA card used the same risk calculator as the StepBack card; with accountability and feedback obligations and risk mitigation based on the Hierarchy of Control. According to a report prepared by Mathew Gill (2005) by October 2005 207 ABFA hazard cards had been initiated and 190 had been signed off with the acceptance of the initiator. The OHS officer Rex Johnson was asked how many ABFA cards he would see in a month or year (pp8-9 ROI) *"It varies and initially we had quite a lot but over time as a lot of the issues are, I suppose, taken care of they have dropped of. We don't see a great deal of them any more. What I find is, a lot of guys – they'll bring it up at toolbox meeting and get it fixed there and then. Initially, you find that a lot of guys have their pet hates and it was their – I suppose their way to get it fixed was via a hazard reporting card. If that's how it worked, well it was good because it could be addressed and had to be addressed. It was a good system and it was a simple system. That's one thing I've found not only here but everywhere else, if you make the paperwork too complex a lot of the guys won't go near it. They'll dodge it."*

159. In general, most workers interviewed by the Investigation had little to say with regard to ABFA Hazard Cards, though those that did tended to indicate the cards had value. Asked about ABFAs David Taylor (pp16-17 ROI) stated *"You've got the orange, yellow or the blue. They brought out this three years ago and it was in the last twelve months and they've been updating them. One's got - I think it's the orange one that's got a step back risk assessment, high, low and all that on it and there was a yellow one out and above and there's a blue one but I used to have a little book that's got, hazard awareness, written in it. If I think something unsafe I write it down in there and if I can't fix it straightaway I hand it to the - I used to hand it to the shift boss...(and asked if the problem was remedied) Yes. It usually got done - bring a jumbo up, re-bolt it or the service crew go in and do what they've got to do with it."*

160. Beaconsfield mineworkers who provided statements to the AWU (then supplied with consent to the Investigation) also included at least qualified endorsement of the cards. Mark Crawford (at page 5) described the use of the cards before stating that an issue in relation to a dangerous stairway he had raised had been resolved fairly quickly although he was uncertain as to whether an issue he had raised with regard to electrical and hydraulic components had been resolved yet.

161. Looking at the tools as a whole (SWP, JSA, StepBack and ABFAs), there is a question as to whether the sheer number of cards, assessment and reporting tools might be confusing to workers and not necessarily conducive to a systematic approach to hazard identification, risk assessment and control. However, in general this issue was not raised as a problem by workers interviewed by the Investigation. Peter Brennan (service person 2 and at the mine for three and half years, p15 ROI) stated that he thought the tools worked *"I guess it does "to a degree...But I think maybe training should be - I don't know how I'd say it, like maybe a bit more in-depth up front (and asked if this meant when first learning the task)...Absolutely."* Overall, the package of tools relating to the work practices and the assessment of risk in daily tasks (as distinct with a more fundamental and overarching assessment of risk dealt with later in this report) appears to have worked effectively. It should be stressed that these tools are not, of themselves, positive or process

performance measures. Rather, as with training, the recording of activities using these tools and then detailed qualitative and quantitative analysis in relation to them could form the basis for such measures. As noted earlier (see paragraph 76), with the partial exception of SWPs, the Investigation did not find evidence that these tools had been used to create measures that were subsequently reported as indicators of OHS performance in monthly reports and the like.

Emergency and Evacuation Procedures

162. The AWU/Knight family submission stated that information it obtained from workers indicated that evacuation drills were rare and inadequate, such that many workers, including those with several years' service, had never taken part in a drill. It was also claimed there was no adequate refresher training on the use of re-breathing equipment.

163. These matters were not pursued in detail by the investigation except in relation to activities immediately following the incident. There is evidence (not disputed) that some workers' re-entered the area where Todd Russell and Brant Webb were trapped, contrary to instruction. Notification of family members affected by the incident in the immediate aftermath was not always optimal suggesting some breakdown in procedures.

164. In 2002 a WST audit of the mine identified emergency procedures as an area of poorer performance at the mine (see below). The mine took steps to rectify this deficiency, making it a key element in its catastrophic risk assessment process referred to below (see also Table 3). Further, while some criticism of aspects of the initial response to the rockfall on 25 April 2006 was briefly noted elsewhere in this report (see also Table 1) these criticisms were not investigated or tested because they fall outside the scope of this Investigation. Had they fallen within the scope of the Investigation they would also have had to be viewed in the context of the personal courage and dedication displayed by managers (such as Pat Ball and Rex Johnson), supervisors (such as Dale Burgess, Gavan Cheesman and Brett Creswell) and individual mineworkers, as well as others brought to the mine who played a critical role in the recovery of Larry Knight's body and the successful rescue of Todd Russell and Brant Webb. Finally, any criticism would have to be counter-balanced against largely positive observations (by mineworkers and others) about the Mine's response to the Anzac Day rockfall, suggesting that overall the mine's emergency response procedures had worked well.

Hazardous incident and near-miss reporting

165. In addition to formal hazard recognition and risk assessment procedures there were several mechanisms at the mine for reporting safety-related incidents.

Incident Management System

166. The Mine had an accident/incident report form that was also used for near misses, recording information about the incident and treatment/follow-up and corrective actions.

Company policy dictated that all accidents/incidents and near misses be reported and the resident mine manager Mathew Gill to be notified within 24 hours for review and discussion at the next daily Heads of Department meeting with the report copy then going to the OHS officer Rex Johnson so the OHS department could monitor investigation and action. This action could include revision of a SWP where appropriate (Response to Item 8 of Schedule 2 of the Notice of 8 June 2006 Under s36 of the *WHSA 1995* pp2-3). The mine kept a database summarizing incidents and near misses. According to Pat Ball (pp17-18 Part 1 1st ROI), in terms of underground operation, an incident report was referred by the persons involved to their supervisor and then forwarded to him.

167. Near miss data has been seen as a valuable tool in helping to predict and thereby prevent serious incidents. According to mine management Response to Item 8 of Schedule 2 of the Notice of 8 June 2006 Under s36 of the *WHSA 1995* p2) near misses had been recorded in accident/incident reports but recently a short near miss card had been introduced to encourage reporting of near misses (consistent with this, item 9 of the minutes of the shift bosses meeting held on 23 June 2005 notes that "Jamie to kick off Near Hit Reporting system).

168. The Investigation sought to discover to what extent management sought to analyse incident data to identify trends or problem areas. OHS technician Craig Large stated (p7 ROI) *"Rex (Johnson) earlier this year and late last year, Rex asked Caroline (Russell) to go through the data and produce some graphs of incidents, occurrences, to see where it's (iw) and to see what we could do about it, the occurrences."*

Rock fall/noise report cards and Seismicity Measurement

169. At the time of the incident there were two systems for reporting seismic events and incidents relating to ground conditions at the mine.

170. First, for a number of years the Mine had used a system of rock noise report cards, whereby those underground (employees, contractors, shift supervisors and others) could fill in details relating to any rock noise incident or rock fall they observed (time, location, characteristics and whether they withdraw from the area). A consultant engaged by the mine over a number of years, Mike Turner, described the cards as being a typical industry practice for Australian mines with a seismic history (p35 ROI). Introduced in September 2003 a memo from Peter Hills to Mathew Gill on Geomechanics dated 7 June 2004 noted that despite toolbox meetings to explain the importance of rock noise reporting acceptance of this was "initially slow because, he believed, it was felt this was a task for technical staff and the view it wasn't necessary to report if another individual had. However, Hills noted that recent seismic events (ie in early 2004) had helped gain acceptance of the scheme. As noted below, failure to fill in cards remained a problem.

171. In August 2005 rock fall report cards similar to rock noise report cards was introduced but the BMJV *Seismic Risk Management Update* of March 2006 (p3) noted that to that date none had been received. An examination of rock noise/fall report cards tended to confirm this. However, as noted elsewhere in this report, a rock fall report card

was filled out for a small rock fall that occurred in 925W on the morning of 25 April 2006 about 12 hours before the fatal incident. There are Rockfall Incident Reports relating to 25 rockfalls between January 2004 and 25 April 2006 (not including the fall that resulted in the death of Larry Knight) and these are discussed elsewhere in the report (see also Table 3).

172. Second, more recently the Mine had established a series of monitoring points to register seismic events at the mine (J Map). This system was adopted in response to management's concern about seismicity and limitations with the rockfall incident reporting system.

173. A number of criticisms were made of the rock fall/noise cards. The AWU/Knight family submission stated workers did not always get feedback on the cards they filled in and that use of the cards fell into disuse after installation of the computerized seismic monitoring system (p19). The submission also states management did not insist on cards being filled in although the submission also notes the impracticality of filling in a card for every noise in the mine.

174. During interviews by Investigator both management and workers at the mine accepted the contention that there was a significant divergence in the assiduousness with which workers filled in rock fall/noise cards. Amongst workers interviewed, almost all (29 of 30 respondents to this question – see Table 1) were aware of the rock fall/noise report card system. However, only a third (ten) recalled filling out a card, with the majority (18 – another worker did not respond to this question) stating they had never filled out a card. This disparity in the use of cards was also evident when The Investigation reviewed rock fall/noise report card records.

175. In relation to the completion of the cards (a system he had initiated based on visits to mines in Western Australia) the Chief Geologist at Beaconsfield Peter Hills (pp7-8 of part 1 of ROI) *"It has a mixed reaction. There are a number of people who fill them out quite regularly, there are others who don't and a few who never have, so that has led me on a few occasions, most recently in fact in early March, to send around e-mails to the crews and the operators asking them to reinforce the use of rock noise reporting cards and that tends to get a little bit of a flurry for a time, it fades off and so we do it again. It - I guess it's always going to be that some guys just won't be bothered and it's hard to make them bother, and of course you run into the situation whereby if somebody hasn't filled one in you say, "Well why haven't you filled one in", and they say, "Well I didn't hear a rock noise", and what are you going to say? I wasn't there, I don't know whether they heard one or not. But it was explained to the guys with the rock noise reports that the reason for doing them, it meant that there was a mechanism there first and foremost that if they had concern with rock noise anywhere and they filled out a report it would go to the shift boss, from there it'd go to myself or Adrian and we could go and check it out. That was the prime reason for having the rock noise reports so that they weren't just sort of saying to the shift boss, "Oh yeah, there were a few bangs down there or what have you", they actually fill something out, we have some idea of what they've experienced, particularly if it's on the next shift. If the guy happened to be on his last day shift and we*

didn't get to hear about it until the end of the shift, by which stage he'd had a shower and gone and not in for five days, or if he's on nightshift we can come in, so the report would be there, this is what this person saw, we can go down and we can see if there's an issue in a particular area that might need some attention, might need some change to ground support, might - we often - going through one of the contacts we would have rock spitting in the decline. As soon as you get through it it's not an issue, we never found it to be, but you know, we'd say, "Okay, we're starting to see that now", and say, "okay, well if you feel you need to go and mesh the places you're" - sometimes we've instructed them to mesh the face, sometimes it was just going off and nothing was happening and they could mesh the face if they felt uneasy. So it just gave us a tool to understand if any events were happening that we got to know about them, not just particularly more recently by seeing a bubble come up on the seismic system."

176. A number of factors appeared to have contributed to this disparity. For example, as several interviewed mineworkers mentioned, when they were together with another more senior or experienced mineworker when they encountered rock noise or a rock fall they would defer to the latter in terms of whether a card should be filled in. The same might apply when a shift supervisor or other manager was present and some mineworkers saw reporting it to a shift boss as an alternative to filling out a card. For example when Webb Mining contractor, Walter Hvala, was asked if he always filled out cards when he encountered significant noise he replied (p19 ROI) *"No. If I was, say, aware of a rock noise, it would be generally with the visit that I might get from Pat Ball, my shift boss, and then in return they would say that they would fill out the report, in what area, and so I would never follow it up, thinking that what I said to that person was enough for them to continue on to do the next thing."* Jason King, another Webb Mining contractor, stated that he had not filled out reports for some time, preferring to make reports to his shift boss. Mr King went on to state that after the incident of 25 April 2006 he would fill out rock noise cards now (pp8-9 ROI), a view echoed by other mineworkers (such as Jason King, p9 ROI).

177. Moreover, some mineworkers were more likely to encounter rock noise or rock falls than others and this could also explain part of the disparity in reporting. For example, winder drivers were unlikely to detect rock noise and the same might apply to a lesser extent with regard to those operating noisy equipment like trucks or boggers in air-conditioned cabs and wearing hearing protection (such as ear plugs). Indeed, several mineworkers made this point. Ross Athol Humphries, a truck driver and loader operator who had been at the mine two years (and with prior experience at Rosebery) stated (p6 ROI) that when he was in a cab and wearing earplugs it was difficult to detect rock noise (see also Guy Stanley Summers p8 ROI). At the same time, even these workers recalled hearing noise they didn't report. Glen Edward McCarthy, a bogger operator who had worked at the Mine for seven years, and in the mill prior to that agreed that there had been complacency about rock noise given the level of seismic activity and went on to state (pp5-6 ROI) *"At times I wouldn't hear a lot of them anywhere if was, especially in an air-conditioned bogger, and I'd quite often be loading out of different areas, but I had noticed at some stages, you know, when you're up at a heading or whatever, off side in the jumbo, sometimes you'd hear a small one or you'd get a bit of a burst if the water hit the, you*

know, recently fired rock and whatever...There was one other time that I can remember that there was a seismic event that kind of took my - took me eye or took me ears...Oh it was just, oh I couldn't say where it was now, I can remember just off side in the jumbo and just heard a thump or a noise and I looked at the operator and thought it was big, but nothing eventuated from it." Like others, Mr McCarthy believed the introduction of the seismic monitoring system meant it was not longer necessary to fill out rock noise report cards.

178. While taking account of the above explanations it is still clear that a significant number of mineworkers chose not to report rock noise that they themselves believed was reportable. Several, like Trent Clayton – an experienced miner – noted they were not 'paperwork' people although Clayton also indicated he had learned lessons from what happened at Beaconsfield on 25 April 2006 (p9 ROI). Jason King (p8 ROI), too, indicated he hadn't completed a written report for some time, preferring to make verbal reports to his shift supervisor. Graham Lanham, another experienced miner, also preferred to speak about incidents to his shift boss, stating miners didn't feel comfortable with paperwork but also adding that the system was used by some for what he viewed as everyday and "waste of time incidents. David Taylor, while favouring the system, also pointed to the burden of paperwork and the difficulty of deciding whether rock noise should be reported (p17 ROI) *"It's not a bad system. It's all right when you only hear one or two a day. You have time to fill it in but if you're hearing a heap a day – some days down there you could hear 6, 7, 8, 9 a day & what happens when we bolt up, if you put water on some of the rock she goes off any-way. So you don't know if its proper rock noise or a jumbo caused it...So at the end of the day you get sick of filling them in ...They told us they were supposed to serve a purpose so they can map the noise where its coming from. So they want to have eyes on to the map where we think it was, how loud it was compared to what comes up on the seismic monitors...(and asked if he had close calls with rock falls) Yeah, I've been knocked flat once with a rock fall and I turned around to the place we had to walk off and a rock about half the size of your briefcase shot past me."* The Mine notes that there is no record of Mr Taylor reporting this incident and in such circumstances what can supervisors do? This is a legitimate point. At the same time, this incident and several other apparently unreported incidents relating to ground conditions the Investigation was made aware of (see elsewhere in this report and Table 1) also highlight a reporting problem that should be of concern to management, indicating that its behaviour-based efforts had not been entirely successful. Unreported falls/incidents indicate that there were gaps in management's information on ground conditions although the extent of this gap is unknown. The Mine has also contended that the lack of reporting in relation to noise undermines mineworkers claims about seismicity (and presumably related matters like pillar removal) concerns prior to Anzac Day 2006. Such an interpretation is not consistent with other evidence presented in this section of the report. The failure to fill out noise report cards cannot be simply associated with a lack of concern. Mineworkers did not attribute their failure to fill out rock noise report cards to a lack of concern over seismicity or the risk of rockfalls (see the statement of Mr Taylor above) but gave other reasons including the paperwork burden, lack of knowledge/awareness (such as truck drivers wearing ear-muffs), using other options (like reporting to their supervisor), difficulty in differentiating what to report given the number of noise events (or becoming inured to

this), the lack of feedback and the introduction of J Map. There is explicit support for the latter and several other explanations (such as the paperwork burden and lack of feedback) in the statements of several shift supervisors and managers cited in this section of the report.

179. Shift supervisor Dale Burgess too believed that the reluctance of mineworkers to fill out paperwork inhibited reporting (p7 ROI) as did the mine's production geologist Adrian Penney (p14 ROI). A not unrelated reason mentioned by several mineworkers was the increasing level of noise encountered by mineworkers made it more difficult to decide what to report as well as discouraged reporting (Table 1). Those making this observation tended to add that the increasing amount of noise they encountered certainly wasn't grounds for a sense of complacency and so their decision not to report was not based on becoming inured to the risk. Corey Verhey (p9 ROI) stated: "*No. There hasn't been a decrease in concern but there's probably been a decrease in reporting because they're so numerous. Blokes have sort of got to the stage where, they've got the seismic system now, the machine that monitors everything, why do we need to fill out these cards. So, for the last few months they'd be quite a few people that never filled out them noise report cards because that machine has been there, thinking that the machine will pick it up, so why do we need to fill out a card and that's the only thing I've noticed in the last few months.*"

180. Aside from the 'paperwork' and reporting burden referred to above, one factor that appears to have contributed to less than assiduous completion of rock noise/fall report cards was a perceived lack of feedback to the workforce of the results of analysis of cards that had been submitted. A number of mineworkers were asked whether they felt they had received enough feedback on the results of the rock noise/fall report cards and the response was generally negative (see Michael William Day, pp7-8 ROI).

181. Stephen Robert Homan, a shift supervisor, also identified lack of feedback as a problem in relation to reports of rock noise he had received from the crew and included in his daily shift reports. Asked by Inspector Paul Reynolds whether there was any follow-up on that or feedback if, for example there had been a significant increase in rock noise reports in a week Mr Homan replied (p6 ROI) "*No...None whatsoever.*" Shift supervisor Brett Cresswell gave a similar response (p10 ROI) "*None at all I don't think, we just hand them in and never see them again.*" Asked if he had ever been fed back information about the number of rock falls above a certain size were occurring in a month Mr Cresswell replied "No, no. For his part, Mr Homan believed it would have been valuable if monthly updates on rock noise/rock fall developments had been given to all shifts (p7 ROI). For his part, training officer Paddy Hampton stated he had received feedback on the last rock noise report card he had filled in (p13 ROI) "*If I remember correctly the last one filled out I think Adrian Penney come and seen me, yeah... (and asked if the context had been explained) Yeah, he did. Went through – I think it may have been the one – the last one I done was in the 700 – anyway he – yeah, he explained, go through it.*"

182. The investigation followed up the issue of feedback as well as how the mine made use of the information collected from rock noise card reports in terms of its risk assessment. Asked what happened to rock noise information when it cam to him, the

mine's production geologist Adrian Penney stated (pp9-10 ROI) *"It would be, firstly it would be checked to make sure that all the relevant information was there to say where the noise was heard, what time, and what they actually observed or noticed. It would then be reported to the... two geologists, Peter Hills, underground manager, Pat Ball, and other relevant people, so that they could help determine whether we needed to inspect areas if the noise was coming, or there was observations to say that, yeah, it didn't actually require an inspection... (and asked how this information was then compiled) All the rock noise reports are recorded on a database...with best sort of 3D coordinates of where the person was at the time that they heard the noise, and we would try to plot that in the three dimensional model to see if there was an alignment or a clustering of records coming from particular areas."* Mr Penney went onto state he looked for clusters "occasionally . Asked whether he would review the data to see what had been the experience over the last six or twelve months Mr Penney replied (p10 ROI) it *"would be something along those lines to try and link back to what seismic events may have been recorded for those periods."* Finally, when asked what was done with the information prepared from these reviews Mr Penney stated (p10 ROI) it *"was never - it was never really prepared for delivery to a report or anything, it was something that was viewed by myself and Peter Hills off screen, it was never actually reported."* Asked specifically about feedback to mineworkers Mr Penney (p15 ROI) replied that they "*were aware of what it was being used for, they also understood that I couldn't be down there every day in every heading, inspecting everything, with all the other duties I had to do as well, so yes, they knew what it was being use for, whilst I might not have been able to go down there and tell them exactly week and give them a weekly update of what was going on, they all knew the underlining principle for the system."*

183. According to Chief geologist Peter Hills (p9 of part 1 ROI) the primary function of rock noise reports *"was to alert us to the fact that there was an area where guys were concerned about some aspect of seismicity and it gave us a flag to take action if we deemed that to be necessary, and particularly, you know, do we go down now and have a look at it, are they just talking about a few little spots, is that something that we've seen a few reports of recently, do we know what's happening, are we conversant with what's happening in that drive...(and asked if the reports were used to identify clusters) Yeah, to a degree, but really what we were - the main purpose of them was to know where guys were concerned about seismicity so that we could make sure that we got down and looked at what they were talking about."* Asked if at six or twelve month intervals he went back to analyse the reports to see if there were any patterns emerging Mr Hills said *"No"*. Mr Hills did not believe an absence of feedback contributed to poor reporting (p12 of part 1 ROI). "*No I don't. The thing that we had in front of the guys, when we went down there to a particular area to deal with a particular issue that they may have raised we talked to the guys that were down there. If there was a particular concern raised and that particular individual was not there we would find that individual and talk to them, particularly Adrian would do that, but I have on occasions as well spoken with people specifically in regard to that where they've had particular concerns, but you know really what - I mean the other thing that we had with the seismic system that we had in place, that was since August last year, that was down there underground in the shift bosses' office, they could all look at it and they all did."*

184. Consistent with the AWU/Knight family submission, a number of those interviewed (both management and workers) accepted that use of the cards had declined following the implementation of the computerized seismic monitoring system. For example, Jamie Karamatic mining engineer stated (p11 ROI) *"I think the blokes had definitely slackened off in putting their cards... back in since we got the seismic monitoring system. I know that... (Peter) Hills (indistinct word) fairly recently had gone around (indistinct words) about the encouraging the guys to start putting (indistinct words)."* Similarly, shift boss Brett Cresswell (p9 ROI) observed *"They were encouraged to, I know – Peter Hills on one or two occasions encouraged people at tool box meetings that they still had to continue to fill these cards out, but I never received any after the system went in... Yes, they still needed to – even though their system picked up most things, they did not pick up everything that the blokes experienced so they needed that hands on and that personalised touch to say what actually happened in that area, because a machine can't pick up where, you know, rocks moved or shards fell to the ground or stuff like that, he still needed that stuff to determine exactly what was happening."* Stephen Craig Saltmarsh, senior supervisor at the Mine at the time of incident, also believed the introduction of the computer system had caused a drop off in filling out rock noise report cards (p7 ROI). Mr Saltmarsh stated he was given feedback on incidents that were reported, including trend data and projections (p8 ROI) *"Yes, coming up towards 2CG we're probably going to get some noise."*

185. The Chief Geologist, Peter Hills, confirmed the drop off (p8 of part 1 of ROI) *"Yeah, I guess once we got the seismic system in fact the frequency of filling out rock noise reports in the first instance had almost dried up and what we had to get around at the time was that putting in the seismic system was not so that we didn't have to do rock noise reports anymore, what we wanted to know was what the guys were sensing, particularly if they were sensing something that was making them uncomfortable. It's all very well for this seismic system to bring up a bubble but that doesn't mean that people were concerned about it or not, that they heard it or not, the seismic system can't tell you if any little rocks fell through the mesh, can't tell you any of that, so yeah, we had to reinforce at the time that putting in the seismic system is not - or that the rock noise reports weren't just a fill in 'til we could get a seismic system in place, they were a tool to use on top of the seismic system."*

186. The mine's production geologist Adrian Penney agreed (pp13-14 ROI) although Mr Penney also referred to a longer-term pattern of "fits and starts in the level of reporting. *"It had fits and starts, it would be really good for a little while and then it would be really good particularly after we'd encouraged them to continually fill them out again, and then it would start to wane off again. It really started to die off once we got the full time seismic system, because there was a perception out there that they were collecting - they were doing my job basically, they were collecting the information that they thought that I should have been collecting underground. So we encouraged them to continually do that because, whilst I didn't pick up a seismic event, I can tell them when and where and how big it was, I could not tell them what they observed at the heading if they were in a heading and if something was to occur."*

187. A number of mineworkers too believed the cards were no longer necessary or less important once J Map was in place. For example, jumbo operator Daniel Piscioneri stated (p7 ROI) *"Well the method is we've got a rock noise report sheet that we had to fill out and now we've got this computer, seismic activity, which reads everything, yeah, so I think there's sort of - the paperwork side of it is sort of phased out a bit."* Gary Round held a contrary view (p11 ROI) *"Oh no, but I mean that only answer things - but rocks could be still popping and moving there and probably wouldn't show up on the seismic thing."* One mineworker interviewed, Dennis Newson saw the seismic monitoring system as being a response to deficiencies in the rock noise report card system (p8 ROI) *"Oh, that's why they put the seismic sensitive system in because people were just saying, and I don't think they believed half the people, all the rock noise cards and they were getting, I think that's why they bit the bullet and put the seismic measuring equipment in."*

188. For his part, OHS officer Rex Johnson saw a fall off in reporting as part of a natural degeneration of systems linked to complacency (p12 ROI) *"Over time and it's like any system, you have to keep reinventing it. Guys get – when they first start hearing rock noise, very straight up, filled in a report card and time. They get a bit relaxed, so hence you've got to keep bringing it up and reinventing it. The same thing with dealing with all the safety stuff as well. People get, I suppose, a little bit complacent and you've got to keep, not reinventing the wheel but just putting a new line on it, give guys back – if it's utilising the equipment."*

189. In broad terms the above evidence is supported by an analysis of rock noise reports undertaken by Scott Marisett in his report, which noted that reporting ranged from 2.1 to 13.6 reports per 28 day period but once the micro seismic monitoring was operational the reporting rate remained relatively consistent at 4.03 reports per 28 day period.

190. It is evident management was aware of the problems with use of the report cards and tried to address this. On 14 March 2006, the Mine's Chief Geologist Peter Hills emailed other managers (including Mathew Gill, Pat Ball, Stephen Saltmarsh, Rex Johnson, the underground training officers and the various shift supervisors) stating that there "*has been a fall-off in the use of Underground Rock Noise Reporting Cards recently, and Rockfall Cards are not being used at all. A lot of emphasis has been placed on seismicity over the last 6 months and a lot more procedures are in place. However, these basic tools remain a valuable resource to understanding and controlling seismicity. Please impress upon your people that the information that is gathered in these cards is useful. The seismic array can detect events, determine their magnitude, and locate them. It can't measure how far and wide the events were felt or where and to what degree any damage has occurred...The purpose of the reports is not to find a way for everyone else to do the geotechnical work for us. In fact getting the reports creates work. Only by knowing what impact events are having around the mine can we tailor ground support, re-entry times, etc to our specific requirements. Despite the seismic array, despite all the procedures and protocols that have been introduced, despite all the extra ground support and rehabilitation that has been done over the last 6 months, and despite the continual*

flow of consultants we have had reviewing what we are doing and providing advice, the Reporting Cards remain a valuable tool. Please encourage your people to use them.

191. Even if reporting deteriorated after the implementation of electronic seismic monitoring, there is evidence that problems in filling in rock noise reports were longstanding and recognized by management. In early March 2004 the toolbox meetings of Nigel Webb and Brett Cresswell's crew were advised to "fill in and report all ground noise. as part of the precautions to rock bursts.

192. The Investigation also examined rock fall incident report records provided by the mine. These record 25 rockfall incidents between January 2004 and April 25 2006, including four rockfalls at the 915 and 925mL (or both in the case of 26 October 2005) between October 2005 and April 2006 (including one in 925W on Anzac Day) and a number of other rock falls at the 905 and 940 levels. As noted elsewhere in this report, a number of mineworkers interviewed referred to small rockfalls or rock bursts that were dangerous but were not reported to management (see Table 1) but the extent of this was impossible to verify one way or the other without precise dates. The underground manager Pat Ball stated (p23 2nd ROI) that once a fall of ground was notified the shift supervisor would have it chained off, a No Zone sign erected and the site *"would be visited by geotechs – probably Peter (Hills) or probably myself, to have a look at it."*

193. Mineworkers generally expressed support for the J Map system implemented at the mine and a number indicated viewing the monitor located in the crib room. At the same time, as with the rock noise/fall card reporting system there were some queries about feedback and its value. Brant Webb (pp76-77 ROI) stated *"I'd cruise in and have a look if we did hear a big one...Yeah, I thought that was pretty cool...But in the same term I, you know, I thought it was a bit funny that we had this system in but you'd tell them what happened after the event but - we didn't see - like we were never told to do anything different...Even though they had the system in. So for ground support or anything else, because we didn't do ground support, you see...So it sort of didn't really relate much to us."* Mineworker support for the system does not mean that they were fully conversant with seismicity and trained in it in terms of their direct work experiences. Indeed, a number expressed specific reservations about their capacity to judge conditions (see elsewhere in the report). Not all mineworkers felt capable of reading the monitor (see for example, p8 ROI of Alan Bennett). It should also be noted that Mr Webb goes onto to say in the remainder of the quote about his inability to see a link between the seismicity measurement system and changes in ground support so *"it didn't really relate to us."*.

194. Mineworkers appear to have been aware that the system could not predict a seismic event serious enough to cause a substantial rock fall as distinct from a clustering of events that suggested that there was a increased risk such an event might occur and that caution was therefore warranted. As one experienced miner Trent Clayton observed (p10 ROI) *"they've put that computer system in there which is pretty good for nailing pops and cracks but as whenever that tells you when something is going to happen, it doesn't*

195. Some shift supervisors found J-Map useful in evaluating noise and deciding an appropriate course of action, including using it as a precautionary or warning device to exclude crews from particular areas where they perceived that there was an increase in seismic risk. Shift supervisor Dale Burgess stated (p8 ROI) *"once J Map was up and running as the supervisor if I heard a noise I'd go back to the J Map monitor, look it out, see how big it was, where it came from, and then if you had men available at the lower ground level you'd say, "Fellas, come on now, let's get out", or "Yeah, that's only a little one", or it was (iw) don't worry about it, you know."* However, when asked if he'd ever been criticised by management for withdrawing men following seismic activity Mr Burgess added (pp8-9 ROI), *"I believe it was frowned on. No one ever actually said, you know, but you'd know by the fact that if you finished on night shift and you'd stopped a job because, you know, the seismic activity or you'd pulled out, that's the problem with (iw) because there's no foreman there, the guys would come in two shifts later, a new crew, and they'd go, "Oh yeah, we'll get straight into her", because there was no history traded and (iw) there needed to be some protocol that said we had a 1.0 seismic event. This job should have been shut down for a week until there's a complete re-evaluation of it... Most times J-Map was only set up for twelve hour reconciliation and the other shift wasn't (iw) computers. As a shift boss, if they come on they'd have a look and go, "Well the last twelve hours has been great", but really a history would suggest that twenty four, thirty six hours - I used to adjust J-Map and get right back in the last three or four days and see what the true history was because that - the last (iw) representing what was going on around the mine... every time I'd come out you'd suggest that how (iw) shift reports are structured, there's a little column for safety issues, so you really only got a snapshot of the last twelve hours, there wasn't really anyone there to give you that spread of the last week or, you know, (iw) five days, just be aware that (iw). I used to write it in the safety columns myself, I'd say the mine is active at eight eighty nine, just document it, try and create some sort of history. If it was really important I'd probably e-mail the geotech or phone him up or something and say, "Look, we've had this event" (iw) so people can use it, you know, if you withhold information then you might know something that I don't."* In short, Mr Burgess was concerned that the J-Map system, as implemented, lacked clear warning trigger protocols or 'red flags', that the default time span was too short to provide a useful analysis of trends over the last few days and there was inadequate coordination of information at the changeover of shifts. Mr Burgess stated that he adjusted the time span to provide a longer history of seismic activity – and the system could be readily adjusted to do this - but implies he wasn't sure other shift supervisors did the same. The Mine points out that all shift supervisors were trained to interrogate J Map over longer time frames. Interviews with the other three shift supervisors (Homan, Cresswell and Cheesman) suggested they were not as active in using the system as Mr Burgess but confirming this would require further investigation.

196. These points raised in the last paragraph are all issues that have relevance to the Anzac Day rockfall and the OHS system at the mine in terms of managing seismicity more generally and are taken up elsewhere in the report. At this point it is worth noting that other evidence (such as emails) examined by the Investigation verify Mr Burgess' proactive and diligent approach to the problem of seismicity at the Mine. As illustrated elsewhere in the report, Mr Burgess identified flaws and regularly made constructive

suggestions of a level and quality which was exceptional compared to other shift supervisors (who appear to have relied more on verbal communication).

197. Chief geologist Peter Hills (pp12-13 ROI) highlighted the capacity of shift bosses to interrogate the system to obtain relevant information *"I mean they don't have the controls on that program underground to be able to access the raw data. They can decide that they want to look at the last hour, the last twelve hours, the last thousand hours if they want to, and the shift bosses - it was shown to the shift bosses and normally the shift bosses would have the system set up on twelve or twenty four hours to see what was happening in the last day or two, but if they were concerned about an area and whether things were very busy in a particular area they - we had shown them that they could change it to a longer time period if they wanted to sort of see that data over a longer time period and guys would do that."*

198. Another relevant question was the extent to which senior management used seismicity data from J-Map to identify potentially worrying trends. Adrian Penney (pp4-5 3rd ROI) stated he examined seismicity data every day he was at the mine but did not track trends on a daily basis but rather *"a weekly or monthly basis"* for the monthly reporting. It should be noted that weekly reports produced by the mine, dealing with a range of issues including OHS, contained a discussion of seismicity trends or significant events in the previous seven day period (see Table 3 for summaries of these). Monthly Mine reports contained more detailed information on seismicity from October 2005 if not before (see Table 3 for summaries of these reports). The monthly summaries included a discussion of overall trends for the month (expressed in terms of overall numbers recorded and accepted by the seismic array, average daily figures and conspicuous bouts of activity and their location) as well as an examination of significant events (and associated rockfalls) and whether this could be linked to particularly firing, pillar removal or known areas of seismic activity such as the F1 splay and conglomerate overlap zones.

199. Asked if in the week prior to the Anzac Day incident he would have had cause to look at the previous month's events Mr Penney said *"no."* Mr Penney indicated that J-Map was open to multiple parties, including Peter Hills but that J-Map did not automatically generate a histogram to identify trends. Mr Penney was asked whether when the seismic system was sold to the Mine by ISS or recommended by AMC any kind of strategy for using the system or how to implement the system, or what information was gained from the system? In response Mr Penney stated (p6 of 3rd ROI) *"there was a little bit of advice on what sort of plotting or trending - not so much trending data, but plotting, sort of Guttenberg, Richter scale or moment V energy plots, things like that, but nothing specific."* Mr Penney (pp6-7 3rd ROI) went on to confirm that nothing had been provided to indicate what might be viewed as a trigger to impending high levels of seismicity or seismic risk and that mine had no formal system in place with regard to setting a 'red flag' threshold of seismic activity. Mr Penney's evidence is relevant to discussion of 'red flagging' later in this report.

200. Another critical question in terms of this investigation is whether the limitations in filling out rock noise and fall cards affected the flow of information to management that

may have enhanced their ground support measures or provide some indicators of deteriorating conditions in the lead up to the serious rock falls of October 2005 and April 2006.

201. Mine management was aware of limitations in both the J Map system and the rock noise/fall report card systems and saw the need for both to enhance its understanding of seismic activity and ground conditions. This seems a sound judgement. Unfortunately, it also seems clear that the less than assiduous completion of cards resulted in gaps in reporting that diminished their value as a tool. These gaps should have been apparent given even a cursory examination of the pattern of persons reporting noise and falls (the latter never reported til the morning of 25 April 2006) which would have readily identified a significant disparity in both the level of reporting and a large number of underground mineworkers who had not completed reports for some time if ever even as the mine was experiencing more seismicity. The Investigation explored this issue with management. Asked about gaps in reporting Pat Ball (p3 of 3rd ROI stated that rock noise reports "*were tidal. The number of them went up and down. We monitored when they went down and reminded people of the system, how to fill them out, encourage them, gave them scratchies for filling them out, that sort of stuff.*" For his part, Mathew Gill stated the gaps didn't cause concern (p4 3rd ROI) *"if you compare it to the number of seismic events that the seismic systemic picked up which could be twenty or thirty a day, we certainly weren't getting twenty or thirty rock noise reports. Those rock noise reports were really a data gathering observational supplement to the seismic array system. It wasn't a mandatory requirement. You can't make someone fill in the form if they don't want to. It was useful information in the data base collection of what else was going on. It gave a bit of a sense of that compared to just the electronic read-out from JMAP. We introduced that pre any electronic monitoring. The electronic monitoring system came on line. I think a lot of people thought, well, that system's doing it, I don't have to. That's not a bad assumption. We did remind people that it was useful information and we did remind them, I think as recently as in early 2006, but it didn't cause us any concern that we were missing valuable data. It was supplementary data."* Adrian Penney (p3 of 3rd ROI) stated that from *"my experience the underground workers would only report a rock noise if they noticed something, rather than actually just hearing the noise, because they saw that the system was actually recording the noise for us, the seismic system's recording the noise."*

202. A number of factors appear to have contributed to gaps in reporting including a resistance to paperwork on the part of some mineworkers, the perception amongst some that the introduction of J Map removed or at least diminished the importance of the card system and lack of feedback on results to reinforce management's message about the importance of the system. Management was aware of the problem of filling in cards and sought to address it (as in March 2006). However, the lack of feedback, which even shift supervisors experienced, was not addressed, as far as can be ascertained. Formal monthly updates on rock noise and rock falls would clearly have been of value in both reinforcing the value of reporting and in giving mineworkers a better understanding of evolving risks in the mine.

203. The event of 25 April 2006 altered the perception about the value card system in eyes of a number of experienced mineworkers. Mineworkers and management were both generally aware of the very limited predictive value of J Map. In sum, the card system had value but needs to be more effectively administered in the future including better monitoring of its use and measures to encourage completion including more feedback on the results of analyzing card reports. The provision of adequate feedback was also a problem area – and one that should be addressed.

Mining methods and ground support measures

204. As the issue of mining methods and ground support is being explored in some depth by the expert report prepared by Scott Marisett I will concentrate my observations on matters that clearly fall within the auspices of OHS management at the mine, including mineworkers attitudes on mining methods and ground conditions and whether they held concerns for their safety prior to the Anzac Day incident.. I will, however, also refer to observations and comments made by Mr Marisett in his report. Under Section 9(1)(a)(i)&(ii) of the Workplace Health and Safety Act 1995 the employer has a duty to ensure as far as is reasonably practicable that the employee is, while at work, safe from injury and risks to health and must provide and maintain so far as is reasonably practical a safe working environment and safe systems of work. In terms of OHS management of a mine this would include monitoring ground conditions and the impact of mining methods on this, and using this information to adapt mining methods where necessary or even halting production in a particular area if incidents or other indicators suggested an imminent and serious risk. Issues critical to this investigation include whether mine methods were appropriate/contributed to the incident of 25 April 2006, whether these methods were adapted to meet changing conditions/risk and if there warning signs of the incident of 25 April 2006.

205. The AWU/Knight family submission made criticisms of mining practices and mine management's response to changes in seismicity drawn from information it obtained from mineworkers. It was contended that seismicity at the mine increased following removal of a "crown pillar at "the 805, 815 or 890 level and that management had not consulted with workers prior to removal of the crown pillar (or regarding operational decisions/changes more generally) even though workers had repeatedly expressed concerns that crown pillar removal would affect mine stability (p8). It was contended that hanging walls were not maintained in way that would maximize mine stability (including unsuitable blasting close to hanging walls) and mining procedures were affected by "priority given to areas of the richest ore (p8). The submission states that removal of the crown pillar referred to above coincided with an increase in rock noise, rockbursts and rock fall frequency at the mine and by 25 April 2006 had become so commonplace that workers had become accustomed to it. The submission refers to information from workers that levels 915 and 925 were so "notoriously seismically active they were unpopular with workers (p9 on p12 it is stated that after "October 2005 management were made aware of mineworkers concerns about being sent into the worst areas); ground movement was sufficient to strip the thread off ground support bolts and bend/break bolt plates; and the

cessation of mining in certain levels following the October 2005 rock fall coincided with a diminution of seismicity in the mine. The submission refers to rock falls occurring at many levels in the mine, the frequency of rocks "spitting off faces and hanging wall collapses in open stopes which made workers uneasy. According to the submission there were at least four "near misses or large rock falls that could have resulted in serious injury prior to 25 April – namely, a fall at the 790 level in 2004, a fall at the 915 level in September/October 2005, a fall at the 925 level in October 2005 and a fall at the 980 level two days before the fatal incident (p9). It is contended that the October 2005 fall would have resulted in fatalities had not the fall occurred during shift changeover when men were in the crib room. The submission includes a number of criticisms of mining practices adopted after the October 2005 rock fall, including allegations that a worker was sent to extract fallen ore from collapsed stopes before the general ban on entry into those stopes was lifted and ground support installed (pp11 & 17) and that management sometimes disregarded or ignored safety issues (including seismicity). It is also stated (at p12) that level 925 "had been 'going off' before rings were drilled in 925 for firing a few days before Anzac Day 2006. Finally, the AWU/Knight family submission makes reference to concerns raised by workers in relation to backfilling including that stopes were left open for extended periods without being backfilled, backfill operators were inadequately trained and waste material was used in backfill. Concerns were identified in relation to the inconsistent quality and density of sand and water mixes, cemented hydraulic fill (or CHF), and cemented rock fill (CRF). It was alleged that poor quality backfill did not always set as intended, compromising safety standards in the mine (p10).As noted elsewhere in this report, a number of Beaconsfield mineworkers provided statements to the AWU that were supplied to the Investigation that largely echo (and appear to form the base for) the AWU/Knight Family submission. Few of these statements made comments about the adequacy of bolts used in ground support but several referred to blasting and extraction practices. For example, Philip Malkin (at p4 of his statement) criticized the move away from blasting 10 metre "uppers when stoping to a blasting process involving doing "half uppers following the departure of mining engineer Mick Aspinall. Mr Malkin said he preferred the former because it involved less rehabilitation – a dangerous practice because it involved trying to support ground that had already been blasted. Mr Malkin (at pages 6-7) also expressed concern that stopes were, on occasion, left open for periods up to several months, depending on the scheduling of extraction.

206. The purpose in referring to points raised by the AWU/Knight family in the foregoing paragraph, as elsewhere in the report, is to identify issues brought to the attention of the Investigation – matters that, like the Mine's own submissions, relate to the scope of the Investigation and (it must also be presumed in the absence of evidence to the contrary are made in good faith) and therefore warrant serious attention. A substantial amount of criticism by the AWU/Knight family related to mining methods and the state of the mine and that is why it is reproduced in summary form here. In this section and later sections these claims are then assessed in the light of evidence available to the Investigation. Some claims were ambiguous (such as the reference to the removal of three different pillars in relation to the increase in seismicity) and could only be explored in terms of the evidence available to the Investigation. In other cases, the Investigation found insufficient evidence to support a claim or to warrant exploring it further as germaine to

the events of Anzac Day 2006. Only when specific claims accord with the balance of available are they endorsed by this report. Each section of this report draws conclusions based on the evidence which clearly indicated what arguments have been found to be persuasive. I also asked the Investigation's geotechnical expert to comment on claims made in the AWU/Knight family submission (these are included in paragraphs 242 and 256 on mining methods and ground support drawn from the Marisett report).

207. The remainder of this section will examine the evidence in relation to mining methods within the confines already identified and also test a number of criticisms made in the AWU/Knight family submission (others such as the raising of mineworker concerns are examined in part here but also later in the report in the section on worker involvement/feedback loops).

Crown pillars, pillar removal and other concerns about mining methods

208. The mining methods used at the Beaconsfield mine had evolved over time. The resident mine manager Mathew Gill indicated that flat back cut and fill had originally been used before moving to the modified AVOCA system (p6 of 2nd ROI). At the time of the Anzac Day incident the mine was implementing checkerboarding. The mining methods being used at the mine essentially were based on 100% extraction which entailed not retaining any supporting pillars. Mining methods based on 100% extraction are used at other mines. It should be noted that noted that none of the consultants engaged by the Mine recommended the retention of pillars (other issues such as the thickness of pillars were discussed) prior to 25 April 2006 (the idea of retaining particular pillars is canvassed by Mike Turner following the event in an email reproduced later in this report). The removal of pillars, especially crown pillars, was a source of concern to a number of experienced mineworkers at Beaconsfield who believed their removal had compromised the structural integrity of the mine, precipitating or magnifying seismic events and rock falls.

209. The Mine has argued that given the 100% extraction method pillar removal was not a safety issue but rather that the retention of pillars could expose workers to risk. Indeed, that Mine stated that the latter was the conventional wisdom and it found it implausible that experienced mineworkers were unaware of this. Second, the Mine has contended that there is no documentary evidence of mineworker concerns about pillar removal (or seismicity related concerns) prior to the Anzac Day incident. Third, it has been suggested that mineworker views about prior concerns were affected by hindsight or the trauma of the Anzac Day event.

210. With regard to the first question, it should be noted that the Investigation found the removal of pillars was a matter of concern to a significant number of mineworkers (and most shift supervisors) because they believed, rightly or wrongly, that the removal of pillars, compromised safety at the mine. As pillar removal was a critical component of mineworkers' concerns about safety it warranted careful consideration by the Investigation and in this report. This section of the report focuses on the extent of worker concerns, how they believed it impacted on safety at the mine, and what the issue revealed

about the state of OHS management at the mine prior to the Anzac Day 2006 incident. Later sections of this report examine other areas of concern in relation to ground conditions at the mine, as well as putting these in the context of the findings of the expert geotechnical report prepared by Scott Marisett. While the Mine may find it implausible that experienced mineworkers could be unaware that the removal of pillars was "conventional wisdom in terms of safely managing seismicity, the interviews undertaken revealed a clear pattern of concern in relation to the removal of pillars and inadequate concern as to the structural integrity of the mine. Mineworkers were not unaware of 100% extraction methods but a number indicated that seismic activity in the mine warranted caution. Jumbo offsider, Jerry Kahmann (with eight and half years experience at the mine) recognized that 100% extraction was common in the industry but believed (p10 ROI) in seismically active area mining "would err on the side of caution.

211. With regard to the second point, while not disputing that the written records contain very little evidence of concerns (discussed at length in the section of the report dealing with worker involvement) there is at least one complaint. On 27 October 2005 following a rock fall in 925W on the 9th, two seismic events in 915W on the 24th, and another major rock fall at the 915W level on the 26th a minute of the Cheesman crew toolbox minutes records Peter Purdon as having stated that no-one should be sent into 915/925 (this is consistent with the AWU/Knight family submission claim about worker concern about worker concerns about the 915/925 levels). The lack of documentary evidence needs to be seen in the context of considerable evidence of inadequate consultation and participatory practices at the mine presented in this report. Other issues were identified as being difficult to raise or as having not being addressed at toolbox meetings (like hours of work/shift rosters). Further, concerns do not necessarily translate into documented complaints, particularly if no action is taken. This point was specifically made by shift supervisor Dale Burgess who indicated concerns were raised both on his crew and one other (see later section on toolbox meetings). Finally, there is a weight of evidence that mineworkers held concerns about seismicity and mining methods prior to the Anzac Day incident, in interviews cited in the report itself and in the summary of responses of workers to be found in Table 1. These concerns were not confined to union members or direct employees of the mine, and knowledge of these concerns was not confined to those who may have held grievances against management. Reference was made to the matter being discussed in crew meetings and at the pub as well as, the more disputed venue of toolbox meetings (where some mineworkers were emphatic the matter had been raised but no manager attending these meetings and one shift boss could recall this). There is also corroborated evidence of mineworker concerns. Todd Russell stated concerns about safety at the mine had caused him to consider resigning around Christmas 2005 – a statement corroborated by his wife and father-inlaw (who indicated Mr Russell had had concerns for 12 months prior to the incident). Another mineworker, Darren Geard, stated he put a note to the underground manager Pat Ball indicating that the 815 stope be left before someone gets killed – a note he said Mr Ball confirmed receiving. Most shift supervisors interviewed confirmed that they were aware of these concerns and indeed three of the four shared these concerns. Stephen Homan stated he went on extended leave after viewing the 26th October 2005 rockfall because he believed the mine was no longer a safe place to work. A third shift supervisor, Gavan Cheesman raised concern at the removal of crown

pillars at several shift bosses meetings, an action observed by other shift supervisors (Stephen Homan and Dale Burgess), known and approved of by a number of mineworkers (in addition to those mentioned elsewhere in the report, Gary Round stated [p12 ROI] *"Well I know Gavan Cheesman brought it up about to leave it there."*). Other Mine staff were aware of these concerns. Asked about mineworker concerns, Craig Large OHS technician assisting Rex Johnson, told the Investigation (ROI p19) *"They were certainly following the October (2005) incident, I hadn't heard very much about it prior to that."*

212. With regard to the third issue, the Investigation team did consider and discuss the possibility that reported concerns about seismicity, mining methods and pillar removal were affected by hindsight or the traumatic events of Anzac Day 2006. However, such an interpretation is not consistent with the weight of corroborated testimony in relation to specific events as well as other evidence, including that just summarised above (see also Table 1).

213. Of the 41 mineworkers interviewed by the Investigation, 16 or 39% stated that they were concerned at the removal of pillars, many stating they had discussed the matter amongst themselves prior to the Anzac Day incident at crib/crew meetings or in the pub (for example see Gray Jacques p6 ROI), raised the issue with their shift supervisor or more senior management or attended toolbox meetings where it was raised by them or others (see Table 1). Those expressing concerns were not, as was sometimes suggested to the Investigation, a small but vocal minority. They included union members as well as non-unionists, contractors and direct employees and were, as a group, composed of many of the most experienced mineworkers at the mine and those most directly involved in tasks where rock falls were most likely to occur. For example, Gerald Lyall McDermott (six years at the mine and 10 years prior mining experience before that) believed that the removal of crown pillars had jeopardized the structural integrity of the mine (p9 of ROI) *"It basically means you've got less solid ground holding up the back and keeping the ground stable, fresh air wont hold anything up really, and that's what it (the pillar) does, it basically keeps the backs up and combined with the fill to fill the void in, that creates your crown pillar structure."* With further reference to the 'hindsight' issue raised by the Mine it should be noted that even mineworkers who didn't understand or necessarily endorse these concerns stated were aware of these concerns and that the concerns had been raised or discussed widely (see later sections of this report and Table 1). Ricky Payne, a long hole driller who was by no means an entrenched critic of the mine, stated that the issue of pillars (p12 ROI) *"had been brought up a lot but I'm talking second hand because a lot was brought up on another crew but we did discuss it on our crew..."*

214. Four Beaconsfield mineworkers not interviewed by the Investigation but who provided statements to the AWU (namely Garth Bonney, Philip Malkin, Chris McKay and Peter Schleich) that were supplied with consent to the investigation indicated that the removal of pillars was a serious concern, with Bonney (at page 3) and Malkin (at page 5) indicating these concerns had been raised at toolbox meetings. As noted below, the Mine has disputed whether the matter was raised in toolbox meetings, referring to the absence of documentary evidence these matters were raised. In addition to points already made, a

later section of the report (dealing with worker involvement) examines this question in more detail.

215. Several miners stated (see Table 1) that their shift boss (Gavan Cheesman) had raised objections with his superiors about the removal of the crown pillar at the 815 level. Others referred to the removal of the crown pillar at 815 as bringing about a significant change in ground conditions at the mine. David Taylor (an AWU member for about 6 months), a Service Person 1 with over 13 years experience in mining (and ten years at Beaconsfield) stated (at p14 ROI) *"Once we got past 815 and took out the main pillar in there she started talking a lot more. With that in there, you'd get a lit bit of talk now and then, it'd spit rock at you. Once that was gone, it come down more constant and more frequent and a lot louder. Before then it was just like someone firing a shotgun off around the corner, type thing, every now and then. Once that pillar was gone – like, you'd be sitting on the ground putting another bolt on and she'd go boom underneath you and you'd jump."* Overall, amongst miners interviewed by the Investigation of those raising concerns about pillar removal only a minority referred specifically to removal of the pillar at the 815 level as precipitating significant changes in ground conditions. Garth Bonney who provided a statement to the AWU, supplied with consent to the Investigation, said (at page 3) he was "very concerned at the removal of the crown pillar at the 805-815 level. Peter Schleich, who also provided a statement to the AWU, said (at page 3) that he and other members of ore crew 'C' had requested that the crown pillar be retained until other ore reserves were exhausted at "toolbox meetings and that Underground Manager Pat Ball had "tried to reassure us.

216. Shift supervisor Dale Burgess also referred to the removal of the 815 metre level crown pillar (p24 ROI) *"Oh no doubt, everywhere from bloody eight fifteen down to nine eighty was known to be, you know, more seismic...What happened, I think we shot out the eight fifteen crown pillar... and that was... the first instance or one of the first times where you really noticed the seismicity, it was really hard ground to bore and - I think it was even (iw) Adrian (iw) was there, he was expecting strong seismicity in this area so just be aware (iw)."* Mr Burgess believed (p26 ROI) that retention of pillars would have assisted maintaining the structural integrity of the mine. Another shift supervisor, Gavan Cheesman indicated (p4 of 2nd ROI) that pillar removal had been discussed in the cribroom: *"We talked about the removed pillar at, I think it was 805, it was removed, and we did that on our shift, and that was the first real big bump the town got, and to my recollections, that's when the seismic - you know we started to get a lot of seismic events...Owing to that."*

217. Mineworker and shift supervisor opinions need to be viewed in the context that it was expected that seismicity would increase with depth. At the same time, a number of mineworkers expressing concern had considerable experience in underground hard rock mining, both in Tasmania and elsewhere. For them the increase in seismicity at depth would hardly have come as a revelation and the sole basis for the concerns expressed.

218. Mineworkers had transmitted their concerns directly to management. There is evidence that the matter was raised in toolbox meetings discussed elsewhere in this report.

A number also stated they had raised these matters in conversation or, in the case of jumbo offsider Darren Geard, by note. In response to a question as to whether safety matters he raised were resolved Mr Geard said this was not always the case and went on to state (pp8-9 ROI) *"I went up to a stope, which was 815, I was doing a utility shift, and the shift boss wanted me to go up there and start bogging...anyway I went up there with the bogger and the east side fill had come down, so he wanted me to try and clean it up but I couldn't. Me and Robbie Sears, he's a experienced jumbo operator, he comes up there with Brett Cresswell and he said "just be quiet and turn things off", and we went up to the central side and he said, "Just listen to the ground"...and you could just hear it cracking, there was that much pressure...And anyway I wrote Pat Ball a letter that morning, I said "You should be leaving this stope before someone gets killed" and I signed the letter, and I put it under his door...The following week...I said "Did you receive my letter" and he said "I did". And he reckons he was told to take the rest of the stope out and which I believe that was a crown pillar."* For his part, Mr Ball stated he recalled (p4 of 4th ROI) Mr Geard's request not to remove the 805W pillar but that part of the pillar had already been extracted and that it was of a size *"where it would be dangerous to leave there."* Mr Ball stated (p4 of 4th ROI) this was the only time he could specifically recall an employee requesting that a pillar not be removed.

219. Some within the mine's management were aware of mineworker concerns regarding the removal of crown pillars. Asked about these concerns, the Underground Manager Pat Ball stated (pp22-23 of Part 2 of ROI) *"We have had that same feedback and we've attempted to address it and convinced them it's not a good idea...The basic problem is with leaving a pillar, you've either got to make it so small it's going to crumble with the minimum of fuss or make it so big that it never crumbles and the problem is picking that size because if you get it wrong, if you get it anywhere in between it's going to burst and it's going to burst probably very violently. Do you know what I am saying? ...The art is to pick the size of that pillar. Most pillars of any – that we can possibly leave would be – would fail at some stage and the moment they fail, you may as not have the pillar there and the problem's gone and you haven't got a regional pillar."*

220. In relation to the last point, it is worth noting that the possibility of pillar thickness and stress contributing to a fall of ground had been a concern to management on occasion. In a memo to Mathew Gill on 8 March 2004 in connection with a the failure at 870W resulting in a rockfall of 350 tonnes on 25 February 2004 Peter Hills stated (at page 3) that subsequent investigation "*has revealed that the crown pillar was less than design dimensions being of the order of 5.5m thick vertically as against a design of 7.0. The reasons for this are being investigated further, but typically when mining is not to original design for whatever reason, the future design is modified to suit existing circumstances."* This indicates that the pillar thickness was only 78.5% of the design dimensions. Asked if this was a concern, Pat Ball stated (p4 of 3rd ROI) *"Possibly. It would depend on sort of what margin for error we had. If it was critical that the pillar was six point nine metres, then that would cause me concern. If it wasn't, if the range of error could be down to five metres, then it wouldn't cause me concern. It would cause me concern for the reason that it was off design."* Asked the same question Peter Hills replied 'absolutely' (p5 of 3rd ROI). Mr Hills went onto indicate (pp5-6 3rd ROI) that later the same year that a header in

955W containing high grade ore had been abandoned for safety reasons because *"the grade had gone up at the end of the (sill) drive further than we wanted it to... The ground was starting to deteriorate, we were concerned about that, we pulled out. We found that we were probably - we were high, I can't remember how high. We found out we were high, we determined that we wouldn't endeavour to rehabilitate it, that we would abandon that bit of the heading, we weren't far off the end of the heading anyway, and that we would assess alternatives in the future. Indeed we were in the process of mining a bypass to get round to the other side early last year."* There was another reference to a failure to keep to designed pillar thickness in late 2005. On 8 November 2005 senior surveyor Simon Arthur emailed Adrian Penney stating that *"the real reason for this note is the pillar between 1040 Access and the 1030 west sill. Whilst there is a design vertical separation of 10.0 metres (mined to design as well !!!!), there is only a 7.5 +/- metres between the 1030 west sill and the point over which it crosses the 1040 Access. The reason of course being that the ore body is more shallow dipping than previously encountered. Just thought I would alert you to this for your benefit."*

221. In his report on the major March 2004 pillar failures at the 870 and 890 levels in May 2004 (Table 3), Mike Turner (AMC) made no direct reference to the deviation from design at the 870 but on page 7 does refer to mining to design thickness of seven metres. Mr Turner also made a more general reference to the adequacy of pillar thickness. The Turner report endorsed the use of 7 metre thick pillars for the 905, 940 (including 915 and 925 levels) and the next two stopes below, concluding (at page 8) that the *"current mining method, design and extraction sequence are currently appropriate. The mining method is, however, not suited to high stress conditions and would therefore need adjusting once the mine is another 100m deeper. The current method involves 7m thick pillars that will become more stressed and fractured at depth."*

222. In another memo to Mr Gill one month after Mr Turner's report (June 2004), Mr Hills stated that the first signs of stress had emerged once they had mined below the 700mL two and a half years ago, and 18months ago the need to actively respond to stress was recognized. Mr Hills went onto state that the mine had followed Mike Turner's (AMC) recommendations regarding additional split sets. Mr Turner's current view was that Beaconsfield was 'not a very seismically active mine' but that areas, particularly the juxtaposed Wet Beds – 2CG area, and crown pillar thickness especially final crown pillar beneath CRF needs to be closely monitored. In August 2004 Mr Turner's report based on his visit in July noted that the final blast in 805 resulted in a low-grade pillar, and urged that such pillars should be 'wrecked'.

223. Pillar thickness also received consideration in September 2005. On 5 September 2005 Peter Fairfield, senior mining engineer with AMC, emailed a Memorandum to Matthew Gill (cc'd to Diego Barua, Adrian Penney and Mike Turner) that summarized discussions between Mike Turner, Peter Fairfield, Diego Barua and Adrian Penney regarding the issue of sublevel intervals for the Continuation Study. Mr Fairfield stated that following *"an initial decision to design F21 based on 10m sublevel intervals further work was required to validate the decision.... The original 8m vertical pillars in the central sections where failing (under stress) so an effort was made to increase the height of the pillars. The*

grade of the existing development was adjusted as much as it could be, which achieved the current 10m thick pillars. There was no Geotechnical science behind the 10m thickness. To date no stopes have been mined with a 10m (vertical) pillar so we are unable to back analyse their performance. 10m was selected for F21 during the site visit based on...10m @ 47 degree dip would be about the maximum hole length the Simba could drill...Simple Hydraulic Radius (HR) calculations and observations of existing stope performance indicated 25m long stopes could be mined... " Referring to the current situation Mr Fairfield went onto state that the *"8m thick pillars have an effective up-dip span of 18.1m (9.1+4.5+4.5) once the stope has been mined. Based on the stope being stable for 30m the HR is 5.6. 30m is understood to be the distance when the hangingwall begins to be of concern.The current 10m thick pillars have an effective up-dip hangingwall span of 20.4m (11.4+4.5+4.5) once the stope has been mined. If the stope is stable for 30m then the HR is 6.1.In F21 dipping at 47 degrees, the proposed 10m thick pillars will have an up-dip stope hangingwall of 24.6m (13.6+5.5+5.5). Back calculating stope length from HR results in the following: HR of 5.6 gives stope length of 20m. HR of 6.1 gives stope length of 24m. These stope lengths were considered sufficient for scheduling and productivity purposes. During the course of discussions the up-dip hangingwall span of the hangingwall was challenged in light of stability particularly due the presence of graphite coating in the bedding and other structure planes. The questions then becomes how thin can the pillar be made to reduce the up-dip hangingwall span while not failing under mining induced stresses? It is the up-dip length that "sees" the stress and is the design consideration."* He then went onto state *"AMC is recommending that for the Continuation Study, a pillar thickness of 9m be applied to F21. This will provide an up-dip pillar thickness of 12.3m and up-dip hangingwall span of 23m. This is based on: 8m thick, 9.1m up-dip pillars are failing. 10m thick, 11.4m up-dip pillars have not been tested, intuitively there is some unease in applying this at depth. An up-dip length greater than 11.4m is required. At a 47 degree dip and 8.3m thick pillar results in an 11.4m up dip length. The checker-board extraction sequence may allow for the pillar thickness as the final pillar will not be stressed for the same duration as under the current extraction method or to as high a stress. As part of the Study this configuration will be modelled using MAP3D and can be correlated to existing modelling. A 9m pillar was selected, as it provides design flexibility further analysis of the outcome of mining the 10m stopes in the upper levels and further evaluation of pillar performance under stress and hangingwall performance. Under the checkerboard extraction sequence the turn around of stopes will be increasingly important to achieving production. A stope of this size is considered to provide a good balance in achieving the required productivity and stope turn around. The geometry also provides for stope lengths in the order of 25m. HR of 5.6, 21.8m stope length. HR of 6.1, 26m stope length. Following the completion of the Continuation Study the sublevel interval could be adjusted, without significant impact on the study result, based on back analysis from ongoing stoping experience and more detailed modelling. It is understood that the first of the 10m stopes will be mined in 12 to 18 months. It is understood that this timeframe will provide an opportunity to further evaluate the stope dimensions prior to establishing all of the F21 sub-levels. If not consideration could be given to current scheduling to bring forward a 10m stope to assist in the evaluation."* What seems noteworthy in this review of discussions is the statement that there was no geotechnical science to justify the adoption of 10 metre pillar thickness..

If this statements is misleading this would seem surprising in the context of the close and ongoing relationship between AMC and the mine. The Investigation didn't uncover any evidence (in an email for example) that the no 'geotechnical-science' basis for selecting 10 metre pillar thickness had been challenged or repudiated at the time by resident manager Mathew Gill or Peter Hills when the memo was sent to them. The geotechnical aspects of pillar thickness and mine design is addressed in the Marisett report. From the perspective of this report, the memo indicates the interaction between mine management and consultants and that there were deliberations over pillar thickness in the mine.

224. The September 2005 deliberations occurred just over one month prior to the first of two serious seismic events in October 2005. Following, the seismic events of October 2005 Mathew Gill informed the mine's administrator (on 1 November 2005) that there was a need to review whether to leave support pillars and to review the effects of thicker pillars on seismicity. Table 3 contains other references to pillar thickness in consultants' reports and management memos. The mine has stressed that none of the five consultants used between October 2005 and April 2006 recommended changes to pillar extraction or thickness other than the shift to checkerboarding. Again, the issue of mine design is being addressed in the Marisett report and the issue is only raised here in connection with mineworker concerns about pillars. The Investigation failed to uncover evidence that the deliberations about pillar thickness just described had been communicated to mineworkers even after the October 2005 incident, if only to reassure them (see below). In the course of interviews for the Investigation mineworkers or shift supervisors made no mention of management raising deliberations over pillar thickness with them and it would seem surprising for this not to attract attention if it was raised given the concerns a number had in relation pillar retention and the structural stability of the mine (see the comments of shift supervisor Dale Burgess below).

225. Mathew Gill stated he was unaware that a shift supervisor had raised concerns about the removal of 815 crown pillar (p12 of part 1 of ROI). Asked if he was aware of workforce concerns about pillar removal more generally Mr Gill stated (p12 of part 1 of ROI) that up *"until the events of Anzac Day and obviously I've read some of the comments in the media since, I was unaware that it had any degree of concern to that that then appeared in the media."* In his statement given to the AWU (and supplied to the Investigation) Garth Bonney stated (at page 3) *"Mathew Gill, the Mine Manager, attended toolbox meetings very occasionally. I heard that, at a toolbox meeting, Mathew Gill said the mine couldn't afford to leave pillars in because the ore was very high grade ore."* This statement is hearsay and the Investigation uncovered no corroborating evidence for it. Mr Gill denied making such as remark (3rd ROI at p11) *"I don't remember and I would not say something like that. That is not my attitude. It is not how I believe and operate and I would – I could never imagine and I don't recall ever saying anything like that. It's not my style."* The underground manager, Patrick Ball, who attended the vast majority of toolbox meetings, was also emphatic that he had never heard Mr Gill make such a remark or that, in his experience, Mr Gill would make such a remark (3rd ROI p13) *"Matthew Gill wouldn't have said that."* The report found no compelling evidence that Mr Gill was aware of mineworker concerns prior to the Anzac Day incident (in November

2005 he did attend a toolbox meeting where Peter Purdon's concerns about the 915/925 were minuted). As documented elsewhere in this report, there is evidence mineworker concerns were conveyed to Mr Ball. That this information was not conveyed to Mr Gill would seem to reflect on communication at the mine, notwithstanding management's belief that a flatter structure would enhance communication.

226. When asked, most mineworkers stated they had not been given a convincing reason for the need to remove the pillars. For example, Walter John Hvala (working for Webb Mining at Beaconsfield for 2.8 years and with 11 years prior experience in hard rock mining in Western Australia) stated that it had never been explained why pillars were being taken and this had been a source of considerable concern to miners (p12 of ROI) *"I think personally, now I'm no engineer but just the experience that I've had in certain places, you do tend to take everything on board, and see the mining method at other places, and I wonder why take out the crown pillar."*

227. A number of mineworkers linked the removal of pillars to the financial precariousness of the mine and the price of gold. For example, when asked for his views on pillar removal Gray Reginald Jacques, a contractor (engaged by Webb Mining) in the Decline and Service Crew who had worked at the mine for more than three years at Beaconsfield (and with over 20 years mining experience) stated (at p6 ROI) *"That's a good point, yeah, the price of gold has a lot to do with things like that and probably Macquarie Bank...Like I said, I've been to a lot of mines, this ground is particularly brittle, and I mean if you open it up too much it puts too much stress on the ground. We use to - it's called "cut and fill" so when you cut out any substantial amount of ground you fill it in, and yeah, I think the price of gold being the way it is over the last six months or twelve months, I think there was a bit of raping and pillaging going on."*

228. A jumbo offsider (Darren Geard, a union member who had worked at the mine for 6 ½ years) also referred to financial incentives but, while stating management had not given a clear safety rationale for extracting pillars, did acknowledge that the Underground Manager Pat Ball had referred to the need to address seismicity and pressure (p14 of ROI) *"it was gonna keep going down and that's why we had to take it out."*

229. The Underground Manager Pat Ball, when asked, stated that cost had not been a consideration with regard to the removal of pillars (p23 of Part 2 of ROI) *"Well, the cost certainly didn't come into it. We could see no practical way of leaving original (iw) that we deemed to be of any benefit... As evidenced by the fact that if we ever accidentally left a pillar behind and it was what we considered a dangerous (iw) we would go out of our way to wreck it just so it wasn't sitting behind as a potential big event."* For his part, the resident mine manager Mathew Gill (pp19-20 of part 2 of ROI) stated that the mining method and extraction sequence had been designed to extract ore safely and efficiently and that consultants reviewing the mine methods had never suggested leaving crown pillars. My own reading of consultants' reports supports this statement.

230. More experienced and senior workers tend to be the opinion leaders in most workplaces, and as such their views need to be treated with respect. There is little

evidence that management made a concerted attempt to allay these concerns. Rather, there is an impression, reinforced by comments in some interviews, that workers who consistently criticized management's practices with regard to pillar removal and other issues were seen as troublemakers. When this issue was explored miners named as being outspoken critics included Garth Bonney and Robbie Sears – both also active in AWU. At the same time, a number of interviewees (see for example Paddy Hampton, p16 ROI) believed Bonney and Sears were very experienced and good miners. Further, as indicated here and in other sections of the report their concerns about pillar removal and a number of other areas were not isolated but shared by other workers including contractors and those who didn't belong to the AWU or another union. For its part the Mine believed it was operating according to a method of 100% extractation based on the best expert knowledge, and ongoing input from consultants, and that to retain crown pillars would have been hazardous. It seems clear that the poor industrial relations climate at the mine discussed below exacerbated the level of distrust, arguably to the detriment of all at the mine.

231. Of the remaining 25 workers who did not raise concerns about crown pillars/pillar removal, seven or 17.1% stated that they had heard the issue raised but expressed no views, six (14.6%) stated that they were too inexperienced or undertook tasks (like tradesmen, winder drivers and truck drivers) that did not enable them to make considered judgements and 12 (29.3%) made no comment. Of the latter, the vast majority were truck drivers, tradesmen or mineworkers with five or less year's service. Several mineworkers indicated that they lacked the expertise to make judgements and relied on the Mine's engineering staff in this regard. Jason King, engaged via Webb Mining and with five years mining experience (two at Beaconsfield) stated (at pp9-10 ROI) *"Cheesy, one of the shift bosses...told me and Brant (Webb)...they'd decided to take the eight fifteen crown pillar out, and he didn't agree with it. But - I'm not saying it's the right thing or the wrong thing because it's just above my head. I mean, there's engineers for that, - they've got extra letters behind their name and I haven't."*

232. Shift supervisor Brett Cresswell indicated that he was aware of mineworker concerns about the removal of pillars but they weren't referring to crown pillars (p41 ROI) *"I've had times when they've said, "I can't believe we're taking out these pillars." But they weren't actually referring to crown pillars and sometimes we just left (indistinct words) behind and not by design and drill a series of holes along the ones... Just (indistinct words), that did happen in 925 when we got the cutter pillars out there and we knocked them out. (indistinct words) they weren't, to my opinion they weren't gonna hold."* In sum, Mr Cresswell appears to have been aware of mineworker concerns but didn't agree with them.

233. As noted above, the removal of crown pillars or other serious concerns about mining methods was not only an issue for mineworkers but also a number of shift supervisors. Dale Burgess, a shift supervisor, when asked his views on the mining methods stated *"Henty was similar. The mining methods wasn't similar. The mining methods here (iw) - or what I saw was that it was too - it was too ground support dependent, they were putting levels fifteen metres apart or whatever and then we'd take a*

five metre lift out and then we'd have to ground support it again so you'd kind of - there was a big demand on ground supporting, then there was (iw) explosion and stuff like that." Asked if he was thinking this at the time (ie prior to the Anzac Day incident) Mr Burgess replied (p5 ROI) *"Oh (iw) underground was collectively thinking that"*

234. In addition to those shift supervisors already referred to (Cheesman and Burgess), Stephen Homan also indicated he had held concerns. Asked what he believed to be the reason for the increase in rock noise he observed over the 6-12 months prior to 25 April 2006 Mr Homan stated (p8 ROI): *"We were trying to take too much dirt out too quick out of a small area and what I mean by that is, that we had, say, three levels and you'd be taking them out within a hundred and eighty metres of each other, a series of tons, all in one big line and because of the amount of tons that we had to do, it was just too much*...(and when asked if there was a structural integrity issue at the mine?) *Yes*... When asked, Mr Homan stated pillar removal had never been raised by a mineworker at one of his crew's toolbox meetings. Elsewhere in the report Mr Homan refers to raising crew concerns by phone (but does not identify who he phoned) after the October 2005 incident. A member of Mr Homan's crew, jumbo operator Heath Graaw, indicated he had raised his concerns about leaving pillars with Mr Homan (p12 ROI).

235. Mr Homan stated that the issue had been raised with Pat Ball by another shift supervisor (Gavan Cheesman) at a shift bosses meeting. Shift supervisor, Dale Burgess, also stated that Mr Cheesman was concerned about this issue and had raised it on a number of occasions at shift supervisors meetings (Interview file note 8 August 2007). He believed this was in the period after the October 2005 event. According to Mr Burgess, Mr Cheesman's believed removal of the 815 pillar accelerated seismic activity at the Mine. Mr Burgess stated that Pat Ball was the note taker at those meetings and he was therefore unsure what was recorded. As noted earlier, Mr Chessman's actions were also referred to by mineworkers who made statements to the Investigation. For his part, Mr Cheesman confirmed that he had raised concerns about pillar removal at a number of shift supervisors' meetings held prior to the Anzac Day 2006 incident (pp2-3 2nd ROI). Mr Cheesman did not recall specifically raising removal of the 815 pillar, indicating his concern was the removal of crown pillars more generally and their replacement with cemented rock fill or CRF (pp2-3 2nd ROI). Mr Cheesman could not recall the precise dates when he had raised these matters but believed it was some months and possibly over a year before the Anzac Day 2006 event (p3 2nd ROI). For his part, underground manager Pat Ball said (p4 4th ROI) that he not recall Mr Cheesman raising concerns about removal of the 805 or 815 pillar or, indeed, any shift supervisor raising concerns about pillar removal or the safety of mining methods. I could find no specific reference to the issue in the minutes of shift bosses meetings (this observation should be considered with regard to contentions as to whether certain events happened because there is no record of them in recorded minutes). Nonetheless, while there is some ambiguity about the timing and whether particular pillars were referred to, Mr Cheesman indicated that he had raised the issue of pillar removal and this is corroborated by two other shift supervisors who attended these weekly meetings. In sum, the weight of evidence is that the issue of pillar removal was raised at shift supervisors meetings some time prior to the Anzac Day event, and it would appear on more than one occasion.

236. When asked how Mr Ball responded to Mr Cheesman's concerns Mr Homan replied the (p9 ROI) *"monetary value of it being left was very great. So, he was saying it was worth a lot of money."* Mr Homan stated that his concerns were amplified by a serious rock fall in the 915 level fall in October 2005 (pp9-10 ROI) *"The 915 level 1. That's when I went on holidays. When 915 went bang, it'd been brought up at 850 cross cut had let go and it had been brought up... Ah, yes, and this is where it gets technical, is that when 915 went bang, I was on the cross shift. I come in and I have a look at it and shook my head and I went and took twelve weeks leave... Because, I could see the writing on the wall that this wasn't going to be a real safe place to work."* Mr Homan stated (p10 ROI) that he did not communicate his view to others but that he had communicated growing concerns amongst his shift, mainly through phone calls. Mr Homan stated when he returned he became aware that the mine was changing to a new mining method, checkerboarding (but believed this had not been fully implemented prior to the rock fall of 25 April 2006) and had adopted new methods of ground support. He expressed concerns in relation to the latter (pp10-11 ROI) *"They went to, what they called Yielding Bolts, I think they called them. They were a chemical bolt which when they took pressure they were supposed to slip... (and asked if he was implying he was unhappy with the consultant's advice) For sure, yes... When I come back off me twelve weeks, Adrian Penney, I rang him up...He's the geologist and I said to him, 'What are these stupid bolts that you are putting in here, they're a waste of time'. In hindsight, yes, we were going to checkerboard but that is the level above where it went bang and it's all on the ground now. So, I can sit here in hindsight and say, well, I was right but it's a hard way to say it."*

237. The issue of miners' concerns about pillars was explored with consultants. Dr Glenn Bruce Sharrock, senior consultant with AMC stated (p35 ROI) *"Okay. Well I mean – I guess if I were to comment I'd be speculating because not having spoken directly to the miners, but I'd say based on the analysis of my report that they had grounds for that. Yeah. I mean there was – there's obvious damage to the pillars."* Mike Turner (p11 ROI), expressed a view similar to Pat Ball, arguing that the removal of pillars was essential on safety grounds *"The mining method at Beaconsfield is, the drives are put in ahead of time, before the commissions are known, and you can't leave pillars...if the pillars were left they would have been a source of significant seismicity."*

238. Another issue related to mining methods that was a source of some concern at the Mine was in connection to remote bogging under unsupported ground. During interviews (see Table 1) a number of workers raised concerns about remote bogging from too great a distance (in terms of line of sight), inexperienced bogger operators acting unsafely and the absence or location of remote cuddies (safe areas from which miners could operate boggers). These issues had been also raised on a number of occasions at toolbox meetings (see Table 2) and the extent of remote bogging (even after the introduction of checkerboarding) was rated a 'below average' risk in a draft assessment of the mine by Hawcroft Consulting in April 2006 (the Hawcroft report is examined in more detail elsewhere in this report). This risk was an insurance risk based on the likelihood of damage to the loader not safety. As noted later in the report (see section on bonus issue),

remoting from too great a distance was regarded by bogger operators as making the task more difficult not more dangerous.

239. In sum, there was widespread concern amongst mineworkers at Beaconsfield at mining methods and particularly the removal of pillars, especially amongst those who were most experienced and most directly engaged in the mining process. It needs to be stressed these concerns were not confined to a minority of union "activists or even direct employees of the mine. Evidence indicates these views were held for some time prior to the incident, had been widely discussed amongst mineworkers, and had been raised with management, notably the underground manager. Those concerns were not allayed in the eyes of these mineworkers by a persuasive safety rationale for the removal of pillars. Whether correct or not, a significant number of mineworkers held genuine concerns with regard to the safety of mining methods at the mine. All four shift supervisors were aware of these concerns and three of them shared these concerns – including the two that the resident manager Mathew Gill rated as the strongest in the mine (p24 of part 2 of ROI). One shift supervisor had expressed his opposition to removal of the 815 crown pillar to Mr Ball – an action known to other shift bosses and at least some mineworkers. As the first rung of management and therefore closest to mineworkers, it might be expected that shift bosses would hold views in sympathy with the men they supervised. Notwithstanding this, the shift bosses were also experienced and knowledgeable mineworkers, and the failure to convince them should have been of concern to senior management, or at least those members aware of this. It seems remarkable that the resident mine manager was unaware of these concerns if communication and consultation processes at the mine were working anywhere near as well as management believed – a matter addressed elsewhere in this report. At the very least, concerns about mining methods represented a serious communication problem that undermined trust in the effectiveness of OHS management at the mine.

240. Mine records and the reports of consultants indicate that the retention of pillars was not viewed as an option warranting serious consideration. The thickness of pillars was the subject of consideration although no changes were recommended by consultants either before or after the October 2005 rockfalls. There is no evidence that these deliberations over pillar thickness were communicated to the workforce even if only to reassure mineworkers that all matters relating to safety were being carefully considered. Pillar retention was raised as an option after the Anzac Day incident. On 26th April 2006 consultant Mike Turner sent an email to Adrian Penney and Peter Hills that stated *"Thanks for the call Peter - doesnt sound good -for the short term and the longer term. The extraction sequence to minimise stresses was being followed and Cone bolts are the most effective dynamic designed bolt. If neither of these are working there are only limited options - eg mass blasts and tele-remoting the blasted material (with higher dilution, more chance of large events shaking the surface, longer re-entry periods, and lower recoveries). You might also be able to sacrifice the upper stoping pillar as a permanent pillar and live with the seismicity generated by their failure - eg only mine 980 and 960 and leave 955, 990. Just thinking of ideas for discussion - havent thought through these in detail yet. You need to get the current siruation (sic) modelled again by AMC with regards to seismicity to see if anything new jumps out from the results. and*

then you will need to carefully model any extraction options relative to the updated failure criteria. There is a chance that if you follow updated failure criteria the stopes below 915 will be unmineable (sorry, have to be honest). Unless you mine every other level or something like that with permanent pillars. or you might just be left with the East. again, I am covering what might be construed as worst-case but might be inevitable following this incident. Updated modelling will give you an idea where you can go - especially as you will have stress-changes, seismicity and associated drive damage that is unsupportable by cone bolts (ie a point to calibrate the modelling)."

241. With regard to the AWU/Knight family submission the report has found that a significant number of mineworkers stated they had concerns about pillar removal prior to the Anzac Day incident (and others were aware of this) and there was little consultation about changes in mining methods (the issue of consultation is explored in greater depth in later sections of the report). Some other claims (such as those relating to ground support, long standing knowledge of hazards in the 915/925 and seismic or rockfall incidents at particular levels of the mine) are explored in later sections of the report. Some claims, such as that pertaining to the frequency of rocks spitting off the face were impossible to assess with any degree of confidence except to say that while such incidents were raised by workers interviewed for the Investigation they were not raised so regularly as to lend support to this claim (the question of the frequency of rockfalls is assessed later in the report). Nor did the Investigation find evidence to support the claim about workers being sent to recover ore from collapsed stopes prior to entry bans being imposed.

Comments about mining methods in the Marisett Report and additional observations

242. Assessing the adequacy of mining methods is not a matter for this report. The aim of this report to assess the OHS management at the Mine. In so doing, it is important to provide some observations about whether the concerns of mineworkers about pillar removal and mining methods just identified were in any way justified, even if inaccurately or only partly correctly conceived. To do this I have drawn on findings of the Marisett Report, the independent assessment of mining methods undertaken by geotechnical expert Scott Marisett. It has already been noted that the Mine has disputed whether mineworkers held concerns, had expressed these concerns to management, and it has also queried whether concerns at the removal of pillars in particular could have been justifiably held by experienced mineworkers given that 100% extraction or pillar-less mining was an safe and effective mining methods. Mr Marisett indicated that in his experience, when properly applied with the valid and appropriate geotechnical considerations into mine design, ground support design, mine sequencing and extraction, backfill design, risk assessment and with a competent workforce, pillar-less mining is a viable mining method. However, according to the Marisett's report there were deficiencies in the mine design/mining methods at the Beaconsfield Mine. I also asked Mr Marisett to comment directly on claims about mining methods in the AWU/Knight family submission (see paragraph 205). In summary, with regard to claims about pillar removal, the state of hangingwalls (the full details of this response were provided to Mr Melick), the number of serious rockfalls and that the 925 level had been "'going off' before rings were drilled in 925 for firing a few days before Anzac Day 2006 Mr Marisett made the following

observations. Mr Marisett observed that it was *"plausible that removal of 'crown pillars' would increase or at the very least give the appearance of an increase in seismicity...In the case of BGM, I believe the pillars were yielding in an unhomogenic fashion creating isolated pockets of friable rocks in the overhead pillars. These pockets were not being identified. When a production blast or seismic event occurred, pockets became unconfined or liberated overloading the ground support beyond its capacity or extending the zone of friable rock beyond the ground supports effective embedment. The result is a 'shakedown' of the broken rock mass."* With regard to claims about the condition of the hangingwall Mr Marisett stated that the *"condition of the hangingwall was difficult to assess because of limited access to 915 and 925 level but based on what I saw, this could be a fair comment."* With regard to claims about serious rockfalls prior to Anzac Day Mr Marisett indicated that he doubted that workers would have become "accustomed to the number of rockfalls and he would have been concerned both by the number of rockfalls at the mine since January 2004 and the number of falls that exceeded the length of installed ground support. With regard to the 925 level "going off Mr Marisett stated that *"seismic data does indicate that two to seven days before the Anzac Day event, the seismic activity...the mine was experiencing was some of the highest daily rates of seismicity since the current system had been installed...24 and 25 April immediately prior to the Anzac Day also appear...quiet but still 3 to 4 times more active than typical quiet periods in the mine."* Mr Marisett's report acknowledges that seismic system down-time might affect these numbers. It is beyond the expertise of this report to indicate whether pillar retention or other remedies identified by mineworkers and shift supervisors would have represented an adequate response to these problems. All that can be stated is that, if Mr Marisett's views are accepted (and the Mine has disputed this – a matter addressed in Mr Marisett's report), mineworkers had some justification for being concerned about mining methods prior to the Anzac Day event.

Ground support activities and backfill

243. Ground support, the use of bolting, mesh and other devices to prevent rock falls and backfilling of voids created by extraction are critical safety activities in underground mining. The adequacy of ground support is discussed elsewhere in this report and examined far more extensively in the report prepared by Scott Marisett. Overall, few mineworkers expressed concern about the bolts etc used in ground support but concerns were raised about the quality of backfill. A notable exception was shift Stephen Homan who, as noted elsewhere in this report (paragraph 237), expressed misgiving about the bolts installed following the October 2005 serious seismic event. There is also evidence of ground support problems, such as rocks fall through mesh, poor bolt installation and the like, being raised at toolbox meetings and ground support problems were also raised on a fairly regular basis on shift bosses meetings. Concerns raised by shift supervisor Dale Burgess as to whether ground support had been properly installed, and other problems such as the use of the wrong plates identified by Adrian Penney, are referred to elsewhere in this report. As noted later, a report prepared by consulting firm Coffey Mining in October 2006 (p15) analysed rockfall incident reports and found that ground support problems were identified in relation to lack of surface support in 44% of these, bolts too short in 24% and incorrect installation in 16% of reported falls.

244. A query might be raised about the inclusion of a discussion of backfill and its relevance to an examination of safety or seismicity at the Mine in the lead up to the event Anzac Day 2006. The matter was included because, like a number of other matters it was raised as an issue of concern with regard to safety by a significant number of mineworkers during the course of the investigation and was also commented on by others such as shift supervisors. As a number of statements and documents cited below make clear, there was a safety dimension to these concerns. As such, it was relevant to a consideration of both conditions in the mine and a more general assessment of the management of OHS at the mine.

245. Concerns were raised about backfill by a number of workers and former workers at the mine who were engaged at the Mine at the time of the incident, both employees and contractors. Overall, the quality of backfill did not engender the same degree of concern as that relating to pillar removal, many workers saying they lacked knowledge to make a judgement. Ten workers interviewed (or just under 25%) raised problems in relation to backfill, the most common complaint being that it hadn't been mixed properly/there was too little cement in the CRF. Glen McCarthy, a bogger operator, employed at Beaconsfield for seven years, referred to the poor quality of the floor and Darren Geard, a jumbo offsider, stated that a bogger had become stuck at the 980 level because the floor was like sand (see Table 1).

246. Gary Round (p16 ROI), a long term contract worker at the mine (for Webb Mining) made the following remarks in relation to his experience with CRF *"Oh yeah that was all right if it was done properly, but they had...a lot of new people coming & doing it & it was never quite done to standard...Oh, it wasn't mixed properly & put in, you know, never followed grade lines and things...Oh yeah, sometimes they'd wouldn't... get it under the hanging wall but...Well you're supposed to, you know, like six buckets of mullick to one loader of agi truck, but sometimes they might skip a bit more and not mix it consistent, or mix it enough in the stockpile before they...It was never like a real over consistent, but even when they hydraulic filled it with the back fill plant from up here, they use to have that much trouble with it and lot of times they'd be, you know if it was running ten or twenty percent cement in it, and then they'd get the truck in to fill the hopper and find the hopper was still full of something because the - the thing had buggered up and there was no cement going down...Oh well, you was always a lot more careful when you was remoting under back fill because a lot of times it would come down in places...It wasn't as stable."*

247. Similarly, another contract miner with considerable mining experience, Gray Reginald Jacques made the following statement in relation to the backfill (p18 ROI) *"I think they were working on regulating it a bit better, I don't think it was up to scratch...I don't think it was meeting the consistency or the proper setting consistency...they was having difficulty up - they tried to train me up here and I didn't...didn't want to have a bar of it, but it was temperamental batch plant, the sand fill thing, and they were having trouble regulating the amount of water to concrete - to cement... to sand".*

248. Shift supervisor Dale Burgess (p10 ROI) echoed mineworker concerns about the quality of backfill *"I think the problem with this place was the quality of fill we were getting underground, quite often - what I noticed most is a lot of times we'd come into older levels or recently filled levels and we'd take the ore out and we'd get bloody two or three hundred tonne of bloody hill coming down, which suggested that the quality of the fill was no good."* He also identified other issues in relation to backfilling operations. On 5 March 2006 Mr Burgess issued a safety alert in the 880W stating that during *"remote bogging operations in the 880 west level on D/S 5th March 2005, we experienced a significant floor slump directly adjacent the remote loader as it was retrieving a bucket of ore from the open stope. This resulted in the loader almost becoming stuck on the brow. The floor slump occurred as a result of water washing away the fines from the backfill placed previously. The exit point for the fines was located at the 890 Access draw-point, South of the by-pass. Failure to monitor this risk and place a control measure may result in personal injury or damage to equipment."* On 27 March 2006 Mr Burgess issued a further safety alert stating that the *"mesh barricade installed on the brow position at the 925 West stope is under extreme pressure and may fail from waste build up, as a result of the back-filling process from the 900 East (915WW) level. If the wall fails, a significant floor slump* ***will occur*** *on the bogging/drilling horizon in 900 East. This may jeopardise the remote loading operations."*

249. Stephen Homan, another shift supervisor, indicated he did not have issues with backfill but was aware of a number of incidents, including one also referred to by several mineworkers where a jumbo had begun to sink (p15 ROI) *"that was the 980. They'd been filling in there and they sent a jumbo in there to bolt it and it was that soft and sandy that the jumbo couldn't even travel on it. We had to fill it in with rock to get over the top of it."* While this was an isolated incident he went on to state (p15 ROI): *"but the sand fill prior to that where we used to take out the crown pillar had been falling out since about - probably about 735 down...Oh, yeah, bits of it. No all of it...But you might lose a metre or two here and there but it was not one hundred per cent solid... (and in relation to cemented rock fill) In the early days when we started up the top of the mine on cement rock fill, ninety five per cent of the rock fill was done on my particular shift and it was never an issue. We actually had mined it out. It's when they transferred it on to going across the board - what I mean by that is, three or four shifts all used to do it. The quality dropped off and then after that they come up with cement hydraulic fill, sand hydraulic fill and this particular plant up here - it's got technical problems with it and it's still ongoing to nowadays, I think."*

250. For his part, senior mine supervisor Stephen Saltmarsh stated (pp20-21 ROI) that notwithstanding some earlier failure he found the backfill to be effective and he was unaware of any 'big issue' with backfill.

251. Andrew Carruthers (not a union member), a maintenance engineer responsible for fixed plant, referred to ongoing efforts to get the backfill plant operating effectively although he never heard complaints about the quality of the fill when he was underground (pp7-8, 12 ROI). He stated (p9 ROI) *"There have been issues with the...ability of the material to flow out of the sand silo. We've done a fair bit of work improving the*

fluidization of the sand silo to make it flow better. There were issues with the cement at times flowing out of the cement silo. We've improved that...found some blockages in there...found some areas where operators had been leaving caps off & allowed a moisture ingress... addressed that."

252. Internal documents indicate that the mine had experienced significant issues with backfill. On 10 January 2006 Mr Carruthers sent an email to Mathew Gill and others summarizing issues in relation to the backfill plant and its implications for underground operations. In this email Mr Carruthers stated that numerous *"issues have recently been identified in relation to the design and operation of the Backfill Plant. Many of these issues have or are about to be resolved as outlined in the Backfill Action Plan (largely through re-design or change in operating practices) However some of the solutions are going to take longer to implement than the time frame for C.R.F. filling critical stopes such as 980 permits. There are several actions that can be carried out that will help the current situation. My investigations to date have identified some issues that can be alleviated in the short term and may enable filling of 980 stope to resume. The current flow characteristics of the sand silo indicate that we have a major problem of rat-holing and funnel discharge patterns rather than the desired mass flow pattern required for this type of operation. Basically the finer particles are settling out on the sides of the silo and the coarser material is discharging from the centre. As the silo is topped up from the cyclones feed the coarser material again tends to flow through the silo and the finer materials segregates and settles to the outer edge. The finer the material being stored the worse the problem becomes. The less time the total sand content is held in the silo the less time it has to segregate, settle and hang up. The problem has existed since the plant has been in operation but recently the sand particle size was significantly reduced to enable higher strength to be achieved in the placed fill. This has clearly exacerbated the problem to the extent that the silo will not run to design parameters. The following actions may assist. 1. Immediately dump the current sand silo contents into a non-critical stope or redundant drive. 2. Check the inside of the silo and ensure it is clean. 3. Re-fill the silo and commence CRF filling immediately to reduce the possibility of sand segregation in the silo. 4. Run the plant on a Monday to Friday basis when there is more operating and technical support available. 5. Re-furbish the spare backfill hose pump set and permanently connect them to the silo re-cycle line and recycle the silo contents if the fill operation has to be halted before the silo is empty. 6. Ensure contingencies exist to dump the remainder of the silo contents if they are not required within a reasonable time period. 7. Formalise the agreement for guarantee of raw water requirement for the backfill plant operation when needed as the plant has at times run out of water and had to shut down.*

253. On 12 January 2006 Mill Superintendent Richard Holder replied to Mr Carruthers stating *"I have reviewed your Email and have the following comments: The segregation you note will, in my opinion be occurring via 2 mechanisms : 1. When we pump into the silo, the settling rates of the fines and coarse particles are different, hence there will be segregation, especially as there is a vertical velocity in the silo for it to "drain" or decant the water. 2. The fluidizing water will "channel" its way through the sand and generate a path of least resistance, this will result in a washout of the fines leaving the coarser particles behind in zones. The degree of segregation within the silo and implication on the*

cement quality, will dictate the required course of action. The best way to review this in my opinion, would be to collect numerous samples from the silo as the sand is being discharged and conduct size analyses, a review of the varying quantity of fines in the discharge while the silo empties will indicate if the product is suitable for use. As for the guaranteed supply of water, please advise on the maximum continual water needs for the backfill plant. Once I have this information, we can review an upgrade of the raw water transfer pump (and possibly the pipe line). Let me know your thoughts. We can possibly assist with sizings."

254. Another issue in relation to ground support was the adequacy of installation of ground support. This was not specifically explored during interviews with mineworkers, although it was regularly raised by both workers at management at toolbox meetings (see Table 2) and was a subject of concern to shift supervisor Dale Burgess (see references elsewhere in this report) amongst others. Available evidence indicates that neither backfill no poorly installed ground support played a discernible part in the events on Anzac Day 2006.

255. With regard to ground support, as noted at the outset the Investigation did not reveal widespread workforce concern about the nature of ground support, including the length/type and placement of roof bolts. Indeed, a number of mineworkers and supervisory/training staff saw the additional measures undertaken following the serious rock falls in October 2005 as 'overkill' (see Table 1 and Paddy Hampton p30 ROI). However, as shift supervisor Brett Cresswell observed, this belief and confidence in the structural integrity of the mine was altered by the events of 25 April 2006 (p37 ROI) *"The whole work force did and I thought the operators from my crew and other crews, (indistinct words) it's a waste of time, it's a waste of – I've actually been in there with my men, (indistinct words) and they're going, "Why are they doing this? Look at it, it's just overkill."...(but asked about this in the light of the incident of 25 April 2006) And that's where my reservation has come from because obviously I was quite comfortable with the ground support we put in there and it quite clearly wasn't enough."* Another shift supervisor, Stephen Homan, had not shared this confidence (see above) but this appears to have been a minority viewpoint.

Comments about ground support in the Marisett Report and additional observations

256. With regard to ground support, Mr Marisett's report identifies deficiencies in ground support at the Beaconsfield mine, particularly in relation to the depth of support - observations that appear to be consistent with the findings of post-Anzac Day analysis conducted by expert consultants (Coffey, 2006 and Kaiser, 2006) as well concerns raised by Dr Glenn Sharrock prior to the incident and evidence in Rockfall Incident Reports kept by the mine. In Mr Marisett's view ground support was inadequate at the 925mL to provide a safe system of work. As with the previous section on mining methods, I asked Mr Marisett to comment specifically on claims made about ground support and backfill in the AWU/Knight family submission (see paragraph 205). Mr Marisett observed: *"According to the original "checkerboard" sequence and the modified version used in the 940 mining block, all the stopes were to be backfilled prior to the commencement of*

mining in the subsequent stope unless that stope is on the top sill level in which case can not be back filled. The stopes in the 915w and 925w were being mined concurrently against the original concept proposed for the "checkerboard" sequence. Even if the sequence had been executed properly, I believe this is one of the fundamental flaws of the "checkerboard" sequences in that the extraction of the final stopes does not retreat from the open stopes as rapidly as with the earlier modified AVOCA method. The modified AVOCA with thicker pillars would have been better (but not possible) or the modified AVOCA with shoctcrete and cablebolts on the 915w level. With regard to the quality of backfill Mr Marisett indicated that the mine should have had QAQC (quality assurance quality control) procedures for the cemented fill and batch testing programs (this point was not verified by the Investigation).

Trends in seismicity/rock falls and the structural integrity of the mine

257. As mining progressed to deeper levels the management of the Mine fully expected seismicity to increase (and had been advised to expect this by consultants). The Report sought to gauge mineworkers views on seismicity, rock falls and the structural integrity of the mine to assess whether these matters had given them cause for concern prior to the Anzac Day event and how well-informed they believed they had been kept with regard to these matters.

258. The Investigation asked mineworkers whether they believed there had been an increase in seismicity at the mine in the 6 to 18 months prior to the incident of 25 April 2006 (see Table 1). Of the 35 mineworkers who were asked this question, 19 or just over half (54.3%) stated that they believed seismicity had increased, including Todd Russell and Brant Webb. Ricky Payne (a long hole driller who been at the mine over years and had three years prior mining experience at Mount Lyell) stated (p7 ROI) believed there had been an increase but found it hard to judge how significant the increase had been *"It's hard to say, because of the roster we work, I'm probably off and you only get a bit of feedback - well, you get feedback from fellows or there's a sheet put out - it's hard for me to say but as far - on my shift, you know, if I sat down and really thought about it, it would be hard to say but I would say, yeah, I think there has been an increase in the noise activity."*

259. Corey Verhey (a trainee jumbo operator who had worked five years at Beaconsfield but had no prior mining experience) noted the increase and believed it had led to a sense of complacency (p8 ROI) *"Yes, there has. Most jobs you go into you're always hearing the ground cracking and popping but the thing is, it has got to the stage where a lot of blokes have started to get used to it. Its sort of been one of those things where you become slightly complacent and that's not a good thing and it's proved not a good things, whether it be large or small-over the last 12 months to 18 months its just been continual*

260. Several mineworkers linked this trend to mining deeper levels (for example Jerry Kahman and Roger Williams) while two mineworkers (Todd Russell and David Taylor) linked the trend to specific activity around the 800 level of the mine (charging the 805

cross cut in the case of Russell and the removal of the main pillar at the 815 level in the case of Taylor).

261. Of the 16 (45.7%) other mineworkers responding to this question that did not indicate they believed there was an increase in seismicity the majority indicated that they had not experienced much seismic activity. In some cases they linked this to their occupation (such as winder driver or a truck driver where vehicle noise and wearing ear muffs made it difficult to hear noise) or inexperience/short tenure at the mine. Only a small minority of interviewees stated categorically that they believed there had been no increase in seismicity. One was Andrew Carruthers (a maintenance engineer with considerable mining experience) who stated (p6 ROI) that he had seen quite a few seismic events over the years but not many at Beaconsfield and those he did experience at the latter he didn't find unusual compared to other mines he had worked in.

262. Views about increased seismicity at the Mine were not confined to workers. Senior mine supervisor Stephen Saltmarsh believed the number of rock falls had increased more in the past 6-18 months than the preceding four years, something he attributed to the increased depth of mining operations (p20 ROI). Shift supervisor Dale Burgess (pp7, 19 ROI) who joined the mine in 2003 believed that rock noise and falls of ground related to seismicity had been getting progressively worse and this trend had accelerated in October 2005 but this had never been discussed "in the forum. Shift supervisor, Stephen Homan (p6 ROI), also believed there had been an increase in rock noise and rock falls in the 6 to 12 months prior to the incident while shift supervisor Brett Cresswell believed there had been a gradual increase of the past 18 months (p40 ROI). The other shift supervisor, Gavan Cheesman, also believed seismicity and ground conditions had deteriorated significantly since he had joined the mine (p16 ROI). In sum, the senior mine supervisor and all four shift supervisors believed that seismicity had grown over time and a number believed things had got considerably worse in the six months prior to 26 April 2006.

263. As with pillar removal the Investigation sought to identify to what extent management (above supervisor level) and OHS staff were aware of mineworkers' concerns about seismic activity at the mine. OHS technician Craig Large, who assisted Rex Johnson, stated (ROI p19) *"They were certainly following the October (2005) incident, I hadn't heard very much about it prior to that."*

264. Mike Turner, a consultant on ground conditions first engaged by the Mine in April 2004 (and carrying out a series of tasks thereafter) stated (p29 ROI) that he believed seismicity was gradually increasing from April 2004. Asked if he had noticed changes in the mine over time Mr Turner stated (p37 ROI) *"Well there was more stress damage as they advanced deeper, more stress damage."* Similarly, another consultant (with less frequent contact with the mine), Peter Alois Mikula (an expert in rock bursts and seismicity), was asked that if the ranking based on an ACG report was based on April 2005 had seismicity probably got worse after? Mr Mikula replied (p9 ROI) *"Yes, yes."* A number of reports prepared by consultants and referred to elsewhere in this report (see also Table 3) identified increasing seismicity and associated problems. The executive summary of a report into the geotechnical causes of the rockfall of 25 April 2006 prepared

by Coffey in October 2006 also stated that the rate and magnitude of mining induced seismicity increased over the past year. It is noteworthy that while the Coffey statement is retrospective, the other consulting reports identifying increasing seismicity all predate the Anzac Day incident, some by a considerable period of time. Yet there is little evidence key findings of these reports in terms of trends in seismicity and the increased likelihood of large magnitude events was conveyed to the workforce. No mineworker interviewed when asked about seismicity made mention of receiving information on seismicity trends from management based on consulting reports. Only four mineworkers interviewed made reference to receiving any information on consultants' activities (Michael Borill, Robert Sears, Ricky Payne and David Taylor), two with regard to the need for pillar extraction, one with regard to ground support and one with regard to the recommencement of operations following the October 2005 events (see below or Table 1). Other mineworkers stated that they were not consulted on changes in mining methods and nor were these changes (ie checkerboarding) explained, including one mineworker just mentioned (Michael Borill pp18-19 ROI. See also the evidence of jumbo operator Heath Graauw pp11-12 ROI). The Mine has pointed to other mechanisms by which it sought to keep mineworkers informed about seismicity including J Map, ground awareness training, the rock noise reporting system, toolbox meetings and a meeting with unions held in November 2005 following the October rockfalls. A number of mechanisms have been evaluated already in the report (see for example the lack of feedback in relation to rock noise report cards) and others (such as toolbox meetings and the meeting with unions will be examined later in the report).

265. Mineworkers interviewed by the Investigation were also asked about whether they were satisfied or concerned with the management of safety, including the structural integrity of the mine. Table 1 summarises the responses of 30 workers to this question. Of these, 15 or half (50%) expressed serious concerns, four (13.3%) expressed mixed views and 11 (36.7%) were largely positive about the management of safety and their wellbeing underground.

266. Robert Duncan Sears (jumbo operator and AWU member who had worked at the mine for over seven years and had prior mining experience) stated (p14 ROI) *"I do not feel that the mine is safe any more and I do not have much faith in management."* David Taylor (Service Person 1, also an AWU member, with ten years service at the Mine and prior experience as a mine fitter in Victoria) made positive observations about safety at the mine (p8 ROI) although he was also concerned at the removal of pillars *"The safety was actually fairly good. We had experts come in and told management that we need new bolt patterns and we need to try this. They tried these new cone bolts that pull out a little bit when the rock goes off and we're just finishing installing them at 915 and 925 and we'll (indistinct word) 19 the day before that to a new pattern that they needed bolting up. I honestly thought it was overkill."* The cone bolts just referred to were the 'yielding bolts' criticized by shift supervisor Stephen Homan in paragraph 236.

267. The serious rock fall in October was an incident that deeply resonated with many mineworkers in terms of the safety in the mine (Table 1). Almost all workers interviewed were aware of the incident, with some referring to the more serious consequences that

might have obtained had workers been in the area at the time. The resident mine manager, Mathew Gill, was asked whether he was involved in communicating the findings of the consultants who were brought in after this. Mr Gill stated (p3 of part 3 of ROI) *"I'd have to check whether I did any crew talks during that time. I know...I did a memo in – I think November to employees. I haven't checked whether that was backed up with me personally conveying where we were at. I know I did some crew talks in 2006 because I in fact did one on Anzac Day morning at 6am on site. So, you know – and I'd have to check in fact if I made any notes. But part of that would have been where we were at.* Notes in Mr Gill's diary confirm that he spoke to crews following the incident. Notes in Mr Gill's diary confirm that he spoke to crews following the incident. Asked by the Investigation if he would have referred to matters like pillar thickness at these talks Mr Gill replied (p25 of 3rd ROI) *"again, unlikely. Possible but unlikely, unless there was a specific question that required me to explain a specific mining method."* Asked what he would have conveyed back in terms of what the consultants were telling him Mr Gill stated (p25 of 3rd ROI) that the *"views that I would have been expressing were the views of the senior management team with the consultants' input being about our plan going forward. So, I wouldn't have said, Glen Sharrock said this. I would have said, this is the way forward, ultilising that input."*

268. As noted at several points elsewhere in this report, on 1 November 2005 Mathew Gill wrote a four page memo to the Mine's administrator Mike Ryan entitled "Seismicity/Ground Control Management Status Report providing a detailed account of the seismic events in October 2005 (especially that of 26 October), the issues raised and the mine's response to this. In emailing a copy of this memo to Pat Ball on the same day Mr Gill stated *"The attached is confidential. It has been sent to JV Partners. If you require a distilled version (Pat and Richard) let's discuss"*. Company records supplied to the Investigation indicate that Mr Gill wrote a one and half page memo to all employees dated 3 November 2006 entitled "Seismicity/Ground control management status report that referred to the 26th October seismic event . In it Mr Gill stated that this was not first such event and that mine had been monitoring and changing mining layouts and ground support in response to increasing rock stresses as the mining went deeper, including installing continuous seismic monitoring in 700 crib room. He noted that the 915/925 levels were to be production focus over next month or so. Mr Gill stated that given the size of the seismic event and rock fall, management had temporarily stopped all half upper stoping and was reviewing all ground support and ground support standards with the help of consultants. In contrast to a memo written to Mike Ryan, TWCS (the Mine's administrator) two days earlier and discussed elsewhere in this report, this memo does not state the magnitude of the event (2.1 M_L) although this could be read off J Map and was included in the Mine's monthly report, that this was by far the biggest event then experienced by the mine and indicated a recent increase in the magnitude of seismic activity, was both a surprise and major concern to management (though the latter might be read into the response), was reviewing checkerboarding, or that the mine was also looking to review pillar support and thickness.

269. Both memos were provided in a folder entitled "Employee Consultation Post October 2005 late in the Investigation. The Investigation sought to clarify whether the

apparently confidential memo to Mr Ryan had been made available to mineworkers along with the memo of 3 November. The Mine subsequently informed the Investigation that the 1 November 2005 document had been prepared for corporate entities and that Mr Gill had subsequently prepared a simplified memo to employees (the one dated 3 November 2005) as part of an overall communication strategy, with memos being posted to notice boards, included in pay slips, handed out at toolbox meetings or at the end of shift.

270. On 8 August 2007 Dale Burgess, shift supervisor, was re-interviewed (by telephone and a file note of his answers recorded and later verified as accurate by Mr Burgess). Mr Burgess was shown both documents and asked if he was aware of either or both of them. Mr Burgess stated that he was only supplied with the document dated 3 November 2005 (ie to all employees). He had put this document on the underground notice board at the 700 crib room and read it out to his crew. He was uncertain whether other shift supervisors had done the same. He reiterated his concerns about the absence of a formal shift handover meeting and also indicated that mineworkers did not have individual pigeon-holes for correspondence. In Mr Burgess' experience pigeon holes are a common practice and that he had raised this issue with Mr Ball sometime before the Anzac Day incident (at least a year prior in his view) but Mr Ball rejected the suggestion, expressing a concern that mineworkers would obtain the pay packets of other mineworkers from their pigeon holes and compare their pay. Mr Burgess stated he had only seen the document dated 1 November (ie to Mike Ryan) when shown it by the Investigation.

271. Asked if he had any comment to make on the two documents Mr Burgess stated that in the 1 November 2005 memo to Mr Ryan, Mr Gill's strategy for moving forward didn't include any input from underground supervisors or employees. Mr Burgess also noticed that the memo to Mr Ryan contained reference to pillar thicknesses and this was omitted from the memo to all personnel. Mr Burgess stated that this matter would have been of interest to mineworkers given they had raised this as a safety concern. Mr Burgess was also surprised by the section in the memo to Mr Ryan stating that stress redistribution as pillars are extracted may result in compounding future pillar extraction. Mr Burgess was surprised that awareness of this was there so early and that this had not been conveyed to the underground workforce. He thought it would have been nice to have got that message in a more direct manner from a technical perspective. Asked if the issue of pillar thickness was ever raised with shift supervisors or mineworkers Mr Burgess stated that his clear recollection was that it had not been raised. Mr Burgess was also asked if mineworkers asked for input or to express their views about the safety of mining methods and proposed changes by management following the October 2005 seismic events and if so were responses recorded and did they get feedback. Mr Burgess stated that as far as he was aware the workforce was not asked for their input or to contribute.

272. Another shift supervisor, Gavan Cheesman, was also provided with copies of both Mr Gills memos. Mr Cheesman stated (pp7-8 of 2nd ROI) that he believed he had seen both documents, referring particularly to the reference to community concern in the 1 November 2005 memo (not present in the 3 November 2005 memo). I found this response perplexing as far as I could determine, the Mine did not claim it provided copies of the 1 November 2005 memo to shift supervisors or mineworkers (and if so why bother to

produce a second memo that contained less information?). As other evidence in this report indicates, Mr Burgess was an assiduous shift supervisor, active in email correspondence with management and unlikely to have overlooked the 1 November document. The matter may need to be explored further but I think there are grounds for doubting Mr Cheesman's recollection can be taken as evidence the 1 November 2005 document was distributed to shift supervisors and mineworkers as a group. Asked how he normally received memos, Mr Cheesman's stated (p8 of 2nd ROI) that memos were placed in the shift supervisors' tray and he would then have responsibility for distributing them to mineworkers – a response essentially similar to that of Mr Burgess. Asked if mineworkers were asked for input or express their views about the safety of mining methods and proposed changes by management following the seismic events in 2005 Mr Cheesman replied (p5 2nd ROI) "*not that I can recall, more or less just what we are going to do.* Mr Cheesman indicated (p5 2nd ROI) that this information was conveyed through toolbox meetings by Pat Ball and Adrian Penney.

273. Mr Burgess' response indicates (as well as other evidence in this report), a number of the observations in the 1 November 2005 memo that were not included in the 3 November 2005 memo (such as those relating to pillar thickness and re-entry controls) would have been of interest to mineworkers. While it is understandable that management may have been concerned to reassure mineworkers these omissions are not consistent with claims that mineworkers were kept fully apprised of developments and critical issues being considered. The documents and both Mr Burgess' and Mr Cheesman's evidence is also not consistent with the Mine's claim that a genuine consultation process occurred after the October 2005 event.

274. Mr Gill was also asked that, assuming he hadn't done anything, would he expect there to be a communication process of what consultants were saying back to employees. In answer to this Mr Gill (p3 of part 3 of ROI) stated *"Yes. By what mechanism I'm not sure, whether, through toolbox meetings or Adrian Penney specifically. You know, that's a – I don't know specifically how that might have been aimed at that communication."* An examination of toolbox minutes reveals no reference to feedback on consultant's findings in relation to the October 2005 or related matters. Only one worker interviewed made reference to receiving information from or based on the research carried out by consultants (although this was not specifically asked). Ricky Payne, long hole driller stated that (p8 ROI) *"a lot of consultants said it was okay to extract 100% of pillars...older blokes who have worked here have said we've got to leave pillars but if it got down to the specifics & the engineering of it, a lot of us wouldn't know."* As already noted, Mr Payne's comments were also one of the few instances where issues raised by mineworkers in relation to seismicity, pillars and ground support made reference to the findings of consultants. For example, references in consulting reports to increased seismicity, increasingly large seismic events, the thickness of pillars, risks in the conglomerate overlap zone and other matters (see Table 3 and other sections of this report) that should have been of interest to mineworkers given their concerns were not mentioned (see also reference to the memos of 1 and 3 November). This is surprising given that some of these references could have been used, rightly or wrongly, to support or endorse mineworkers' own concerns (indeed, see Dale Burgess' observations above).

While this matter could be explored further there is a strong impression that mineworkers were given limited and filtered information about consultants' findings. As noted elsewhere, it is clear that consultants did not speak directly to mineworkers during their visits to the mine.

275. Section 9(2)(e) of the *Workplace Health and Safety Act 1995* requires that the employer should ensure any employee who could be put at risk by a change in the workplace, in any work or work practice…is given proper information, instruction and training before the change occurs and receives such supervision as is necessary. Changes in seismic activity at the mine, and the events of October 2005, clearly amounted to change in the workplace. While the mine did make some effort to inform mineworkers of these changes the adequacy of these measures is addressed further later in the report.A significant minority of those expressing concern about the integrity of the mine (seven mineworkers) made direct reference to the rock fall of 25 April 2006 as affecting their views (see Table 1). One mineworker, Peter Brennan (pp19-20 ROI) stated it simply reinforced long held concerns. The event seemed to have most effect on mineworkers (six) holding ambivalent or even positive views about underground safety at the mine (see Stephen Burrows, pp 6-7 ROI; Trent Clayton, p18 ROI; Richard Thomas Kearon, p9 ROI, Donald McCreadie, p14 ROI: Donald Walters, p22 ROI; and Alan John Wright, p10 ROI). Stephen Maxwell Burrows, a truck driver and charge hand (and not a union member) stated (pp6-7 ROI) *"I was hoping to spend a few years here... but at the moment I'm still not sure if I want to be here...its definitely a lot... worse than it was before...the ground looks worse."*

276. Ultimately Mr Burrows opted to continue working underground at the Mine. It might be suggested that mineworker references to the impact of the 25 April 2006 rockfall indicate that hindsight influenced mineworkers' recall on their views prior to the event. However, it should be noted that mineworkers who were critical of mining methods and related matters referred to earlier in this report did not identify the events of April 2006 as an influence on their concerns other than to confirm/reinforce pre-existing misgivings (and for some a sense of frustration at not having their concerns treated seriously prior to the event. See Table 1). A number of these mineworkers gave safety as affecting their decision to leave the mine (discussed below and see Table 1). It is also worth noting that in his interview Mr Burrows referred to a specific earlier incident where a crew putting in ground support were withdrawn by Dale Burgess from the 905 "when all this ground just caved in (p8 ROI). Further, statements by Mr Burrows in his evidence to the Investigation refer to complaints from older mineworkers that not enough ground was being left, confirming the concerns of others (pp7-8, ROI); and indicate he was highly critical of toolbox meetings stating that (p10 ROI) ground support and related matters were not discussed there "*because...generally in the toolbox meetings that wasn't discussed it was more the conditions for the workers & machines breaking down, not having the gear...being able to get on with the job & do it properly...just single issues.*" As noted elsewhere in the report (see paragraph 337), on 8 January 2006 Mr Burrows was injured by a rockfall shortly after expressing concerns about undertaking a task and being reassured he was not being placed at risk by the acting shift supervisor. Mr Burrows complained about the lack of follow up investigation to this incident (p8 ROI). Notwithstanding his decision to remain at the mine, Mr Burrow's evidence to the

Investigation does not appear to provide support for a hindsight-based interpretation, and rather confirms other evidence about mineworker concerns and the problematic nature of communication at the mine.

277. When asked about their views on the structural integrity of the mine, mineworkers expressing concerns raised a number of issues. Notable here was the removal of pillars and, to a lesser extent, the quality of backfill – issues already discussed. Other (though often related) issues were raised. Particularly pertinent to this Investigation concerns were raised about rock falls in supported ground. Peter Brennan (Service person 2 and engaged at the mine for 3 ½ years) referred to a collapse at the 850 level and when questioned further about seismicity and rock falls added (p18 ROI) *"I guess - I mean nine twenty five has been renowned for it though, (indistinct word)...Nine fifteen as well... There was an incident where two guys were working at nine fifteen, I was remaining down at nine twenty five and the two blokes up top, rock give way and sort of exploded onto their boom and I was working underneath them in nine twenty five, and this is going back months before this, probably three months, four months, and yeah, like the rock spat - like nothing happened sort of where I was like 'cause of the mesh, but you could see all - you could feel the pressure and then it cracked and we just retreated up to the crib room, it was like late in the shift, and notified, you know, the shift boss and things like that, but I never - the other two blokes put in paperwork because it was more so their level."* The incident to which Mr Brennan referred occurred on 24 October 2005 two days prior to the serious seismic event and rockfall referred to on numerous occasions elsewhere in this report. In its response (Response to Item 26 of Schedule 2 of s36 Notice of 8 June 2006 and Items 4&5 of Schedule 2 of s36 Notice of 25 October 2006 to Beaconsfield Gold Mine at page 63) the Mine stated that a magnitude 0.7 M_L event occurred in the hangingwall of the 915W sill at 3.53am on this day. The Mine indicated that the miners were using a jumbo in the sill drive to bleed mesh prior rehabilitation and the miners reported that *"the whole drive shook and small scats came off from the drive. A report from Adrian Penny stated that there was no rockmass failure or support failure at that time, but that up to 40 tonnes fell over the next 5 hours over a strike length of about 10 metres after the heading had been barricaded awaiting inspection."*

278. To try and gain further insights into worker concerns about the structural integrity of the mine and safety management more generally mineworkers interviewed by the Investigation who opted for redundancy were asked if their decision to opt for redundancy had been influenced by safety concerns at the mine. These responses need to be treated with some caution as other factors, such as the uncertain future of the mine or a belief by some individuals that they had little future at the mine whatever its fate, may have also played a part in the decision. However, it should be noted that in responding to this question a number of mineworkers identified other reasons precipitating their decision or indicated that safety concerns were only a partial influence. Hence, it is arguable that the responses are indicative. Of 12 workers interviewed who applied for and accepted redundancy, seven or over half (58.3%) indicated safety concerns were the critical reason, two (16.7%) stated safety played a part in their decision and the remaining three (25%) gave other reasons (most notably the uncertain future of the mine or the disappearance of their job).

279. Another mineworker (Peter John Brennan) who had opted for redundancy but had been asked to reconsider expressed serious concerns about safety in the mine and returning underground. Similar anxieties were expressed by others who remained at the mine, including, Trent Clayton (a general miner engaged through Webb Mining who had been at Beaconsfield for 20 months and had eight years previous experience in Tasmania and Western Australia). Asked about the structural integrity of the mine, Mr Clayton stated (p18 ROI) *"Oh, its nothing to do with me. That's for you blokes to decide, the engineers and the people who've got qualifications in that area. I'd like to know, yeah, that would be good. We place a fair bit of trust in people in that role and at the end of the day I don't need a job that bad if it's a thing of crossing your fingers and hoping for the best"*

280. The Mine has indicated that Mr Clayton's statement (above) that *"its nothing to do with me"* and his reference to relying on experts should be carefully be borne in mind with regard to the issue of communication, especially in relation to the issue of pillar removal. This report could draw no clear inferences about communication from this statement, especially when viewed in the context of other mineworker statements made to the Investigation. Mr Clayton makes no direct reference to communication but rather the dependence of his safety on the expertise of others and his wish to know more about the structural integrity of the mine. Any imputation mineworkers lacked the expertise to comprehend information provided and therefore were happy to leave it to the experts (something not at clear in Mr Clayton's remarks) would have take account of other mineworkers who made reference to expertise as well as those who didn't. In this regard it should be noted, number of mineworkers indicated that they lacked qualifications and expressed their reliance on the expertise of others to safeguard their safety (see Table 1). Others, like Graham Lanham (pp4-5 ROI) – an underground miner with over 14 years experience in Tasmanian mines - expressed forthright views, compared the safety of mining methods at Beaconsfield unfavourably to other mines where they had worked. Yet others, like Shane Patrick Langford, a sheet metal maintenance worker, stated that while it wasn't within his area because he wasn't a miner *"a lot of drill operators used to go crook a lot...the jumbo operators...They used to quite often say that things are a bit hairy."* If anything, the large number of mineworkers who stated they held concerns prior to Anzac Day 2006 or were aware of those concerns, and the Mine's view that these concerns were neither held nor articulated prior to the incident reflects, poorly on the state of communication at the mine

281. While the rock fall of 25 April 2006 caused a number of mineworkers to re-evaluate their confidence in safety at the mine for others it reinforced longer standing concerns. One of these was Todd Russell who told the Investigation (p8 of ROI) *"I'll be honest with you I've had concerns for quite sometime, you know. I was thinking of leaving last Christmas just gone because, you know, I feared for my safety, you know, and I'd come to work and wonder whether I'm going home the next day to see me wife and kids."* Mr Russell's wife, Caroline Russell who worked in the OHS office of the mine, confirmed that her husband and her father, Alan Charles Bennett (who also worked at the mine), had been worried about their safety for some time prior to the incident (pp11, 13

ROI). Mrs Russell indicated that the concerns Todd had expressed to her had grown in the 12 months prior to the Anzac Day rock fall and this coincided with an increased number of large seismic events at the Mine (p11 ROI) *"Todd did (express concerns). Todd was aware of it and he was always conscious of it when he was going to work, especially over the last twelve months...Because they're had the bigger ones in the last twelve months than what they've had before."*

282. Mr Russell's statements indicate that he was not simply aware of the seismicity issue but seriously concerned for his safety. Mr Russell believed that while management had a positive attitude to safety (p6 ROI) he had concerns about seismic activity in the mine and, indeed he made other observations consistent with his concerns about the danger of working in the mine prior to Anzac Day. Asked if mineworkers had discussed increasing seismic events prior to Anzac Day Mr Russell stated (p7 ROI): *"Yeah, well, you know, I spoke to the other guys you work with and I said to the other guys I said, 'Somebody will get killed here before long.' It was only a matter of time..."* The last statement indicates Mr Russell had also communicated his concerns to other workers. Mr Russell's concern about seismicity was also accompanied by his concerns about the failure to leave ground supporting pillars (p12 ROI). Mr Russell's corroborated evidence about his concerns is not consistent with an interpretation that mineworker statements about concerns they held prior to Anzac Day were affected by hindsight or trauma following the Anzac Day event.

283. Several shift supervisors also expressed longstanding and growing concerns about mining methods and safety in the mine, but ameliorated or 'normalized' to some degree by the gradual change in seismicity. Dale Burgess (p22 ROI) stated *"Oh it seemed frustrating that we were predominantly up holes, we were predominantly under bad ground, that's how it felt. So, you know, at times - I remember the first - the first failure that hit home for me was when nine forty (iw) that set alarm bells and I remember, you know, talking to guys outside saying we should actually perhaps be considering down holes or (iw) something kept telling me that you just can't keep working under this bloody (iw) because, you know, the law of averages says that you know you're going to bloody wear one one day because the gravity - because of the nature of gravity. But I mean I wasn't totally uncomfortable with the mining method but I think - I think they all just normalised it, you know, seismicity had crept up and got to a stage it was increasing, increasing, increasing. You know, guys were (iw) then guys were sort of, you know, (iw), myself included."* It would appear that the incident in the 940 level to which Mr Burgess referred were to was a rockfall in the 940W drive on 18 May 2005 following 1.8 magnitude seismic event (another rockfall occurred in the same drive ten days later) though this was not verified by the Investigation. It might be suggested that Mr Burgess remaining at the Mine indicates that he still judged the mine as safe to work prior to the Anzac Day incident. As noted elsewhere in the report Mr Burgess was active in communicating specific deficiencies in ground conditions to management. From November 2005 there is evidence that Mr Burgess had begun to enquire about jobs at other mines although the reason for this he identified to the Investigation was poor morale at the Beaconsfield Mine.

284. In the course of interviews undertaken for the Investigation differences of opinion emerged with regard to the types of bolting that should be used in the mine, or particular areas of it. For example, senior mine supervisor Stephen Saltmarsh, had a high regard for cable bolts but found (pp19-20 ROI) *"It's hard to convince people. Some people like cable bolting, some don't like cable bolting...At times I tried to get cable bolts."*

285. The Investigation also sought the views of consultants about ground control processes in the mine. This matter is considered in detail by the Marisett report. Brief reference is made to the issue here to provide context on the role of consultants in terms of OHS management at the Mine and also placing mineworker views on ground support in context. At the outset it should be noted that the Mine engaged experts over a number of years to assist it manage seismicity and ground conditions, and further the Mine took decisive action to bring in a range of expert consultants to address issues raised by the events of October 2005. As part of its measures for managing ground control the mine had drawn on expert input from consultants and had also introduced a Ground Control Management Plan in 2004, which was revised or upgraded over time. The stated objectives of the Ground Control Management Plan (GCMP) were to prevent falls of ground, minimise/eliminate exposure of persons to falls of ground, and to provide a systematic approach to ground control and control of excavation geometry. The GCMP included a number of mandatory guidelines (no person to enter unsecured ground, all new mining excavations to meet or exceed specified ground support requirements, ground control work must follow safe work procedures and any rockfalls or ground support failures to be reported immediately to the shift supervisor and underground manager) and specified the accountabilities of particular managers in relation to ground support. The GCMP included descriptions of the geology, mining methods and ground support strategies. According to the Mine, copies of the plan were available in the crib room where they could be accessed by mineworkers.

286. Mike Turner was engaged to assess ground support and as part of this, had visited the mine since 2004 (with visits following the October events in November 2005 and again in March 2006 where he audited ground support). Mr Turner had input into the development of the Ground Control Management Plan, being named as a reviewer (along with members of mine management) for several versions of the GCMP (February 2005 and March 2006). Mr Turner's reports, emails etc to the Mine contain advice and suggestions – advice and suggestions which the Mine seems to have followed (see Marisett report). Peter Mikula was brought in to provide an independent assessment of seismicity, mining methods and ground conditions following the October 2005 events. Asked for his assessment of the Ground Control Management Plan, Peter Mikula, stated (p48 ROI) *"It's difficult to answer given that I was there you know for such a short period of time so I'm somewhat speculating as to how it might be. The CGMP (Ground Control Management Plan) appears comprehensive, on first glance you'd think it covers everything one would expect. On second glance it doesn't give you ratings on the rock, you know there is no queue breaking (should read Q rating) or similar data, and there is nothing that, as we talked about before, gives you the basis for why things are done the way they are, there is no background to this is why we have the mine plan and this is why we have this support, it just states what those things are. I would have liked to see those*

things. However, I noted the ground control plan is fairly young, I think it has had three revisions all within months, some months of each other, so the plan hasn't been there for a long time and maybe that's part of – at least they've got a plan, and maybe part of getting it up to scratch would be to add parts like that, but yes." The Marisett report states that there is no indication in the GCMP to a regular or routine approach to the use of a consistent standardized rock mass classification system at the mine, or that the mine compiled the RMC results from various reports to construct a comprehensive model or interpretation of rock mass properties throughout the mine.

287. The Mine has indicated that Mr Mikula had not been fully briefed on the Ground Control Management Plan as it was not part of his scope of work, which was to comment on mining and support methods and what was being suggested by Mike Turner. From an OHS perspective if not a geotechnical one, it would seem logical to include an assessment of the GCMP in any thorough comment or review of ground support because this plan provides the rationale for ground support activities. Critically assessing the GCMP would also seem to be an essential component of any independent risk assessment following the events of October 2005. I am unaware of documents pertaining to an independent documented audit of the GCMP after the October 2005 event (as noted Mr Turner was a reviewer for the October 2005 version. See also Marisett report). When the Investigation asked what documents had been provided by the Mine to undertake his tasks Mr Mikula replied (p7 ROI) that he had access to the following reports *"I'll read them now. Number 1, the Beaconsfield Ground Control Management Plan and that is dated the 18th October 2005. Right. Number 2, a document called Geology and Regional Setting of the Beaconsfield Gold Mine dated November 2003. Third document, Beaconsfield Gold Mine Seismicity Summary, that's by the ACG and dated April 2005. Fourth document Virgin Stress Measurements Results and stress management options. That was by Coffeys, dated January 2004. Fifth document, and this is one by Mike Turner. It was called Beaconsfield Site Visit, February 2005 by Mike Turner of AMC dated 31st of March 2005 and that's the only Mike Turner document that I saw. I did not see or have any of the others."* It seems odd that Mr Mikula was asked to comment on Mr Turner's recommendations without being supplied with Mr Turner's more recent reports. As far as I could see, the reports cited by Mr Mikula do not make significant reference to the AMC Continuation Study.

288. The mine engaged three other consultants (Sharrock, Basson and Heal) to consider seismicity, mining methods and extraction sequences. Consultants not directly involved in assessing ground support activities were generally guarded in their views. The role of consultants in risk assessment is addressed more fully in the section "Reviewing risk assessment a the mine

Significant Changes to Equipment and Work Processes

289. Another key element in effective OHS management is how it accommodates substantial changes in equipment and work processes, including systems of work. The importance of taking account of the OHS effects of workplace change is recognized by the Tasmanian *WHSA 1995* s9(2)(e) which places a duty on employers to ensure *"any*

employee who could be put at risk by a change in the workplace, in any work or work practice...,is given proper information, instruction and training before the change occurs and receives such supervision as is necessary." Relevant provisions in relation to consultation about workplace change are discussed elsewhere in the report.

290. Management was asked how they would address a change in production methods entailing bringing in new equipment or work processes. In response, Pat Ball stated that once a proposal was submitted all the different 'headings' to be considered would be recorded and circulated so *"everybody could make a comment on that and it'd go back to the originator for a final draft. If it involved new equipment, which not many of them in my time did, they would be risk assessed separately."* Asked if operators were asked for input, Pat Ball replied, "Before we rolled it out we always told the workforce what we were doing. Asked if feedback was sought Pat Ball stated *"Sometimes. There haven't been any discrete changes its – like most mines it's a continually evolving process and this is the best briefed workforce I've ever seen, the amount of information they're going to get is far and above anything I've ever seen before."* The Mine has also indicated that a copy of the Ground Control Management Plan and an explanation of mining method was kept in the crib room where it could be accessed by anyone.

291. Asked about the process with regard to major changes the OHS officer Rex Johnson stated (p9 ROI) *"With regards to the mine, it depending on what the process is. There was a lot of consultation with the employees because if we are changing the process hence the procedure is going to have to change so it's important that those guys go through the procedure in carrying out risk assessments and look at each step to make sure it's going to be done properly. With regards to equipment, in the past we've had a lot of consultation with the guys. One of the big problems we had earlier on, our truck were side facing cabs and as the mine got deeper they were statically looking over their left-hand shoulder for a long period of time. We went through the process of changing our trucks to forward facing cabs and there was consultation right through with the guys because they were the operators, hence the first cab got – not thrown away but it got totally revamped because guys found the operating station wasn't to their liking and now that was (iw) taking that on world wide. Even with our new service vehicle, our new charge-up vehicle, that was all via the guys. They operated the machine, modifications were made to suit the user."* Mr Johnson's evidence provides an example of consultation in relation to a specific OHS problem (with the changes later being adopted by the manufacturer world wide according to the Mine).

292. Craig Large who assisted Rex Johnson was asked about the steps taken with regard to new equipment and changes to work processes (p18 ROI) *"The requirement for a new machine is identified, that new machine is then either designed or produced or purchased and on that process there's a risk assessment process, so a team is assembled, for a new machine that would normally consist of (indistinct word) department, may be Rex or myself, may be, some of the mining department, so the risk assessment then is identified and rather than just a mini risk assessment that's a full on risk assessment. From there, the hazards are identified, okay, from the hazards we work out how to mitigate those hazards, put controls in place, may be make design changes, re risk assess...(and asked if*

it's a new machine that's going change the work process) Well, to use an example, the new charge up machine, SV10, I believe or to my understanding, I wasn't a party to that one, but to my understanding I believe the operators were involved in that process."

293. Other persons interviewed by the Investigation cast doubt as to whether consultation occurred with regard to changed work processes, including mining methods. Asked if there was a consultation and communication process in relation to changed work methods (including mining methods) shift supervisor Stephen Homan (p19 ROI) indicated that information on changes to work was transmitted to shift supervisors at their weekly (Thursday) meeting. He stated there was communication but no consultation until the introduction of the checkerboard system following the October 2005 rockfalls *"This checkerboard system was about the first time it had actually been explained what was going to go on but prior to that, no, they did it their way and that was it or requested it to be done this way and we followed...They explained to us what they were going to do and this is how we was going to do but before we could actually find out whether it was going to work properly, it went bang...they went through and explained it (the checkerboard system) to us and if there was any problems we could have brought it up so, yeah, you could say that they did ask us on this particular one...(and asked if he believed management would have responded) I think they would of on this one, yeah, I really do."* It is not entirely clear from Mr Homan's statement (or the remainder of his ROI) whether his reference to consultation after October 2005 was only in reference to shift supervisors being consulted or extended to his crew. His comments should also be read in conjunction with other statements about how the underground manager responded to mineworker opinions on mining methods (see below).

294. Another shift supervisor Brett Cresswell (pp7-8 ROI) gave a more ambivalent response, emphasizing the need to ensure all were trained in the new procedures before indicating that Pat Ball mainly transmitted information about changes at toolbox meetings. Asked whether mineworkers would be consulted prior to the change Mr Cresswell responded (p7 ROI) *"I'm not a hundred per cent sure if they would or not, I don't know, that's not really – they may do, they may not do."*

295. The investigation asked the Mine how changes to mining methods after October 2005 were explained to the mine workforce and what feedback was received? The mine was ask to provide any documentation made available and to indicate if the information gave any detail relating to anticipated risk or seismicity with the modifications and whether any transitionary effects were anticipated. In its response (Response to Items 1 to 10 of Schedule 2 of the Notice of 13 September 2006 under s36 of the *Workplace Health and Safety Act, 1995*) the Mine stated that the *"changes to mining methods after October 2005 were explained to and discussed with the mine workforce during informal discussions and at shift supervisor meetings, planning/scheduling meetings and toolbox meetings between October 2005 and April 2006, at information sessions held in October and November 2005 and April 2006, and in response to any specific questions raised by members of the underground workforce... During this time, ALX as manager discussed plans to use the checkerboard mine method at the Beaconsfield Gold Mine and issues associated with seismicity, including controlling and minimising risks associated with*

seismicity, with the underground workforce. These discussions included underground awareness information sessions in October 2005...and discussions with members of the workforce in late 2005/early 2006 about plans to start mining using a checkerboard sequence. In about February and March 2006, sequencing plans for 915W/925W, and variations and updates to those sequencing plans, were discussed with the mine workforce at planning/scheduling meetings, toolbox meetings and shift supervisor meetings. The sequencing plans set out the 4 – 6 major steps to be taken to mine 915W/925W. Copies of the sequencing plans were also printed on A2 paper and displayed on notice boards underground and on the surface. As mining 915W had started before October 2005 and the introduction of checkerboard mining method, the mining sequence included steps to make the transition to the checkerboard mining method. At these meetings, shift supervisors and members of the mining crews were given the opportunity to comment on the plans, and the mining methods proposed in the plans, and to ask questions about the plans, including asking questions about anticipated risks and seismicity. Shift supervisors also discussed anticipated risks and seismicity with their crew as they assigned work to members of each crew. If a member of ALX's workforce thought that an area was unsafe, they were encouraged to leave the area and report to the shift supervisor." It should be noted that none of the documents provided by the company with regard to this request makes specific reference to consultants' findings in relation to trends in seismicity and the prospects of future serious events.

296. Mineworkers interviewed by the Investigation were asked about their understanding of mining methods being used at Beaconsfield and in particular checkerboarding. Responses indicated a wide variation in the level of awareness (see Table 1). Truckdriver Alan Bates (p9 ROI) stated checkerboarding had not been explained to him as he was not going into stopes. Jumbo operator Michael Borill (pp18-19 ROI) said that he had figured out the checkerboarding system but he had never had it explained to him or consulted about it – adding he didn't like the new system as it still entailed not leaving pillars. Jumbo offsider Darren Geard stated he had not heard about checkerboarding although another, Jerry Kahmann said he had. Jumbo operator Heath Graauw stated he had started to do the checkerboarding method but that it hadn't been adequately informed – he obtain information from other people not management. Walter Hvala, a contractor in the decline crew (pp14-15 ROI) stated the rock fall incident in October 2005 had not been discussed – truck driver Shane Joseph Marshall made a similar point (p17 ROI) - but that the mine had changed methods and indicated he understood checkerboarding. Another contract miner in the decline crew, Gray Jacques, (p17 ROI) stated that he had heard about checkerboarding but had not been consulted about it. Contractor Gary Round (p12 ROI) and jumbo operator Robert Sears (p6 ROI) both indicated they understood checkerboarding. Donald Walters (contract truck and bogger operator) recalled he had heard someone refer to checkerboarding. Overall, worker responses indicate that there had been gaps or a 'take up' problem in terms of communication about the introduction of checkerboarding, even in relation to workers who would be directly affected (several of whom denied being informed of the change). With regard to consultation – the two way exchange of views - the weight of evidence from mineworkers statements is that they believed they had not been consulted about this change.

297. In sum, the evidence presented indicated that consultation and communication with operators about major changes in equipment and work processes did occur but largely in relation to new equipment, modifications to existing equipment and SWPs (see elsewhere in this report). Communication and consultation does not appear to have been the norm in relation to changes to mining methods until the serious incident in October 2005 and even here there is disagreement about the provision of information and no evidence of meaningful feedback. These matters are examined further later in the report.

298. At this point it should simply be noted that the Beaconsfield mine's safety management plan does not appear to identify workplace change as requiring special measures in terms of the OHS management system, though some procedures relevant to this (relating to new equipment and SWPs) were in place. In this regard the Mine was probably by no means exceptional. Over the past decade many workplaces in Australia have undergone significant and ongoing changes and mines such as Beaconsfield are no exception to this. Having provisions in place will help facilitate risk assessment prior to changes occurring, as well as ensuring significant incidents are addressed in a comprehensive and systematic manner (beyond emergency procedures), would seem to be a essential component in any OHS management system, but especially in relation to high hazard workplaces. The failure to incorporate assessment of changes in work processes (including the relocation of key engineering staff to Melbourne) into the OHS management system was a significant element in the Esso Longford disaster (Dawson and Brooks, 1999: 209). Without prefiguring the findings of this report, the importance of recognising and addressing workplace change as an essential part of an OHS management system cannot be over-emphasized. Mines, and other employers for that matter, should be encouraged to incorporate procedures for dealing with major changes in equipment, plant and work processes/work organisation into their OHS management system.

Reinforcing Safe Work Behaviour

299. As noted earlier, in recent years BMJV has placed considerable emphasis on behaviour-based safety, entailing detailed training/coaching of management/supervisors as well as training and other measures to inculcate safe work behaviour amongst workers (those measures already discussed include induction/training, the StepBack Card and the ABFA Hazard Card). The latter included measures for both disciplining of unsafe behaviour and rewarding safe behaviour. As already noted, mine management also placed an emphasis on using behaviour based safety (BBS) and hence some comment will also be made on workers' understanding of how this applied to them.

<u>Discipline</u>

300. The Mine had clear policies on drug and alcohol use as well as fighting. In addition to this, the company's employee disciplinary system also incorporated safe work behaviour or work practices that breached SWPs, or was in other respects deemed to be unsafe, with a graduated scale of actions depending on previous behaviour as well as the nature or gravity of the offence.

301. In its formal response to questions regarding discipline from the Investigation, the Company identified several levels of disciplinary action beginning with retraining and counseling (for a first breach), formal written warning (for a second breach), final written warning (for a third breach) and dismissal (for a fourth breach). Shift supervisors were responsible for disciplining workers breaching a SWP or committing an unsafe act and when shift supervisors themselves committed such an act they were to be disciplined at a higher level to reinforce the importance of safety (Response to Item 9 of Schedule 2 of the Notice of 8 June 2006 Under s36 of the *WHSA* pp5-6)

302. Company records indicate that use was made of this system for some years prior to the incident of 25 April 2006. Information provided upon request from the investigation (Response to Item 25 of Schedule 2 of the Notice of 8 June 2006 Under s36 of the *WHSA*) between 15 January 2003 and 23 April 2006 indicate an array of actions ranging from a record of discussion and counseling through to formal warnings, final warnings and ultimately suspension or termination of employment. Records disclose around 67 separate instances of disciplinary action directly concerning safety (excluding absenteeism or poor work performance where a safety aspect is not made explicit). While actions typically involved one worker some involved more than one worker (one involving eight workers and another 13). On the other hand, some workers were the subject of more than one action in the period covered. In total the 67 or so actions involved approximately 40 individuals.

303. Actions ranged from keeping a record of the discussion (taken 23 times but involving more than 23 workers due to multiple actions and this point applies to other actions), initial review (taken 3 times), counseling (16 times), formal written warning (12 times), final warning (5 times), work review (once), suspension of employment (once) and termination of employment (on one occasion for assault). The termination of employment just mentioned warrants a short comment. The mine, like many other employers, had a clearly enunciated policy that fighting or physical confrontations between employees were unacceptable and constituted grounds for immediate termination of employment. On 23 August 2004 Philip Hamilton was dismissed for fighting (the other worker involved resigned). Review of WST files for the purpose of this investigation revealed that information had been sent to the Minister (soon after the incident) and referred to WST that suggested the 'fracas' resulted from a dispute between the two men over mining under unsupported ground (ie over a safety issue). The General Manager of WST, Steve Hyam, referred the matter to the Chief Mines Inspector, Fred Sears, who contacted Hamilton. Hamilton agreed to provide a statement on the incident to Sears but there is no record in WST files that this occurred. Given the potential insight, such an incident may have provided into work practices and safety management at the mine the investigation sought to clarify the circumstances of the incident and subsequent dismissal of Hamilton. Attempts by the Investigation (and police assisting the investigation) to contact the two workers involved (especially Philip Hamilton) and another worker who witnessed the incident were unsuccessful. Information obtained, including interviews with managers and others, and company records of the dismissal (including written statements of workers in vicinity at the time of the incident), provided no evidence that the dispute was over safety but there was evidence of a personality clash. When

interviewed, senior mine supervisor Stephen Saltmarsh, who undertook a preliminary investigation of the incident (and took brief statements from both men and witness) indicated that there had been a disagreement between the men about how the face is charged but there had been other issues preceding this (p15 ROI) *"they were a bit heated...It had been coming for a while... Yes, other issues."* In sum, the investigation could substantiate no 'safety connection' in relation to the dismissal of Philip Hamilton apart from the more obvious one of the hazards associated with mineworkers engaging in physical confrontations with each other, especially during charging up (a point made by Mr Ball in a letter accompanying the material supplied by the company date 29 June 2006). The Mine made a number of unsuccessful attempts to contact Mr Hamilton but in the absence of any contrary evidence it appears the Mine acted entirely appropriately, reinforcing the positive impression this report drew about the implementation of its discipline policy and its contribution to the management of OHS.

304. Returning to the more general issue of discipline, over 12 workers had been the subject of more than one disciplinary action, including Todd Russell and Brant Webb (especially Russell who has six actions recorded up to September 2005, all records of discussion or counseling apart from one 'work review'), though these generally related to different matters rather than being 'repeat' offences. No safety-related disciplinary action is recorded with regard to Larry Knight. Safety related disciplinary action was taken against several employees who were shift supervisors. In December 2003 Steve Homan received counseling for failure to observe safety operating procedures. On 30 September 2005 Gavan Cheesman received a final warning for failure to meet the standard required of a shift supervisor (Cheesman had been the subject of a record of discussion [along with Todd Russell] over failure to move mesh and bolts in January 2003, a written warning about inadequate safety standards in December 2003 and a formal warning about failure to wear safety glasses and complete check scaling in April 2004). In the following month (11 October) Brett Cresswell received a final warning for failure to observe safe operating standards and meet the standard required of a shift supervisor.

305. Overall, the approach to discipline at the mine indicates that management treated breaches of safety operating procedures seriously but, in a commendable fashion, with a graduated scale of penalties and an approach to implementation that emphasised counseling, retraining and minor sanctioning, with more serious penalties being reserved as a last resort. This approach appears to have worked well, correcting faults without causing resentment or feelings of injustice on the part of mineworkers, as far as can be judged.

<u>The "Scratchy reward system</u>

306. The "Scratchy reward system was introduced in 2003 to reinforce positive safety behaviour at the mine and to encourage the reporting of safety problems. The system was loosely based on the "Scratchy lottery system where a place on the card has a coating that can be removed by scratching it to reveal if a prize has been secured. A number of cards were printed each month, with 40% containing some form of reward (up to a voucher for $350). The remaining 60% "contained an additional task which, if completed

and signed off by a supervisor, went into a monthly $1,000 second chance draw (Response to Item 9 of Schedule 2 of the Notice of 8 June 2006 Under s36 of the *WHSA* p7). The underground manager Pat Ball estimated that about half of the mineworker missing out on the first draw undertook the tasks necessary to become part of the second draw.

307. The cards were issued to management and shift supervisors to award to workers who were seen to follow safe work procedures or undertook meritorious safety conduct. A database was maintained to assess implementation of the scheme including detecting bias in the awarding of Scratchies. Between 2003 and October 2005 over 6000 Scratchies were awarded (Gill, 2005).

308. Some safety incentive schemes used in the mining industry have been criticized because (as in the case of rewards based on meeting lower injury targets) they can have adverse and unintended effects (such as the manipulation of injury reporting so recorded targets are met). The "Scratchy scheme at Beaconsfield, by rewarding safe behaviour and hazard reporting, did not suffer from this limitation. At the same time, interviews with workers and management revealed some disparity of views in relation to the value of the scheme.

309. Amongst workers' asked their views on Scratchies, eight expressed a generally positive view while another five gave a more mixed response (see Table 1: one worker has been excluded from this count because as a leading hand he was given Scratchies to issue). No worker interviewed was uniformly critical of the scheme. The positive responses generally identified the value of the scheme in terms of raising safety awareness and reinforcing safe work procedures, especially when issued judiciously. Carl Derrick Hudson, a young and recently employed contract truck driver with no previous mining experience, stated (p14 ROI) *"it's a bit of motivation just to wear your PPE and...promote safety."* Similarly, Walter John Hvala, an older and more experienced contract mineworker employed in the Decline Crew thought the Scratchies scheme (p21 ROI) *"produces a better and more conscientious miner, in regards to his workplace inspection, and I think it's a good incentive to make them be thinking a lot more about their job before they actually do it, and contributing as well. If you contributed something to your workplace, and they can see that it's not only going to benefit you but all those that follow you, I think that - that's - that's just - that's just like a pat on the back.*

310. Mineworkers expressing mixed views ranged from those acknowledging its merit but indicating that the system was open to abuse/manipulation – this constituted the majority of respondents - to the more neutral observations of an experienced contract mineworker (Gray Reginald Jacques, p12 ROI) who said he had seen a lot of safety incentive schemes and while they appealed to some people they didn't appeal to him. A number of mineworkers referred to manipulation of the scheme by individuals or alleged that some shift bosses shared the Scratchies amongst their crew to maintain morale. Guy Summers, a contract truckdriver (Webb Mining) with the mine for 18 months (and with no prior mining experience) who had won several prizes, including $1000 stated (p12 ROI) *"It (ie the $1000 prize) pissed them (ie other workers) off...some people know how*

to manipulate the system...if you're going down the decline, you call up on the radio and say "parking the ute in the decline, picking a rock up off the road: You know shit like that...But I mean, some of the time it's a reasonable sort of thing...all the times I got one its usually been for something."

311. In general, training/OHS officers, supervisors and more senior managers were supportive of the positive role of the Scratchies scheme. OHS officer Rex Johnson stated that the scheme had helped change attitudes and behaviour and introduced a positive element to his monitoring role (p16 ROI) *"So, what we've found is, before I would walk into a job and they'd say, look, here comes Johnno. Now it's, come and have a look at this, we've got it all neat and tidy, so it's an invitation to come into the job at lot of the time. I have found it's been a bit of an icebreaker, you might say, between management and employees. People say, give me a scratchie, and we have seen it when we did go around looking at the system they said – everyone, give me a scratchie, give me a scratchie, but it is a good system in the fact that you can reward good positive behaviour but still be able to hand out, or chastise someone who is doing something wrong so it's not about the positive. It's the positive and the negative. You walk in and say, good job but look at this, so the next time you go in you look at that job and if they've done the right thing, you may reward them."* Training officer Paddy Hampton stated (p11 ROI) *"I thought it worked pretty good especially first up. People would – oh, well you'd get kind of – I used to like it because two or three people working together and if I actually seen one of them do a safe act or something I would make sure that the other guys were there and actually see me giving the Scratchie and explain what it was for. And I just thought that that probably made these guys thinks, "Oh, you know, I should probably do something a bit safer or come up with another idea."* OHS technician Craig Large (p11 ROI) stated *"Um, I thought it was a really nice little incentive base system and running properly, I'm not saying it wasn't run properly, there was certainly, I guess there were certainly the individuals that gave out scratchies for, you know, reasons other than raising safety incidents but in general the system worked well and you had people spotting hazards or doing jobs specifically well and the recognition for that was good."*

312. Notwithstanding this several supervisors expressed reservations about the scheme. Stephen Saltmarsh, senior mine supervisor, stated (p14 ROI) *"When it first came in it was out of hand. People would know when you were coming and you'd get to the job and they'd have a scale bar in one hand – but we soon sorted it out. Some people did hand them out like lollies and some people were rewarded for some very good stuff."* For his part, shift supervisor Stephen Homan believed the system had potential but that too many persons had been given the right to issue scratchies, including some (like those in the geology section) who were not in position or who lacked the judgement to do it (p15 ROI). Another shift supervisor Dale Burgess expressed reservations about the scheme though he believed he had been able to use them to positive effect on his own crew (p14 ROI) *"I wasn't a great fan of that. That was designed to improve the safety culture by rewarding acts of safety but most of the shift bosses actually gave them out to their mates or gave them for a good job well done, which was great to recognise a good job well done but it was actually designed so that - to change the behavioural culture by saying, "Yeah, good job, you've recognised a hazard, here's a scratchie"...(when asked if the scratchies*

had had a positive effect on his crew) Yeah, but I didn't give them out because they were doing a good job and - you know, if they did a good job they'd say, "Oh can I have a scratchie", and I'd say, "No, because they're safety, if you can prove that you've done something above and beyond"... You got a little plastic bag that had a dozen in there, you know, and sometimes you'd hand them all out and other times you'd be asking for more, you know, two weeks into the month, depending on - but again, I used to hand them out for certain things like if someone had recognised a hazard in the decline I'd hand one out, but they're pretty smart, they'd start to get clued up to that 'cause you hand them out without (iw) that one's been raised before, you've got to think of another, you know."

313. Comparing Beaconsfield to other mines he had worked in Mr Burgess was unconvinced the scratchies and other behaviour modification devices had secured a fundamental change in work practices (p18 ROI) *"Again it was not progressive enough... it was giving a kind of lip service to some degree. I mean no one constantly tried to ignore safety but it was - the scratchie system might have come first, how they're going to do it. You need someone... a foreman to come down there and show the job, how it's done, and say, "This is bullshit, boys, you're backing the jumbo up twenty metres and you're doing that ground support properly", whereas constantly we'd go back into nine fifteen or twenty five, eight eighty because, you know, someone had missed a sheet of mesh here or instead of putting straps on the mesh overlaps or bloody putting them in the middle of the mesh (iw) and that was regularly happening on this (iw). It just needed a bit of (iw) control, a bit of ownership, I think, of the work."* Reference to these issues can be found elsewhere in the report.

314. Production geologist Adrian Penney's assessment of the scheme was also qualified (p13 ROI) stating it's *"original setup was very good, I think it, it's focus had somewhat waned over time, but I still think it was a very effective tool... (in identifying hazards?) Yeah, and encouraging safe behaviour... Sometimes it - I'm aware, and I know I'm guilty of it as well, that we may have used it to get a job done rather than saying, can you do this for me, you would say I'll give you a scratchy if you do this job for me...(and asked if workers requested scratchies) Yes, all the time. But if they asked for it first you would never give it to them, but in you sort of offered it to get the job done then you'd feel obliged to give it. But you would only give it if they did it safely anyway, it was not go on get that load from the stope or something like that, we would use something simplistic like, can you give me a lift so I can fix this seismic cable that's been broken. You know I'll get up, we've done the job, and I'll give them a scratchy to say thank you very much for your time and assistance, basically."*

315. Chief geologist Peter Hills stated he didn't issue many scratchies but also referred to using scratchies as a reward for getting things done as well as for meritorious activity (p17 of part 1 of ROI) *"I liked to give scratchies out when I felt that somebody had been doing something that was perhaps a little bit more than was asked for or, you know, when somebody's doing something particularly well and also I gave out scratchies when people were helping us do things that related to safety. When we, for instance, wanted to install the (iw) seismic system, you know, sort of getting guys to set up extension jumbo cables so that the jumbo could operate in areas where we no longer used the jumbos so that we*

could put in the safety - the holes to put the cells in, the geovones in, it was a bit of a pain in the butt for them to have to do that and I found that, you know, you were rewarding that with a safety - with a scratchie helped, you know, the guys sort of, "Yes, okay, we're doing this, this is good, let's get in and let's get it done", you know, I found it useful in that way as a bit of a thank you as well as to use it for the sort of things I thought - saw that were, you know - particularly impressed me."

316. While evaluating such schemes is notoriously difficult most interviewees believed it reinforced safe working practices at the mine. Overall most workers felt the scheme had benefits even if a significant minority, predominantly more experienced mineworkers, believed the system was open to abuse or manipulation. Abuse or manipulation of such schemes is hard to eliminate and such activities, though they may have undermined the credibility of the scheme, did not directly compromise safety. It is advisable that such schemes be carefully monitored by management to limit abuse and ensure those issuing Scratchies have been carefully selected and possess the training and protocols to undertake this task effectively. One difficulty here mine management might have examined is the relatively large number of persons empowered to issue Scratchies.

317. Available evidence suggests safety incentive schemes are, at best, a partial solution to affecting behavioural change at the workplace and, indeed, management appears to have recognised this in the way it implemented the scheme (as part of an array of tools). Within the parameters just identified Scratchies were generally perceived as good scheme by those working at the mine, although its operation could be improved.

Behaviour Based Safety (BBS)

318. As noted earlier in this report the management safety regime at the Beaconsfield Mine placed considerable emphasis on behaviour based safety (BBS). The approach, which originated in the USA, focuses on identifying and modifying hazardous behaviour of all individuals at the workplace, management and workers, including enhancing their skills to identify hazardous practices and attitudes (and how managers can take a leadership role in communicating OHS to employees). Tthe BBS approach was introduced with the assistance (initially with SAFEmap and then WorkWise). The Investigation was concerned to identify the role played by BBS in terms of the overall management of OHS at the mine and its connections if any to the events of Anzac Day 2006. Management and OHS staff were asked about the system in order to gauge their understanding of it and what it meant for safety practices.. Mineworkers were also asked whether they were aware of this term and what they saw it to mean.

319. Resident mine manager Mathew Gill (pp21-22 of part 1 of ROI) described BBS as *"it is working with all levels of management including employees to want to work safely, so it is the application of attitude, it's the state of mind of the person. So, the soft skill side of it, if you like, as opposed to the hard things like mines rescue and training procedures...The areas that we were working on – certainly one of it was to be more collaborative in, for instance, the hazard teams with safe work procedures, improving the toolbox mechanism, recognizing and encouraging the scratchy card, the ability to engage*

positively with an employee rather than walking up and just criticizing them for something – it's just a tool to say, good job, you've done that well and engage. There was a positive focus rather than maybe the more tradition – go around and be the policeman."

320. The mine's OHS officer Rex Johnson (p10 ROI) provided an overview of the introduction of BBS and the context in which this occurred, as well as management's thinking on safety incentive systems. *"We carried out the first survey in December 2002 and it was employee – a separate survey on safety. We had our standard procedures, everything – those sort of things on site. We were finding that that wasn't enough. There was a lot of guys disgruntled. They believe, early days – and hence I worked underground here as a surveyor early days so I knew the guys, I spoke with them in the crib room and we were seeing that just safe operating procedures just weren't enough any more. A lot of the guys wanted to have a say so we carried out – Matthew Gill had attended a – one of the Minerals Council's meeting and they had a guy by the name of Corey Pitzer from SAFEmap, did a proposal on behaviour based safety and hence this work they've been doing with these perception surveys so we booked into that because we wanted to find out what more we could do and out of that first perception survey there were about four items that were highlighted that the workforce believed we could do better in a lot of those areas. They weren't happy with the way training was. They didn't believe they were given any recognition for working safely. Their perception was that management didn't take safety seriously and they believed – I'm trying to think of the fourth one – I think it was to do with taking shortcuts to get the job done. So, based on – it was fairly hard. A lot of people were saying that everything you thought was wrong so people had to accept and then we started putting into place what we thought and talking to the workforce, what they believed we could do to make it a better place so, hence – they believed training wasn't recognised highly on site so we looked at rewriting every procedure on site with employee participation. The recognition of not being rewarded to do the right thing. We looked around and we did not start the scratchie system until, I think it was August '03 because there was a lot of debate on safety incentives and how it should be. I've worked in places where if you don't have an LTI you get a bonus at the end of the month. Of course the second day of the month, if someone gets hurt, everyone drops the ball. So, we had to be very careful the way it was implemented. Based on that survey we made a lot of changes on site to try and chase culture, hence eighteen months later, or 2004, we ran that survey again to see if could gauge how we were tracking."*

321. Asked what his understanding of BBS was, training officer Paddy Hampton (p11 ROI) replied *"Well I understood it as probably more awareness for the guys underground towards being a bit more aware of safety aspects around them and probably reporting safety aspects a bit more."* OHS technician Craig Large stated *"I guess the best way for me to describe my understanding of behaviour based safety would be educating individuals of the work force, including myself, on (a) what to look for but also to how to – how to change your behaviour, how to produce a safe work place...(and asked what this meant in relation to investigating an incident such as a rock fall) In behaviour base safety you have to look at the underlying causes, that's a key to the process."* Mr Large saw the scratchy scheme as quite separate from BBS (p10 ROI).

322. Rex Johnson was asked if BBS had detracted attention from other OHS related activities (p16 ROI) *"No, we use it. It's not the only – it's a tool. It's one tool of many. We use it as – we've got our procedures, our policies and we use that to complement the working of those policies so you've got a procedure in place, we utilise our BBS training to help complement those. The idea of the step back card was, if a guy is uncomfortable in doing something, he can actually use the step back to raise an awareness that somebody else may have overlooked and hence by doing that we introduced a reward system to encourage that sort of behaviour, to help people to speak up."*

323. A examination of minutes and notes made in relation to management leadership group/Heads of Department meetings on OHS (apparently held every month or two) supplied by the Mine suggested that BBS related activities received considerable attention at least in terms of the number of agenda items and progress reports in relation to each of them (for a summary of items see Table 3). For example, at the meeting held on 14 and 21 September 2005 (though the mine indicates this meeting was held on 13 October 2005) behaviour focused safety management is the second agenda item and has nine actions listed under 'what we are doing' – a number that exceeded listed actions in relation to all other agenda items. By way of contrast, seismicity/rockfalls and ground control are barely mentioned at these meetings except as a listed part of the mine's catastrophic risk assessment and management plan exercise. As Table 3 shows, a wide range of matters are listed for discussion, including those already examined in this report (like ABFA cards), issues raised by Mathew Gill (like fatigue), a number of special projects (like contractor management) and implementing the catastrophic risk management plan. While obviously crude, the agenda lists and accompanying emails/notes give the impression that seismicity/ground control was not a significant issue of debate at these meetings, which were ostensibly concerned to provide a strategic overview OHS management at the mine. While the Mine viewed the Senior Management Leadership Group meetings as important to the management of OHS, providing a 'big picture' review of situation at the mine agenda items do not indicate that seismicity became a more significant subject of debate as these issues assumed more pressing importance in the period 2004-2005. After 13 October 2005 there appear to be no formal minutes in relation to the Senior Management Leadership Group (management meetings to consider seismicity and related matters after October 2005 is examined in more detail later in the report). It could be argued that these matters were being addressed elsewhere (and they were).

324. The danger of this approach is that can lead to a disarticulation of the OHS management system so that the focus is on managing behaviour and 'routine' hazards, like slip, trip and machinery related injuries and the ongoing if more remote risk of extremely serious events, like a seismic event, are not part of central prioritising of OHS management activities. In mining, like a number a number of other industries (such as petrochemical plants), the risk of catastrophic events like fire and substantial rockfalls is such that it needs to be an integral part of the OHS management plan and senior management deliberations. It needs to be stressed that the risks of serious seismic events or other low frequency high impact events had not been ignored at the Beaconsfield mine. The mine had undertaken a catastrophic risk assessment and a number of initiatives in relation to seismicity/ground control (discussed elsewhere) and undertook a number of

other relevant measures (such as the Greenhorn scheme, J Map and the right to exit areas where mineworkers felt unsafe). The Mine viewed BBS as a 'soft skills' adjunct to this, enhancing mineworkers' ability to identify hazards and the communication between management and workers. Nonetheless, a critical issue is the extent to which all these activities were brought together at senior management level to ensure there was an adequate balance between resources/focus dealing with routine (high frequency/low impact) risks and catastrophic (low frequency/high impact) risks and to consider the implications of significant developments at the mine for the management of OHS as whole. Another critical issue is the effectiveness of BBS in raising awareness amongst and communication with mineworkers.

325. The value of a more planned and coordinated approach based on monthly Heads of Department meetings had been raised by mill superintendent Richard Holder in an email to Mathew Gill on 17 June 2005 entitled 'Going Forward'. In concluding his email Mr Holder stated "*I would like to know what the plan is on OH&S each month, progress on fatigue management plans, SP solutions updates etc. ABFA card updates, discuss incident report summaries and collectively use the knowledge of the group to address issues. I would like feedback and presentations from courses that are attended, such as the audiometric course attended by Rex and Craig, HR courses by Toni as they are all relevant to department heads. We should review equipment damage and its indirect cost to production. Regular meetings to a set agenda would potentially result in an alignment on priority areas and focus for the operation as a whole, and how I can better support you in your role as Resident Manager.*"

326. When asked how BBS interacted with other aspects of mine safety such as machinery and methods of mining chief geologist Peter Hills replied that, not being part of the operation department he couldn't answer that (p17 of part 1 of ROI). Adrian Penney, the mine's production geologist, was also asked whether the emphasis on behaviour based safety affected any other aspect of mine's safety operation. Mr Penney responded (p12 ROI) it *"possibly interacted to some degree, to what degree I wouldn't know...(asked in what way?) Just the way that you may have approached what you were doing. So, for me, like if I was doing a model or a ground support design or something like that, what would the - how would I be looking at doing this job, knowing that I've done this behavioural based safety training and how I'd be doing it potentially differently before and after that training. I don't believe it had any adverse impact on anything else.*"

327. One aspect of the BBS-based initiative at the Mine was a greater emphasis on leadership skills training of supervisors and other managers. Rex Johnson indicated the Mine had also introduced an incentive scheme for supervisors designed to reinforce safe behaviour (p16 ROI) *"On top of that they put an incentive scheme for supervisors which is a pot of money for them and there's basically demerit points so if an employee was found to be working unsafely or without safety glasses, money comes out of that pot for the supervisors. So, say, there's four thousand dollars there for the month and someone goes underground and finds a guy not wearing safety glasses, X amount gets taken out of that pot for the supervisors. So, their incentive scheme is to make sure things are safe*

because the more they get guys to comply the more money it's worth to them. So, whilst you've got the guys with the incentive scheme to encourage them to work a little bit harder in those areas, the supervisor has also got the incentive scheme to make sure they are doing it properly."

328. When asked about behaviour-based safety it soon became apparent that mineworkers had a limited understanding of the term. Of eight responses summarized in Table 1 three stated they had no knowledge of what BBS meant and four other mineworkers indicated it mainly pertained to their own individual behaviour (two mainly referred to their experience of other mines in relation to this). For example, leading hand electrician Alan Wright (p9 ROI) stated it was mainly to do with *"your attitude and approach to the job."* Similarly, Peter Brennan (service person 2, pp17-18 ROI) stated *"I think it just at the end of the day made me realise that - I mean even though you sort of can get educated to a degree, at the end of the day it's up to yourself as well, you know, like you can't - do you know what I mean, like you're the one who's got to sort of be aware and things like that."*

329. Anthony Meneghetti (pp13-14 ROI) was one the few miners to link the introduction of BBS to the attitudinal surveys of mineworkers undertaken by management and discussed elsewhere in this report. It is worth noting that the other two miners, who appeared most familiar with the concept and who saw BBS as having something to do with the attitude of management and workplace culture not just worker behaviour did so in the context of referring to their experience at another mine they had been employed at prior to Beaconsfield. Leading hand fitter Don McCredie (p7 ROI) stated *"I think the way - I think an act now is probably more so to do with my time in the mining game and what I pick up along the way. Basically what I got out of Hellier was - the way I behaved, they were pretty good with all that sort of stuff and they had a pretty good culture there so ... Well they had pretty good training and nothing was a problem. You could front the mine manager and talk to him one on one, anyone could, so they sort of made everyone feel that they were important in the workplace and, you know, nothing seemed to be a hassle. So all the ideas were sort of taken on board and, yeah, they'd act on them or explain why they couldn't. And they had (iw), Hellier is safe and if there was issues that you thought had to be brought up at those meetings you could raise it with them and they'd go on. But usually I do one on one with the manager, that was the easiest way."* David Taylor (p16 ROI) referred to the introduction of BBS to the Beaconsfield Mine and his own earlier experience at another mine *"...a long time since I've heard that one. We started on that, it must have been the early 2000s. I done a bit more with that the last mine I was at. The mine manager, he was right into that, safety behaviour stuff...(and asked what he understood it to be) If your behaviour is in a safety manner type of thing, most things will flow, right. If people get out of the safety way of thinking and the manner of practising safe ways, the joint goes to the dog house."*

330. In general most mineworkers at the Beaconsfield mine appear to have had limited understanding of BBS. Most that claimed some understanding saw it largely in terms of focusing on their own individual awareness. The major exceptions included several workers with experience of BBS at their previous workplace. As a scheme, BBS has been criticized for focusing too much on individual behaviour at the expense of devoting

attention to physical working conditions (including plant and equipment), management practices and work organisation (Hopkins, 2006). The evidence in relation to the Beaconsfield mine is that management used BBS as an adjunct to not a substitute for addressing hazards in relation to plant, equipment, the hazardous working environment and mining methods (whether these interventions were always based on an accurate risk assessment and effective are separate questions dealt with elsewhere in this report). The workforce surveys undertaken as part of the BBS approach were used to identify deficiencies, including (in the earlier surveys) unsafe work practices (and tolerance of them) as well as concerns about management's commitment to safety on the part of mineworkers (the surveys are examined in more detail elsewehere in the report). Taken as whole, BBS-related measures at the Mine appear to have raised OHS awareness amongst mineworkers. At the same time, BBS related measures appear to have had a limited effect on improving trust and morale at the mine (discussed elsewhere) and it made no discernible contribution to the communication of worker concerns about seismicity prior to Anzac Day 2006.

331. If BBS practices at the mine had a limitation it was probably that they helped to perpetuate an individualization of communication channels on safety (although as demonstrated elsewhere in this report management had a strong predilection in this direction in any case) that did not facilitate a more open engagement and debate, including workers, on serious issues the mine was confronting in the lead up to the rock fall of 25 April 2006 – including the clear warning signal in the serious rock fall that occurred just six months previously in October 2005. As documented in this report, there was a serious communication problem at the Mine, particularly in relation to mineworkers concerns about seismcity/ground conditions, and if the goal of BBS was to improve communication on OHS it failed in this regard. It should be noted that the latest SAFEmap survey of workforce perceptions prior to the Anzac Day event was undertaken in 2004 – in other words before the events in 2005 that appear to have given rise to mineworkers' concerns (and prior to the rockfalls of late 2004). Whether a survey undertaken in 2005 would have identified these concerns is a matter for conjecture.

332. Another limitation, for which evidence is more fragmentary (at least in terms of the evidence discussed thus far), is that BBS and a number of other OHS management practices (in relation to hazard identification, risk assessment and the like) absorbed considerable time and energy on the part of management, and while not irrelevant to avoiding catastrophic risks were arguably more valuable in terms of managing routine hazards. A related point is the degree of integration with regard to incorporating serious hazard events into OHS management, and especially evaluating the implications of these events for the management of OHS as a whole. The view of the Mine was that BBS enhanced the management of both routine and major hazard risks, that adequate resources were allocated to both routine and non-routine risks (as evidenced by the response to the October 2005 rockfalls), and that the mine safety management plan (and its implementation) demonstrated a clear integration of all areas of hazard management at the Mine. The Mine has argued that the distinction between routine and catastrophic risk was artificial in the context of the Beaconsfield mine as BBS and other individual OHS techniques used were proactive and applicable to both types of risk. This contention does

not appear to be consistent with a widespread recognition that high hazard workplaces require OHS management regimes that place a particular emphasis on managing the consequences of low frequency but very high impact events such as a chemical release in petrochemical plant or a critical incident in a mine. The issue of fragmentation/focus is examined in more detail later in the report.

The right to exit an area and re-entry times/procedures

333. Common to the industry, the mine had a policy that when underground workers felt their safety was endangered (as in the case of noise indicating an imminent rock fall) they could leave the area immediately and report the issue to their shift supervisors. Once workers have left an area a minimum period before re-entry is often set and mines also set re-entry periods for blasting or following significant seismic events.

334. The submission of the AWU and the family of Larry Knight contended (pp16-17) that while workers knew they were able to withdraw from areas if they felt unsafe no formal policy and associated training was given with regard to the level of rock noise, seismicity or other signs that might indicate withdrawal was warranted and at what point an area might be deemed so unsafe that work would be stopped. Statements obtained by the union from a number of Beaconsfield workers essentially made the same points, with Mark Crawford (at page 3) and Philip Malkin (at page 3) both indicating they had not received sufficient information or training on when to leave an area.

335. As part of the investigation interviews, current and ex mineworkers at Beaconsfield were asked whether they had the authority to leave an area they believed was unsafe and whether they had ever done this. The responses summarized in Table 1 indicate that 29 workers were asked this question. Of this group, 27 (93.1%) said they had the authority. A significant number stated that they had exercised this right either at Beaconsfield or another mine. Typical was the comment of Alan Bennett (truckdriver and father in law of Todd Russell) who stated (p8 ROI) *"oh we've done it a few times, even Todd would refuse, like yeah go in and like get the super down...and he'd go and check it out"*

336. As illustrated in the last response, most mineworkers also mentioned that they would notify the shift boss of their concerns either prior to or after leaving the area, with many adding that the relevant shift boss would come to view the situation and was always supportive in accepting their judgement and assigning them to another area. For example, Graham Lanham (an experienced underground miner) stated (p7 ROI) *"yes and I have done, I make it my decision to do it."* Lanham stated the last time did he did this was when backfilling at 855 or 850 level and a bit of hanging wall let go. He told shift boss who said *'not a problem'* came down and looked at it said just go somewhere else.

337. On the other hand, several mineworkers who responded positively, notably those with less experience or engaged in ancillary tasks such as truck driver expressed reservations about their ability to make judgements about when to withdraw and their tendency to rely on the judgement of more experienced workmates. For example, Stephen

Maxwell Burrows (a truck driver) stated while he could call his shift boss (Dale Burgess) who was "excellent deciding when to withdraw was difficult because he lacked experience (p5 ROI). He also referred to an unhappy experience (mine accident reports provided to WST indicate this incident occurred on 8 January 2006) on an occasion when he did raise concerns about the face when doing charging (p3 ROI), stating that the *"acting shift boss came down and some more experience said its all right and "sure enough a fucking fifteen minutes later I got hit on the head with a rock and it knocked me to the ground...I tore a calf muscle off the back of my leg and had stitches in me head."* Another worker who was not asked a direct question about withdrawal made similar points about his lack of knowledge and reliance on fellow workers when discussing hazardous conditions he had experienced. Don McCreadie (a leading hand fitter with considerable – more than 20 years - mining experience in Tasmania) when referring to a rock fall near where he was working stated (pp 10-11 ROI) *"I was down there by myself and 'let's finish this job and go'...if there's miners there you feel safer because you think well if they're working there it must be safe...I can look at something and it could look pretty ordinary to me and they'll say, 'No, that's all right'. And they'll lead me to another drive and...I said, 'Oh, this ground here looks pretty good and it looked neat do you reckon', and the miner said, 'No, not really'. And he just touched the backs with the drill steel and big slabs fell off...So what looks all right might not necessarily be the case, you know."* Reliance on the advice of experienced mineworkers can be seen as a logical and positive aspect of the implementation of the policy, and 'Greenhorn' mineworkers were encouraged to seek such advice. At the same time, Mr McCreadie was not inexperienced. He had worked at the Mine for three years and had considerable experience at other mines. While truckdrivers and maintenance workers may not develop the knowledge of ground conditions of a jumbo operators and the like who are more directly involved in operations they should have knowledge sufficient to make informed decisions about leaving an area, and not have to rely on other persons (who presence with them at the time of an incident cannot be guaranteed).

338. Of the remaining two mineworkers (6.9%) responding to questions about their authority to leave an area they deemed unsafe, one gave an ambiguous response and the other a more negative response. Walter John Hvala (employed in the Decline Crew) stated (p6 ROI) *" No, generally - I think how it - how we dealt with it, it was - it - we never leave the site undone, so the job - we would talk to the shift boss that was on at the time, and we'd rectify the problem right there and then. We wouldn't leave it, knowing that there'd be - you know, someone could walk in or - you know, not known because it changes all the time. So we pretty much dealt with it at the time."* The other worker, Jason King (a Service Crew member engaged through Webb Mining) stated p15 ROI) *"Well I worked in areas that I didn't feel safe and I stayed there because everybody else worked there. But it'd be different story now. Unfortunately it takes someone- an incident to happen, like did happen."* Mr King went onto state (pp15-16 ROI) that he had never left an area he deemed unsafe, he was uncertain about re-entry procedures, and that he felt compromised in raising OHS concerns because as a contractor he might easily be replaced (the issue of whether the presence of contractors affected OHS management at the mine is dealt with in detail in a later part of this report).

339. As a corollary of the withdrawal question, the Investigation did not specifically ask mineworkers, as a group, whether they felt pressured to re-enter areas that might not be safe. Responses to the withdrawal question suggested this was not, in the main, a major issue. There were exceptions. One mineworker asked about undue pressure was Heath Graauw (a Jumbo Operator at the mine for more than a decade) who responded by stating (p10 ROI) *"It's a hard one because if the job's got to be done and if you do hear noise you're always, in the back of your mind that something's going to happen, but its all involved all down the bottom, I mean you're starting to get ground noises all around so we can actually finish drilling a face and you hear the rocks exploding up inside the reemer holes, and its pretty intimidating if you've got to go back in there and start charging up the face, which has happened a few times, because you don't know whether the whole face is going to – plus the explosive sort of thing, but if you feel unsafe you don't do the job, I mean you obviously just tell your shift boss, Look I can't do this because I'm a little bit nervous."*

340. For his part, shift boss like Brett Cresswell confirmed the clear understanding that mineworkers could and should withdraw if they felt uncomfortable (p15 ROI) *"I would there and then until the – I'm not a mining engineer, yes. I've had instances where my blokes have pulled out of a job and did not go back in there... Yes. I think in one instance I was there and we just packed her up and we just got out of there - (indistinct words) – just called me up and I said to my crew at any stage if you think you are uncomfortable or you think it isn't safe, for Christ's sake, get out, don't stay down there."*

341. A number of mineworkers indicated they were familiar with re-entry periods into the mine following blasting or where concerns had been raised about an area. Dennis Newson (a Jumbo Operator with a total 14 years mining experience – eight of them at Beaconsfield) stated (p10 ROI) *"Yeah definitely... Well he (the shift boss) comes down and he'll have a look at it – he'll say whether it's safe or not to go back in, but if you still don't think its safe you don't have to go back in there, that's what I was always taught... Oh well, we usually let it settle for a couple of hours and then somebody will go back in."* When asked, Mr Newson said he believed the re-entry period was 12 hours (p10 ROI).

342. The underground manager Pat Ball (p11 of 2nd ROI) confirmed that re-entry times were generally twelve hours but could be adjusted to 24 hours on occasion (although this was rare, p7 of 3rd ROI). In short, re-entry periods could and were adjusted on occasion. In explaining how re-entry times were adjusted the underground manager Pat Ball (p7 of 2nd ROI) made reference to the value of knowledge about how much energy was released in seismic events and how long it took the damage to decay. Mathew Gill (p7 3rd ROI) stated that there was a requirement to consider seismicity triggered by blasting. One of the first tasks undertaken by Adrian Penney each morning was to examine J-Map, shift supervisors could also examine this information, and a discussion involving Peter Hills or Pat Ball could take place about what re-entry period should be applied to an area depending on what had been observed on the seismic system. Asked about the inspection process for re-entry, Mathew Gill (pp7-8 3rd ROI) stated that normally *"for re-entry if it's*

for re-entry time, there's no inspection, it's based on the system detecting seismic events, number of and magnitude and determining whether, one, there was any activity and if there was, was it reducing over time. So, it was a visual off the J-Map system. It didn't need anyone to go into a level to determine whether there was ongoing seismicity. The whole beauty of the system is that you can do that from afar and no put anyone into a stoping area where it might still be a (I/W) and so it was always chained off until such time as a decision was made that the seismicity had dropped to a low level and you could re-enter and until then, very rare to have any need to go in there."

343. The mine's production geologist Adrian Penney was asked whether he thought a 12 or 24 hour re-entry period was appropriate on safety grounds (p18 ROI): *"I'd always thought that twenty four hours may have been overkill but I was never going to say that - to leave it to - to pull it back to twelve hours, leave it at twenty four hours and then we were all confident that there will be less of a chance of something happening."* Asked if there was an inspection prior to entering an area after the re-entry time had elapsed, Mr Ball stated (pp11-12 of 2nd ROI) that there wasn't but that the shift supervisor would normally *"check the seismic system to make sure it had gone quiet."* Mr Ball also noted there was a re-entry procedure for workers entering the area to inspect the area on foot before commencing work after the re-entry time restriction had expired. Adrian Penney was also asked about the inspection process in relation to re-entry after firing. Mr Penney stated that there (p6 3rd ROI) *"were SWPs in place for any heading re-entry, and what they exactly contain I'd have to refer back to the notes on what the SWP actually contains. Shift bosses would normally look at J-Map to see if there was excessive amounts of seismicity continuing. If there was any cause for concern they'd either contact myself or someone upstairs in Tech Services to provide that technical advice if it was warranted, if they believed it warranted."* Mr Penney went on to indicate that he did not inspect situations prior entry on a routine basis but did do so if there was a cause for concern.

344. Rockfalls following the seismic event on 26th October 2005 did raise serious questions about the adequacy of re-entry procedures. Philip Malkin, provided a statement to the AWU (since supplied to the Investigation with consent) that indicated (at page 9) *"I was acting shift boss at the time of the October 2005 rock fall. I was at level 375 going through the start of night shift brief. At around 6pm or 615pm, just after firing, there was a really big and loud explosion, centred around 890, but everything from 870 – 925 collapsed to some extent. There were rock falls bursts. It was all in the central zone of the ore body. I thought about it, and then told the boys "go down to 700 crib." I didn't let anyone work within 100m up or down of the levels affected. Before anyone went into a level, I went in with them to inspect it. I inspected the mine and checked the damage in each level. We did mostly fill-in work that night. I wrote a 2-page report on the matter and handed it over next morning. I spoke to Peter Hills that night...The timing was lucky. We all wondered what would have happened if it occurred during shift. This kind of thing often happened after firing, but not on this scale."* Mr Malkin's two page report was not to my knowledge supplied to the Investigation (nor was it specifically requested) and may be of interest to the Coroner.

345. In a memo to the Mine's administrator Mike Ryan dated 1st November 2005 (and summarised in Table 3), Mathew Gill stated that re-entry times were not a safety control at the time of the incident because people and equipment could have been in area' but for the fact that the event occurred firing time and ground support rehabilitation plans had yet to be issued following a seismic event on 24th October 2005. The Mine has subsequently emphasised that the area was designated 'no entry' at the time of the event while Mr Gill's memo would seem to indicate that this designation resulted from a particular set of circumstances (ie responses to recent seismic activity in the same area) and that but for these particular circumstances mineworkers and equipment could have been placed at risk. The view that the timing of the event was somewhat fortuitous is consistent with the statement made by Mr Malkin (above) and mineworkers interviewed by the Investigation. In his memo Mr Gill went onto tell Ryan that the size and unexpectedness of the 26th event was major concern and the mine needed to review whether to leave support pillars, review checkerboarding, events in 925mL mean assumptions about F21 zone need review; and there was a need to review effects of thicker pillars on seismicity. Other matters identified by Mr Gill as requiring review included a full ground support inspection (and audit), extraction sequencing and modeling, community and government consultation, and the engagement of consultants. As noted elsewhere in this report, mining was suspended for some time in a number of the affected stopes (see also Table 3).

346. It should be noted that the report prepared by Scott Marisett for the Investigation raised a number of concerns about re-entry procedures.

347. Overall, interviews with mineworkers indicated that they were well aware of their authority to withdraw from areas of the mine where they felt unsafe and a number had, indeed, done this on at least one occasion. With one exception, workers expressed the view that they had received a receptive response from their supervising shift boss when they reported these concerns. Two workers were less clear about their effective rights in this regard. A number of other mineworkers expressed reservations about whether they possessed the ability and expertise to make judgements (and similar points were raised in workers statements provided by the AWU), and this may be linked to concerns about ground awareness training raised elsewhere in the report.

348. There is no evidence that any deficiencies with regard to the implementation of the withdrawal policy played a part in the incident of 25 April 2006. Both Todd Russell and Brant Webb felt confident about their capacity to withdraw from an area in which they felt unsafe. The question never arose because neither saw any warning signs to indicate that the area might be unsafe prior to the incident.

349. Nonetheless, some additional steps to ensure and formally document that all mineworkers are fully apprised of their rights to withdraw and given the protocols and training necessary to exercise this would seem warranted (and consistent with the earlier discussion of ground awareness training). Connected to this point it should be noted that as with a number of other areas addressed elsewhere in this report, the withdrawal policy and re-entry protocols were not formalized and incorporated into the mine safety

management plan, and its associated documentation. The mine safety management plan of any mine should identify and document all relevant areas of safety management, including the mechanisms for workers to raise OHS concerns or to withdraw for areas they deemed unsafe. This information should be distributed to all mineworkers.

350. Finally, a question remains as to whether the increase in seismicity in the week leading up to 25 April 2006 identified in the Marisett report should have given cause to take precautionary measures, including a significant increase in re-entry times into the 915 and 925 levels following blasting in these or adjacent levels of the Mine. According to Mr Marisett's analysis seismicity increased in the mine in the week prior to the incident, particularly in the 940 mining block, and although there was fall in seismicity on the 24th seismicity was still above background levels. The Mine has challenged this interpretation, arguing that seismicity had returned to normal in the two days leading up to the incident. These matters, including the issue of re-entry, are explored in the Marisett report. They are raised here because the issue must be identified as relevant to a consideration of re-entry procedures both as a critical part of OHS management at the mine and the events of 25 April 2006. The question of whether there was an increase in seismicity in the days before the Anzac Day incident is also relevant to other matters considered by later sections of this report.

Other factors potentially influencing the effectiveness of safety management at the mine

351. In assessing OHS management at the mine it is essential to identify a number of factors which were present at the Beaconsfield mine and there was reason to think may have potentially compromised safety or undercut a number of the policies in place because they have either been raised as problematic by recent reviews of mining safety or were raised as points of concern in the course of interviews or information submitted to the investigation.

The use of contractors

352. In recent years there has been a growing use of contract labour (both self-employed and labour hire) in the Australian mining industry. A number of fatalities and serious incidents involving contract workers have raised concerns that the shift away from direct employment has led to deterioration in OHS. The concerns have not only come from unions but have also been raised or addressed by a number of government inquiries into mining safety, both in Australia and countries like the USA (Western Australian Prevention of Mining Fatalities Taskforce (1997; McAteer, 2001; and Wran and McLelland, *NSW Mine Safety Review*, 2005). These concerns are reinforced by some international research (Blank et al, 1995). It should be noted at the outset that Larry Knight, Brant Webb and Todd Russell were all direct employees of BMJV and as far as can be ascertained no contract worker was directly or indirectly involved in the incident of 25 April 2006. Nevertheless, as already noted the use of contract labour in the mining industry has aroused concerns that it will undermine OHS standards and management and in the context of the full scope of the brief for this investigation it is worth briefly assessing contractor management at the mine.

353. The Beaconsfield mine made significant use of contract labour, including labour hire workers (the bulk of who were supplied by Webb Mining in the period leading up to the incident of 25 April 2006), although this use was by no means as high as some other mines. In the two weeks prior 25 April 2006 a list supplied by the company indicates that contract workers spending time on site included nine individuals (Fitter Mine UG) supplied by Atlas Copco; eight individuals supplied by Boral (Loader Op Mill and Truck River (sic) ROM), three individuals supplied by Skilled Engineering (Process Op Mill); one individual supplied by NSW Mines Rescue (trainer); one individual from Luka Mining (miner); eight individuals from Somers Security (security Guard); one individual from Fernlack Pty Ltd (Electrician Mill); one individual from Granville Enterprises (Fitter Mine); eight individuals from Boart Longyear (Surface Drillers); one individual from L Koehnken (Water Sampler); one individual from Aquatic Labs (Water Sampler); 14 individuals from Webb Mining (Sucker Operator and Miners); two individuals from Work and Training (Apprentice Mill and Apprentice Mine); two individuals from Frog Newman (Light Vehicle W/shop Mine); eight individuals from Powertek (Electrician Mill and Electrician Mine); one individual from SGS (Assay Lab Services); two individuals from Secoroc Atlas (Coordinating Drill Bits for Air Legs) and five individuals from Multiskilled (FAR/Winder/Backfill and Crane Operator). In sum, 76 individuals were engaged as contractors or contract labour at the mine in the two weeks prior to the incident and this figure does not include cleaners employed by Berkeley Challenge and sanitation disposal workers provided SHS Sth Hygiene (for which no numbers were on the list provided). By way of comparison, for the same two weeks a list supplied by BMJV indicated it had 134 employees (this figure includes senior management). A count of the respective numbers of employees and contract labour is relevant as it indicates the number of contract workers who would require induction/training and supervision (or at least oversight of their activities depending on the tasks). It is also a factor in determining the number of contract workers who might be on site at any particular time although this figure is also affected by the hours worked by contractors in any given period.

354. The last caveat also needs recognition, since many contract workers are not engaged on a continuous basis or may only visit the mine to undertake a specific task. Responding to a specific question from the Investigation the BMVJ indicated that that there were around 30 full-time equivalent contractors on site (in comparison to around 130 employees of ALX) or less than 20% of ALX's total workforce (Response to Items 11 and 23 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA*). Not all the individuals just cited as working as or for contractors in the above list were engaged for the entire two-week period and several were relief staff (constituting some double counting). More precise information provided by the Mine indicated that when hours worked by contract labour were converted into full-time equivalent workers the numbers cited above become 134 full-time ALX employees and 30 full-time equivalent contract workers or 19% of the total workforce (as compared to 36% if a count of raw numbers is compared). At the time of the incident on 25 April company-records indicate there were 17 BMJV employees at the mine and 7 contractors (three miners employed by Webb Mining; two security guards supplied by Somers Security, one mine fitter provided by Atlas Copco and an electrician supplied by Powertek). It is not clear whether this 'mix' of

contractors and direct employees in the two weeks prior to 25 April 2006 reflected the general pattern operating at the mine over a longer period. Nonetheless, whatever assumptions are applied it is beyond dispute that the mine made extensive use of contact labour.

355. The provision of labour hire workers also appears to have been used by the company as a form of probationary employment or as a source of recruitment with a substantial number of permanent employees of BMJV indicating to the Investigation that they had originally joined the mine as labour hire workers. For example, Brant Webb worked as a contractor (for Brereton Mining) at the Beaconsfield mine for two years before becoming an employee of ALX around four years prior to the incident of 25 April 2006.

356. In its formal response to specific questions posed by the Investigation (Response to Items 11 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA*) the Company stated that it required all contractors to complete pre-start checklists and an induction. Where contractors' work was material ALX's General Conditions for Site Work was incorporated into the contract thereby requiring contractors to abide by the Company's safety policy and mine safety management plan. The latter included specific provisions in relation to contractors including that they must undergo the mine's induction process (with a specific induction package for short term program or irregular contractors as well as separate pre-start checklists for contracting firms and the individuals actually undertaking tasks). Labour hire workers were deemed as employees in terms of requirements to attend the normal induction and training programs, and toolbox meetings. Interviews with both mine management (including shift bosses) and mineworkers confirmed that contractors attended toolbox meetings and had participated, raising issues. This was also confirmed by a review of toolbox meeting minutes although records indicated that in general direct employees of the mine were more likely to raise issues at these meetings – something echoed by interviews with mineworkers (see below).

357. A review of documents provided by the Mine indicated a number of OHS issues had been raised in relation to the use of contractors. In April 2001 the toolbox meeting of Nigel Webb's (later to leave the mine and provide contract mineworkers to Beaconsfield) crew were told that contractors were bogging dry dirt and eight months later the same crew was told contractors were late returning to the crib room at firing times (see Table 3). A month later (3 January 2002) at a toolbox meeting of the Homan crew it was alleged that contractors were not bolting drives. I was able to identify few if any references to safety concerns involving contractors in toolbox meetings or other written records after this time. One reason for this appears to have been increased efforts by Mine management to integrate contractors into the upgraded OHS regime being put in place at the mine. For example, contractors were included in the workforce surveys undertaken by SAFEmap and their responses compared to that of direct employees. At a senior management safety meeting held in July 2004 it was stressed that contractors should be included in manual handling projects then under way and specific projects adopted by the Mine in this year included contractor management (see Table 3).

358. In order to better assess whether the use of contract labour had compromised OHS at the mine the Investigation also asked a number of questions of both management and workers during interviews. Since contract workers could be found on most if not all shift crews, including those working underground, the involvement of contractors in induction/training and other safety related matters, such as their attendance at toolbox meeting and whether they raised safety matters at these meetings or used the various hazard reporting systems at the mine, was examined. It was the firm contention of management that contract workers employed on a regular basis (ie like those labour hire workers) received the same induction/training as other workers, attended the crew toolbox meetings, and could and did both raise safety issues and use the hazard reporting systems. For example, with regard to training one of the underground training officers Paddy Hampton stated (pp10-11 ROI) *"They get exactly the same training, they do the same induction and the same procedures as everyone... (and when asked about contractors who were coming in and out of the mine) Oh, no, it's not – never usually a problem. If any of the contractors we need to train we just say, "Look, we need that guys", and they get them in for us or whenever they're in we take them to training."* Similarly, Rex Johnson, the mine's OHS officer, referred to hazard reporting and scratchies (p8 ROI) *"Yes. I've had – with our hazard reporting cards, there's been contractors. Also with your scratchie system, which I think you're probably aware of. We hand them out to contractors as much as own employees and that's to encourage reporting and also good behaviour, safe behaviour."*

359. Overall, interviews with workers at the mine, both contract and direct employees of BMJV, tended to support management responses about the integration of contract workers into safety-critical aspects of the mine's operations. Contract workers stated they felt able to raise OHS issues at toolbox meetings, and most with longer tenure at the mine had although several indicated they felt less free to do this because of a desire not to make themselves too conspicuous or 'rock the boat.'

360. Another aspect explored in terms of its potential to affect safety was the level of communication and relationship between contract labour and direct employees at the mine. Poor communication or tensions between these two groups can adversely affect the sharing of safety information. Interviews with mine workers revealed some diversity of opinion. Asked about the relationship between contractors and employees at the mine, Guy Summers, a contract truckdriver stated (p13 ROI) *"Oh look, a bit of shit goes on, a bit shit stirring and things like that. But, I mean, it depends whether it offends you, and it depends whether it worries you...Oh, a bit of jealousy probably, because the - oh, the way they see it is that they probably think that the contractors are on more money, and they're doing the same job. But, I mean, they leave me out of it because I do a different job. But, you know, yeah, you get the - you hear the scumbag contractor and crap like that, but you get that anywhere. You get it at Temco, Comalco, it's all over the place."*

361. Another contract worker, Jason King (p5 ROI), believed there was a serious side to the banter, revealing underlying tensions about differences in pay that adversely affected morale at Beaconsfield *"Oh because we work for a contractor we get paid a bit better than the miners. But we miss out on a lot of conditions too. Like we haven't got security*

they've got, or the - or like we don't get redundancies or anything like that. But I mean we - like I'm probably eighty dollars better off a shift than some of the blokes, yeah...(and asked how often the issue raised Oh every day in jest, but some times - oh there's been two or three - two or three serious ones, yeah. People saying you don't deserve what you get paid, and all this sort of stuff, because I've been doing - because they've been doing this longer and all that.

362. Having said this, King noted (p6 ROI) that the situation had been worse at the mine (on the West Coast) he worked at before coming to Beaconsfield because at this mine employee diamond drillers had lost their jobs and been replaced with contractors. This bitterness also made contractors extremely reluctant to raise safety issues *"Oh it was heaps worse there. They hated contractors there, yeah...(and asked about raising safety issues) No. We just didn't there really. We only raised it through the geos...Geologists, because they were sort of – we were working for them."*

363. Overall, despite some "banter and evidence of tensions the use of contractors does not seem to have demonstrably compromised OHS at the mine. The policy of integrating contract workers into production and safety systems (including induction/training and attending toolbox meetings) appears to be critical to this outcome. The process of allocating less experienced contractors to jobs like truck driver until they acquired knowledge, and the presence of experienced employee mineworkers also contributed to this outcome – something that may have been compromised had greater use of contract workers been beyond the already significant level. As noted elsewhere in the report (see section on worker involvement), contractors were not formally represented (and those interviewed did not feel part of) the only safety committee (the Zero Committee), which operated relatively briefly (ie February to November 2005), at the Mine. In any future committee this issue should be addressed. More generally, the *WHSA* should be amended to ensure, as far as is practicable, that contract or temporary workers (particularly those with an ongoing or long term association with a workplace) are represented on any workplace OHS committees so that their needs and interests can be articulated and they can identify with the committee's operations (see recommendations).

<u>The financial precariousness of the mine</u>

364. Since mid 2001 the Beaconsfield gold mine was operating under administration. This meant that the ongoing viability of the mine's operations were under close scrutiny from both the mine's administrator and also creditors such as Macquarie Bank and Rothschilds. The mine provided regular reports (including monthly reports with detailed breakdowns of key performance indicators, injury rates/incidents, production, budget costs, mining activities and ore grades discussion as well discussions of matters such as trends in seismic activity), managers attending meetings/teleconferences and hosting inspections of the operations, and responding to email queries when events occurred that might affect operations such as the October 2005 rockfall. Operating under administration the mine was seeking to make a return sufficient to pay off its creditors and earn a return for the joint venture partners (Beaconsfield Gold NL and Allstate Exploration). The seismic events of October 2005 led to the temporary closure of a number of stopes

(including 915 and 925), adversely affecting production and gold recovery (reported in the Mine's Monthly Reports for late 2005 and early 2006). An additional consideration was that the mine was approaching the end of projected reserves in the next two years although this might be extended by the decision to consider mining the F21 zone below the current mining area. On 10 April 2006 the Administrative Manager Toni Griffiths emailed staff to indicate that Allstate were including the F21 Zone as a probable reserve which might be developed, adding a year to the mine's life and the possibility of opening up other areas to development. Overall, it seems fair to conclude that while the financial position of the mine was by no means dire (it had been operating under administration for a number of years and earnings had paid considerable debts) its position remained precarious at the time of Anzac Day rockfall (see also evidence referred to below).

365. The financial status of a mining operation may adversely affect OHS and this suggestion was raised on a number of occasions in the course of this investigation (in interviews with workers and in the AWU/Knight family submission. Recent reviews of mining safety in other jurisdictions have recognised the importance of the economic context on safety, especially the need for management to recognise that safety objectives may have little meaning unless OHS is an integral part of business planning/activity and that while safety may be "good for business in the longer term, it may involve additional costs in the short term (see Ritter, *Ministerial Inquiry*, WA 2004: 59, 63 citing Hopkins and others as well as its own investigation).

366. As noted early in the report, management at the Beaconsfield mine (notably Mathew Gill amongst others) acknowledged that there had been deterioration in safety performance at the mine when it first went into administration although they believed this problem had been rectified. Referring to this period in a paper on safety at the mine Mr Gill (2005: 1) stated that poor financial performance and job insecurity had over-ridden the safety systems in place. In offering an explanation as to why safety performance had deteriorated when the mine initially went under administration, senior mine supervisor Stephen Saltmarsh (who had been employed at the mine over nine years) stated (p11 ROI) *"Everyone lost faith in the mine (iw)."* The mine's chief geologist Peter Hills (p10 of part 1 of ROI) observed *"We saw that our worst time in safety was about the perceptions, about the time the project went into administration in 2001...Yeah, the things were not good from the point of view of the project and, you know, we were in a clearly tight financial situation, went into - All State went into administration, Beaconsfield Gold went into receivership, there were all the issues surrounding that with the late delivery and then lack of mechanical robustness of the processing plant and the underperformance of it once those things started to get fixed and that got - I think that had an impact on people, people wondering about, you know, just where the project was going, did they have a job, was there - what was going to happen with the mine, would it get up and going and have a future or wouldn't it, and at that time we saw a negative impact on safety statistics at that same time, whether that be because people have lost the plot, don't have their mind on the job, doing silly things because they think - I don't know, that you know, doing silly things when they perhaps shouldn't because - short cuts or anything like that, but what we found is once we got through the administration and we started to have - we did that survey and we started to focus on the safety aspects and try and get the guys into the routine of safety,*

we saw as a result the improvement in safety as the fortunes of the operation also improved through 2003 into 2004 and now I think it's a clear marker."

367. Financial precariousness may impact on safety in a number of ways. First, it may encourage more experienced (and marketable) workers to leave the mine in pursuit of more secure jobs rather than risk waiting and hoping the mine won't close. The loss of experienced workers, the disruption caused by staff turnover and a higher ratio of inexperienced workers, can affect safety. Second, fears of job losses or imminent closure may lead to less emphasis on OHS (both in budgetary and operational terms) as workers and managers try to maintain production/contain costs to ensure the survival of the operation. In worst-case situations this may lead to 'corner-cutting' in relation to operational procedures that compromise safety (for example, working under unsupported ground or shorter intervals before re-entering working areas where blasting or a rock fall has occurred). Third, as indicated by Mr Saltmarsh above, financial precariousness – as evidenced by the Mine going under administration, can adversely affect the morale of both management and workers, which can flow onto attitudes (including commitment to the job) and behaviour. It is also worth noting that the Anzac Day incident at Beaconsfield is by no means the first time a mine in financial difficulties has experienced a serious hazard event, including cases where these pressures were later found to have compromised OHS management in ways that directly contributed to the incident (see for example, Glasbeek & Tucker, 1993; Jobb, 1994). A recent review of the causes of major hazard incidents undertaken by the Health and Safety Laboratory of the UK Health and Safety Executive (Bell & Healy, 2006: iii) noted that there was evidence that productivity pressures could adversely affect management commitment to safety but this connection is not confined to mines or organisations experiencing financial difficulties see (see also United States Chemical Safety and Hazard Investigation Board, 2007b; and Hopkins, 1999: 91-97) and the HSE report noted further investigation was required to confirm the relationship.

368. Asked about what happened with regard to safety when the mine went under administration in 2001 the resident mine manager Mathew Gill stated that, if anything, there was better support for safety, including (according to his memory) the OHS budget (p21 of part 1 of ROI). After entering the period of administration, although the mine workforce included many who were relatively new to the industry, the mine maintained a core of very experienced mineworkers (both contract and direct employees) up to the time of the Anzac Day incident. This was in spite of the mine's difficulties and strong demand for mineworkers elsewhere (especially Western Australia and Queensland). The mine had also developed a special induction scheme for workers new to the industry (the Greenhorn program). Further, while inexperience can be identified as a possible contributory factor in several incidents referred to elsewhere in this report (notably the injuries to Stephen Burrows and Justin Stevenson), a perusal of injury records in recent years do not indicate an apparent preponderance of injuries amongst inexperienced workers. In short, there appears to be no evidence that the mine's financial difficulties resulted in a shortage of experienced mineworkers that compromised safety.

369. In relation to financial pressures at the mine the AWU/Knight family submission stated that information obtained from mineworkers indicated that financial returns dictated mining methods, management (including Pat Ball) told mineworkers in 2005 that if the mine had a few bad months it would be closed and that major expenditure had to be approved by the banks (representatives of whom were frequently on site, pp12-13). It was stated that in the month prior to the Anzac Day incident large amounts of ore were extracted in a vertical section in levels from around 880 to 965 and the 925 level was one in *"which a minimum amount of production had to be achieved for any bonus to be paid"* (p12). In the week prior to the incident mining activity had occurred at the 905, 915 and 925 levels and just prior to the Anzac Day rock fall the mine was 3000 tons behind the production target, with workers *"pushing hard to make up the difference"* (p13).

370. There is evidence that management at the mine felt under pressure to maintain production and minimize costs in the months prior to the incident, and the risk this might compromise safety unless guarded against, was recognized. It is recognised that the pressure to minimise costs and maximize production is common in workplaces (not just mines) but it also needs to be recognized that these pressures may be most acute where the workplace is in a financially precarious position. There is evidence of these pressures at Beaconsfield as well as management's efforts to guard against any adverse spillover with regard to OHS.

371. The seismic events of October 2005 had a significant impact on production and gold recovery as the affected levels (880W, 915W and 925W) contained relatively high grade ores and were a priority focus of production (and these levels would re-occupy this position in the months leading up to Anzac Day rockfall. See Table 5.5 Production in March 2006 Monthly Report for the Mine). In its report for the month of October 2005 the Mine noted that for *"October we produced 950 Oz below budget and 1,896 Oz under forecast. 16% of the shortfall in ounces and 21% of the shortfall in tonnes was due to not achieving metres. 15% of the shortfall in ounces and 11% of the shortfall in tonnes was due to grade. 69% of the shortfall in ounces and 68% of the shortfall in tonnes was due to seismicity. Seismic activity at the 925 level early in the month impeded access to this level which was to produce 30% of the ounces for the month. Further seimic activity in the 915 level meant the 925 stope was unable to be accessed for downholes either."* In an update to the Australian Stock Exchange on its December 2005 Quarter Production Forecast Allstate Exploration forecast production of between 15,000 and 21,000 ounces of gold compared to 28,000 ounces in the September Quarter *"primarily due to the seismic event on 26 October which has lead to the temporary closure of a number of high grade stopes whilst a full geotechnical and mining review is carried out."*

372. There is evidence that the mine was under pressure even prior to the October events. Following a phone hook-up between Mathew Gill, Bill Colvin and Brian Coulter (Beaconsfield Gold NL), Jonathon Rourke (Macquarie Bank), Michael Ryan (TWCS – administrator) and Warwick Morris, on 30 September 2005 Mr Gill sent an email explaining a shortfall in the budgeted/forecast grades for the September 2005 Quarter. On 4 October 2005 Bill Colvin responded to Mr Gill stating, *"September is obviously well down on Budget and it seems the operation will be barely cash positive for the quarter.*

We are keen that this trend does not continue unchecked. I know that as a matter of urgency you and your team will be looking for opportunities to recover the Budget shortfall in the light of the challenges you mention below. Please would you provide an immediate outline of the particular steps that you plan to take and what contingencies can be pulled in? This will enable more meaningful discussion at the upcoming JV meeting." Administrator Michael Ryan interceded on Mr Gill's behalf emailing Mr Colvin the same day to state *"Bill...These types of emails should come through me. The issues of the likelihood of decreasing grades, increasing cost pressures, effect of seismicity on production and ever present water issues have all been flagged/known for sometime now. The only discretionary spends are of a capital nature which at this stage are being kept to a minimum. We continue to keep monitor Opex. In that regard Matt has been asking for a copy of Alan Robertson's report - is it available? - Matt has indicated he will not disclose it to AMC. It is these types of issues and the fact of lower grade going forward that has prompted the AMC study to determine the sense of continuing the decline below the current reserve boundary (1090ml). I look forward to discussing these issues with you at the JV meeting."* Ten days later (on 14 October) Mr Colvin responded to Mr Ryan stating that we *"understand that the issues of grade, seismicity, etc have previously been flagged. We also understand their influence on production, cost and margin. The important consideration is what actions can be taken to address the issues and ensure the operation can return to making a satisfactory return. This type of challenge is not uncommon throughout the industry and sometimes triggers a major change in operations or cost structures. Discussions on AMC's work will probably touch on many of these opportunities but the issue of earning a satisfactory margin is a discrete topic and I propose that we should treat it as a separate agenda item."* Two days later Mr Ryan emailed a draft response to Mr Colvin to Mathew Gill for comment which stated "*I am happy to hear what you have to say on the issues you raise below, however I am not sure about an extra agenda item of such a general nature and at this late stage. There is generally some time left at the end of discussions for any other business - perhaps you can cover what you have to say during that period. Alternatively or in addition you are welcome to raise any suggestions you may have during the course of the day or indeed at anytime. Matt has often said that he is happy to hear any constructive suggestions that would improve the operation."* In reply Mr Gill told Mr Ryan (on 18 October 2005) that the *"JV Agenda has been with BGNL since Sept 12 – too late to change now. Further, while that Agenda did suggest Financial Analysis, I did point out at the last JV Phone Hook-Up that all we will be in a position to discuss re the AMC Study are the technical details (geology, geotech, ventilation, mining method etc). Costs and financial analysis etc are to follow. I would be hesitant to offer the opportunity to raise comments /issues "at any time" – to whom? Context? To be minuted? I suggest we could use the last part of the Agenda to define some ground rules re costs etc – e.g. ask BGNL what hurdle they have as "a satisfactory return" – NPV? IRR? Other? What gold price etc."*

373. Following the 26 October rockfall a number of measures were implemented to maximise production and reduce costs. Under item 18 under general business of the minutes of a shift supervisors meeting of 3 November 2005 the following is recorded (presumably a briefing from Pat Ball) *"Briefed meeting on the current financial crisis. I'm tackling it as if my job depended on it. Get as much dirt out of drives as possible until*

stopes are released. Prioritise high grade headings, bog dirt as soon as available. Use of sock in wet holes rather than P/Gel is compulsory. If you see someone using P/Gel for a full face then treat as if that person was trying to shut us down. Use stocks of 25 x 700 P/Gel as primers in place of 32 x 200 to save money. Bosses to allocate someone to turn off all fans at the end of shift unless that heading is being fired. Don't turn them on till go back in there and turn them back off again when they leave. SAFETY IS STILL PARAMOUNT. Do not compromise our standards and extra work will be required to keep everyone focused. Remember the bad times in mid 2001 were characterised by a spike in incidents and accidents." In short, this briefing makes a direct reference to the 'current financial crisis' at the mine and the need to contain costs but not compromise safety in so doing.

374. On 11 November 2005 Mathew Gill emailed a document to mill superintendent Richard Holder and presumably other members of the management team entitled "Initiatives for Cost Reduction identifying a range of cost savings (both capital and operational) across all areas of the mine's operation, including technical services, mining and maintenance, processing, administration and OHS. With regard to mining and maintenance the identified initiatives included deferring decline work for two out of four weeks and deploying the crews to production areas, reducing power consumption, equipment and contractor usage (and deferring some capital purchases); seeking the suitability of using CHF instead of CRF, especially in the 980W, reviewing any additional requirement for employees to take annual leave and deferring all external training unless statutorily required. With regard to OHS operations cost savings identified included deferring SAFEmap November visit, considering deferral of SP Solutions visit and reducing NSW Mines Rescue Training to 1 day prior to competition. At the same time, the document was headed in bold *"ANY OH&S OR ENVIRONMENTAL EXPENDITURE WILL BE CONSIDERED AND PRIORITISED ACCORDINGLY."*

375. As discussed elsewhere in this report, in early November 2005 Mathew Gill had sent a detailed summary report on the seismic event of 26 October and the mine's response to administrator Mike Ryan and creditors including, Jonathon Rourke of Macquarie Bank. On 9 November 2005 Mr Rourke emailed Mr Gill in response, stating *"I finally got around to reading this note in full today. It is (as always) a very logical, comprehensive and balanced note on an important operational issue. You and your team enjoy our highest confidence in your management of the situation and its various risks."*

376. Later the same month cost cutting measures sparked a grievance amongst mill operators at the mine. Responding to these mill superintendent Richard Holder stated (in an email dated 25 November 2005) *"I was presented a letter of grievance at 3.30pm on November 22 signed by 17 mill operators relating to the request to take annual leave rather than work utility days. I was asked to formalize a response and Email it to the crews. Firstly, thank you for formalizing your grievance. I am well aware that the request to take annual leave was not received well, with feedback including:*

- *Not informed very well about the request, heard "down the street"*
- *Taking of annual leave should be when the operator decides it is best to meet personal needs / commitments.*

- *Some people did not have much annual leave left*
- *Perceived imbalance between operators and the rest of the workforce, i.e. one group (operators) always having to give something up.*

I could talk about the current predicament we are in, but everyone is well aware that we lost $1million dollars in October and if we do not achieve cost savings over the next few months then additional projected losses may occur, especially with the current underground seismicity issues yet to be resolved. I have made many decisions (some similarly unpopular) to reduce costs, such as reducing manpower on crews (now 4 per crew) and within the goldroom (1 instead of 2) although the reductions were validated through improved automation and plant stability. Other cost savings include sourcing second hand grinding media and using float tails instead of limestone. Decisions have been made with best intentions to improve the operation and prolong the operation of the mine through greater profitability. The mine will close once the economically recoverable gold is exhausted, and it will be cost savings will improve the mine life. A list of cost saving initiatives across the site were put on notice boards to show the site wide impact. Several long term contractors were told that they were no longer required at this time. The decisions were made in the attempt to protect Allstate jobs. Beaconsfield Gold market value reduced by approximately $3 million following the announcement relating to the seismicity impact. I agree in general with the above feedback from the crews, and have the following comments : The decision to request / ask employees to take utility days off as annual leave was not an easy one to make. The request was never going to be popular as it was not the ideal choice for the employees, and I accept this. Employees remuneration did not change if annual leave is used (employees work 208 shifts a year with 20 of the 208 shifts available as annual leave). The average hours of work do not change if annual leave is utilised, i.e. 48 hours per week on average. The communication on this issue could have been better, and I accept responsibility for this. The only outcome I can see is that if employees want to come to work during their rosterd utility days, as per the original intent, then they can. We may need to look at other options for cost reduction. If there are any other alternative outcomes or concerns then please let me know and I can discuss these with you."

377. The impact of seismicity on production flowed on to bonus payments to mineworkers. The resident mine manger Mathew Gill indicated that little in the way of bonuses were paid in the months prior to April 2006. During the interview with Larry Knight's brother Shane Knight (a former mineworker who made several visits to the mine after the rockfall of 25 April 2006) Mr Knight asked Mr Gill (who was present at the interview) whether he had any idea about the level of bonuses paid in the few months before the accident. Mr Gill (p17 of Shane Knight ROI) replied *"No, I'd have to check the records but the months before Anzac Day we were doing a lot of rehabilitation work from an event that occurred back in October. We actually weren't even advanced into the decline. So my recollection was that for some months before then there wasn't any bonuses' being triggered because we weren't achieving the budgeted targets."*

378. There can be no doubt that management's concerns about the need to maintain production and minimize costs were translated to shift supervisors and mineworkers. In

November 2005 shift supervisor Dale Burgess sent a memo suggesting a number of ways of improving operational efficiency based on his experience at other mines. He opened his memo by stating that as *"a result of studying some inadequacies within underground operation over the past few months and listening to the "State of the Nation" address you gave, and more recently the current "crisis times" detailing the need to become more efficient, I thought now may be an appropriate time to run a few ideas by you that you may choose to consider in the future? Please find below some of my observations and suggestions to potentially help remedy the situation, based on my own experience in roles at other operations."*

379. There is no compelling evidence that the financial circumstances of the mine affected expenditure on equipment or staffing levels in ways that may have compromised safety. Inadequate equipment or under-staffing were seldom raised as serious concerns by mineworkers during interviews. Nor did shift supervisors raise this as an issue. Shift supervisor Gavan Cheesman stated (p21 ROI) there *"was always plenty of gear there for them. There was never any shortage of people here and all that sort of stuff."* Nor did interviewees link delays in solving issues such as the sourcing of radios for remote bogging to financial stringency. Equipment selection could affect the speed of bogging operations and the risk exposure to equipment associated with this. On 13 April 2006 shift supervisor Dale Burgess and Mathew Gill exchanged emails following suggestions by the former that remoting with larger loaders (R1600s) would be more cost efficient. In his email, Mr Burgess noted that another consideration *"is 'duration-related' i.e. we leave the ore out in the stopes for too long a period, and subsequently, gravity starts to have an affect. If we had the ability to remove the ore more quickly, our exposure to failing hanging walls will be reduced."* In the view of the Investigation's geotechnical expert, Scott Marisett (email to me), leaving stopes open for long periods does have safety implications.

380. Like a number of others, Gavan Cheesman's primary concern was about the removal of pillars and ground support measures – decisions he believed were influenced by financial considerations (p18 ROI) *"Somebody crunched the numbers and said that it's cheaper to put the CRF in and get the gold out from underneath it than it is to leave the actual rock there."* Worker (and shift supervisor) concerns about production pressures affecting safety are examined extensively elsewhere in the report. There are two dimensions to this issue. One dimension is whether economic or production pressures actually compromised safety while a second dimension are worker perceptions of this. With regard to the first dimension, it can be noted that there is no unequivocal documentary evidence that management's decisions in relation mining methods and ground support were significantly influenced by the mine's financial situation. A broader issue – one raised by Professor Gunningham's investigations for the Ritter inquiry (Ministerial Inquiry. 2004: 63) is whether the OHS management system at the mine included measures to ensure that pressures to maintain or increase production *"do not seriously undermine safety initiatives."* With regard to the second dimension, it is important to note that workforce perceptions are critical to the effectiveness of OHS management systems. As noted by the Ritter inquiry into OHS at a number of mining sites in Western Australia (Ministerial Inquiry. 2004: 61), workforce concerns that

management are not fully committed to OHS has both a direct effect on safety as well as a *"consequential effect upon worker morale, cynicism and a sense of disempowerment."* Ritter saw this as a serious issue requiring expeditious attention by mining companies (including contractors). In the context of Beaconsfield, it can be noted that a significant proportion of the workforce (see Table 1) expressed concerns that the pursuit of gold was compromising safety or at least the receptiveness of management to problems raised by workers (especially those in relation to mining methods). Like Ritter, this investigation also uncovered evidence of poor morale, cynicism and a sense of disempowerment that weakened OHS management at the mine. These matters are examined extensively elsewhere in the report (see also summary of interviews in Table 1).

381. The Investigation also examined whether the financial precariousness of the mine had exerted any influence on the work undertaken by outside consultants in terms of their briefs or recommendations. The investigation asked the company whether when engaging consultants were they given any verbal or written criteria to be met relating to costs, mining method, percentage of extraction, crown pillars, gold recovery or the mine being in administration? In responding (Response to Items 1 to 10 of Schedule 2 of the Notice of 13 September 2006 under s36 of the *Workplace Health and Safety Act, 1995*) the company stated that when *"engaging consultants, ALX did not (in writing or orally) require criteria relating to costs, mining method, percentage extraction, crown pillars, gold recovery or because the mine was in administration, to be met by the consultants. From time to time, ALX instructed consultants to review mining methods (including whether to keep crown pillars) and to make recommendations to improve safety and percentage of extraction (if appropriate); but, these instructions were not constraints on the consultants; rather, they were asked to provide external expert advice on what was appropriate or safe.* The Investigation also undertook an examination of relevant documents (including emails concerning consulting activities and the reports themselves) and interviewed consultants. This examination provided no evidence that the situation of the mine influenced or compromised the work undertaken by consultants in a way detrimental to safety. For example, Mike Turner (consultant for AMC and then TMG), when asked if the mine had placed any requirements relating to mining methods or core production that he was to take into account when giving advice stated (p22 ROI) *"I say 'no' because the stability of the excavation and safety was a primary concern."* Mr Turner went onto state that he would have felt enabled to propose radical changes to mining methods that would have affected mineable reserves and costs (p22 ROI) *"As an example, if I felt that pillars... were required as part of the mining sequence I'm sure they would have been considered."*

382. Another consultant Peter Mikula (p12 ROI) stated that in emails and phone conversations the Mine's chief geologist, Peter Hills, had repeatedly emphasised their first priority "is our people underground. Mr Mikula stated that he wasn't asked to take production into account in his report (p13 ROI) *"Production, no they didn't. The email from Peter Hills of the 31st of October (2005), he did say amongst other things they had in mind was the fact that 'production targets and our impact on the community are also important and poorly managed they could be very negative' so he was aware that production was something that needed to be managed, and I understood that as*

background information, not as a directive in my work. I was going to be focusing just on seismicity, so I didn't take production into account. I don't think it gets mentioned in my report." Other consultants interviewed, such as Frans Roelof Petrus Basson (p12 ROI) also indicated that the financial situation of the mine in no way influenced the advice they proffered.

383. The Underground Manager Pat Ball was also emphatic that financial considerations had never influenced the response to consultant's advice (p of part 2 of ROI) *"Money never came into it. If somebody said, you need to put in this ground support to stop a one in a hundred year event, we would have done it or if it wasn't economical, we would have walked away. The depth of the experience and the ethos of the management team here is – that's what we would do...* (and when asked about weighing up risk and design factors) *Mr Mikula, Mr Turner, Mr Sharrock were consulted to design our ground support along those lines and we followed their recommendations."* It should be noted that the Mine has indicated to the Investigation that Dr Sharrock was not engaged to provide specific advice on ground support.

384. Overall, while mineworkers interviewed by the Investigation made repeated references to financial and productions pressures at the Beaconsfield Mine prior to the Anzac Day incident (see Table 1) there is no other evidence (in terms of documents or inferences that can be drawn from patterns of decision-making) that the financial precariousness of the mine led to OHS standards being compromised. There is evidence that the financial pressures on the mine had an effect on both management and worker attitudes about maintaining production. A significant number of mineworkers also held the view that the desire to maintain production, so critical to the wellbeing of the mine, affected decisions in relation to the retention of particular mining methods and ground support measures. This is evident in comments made during interviews conducted by the Investigation, relevant parts of which have been quoted elsewhere in this report (such as in the section examining mining methods and ground support) as well as the summary of worker responses reproduced in Table 1. To add one further example, Jumbo operator Heath Graauw when asked if he has seen any evidence of unjustified cost cutting replied (at p12 ROI) *"not really, no. I mean their priority was to get the ore out, but in my personal opinion, they should have just left more pillars instead of being, not so much greedy, but in the lower grade areas, even in the ridge (iw) they would have been better off to leave pillars so that the ground wouldn't stress as much, and I suppose that's the only shortcut I could really see, as far as on their backfill, what we were told, I mean there's a lot of levels that actually let go sand, you know, you'd be boring through one level and a heap of sand would come down, which should never have happened, and you've got, you know, more levels that have actually got lots of water in it, which should have been tight filled so no water can actually escape or run down the bottom of the deep line."*

385. References to the need boost production, or recover lost ground in terms of production can be found in the minutes of shift supervisor meetings and toolbox meetings, such as meeting of shift supervisors on 20 April 2006 where item 11 states *"3000t behind for the month. Presents a wonderful opportunity to make heroes of ourselves in the next*

week. Jamie to issue detailed schedule to the end to the month." Several other examples have been reproduced elsewhere in this report (see also Tables 2 & 3). On the other hand, it should be noted that a number of stopes were closed following the rock fall that occurred at the 915 level in October 2005. There is no evidence that management reduced the OHS budget (although this budget was not always expended) or cut back on expenditure in relation to OHS. Considerable expenditure was made in relation to engaging consultants to provide advice on seismicity and related matters, especially after the October 2005 rock fall. New ground support bolts (cone bolts) were imported from Canada and manufacturers representative brought in from Canada to train mineworkers in their installation. There is no evidence that the financial situation of the mine or production imperatives affected the scope and nature of tasks carried out by these consultants. Nor is there evidence that efforts to boost production and contain costs had a detrimental effect on the maintenance of plant and equipment at the mine, expenditure on training and the like. The one significant area of concern is the selection of mining methods and ground support. As noted elsewhere, the report of Scott Marisett identifies a number of deficiencies in mining methods but there is no evidence (such as deviation from the recommendations of the mine's expert consultants) linking this choice to the financial precariousness of the mine, despite a strong perception amongst a number of experienced mineworkers (including some shift supervisors) that production/recovery imperatives exerted a powerful influence on management decision-making in this regard. The repeated suggestions by mineworkers that decisions at the Mine were driven by financial considerations above all others, to the point of compromising safety, would seem to provide more evidence of the state of communication and poor morale at the Mine, and the level of mistrust between management and many mineworkers (including contractors).

The bonus system

386. Bonus systems or incentive schemes that reward mine workers with extra pay or (less commonly) prizes for additional production (or related tasks) have long been popular in the mining industry and such a scheme operated at the Beaconsfield mine. Mathew Gill stated (pp5-6 of part 3 of ROI) that the bonus formed an addition to the mineworkers' annual salary or flat payment for each shift and there were two schemes based on the same concept, one applying to the decline crew and another covering other mineworkers. The Beaconsfield system made additional payments if monthly targets in relation to linear metres advanced were achieved. The Mine has indicated that the grade of ore had no influence on incentive payments. The scheme applied to employees of the mine but not, according to evidence, contractors (the Mine indicated this was seen as an incentive for good contract workers to become members of the permanent workforce although a number of contract miners stated their status and experience allowed them to earn more money. See Table 1). The basic objective of such schemes is to act as an incentive for mineworkers to reach or exceed production targets.

387. Incentive schemes are popular with management and company owners because they provide a strong inducement for miners to maximize payable output. The schemes can also be attractive to mineworkers as a means of boosting their take-home pay. However,

the schemes have also aroused considerable controversy, given longstanding concerns that the inducement to maximize output will encourage hazardous work practices that compromise OHS (such as undertaking tasks without adequate tools or equipment when these aren't immediately to hand). For example, the 1997 NSW Mine Safety Review recommended that the use of production bonus schemes warranted investigation. The subsequent 2005 Mine Safety Review (Wran and McClelland, 2005: 20-21) noted that this recommendation had not been adequately addressed. Despite an ongoing divergence of opinion amongst workers, unions and companies the 2005 Review found that the concerns about the safety effects of production bonuses (and safety incentive schemes) warranted independent investigation as a matter of priority. It is understood that this recommendation has now been implemented and an independent investigation is currently taking place.

388. Interviews with management indicated that they saw bonus system as generally working well and not compromising safety – indeed that avoiding the latter had been factored into the scheme. Resident mine manager Mathew Gill stated that a caveat to the scheme was safety compliance (p3 of part 3 of ROI). Chief geologist Peter Hills stated (pp17-18 of part 1 of ROI) the bonus *"was good in incentivising the guys to meet targets, which they had to do safely. It kept people's minds on the job of, you know, we need to do this or that. There were certainly allowances made in the operation of the bonus in areas where things were beyond the guys' control from time to time because the last thing that we wanted to do was say well, you know, you have to get twenty metres in this heading in order to get the bonus, have something happen from whatever perspective that made it unsafe or impractical or something so that the guys weren't sort of finding that they were flying in the face of an impossibility or an unsafe environment in order to achieve the targets that they were set, but I think it worked reasonably well in, you know, all other things being considered of having the guys do what it was that they were scheduled to do, you know, they'd get to a point, you know, all things being equal and there were times when adjustments were made because for things beyond the guys' control they couldn't get there, either machinery or from a safety point of view or what have you, but you know generally it was good, yeah."*

389. Interviews with workers for the investigation indicated some level of confusion as to how the bonus system precisely operated (though most of those affected by the scheme recognized the link to targeted metres of advance in the mine). During the course of the investigation a number of workers interviewed and the AWU/Knight family submission argued that the bonus scheme had compromised safety at the mine. It was alleged (pp20-21) that the scheme put pressure on ore crews to break ground quickly and towards the end of month "workers often had to rush to meet production targets. Sometimes workers would take shortcuts in these circumstances. Workers were not disciplined for taking such shortcuts. The AWU/Knight family submission also contended that production targets were not adjusted to take account of reduced manning levels. It was also suggested that the handling of the bonus payment system created some bitterness amongst mine workers and contributed to poor morale and an unfavourable working culture in the mine (p13).

390. During interviews, the Investigation asked workers their views on the bonus system and whether it led to changes in work practices, including those that breached safe work procedures or in other ways compromised safety. Nine Beaconsfield employees commented on the bonus scheme in relation to safety. Six indicated that they believed the bonus scheme could compromise safety in relation to work practices while one worker believed it had no effect on safety. Two other employees criticized the scheme for altering work practices but indicated this didn't compromise safety (two of those criticizing the bonus on safety grounds also identified changes in work practices that didn't compromise safety). Four employees criticized the bonus penalty imposed for workers absence, with two indicating it induced workers to attend work when they were sick. Another worker, Dennis Newson (p17 ROI) who was critical of the safety influence of the bonus system but stated that he didn't know if the bonus penalty effected sickness absence. Twenty five workers made no comment (including maintenance workers, winder drivers and the like) or stated they were unfamiliar with the scheme. Six contract workers indicated that they weren't covered by the bonus scheme but four added that they were critical of it – two on safety grounds (Walter Hvala, pp17 ROI and Jason King pp13-14 ROI) and two on other grounds (the arbitrariness of it and the way it was used offset low pay at the mine, Gray Jacques, pp13-14 ROI and Trent Clayton p12 ROI) Almost no mineworker interviewed made positive comments about the bonus scheme.

391. As noted above, several mineworkers illustrated how the bonus scheme could compromise safety. Some referred to rushing to meet bonus targets. For example, Robert Newson stated (ROI) *"I daresay people did take more risks...especially toward the end of each month when...they looked like they were nearly on their targets."* Jason Anthony King a contract worker on the Service Crew stated (pp13-14 ROI) that while he wasn't part of the bonus scheme he didn't think it was a good system *"Well if one bloke is getting three headings a day and one is getting two, you know the others are trying – I just don't think it encourages safe work because everyone is working too fast."* Mr King said he witnessed people working too fast and rubbish not being cleaned up. Mr King added (p15 ROI) that he had seen persons working unsafely at another mine to get metres for the bonus and that is why he didn't agree with bonus schemes. Jumbo offsider, Darren Geard *(pp9-10 ROI) gave an example "say we had a week to go and we knew we had to get so many metres, you know everyone was going pretty hard... say if there was a jumbo doing chemi bolts, well I'll say to myself, usually they'd have a machine out there to bring in, but it was just too slow, so what I used to do, not suppose to do this but I did, but I used to just jump up on the boom & put the chemicals in"*

392. Under the bonus system workers who were absent for one day from work were deducted two days of their bonus entitlement. Several workers were critical of this aspect, with two stating (see Raymond John Joseph p8 ROI) that this penalty had caused them or other workers to come to work when ill. Jerry Kahmann (p8 ROI) told the Investigation he would work when sick to avoid the bonus penalty. Though clearly designed to deal with absence issues, having an ill worker on any work site – let alone a high-risk mining environment - could present a danger to themselves and other workers and is therefore inconsistent with an effective OHS management system. The policy could, by encouraging workers to report for work even when ill, also be viewed as inconsistent with

the employer's general duty to maintain a safe system of work under the Workplace Health and Safety Act.

393. Other workers attested to the capacity of the bonus scheme to influence work practices at the mine, making tasks more difficult rather than compromising safety One example given was charging new ground before dirt from the previous firing had been bogged out. One experienced contract worker, Gary Round (ROI pp17-18), described the practice, which he believed made the task of remote bogging more difficult rather than dangerous *"they'd keep firing and firing, and even odd times they wouldn't let you finish remoting, there would be dirt out further and (asked why)...Oh, they wanted the gold out, or wanted to keep dropping the tons and get metres, and then you had to remote it after awhile...(and when asked if this was linked to the bonus)Oh yeah, well the - that would be marked on the wall back there, there's bloody October or November's bonus and you'd be...Oh it was still all right, but it just meant the poor bloke on the remotes was - a lot of times it would be me, the dirt is half a mile out the stope...(and when asked if this compromised safety) you're still back behind the brow but it's just your -you've got to drive the bogger out so far that you know, visual contact to actually see the dirt, it's that far out and you get a few corners in the stope..."* Another experienced operator, jumbo operator, Michael Borill (pp21-22 ROI) also linked the bonus to this practice, to falls of ground in the hanging wall and also to the financial precariousness of the mine. *"Well suddenly if you've got two days to knock this section of stope out, and this did happen we actually said one month we missed out on the bonus because never fired it, even though we had plenty of time we never fired it because we emptied the stope first because the hanging wall was going to fall in, we knew it was going to fall, and Pat Ball actually said to us, "Well you don't get a bonus because that dirt has got to be on the ground." So the following month we had it all on the ground and the hanging wall fell in on all, and it was up at 790, and we - well actually Cresswell was the shift boss again in the last two days, and we all went in there knowing that it was going to fall in but it worth - there was no danger to us, you know what I mean, it's going to fall after we fire...And suddenly - but you've got all this high grade dirt with all this shit on top. So - but that's - it was nothing for him to sit, you know at toolbox meeting, this went on for months and months, and say, "You just missed out boys, that close but you just missed out." And I said to him- he cut - he started bringing up, oh we lost money last month, we lost money last month, and I said, "Well how can you lose money because we're in administration and administration has got to shut the joint if we have one bad month, yet we've had three?" and he's, "Oh no, no, we're allowed to make a special" - no, they're the rules that's the law, you know and he said, "Nuh nuh we've just missed out again." You know and this is what you've got to work with...Yeah, well there you go, us firing all that 790 in knowing that it was going to fall in. That makes - seeing as all that hanging wall fell in, when you take the next level it makes the next level hard."*

394. Shift supervisor Dale Burgess believed the bonus system was both divisive and a threat to safety, especially in the context where bonus payments were erratic and unpredictable but viewed as a crucial adjunct to mineworkers' income (pp30-31 and p32 ROI). *"I think both management and the workforce (iw) they got to that stage where they didn't trust each other and then (iw) underground and underground you (iw) disrupting*

because of it. And a lot of it was connected to the bonus system as well, there was a certain bonus system which I don't necessarily agree with bonus systems because I think you can actually compromise safety...I sort of summed it up that these guys were underpaid ten percent for the year and I think that the company kind of dangled the last ten percent of their salary out in front of them and just sort of give them a slap on the arse to try and, you know, get it up...(and asked if he saw any instances where the pressure to win bonuses affected behaviour in relation to ground support) Oh absolutely, I mean a lot of the times we had, like I say, actual rehab levels that weren't on the schedule, so a lot of the crews were just saying, "Well no, fuck them, I'm not going in there because, you know, that's not on the schedule, so we're going to go and mine where we're getting paid", where they was getting paid. I mean that happened all the time, that's not - that's not secret knowledge and the fellows are not going there." Mr Burgess appears to have been an especially diligent shift supervisor, regularly reporting safety and other issues to his superiors and while, highly regarded by his crew, acutely observant of their behaviour (reporting a go slow at one point as well as some organized pilfering of gold). Another shift supervisor, Stephen Homan, did not believe the bonus system compromised safety and it could not have played a part in the incident of 25 April 2006 because bonuses were not paid in the months prior to incident (pp12-13 ROI) *"No. I don't think the bonus system was dragging the safety down, no, I don't think so."*

395. Beyond its impact on work practices (including those related to safety), the bonus scheme had other effects, most notably as a source of division, dissent and poor morale at the Mine which in turn impacted on trust and communication. The issue of communication and consultation is critical to a consideration of OHS management at the Mine and is dealt with below. At this point it is worth examining the bonus system as a source of division here. There is evidence that the complexity and perceived arbitrariness of the scheme (at least in the eyes of some workers) adversely impacted on morale at the mine. Again, the latter view was not confined to union members or direct employees of the Mine (who were covered by the bonus scheme). Ricky Payne, a direct employee and long-hole driller (p11 ROI) stated he didn't agree with the bonus *"because it wasn't fair."* Experienced contract miners expressed a similar view. Gray Reginald Jacques believed the bonus scheme was too complicated and open to manipulation by management (p14 ROI) *"the bonus system here, I mean there were so many things come into play, I mean you could trigger the bonus off with the guys you know...in terms of metres and broken dirt, PCM's. But when it come to the actual time that - they'd say at the toolbox meeting, oh did we get a bonus this month, they'd say yeah, but oh you know we've had the 1600 bogger broke down and that's going to cost eight hundred thousand and this and that and bad luck boys, you missed out. Another we got was, "Oh sorry boys, you got twenty one thousand ton but there was three thousand ton of water," or something, and I said, "Well that's a friggin joke," it just passed over everybody's head but... well the bonus could be manipulated, put it that way, and it wasn't on the men's behalf it was - I've seen them get the bonus but they weren't paid the bonus because they had some bullshit reason and then one was, there was too much water coming out with the dirt. I mean, all dirt comes out with water on it, it's - it keeps the dust down."* Stephen Maxwell Burrows, truck driver and charge hand, stated the bonus had been a source of aggravation amongst mineworkers

(p14 ROI) *"there was a lot of argument about...the bonus system too, about where they were bullshitting us about metres and tons."*

396. Concerns about a lack of transparency and predictability in the bonus system were not confined to mineworkers. Shift supervisor Brett Cresswell said he didn't understand the system and it had been a source of grumbling amongst mineworkers in his crew (p13 ROI) *"Yeah, they were just a bit disillusioned some months while they thought they had a good month and didn't get a bonus compared to other months they did."* Senior mine supervisor Stephen Saltmarsh also referred to this although, like Stephen Homan, he believed the bonus had not adversely impacted on safety (pp13-14 ROI) *"No. I didn't agree with the bonus system but it didn't have no effect on safety at all. We were always on top of that from day one...(and asked why he didn't like the bonus system) Too confusing. The men didn't know whether they were going to get – one month they thought they'd done well and all of sudden no bonus. It puts their fear up the system. I really think there was only one fellow who knew how to do it...Pat Ball."* Training officer Paddy Hampton supported the bonus scheme and didn't think it impacted on safety but did have concerns about the way it was distributed (p14 ROI): *"I thought it worked pretty well. I didn't actually agree with how it was paid, you know. I thought the bonus system was going to be – it should have been equal, across the board, but that was how they got it set up and how the guys wanted it first up so ... Your truck driver got less money than what the jumbo operator got. It's something - in my personal opinion I didn't agree with it."*

397. Mine management was aware of at least some worker concerns about the bonus and especially concerns when targets were not reached. Asked if the bonus was a source of tension underground manager Pat Ball replied (pp22-23 of first ROI) *"Of course"*. Mr Ball went on to indicate that 'triggers' for the bonus were adjusted on occasion so mineworkers would reach their target. Asked about safety Mr Ball stated (p25 of first ROI) that it *"was always explicitly pointed out that if we ever saw any detrimental effect of the incentives system on safety we would can it immediately."* In 2002 the mine had considered introducing a demerit system in relation to the bonus for safety breaches. The Mine indicated that the demerit system was not implemented because of the negative focus it would generate and preferred to focus on a positive requirement that standards remain high, SWP audits and that repeated non-compliance may lead to a reconsideration of payments. Serious individual breaches of safety resulted in a loss of bonus payments for a month and these measures, taken together, were in the Mine's view sufficient to ensure compliance.

398. There is some evidence concern with the bonus system detracted attention from safety at toolbox and other meetings (see Table 1 for worker statements to this effect). Kerry Artis, leading hand in the haulage crew, was a member of the Zero Committee (discussed elsewhere in this report). He believed argument over the bonus contributed to the demise of the Zero Committee. Asked about whether the committee achieved anything he responded (p11 ROI) *"Yeah, it did for a while but then it sort of got more or less turned into people worrying about what the bonus was going to be – more money than safety more or less which was often the case with meetings here. It can be broken down, how much is the bonus, what most people were worried about."*

399. There is no evidence linking the bonus scheme at the mine to the incident that occurred on 25 April 2006. However, there is evidence the bonus scheme could compromise safety. Of the 11 mineworkers (employees and contractors) to comment on the relationship between the bonus system and safety ten indicated that the bonus could have a negative impact on safety (a number illustrating how this occurred) and only one mineworker rejected a link. Other mineworkers attested to the capacity of the bonus to encourage poor work practices even though these didn't endanger workers. Amongst shift supervisors, one believed there was a link between the bonus and safety while two rejected this connection. The latter view was endorsed by shift supervisor and Stephen Saltmarsh, training officer Paddy Hampton and underground manager Pat Ball. It is clear management was aware of the risk that the bonus would compromise safety and sought to combat this (at least in terms of work practices). Nonetheless, there is evidence that the bonus did, on occasion, alter work practices and some of these changes entailed corner-cutting in relation to safety. It seems reasonable to presume workers doing this did not seek to draw management's attention to it. Nor does it seem plausible that several workers would admit to engaging in dangerous practices to secure the bonus if this wasn't the case. Despite differences, the weight of opinion and cited examples indicates the system had the potential to compromise safety at the mine because, under some conditions, it encouraged workers to rush, cut corners/flout safe work procedures or attend work when ill.

400. In conclusion, there is evidence that the bonus scheme was a source of division amongst mineworkers, was disliked by a significant number of mineworkers (including those not subject to it), and had a negative effect on workforce morale. There is some evidence that, on occasion (such as towards the end of the monthly bonus period), the bonus system encouraged work practices that breached safe work procedures or in other ways compromised safety. While this evidence is limited (and entailed an element of self-incrimination) it is consistent with reviews into mining safety elsewhere in Australia. The use of bonus or other production-based financial incentive schemes has been a source of concern in the Australian mining industry for some time because of its potential to compromise safe working practices. In 1997 a Mine Safety Review undertaken in New South Wales (NSW) recommended an independent investigation be carried out into such schemes. After reviewing further evidence, this recommendation was repeated in a subsequent NSW Mine Safety Review (2005: 20) undertaken seven years later. In October 2006 the Mine Safety Advisory Council of the Department of Primary Industry issued a tender for commissioned research on incentive schemes and several other areas (such a fatigue) raised by the 2005 Mine Safety Review. At the time of finalizing this report it is understood that a consultant, Andrea Shaw and colleagues, is currently working on this project and that it will completed by October 2007.

401. While there is no evidence linking the bonus system to the incident of 25 April 2006 there is evidence that the bonus system had, on occasion, compromised safe working practices and undermined morale amongst the workforce. It is recommended that the use of bonus systems in the mining industry requires very careful consideration. It is also recommended that the WST should seek to be made aware of results from the research on

incentive systems commissioned by the NSW Mine Safety Advisory Council (MSAC) when this study is completed and, in the light of this, to consider whether these findings, in conjunction with the evidence presented in this report, warrant action in relation to the use of incentive systems. The use of bonus penalties in relation to absence is potentially dangerous and measures should be undertaken to remove this practice from Beaconsfield or other Tasmanian mines that use it.

The industrial relations climate and morale at the mine

402. As noted by both Heiler (2002a&b) and the NSW Mine Safety Review (Wran and McLelland, 2005), the industrial relations climate can have a direct bearing on OHS management at a workplace because it can influence the quality and character of management/worker communication and trust as well as the mechanisms available for resolving issues. Unions can play an important role in terms of transmitting worker views and concerns with regard to OHS and the systems for managing this by helping to coordinate and articulate individual complaints and presenting these to management in a more compelling fashion and one where the anonymity of individuals is maintained. As such, unions can constitute a further constructive source of independent review of OHS management. How effectively unions take on this role can be influenced by the resources and commitment particular unions dedicate to this task, the overall level of union membership in a particular workplace, the responsiveness of management to collective representation, the institutional/regulatory mechanisms available for dialogue and the history of past negotiations or disputation. It was suggested to the Investigation that unions may create an "us and them culture but the same point may apply to management's behaviour towards its workforce. Leaving this debate to one side, the evidence cited in this report shows there was an "us and them climate of mistrust at the Beaconsfield mine. It was by no means confined to mineworkers but included managers. Nor was it confined to union members. It included persons who could not be presumed to be sympathetic to unionism (such as contract workers and shift supervisors).

403. The industrial relations climate and morale were identified by a number of parties as adversely affecting OHS management at the mine. The AWU/Knight family submission stated that its informants pointed to a poor safety culture at the mine (workers taking short-cuts under pressure to get their job done were condoned and sometimes directed by shift bosses and workers less tolerant of seismicity were ridiculed); management had an "us and them attitude to workers and did not listen to the opinions of experienced miners; gold production took precedence over safety; and the security of workers who complained was threatened (pp13-14). A number of references are made to incidents at toolbox meetings where the underground manager, Pat Ball, was dismissive of particular worker concerns in relation to safety (p14). Workers who provided statements to the AWU but who were not interviewed by the Investigation (their statements were supplied with consent) made reference to a fraught industrial relations climate and poor morale at the mine. Repeated accusations of top-down communication, an unwillingness on the part of management to treat worker views and concerns seriously/with dignity (including the use of technical expertise to circumscribe if not de-legitimate worker input) and a sense of frustrated disempowerment can be found in notes

the Director of the AWU's OHS Unit, Dr Yossi Berger, made of a meeting attended by around 68 (according to Dr Berger's calculation) Beaconsfield mineworkers on 12 May 2006.

404. For its part, the Mine queried whether there was a morale problem at the mine and whether worker perceptions in this regard had been influenced by the events of Anzac Day 2006. It was recognised that a morale problem had occurred periodically, most notably when the mine had gone into administration in 2001. The Mine had undertaken a number of measures to gauge worker opinion and address morale problems, most notably through the SAFEmap surveys. Efforts to extend the mine's future in terms of accessing ore reserves in 2005/2006 were also seen to impact positively on morale. The Mine viewed the scratchy system, ABFA cards, toolbox meetings and barbecues as other means of enhancing morale. The effectiveness of several of these mechanisms, and hence their likely impact on morale, has been examined elsewhere in the report.

405. This section of the report will focus on worker and management views about morale in the mine. As elsewhere, the Investigation sought to test claims about morale and how this affected communication at the mine, particularly in relation to OHS. Some evidence in relation to the divisions and concerns aroused by the bonus scheme has already been presented in the last section of the report. Workers interviewed by the Investigation were asked to comment on morale at the mine and many gave detailed responses. A number of mineworkers interviewed, pointed to tensions and poor morale at the mine. While an "us and them attitude is by no means unique, several experienced mineworkers compared Beaconsfield unfavourably to other mines they had worked at. Michael John Borill, a jumbo operator, stated (pp 27-28 ROI) *"Western Mining, us and them, yeah, very much us and them...Western Mining has always had this attitude, us and them, and I've worked for contractors, I've worked for companies, and Western Mining is the only other place I've worked for where they've had this attitude... this piggy attitude...and this is what this joint has got, exactly, piggy attitude."*

406. Active unionists, employees who had taken voluntary redundancy or others who might have born a grudge against mine management were not only ones to express this view. Stephen Maxwell Burrows (not a union member), a truck driver and charge hand with no prior mine experience stated that while there was camaraderie amongst the men there was a significant gap between management and the men (p2 ROI). *"Like the blokes are great to work with its just this big fucking cat (sic) they've got between management and underground, you know, like there's a huge barrier there if you know what I mean...And once you're down there its like no one – half the time they don't get a stuff – they're not down there, they don't see what's going on so you're relying on the shift boss most of the time. I mean that's when your morale goes down ...when you get pissed off with management..."* Similarly, Gray Reginald Jacques, an experienced contract miner with Webb Mining stated (p20 ROI) *"Yeah, I think there was a little bit with the union boys, I think you know that I think they've been bullshitted to a fair bit (by)... management I'd say, in general, not one particular person."*

407. A shift supervisor, Dale Burgess, with considerable experience and clearly regarded as highly capable by management, also stated morale was a major issue and inferior to other mines where he had worked (p13 ROI). *"I think there was a breakdown in communication between management and miners; the miners hated management's guts and the management didn't overly like the miners. That was the one thing that, you know, I thought to myself was so destructive because, you know, even if issues were raised there was no bond and there was no information...there were arguments at toolbox meetings... Got to have something to do with personalities and some of the miners were paid more than others, you know, and I think some of the management weren't receptive too...it even got to the point where I've seen guys, they actually told me this, I know of crews, you know, they've had a toolbox meeting with management and because they felt they were being lied to they'd actually gone down and deliberately damaged gear, you know, or stripped down after the meeting. I mean it got to the point where, you know, by virtue of the fact that there's only ten miners left down there (since the Anzac Day incident) tells you that eighty percent weren't happy and as a shift boss you have to constantly try and manage this, you know, like...I've said to Pat, 'you've got a morale issue, you should try and fix it', he'd say 'I don't think we have.' Clearly we had a morale issue...before the April 25th event there were ten or fifteen guys looking for work that I knew because they basically got frustrated."*

408. At a later point in the interview Mr Burgess stated that morale had deteriorated in the last eight to nine months and he had started to look for alternate employment prior to the Anzac Day incident (p29 ROI). Consistent with this, records indicate that Mr Burgess emailed an application for a position of shift supervisor at another Tasmanian mine on 11 November 2005 and also inquired about the prospects of a job at a Northern Territory mine in January 2006. There is other documentary evidence of morale issues at the Mine prior to Anzac Day. As noted later in the report (paragraph 740), in February 2006 Senior Surveyor Simon Arthur emailed his predecessor (now based in Hobart) indicating that recent rockfalls at the Mine had impacted on morale, safety and production.

409. Stephen Saltmarsh, senior mine supervisor, asked if morale was good at the mine replied (p13 ROI) *"No, Decline not happy, was the major issue...Decline not going in."* Other staff at the mine did not share this view. Shift supervisor Brett Cresswell indicated (p12 ROI) *"Oh, it had its high points and it had its low points, it was a bit up and down, but generally pretty good though."* The OHS officer Rex Johnson stated (p17-18 ROI) *"As I said, in 2001 when we went into administration, morale was down because nobody knew what was going to happen next week and we've had a few downturns, like October last year and people do get despondent and down. A lot of it comes from home too; the wife asks questions. I'd like to think morale has improved since 2002 but we've certainly tried to encourage employee participation at all levels. A lot of guys still remember the old days and they keep bringing them up time after time and – dare I say it – get that behaviour change is hard on some guys. Some guys are very positive. The idea is – we've got the positive and to try and bring the other guys up with them and I find it's human nature. Sometimes they don't like being positive and I like to think of them – you know, there's a lot of guys who are prepared to do the right thing all the time. The challenge is*

to bring those guys up a level without bringing the other guys down so it's a fair challenge at times."

410. A number of management and related staff believed morale was good but for a small group of disaffected workers or was poisoned by this group. Asked to comment on morale, the underground manager Pat Ball stated (p18 of part 1 ROI). *"Better than some mines I've worked in, in fact probably the best mine I've worked morale wise, it was always a happy place to work, I've no idea why. I'm a bit of a philosopher in my free time, which I have very little of. The last mine I worked at, for example, was (indistinct word) a thousand tonne - two hundred thousand ounces a year at a hundred and fifty dollars an ounce and selling it at six hundred and fifty, it was a licence to print money but for the four and a half years I was there it was bloody miserable place to work, I never figured it out why. When I first got here, and I arrived four days after the administrator, I thought well this is going to be a miserable place, but it wasn't. They were a tight-knit group that pulled together when they needed to. One comment is they're probably heavily influenced by a couple of strong personalities in the workforce so if one of those individuals is on a bit of a downer the whole place tends to be on a bit of a downer."* Asked who these individuals were Mr Ball replied (p19 of part 1 ROI): *"Oh just frustrated leaders from the crews...The leaders of the pack were Robert Sears and Garth Bonney. Now Garth - I didn't know Garth before his brother was killed. His brother was killed at the Williamsford Mine about six years ago and apparently he was not bad before that, after that he got very bitter and twisted. But having said that, he was not - he was a bit up and down, some days he could be extremely positive, sometimes he could be very negative. I felt sorry for Garth because he felt he should represent his crew as the, if you like, the elder statesman, so a lot of the things that he came up with weren't his thoughts and words but he thought he had to bring them up anyway...(and asked if Bonney was elected to the Zero Committee) Yes. Yes, he was. Like I say, sometimes if you had a new system to introduce after I rolled it out or after I'd passed it past the shift bosses I made a bee-line straight to Garth because if Garth thought he wasn't going to support it I'd have to change it."*

411. Others to express similar views about a small group of disaffected workers included mining engineer Jamie Karamatic who thought morale was (p14 ROI) *"basically pretty good, there was always, it doesn't matter where you work there's always people that are (indistinct words)- there's always like, there's a small group that if you, it didn't matter what you did, they'd come up with something else – they'd come up with, whether it was safety issues or – address them to, well, (indistinct words) meeting on that to try and get more money so you get more money - (indistinct words) - But generally the, the general population of the underground work force and management had a pretty good relationship."* A similar view was expressed by OHS technician, Craig Large (p11 ROI) who stated that the "*majority of the work force, talking about morale, was good, there was a core of individuals that I saw that were consistently criticising and creating poor morale for the rest of the work force."*

412. The views of a disaffected and uncooperative minority did not accord with the experience of all staff. In addition to those already mentioned, the mine's production

geologist Adrian Penney was asked about the more experienced mineworkers who he had relied on for advice. Mr Penney replied (pp22-23 ROI). *"Yes, I'd say, every shift boss I would use as a practical mentor, virtually every jumbo operator. Maybe not some of the new trainee jumbo operators but the ones that had been on the levers for a number of years, I would take - I would take their word as gospel just about every time, unless I knew they were having a go at me, which is not like a jumbo operator to do... But yeah, there are a number of - even some of the other old time miners who may not be at the face but have subsequently taken different roles in the mines... People like Kerry Artis... He's been underground for more years than I've been alive, so his experience and knowledge is, to me, is invaluable. If I've ever got a question about how something is done he's one of the people I talk to... Paddy Hampton, the training officer. Steve Saltmarsh, the senior supervisor...Yeah, all the jumbo operators, Robbie Rigby, Garth Bonney, Heath Graauw, Daniel Piscioneri, Robbie Sears, just to name a few of the jumbo operators. Bogger operators like Dean Mackrell. Truck drivers, basically - any of the blokes down there that I knew have got experience, if there was a question that was in their area of expertise per se, then I'd have no hesitation in asking them if I thought they could give me the right information."*

413. It needs to be noted that Robert (Robbie) Sears and Garth Bonney were experienced miners, direct employees (rather than contractors) and active in efforts to establish a union presence and collective agreements in the workplace – a struggle that occurred over a number of years and generated some bitterness. The mine had originally been exclusively based around individual employment contracts (AWAs) but following a prolonged struggle a collective enterprise (bargaining agreement) was introduced. Even after this the option of individual contracts were retained so that the workforce essentially worked under two - three if labour hire and other contractors are included - different regulatory regimes marked by different employment conditions. Interviews indicated that, at the very least, there was residual bitterness amongst some managers and some workers or that the industrial relations struggle and ongoing differentiated employment conditions had coloured the views of these individuals. The relationship of unions to Beaconsfield and its relevance to OHS management at the mine and the incident of April 2006 are examined in another section of this report.

414. While some mineworker interviews described morale within their crew as good a number pointed to tensions, with a principle cause being seen as the different employment conditions (EBA, AWA or contractor status). The tension between contractors and direct employees has been discussed elsewhere and will not be repeated here. Stephen Maxwell Burrows, truck driver and charge hand, cited above (p14 ROI) stated *"that was a major issue...you got your pay but AWA you can walk up, do a negotiation, get a pay rise. And you're down there and working beside a bloke that's doing a lesser job than you and he's getting paid 60 bucks a day more...they think people aren't going to talk but we all talk... all this underhanded crap in doing all these sweet little deals it's got to stop".* In a similar vein, Darren Geard, a Jumbo offsider and AWU member, stated (p25 ROI) *"Yes, it was, yeah, like one bloke would be doing a harder job and then another bloke would be doing an easier job but he's getting more money."* Like a number of others, Mr Geard believed these tensions affected how the mine ran but did not inhibit communication amongst the

mineworkers with regard to safety. Others were less sure. Ricky Payne, a long hole driller, stated (p14 ROI) *"Well, I think, yeah probably to a degree...I don't think people...a lot of them didn't give two shits towards the end."*

415. Several interviewees made reference to a 'divide and rule' strategy by management. Brant Webb argued that a restructuring of the crews as well as localized bargaining had contributed to this (pp25-26 ROI) *"busted everybody up into our little - or in their little bits, and that's why we ended with the service crew, you know, and then there was a ore crew and you know a development crew... Okay, so Pat did was he divided and conquered so that you couldn't - you weren't getting multi-skilled anymore, so you were stuck in that job...Morale was a bit lower because there were so many factions fighting... the jumbo operators went in for a pay rise and apparently got it, you know, I've been told by the jumbo operators that they got it...but they left their offsiders out..."* Others didn't appear to share this view. Michael John Borill, a jumbo operator, who made the following statement about relationships between workers on EBAs, AWAs and contractors (p29 ROI) *"no one cared who was on what... contractors were treated exactly the same as... everyone else on the crew... we all went out to tea, all the blokes that were on that crew, the other day and we made the company pay for it... contractors too"* One explanation for this apparent difference of opinion is that the splits were confined to particular groups or were more readily perceived by some than others. As noted elsewhere in the report (in the section on the bonus system), several workers and staff members identified the distribution of bonus payments between jumbo operators and other workers as a concern. It is perhaps not surprising that this concern does not appear to have extended to jumbo operators.

416. Serious tensions amongst workers over different employment arrangements was also identified by some shift bosses and senior mine supervisor, Stephen Saltmarsh (p13 ROI) who stated *"Yeah, money's always an issue...Oh, a lot of friction there...One group of people were EBAs and one was AWAs and the AWAs kept a bit secret and when pay rise time would come one would find out that he's on less money that the other one and it'd all start again."* Stephen Homan stated that having crewmembers under different employment arrangements was a source of confusion for shift bosses and damaged workforce morale (p16 ROI). Another shift supervisor, Brett Cresswell, did not share this view with regard to his crew (p12 ROI).

417. The mine had used periodic Safemap surveys to identify and try to address some problems. Though these measures had some effect the results (discussed in more detail in the section of this report dealing with monitoring the mine safety management plan below) were at best mixed and, in a number of areas, still below the survey's industry benchmarks. Moreover, as the last survey was conducted in 2004 these survey's provide no insight into morale at the mine in 2005 or the first four months of 2006. Whether toolbox meetings, or other participatory measures, were seen as positive by workers is examined later in the report. All that needs to be noted here is that this assessment does not weaken or modify the broader conclusions drawn about morale at the Mine – if anything it reinforces these conclusions.

418. Overall, despite differences of opinion the weight of evidence indicates that there was a significant problem with morale at the mine, and mistrust between mine management and a considerable proportion of its workforce at the time of the incident (and well before this). There is probably nothing especially unique about this situation. The NSW Mine Safety Review (2005: 7-8) identified a "debilitating level of distrust between parties (management, workers and their representatives, and the mines inspectorate) at all levels, which it believed needed to be addressed to improve safety climate in the industry. The mistrust was also linked to a serious 'disconnect' between "the intentions of DPI (the NSW Mines inspectorate) and the companies, on the one hand, to reduce risk through systems and management plans and, on the other, the reality of risk encountered at the "coal face (NSW Mine Safety Review, 2005: 8). This disconnect also has parallels with Beaconsfield that will be examined below. At this point it is worth noting the plea of one experienced miner (Walter John Hvala, a contractor for Webb Mining) that their views receive some respect and credibility (p20 ROI) *"I think I'd like to see more a response to those that work in that environment. I know the longer basis that those that sit in the office, because we're the ones that see the changes more often, and to not be light-hearted at knowing that we don't bring up these issues just to put a thorn in their side. We bring up these issues so that they can conduct and achieve what the workers - what's best for them, their workmates that come on line, you know"*

419. The criticism that the views of experienced miners in particular were not considered let alone considered seriously was made repeatedly throughout the investigation. It was a recurring theme and evidence of it can be found in the statements cited throughout this report (ie not simply in this section) and in the summary of mineworker responses in Table 1. It needs to be stressed, once again, that those expressing this opinion were not confined to a 'few' disgruntled union activists but included a wide spectrum of experienced mineworkers, both direct employees of the mine (unionists and non-unionists) and those working for contractors, notably Webb mining.

420. It might be suggested that the absence of a strike at the mine was not indicative of poor morale. The mine had not experienced a strike in the eleven years of its operation though records indicate industrial action was threatened on at least one occasion (by Nigel Webb's crew in September 2001 see Table 3) and the mine pre-empted a stop-work meeting in November 2005. More importantly, the absence of strikes is not necessarily an indication that there are no morale problems in a workplace.

421. A poor industrial relations climate was and is not unique to the Beaconsfield Mine. Interviews with Kathryn Heiler and discussion with WST inspectors indicated that a poor industrial relations climate existed at some other, though by no means all, Tasmanian mines. However, as noted elsewhere in this report there is evidence from other sources pointing to significant communication problems and mistrust at the mine over a number of years. Despite some efforts by management, it does not appear that these problems were effectively addressed. The research of Heiler and WST records (both discussed later in this report) identified poor communication and mistrust between management and workers as a problem at the Beaconsfield mine about five years ago – observations in large part confirmed by SAFEmap surveys undertaken by the company itself. Poor

communication is also a problem that appears to be growing in other jurisdictions. The NSW Mine Safety Review found the hostility and mistrust associated with poor industrial relations was acting as an impediment to the promotion of mine safety in that state, including undermining the effectiveness of a critical tripartite advisory body - the Mine Safety Advisory Council (MSAC). The review made a number of recommendations aimed at revitalizing the MSAC. These recommendations appear to have already borne fruit in terms of the Council both initiating an independent review of hours/fatigue, the use of incentive systems and several other matters and engendering a cooperative response from the parties to this task.

422. In Queensland there are two mining safety and advisory councils, one to cover coal mining and the other to cover metalliferous mining. In Western Australia, where like Tasmania metalliferous mining far outweighs coal mining, a similar body called the Mining Industry Advisory Committee (MIAC) was established in 2005. Meeting about six times per year the MIAC is chaired by the Director General of the Department, with one senior mining inspectorate representative, two employer representatives, two employee/union representatives and two expert members. The Committee's functions include providing recommendations and advice to the Minister; preparing or recommending codes of practice, guidance material, standards and specifications; and providing on education and training matters in the mining industry (*MineSafe Western Australia* December 2006: 24). Establishing a similar body covering both metalliferous and coal mining in Tasmania would have merit in terms of encouraging a more collaborative engagement between employers and worker representatives to promote improved OHS in the industry.

Management Structure and Communication

423. The issue of morale at the mine cannot be neatly disentangled from another issue namely, management structure and communication. Asked to describe how management transmitted communications with its workforce OHS technician Craig Large (p13 ROI) stated: *"Yeah, I mean again, Pat and Salty regularly or pretty much attended all safety (toolbox) meetings that were possible and then back through the shift bosses so both direct input from Pat, Saltmarsh and also through the shift bosses. And then, you know, intermittently there was state of the nation style addresses from Matt..., so yeah, I thought generally speaking the flow of information was quite good."* The effectiveness of toolbox meetings as a form communication and workforce feedback is examined, along with a number of other mechanisms, in some detail in a later section of the report dealing with workforce participation in OHS and feedback loops.

424. As noted earlier in this report (see section on management structure), the underground manager, Pat Ball, occupied a pivotal position in terms of the Mine's structure and communication flows. Given this workers were asked to express their views in relation to their dealings with a number of managers, including Mr Ball. Amongst those workers expressing a view about Mr Ball, opinion was almost evenly divided between those who expressed a positive view about his approachability and willingness to deal with issues relating to safety and those who expressed a more negative view.

425. On the positive side, a number of mineworkers found Mr Ball approachable and someone who dealt with the issues brought to his attention, such as Brian Bates (a truck driver engaged via Webb Mining, p11 ROI) and Walter Hvala (a member of the decline crew also engaged through Webb Mining, p14 ROI). David Taylor, a direct employee of the Mine engaged in the service crew stated (p16 ROI) *"Pat Ball is alright. He is fairly upfront most of the time. I think he likes to keep the crews niggling at one another so he can keep his control. If we're bickering amongst ourselves we're not having a shot at him... just a normal management ploy."*

426. Some link was made between Mr Ball's demeanor and responsiveness and his workload. Theo Visser, a truck driver who had only been at the Mine around a year, believed he could approach Stephen Saltmarsh, the senior mine supervisor, or Mr Ball (p15 ROI) *"Sometimes he (Mr Ball) can come across like that (hard), I guess he's got a lot on his mind"*. Asked to describe Mr Ball's workload, Stephen Saltmarsh stated (p23 ROI) *"Too much... Way too much. (iw) We lack the engineering support."* The workload issue, and the absence of a mine foreman, was also viewed as affecting Mr Ball's contactability by one shift boss, Dale Burgess (pp3-4 ROI) *"He's hard to contact a lot of the time, it's hard to build a rapport with him but I mean technically he's bound to his job and there's nothing wrong with that, but I - you couldn't just go to a phone and (iw) to him, you just kind of - you know... (and asked if effect this meant he was reporting to Stephen Saltmarsh, the senior mine supervisor) Well we were, but like a lot of the times they threw young Jamie Karamatic (mining engineer) into the job, who was the young engineer, so a lot of the times you'd report to Jamie, they gave him a run in the job, you know, so it was kind of Jamie or it was Salty or it was both of them or it was, you know... it wasn't a classic mining structure to me. I think the key point to this mine (iw) mine foreman (iw) to take ownership of that job and to coordinate the crews and everything... When I first come here... I said to Pat, "You haven't got a mine foreman in the true sense of the word", and he goes, "No, we don't sort of (iw) that one", and I said, "Oh well", I thought that might have been (iw) relationship with Pat, but Pat was so busy over the last couple of years with both industrial stuff and all this other stuff that, yeah, it was - you'd go (iw) whole block and you wouldn't even see anyone if you were starting nightshift."* When asked about this, resident manager Mathew Gill (pp28-29 of part 2 of ROI) didn't believe the presence of a mine foreman or superintendent would have been beneficial in terms of communication because it would have simply added another layer of management. As noted in the introductory discussion of management structure at the mine earlier in this report the flatter structure flowed from a recommendation of Alan King in 2001 that this would improve communication.

427. On the negative side, mineworkers critical of Mr Ball indicated he lacked people skills, found it difficult to accept criticism and wasn't responsive to a number of serious concerns raised by miners, such as the removal of crown pillars (see for example the comments of Peter Brennan cited in Table 1. Mr Ball's response to concerns about the removal of crown pillars is explored later in the report as is other avenues for worker complaints, notably unions and WST). A number of mineworkers expressed concern at comments made by the underground manager, which some took as ill-considered tongue

in cheek comments while others interpreted them literally and found highly disturbing. Dennis Newson, a Jumbo operator, stated (p11 ROI) *"Something was brought up in a toolbox meeting once...and his comment was 'we can do whatever we want here unless somebody dies'...I just... walked out, you shouldn't have management saying things like that...not professional managers anyway."* Closely related versions of this statement were repeated to the Investigation on a number of occasions in the course of interviews with mineworkers. When asked about this alleged statement Mr Ball said he believed mineworkers had misunderstood his attempt to explain performance based OHS legislation (p28 of Part 2 of ROI) *"Trying to explain the change to duty of care legislation. Remember, we went from a mining (iw) to mining management and I've often summarised it to people – probably to the workforce to say, this is – most of it is padding, most of it is bull shit, it all distils down to one sentence. Do whatever you like, hurt somebody, you're in trouble. Can anybody else come up with a better definition...It's always bugged me why management, mine managers, mine owners, have always opposed prescriptive legislation. I would much prefer prescriptive legislation, you knew where you were. You knew that if you followed these rules."*

428. Some shift bosses expressed views essentially identical to the more negative opinion amongst mineworkers. Asked if he found Mr Ball receptive to issues that he raised Stephen Homan stated (p12 ROI) *"No. He's very opinionated. His opinion and that's it."* Asked if Mr Ball took notice of miners in relation to matters that pertained to the safety of mining methods underground Mr Homan responded *"I've never seen it so I'd say, no."*

429. Another substantial group of mineworkers held views about Mr Ball that can only be described as very mixed. Kerry Artis, leading hand in the haulage crew (who joined the AWU after the incident) stated he found Pat Ball approachable but not very receptive to contrary arguments or issues he couldn't see the sense of (p10 ROI) *"Oh, yes, and he can be a bit arrogant. You can't win an argument with him. I just had pretty severe words with him this week. I actually resigned on Monday and he said, 'I told you if you had any gripes comes and see me'. I said, 'No, you didn't'. He said, 'Yes, I did. I told you at 700'. 'No you never, I've been driving the winder for three weeks'. You can sort of get him in the corner but you won't beat him."* Gary Round, a service person engaged via Webb Mining also expressed an ambivalent view (p15 ROI) *"Sometimes he didn't want to talk that much about it but most times he - yeah, he was in a position he had to listen and when they're being brought up they've got to do something about them and things, just depends on what sort of issue it was, really...Oh, sometimes he'd just change the subject pretty quick...Pat, oh yeah, I got on all right with him, a bit hard to deal with at times."*

430. The view that Mr Ball was more responsive to some issues than others undoubtedly helps to explain the divergence of opinion as well as the ambivalent responses of some respondents. Another explanation, not necessarily inconsistent with the last one, was that one group of mineworkers had a particularly tense relationship with Mr Ball, namely those active in the AWU who were also experienced miners and amongst those most likely to challenge management with regard to mining methods (examined in detail elsewhere in this report). Some interviewees directly alluded to this. Jason King, a service

crew member engaged through Webb Mining expressed the view (pp11-12 ROI) that some of the men had a love/hate relationship with Mr Ball, most notably the 'chief union representative' Garth Bonney leading to clashes over issues, some of which Mr King saw as justified and some of which he saw as petty. It is worth noting that this viewpoint encapsulates both the points just made in relation to explaining the strong and divergent views expressed about Mr Ball. Mr King added that he had found Mr Ball hard to talk to.

431. By way of contrast, mineworkers expressed generally positive attitudes with regard to Rex Johnson the OHS officer at the Mine in terms of his role and receptiveness to approaches from workers (see Table 1). There were several exceptions, most notably jumbo operator, Michael Borill (see Table 1 and pp24-25 ROI). Leaving this criticism aside probing by the Investigation made it clear that, in general, underground mineworkers had limited contact with Rex Johnson and thus there were few opportunities for them to raise OHS concerns with him. For example, Gary Round a contract mineworker (for Webb Mining) engaged in the service crew and who had worked at the mine for over seven years stated he found Mr Johnson very approachable but hadn't had much contact with him (p17 ROI). Similarly, Michael Day, truck driver and charge hand who had worked at the mine for two and half years stated he saw Rex Johnson only occasionally, less than once a month (p20 ROI). Mr Johnson's office was located adjacent to the stairway to the change room so that mineworkers had to walk past his door twice a shift. During interviews very few workers indicated that they availed themselves of this opportunity and as the statements of Mr Round and Day illustrate, although aware of Mr Johnson and his role at the mine, had limited direct contact with him.

432. As already noted, Mr Johnson was not a regular attendee at toolbox meetings that formed the major venue for raising safety issues and grievances underground. Asked about his attendance at toolbox meetings Mr Johnson stated (p10 ROI) *"Um, I'm normally there as a spectator because I'm not there that often. The supervisor runs the meeting. When I go I don't like to be seen as trying to grandstand or take over the meeting. I just sit back as a participant. If anyone's got any specific questions of me I'm there to answer or if I've got something – say, I've been doing a tour of the mine and I've got something specific that I've seen, I can bring it up as an issue which can be put into the toolbox meetings. It has to be then follow-ed up."* Asked about concerns expressed by some workers that some issues didn't progress past the toolbox meeting Mr Johnson replied (p23 ROI) that the "*supervisors, or part of the toolbox meeting is that they're meant to give feedback to the guys on what has been finalised. Now, I can't guarantee that it's done a hundred per cent of the time. It may be skipped or not transferred properly across. One thing I find, if guys aren't happy with an outcome they normally come to me because I've got a habit of forgetting who came to me but I'll bring up the issue and it keeps them – privacy for them so nobody says, oh, you brought that up, and I can take it future and I'll get back to the person. So, that's on a one on one basis and that's happened occasionally. Someone will have – sometimes a pet hate that everybody else doesn't see as a problem and I'll try and see if it is a problem."* While accepting this, it seems unlikely on the evidence available to this Investigation, that Mr Johnson was seen as an alternative reference point if a matter related to ground support or mining methods was dismissed by the underground manager. As noted in the introductory section on

management structure, while Mr Johnson reported directly to Mathew Gill he was not viewed by mineworkers as having the same authority as Mr Ball and his role was seen largely as safety awareness raising. As this section has noted, Mr Johnson was not a regular attendee at toolbox meetings and, it seems from most workers' perspective had a limited presence underground.

433. An experienced contract miner, Gray Jacques expressed equally positive views about both Pat Ball and Rex Johnson's commitment to OHS (p17 ROI) *"I think Rex took an active role, I think he was - you know that was his whole thing, he threw himself into his job. I can't fault Rex really, I mean he could be a little bit overboard to some things, but I mean you know I couldn't fault Rex, and I can't really fault Pat either."*

434. For his part, shift boss Stephen Homan stated that he would be "lucky to speak to Rex Johnson twice a year and could not remember the last time he had seen him at a toolbox meeting – something he regarded on the basis of his previous experience as unusual for the OHS officer of a mine (p17 ROI). Mr Homan stated that he had more contact with Adrian Penney, and with regard to ground support issues preferred to contact him directly rather than going through the underground manager, Pat Ball (p17 ROI) *"Like, if I had an issue with Adrian or I was a bit - I'd ring him up and I would go directly through to him and I would bypass Pat because the assumption that I was under is that Adrian was the up and coming bloke in charge of all the ground support and that and if I had any issues with intersection, cable bolts or whatever, I always used to go through Adrian and it would just get done."*

435. The activities of the Underground Training Officers, Paddy Hampton and Charlie Williams, were generally seen in positive terms by mineworkers. But like, Stephen Saltmarsh, they were direct subordinates of Mr Ball and as such did not represent an alternative venue for airing grievances. It seems clear that mineworkers communicated concerns to their immediate supervisors, namely their shift supervisor, who they generally seem to have held in high regard (see Table 1), but in the hierarchy of the mine this didn't represent an alternative to Mr Ball. As noted earlier in the report (see section on pillar removal), all four shift supervisors told the Investigation that were aware of mineworker concerns about pillar removal and the safety of mining methods prior to the Anzac Day incident. Further, Stephen Homan and a number of mineworkers indicated that this matter had been raised by another shift supervisor Gavan Cheesman with his superior, Mr Ball.

436. Following on from the issue of Mr Ball's workload already alluded to, one shift supervisor, Dale Burgess, argued the absence of a mine foreman affected the coordination of operational activities, including safety at the mine (p4 ROI) *"Oh absolutely, absolutely. Not necessarily at handover, because as shift bosses we can talk closely together, we still do, but there was no - quite often you felt that the four crews were working in different directions. So you could be focusing on something you think yourself was important to the schedule or important for operational safety and then all of a sudden there'd be, because of the nature of the roster, another crew would be on and that crew virtually (iw), they don't follow behind so it was just a mess at times... You were either on your first dayshift, your last dayshift, your first nightshift or your last nightshift just by the nature of*

the roster, so it was stop, start, stop, start all the time, yeah. You need somebody in a mine, especially a small mine, to knit it all together and actually, you know, when you come on for a shift someone should be there saying, "This is our plan, this is our focus, you need to concentrate on this over the next four days", where in this mine you just sort of came in and thought, "Well look, I'll do that."

437. For his part, another shift supervisor Stephen Homan described communication channels at the mine as limited and individualized both in terms of relations between each shift boss and Pat Ball and within each crew. He believed limited communication impacted on workforce morale at the mine and made his role in relation to safety more difficult to achieve (p13 ROI) *"like I spoke to you earlier, this is the third place I've been a supervisor and this was the hardest to get communication or change on safety issues. It was the hardest of the three."* Mr Homan went on to state (p14 ROI) *"Yeah. The safety meetings here was a lot different to anywhere else I've been...Other places I've worked, if it was a big issue, everyone knew about it. Whereas here if it is a big issue, it's only that crew that's on that knows about it. It was never ever passed on...I've never ever had a meeting with another crew."* According to the Mine, Stephen Saltmarsh and Jamie Karamatic attended shift handovers to provide continuity but this does not address Mr Homan's concerns about the lack of interaction between crews over safety issues – a matter that is addressed in more detail in the section of this report dealing with worker involvement. Further, Mr Homan's view was supported by another shift supervisor Dale Burgess (interviewed 8 August 2007 and WST file note created). Mr Burgess stated that the way Mr Ball had his structure was wrong as it didn't allow for a formal handover with the mineworkers between shifts. This didn't allow a forum to discuss matters. Mr Burgess stated that he had raised this issue with Mr Ball around August 2005. Mr Burgess stated that Mr Ball asked Mr Burgess to put this request in writing, which he did, but received no response. In April Mr Burgess again raised the issue. Mine records indicate that on 1 April 2006 he emailed Mr Ball and Steven Saltmarsh a two page memo identifying problems with the handover process and making a number of suggestions (including an electronic whiteboard). Again, Mr Burgess indicated he had received no response to this.

438. In the course of interviews mineworkers did not indicate they had much contact with the resident mine manager, Mathew Gill apart from attending his 'state of the nation' addresses (which Mr Gill indicated always dealt with safety, production and costs, p24 of 3rd ROI) and Mr Gill's occasional attendance at a toolbox meeting. The Mine has indicated that between 2001 he gave 87 site wide crew talks (the last on the morning of Anzac Day 2006), had attended 13 mine toolbox meetings (the most recent prior to Anzac Day 2006 was 21 March 2006) as well as many crew rep meetings and had been underground on a further 21 occasions between 2004 and 2006 (the last prior to Anzac Day being 29 March 2006). Without in any way questioning this, few mineworkers indicated they had had direct contact with Mr Gill or had raised a safety issue with him. Those few workers to make comment on Mr Gill made generally positive observations about his commitment and broader decisions he had made. One worker to express a view about Mr Gill was Jerry Kahmann, a jumbo offsider, who stated (p14 ROI) *"Mathew Gill took safety very seriously, I mean he proved it by shutting down the stopes. I mean that wouldn't have been an easy decision. That was his decision alone. I think there was*

pressure on him from up above him not to do it, from the banks & things, but he put his neck on the line and, yeah."

439. As noted in the earlier discussion of pillar removal Mr Gill stated he was unaware of mineworker concerns about pillar removal prior to the Anzac Day incident. Asked about mineworker feedback Mr Gill stated (p26 3rd ROI) *"in fact one of the primary desires of my state of the nation talks is to hear feedback. One reason I sit in on tool box meetings is to present myself ready, willing and able to answer questions. What I often find frustrating is that I don't get any and still to this day, we have weekly barbecues and I'll give a bit of an update of where we're going and I try and solicit, please talk to me, either in the group or individually about that concern or comments and I rarely get any. So, it is a two way thing absolutely. Unfortunately, often there's a deathly silence from the guys, either from my talks or when I sit in on toolbox meetings. I often ask the supervisor afterwards, 'Was my presence affecting the dynamics of the group' or, 'Are they always that quiet'. And often, it's my presence – the comment is, they're normally quite noisy and I am wanting to hear that and my presence – and nothing happens and is a source of frustration because you actually do want that feedback."*

440. The evidence in this section reinforces the pivotal role occupied the underground manager Mr Ball. Overall, it appears that while contract mineworkers were more likely to hold positive views about Mr Ball's willingness to consider their views than direct employees, a significant number of both contract mineworkers and direct employees held ambivalent views. Further, there is evidence of particular tensions between Mr Ball and a number of the direct employees who were active in the AWU. Personality clashes and tensions between management and members of its workforce are hardly uncommon let alone unique. However, these tensions assume some importance at Beaconsfield in relation to the incident of 25 April 2006 and OHS at the mine more generally because evidence suggests they interfered with a critical communication flow relating to mineworker concerns about mining methods and the management of safety at the mine. It needs to be stressed that there was by no means a prevailing view at the Mine that Mr Ball lacked an interest in safety or was unwilling to listen to any concerns mineworkers had in this regard. Rather, some mineworkers believed he was not responsive to particular issues they raised. This belief was shared by at least some shift bosses. This report draws no conclusion in relation to the flatter managerial structure at the mine (ie the abolition of mine foreman) except to observe that, in the light of the available evidence and contrary to management's avowed aim in introducing the measure, it appears to have had no benefit in terms of improving communication at the mine (at least with regard to safety).

Monitoring and auditing the Mine Safety Management Plan

441. Monitoring refers to internal processes that management puts in place to evaluate the implementation of OHS management systems on an ongoing basis. Auditing can be understood as an external process whereby the effectiveness of the management system is independently reviewed periodically. Thus monitoring and auditing are distinct processes although the terms are frequently confused. Both processes are essential to ensure that the system is operating as designed and that procedures are actually being implemented (ie

avoiding common problems like 'paper compliance' where documented procedures do not reflect actual practices or there is a significant level of non-compliance). The need for effective system auditing has been identified by recent investigations into disastrous incidents in high hazard workplaces such as the explosion at the BP's Texas City refinery in the USA in 2005 where the Report of the BP US Refineries Independent Safety Review Panel (Baker, 2007: xvii) recommended that *"BP should establish and implement an effective system to audit process safety performance at its US refineries."* Hopkins (1999: 70-29 and 2000: 80) has observed that inquiries into a number of occupational disasters, including the Piper Alpha Offshore Oil Platform explosion in the North Sea in 1988, the 1994 Moura Mine disaster in Queensland and the explosion at Esso's Longford plant in Victoria (see also Dawson and Brooks, 1999), have found defective auditing of management systems that failed to identify critical problems – but problems that were readily uncovered by an investigation following the incident. Reasons for these deficiencies include an unwillingness to pass on bad news, a failure to seek the views of or listen to key personal, to anticipate the consequences of organisational restructuring/work reorganisation, to maintain the currency of high hazard scenarios, or auditing practices that target routine tasks but fail to interrogate areas or practices with the potential to have catastrophic consequences.

442. Step 14 of the mine safety management plan referred to auditing (including audit program, work area safety audits and external audits including statutory compliance, insurance and catastrophic risk). There were a number of mechanisms for both managers and mineworkers to report issues and problems relating to OHS, a number of which have already been examined (several others relating to worker input are dealt with below). Further, as noted above there was a monthly monitoring process (referred to as auditing by the Underground Manager but not auditing in the strict sense as it was not independent of management) of fixed plant and SWPs were also subject to a review process.

443. While not in the strictest sense monitoring of the safety management plan the company also utilized employee perception surveys to assess OHS management. These workforce surveys were undertaken in conjunction with SAFEmap, a consulting firm engaged by BMJV in an effort to improve its safety performance and to reverse the deterioration in the lost time injury record at the mine that had coincided with the ramping up of production and, shortly following this, the placing of the mine under Administration in mid 2001. The site used SAFEmap's e-Profile Safety Climate Survey methodology, which enabled industry benchmark comparisons based on SAFEmap's database of 6000 employee responses derived from surveys it had undertaken for the Minerals Council of Australia (Gill, 2005).

444. In 2000, 2002 and 2004 employee (including management) perception surveys were undertaken (with a further survey planned for 2006 but, according to Resident Mine Manager Mathew Gill, disrupted by the incident of 25 April). As noted earlier, these surveys were a part of a proactive attempt to improve OHS management at the Mine. As these surveys provide an insight into the evolving state of OHS management at the mine, and mine workers' perceptions of this, the results are worth brief consideration. The surveys were undertaken by an independent organization and separate surveys were

undertaken amongst mill and underground workers as well as supervisors. For the purpose of this report attention will focus on underground workers though some comparative reference will be made to the other groups surveyed.

445. The 2000 survey, undertaken when the mine was in a state flux (due to uncertainty about the future of the operation), found that 98.5% of underground workers reported at least some hazards, 98.6% understood the Duty of Care, 81.2% said their training was adequate, 95.1% were aware of regular tool box or safety meetings, and 88.5% spoke to individuals they observed engaging in risk-taking behaviour. On the other hand, 27.7% said they took risks or behaved unsafely to achieve other objectives (including production targets or because of staff or equipment shortages. Asked to nominate reasons for not doing their job safely by question 14 these factors were repeated along some others such as not enough planning on jobs, pressure from staff, rock falls and ground conditions), 72.6% reported observing risk taking behaviour by other employees, 35.4% believed taking risks, shortcuts or behaving unsafely was acceptable to management (26.4% said their supervisors ignored risk-taking behaviour and only 43.8% reported that their supervisor actively and consistently discouraged unsafe behaviour) and 35.1% reported being discouraged from being a safety issue to the attention of management. By way of comparison a similar survey of mill employees revealed that 20% reported engaging in risk taking behaviour while 60% said they had observed risk taking by other employees. WST inspectors had been informed of risk taking practices at the mine when they attended a series of toolbox meetings at the Mine in November 2000 (examined in more detail in the section on worker involvement) and the SAFEmap results would seem to confirm this, notwithstanding comments to the contrary in a memo from the Mill Superintendent, Richard Holder dated 4 January 2001.

446. Only 38.8% of underground workers surveyed reported that issues raised with supervisors/foremen were adequately dealt with and 36.2% reported that hazards were eliminated promptly at their workplace (a further 7.3% said this occurred sometimes). Almost 90% (89.2%) described morale at the mine as low, with reasons for this including the lack of safety consideration of the mine foreman, management attitudes and the level and quality of communication between employees and management.

447. A subsequent survey undertaken in December 2002 found that, apart from mine-surface workers and to a lesser extent mine contractors, there was a net negative response by workers at the mine and mill with regard to whether the safety program was well-managed at the mine. Further, there was a perception amongst operators and contractors that management was not genuinely serious about safety and most operators and supervisors disagreed with the statement "We have good safety standards in this company. Almost without exception employee responses fell well below the industry benchmarks derived from SAFEmap's employee survey database (see above). Analysing the results the management team at Beaconsfield concluded (Gill, 2005) that the workforce didn't take safety seriously and took risks because they believed management didn't take safety seriously and they were not consulted, safety training was not highly rated and the workforce didn't receive recognition for working safely.

448. Following a number of initiatives to address these issues (described above) a further survey was undertaken in April 2004. Overall, the summary results of this survey indicated a significant improvement in perceptions of safety at the mine, with supervisor and management responses now exceeding industry benchmarks (except amongst mill supervisors). In general, the improvement amongst contractors and operators (ie employees) was less marked and still well below industry benchmarks. In relation to the statement "this company is very serious about safety there was still a net negative response amongst workers apart from mine contractors (and mill contractors' perceptions had actually slipped backwards from 2002). Workers gave a net positive response in relation to management being "genuinely serious about safety but statements about trusting management and management always putting safety first yielded net negative responses from mine and mill workers (and again, all significantly below benchmark data). The statements "this company is interested in employee' views on safety and "management listens to our views on safety yielded a modest net positive response from mine contractors and mine employees (still below industry benchmarks with the exception of mine operators response to the second statement which exceeded the industry benchmark). There was a similar pattern of responses to the statements "the safety committee does a good job on safety and "we get enough information from management on safety matters. The statement "people are mostly happy with management's decisions on safety yielded a modest net positive response from mine contractors and a modest net negative response from mine employees though these responses were reversed when it came to the quality of training provided. Both mine contractors and employees gave a modest net positive response to statements "the safety program is well managed in this company and "we have good safety standards in this company . With regard to the first of these statements responses were close to the industry benchmark (and slightly exceeded it in the case of mine employees) but significantly below it in relation to the second. In sum, the 2004 survey revealed a marked improvement in perceptions but this improvement was far less pronounced amongst mineworkers than management. Worker responses can still be best described as 'mixed' and in many areas still well below the average for other mines in terms of the benchmark data.

449. In comparing these responses to the statements of mineworkers made to this Investigation it should be reiterated that the latest SAFEmap survey was undertaken in April 2004 at a time when seismicity issues were only beginning to assume some importance and well before the major incidents in 2005. As such, these surveys provide no basis for questioning worker responses to the Investigation about their concerns about safety prior to the Anzac Day event. If anything, the surveys indicate that, despite some improvements, mineworker perceptions at the Beaconsfield mine remained mixed and often below the survey's industry benchmark.

450. While survey activities were certainly valuable in monitoring elements of OHS management at the mine, there appears to have been no comprehensive, formal or regular monitoring of the OHS management system as an entity or as a whole. Asked about how the mine safety management plan was monitored in terms of effectiveness and identifying potential improvements the Resident Mine Manager, Mathew Gill (p9 of part 1 of ROI) stated *"Again, it depends on the particular matter. I mean, the overall purpose is to*

achieve the objective of zero harm or reduction of incidents and accidents. So, from a lag indicator point of view, we obviously track injuries, lost time, frequency rate, medical treatment frequency rate as a lag indicator. We also do, again, lag indicators like labour turnover or workers' compensation claims to get some sense, of, are we heading in the right direction in terms of the focuses that we are applying in our safety management. So that's one component but we don't rely on lag indicators as success or otherwise because it could be just good luck rather than good management. So the proactive side of implementing a safety management plan, as I say, will depend on the component that might be required or that is being progressed and I guess I come back to those two examples again whether it is fatigue management or the at risk in terms – so we break it down into looking at how effectively we are implementing that component of the safety management plan rather how effectively we're doing overall. We break it down to the components and analyse and make we're moving each of those because if we're moving each of those component then we are moving the safety management plan forward.

451. To its credit, the approach described by Mr Gill was multifaceted and included lag indicators as well as proactive measures with regard to particular components. Mr Gill expresses the belief that in moving the components forward the whole plan will move with it. This may be only partly true because it is necessary to consider the OHSMS system as a whole (and not only in terms of lag indicators) in order to gauge whether there are serious gaps or areas for improvement; and whether, for example, performance indicators, including information on near misses or potentially catstrophic incidents, are being used to best effect (or require modification). In short the system needs to assessed as whole. There is no doubt the Mine made serious attempts to improve elements of the safety management plan over time. Further, to my knowledge searching self-examination of OHS management systems is by no means common practice in mining or other industries – and this may help explain their failure on occasion. On the other hand, as noted in the following paragraph the mine didn't always adopt the recommendations of external assessments of its system (or all the recommended improvements identified in 2002 WST's desktop audit). Further, if lessons are to be drawn from the Anzac Day incident it is important to try to identify whether there were elements in the OHS management system whose improvement might have prevented the incident or make similar incidents less likely in the future.

452. Turning to the issue of auditing, it can be noted that the Mine was subject to a number of regular external audit processes, notably a number of insurance audits and a catastrophic risk assessment exercise in 2004. Further, in 1999 a DNV ISRS Safety Management System Audit was undertaken at the Mine and two years later (2001) a Safety Management/Risk Controls Audit was undertaken by ADINA (according to the mine another audit was planned for 2006). While these audits could and did consider aspects of safety management at the mine they could not be regarded as a comprehensive and informed assessment of OHS management systems. In 2002 Workplace Standards Tasmania carried out a detailed desktop audit. This formed the genesis of an integrated OHS management system document (the mine safety management plan) introduced at the Beaconsfield Mine. As government inspectors undertook the 2002 audit, it is discussed elsewhere in this report. In December 2005 the mine engaged Patrick Davis a safety and

risk consultant from CGU Workers Compensation to undertake an assessment of its OHS management system using CGU's risk radar assessment. The assessment was based on a site visit, discussions with OHS officer Rex Johnson and an examination of documentation. The review makes no direct reference to the management of safety underground or seismicity and Mr Davis pointed out in his letter accompanying a copy of the report dated 11 January 2006 "this is not a detailed audit but an overview of OHS management systems.

453. The CGU review generally rated aspects of the system as 'good' (on a four point scale where skills training was rated a 3 or very good) but identified six areas for recommended improvement (OHS Committee, dangerous goods, PPE, workplace violence, stress management and measurement of safety performance). In terms of this investigation the first and last of these are of some relevance. With regard to the last recommendation, the CGU assessment recommended that the mine adopt a wider array of key performance indicators (KPIs), including positive process indicators, such as number of corrective actions completed and training course undertaken by staff. This recommendation is consistent with an observation made earlier in this report about management's over-reliance on injury rates as a KPI. The first recommendation on OHS committees stated (p10 of the report) *"Even though a safety committee is only required by law if requested by numbers of the workforce etc, under most safety management systems, (eg SafetyMap, 4804 [the former a reference to a Victorian WorkCover document and the latter a reference to the Australian Standard on OHSM systems]) a safety committee should be set up and be developed to be seen as an effective mechanism for achieving occupational health and safety objectives. It should meet regularly and follow a documented agenda."* This recommendation was not adopted. Indeed, one month prior to Mr Davis' visit in December 2005 a short-lived OHS committee on site called the Zero Committee had ceased to exist (the operations and fate of this committee are examined in the section of the report dealing with worker involvement). The CGU review was not, nor did it claim to be, a thorough audit of the mine's operations. What is also noteworthy is that the Mine management failed to adopt a number of the key recommendations in relation to performance indicators and worker involvement.

454. As far as can be determined, the mine safety management plan was not subjected to a focused and independent audit undertaken by persons with specific expertise on OHS management and entailing detailed discussions with managers and workers, perusal of documentary records as well as observation of operations over a period of time (as distinct from an annual insurance audit that might examine catastrophic risks from an insurance perspective). Asked whether the safety management plan was independently audited the resident mine manager Mathew Gill (p9 of part 1 of ROI) replied *"That I don't know. I don't believe so. The genesis of that safety management plan came out of a Workplace Standards audit where about four inspectors from Workplace Standards came to the site, I think at the end of 2002 or 2003, and there comment was that it was needed – we were doing a lot of good activities but it needed an overarching document to pool all that together and they – and I know that Workplace Standards did give us some assistance in what that might look like but in terms of an outside body, then peer reviewing or assessing that, I don't recall.* On 25 July 2005 in an email to managers Mr Gill identified a number

of items for senior management safety meeting to be held three days later, review of the mine's OHS policy and "safety management plan audit - use DNV/ISRS? Other? The items were listed at the end under a heading of others *"but for which we will probably run out of time for initially."* It is not clear whether the matters were actually discussed at this or a subsequent meeting. Shift supervisor Stephen Homan indicated that to his knowledge the safety management plan had never been audited. Asked to assess the plan and compare it to other mines where he had worked Mr Homan (p22 ROI) stated *"It's not flawless but it's there...If I had to give it a percentage, I'd say it's seventy per cent there and if they got the other thirty per cent right, it would be up there...Yeah, that's a good score."*

455. The absence of comprehensive and effective monitoring and auditing of OHS management systems at Beaconsfield, while probably not atypical of the mining industry, has been identified as a serious limitation in the application of OHS management systems. Referring to the serious 'disconnect' between system/plan design and implementation the NSW Mine Safety Review (2005: 8) stressed *"... the importance of effectively checking (monitoring, observing, inspecting and auditing), so as to ensure that risk-based management systems and plans are not only in place, but actually being implemented... The Review emphasises that a risk-based management system/plan that is not being implemented may be more dangerous than having no system at all"* (Wran and McLelland, *NSW Mine Safety Review*, 2005: 8). This failure in OHS management regimes is not confined to mining but has been identified as a critical factor in relation to serious incidents at other high hazard workplace. For example, the investigation into the explosion (causing the death of two workers) at Esso's Longford gas plant in Victoria in 1998 (Dawson and Brooks, 1999: 200) found Esso's reliance in its apparently comprehensive Operations Integrity Management System was misplaced because important components of the system were defective or not implemented, including the training and knowledge base of operators, supervision, the auditing of work practices and the failure to assess the consequences of relocating engineers (the only source of expert advice for operators) from Longford to Melbourne. A central recommendation of the Longford investigation was that a safety case regime should be adopted – something that was subsequently implemented in high hazard facilities like refineries in Victoria.

456. Leaving the merits of a safety case regime to one side for the moment, there is a case that high hazard workplaces such as mines should be required to implement dedicated and independent external audits of their OHS management systems on a periodic basis (say every 2-3 years) to complement and assess internal monitoring processes. Some mining operations elsewhere in Australia already arrange for external audits of their operations on a voluntary basis (Ritter, 2004) but this is unlikely to become standard practice without legislative inducement. Were such a requirement implemented it would be valuable if the resulting report was forwarded to WST so inspectors could 'audit' the audit and monitor whether deficiencies identified were addressed in a timely fashion. In my view, this should be seen as an adjunct rather than an alternative to a safety case regime.

457. Returning to the possibility of requiring mines to adopt a safety case regime (SCR) along similar lines to those used in other high hazard workplaces, the following points can be made. Under the safety case regime, there is an obligation on the operator to demonstrate to the regulator that they have implemented a regime that has identified hazards, assessed risks and has effective control measures in place. Regulatory scrutiny and acceptance is a pre-requisite to operate. The regulator accepts but does not formally approve the SCR as the onus for operations, including hazard identification, risk assessment, control measures and monitoring remain with the operators who have the knowledge to adapt these measures on a regular even daily basis as conditions change (as is the case with regard to blasting and mucking out operations at a mine). The safety case regime covers the construction/re-commencement, operation and closure phases. The safety case regime has been widely used to manage high hazard facilities in Europe. Use of the safety case approach in mining has also received consideration in other Australian jurisdictions and has been seen as a logical extension of risk-based regulation for the mining industry – a means of addressing the limitations in systems design and implementation (Heiler, 2006; Gunningham, 2006b). Research into the effectiveness of safety case regimes indicate that they do improve overall hazard identification and control, due to the need to review systems and processes, but there is some evidence that the potential for further improvements corrodes over time (Vectra Group, 2003: 3). However, the same problem can arise with OHS management systems which have not had the benefit of being 'tested' prior to acceptance and which, as noted in the last paragraph, are often not subject to regular independent auditing of any kind let alone a formal regulatory approval process. This means serious deficiencies in the system can be overlooked and may be difficult for inspectors to detect unless revealed by a serious incident. It is important to note that the safety case regime requires a technically sophisticated, specifically trained (in safety case auditing) and well-resourced inspectorate that can distinguish credible strategies from paper compliance (Gunningham, 2006b: 54). It should be noted that on 5 May 2006 WST issued an s38 notice causing all mining operations at the Beaconsfield Mine to cease apart from care and maintenance. On 21 May 2006 WST issued a notice under s39 of *WHSA* requiring the Beaconsfield Mine to prepare a case to manage underground safety at the mine to be independently reviewed and presented to WST before mining could re-commence (page 41 of written WST response to Investigation). In essence, a safety case regime has been imposed on the Beaconsfield Mine, at least on a temporary basis.

458. With regard to the rock fall of 25 April 2006 evidence indicates that safe work procedures relating to the particular tasks being undertaken were being followed. So at this level the mine safety management plan was being implemented. Further, as noted at various points in this report, following the major seismic events in October 2005 the mine had engaged a series of expert consultants to evaluate seismicity at the mine and make recommendations with regard better managing seismicity – recommendations that – again to its credit - the mine proceeded to implement. The geotechnical aspects of this response are evaluated in the Marisett report. Whether the response entailed a reassessment of the effectiveness of the OHS management system at the mine, or whether aspects of the OHS management system were assessed for any deficiencies in the light of the October 2005 events (and other information available to the mine) and these deficiencies rectified, and

finally whether any deficiency contributed to the events on Anzac Day 2006 is considered in the final two sections of this report.

Mechanisms for Worker Involvement and Feedback Loops

459. Effective avenues for employee/worker consultation and involvement in decisions affecting OHS at their workplace is a key principle of modern OHS legislation (enunciated in the report prepared by Lord Robens in the United Kingdom in 1972 which influenced much subsequent Australian legislation and was later incorporated into ILO Convention 155) such as the *Tasmanian Workplace Health and Safety Act*, 1995. It is also widely accepted as critical to an effective system for managing OHS at the workplace because it enables workers to raise issues that are not currently addressed effectively and to provide feedback on the effectiveness of OHS management practices and procedures (for a recent review of evidence prepared for the Health and Safety Executive in the UK see Walters et al, 2005).

460. Recent inquiries into mine safety in other jurisdictions, notably Western Australia and New South Wales (See Ritter, 2004 and Wran and McLelland, 2005) have highlighted the importance of having effective mechanisms for worker/employee involvement in OHS. Professor Neil Gunningham (2006a: 241), who assessed an array of mine safety management systems for the Ritter report, emphasized the importance of worker involvement to process-based regulation (that is the establishment of broad general duties with accompanying processes of hazard identification, risk assessment and control to secure compliance, which has largely replaced the earlier reliance on detailed prescription of OHS standards) and particularly OHS management plans and systems. As those most directly involved in a work activity and with the most to lose from an incident or hazard exposure, workers can play a critical role in hazard identification, suggesting remedies and assessing the effectiveness of procedures adopted. Gunningham (2006a: 241 citing Bluff, 2003) argues effective communication and participation *"are amongst the factors positively associated with OHS performance, with an emphasis on the quality of communication rather than specific channels or forums. Moreover, empowerment of workers and encouraging their contribution to innovation, and a sense of autonomy and control by workers, were also important influences on OHSM success."*

461. The importance of employee empowerment to the effectiveness of OHS management systems, including their involvement in the evaluation of specific interventions/programs, has been confirmed by research (see for example, McQuiston, 2000) and recognised even in countries where participatory mechanisms are not generally mandated by OHS legislation such as the United States. The Report of the BP US Refineries Independent Safety Review Panel (2007: xii) into the explosion at BP's refinery in Texas City already referred to found that a *"good process safety culture requires a positive, trusting, and open environment with effective lines of communication between management and the workforce, including employee representatives...At Texas City, Toledo and Whiting, BP has not established a positive, trusting and open*

environment, with effective lines of communication between management and the workforce..."

462. The two primary avenues for worker involvement provided for by OHS legislation in Australia are the establishment of workplace-based OHS committees (usually with provisos that at least half the committee membership be employees and these employee-members are elected by employees) and employee health and safety representations (usually abbreviated to HSRs in other states but ESRs in Tasmania). With regard to mining, in several jurisdictions such as Queensland and New South Wales specialist mining legislation (rather than OHS legislation) either establishes or supplements these mechanisms. In Queensland, coal mining and metalliferous mining laws give employee safety representatives wide ranging powers. For example, the former empowers representatives to inspect documents pertaining to an OHS management system, to examine whether the procedures are actually implemented, to notify senior management of any deficiency in the system and, if the response is inadequate to notify an inspector. Representatives also have the power to stop mining operations where there is an imminent risk to workers (Gunningham, 2006a: 240-1). Beyond this, both Queensland and New South Wales have provided for the appointment of full-time roving safety representatives, with similar wide-ranging powers, known as (in coal mining) District Check Inspectors in New South Wales and Queensland. In Tasmania, as noted below, specialist mining legislation was removed after 1995 so the relevant provisions are found under the *WHSA*.

463. Under the *Workplace Health and Safety Act 1995* section 26 states that an employer must establish a health and safety committee where there are more than 20 workers at the workplace (irrespective of whether they are direct employees of the principal) and where this has been requested by a majority of those persons (and within two months of this request). Employee members of the committee are to be elected although s26(4) states this does not preclude an agreement between a union and the employer that a union officer be appointed to the committee. Under the legislation (s28) committee functions include facilitating consultation and communication at the workplace in initiating, designing and implementing measures to ensure the health and safety of persons at the workplace; keeping itself informed about OHS standards in comparable workplaces; reviewing and making recommendations in relation to OHS rules, programs and procedures; keeping hazard information in an accessible place; considering and making recommendations in relation to education/training or changes following a dangerous incident. Committees must meet at least once every three months (s30(2)); the Committee can nominate a person to conduct an inspection of the workplace (s29) and s31 establishes a series of duties: the employer has to facilitate the operation of a Committee, including consultation, provision of information and facilities and permitting a Committee to accompany an WST inspector, if so requested by the latter. It is notable that these provisions do not include reference to access to training for Committee members and the provisions firmly places the onus of initiating the establishment of a committee on workers.

464. Under s32(1) of the *WHSA* provision is made that if 10 or more employees are employed at a workplace they may elect 'from time to time' an Employees' Safety Representative (ESR). In terms of functions s32(2) the only requirement specified is that

the employer must confer with the ESR whenever "reasonably requested to do so. Under the OHS legislation of most other Australian jurisdictions (or the equivalent mining legislation) employee health and safety representatives are given a far more extensive list of powers/responsibilities including the right to be consulted about changes to work processes etc that may affect OHS (and in some cases like Victoria, the power to issue provisional improvement notices – an equivalent power can be found in the mining legislation of some jurisdictions). As was the case with health and safety committees, the *WHSA* provisions on safety representatives places the onus of initiating an appointment on employees (although in this case this is the common practice in other jurisdictions – though increasingly problematic given the weakness or complete absence of unions – which provide crucial logistical support for such representatives (see for example, Walters et al 2001) and also contains no reference to entitlements to training. In Australia, unions played a pivotal role in the training of worker health and safety representatives in a number of jurisdictions when the system was being established and they continue to provide training, resources and support to such representatives. As representatives of employees, health and safety representatives require training that is independent of management (even though representatives will, on most issues, work closely with to managers improve OHS).

465. In sum, the participative mechanisms currently found under Tasmanian legislation place no obligation on employers to ensure that consultative procedures are in place, and compare unfavourably with other jurisdictions in terms of powers and responsibilities accorded to employees' safety representatives. Indeed, the gap has widened since participative provisions have recently been strengthened in a number of jurisdictions to take account of the impact on representative arrangements of changing work arrangements (like the growing use of casual workers and labour hire) and ensure a consultative process occurs in relation to risk management (see for example, the 2001 Risk Assessment Regulation in NSW and legislative changes following the 2004 Maxwell Inquiry in Victoria). The limitations in the Tasmanian legislation had been identified some years ago and with specific reference to the mining industry (although the deficiencies apply more broadly). As noted below, the review of extended working hours in Tasmanian mining, including the Beaconsfield Mine, undertaken by Kathryn Heiler (2002a&b) identified serious deficiencies (in terms of scope and quality) in worker involvement and recommended changes to the *WHSA* to address this. In the interview conducted by the Investigation Ms Heiler provided an overview of her findings in relation to consultative arrangements, stating that the willingness for workers to raise issues was affected by the structures in place, management's attitude and opportunities for alternative employment (ROI, p13) *"...the consultative arrangements other than at Rosebery I think were fairly unsatisfactory at most of the pits anyway. Like at Henty there was nothing particularly structured. At Copper Mines of Tassie...they'd closed and reopened and they had a lot of disputes about – so it was rebuilding there. At Savage River...there was a union presence. Different issues...it was an open cut pit. At Renison... it was hostile, unsatisfactory, antagonistic, a scary place for workers to work. They knew they were on individual contracts, they knew not to open their mouths or they'd be without a job. And, you know, employment was limited... it was somewhat different at Beaconsfield because they drew on a somewhat different cohort. But at Renison and Copper Mines...people were entirely*

dependent on those pits for employment." The relevance of Ms Heiler's comments in relation to consultative structures and management's attitudes to the Beaconsfield mine is explored in some depth below. The report cannot comment on her reference to the options for alternative employment except to indicate that, to my knowledge, there is no other mine in close proximity (ie within easy driving distance) to Beaconsfield.

466. Ms Heiler pointed to another weakness in the capacity of workers and employee health and safety representatives (where they exist) to raise OHS issues, namely their limited contact with WST inspectors during workplace visits by the latter (after 2001 [and no counting the desktop audit visit by other WST inspectors in 2002] the Chief Mines inspector Fred Sears recalled going underground during a visit to the mine to investigate the Justin Stevenson case on 4 October 2005, with a further visit on 2 November 2005). Asked about whether inspectors made contact with workers or ESRs Ms Heiler stated (ROI, p13) that she thought this was *"implicit in their role but I just don't think that those inspectors...and I'm prepared to be very frank about this, I think they're way too close to the industry...and that was...a concern that was repeated over and over and over at every pit...that they didn't routinely speak to employees. That they...would come in and have a cup of tea with the manager and go away, that's if they were even there. They allow themselves to be taken around by management. Yeah, it was entirely unsatisfactory."* One serious difficulty confronting inspectors in terms of contacting ESRs was that ESRs were present in only a minority of mines. According to the Chief Mines Inspector, Fred Sears, at present there are ESRs notified to WST at only one mine and one processing operation in Tasmania and this has been the situation for over a decade. In this respect, the Beaconsfield Mine was certainly not unique in having no formally recognized ESRs. As the Mine correctly points out, appointment of ESRs is a matter for employees but in my experience it is far more likely for ESRs (or their equivalent in other jurisdictions) to be appointed in workplaces with a strong union presence and especially where management supports the process by providing space, time and resources for representatives to carry out their tasks (following the Anzac Day event ESRs were appointed by employees at management's insistence but note too significant workforce changes after the event).

467. Complaints about limited contact between workers and inspectors (including a failure of inspectors to consult workers during visits), and a perception the latter are too close to management, have been raised in other jurisdictions (for example union submissions to the NSW Mine Safety Review, 2004 and in connection to Western Australia see Gunningham, 2005). It needs to be recognized that a lack of contact between inspectors and workers may help to foster impressions of 'capture' (ie inspectors are closer to management) even where this is not the case. There is also evidence that inspectors and WST more generally were not 'captured'. WST has demonstrated a willingness to take prosecutions against mining companies where it believed this action was warranted by serious breaches of the legislation. Further, as demonstrated later in this report, WST inspectors took an active role that placed them at odds with the management at the Beaconsfield mine on a number of occasions, including at least one instance where they reported worker concerns to management (in 2000). This report also provides evidence of where inspectors pursued problems raised by workers, or interviewed workers when possible issues of concern were raised at Beaconsfield (such issues surrounding the

dismissal of Philip Hamilton). It is also the case that their contact with underground mineworkers at Beaconsfield was limited during a number of mine visits. Contact between WST and mine is examined in the section on WST in this report where it is noted that much of the contact was based on emails, correspondence, phone calls and several briefings by mine managers rather than visits to the Mine. At this point it is simply worth noting that one step toward minimizing concerns about contact and capture would be the practice of a worker-representative accompanying inspectors during their inspection of the workplace. Legislative provisions in Tasmania already provide some support for this practice. As noted elsewhere in this report, under the *WHSA* a duly appointed employees' safety representative or a workplace health and safety committee can nominate a member to accompany an inspector during their visit to the workplace but of course this is limited to circumstances where ESRs or a committee exists. As Heiler found, the existence of such a committee cannot be presumed even in mines (where due to the size of many mines and active union involvement, committees might be expected). As far as management was concerned, no formally designated workplace health and safety committee existed at the Beaconsfield Mine (a body fulfilling similar functions called the Zero Committee operated between February and November 2005 and is examined below) and so this was not an option for Beaconsfield mineworkers. Other issues relevant to inspector/worker contact are discussed in the section of this report dealing with WST's oversight of the mine.

468. The *Discussion Paper for the Review of Workplace Health and Safety in Tasmania* released for public comment on 26 June 2006 picked up on the issue of deficiencies in current legislative arrangements for worker involvement. The discussion paper suggested mandatory provisions that employers or persons controlling workplaces should involve workers in hazard identification and risk assessment. The findings of this Investigation support this suggestion. Although mineworkers were involved in a number of hazard identification and risk assessment activities at the Beaconsfield mine they had little or no input into risk assessment in relation to mining methods and ground support measures at the mine even following the serious seismic event of October 2005 (see the section dealing with risk assessment later in this report).

469. Strengthening participative mechanisms under the *WHSA* to match those found in other jurisdictions would enhance national consistency and this may have particular benefits to mining and other companies operating nationally and wanting to have "portable systems (see Hyam cited in *Mining News* No. 292, 11 September 2006).

470. Investigation into the incident of 25 April 2006 revealed a number of things in relation to worker involvement in OHS at Beaconsfield, which appear to have had a significant bearing on OHS management at the Mine.

Worker involvement and feedback

471. Step 8 in the safety management plan at the Beaconsfield mine dealt with communication and consultation. Explaining what this meant, OHS officer Rex Johnson stated (p20 ROI) "*Communicational consultation. It's pretty well the system used talking*

to guys through toolbox meetings. Matthew Gill, doing what we call, the state of the nation. I think it's a couple of times a year. He goes around and talks to everybody to let them know how we're going overall how far as our corporate goes, where we're at with regard to administration. It actually starts off with safety and always goes the other way. Matthew is very good there. Communication consultation, as I said, toolbox meetings. Also when we are doing our procedures and day to day work and also our supervisors – Pat Ball gets underground a couple of times a week and he goes around the headings and he talks to the guys directly too."

472. Interviews with mine management indicated that, in general, they believed communication flows and feedback to be more than adequate at the mine. The Underground Manager Pat Ball stated (p22 of Part 2 of ROI) *"Well, like I say, this is the best informed workforce I've certainly ever seen. To me, if I had something to sell, the best way to sell – a good old marketing ploy, one of my other many talents – is make people want to buy it. So, if you had a new system or whatever, you convince people why you're introducing that system and hopefully they will – so, tool box meetings – I'd normally start with the shift bosses. If the shift bosses didn't buy it, then the workforce probably weren't going to so you'd convince the shift bosses and then move onto to the workforce. Depending on how big the system was, you might let the shift bosses roll it out. If it was of any size, you would do it (iw)."*

473. Workers (both BMJV employees and contractors, including labour hire workers) had a number of avenues for raising safety matters at the mine.

474. First, they could raise issues with their shift supervisor who could either address the matter directly or refer it to Stephen Saltmarsh or the underground manager Pat Ball. Workers could also raise matters with Rex Johnston, the mine OHS officer, although interviews indicated relatively few did this.

475. Second, another mechanism for employee involvement identified by the Company was involvement in the development of SWPs, in terms of either proposing a SWP, their membership of a hazard team assigned to develop one or input during the "auditing process (Response to Items 15 and 19 Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA*, pp1, 4).

476. Third, for two of every three roster-blocks or between once and twice a month (depending on the shift rotation) each underground shift crew (including contractors) attended a toolbox meeting where safety matters could be raised (along with production issues). In the view of the Company, toolbox meetings constituted "the primary employee engagement and consultation process at the Beaconsfield Mine and had been conducted regularly since prior to 2000 (regular toolbox meetings were also held at the mill and amongst maintenance staff). They were viewed as open forums for two-way communication and feedback. Each worker was asked if they had issues to raise, if a major issue was raised workers were encouraged to complete an ABFA card, shift supervisors discussed items yet to be resolved from previous meetings, training officers gave updates on SWPs and the underground manager discussed issues, like safety alerts,

and dealt with queries (Response to Items 6 and 7 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p2).

477. Interviews with workers and shift supervisors confirmed that the underground manager, Pat Ball and Stephen Saltmarsh together with the maintenance manager and training officers typically attended the toolbox meetings. In interview Pat Ball stated he sat in on 90% of toolbox meetings (an examination of minutes confirmed this). The OHS officer Rex Johnson also sometimes attended these meetings. As underground manager, Pat Ball was a critical reference point for queries and issues. According to shift supervisor Brett Cresswell (p14 ROI) *"Pat was present so he would take the minutes, he would write the minutes of the tool box meeting down and he'd take (indistinct words) and ensure that they got eliminated."* Mr Cresswell went on to state (p17 ROI) *"Pat tried fairly hard to attend any tool box meetings to definitely put the slogan forward, safety before production... I think he really believed it, I'm not convinced that he got through but I'm convinced that he genuinely meant it and he was trying to push that and he really did mean it."*

478. Asked his impression of the toolbox meeting process, training officer Paddy Hampton stated (p10 ROI) *"Oh, I think it's pretty good. It's always first up – toolbox meetings are run through – the shift boss would actually get up and run it their self, like Pat's always there, and they go through past issues, issues that are present issues, and through the safety side of it, and then it's open to general discussion."* He later added (p13 ROI) *"Pat keeps you pretty well informed. At the safety side of your toolbox meetings he always lets everyone know what's going on at toolbox meetings, it's never a problem. If anyone asks him any questions about any of the safety side of things he's always quite open to"*

479. Minutes of toolbox meetings indicate that a record was kept of issues that were raised, who raised them (though a shift bosses meeting held on 9 June 2005 a reminder was included to write down who attended including individual contractor names) and follow up actions taken. Prior to April 2005 minutes of meeting largely record the name of the individuals attending and the issues each raised (with the 'actioned by' and 'completed' fields being generally left empty. In April 2005 a new form was introduced (with new fielding when the issue was first raised) and more attention appears to have been given to recording the follow up on issues.

480. Interviews with mineworkers indicated that most felt the toolbox meetings were a valuable means for raising safety issues, and that the majority of issues raised were followed up and promptly addressed. At the same time, the value of the meetings was seen largely in terms of routine issues, such as problems with equipment (see for example, Richard Kearon, p5 ROI and Dennis Newson, pp 7-8 ROI). Repeated concerns were raised about delays/timeliness (see Donald Brian Walters, p5 ROI) or whether some issues were remedied (see too discussion of meeting minutes below). For example, in interview, David Taylor (at page 13) who had worked at the mine for around 10 years stated *"You usually got feedback. Whether it was the feedback you wanted or not, is a different story. I brought up - it'd be probably two years ago, there's gaps in the decline in*

the mesh in the shotcrete and I thought it got fixed because they were going to go down and fix it - it might even have been longer than two years go... You've got your shotcrete, then you've got mesh and then you've go shotcrete or you've shotcrete gaps shotcrete, where they were in a rush and they didn't shotcrete it all and take all the air out of it and when my brother started here on the trucks he looked up one day and said, 'Why is them jacks there'. I said, 'They're still there, are they' so I brought it up in a toolbox meeting and they said, we'll get onto it. Six months later I brought it up again. 'We'll get onto it'. At the start of this year I think, I brought it up again and they said, 'Yes, we've solved the problem. We're going to get D crew, they're going to scale the decline once a month they get their (indistinct word). And I'm thinking, that's not solved the problem because you can't scale it. Its five metres up off the ground. You've got to have your machine. If you barrow a rock down the wrong way, it lands on top of you. So, now at the moment we're bolting the decline up." Other mineworkers referred to frustration in relation to the response to mineworkers raising more general issues of rockfalls/rock noise (Michael Borill, p11-12 ROI) or pillar removal (Graham Lanham, p6 ROI).

481. Shift boss, Stephen Homan, also referred to delays and a filtering effect on issues raised at toolbox meetings (p16 ROI) *"...as the toolbox meetings went on as the years went by they didn't bring up issues because they just knew they weren't going to be acted on... (and asked to give examples) Charge cage. We've got a three and a half up there that we do all our charging out of and I reckon that was brought up for two years before we even got an answer on that one and, yes, the machine is down there now but that's been a long drawn out process...Cages are always a - yeah, cages are always a hard one - that one. Yeah, they've been brought up over - in the end we just used the ones we got. The state of the decline. The decline, with the particular trucks that we've got, the only suspension is the tyres and ... (asked if there was a vibration problem) Yeah. If you didn't put the grader on continuously it used to bear its ugly head all the time but in the end they just put up with it."*

482. Asked about whether issues raised at toolbox meetings were resolved, the OHS officer Rex Johnson stated (p11 ROI) *"Depending on the issue. Sometimes some of the things guys bring up, don't have an answer...(and asked to give an example) Oh, just guys going on about rosters and hours of work and some guys just want to vent a bit of anger but most issues, where they can, they are."*

483. There is also documentary evidence that, on occasion, shift supervisors had trouble completing safety-related issues. The minutes of the shift bosses meeting held on 4 August 2005 records under item 3 of general business "Pat to look shift boss utility proposal, maybe do ½ days on a Thursday to catch up on safety lists. An similar entry can be found in minutes of the shift bosses meetings held on 2, 9, 16 &23 June 2005 (all recorded as item 4); 7, 14, 21 & 28 July; 4, 18 & 25 August; 1, 8,15 & 22 September; 8, 20, 27 & 30 October and 10 November 2005 (all as item 3). In the minutes of the shift bosses meeting held on 27 October 2005 item 3 states *"Pat to look at shift boss utility idea proposal, maybe do **FULL** days on a Thursday to catch up on safety issues."* When interviewed on this particular issue Mr Ball explained (p20 3rd ROI) that one utility day per month for shift bosses (i.e. days where workers could elect to come in or not) had

been introduced with the change of roster but when trialled it was soon found that there was insufficient work to justify shift bosses coming in, with safety jobs being attended to during regular hours. Shift boss meeting minutes in 2005-2006 indicate a similar delay over a number of months by Pat Ball in sourcing radios for remote operators bogging (see Shift Boss Meeting Minutes 22/9/2005; 18 & 30 October 2005; 17 November 2005; 15 & 22 December 2005; 19 January 2006; 2 February 2006. On 16/2/2006 meeting it was noted that Pat had ordered radios). As noted elsewhere in this report, a number of serious safety concerns had been raised in relation to remote bogging (notably the unsafe acts of inexperienced operators and the location/use of cuddies). There is evidence of delays on issues involving other members of the management team in the minutes of shift bosses meetings (for example Stephen Saltmarsh in relation to the development of a SWP for installing conveyor belting prior to AVOCA filling, initially raised in June 2005 if not earlier and was still working on this in September if not later).

484. Asked about whether all issues were addressed and in a timely fashion shift boss Gavan Cheesman stated (pp22-23 ROI) *"Probably a few slipped through the net. But they had a thing like on the board there. If it was raised and it was discussed, I think Rex Johnson had that – it was put on there, he was supposed to fix it... We had sort of chasing up of it, and I was probably guilty of that too. You know like somebody would bring up something and I'd write it down in my thing, and it might take me you know a day or two to chase up that one. Didn't jump too much straight away. Like nothing major. Like if somebody said, you know, there's a bit of bad ground down there, you'd go down and assess it."*

485. Workers interviewed also made the suggestion that the issue of pillar removal had not been adequately addressed when raised at toolbox meetings. Amongst the 41 mineworkers interviewed 14 recalled the issue of pillar removal and/or the structural integrity of the mine being raised at toolbox meetings, five others believed it had been raised but were not entirely certain, another two were unsure and one worker (a very recent engagement) stated he had not heard the matter raised (See Table 1). Other workers giving more ambiguous responses are excluded (and not all those interviewed were asked this question). Several stated it had been raised in crew or shift meetings (but not specifically toolbox meetings) while others recalled that the matter had been discussed but couldn't recall if it was in toolbox meetings (see for example Jerry Kahmann p10, ROI). Again, it is worth pointing out that in addition to a number of mineworkers who were active in the AWU being emphatic that pillar removal being 'debated' at toolbox meetings those recalling the matter being raised included workers who didn't belong to a union and contract mineworkers as well as mineworkers whose tasks (like truck drivers and maintenance workers) or inexperience in mining they freely admitted gave them only a limited understanding of the debate (Table 1). For example, bogger operator Glen McCarthy stated (pp6-7 ROI) that he had attended toolbox meetings where the safety of mining methods had been raised. *"I've heard of people raising issues, yes. I've heard of people raising the issue of leaving more ground to hold ore, you know, levels up."* Donald Walters, a truck driver and bogger operator engaged through Webb Mining, stated (p11 ROI) that the issue of crown pillar removal had been raised at a toolbox meeting he attended after the serious rock fall in October 2005 but he couldn't recall the response.

486. Asked if workers had raised concerns about the removal of crown pillars had been raised at toolbox meetings the underground manager Pat Ball replied (p12 3rd ROI) *"As the question is posed, no. I recall one occasion when one worker requested that we think about not extracting part of a pillar...This was the eight zero five."* Mr Ball went on to indicate that if the matter had been raised it would have been minuted.

487. An examination of underground crew toolbox minutes revealed that workers had raised issues in relation to ground support but there is no explicit reference to pillar removal or a general questioning of mining methods/ground conditions and safety with one exception (see Table 2). As noted earlier, on 27 October 2005 (the date heading indicates the meeting as 20 October 2005 but the sign off date indicates 27 October 2005) a minute of the Cheesman crew toolbox minutes records Peter Purdon as having stated that no-one should be sent into 915/925. This warning seems significant in the light of later events but such a general reference to concerns about ground support and seismicity appear exceptional. Most issues minuted relate to very specific instances of ground support failure, or the failure to scale or wash faces, isolated rock falls and the like. Mr Purdon's shift supervisor, Gavan Cheesman, stated (p4 2nd ROI) that he could not recall the concern raised by Mr Purdon in October 2005. The underground manager Patrick Ball stated (p5 4th ROI) that he could not recall attending that toolbox meeting. Minutes of this meeting do not list Mr Ball as amongst those attending the 27 October 2005 meeting (other management attendees were Stephen Saltmarsh and Jamie Karamatic along with training officers Charlie Williams and Paddy Hampton). Both Mr Ball and Mathew Gill are listed as attending a later meeting of the Cheesman crew (date listing at top of 3 November 2005 but signed off as 15 November 2005) where Mr Purdon's statement is listed in the agenda (but without notes indicating what action was taken).

488. It should be noted that minutes of toolbox meetings were kept by a member of the crew not management. Pat Ball stated (p21 3rd ROI) *"we decided that to avoid unpleasantries further down the line, a member of staff wouldn't take the minutes at tool box meetings. So I wouldn't take the minutes...Because if something happened I would be accused of filtering. So we always got some guy from the crew to do the minutes. With the result that some of the minutes from those meetings weren't the best quality. So – some times I checked that they'd written down what we talked about. If there was a specific thing that I wanted including, I would make sure that they had included it, if it was specifically important to me."* Since minutes mainly consist of topic headings rather than any account of what was said it is possible that pillar removal was discussed in connection with another related topic such as the condition of a particular pillar or area of ground support or simply not minuted because there was going to be no follow up action. One of those who indicated that pillar removal was raised was David Taylor (p14 ROI) who stated he kept a journal of toolbox meetings because he kept the minutes for his crew but the Investigation was not able to view this journal as according to Mr Taylor it went missing around the time of the Anzac Day incident.

489. Among those mineworkers stating that they had raised the issue of pillar removal at a toolbox meeting was jumbo operator Michael Borill who stated (p12 ROI) *"I brought it*

up once, I had to go and knock...the last little pillar out of that 805 that was left there...And I had to drill the holes right through a wall and everything up to 20 odd meters up to get it, just so they could fire this pillar out, which they were never going to get anyway and I said to him 'why?...It's supporting everything' and he said 'Because its got all the stress on it...if we knock it out the stress will go somewhere else'. Well its like pulling a stump out from under your house." Gary Round, a contractor with Webb Mining, stated he had heard both the matter of pillar removal raised and had raised the issue himself but without success (p8 ROI) *"Yeah, I think I did a couple of times... they use to always say that they couldn't leave pillars in different mining methods and it was, you know, good gold in there and whatever - leave pillars and extract them when you pull back out, you know."* In a similar vein David Taylor, service person 1, stated (p14 ROI) that he and others had the raised the matter with Pat Ball at toolbox meetings *"Yeah, myself Garth Bonney and Peter (iw Schleich or Purdon?) on my crew and Robbie Sears because Peter (iw Schleich?), Robbie Sears and Garth have got more mine experience than I have. They've raised it, I've raised it and we asked, why was it taken out because the noise has increased."* Robert Sears also confirmed he raised the issue (p12 ROI).

490. Shift supervisor Dale Burgess provided confirmation that the issue of pillar removal mining methods and seismicity had been raised by mineworkers on his crew and another crew. On 8 August 2007 Mr Burgess was interviewed by telephone and a WST file note recorded with his answers which were later sent to Mr Burgess to confirm their accuracy. Asked if pillar removal, mining methods and seismicity had been raised by mineworkers Mr Burgess stated that he believed Ray Digney had raised the issue with Pat Ball at his toolbox meeting just after the October 2005 rockfall event. He also believed Robbie Rigby had raised it another of his toolbox meetings around the same time. Mr Burgess stated that he had also covered for Brett Cresswell's crew on a number of occasions and that the matter was raised at least one of these meetings. The persons raising this issue were Garth Bonney and Peter Schleich. He believed this was either just before or just after Christmas 2005 – he believed it was most probably the latter. The mineworkers identified by Mr Burgess as raising the issue includes at least one and probably two of those identified by David Taylor as raising the issue. Asked why these matters did not appear in the minutes Mr Burgess indicated that matters that were discarded or not deemed to warrant action were not minuted. There was little room to write anything on the spreadsheet. Asked if mineworkers had raised the issue with management in other venues Mr Burgess stated that the toolbox meetings were the only venue that he saw them raised and believed this was the only forum where they could be raised given the absence of a formal shift handover meeting (see comments below on shift handovers). For his part, another shift supervisor Gavan Cheesman (p4 of 2nd ROI) could not recall pillar removal being raised at his toolbox meetings prior to the Anzac Day 2005 incident (or as noted above the concerns expressed by Peter Purdon).

491. Asked what Pat Ball's response was to the raising of these concerns, mineworkers expressed dissatisfaction. Jumbo operator Dennis Newson (p11 ROI) stated that Mr Ball's response was *"Not good, he just said yous do the mining we'll do the engineering, and smartarse comments like that that really up people's nose a bit."* Similarly, miner Graham Lanham (p6 ROI) stated that questioning mining methods didn't get anywhere

and other workers made the point that toolbox meeting were not the venue for more general issues. As noted earlier in this report other mineworkers stated Mr Ball had referred to the need to secure the gold in the pillars or stated that the pillars were going to fail anyway. A number of mineworkers, even those who found Mr Ball generally responsive (see Gary Round p15 ROI) stated they had seen him change the subject or move to the next issue. While this may not have been common and Mr Ball's patience was undoubtedly tested at times in heated meetings, dissatisfaction with the underground manager's response appears to have discouraged other mineworkers from raising the issue. Walter Hvala, a Webb Mining contractor stated he was concerned at the removal of pillars and had raised it with both his workmates and shift supervisor but had not taken it further because the former told him (p14 ROI) *"that these issues have been brought up before, and nothing gets done."*

492. Other workers indicated more general concerns about seismicity had been raised at toolbox meetings. Asked to describe the increase in rock noise at the mine, Alan Bennett stated (p8 ROI): *"Yeah, well the one I heard - we heard that night, there was one, because we were sitting there having our crib and - 'cause it fired and then it went bang after and I thought this is further in the crib room and I, "What the fuck's that", and then he took - as I said, he took me in there and showed me, I went in to see and he showed me on the scale, like the seismic machine that they'd put in there to measure them, what it was, the noise of it, and then I heard - I only heard that we'd had another one at - the one that we had before this major one was about two, I think it was, and that's when they decided to - that's when they decided to have an investigation into it, Pat Ball, because we had a meeting on our shift, we had our toolbox meetings and it was brought up on our shift. Peter Purdon was there, we was listening to what he was saying 'cause he said all the other drillers refused to go in there because of it, and then I said, "Well we don't want to be going in there if it's going to be like that 'cause Peter's a very experienced miner and if he says the same as the other drillers that's it, we won't". So we kicked up a stink about that and they must've decided then to do the investigation and get these experts, I don't know who they were or whatever, this is only what was discussed at the meeting through Pat Ball, and he got all these experts in and then I - oh then they decided to start digging in to nine hundred to go under it and then I had a false heart attack, now that I know, so I don't know what happened after that up until this time now 'cause I'd only just back, I was on my second day that night when that happened and that's all I know as far as that goes. So I don't know what they done or whatever."*

493. Asked about Mr Bennett's statement the underground manager Pat Ball stated could not recall Peter Purdon raising concerns about seismicity prior to Anzac Day 2006. Asked if other drillers had approached him with concerns about seismic activity in the mine prior to Anzac Day 2006 Mr Ball stated (p7 4th ROI): *"Mining is a hazardous industry, seismicity is one of the hazards in this mine, it was a topic of conversation quite often. I cannot recall specific incidents."*

494. It is difficult to reconcile the highly divergent opinions, principally between Mr Ball and a not inconsiderable number of workers, as to the extent to which pillar removal/structural integrity was raised at toolbox meetings. There is a reference to the

700E pillar failing at a toolbox meeting of Stephen Homan's crew in August 2004, See Table 2). As suggested by Dale Burgess minute takers may have decided there was no point recording an issue that was not going to be actioned. The difference of opinion may also say something about the level of mutual mistrust and poor communication at the mine, leading to divergent opinions over the same set of events. It is possible the dramatic events of 25 April 2006 have reshaped recollections of prior events or, at the other extreme, frustration at being dismissed prior to incident has caused 'venting' after the event. However, this is conjecture and the former at least does not explain why some relatively inexperienced workers, and contractors, with no particular axe to grind in relation to the Mine should be amongst those recalling that the matters were raised. As noted in the section of the report dealing with pillar removal a hindsight or post-event trauma explanation is also inconsistent with other evidence. Resident Mine Manager, Mathew Gill (p12 of part 1 of ROI) said he was unaware of any degree of concern prior to the incident of 25 April 2006. As noted earlier, three of the four shift bosses had concerns about mining methods and one, Gavan Cheesman, had articulated concern at the removal of the 815mL pillar to Pat Ball. As indicated in the earlier section on pillar removal, a number of mineworkers interviewed were aware of and approved of this action. Further, as noted elsewhere, another worker (Darren Geard) wrote a letter complaining about pillar removal to Mr Ball (see Table 1). Further, that the issue was raised at toolbox meetings of two crews was confirmed by one shift supervisor (another, Stephen Homan, believed it hadn't been raised while a third, Gavan Cheesman couldn't recall it being raised). Overall, I believe the weight of evidence indicates that the matter was raised on a number of occasions prior to Anzac Day and it is hard to see the statement of Peter Purdon as anything but a direct expression of concern in relation to ground conditions in the 915/925. Evidence presented elsewhere in the report indicates that there were longstanding concerns about the safety of mining methods amongst a significant group of mineworkers, including the most experienced, that management should have been aware of if communication was as effective as claimed by the Mine. There is corroborated evidence these issues were raised at shift supervisors meetings (but not minuted) and by a letter given to Mr Ball.

495. Comments about the failure to listen to worker concerns about ground support/pillar removal at the mine overlapped with views about the receptiveness of the underground manager, Pat Ball, who was often the key decision-maker in resolving issues raised. While interviewees frequently endorsed the underground manager's diligence in pursuing issues a number alleged that he had been dismissive of issues he did not see merit in, a notable example given was the removal of pillars. Again, there is evidence of divergent perceptions of what was occurring. According to Mathew Gill (p11 of part 1 of ROI) *"My observation of Pat conducting a toolbox meeting is that it may seem like he's not listening. I would suggest that some of the comments may be based on the fact that they don't get the answer that they want and that's a possibility and therefore, it's not the answer I want, so therefore he didn't listen. He does have views of course and in a managerial role you need to be able to say, yes, or, no. I wouldn't say he doesn't listen and I've known him outside Beaconsfield."* Mining engineer, Jamie Karamatic – who (unlike Mr Gill) stated he regularly attended toolbox meetings – said he had never witnessed Mr Ball 'shut down' seismicity or a related issue raised by mineworkers at

toolbox meetings (p10 ROI). Similarly, shift supervisor Brett Cresswell (p36 ROI) indicated Mr Ball was not intolerant or dismissive of issues raised by mineworkers.

496. Mineworkers interviewed for the Investigation were not the only ones to indicate that general concerns about the safety of mining methods had been raised. Shift supervisor Stephen Homan stated these matters had been raised on his crew. Asked how Pat Ball had responded he replied (p9 ROI) *"There was really no answer. He said the mine method's we got, that's the way it is."*

497. Minutes of toolbox meetings provide little evidence of workers raising concerns specifically referring to rock noise or rock falls. As with pillar removal this doesn't match the recollection of a number of mineworkers. Trent Clayton, a contract miner for Webb Mining (p8 ROI) described these as *"big issues over the last twelve months."* When the limited number of references to rock falls and rock noise in toolbox minutes was put to training officer Paddy Hampton who attended many toolbox meetings (p16 ROI) he replied *"I haven't, no, but now you come to mention it, you know, yeah, you're right. I don't think I ever heard (iw) any of the toolbox meetings I've been too. I don't know whether there is any particular reason why the fellows never used to bring it up. But like I say the sheets were always there and the computer was always there to check on, I don't know why there was never a write up, no."* Asked why there was little reference to rock noise, given his view that there were collective concerns about mining methods and seismicity, shift supervisor Dale Burgess (p7 ROI) also pointed to the rock noise reporting system *"No, because they were kind of dealt with in a different agenda...like we had these rock noise report cards."* Rex Johnson (pp11-12 ROI) recalled rock noise being raised several times but also referred to the noise cards *Yes. There are times when guys bring up and talk about stopes and sometimes haven't filled in the rock noise report. A couple of other guys will say, oh, yes, I heard similar and then they're encouraged to fill those cards in because if they bring it up at a meeting and they haven't filled in paperwork we can't develop a history."*

498. The Investigation asked mine staff responsible for seismicity who attended toolbox meetings whether they could recall rock noise or rock fall related issues raised. Adrian Penney, who stated he tried to attend toolbox meetings once a month stated (p9 ROI) that ground support issues *"were raised very occasionally, that I was ever made aware of, rock noises when - I don't think I ever heard anything about rock noises during the toolbox meetings that I went to."*

499. It is worth noting there is evidence that complaints raised about toolbox meetings (such as delays in addressing and minuting of matters) and related communication and consultation problems at the mine were not confined to the underground workforce but extended to mill-workers. On 28 June 2005 mill superintendent Richard Holder sent senior metallurgist Bob Quilliam a file note on 'Participant Feedback from Training Session with Team Leaders and 2ICs on 16th June & 28th June 2005.' In relation to safety and production meetings it is noted that *"some things have been on the minutes for 2 years or have disappeared off the minutes without being addressed. Minutes of safety meetings do not always reflect what is discussed, for e.g. not everyone agrees with the*

action that is minuted. For example a access door was requested to an area. This would allow clearing of blockages without having to do a confined space entry. It was "canned" as not being structurally feasible yet some thought that it could be made to work." Later in relation to risk assessment/consultation it was noted that where *"management and TLs (team leaders) or employees have a different perception of risk then there needs to be better consultation to understand why each party perceives risk differently. Then needs a process for determining a common perception of risk (i.e. what is the reasoning behind determining a risk rating). If Management perceives a different risk level to TLs and employees then there should be some feedback as to why. For example there was a request from TLs & Employees for a container to hold all the confined space gear – BA, tripod, winches etc. – as it was thought this would make it easier to have all equipment on hand. The idea was rejected without a "risk assessment based" reason being given back to the TLs & employees."* The note also makes reference to production pressures and safety stating that if *"behind the production schedule then TLs feel pressure to compromise safety. If on back shift they ring the Metallurgist on call because of a safety issue to have that person say "do it if you can do it safely" puts the pressure back on the TL because they wouldn't be ringing in the first place if they didn't think it was an issue with an unacceptable risk level. If behind production schedule there are more comments from the Metallurgist on call about "this will mean this much time lost". That kind of comment is not made on a similar safety issue if production is ahead of schedule. While the mill used to operate with production before safety it is not done this way. However, rather than reflecting a change in management attitude it might reflect circumstances where production now runs ahead of schedule. The test as to whether safety does come before production is if there is a major output problem that again puts pressure back onto production."* That these problems were raised by workers at the mill provides indirect support for the complaints of mineworkers, indicating these issues were a more general feature of the worksite.

500. A limitation with the toolbox meeting system was that it was confined to a specific shift crew and as such there was no formal mechanism to ensure that any crew was aware of issues raised. Despite some informal communication (amongst both mineworkers and management) this appears to have resulted in a fracturing of discussions relating to issues of relevance to all underground crews, such as concerns with ground support. Evidence given to the Investigation indicated that a number of mineworkers and shift supervisors confirmed this was seen as a problem, though shift supervisor Brett Cresswell believed management made efforts to overcome this (pp10-11 ROI) *"Yes, Pat (Ball) would bring up issues raised with other crews, plus – were posted on the notice board down there, not all the time but occasionally they were put up on the board, (indistinct words) take notes on what had been raised with other crews."* Consistent with this, the Mine indicated that part of the toolbox meeting agenda was to read out issues raised by other crews and indicate any remedies implemented.

501. For his part, Stephen Homan, another shift supervisor, believed each crew was run as a separate entity with communication back from management addressing that crew's issues rather than more general ones (p7 ROI) *"...there's always got to be time for safety issues but on the same hand too, some – a lot of issues that were brought up on this crew*

were never ever translated to the next crew coming on or going off. You seem to have a thinking - if this crew had a problem that's where it stopped. So, the other crew didn't know there was a problem, so there could have been a problem between two crews but were both the same problem and we wouldn't have been aware of it... (and when asked if there was insufficient communication to give people an understanding of developing issues) In my experience, yeah, it was not - anything major, like a safety issue was never ever getting brought up the whole four of us and you'd think, oh, well we're the only ones complaining - well, not complaining but we thought we were the only ones with the same problem. Then after about three weeks you'd be talking to them and then you'd find out, well, they've complaining about the same problem also."

502. Mr Homan's interpretation also appears consistent with an examination of the minutes of toolbox meetings examined as part of this investigation (and summarised in Table 2 of this report). Issued raised by individual workers were minuted and tracked. In addition, general advice from management on safety issues was included. However, there are very few, if any, references to issues raised by other crews, including instances where more than one crew raised the same issue. In this context, the raising of safety issues at toolbox meetings was fragmented, at least as far as mineworkers and shift supervisors were concerned. The latter had some opportunity to compare notes and swap information at weekly shift bosses meetings but according to Stephen Homan (p7 ROI) there was limited time to discuss OHS at these meetings.

503. The last mentioned limitation with toolbox meetings was serious in the absence of a fourth type of communication mechanism (in addition to the three already mentioned) namely a site wide OHS committee, or mine or mill specific OHS committees. On several occasions the mine established site-wide committee or underground mine committees that dealt with OHS or included OHS in their brief. As discussed later in this report, around 2002 Christopher Gregory Hinds, Tasmanian District president of the Construction Forestry Mining and Energy Union (CFMEU) stated that several of his members requested that an OHS committee at Beaconsfield – a request he claimed was rejected (p2 of part 2 of ROI). As far as the Mine was concerned, the CFMEU had no coverage at Beaconsfield and Mathew Gill did not recall this request.

504. In 2002 a committee called the Improvement Committee, with elected workforce representatives (including Todd Russell), was established. The primary purpose of this committee (as identified in the minutes of a meeting held on 24 January 2002) was to "lift mine performance at least 5% above the targets set in the current budget to improve the future of the mine. Lack of teamwork and accountability was identified as the biggest impediment to boosting production. The meeting considered a number of cost cutting measures, notably eliminating nippers so mining parties would do their own "nippering – it was recognized vehicle problems arising from this would require thought. However, the major area of consideration was the introduction of a bonus system. Minutes supplied to the Investigation on request (Response to items 1 to 10 of schedule 2 of the Notice of 13 September 2006 under s36 of the *Workplace Health and Safety Act*) indicate that the committee only met on several occasions.

505. The only significant and direct mention of safety was a statement about preventing the bonus system compromising safety at the first meeting *"c) Bonuses will be negatively affected if safety standards are breached. Crews will need to prove check scaling has been done etc. Suggest we allocate demerit points for safety breaches with a set number of demerit points equaling a set reduction in bonus. This system will encourage the crews to learn the safety and quality standards but will be the hardest to make non-subjective."* This demerit system was not implemented (see earlier discussion of the bonus system).

506. In sum, there is little evidence the short-lived Improvement Committee considered safety and there appears to have been no attempt to establish such a committee prior to 2005. In December 2002 an audit of the Beaconsfield Mine undertaken by Workplace Standards Tasmania (part of a general audit of Tasmanian mines) noted the mine had no health and safety representative available to workers and there was no safety and health committee on site (Audit items 8.1.1 & 8.1.2). At a toolbox meeting held on 23rd September 2004 Garth Bonney asked if a couple of representatives from each crew could be brought together to form a safety committee. Asked about the connection between this and the establishment of the Zero Committee the underground manager Pat Ball (p22 of 3rd ROI) *"Between myself and Garth we had some conversation. We said, "look" – I asked him whether he wanted an OH&S committee as set up as per the act...Or would he like a committee to talk about safety. And basically the zero committee evolved out of those conversations."* The Investigation did not interview Mr Bonney and so is unable to provide his views of the establishment of the committee or its fate.

507. According to the Company between February and October 2005 a committee called the Zero Committee operated, being formed to examine big picture safety issues such as the safety systems (Response to Items 15 and 19 of Schedule 2 of the Notice of 8 June 2006 under s36 of the *WHSA* p5). Minutes of meetings supplied by the Mine indicate that the Committee met seven times (that is, roughly once a month with two "missing . Response to items 1 to 10 of schedule 2 of the Notice of 13 September 2006 under s36 of the *Workplace Health and Safety Act*). Management asked each shift crew to nominate a representative to this committee (representatives included Kerry Artis, Peter Schleich, Todd Russell, Ricky Payne, Garth Bonney, Corey Verhey, Dennis Newson, Tony Meneghetti, Daniel Piscioneri, Rob Sears, Darren Geard and Ray Digney). Records indicate that attendance at the meetings was somewhat erratic but regular attendees included Kerry Artis, Peter Schleich, Dennis Newson, and Ricky Payne (Garth Bonney the first three meetings but not thereafter). On the management side, Pat Ball attended the meetings along with Rex Johnson, Jamie Karamatic and two training officers (Craig Large and Charlie Williams).

508. Mineworkers saw the Zero Committee as an opportunity to discuss OHS on a more coordinated basis. For example, Kerry Artis, leading hand in the haulage crew and a member of the committee stated (p11 ROI) *"Zero Committee, I was in that...Well, it was like – when you have a toolbox meeting, you've just got your crew and Pat and it was – to get the feeling, they will get us all into one room, like somebody from each crew. Like, some people have different issues to the other crews and you didn't know about it or they were just represented each crew and if you had concerns about something that the other*

crew was doing – everybody's always got something to say about other shifts...Like, every shift was represented at the meeting and you sort of – somebody always had to come behind your day off. That's the way it worked out. They actually paid the person, I think."

509. Committee membership was confined to Allstate employees (ie direct employees of the Mine) and did not include contractors, including labour hire workers engaged via Webb Mining. This could have simply been the outcome of the election process where crews voted for representatives rather than a conscious decision by management. However, if the former was the case it is surprising that contract workers were aware of the committee and believed they had been excluded from it. Alan Bates – a truck driver engaged through Webb Mining – stated (p13) that the committee was an Allstate "thing and while paperwork was circulated no contractors were involved. Similarly, another Webb Mining contractor, service-crew member Jason King stated (p19) *"Oh I heard about it. That was definitely a no contractor zone... Absolutely none (involved), to my knowledge...We didn't have a vote or nothing."* Asked about whether contractors were on the committee OHS officer Rex Johnson stated (p14 ROI) *"No. I don't believe there were any contractors but they were more than welcome to approach the guys from each of the shifts. A lot of our contractors underground have been there long term or longish."* The Zero Committee also didn't include representatives of mill workers and nor it appears maintenance workers (Deborah Sargent, state organizer with the Australian Manufacturing Workers Union, p2 ROI). Several safety matters specific to contractors were raised at Committee meetings (for example that their light vehicles were not speed limited at the 12 April 2005 meeting) and many if not most other issues discussed undoubtedly impacted on them. As noted elsewhere in the report, while the company had gone to some effort to integrate contract workers into operations their exclusion from the Zero Committee, or any mine-site wide OHS committee for that matter, amounts to a significant omission. It is worth noting that in this regard the audit of the mine undertaken by Workplace Standards Tasmania in December 2002 included the audit item 8.1.3 *"Employees and contractors are proportionally represented on safety and health committees"* so WST had clearly flagged what it regarded as the standard in relation to contractors and committee membership. As noted earlier in the report (in the section on use of contractors), contractors amounted to just under 20% of workforce in terms of equivalent full-time workers (and rather higher in terms of actual numbers of workers). The mine indicated electing representatives would have presented difficulties. While not discounting this, the contract workforce included some long serving and key operatives in terms of the mining operations who, as their statements to this Investigation illustrate (see statements cited in this report and Table 1), could have provided valuable input into deliberations over safety.

510. As noted earlier, s26 of the *Workplace Health and Safety Act* includes both direct and indirect employees in calculating the "more than 20 persons threshold for requesting the establishment of a Health and Safety Committee. However, it places no requirement for contract workers to have representation on that committee if, as at the Beaconsfield Mine, they constitute a significant component of the workforce. It is recommended that in future the Beaconsfield Mine, and any other Tasmanian mine for that matter, should include representatives of regular contract workers (such as labour hire workers) on site

OHS committees. Further, in a number of other Australian jurisdictions, such as New South Wales, the challenges posed to consultation mechanisms by growing use of temporary and contract workers has been recognized and regulatory initiatives undertaken to ensure these factors are taken into account by employers (see Clause 23 of NSW *Occupational Health and Safety Regulation*, 2001)

511. At the initial scoping meeting (8 February 2005), crew representative suggestions included allowing (if practical) representatives to accompany management on safety audits; acting as a conduit for raising safety issues with management; being trained in gas and heat monitoring (to add credibility to management's readings); and ensuring shift bosses kept safety at the top of their agenda. At the scoping meeting, Pat Ball suggested the committee was the appropriate forum to bounce new ideas and improvements off. Nonetheless, it does not appear that the first, second or third of the representatives' suggestions were acted upon – something that may well have added to the credibility of the committee by indicating that employee suggestions would be treated seriously. Neither request would seem to have imposed an unreasonable burden on management. Ventilation/heat was an issue raised by a number of mineworkers in the course of this Investigation. Allowing representatives to accompany management on safety audits could also have reinforced the credibility and importance of this process as well as the level of trust between management and mineworkers. In relation to the request to accompany management on safety audits it should be noted that s29 (a) & (b) of the *Workplace Health and Safety Act* empowers a person nominated by the Health and Safety Committee to inspect the workplace at times agreed by the employer or if the workplace (or part of it) has not been inspected in the preceding 30 days. Thus, if the Zero Committee were deemed a Health and Safety Committee under the *WHSA* committee members would have been within their rights to nominate a person to conduct inspections – a right beyond that actually requested by employee representatives. As far as can be determined, none of the members of the Committee received any training, another factor that would have been likely to have aided its success. Research in Australia indicates that the knowledge/competence of representatives, the commitment of and consultative style of management, and resources made available to support activities are critical influences on the effectiveness – or lack thereof - of workplace OHS committees (see for example, Wyatt, 1987 and Wyatt and Sinclair, 1998).

512. A wide range of matters were considered at meetings including fatigue breaks/rotation, the location of refuge chambers, work at heights policy, equipment maintenance, toilet facilities, new decline charge up basket and recent incidents. Apart from some consideration of backfill procedures there is no record of the adequacy of ground support or the issue of mining methods/pillar removal being raised or discussed at Zero Committee meetings. It should be noted that the last effective meeting of the committee was held prior to the October 2005 rockfalls – an event which statements to the Investigation indicate increased concerns amongst mineworkers. It must also be seen in the context of Mr Ball's role on the committee and earlier evidence his responsiveness to these issues. Company records indicate that at least one matter raised in the Zero Committee was referred to other venues for action - a suggestion that the amount of downhill loaded trucking be minimized in case a steering ram breaks was referred to the

shift bosses meeting of 1 September 2005. At the meeting held on 31 August 2005 Pat Ball asked for "big picture issues to be raised at the next meeting but at the subsequent meeting (5 October 2005), the last minuted meeting of the committee, Mr Ball noted no-one had any suggestions in this regard. This meeting was held a matter of days before the first of two serious rockfalls in October 2005.

513. Like its predecessor, the Zero Committee operated for only a short period before lapsing. There was some disagreement amongst witnesses as to the reasons for this committee's demise.

514. According to Pat Ball (p14 of Part 1 1st ROI) *"That committee was – if you read the first minutes, which I'm sure you have, the idea of the committee was not to look at the small stuff that could be brought up in toolbox meetings, to look at big picture stuff. The idea was we would bounce any safety system changes we were proposing past the committee and we'd say, 'Okay, are we flogging a dead horse', because if you don't get the workforce's approval of any new system then you're pushing shit uphill. So we thought okay, maybe there's some systems out there they work with they would like to suggest and maybe we'll bounce our ideas off them...It didn't work. They brought up small stuff that really could have been brought up at toolbox meetings. I exhorted them time and time again, 'Forget the small stuff, we want big picture stuff' and I'd give them specific things to go away and think about and to a man almost next meeting there was no comment, so it died a natural death after nine months or something. It's a sad fact that most people want to turn up to work, get told what to do and go home, and anything above that is extra work for them and they don't like that."* Mathew Gill (p11 of part 1 of ROI), expressed a similar viewpoint, arguing the committee failed to go beyond issues being raised at toolbox meetings and so failed to "get a momentum. The OHS officer Rex Johnson stated (p12 ROI) "*We just found that a lot of guys weren't turning up in the end. Part of it was, if they came to the meeting that they could have the time off in lieu somewhere else. So, it was to encourage guys to come but after a while it just faded out and a lot of the concerns weren't really major concerns. They could quite easily be brought up in the toolbox meeting."* Similarly OHS technician Craig Large stated (p8 ROI) *"I found the Zero Committee a little disappointing simply because there was, the elected representatives were – didn't really want to input to the process, they were very reticent about coming up with ideas and having a true committee process."*

515. A number of mineworkers interviewed for the Investigation gave different accounts of their experience with the Zero Committee and why they thought it had failed. Darren Geard, a jumbo offsider, a representative on the committee believed it had not been treated seriously by either management or some worker representatives, but admitted only attending one meeting (p26 ROI)*"I reckon it was a joke... I just thought people were going up there to get out of work for a couple of hours...it's supposed to be a zero safety committee things set up, but boy, if they was pretty worried about safety why would let it fall down."* Ricky Payne, another member (who regularly attended meetings), believed that the committee had been dominated by several employee representatives (p13 ROI) *"it didn't go anywhere really...because there was a bit of intimidation from a couple of senior employees to the others. They were really...down on you if you brought up issues*

they didn't like...a classic one was... the bonus system..." The minutes of the meetings provide no evidence that the bonus issue was ever discussed let alone a source of serious discord on the committee (but see other observations in this report about the contents of minutes of various bodies). Todd Russell (p10 ROI) stated *"The safety committee meeting lasted about three or four months and died by the wayside...Whether it was lack of input or, you know, guys that were rostered off wouldn't turn up and people forget, especially like me, I've got a memory like a sieve...There were some high concerns raised but there was also some stupid issues raised as well."* Theo Visser, a truckdriver, stated (p13 ROI) *"on our crew...we had Ricky Payne I think was one of them. They'd have their Zero Committee meetings I think once a month...I think it was okay...I can't remember anything really major that they had to fix up, most of out stuff was brought up at toolbox meetings."*

516. Shift supervisor Stephen Homan believed that, based on his experience elsewhere, the committee could have made a difference but attributed its failure to some representatives (p19 ROI) *"Yeah, and for that to work you've got to have people that can communicate okay. You can't have - there were some people put on it with - skyward, just away with the fairies again and it was doomed for failure... I think it was who got appointed what contributed to that being a failure. They were there for - it's a fine line but they were given a task and all they wanted to do was knock off early so they could go home so any issues brought up were very limited, I felt."*

517. If a failure to consider 'big picture' issues was a factor in the demise of the Zero Committee the coincidence of its demise with the major seismic events of October 2005 – undoubtedly a 'big picture' event – appeared odd and this matter was explored by the Investigation. Asked to comment on this Pat Ball stated the from (p22 of 3rd ROI) *"memory, and take this with a grain of salt, if you – I think if you look at the minutes of those meetings, you'll see less and less people attended every month, and I believe that the one that was scheduled for November, no one at all turned up...So we declared – I think I declared at that point that the zero committee had done its dash. You will see minuted also in the meetings where I prompted people at the meetings to bring – because what they did was came up with the same stuff that they brought in the tool box meetings. They were focusing, as they normally do, on little stuff. The zero committee was designed to raise the big stuff. And despite constant prompting they wouldn't bring up the big stuff. One of the big aims of the zero committee meeting was that management were introducing all the safety systems, and without employee buy-in, it was either a very big uphill battle, or they just dropped it in their tracks. So one of the functions of the zero committee was to say "Management is thinking about the safety system. Let's try and get some influential members of the workforce involved in the inception on how it's going to work, and maybe they will help drive it though". And that aspect of it didn't work either. So - the zero committee was set up for – I mean Garth Bonney who set the thing up, well he went to the first three meetings, then didn't bother coming to the final four. It just – it was a good idea, it was well supported to start with, but it failed in its objective to get to the big picture."*