COAL MINING SAFETY AND HEALTH ACT 1999

INSPECTOR'S REPORT

TO

THE CHIEF INSPECTOR OF MINES (COAL)

FATALITY

IAN DOWNES

GRASSTREE MINE

11 DECEMBER 2014

LEAD INVESTIGATING OFFICER: GRAHAM CALLINAN
INSPECTOR OF MINES

INVESTIGATING OFFICERS: RICHARD GOULDSTONE
INSPECTOR OF MINES

SUPPORTING OFFICERS: ANDREW SMITH
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SHAUN DOBSON
INSPECTOR OF MINES

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KATIE ORMONDE
INSPECTOR OF MINES

DATE of REPORT: 12 April 2015
FILE REF: [FILE NUMBER FROM DATABASE]

1 Jurisdiction & Scope

Investigations of serious accidents at mine sites are a function of the Mines Inspectors under Section 128 of *the Coal Mining Safety and Health Act 1999.*

Section 199 of the CMSHA 1999 provides that 'as soon as practicable after receiving a report of a serious accident causing death at a coal mine, an inspector must inspect the place of the accident, investigate the accident to determine its nature and cause, and report the findings of the investigation to the chief inspector'.

Contents

2 List of persons named in report

Name	Occupation	Involvement
Ian Downes	VLI Employee	Deceased
sch4p4(6) Personal information	VLI Employee	Working with Ian Downes
	Techserv Employee	Notified Control Room of incident
	ERZ Controller	Responded to incident
	ERZ Controller	Working on dayshift
	Electrician	Responded to incident
	VLI Employee	Working nightshift in a separate area
	VLI Employee	Working nightshift in a separate area
	VLI Employee	Working on dayshift
	VLI Employee	Working on dayshift
	Electrician	Drove underground ambulance
	MSO	Was working as MSO on nightshift
	VLI Employee	VLI Project Manager
	ERZ Controller	Working as outbye ERZ Controller on nightshift
	CRO	Working night shift
	ERZ Controller	Working on dayshift
	ERZ Controller	Working on dayshift
	ERZ Controller	Working on dayshift
	ERZ Controller	Working on dayshift
	MSO	Was working as MSO on dayshift
	SSE	Appointed as Site Senior Executive
	Acting Site Senior Executive	Acting Site Senior Executive at time of incident
	UMM	Underground Mine Manager
	Gas Drainage Engineer	Responsible for developing Scope of Works
	Manager Technical Services	VLI Contract Holder

Name	Occupation	Involvement
sch4p4(6) Personal information	SHE Manager	Assisted with investigation
	Geotechnical Engineer	Involved in post-accident surveying of accident scene
	Mine Geologist	Involved in post-accident surveying of accident scene
	Geotechnical Engineer	Accompanied Katie Ormonde on inspection
	Mine Surveyor	Involved in post-accident surveying of accident scene
	Mine Surveyor	Involved in post-accident surveying of accident scene
	ISHR	Assisted with investigation
	ISHR	Assisted with investigation
	ISHR	Assisted with investigation
	SSHR	Assisted with investigation
	SSHR	Assisted with investigation
	Senior Constable	Middlemount police officer, who responded to the fatality
	Gas Drainage Coordinator	Assisted with investigation
	VLI Operations Manager	Assisted with investigation
	Solicitor	Solicitor from Anne Murray and Co of Emerald and engaged to represent VLI employees
	Solicitor	Solicitor from Howden Saggers
	Lawyer	Partner, Ashurst, Australia

3 Glossary of Terms

Term	Meaning
MSO	Mining Supervisor Operations. This position is colloquially referred to as 'the Undermanager', and is the person responsible for the control and management of underground activities when the manager is not in attendance at the mine as required by section 60 (8) of the Act.
UMM	Underground Mine Manager. This is the person appointed by the Site Senior Executive to control and manage the mine.
ERZ	Explosion Risk Zone. This is a part of the mine determined by risk assessment to have certain conditions as set out in the Coal Mining Safety and Health Regulation, 2001, section 286.
SSHR	Site Safety and Health Representative
LHD	A diesel machine used for a variety of underground activities. Originally named Load Haul Dump, but this machine now has a range of attachments fitted to perform a wide variety of functions.
SSE	The Site Senior Executive for the mine. The most senior officer employed or otherwise engaged by the coal mine operator for the coal mine, who is located at or near the coal mine; and has responsibility for the coal mine.
ISHR	Industry Safety and Health Representative, a person who is appointed under section 109(1) to represent coal mine workers on safety and health matters and who performs the functions and exercises the powers of an industry safety and health representative mentioned in part 8, division 2 of the Coal Mining Safety and Health Act, 1999.
CRO	Control Room Operator. The person required by the regulation to monitor the gas management system at the surface while people are working underground. This person performs a communication role.
Pressure Grouting	The process conducted to seal the rib to prevent leakage through the coal during methane drainage. Holes are drilled into the coal and cement grout is then pumped into the coal to seal.
Drillers Off sider	Workers with a driller as an assistant
Rib Spall	Coal that falls from the side of driven mine roadways
QAS	Queensland Ambulance Service
NERZ	An underground mine, or any part of it, where the general body concentration of methane is known to be, or is identified by a risk assessment as likely to be, less than 0.5%
ERZ1	An underground mine, or any part of it, where the general body concentration of methane is known to range, or is shown by a risk assessment as likely to range, from 0.5% to 2%. Also areas defined in Section 288 of the Coal Mining Safety and Health Regulation 2001.
ERZO	An underground mine, or any part of it, where the general body concentration of methane is known to be, or is identified by a risk assessment as likely to be, greater than 2%.
ERZ Controller	A person appointed for the Control of an ERZ under section 60(9) of the Coal Mining Safety and Health Act 1999.
MG 807 1A CT	Maingate 807 1A cut-through. The location in the mine that Ian Downes was working at the time of the incident.
VLI	Valley Longwall International – employers of Ian Downes

4 Executive Summary

Ian Downes, a Driller's offsider employed by Valley Longwall International (VLI) suffered fatal injuries after being struck by spalling rib coal and stone at 23.10 pm on Thursday 11 December 2014 at Grasstree Mine.

Ian Downes was one of two VLI employees engaged in niche preparation activities in MG 807 1A CT. The second employee was 4p4(6) Personal informat who was also the shift supervisor. The activity being conducted at the time of the incident was the drilling of holes in the ribs and installing plastic tubing in preparation for pressure grouting.

At the start of the nightshift Ian Downes and h4p4(6) Personal informat attended a hand over meeting with the VLI dayshift crew. At this meeting, h4p4(6) Personal informati was told that MG 807 1A CT was prepared and ready to commence drilling holes for pressure grouting.

Ian Downes then attended the Mine pre-start meeting, however, h4p4(6) Personal informat did not as he was arranging and conducting self-rescuer training for another VLI employee, 4(6) Personal infor Once the training was finished h4p4(6) Personal informat made his way to the site and commenced drilling the grout holes with a windy borer. Ian Downes was assigned other tasks at the start of the shift and on completion joined h4p4(6) Personal informati On arrival, they agreed that h4p4(6) Personal informati would continue drilling holes, and Ian Downes would place tubing in the holes and seal them in place with grout.

While drilling, h4p4(6) Personal informati heard a noise behind him, and turned to find that Ian Downes had been knocked over by spalling rib. h4p4(6) Personal informat immediately went to his aid and confirmed that he was breathing, before removing some of the rib spall. h4p4(6) Personal informati then went to seek assistance.

ch4p4(6) Personal informatic ravelled out into the East Mains where he met p4(6) Personal informa who was mucking out the inbye area of the East Mains with a LHD. They discussed the incident and) Personal in) Personal in alled the control room while h4p4(6) Personal informatic returned to the incident site. 6) Personal inf 6) Personal infc confirmed that Ian Downes was still breathing before continuing to remove more rib spall.

The control room operator, p4(6) Personal inform initiated the emergency protocols. Mine Electrician, p4(6) Personal inform and ERZ Controller, 4(6) Personal inforn then went to the incident site. They checked Ian Downes vital signs and found that he had stopped breathing. 4(6) Personal inforn commenced cardio pulmonary resuscitation (CPR).

Ian Downes was transferred to the ambulance and CPR was continued whilst travelling to the surface. The QAS Officer pronounced Ian Downes deceased at 12.25 am on Friday 12 December 2014.

The investigation identified several key contributing factors:

- The area where the incident occurred was not supported in compliance the Mine Managers support rules.
- Geotechnical mapping was conducted shortly after the roadway was driven but it did not identify the unsupported area. No additional geotechnical inspections were conducted after that time.
- Statutory inspections were not conducted in compliance with the Safety and Health Management System.
- The incident location had been used to stow debris from the Longwall 807 take- off. No risk management process was followed to ensure that the task was conducted at an acceptable level of risk.
- The Mine failed to effectively communicate the activities being conducted by Valley Longwall International.
- The Mine did not apply the Change Management process when the decision was made to change the gas drainage schedule and drill from a roadway as opposed to a purpose-made niche.

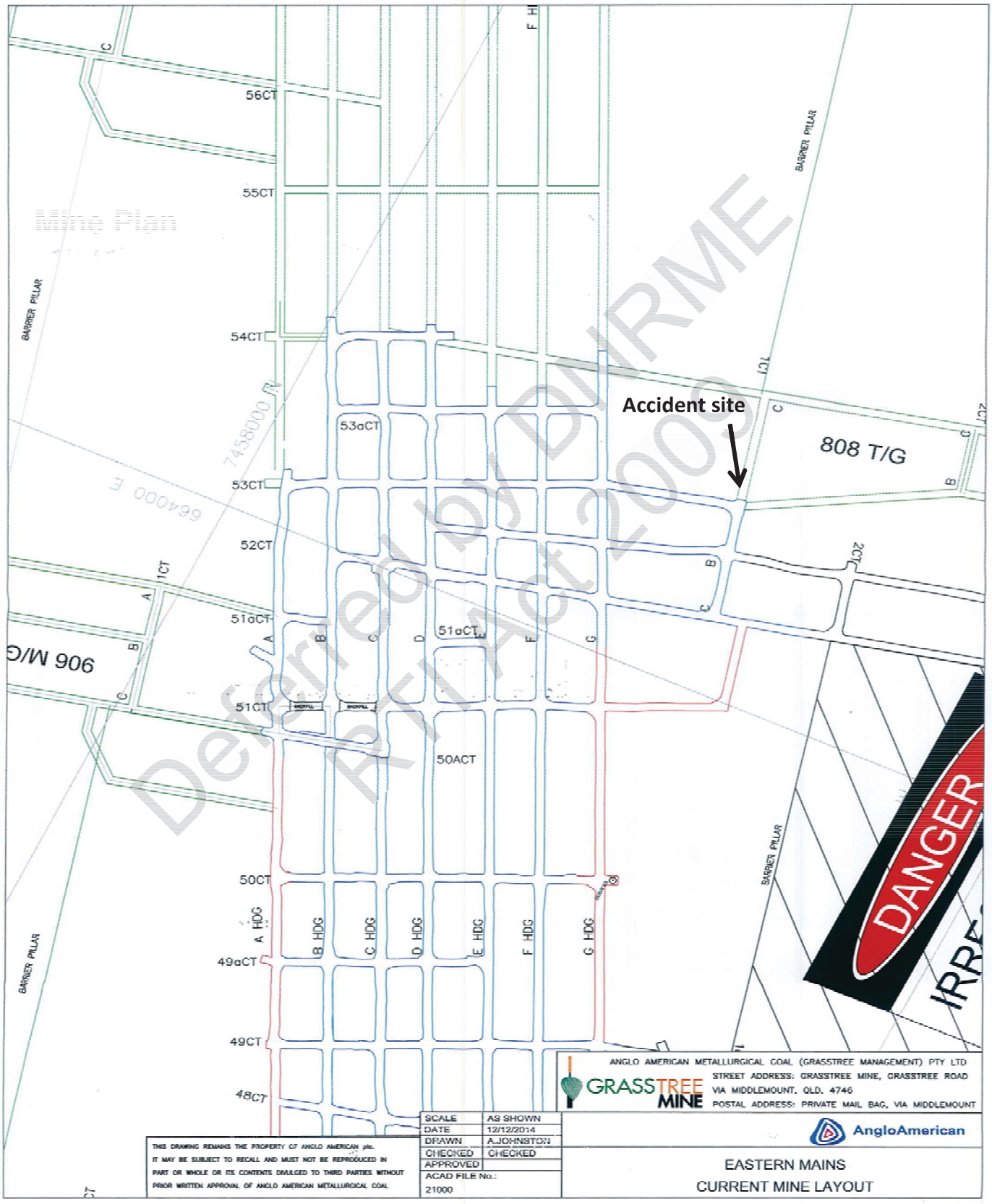
5 Fatally Injured Person

Name:	Ian Personal i Downes
Address:	sch4p4(6) Personal information
Date of Birth:	
Employer:	Valley Longwall International
Occupation:	Gas drainage drilling contractor
Marital Status:	sch4p4(6) Personal information
Date of Incident:	
Time of Incident:	11.10 pm
Location of Incident:	MG 807 1A CT

6 Mine Details and Company Details

Mine Name:	Grasstree Mine
Mining Lease:	ML 1831
Location:	Grasstree Road, Middlemount, Queensland 4746
Lease Holder:	Anglo Coal (German Creek) Pty Ltd
Mine Operator:	Anglo Coal (Capcoal Management) Pty Ltd
Site Senior Executive:	4p4(6) Personal informa
Underground Mine Manager:	
Company Name:	Anglo Coal (Capcoal Management) Pty Ltd
Registered Address:	GPO Box 1410, Brisbane, Queensland 4001
ACN:	73010037564

7 Mine Plan



8 Timeline

Date	Event	Evidence
August 2011	Drivage of the roadway including incident site	Survey records
1 September 2011	Tell-tale established at MG 807 1A CT	Mine Survey Records
September 2011 - September 2013	Ventilation Roadway for East Mains and then 807 Longwall.	Mine Survey Records
September 2013	807 Longwall Removal	Longwall Mine Sealing plan.
September 2013	Stowage placed in the MG 807 1A CT	Accounts of Mine Workers
4 December 2014	Decision made to commence gas drainage work in MG 807 1A CT	Email from) Personal in 6) Personal info to Senior Management and MSOs
4 December 2014	VLI Project Manager and Gas drainage Engineer attempted to conduct inspection of MG 807 1A CT. Stowage prevented this inspection.	Interviews of p4(6) Personal inform and ch4p4(6) Personal informatio
4 December 2014	Phoenix Drilling commenced drilling of the riser into MG 807 1A CT	Phoenix Drilling Records
4 December – 7 December 2014	Stowage removed from MG 807 1A CT	ERZ Controllers Statutory Report
8 December 2014	Stone dusting conducted of MG 807 1A CT	ERZ Controllers Statutory Report
9 December 2014	MG 807 1A CT "No Road" due to riser hole-through planned.	Statutory Report- Personal i 6) Personal inf
9 December 2014	Riser holed into MG 807 1A CT	Phoenix Drilling Records
9 December 2014	Pogo sticks and caution tape placed around riser hole by ERZ Controller Dale Carter	Statutory Report-) Personal in 6) Personal inf
9 December 2014	VLI employee begins to install services into MG 807 1A CT	Interview statements of ersona (6) Personal info
10 December 2014	VLI Project Manager and Gas Drainage Engineer attempted to conduct inspection of MG 807 1A CT. Area No Road prevented access.	Interviews of 4(6) Personal inforr and ch4p4(6) Personal informatio

Date	Event	Evidence
11 December 2014	4(6) Personal inforn and (6) Personal info conduct inspection of MG 807 1A CT. Discuss with 4(6) Personal inforn the 10 metre exclusion zone around riser.	Interview Statements - VLI employees
11 December 2014 **11.45 am**	Inspection by 4p4(6) Personal informa Inspection in preparation for possible hot work. Welding bore casing.	Statutory Report - 6) Personal inf 6) Personal inf nd Interview
11 December 2014 **Approximately 12.15 pm to 1.00 pm**	Statutory Inspection by (6) Personal infor	Statutory Report -) Personal in) Personal in and Interview
11 December 2014 **(End of Dayshift)**	VLI finished installing services to drill site	VLI shift reports
11 December 2014 **5.30 pm**	Dayshift briefed h4p4(6) Personal informatio on nightshift tasks in 807 A Heading. Start drilling grout holes.	VLI personnel interviews
11 December 2014 **6.00 pm**	h4p4(6) Personal informatio did not attend the Mine pre-shift meeting. Trained Personal i p4(6) Personal inform) Personal in	Interview 6) Personal info
11 December 2014 **6.30 pm**	Ian Downes and p4(6) Personal informa nter the Mine. Ian Downes then travels to MG 904 to empty fines bins.	Interview(6) Personal info 6) Personal info
11 December 2014 **7.30 pm**	h4p4(6) Personal informati enters the Mine and transports VLI workers to MG 904. He then travels to MG 807 1A CT to commence drilling.	Interview 6) Personal info (6) Personal info
11 December 2014 **8.30 pm**	h4p4(6) Personal informatio commenced drilling but did not complete a SLAM	Interview 6) Personal inf 6) Personal info
11 December 2014 **9.30 pm – 10.00pm**	Ian Downes arrives at MG 807 1A CT and discusses job with 6) Personal inf 6) Personal info	Interview 6) Personal inf 6) Personal info
11 December 2014 **10.00 pm**	Ian Downes commences installing grout tubes into drilled holes	Interview 6) Personal info (6) Personal info
11 December 2014 **11.10 pm**	Ian Downes is struck by rib spall and fatally injured	Interview h4p4(6) Personal informatio and CRO records

9 Incident Details

9.1 Notification of Incident

The Underground Mine Manager, 4(6) Personal inforr advised Inspector of Mines, John Sleigh, that a mineworker had been fatally injured at Grasstree Mine at 11.10 pm on Thursday night, 11 December 2014.

He reported that the coal mine worker was installing secondary support and was injured as a piece of 'rib' broke away. He advised that Police were at the Mine and that the Mine had been evacuated. *(Refer Appendix 1 - Form 1A).*

9.2 Notification of Next of Kin

sch4p4(6) Personal information

9.3 Emergency Response

Immediately after finding that Ian Downes was seriously injured, ch4p4(6) Personal informatio confirmed that he was breathing before removing some of the rib spall. He then went to seek assistance.

ch4p4(6) Personal informatic travelled out into the East Mains and found p4(6) Personal inform who was mucking out the inbye area of the East Mains with a LHD. They discussed the incident and p4(6) Personal inform proceeded to communicate the incident to the control room, while 6) Personal int 6) Personal inf returned to the accident site. When p4(6) Personal inform arrived at the accident site, h4p4(6) Personal informati confirmed that Ian Downes was still breathing.

p4(6) Personal informa identified that Ian Downes was in a more serious condition than had he initially communicated to the control room operator. He made another call to the control room operator advising that Ian Downes injuries were of a more serious nature than his original communication had indicated.

The control room operator, p4(6) Personal inform initiated the emergency protocols for the incident by deploying the underground ambulance and contacting the nearest operating district, MG 904 Development panel. He spoke with the panel Electrician, p4(6) Personal inform who then informed the District ERZ Controller, p4(6) Personal inform who both then responded to the incident.

4(6) Personal inforr and (6) Personal infor arrived at the accident site, and (6) Personal infor checked Ian Downes vital signs, finding that he had stopped breathing. 4(6) Personal inforr summoned the assistance of others to remove Ian Downes from the area of the rib spall, and commenced CPR. On arrival of the ambulance, Ian Downes was transferred into the ambulance and CPR was continued whilst travelling to the pit bottom. Ian Downes was then transferred into

the cage and moved to the surface. CPR continued throughout this period until the QAS Officer pronounced Ian Downes deceased at 12:25 am 12 December 2014.

9.4 Events leading up to the Incident

The roadway where the incident occurred was driven in August/September 2011. The area of the rib failure was not supported in accordance with the Manager's Support Rules, despite operations being under the supervision of an ERZ Controller. At least two rib bolts (1.2m long) were not installed in the area of the rib that failed.

The rib bolts are normally installed using the rig mounted bolters on the continuous miner. The configuration of the continuous miner rib bolters meant they were not able to reach within 3.6m of the cutting head. This meant that the missing bolts would have needed to be installed using hand held bolters, or ancillary mobile bolters.

Geotechnical Mapping was conducted of MG 807 1A CT on 2 September 2011. This mapping exercise did not identify that the primary support originally installed, was not in accordance with the Underground Mine Manager's support rules. The purpose of this mapping exercise is to identify such issues, and to record geological features.

There have been numerous inspections by ERZ Controllers of the part of the Mine where the rib failed. These inspections included checking that the roof and ribs are safe and secure. There is no evidence of any statutory report which identifies the latent hazard presented by the unbolted rib. These inspections included weekly, work place, and specific inspections for other matters, including tell-tale readings and stone dust sampling.

The roadway was stowed with debris from the Longwall 807 take-off in September 2013. This filled the roadway, including the stub which in turn prevented access to the roadway for inspections to be conducted. The debris that was stowed in MG 807 roadways was reported as wet, and known to be alkaline. The exact profile of the stowage in the roadway is not known, but it is clear that some of the bolts and plates have suffered substantially more corrosion than others. Stowage was in the roadway from September 2013 until December 2104.

The Mine suffered a significant setback to development when the East Mains was flooded in January 2011. A decision was made to renew efforts to reclaim the East Mains, and a project team formed in October 2014. It was planned to restart developing the East Mains early in 2015, and associated with that decision, it was recognised that underground in-seam Methane Drainage would be a pre-requisite. The location chosen for pre-drainage was the intersection of 53CT and MG 807 1A CT. This meant that VLI's planned works elsewhere in the Mine, were rescheduled to achieve this aim.

The stowage was removed commencing 4 December 2014, and was completed by 7 December 2014, under the supervision of ERZ Controllers. Removal of stowage was by the use of a LHD, and during the process damage to some rib bolts and plates occurred.

In preparation for methane drainage, it was required that a riser was drilled from the surface to the intersection of 53CT and MG 807 1A CT. Drilling of the riser began 4 December 2014, and holed 11 December 2014 at 7:00 pm.

VLI employees began installing services into the MG 807 1A CT, and this work was completed on dayshift 11December 2014.

Ian Downes and ch4p4(6) Personal informati were engaged in drilling grout holes, and installing tubing in MG 807 1A CT on nightshift 11December 2014.

9.5 Description of Incident

On the nightshift 11 December 2014, Ian Downes and h4p4(6) Personal informati were assigned the task of preparing MG 807 1A CT for pressure grouting of the ribs.

Prior to undertaking this work, ch4p4(6) Personal informatio carried out self-rescuer training for another VLI employee, (6) Personal infor and Ian Downes travelled underground to carry out the task of emptying fines bins at the methane drainage stub in MG 904.

h4p4(6) Personal informati arrived at the niche before Ian Downes, and had commenced drilling the 2.1 metre long holes, and was working from the right hand side of the niche to the left hand side. He had drilled a number of these holes when Ian Downes arrived at the work site, after completing the task of emptying fines bins at the methane drainage stub in MG 904.

Ian Downes and h4p4(6) Personal informat had a discussion about the work activities. 6) Personal inf (6) Personal info said he would carry on with the drilling activities, and Ian Downes started to prepare the holes for grouting.

Ian Downes commenced the preparation of the holes, starting from the right hand side of the stub working to the left hand side inserting grouting tubes, and then sealing the annulus of the hole and the tube with a grout/plaster. This was mixed by hand in a small plastic pot.

ch4p4(6) Personal informatio had completed drilling 21holes, and Ian Downes had completed preparing 5 holes, and was in the process of working on the 6th hole when 6) Personal inf 6) Personal inf heard a noise behind him, and turned around to find Ian Downes had been knocked unconscious by the spalling rib. The failure was wedge shaped and was approximately 1.5 metres wide, 2.0 metres high, and 250mm – 300mm in depth. Ian Downes was struck on the right side of his head and body causing fatal injuries.

10 Investigation

10.1 Primary Support

The roadway where the incident occurred was driven in August/September 2011. The area of the rib failure was not supported in accordance with the Manager's Support Rules, despite operations being under the supervision of an ERZ Controller. At least two rib bolts 1.2 m long were not installed in the area of the rib that failed.

The roadway was driven by a continuous miner and the bolts were installed by the machine mounted bolter. The position of the bolting rigs does not allow for bolts to be installed continuously to the cutting face. There is approximately 3.6 metres of rib that must be supported by hand held bolters at a later time. *(Refer Appendix 2- Yellow Support Plan).*

10.2 Communications

The Mine planning system (Fewzion) contained information regarding VLI activities and a shift plan, but was not up to date. The information it contained was twenty four hours behind the actual activities being conducted on the nightshift 11 December 2014.

The ERZ Controllers on the dayshift did not communicate to the MSO, or to the on-coming ERZ Controller, that VLI were working in MG 807 1A CT. The dayshift MSO did not communicate to the nightshift MSO that VLI were working in MG 807 1A CT.

The VLI supervisor on nightshift, h4p4(6) Personal informati did not attend the pre-shift meeting, thus missing the opportunity to communicate to the nightshift MSO or ERZ Controllers that VLI were working in MG 807 1A CT.

Communication between dayshift and nightshift ERZ Controllers resulted in the nightshift ERZ Controller believing that the next inspection in MG 807 1A CT had to be conducted by 1:00 am. This resulted in MG 807 1A CT not being inspected from approximately 1:00 pm until the time of the incident. *(Refer Appendix 3 – Fewzion Plans).*

10.3 Statutory Inspections – Uncertainty regarding ERZ1 or NERZ status

On the day of the accident, the communication process between MSO's and ERZ Controllers was ineffective, and as a result, no statutory inspection was conducted in MG 807 1A CT after approximately 1.00 pm. VLI worked in MG 807 1A CT on dayshift from 6.45 am to 5.30 pm. They received two inspections within 30 minutes from p4(6) Personal informa and 4(6) Personal inform at approximately 11.30 am and 12:00 pm respectively. 4(6) Personal inform remained in the area until 3.00 pm, but was supervising work elsewhere in connection with pumping and mucking-out.

The first inspection of the succeeding nightshift was not completed at all due to confusion between Mine officials in regard to where and how VLI were deployed. As MG 807 1A CT was part of an ERZ1, there should have been a pre-shift inspection.

The incident occurred at 11.10 pm. p4(6) Personal informa signed that the area was open until 1.00 am even though he did not inspect the area. There was confusion regarding the status of inspection districts. East Mains, including MG 807 1A CT, was at the time of the incident, an ERZ1.

4p4(6) Personal informa was unsure, and showed reasoning when interviewed, that he assumed it was a NERZ. sch4p4(6) Personal information
6) Personal in thought it was a NERZ.

MSO on the opposite roster, p4(6) Personal informa thought it was an ERZ1. The Mine ERZ Boundary plan identified that East Mains including MG 807 1A CT, was at the time of the incident, an ERZ1. *(Refer Appendix 4 – ERZ Boundary Plan and Appendix 5 – Witness Statements).*

10.4 Deployment of Statutory Officials

The ERZ Controllers arrived at 5.30 am, about 30 minutes before the MSO meeting, to read reports and liaise with other officials including the MSO. The MSO's hold shift start meetings, beginning 6.00 am and 6.00 pm for days and nightshift respectively, with ERZ Controllers and Superintendents present. General matters are discussed, but they rarely included specific tasks to be undertaken by any contractors. All departments and contracts supervisors also explained the shift activity planned for which they have responsibility.

The dayshift meeting on 11 December 2014 was conducted by MSO 4(6) Personal inforn The meeting was conducted in the usual manner and not minuted, but a shift plan was used as an agenda. The focus was mainly production districts, longwall, and developments.

Outbye ERZ Controllers were, sch4p4(6) Personal information and they attended the pre-shift meeting. They had split the inspection requirements for that shift, and they self-deployed. They organised themselves as though the East Mains was a NERZ. 4(6) Personal infor was allocated the East Mains Workplaces.

4(6) Personal inforn did not have any conversation with VLI before he went underground. He did not know the task they were performing. The Work Order produced for the dayshift described the VLI task for that shift as bolting of niche, drilling pressure grout holes, and pressure grouting. The Outbye ERZCs do not get a copy of the Work Order, but the actual task VLI were undertaking was installing services to the niche in readiness to bolt.

.p4(6) Personal informa had commenced his inspection when he received a message from CRO to inspect MG 807 1A CT due to planned welding on the casing of the riser. He conducted this inspection and then left the area. Approximately 30 minutes later a second inspection was conducted by 4(6) Personal inforn who was unaware until he arrived, that 4p4(6) Personal informa had been there. 4(6) Personal infor was present to conduct a routine workplace inspection.

4(6) Personal infor remained in the East Mains dealing with other duties. No other Inspection was conducted in MG 807 1A CT until after the incident.

Two other ERZ Controllers, sch4p4(6) Personal information had arrived at the Mine commencing their shifts at 11.00 am and 2.00 pm respectively. They too self-deployed but did not identify for themselves, or be directed by the MSO, to conduct an inspection of dayshift VLI personnel in MG 807 1A CT.

The normal routine for ERZ Controllers attending the Mine on afternoon shift, was to view the whiteboards and pick-up those tasks the dayshift outbye ERZ Controllers had not covered, and to identify which workplaces required a second dayshift inspection. There was no VLI activity listed as being in progress in MG 807 1A CT. As a result neither) Personal in 6) Personal in nor (6) Personal info believed an inspection was required.

It was 4p4(6) Personal informa first shift back at the Mine for a considerable time. He is a contract ERZ Controller, not a full time employee of the Mine. He had not travelled all parts of the Mine since his return to site, which he was allocated to inspect that afternoon. 4(6) Personal inforn was unaware that 4p4(6) Personal informa had been contracted for the task of afternoon shift ERZ Controller. He was surprised to see 4p4(6) Personal informa and entered the Mine without briefing him. 4p4(6) Personal informa spoke with an experienced ERZ Controller, (6) Personal info to assist him to familiarise himself with the area he was to inspect.

At 5.30 pm 4p4(6) Personal informa took over from 4(6) Personal infor as MSO, and VLI activity in MG 807 1A CT was not discussed. Personal contacted 4(6) Personal infor at about 6.00 pm, who was accompanied by 4p4(6) Personal informa and directed him to move a redundant tag board from MG 807 B heading to a conspicuous spot in the East Mains.

4p4(6) Personal informat and (6) Personal infor moved the inspection board and placed it in the East Mains travel road so that persons travelling in-bye would see it. p4(6) Personal informa filled in the board stating that all areas in-bye were open till 1.00 am. He did this knowing he had not inspected all areas of the East Mains, and in particular MG 807 1A CT.

4p4(6) Personal informa and (6) Personal info returned to the surface at 7.30 pm, and then saw that the information board showed that nightshift VLI were also working at MG 807 1A CT and at MG 904.

Both 4p4(6) Personal informa nd (6) Personal info had separate conversations with 4p4(6) Personal informa which left them believing that VLI would be transporting a drill rig and associated equipment from MG 904 to MG 807 1A CT. (6) Personal info believed that 4p4(6) Personal informa had visited the VLI personnel at MG 807 1A CT earlier, before the tag board was relocated.

(6) Personal infor and 4p4(6) Personal informa re-entered the Mine to conduct various other duties, including the first inspections for night-shift work places. They were delayed, so did not have time left to inspect the MG 807 1A CT work place. Both (6) Personal info and) Personal in 6) Personal in onveyed to the oncoming nightshift ERZ Controller, 4(6) Personal infor that the next inspection was not due till 1.00 am. They met (6) Personal info at pit bottom.

(6) Personal infor nd 4p4(6) Personal informa returned to the surface and completed their reports, and passed them to 4p4(6) Personal informa efore leaving the Mine at approximately 11.15 pm.

At that time, no official actually knew that 4p4(6) Personal informat and Ian Downes were going to MG 807 1A CT to commence drilling for grouting the drill niche. The incident occurred at 11.10 pm. *(Refer Appendix 5 – Witness Statements).*

10.5 Statutory Inspections – Stability of ribs

The roadway, MG 807 1A CT was driven in August/September 2011. The area of the rib failure was not supported in accordance with the Manager's Support Rules, despite operations being under the supervision of an ERZ Controller. At this time, it would have been an ERZ1 and subject to at least two inspections per shift, with an official present during coal mining operations.

There have been numerous inspections by ERZ Controllers of the part of the Mine where the rib failed. These inspections included checking that the roof and ribs are safe and secure. This investigation found no statutory report which identified the latent hazard presented by the unbolted rib.

A period of three years three months elapsed before the rib failure occurred. Inspections were prevented for one year and three months because of stowage. The failure occurred four days after the stowage was removed.

4p4(6) Personal informa and 4(6) Personal infor both inspected MG 807 1A CT on the day of the rib failure, and did not raise any concerns regarding the rib in their statutory reports.

Whilst not a statutory inspection, Acting SSE, 4(6) Personal inforr and UMM, (6) Personal infor visited the MG 807 1A CT 12 hours before the rib failure. Neither 4(6) Personal inform nor 4(6) Personal infor identified the unsupported area of rib. This was verified in the statement of 4(6) Personal inform *(Refer Appendix 5 – Witness Statements and Appendix 6 – Statutory Inspection Reports).*

10.6 Stowage

The MG 807 1A CT roadway was stowed with debris from the Longwall 807 take-off in September 2013. This filled the roadway including the stub, which in turn prevented access to the roadway for inspections to be conducted. The debris that was stowed in MG 807 roadways was reported as wet and known to be alkaline.

The exact profile of the stowage in the roadway is not known, but it is clear that some of the rib bolts and plates have suffered substantially more corrosion than others. This is due to some bolts being buried for approximately fifteen months.

The stowage was removed between 4 and 7 December 2014. It was removed by LHD Loader and during this process several rib bolts and plates were damaged. As a result of the corrosion and damage, these bolts were not performing to their design standard, and therefore were not supporting the rib as they were installed to do. *(Refer Appendix 7- Photographs).*

10.7 Geotechnical Issues

Geotechnical mapping was conducted of MG 807 1A CT on 2 September 2011. This mapping exercise did not identify that the primary support originally installed, was not in compliance with the Underground Mine Managers support rules. The purpose of this mapping exercise is to identify such issues and geological features, and recommend appropriate remedial action. *(Refer Appendix 8 – Operations Management System Underground Geotechnical and Appendix 9 – Grasstree Strata Review and Preview).*

The investigation found that Grasstree Mine Geotechnical Engineers have conducted inspections of gas drainage niches at the request of the Mine Gas Drainage Superintendent. No inspection was conducted of MG 807 1A CT before pressure grouting activities commenced, as the Geotechnical Department was not aware that the Methane Drainage Plan had been bought forward.

The MG 807 1A CT had been filled with stowage for approximately fifteen months prior to the incident. The primary rib support in this area had become severely corroded and damaged, therefore not performing to their designed standard. It is conceivable that if a Geotechnical Engineer had conducted an inspection of the area before pressure grouting activities had commenced, a recommendation would have been made to install additional support. *(Appendix 5 – Witness Statements* 4p4(6) Personal informa.

11 Evidence from Documents

11.1 Contract for Major Services

A Contract between Anglo Coal (Capcoal Management) Pty Ltd and VLI Drilling Pty Ltd has been in place since December 2009. The contract in place at the time of the incident;

'Contract for major services - Contract 35259 - Version 9: August 2012'

The contract was scheduled to expire on 30 November 2014. The signature page for the new contract contained the following signatures:

1. (6) Personal info(Anglo American Company Secretary) signed 9 December 2014
2. 4(6) Personal inforr(Anglo American Director) signed 15 December 2014
3. (6) Personal info(Director Valley Longwall International) signed 1 December 2014
4. 6) Personal infc(VLI Financial officer and Company Secretary) signed 1 December 2014

Appendix B Scope of Services of this contract contains the requirements for drill site set up. In particular (a) (ii) ensuring ribs and face are meshed and pressure grouted.

The area of rib failure was not meshed as required by the contract. *(Refer Appendix 10- Major Services Contract and photograph)*

11.2 Valley Longwall International Documents

Safe Work Method Statement - Grasstree Mine

Pressure Grouting Rib and Drill Face Document Identifier: 4000.08.00004. This document is supported by a documented risk assessment. The following requirements are contained within the documents:

Section 5. Standard Operating Procedure.

5.1.1 *Hole – pattern and depth to suit geological conditions, rib stability, coal hardness, cleat angle, standpipe etc.*

'Drill face to be thoroughly inspected by experienced person, taking into account coal hardness, rib stability, cleat angles and general geological conditions when deciding on grout hole placement'.

The investigation found no evidence that the above requirements were met. The associated risk assessment also stipulated that there is to be three people involved in the task of drilling for grouting.

Site Shift Inspection Checklist

This document is required to be completed at the start of each shift. Item 10 on this checklist is to check roof and ribs for loose debris.

The investigation found no evidence that this document was completed before drilling commenced.

Letter from 4p4(6) Personal informa *o* 4(6) Personal inforr

A letter date 13 March 2014 was sent by 4p4(6) Personal informato (6) Personal info. At the time the letter was sent, 4(6) Personal inform was the Grasstree Mine Gas Drainage Coordinator and Contract Holder for Valley Longwall International.

The letter is titled 'Define Niche Prep and Rig move at Grasstree Mine'. The letter made reference to 10 bolts in the face of the niche.

*'Proposed duties for Niche prep': **2**. '10 bolts in the face of the niche'*

Interviews conducted during the investigation found the proposed duties listed in the letter were for costing purposes, rather than as mandatory items. The intent was that Valley Longwall International would install the bolts if directed by Grasstree Mine. *(Refer Appendix 11 - VLI Documents).*

11.3 Grasstree Mine Documents

Operations Management System - Underground Geotechnical

An Anglo American Document, 'Operations Management System - Underground Geotechnical' makes the following Statements:

Section 4.1 People – '*All relevant employees shall be trained by a geotechnical engineer (or delegate) in the following':*

1. Support design principles;

2. PHMP and SOP requirements;

3. Identification of geological anomalies which contribute to weaker ground conditions;

4. TARP/SCARP/GCR training; and

5. Barring and scaling

The Grasstree Mine training records for Valley Longwall International personnel did not include training on barring and scaling. Interviews with Valley Longwall International employees identified they had not received such training.

Section 4.2 Plant and Equipment

'There shall be fit for purpose pinch bars available for barring and scaling'

The investigation found no evidence of pinch bars being available to mine workers.

Section 4.3 Systems

'There shall be a barring and scaling Standard Work Procedure (SWP)'

A document request to the Site Senior Executive identified that the Grasstree Mines Safety and Health Management System does not contain a SWP for barring and scaling.

Monitoring and Review

'*Installed support shall be monitored and reported monthly for compliance to design'*

Risk Assessment & Management

'All operations should have conducted a qualitative risk based assessment of existing (outbye) roadways, to prioritise re-support requirements'.

The investigation found no evidence of any geotechnical inspection being conducted in the MG 807 1A CT apart for a mapping exercise conducted on 2 September 2011. *(Refer Appendix 8 – Operations Management System Underground Geotechnical).*

11.4 Strata Control Management Plan

Section 3.4.1 'Monitoring'

Monitoring of strata support in the underground workings is critical for maintaining a safe work environment and also for evaluating the effectiveness of support designs. Strata monitoring devices are routinely installed during the mining process, and often. The most common device used is the tell-tale; a simple mechanical monitoring device which is visual aid for mineworkers.

Section 3.4.1.4 'Recording of Monitoring Data'

Tell tale is to be recorded on the Tell Tale monitoring books in the crib room, and placed in the tell-tale pigeon hole at end of shift. The recording of tell- tale data is to be performed by the panel ERZ controller as per TARP's and to the following schedule at minimum:

All devices in the production district: weekly. All outbye areas every 3 months.

The investigation found that the tell-tale at the MG 807 1A CT was installed on 1 September 2011. There was only one entry in the Tell-Tale Monitoring book which was located at the accident site. That entry was made on the day it was installed. *(Refer Appendix 12 - Strata Control Management Plan).*

11.5 Grasstree Gas Drainage Scope of work

A scope of works is developed for each area where it is planned for underground in seam gas drainage to be conducted. A scope of works was developed for MG 807 1A CT, but was never completed or signed off. The scope of works is generated jointly by the Grasstree Gas Drainage Engineer and the VLI Project Manager. Two unsuccessful attempts were made by h4p4(6) Personal informati and (6) Personal infor to access the area to develop the scope of works.

The first attempt was unsuccessful due to stowage being in the roadways, and the second because the area was 'No Road' due to the riser hole-through. No other attempt was made to inspect site before work commenced in MG 807 1A CT.

The scope of work document does not address the activity of pressure grouting directly, but rather activities once pressure grouting has been completed. *(Refer Appendix 13- Gas Drainage Scope of Work).*

11.6 Stop Look Assess Manage (SLAM)

The Grasstree Mines Safety and Health Management System states that each Mine Worker conducts a SLAM at a minimum of two per shift. One SLAM is expected to be conducted at the start of the shift before commencing activities. It also requires that a supervisor initials the SLAM after determining the effectiveness. The completed SLAMs are handed in at the end of shift and passed onto the Safety Department for recording.

h4p4(6) Personal informati did not complete a SLAM at the start of his shift as required. Ian Downes completed a SLAM, but it was for the use of the windy borer rather than the activity he was conducting. h4p4(6) Personal informat as his supervisor did not initial the SLAM completed by Ian Downes. *(Refer Appendix 14 – Ian Downes SLAM).*

11.7 Mine Management Operating System

The Grasstree Mine Management Operating System (Document Number MOS004 revision 4 dated 24 July 2013) describes how the Mine should operate in relation to management control and communication. The investigation found several instances where the Mine has failed to comply with this document in regard to effective communications.

MSO Meeting attendance

h4p4(6) Personal informati did not attend the pre-shift meeting on 11 December 2014 because he was training (6) Personal infor on the use and change-over of self- rescuers. By not attending this meeting h4p4(6) Personal informat missed an opportunity to highlight the fact that VLI were planning to work in MG 807 1A CT that night. *(Refer Appendix 15 - MSO 13.4.3 Pre-shift Crew Meeting).*

Communication between outbye ERZ Controllers and MSO

On the day of the accident the two MSOs and four ERZ Controllers principally involved did not communicate effectively. This resulted in no statutory inspection of the stub after

approximately 1.00 pm. VLI worked in MG 807 1A CT on dayshift from 6.45 am to 5.30 pm. They received two inspections within 30 minutes from p4(6) Personal informa and) Personal in) Personal in t approximately 11.30 am and 12.00 pm respectively. No additional inspection was conducted between that time and the accident.

11.8 Mine Statutory Inspection Scheme

The Mine statutory inspection scheme clarifies that the MG 807 1A CT was in part of a ERZ1. The Mine statutory officials were conducting inspections as though it was a work place in a NERZ. (Referred to earlier)

The inspection scheme requires that a work place be inspected twice per shift, at a maximum interval of six hours. It was in excess of six hours from when an inspection was conducted and VLI starting work on the night shift.

The inspection scheme also requires that a pre-shift inspection be conducted where an inspection lapses. No pre-shift inspection was conducted.

The risk assessment associated with the statutory inspection scheme was last reviewed on 30 June 2011. The document also states that it is to be reviewed every three years. This requirement has not been met. *(Refer Appendix16 – Statutory Inspection Regime).*

11.9 Spontaneous Combustion Management Plan

The Mine Spontaneous Combustion Management Plan states that stowage will only be placed as detailed in an authorised Grasstree Mine Stowage Permit.

No permit was completed for the stowage placed in the MG 807 1A CT. The form used has a section where the controls to be applied should be listed. The work was undertaken without formal controls applied. *(Refer Appendix 17 - Spontaneous Combustion Management Plan).*

12 ICAM Analysis

A BHP systematic safety investigation analysis method called Incident, Cause, Analysis, Methodology (ICAM) was used by Inspector Callinan and Inspector Gouldstone, to identify local factors and failures within the broader organisation and productive system, (e.g. communication, training, operating procedures, incompatible goals, organisational culture, equipment, etc.) which contributed to the incident.

Through the analysis of this information, ICAM provides the ability to identify what really went wrong and how to prevent a recurrence of the incident. This method was used to present the incident findings in terms of:

12.1 Absent or Failed Defences

These failures result from inadequate or absent defences that failed to detect and protect the system against technical and human failures. These are the last minute measures which did not prevent the outcome or mitigate the consequences of an individual or team action that resulted in an incident or near miss.

- SLAM conducted by Ian Downes did not identify rib conditions as a hazard
- Mine pre-shift meeting did not address VLI activities
- No Statutory inspection conducted of work area on the nightshift of the incident
- Statutory inspections conducted is not in compliance with Mine inspection regime
- VLI shift supervisor did not attend pre-shift meeting
- Primary support was not installed as required by the Mine managers support rules.

12.2 Identify the Individual / Team Actions

These are the errors or violations that led directly to the incident. They are typically associated with personnel having direct contact with the equipment, such as operators and maintenance have a direct relation with the incident. Human error types are slips, lapses, mistakes and violations.

- Deterioration of rib support not identified by Statutory Officials
- Non-compliance with Mine Managers support rules not identified by Statutory Officials
- ERZ Controllers did not conduct required inspection of work area
- MSO instructed ERZ Controller to sign a district board for an area he had not inspected
- ERZ Controller signed a district board and statutory report for an area he had not inspected
- s.10(1)(ch4p4(6) Personal informatic did not conduct SLAM at start of shift.

12.3 Identify the Task / Environmental Conditions

These are the conditions in existence immediately prior to or at the same time as the incident. These are the conditions that directly influence human and equipment performance in the workplace. These are the circumstances under which the errors and violations took place and can be embedded in task demands, the work environment, individual capabilities and human factors.

- ERZ Controllers and MSO's not aware of tasks being conducted by VLI
- No stowage permit completed for stowing material in MG 807 roadways
- Placement of stowage caused deterioration of rib support
- Rib support damaged during removal of stowage
- High back ground noise masked rib failure.

12.4 Identify the Organisational Factors

These are the underlying organisational factors that produce the conditions that affect performance in the workplace. They may lie dormant or undetected for a long time within an organisation, and the repercussions may only become apparent when they combine with the local conditions, and errors or violations, to breach the system's defences. These may include fallible management decisions, processes and practices.

Organisational Factor types

TR - Training

- Management did not provide training in barring and scaling activities.

OR - Organisation

- Mine senior management culture production focused
- Statutory Officials confusion as to whether incident site was an NERZ or ERZ1
- Statutory inspection did not identify unsupported rib
- Adequacy of SLAMs not effectively monitored by Statutory Officials
- Geotechnical mapping did not identify unsupported rib.

CO - Communication

- Mine planning system was twenty four hours behind schedule for VLI activities
- Day shift ERZ Controllers did not communicate the activities being conducted by VLI
- VLI supervisor did not attend the Mine pre-shift meeting
- VLI activities were not discussed at the MSO hand over meeting.

PR - Procedures

- ERZ Controllers did not follow requirements of the Mine inspection regime
- Management did not monitor implementation of the Mine inspection regime
- Monitoring requirements of Strata Control Management Plan were not implemented
- Mine did not develop and implement Standard Work Procedure for barring and scaling.

DE - Design

- No support standards to address risk of pressure grouting activities.

RM - Risk Management

- No risk management applied to pressure grouting activities being conducted by VLI
- Required review of the risk assessment for the Mine inspection regime was not conducted
- Geotechnical risk management did not address niche support standards
- No risk assessment conducted for the placement of stowage in MG 807 roadways.

CM-Contractor Management

- Several VLI procedures were not included in Grasstree Safety and Health Management System
- Geotechnical Department was not aware that the gas drainage plan had been changed
- MSO's did not see work orders developed for VLI
- Ineffective management and control at senior level for VLI activities
- Requirements of the contract between Grasstree Mine and VLI not enforced.

13 Conclusions and Observations

13.1 Nature of Incident

The investigation found that Ian Downes received fatal injuries as a direct result of being struck by large pieces of rib coal and stone. Rib material has fallen striking him predominately on the right side of his body.

13.2 Cause of Accident

The area in which they were working was MG 807 1A CT. This section of the Grasstree Mine was developed in August 2011, and the rib support was not installed in accordance with the support rules.

ch4p4(6) Personal informatio was drilling holes into the rib with a windy borer, while Ian Downes inserted plastic tubing into these holes and sealed with grout. The disturbance of the rib during this activity, and the fact it was not adequately supported, caused the rib to fall and strike Ian Downs.

13.3 Contributing factors

13.3.1 Geotechnical Inspections

Geotechnical Mapping was conducted of MG 807 1A CT on 2 September 2011. This mapping exercise did not identify that the Primary Support originally installed, was not in compliance with the Underground Mine Managers support rules. The purpose of this mapping exercise is to identify such issues. No additional geotechnical inspections had been conducted of 807 M/G 1/ct since this mapping exercise.

Geotechnical Engineers have on other occasions conducted inspections of gas drainage niches to determine the adequacy of the support, and to determine the extent of drill holes and pattern for pressure grouting. No inspection was conducted of MG 807 1A CT as the Geotechnical Department was not aware that the Methane Drainage Plan had been bought forward. Mr ch4p4(6) Personal informa conducted an inspection MG 807 1A CT post incident in the company of Inspector Katie Ormond. He stated in his interview that he would have recommended additional support be installed if he had conducted an inspection before grouting activities commenced. He stated that the primary rib support in the area was affected by corrosion, and damaged by machines during the removal of stowage. This meant the rib support was not performing to its design standard.

The tell-tale that was installed at MG 807 1A CT was read and recorded only once since it was installed, that being on the same day it was installed. The Strata Control Management Plan states that monitoring of strata support in the underground workings is critical for maintaining a safe work environment, and also for evaluating the effectiveness of support designs. One method of monitoring strata support is by using tell-tales.

The investigation found that apart from ERZ Controllers inspections, there was no additional monitoring of the strata support in MG 807 1A CT conducted.

13.3.2 Statutory Inspections

On the day of the accident the communication process between MSO's and ERZ Controllers was ineffective, and as a result, no statutory inspection was conducted in MG 807 1A CT after approximately 1.00 pm. VLI worked in MG 807 1A CT on dayshift from 6.45 am to 5.30 pm. They received two inspections within 30 minutes from 3) Personal inf 6) Personal inf and 4(6) Personal infor at approximately 11.30 am and 12.00 pm respectively.

The first inspection of the succeeding nightshift was not completed at all due to confusion between mine officials in regard to where and how VLI Employees were deployed. The MG 807 1A CT was classified as an ERZ 1 by the Mine, yet several ERZ Controllers thought it was a NERZ. As an ERZ1 there should have been a pre-shift inspection conducted before men commenced work. The inspection regime did not satisfy the requirements for either a NERZ or ERZ1. Failure to conduct this inspection removed the opportunity to identify the unsupported rib and to implement controls. This was the first time for a considerable period that any person was to deliberately disturb the rib at that site.

13.3.3 Primary Support

The roadway where the incident occurred was driven in August / September 2011. The area of the rib failure was not supported in accordance with the Manager's Support Rules, despite operations being under the supervision of an ERZ Controller. At least two rib bolts 1.2m long were not installed in the area of the rib that failed.

The roadway was drive by a continuous miner and the bolts were installed by the rig mounted bolter. The position of the bolting rigs does not allow for bolts to be installed continuously to the cutting face. There is approximately 3.6 metres of rib that must be supported by hand held bolters at a later time.

The area were the rib support bolts were not installed was the area that failed and struck Ian Downes.

13.3.4 Stop Look Assess Manage (SLAM)

h4p4(6) Personal informatio did not complete a SLAM at the beginning of his shift as required. Ian Downes completed a SLAM, but it was for the use of the windy borer rather than the activity he was conducting. h4p4(6) Personal informati as his supervisor did not review and initial the SLAM completed by Ian Downes.

During interviews both h4p4(6) Personal informati and 4(6) Personal infor stated that SLAMs were just tick and flick documents. By not reviewing the SLAM completed by Ian Downes, the opportunity to identify the unsupported rib and potential failure zone was missed.

The SLAM completed by Ian Downes on the night of the incident was for the use of a windy borer, rather than inserting tubing into the drill holes and sealing with grout. The hazard of rib failure was not identified even though it was present for both activities.

13.3.5 Stowage

The MG 807 1A CT roadway was stowed with debris from the Longwall 807 take-off in September 2013. It was removed between 4 and 7 December 2014. The debris that was stowed in MG 807 roadways was reported as wet and known to be alkaline.

The stowage was in the roadway for approximately 15 months. This resulted in the primary rib support bolts becoming extensively corroded. The stowage was removed by LHD Loader, and during this process several rib bolts and plates were damaged. As a result of the corrosion and damage, these bolts were not performing to their design standard.

13.3.6 Communication

Activities conducted by VLI were not mentioned in the MSO change over meeting or the Mine pre-shift meeting. The Fewzion system did reference VLI's activities in MG 807 1A CT, but the detail was not synchronised with the actual progress made.

The failure to communicate the activities being conducted by VLI resulted in no statutory official on the afternoon shift being aware that VLI nightshift personnel were working in MG 807 1A CT. As a direct result of this, no inspection was conducted of the VLI work place until after the incident.

13.3.7 Background Noise Level

The site of the incident was adjacent to a ventilation control device. Noise measurements conducted indicated levels of 81dBA. This noise level, coupled with using a windy borer, would have made hearing a failing rib more difficult to detect.

13.3.8 Change Management

A project team was formed in October 2014, when the decision was made to renew efforts to reclaim the East Mains. It was planned to restart developing the East Mains early in 2015, and associated with that decision, it was recognised that underground in seam Methane Drainage would be a pre-requisite.

The location chosen for pre-drainage was the intersection of 53CT and MG 807 1A CT. This meant that VLIs planned works elsewhere in the Mine were rescheduled to achieve this aim. No formal risk management process was followed to ensure that this change was conducted at an acceptable level of risk.

This process should have been applied as each niche development is potentially different. A majority of niches created at the Mine are in the development stage. The risks created will differ depending on local geology.

In this particular case there was a significant change since the niche was established from an existing road way, and not from a purpose driven niche.

14 Conclusions

- Ian Downes died as a result of being struck by coal and rock that fell from the rib he was working adjacent to.
- The conclusion of the investigation team is, in concurrence with the Queensland Police Service, this incident, was an industrial accident.
- The primary support installed in MG 807 1A CT was not in compliance with the Mine Managers Support Rules.
- The Mine did not apply a change management process when the decision to drill from MG 807 1A CT was made.
- Geotechnical mapping of MG 807 1A CT did not identify the primary support was not in compliance with the Mine Managers Support Rules.
- Statutory inspections conducted were not in compliance with the Mine inspection regime.
- Statutory inspections of MG 807 1A CT did not identify that the primary support was not in compliance with the Mine Managers Support Rules.
- A Statutory inspection was not conducted in MG 807 1A CT before VLI commenced work on nightshift.
- The Scope of Works for MG 807 1A CT was not completed and signed off by VLI and Grasstree before work commenced.
- The contract between VLI and Grasstree Mine required the niche to be meshed and bolted. This was not implemented.
- The activities being conducted in MG 807 1A CT were not effectively communicated between statutory officials.
- h4p4(6) Personal informati did not complete a SLAM. Ian Downes did not complete a SLAM for the task he was conducting.
- Training was not conducted in barring and scaling or equipment provided to conduct barring and scaling activities. No standard work instruction was developed for barring and scaling.
- A stowage permit was not generated for placing stowage in MG 807 roadways.
- Mine management was not effective in managing and controlling VLI contractors.

15 Recommendations

The Mine Safety and Health Management System must ensure:

1. When mine roadways are driven that they are supported in accordance with the Underground Mine Managers support rules.

2. Audits of underground roadways where personnel are expected to work or travel to ensure that the original support is still effective

3. That before work is undertaken that may interfere with the effectiveness of the original support a risk assessment is conducted before the activity begins.

4. The statutory officials are informed at the start of shift of all work activities being conducted in the area under their control.

5. The statutory officials conduct inspections with a degree of diligence that provides an acceptable level of risk.

6. The contractor management procedures are effective in controlling, monitoring and assessing all activities undertaken by contractors at the Mine.

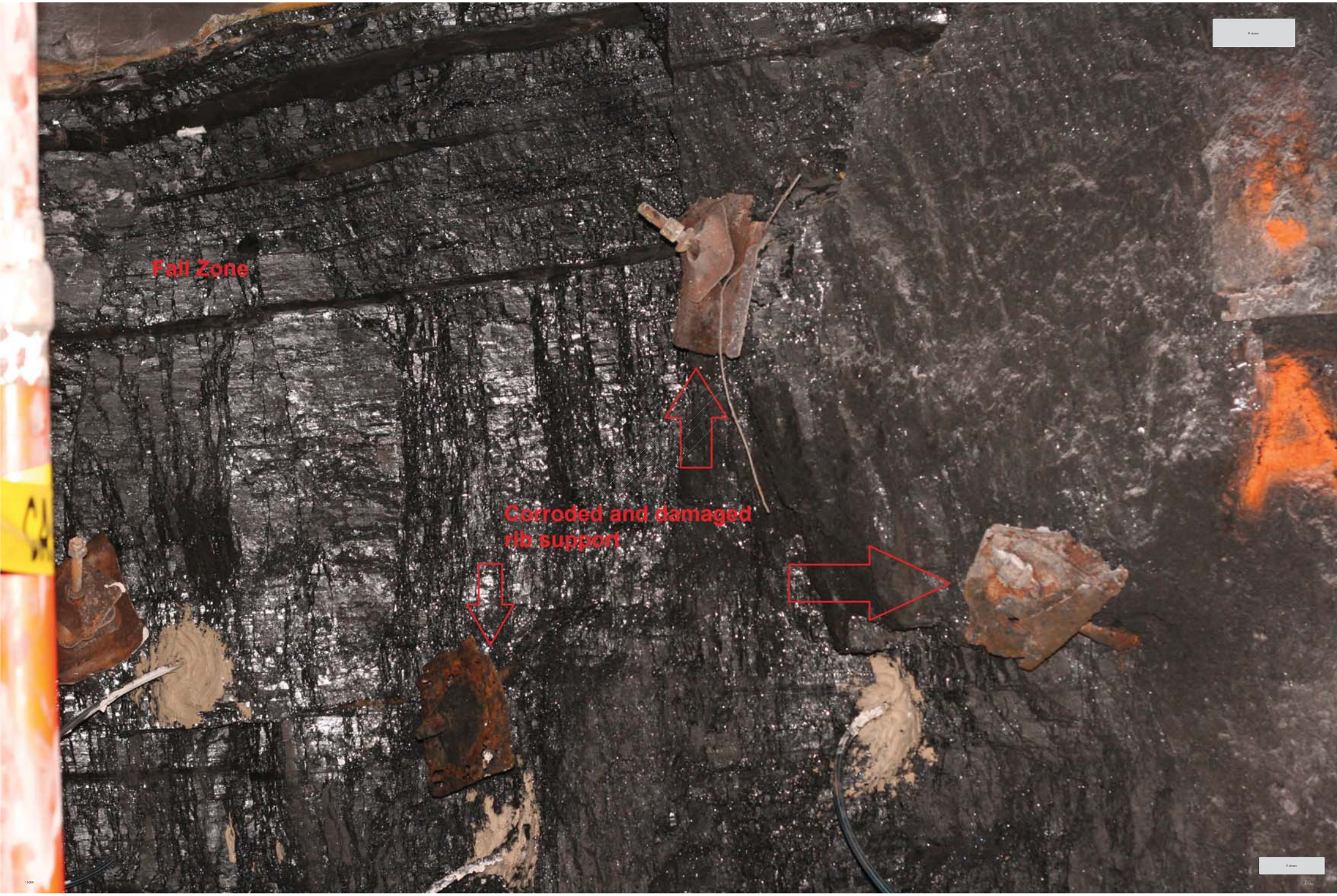
7. There is a process that records attendance at pre-start meetings.

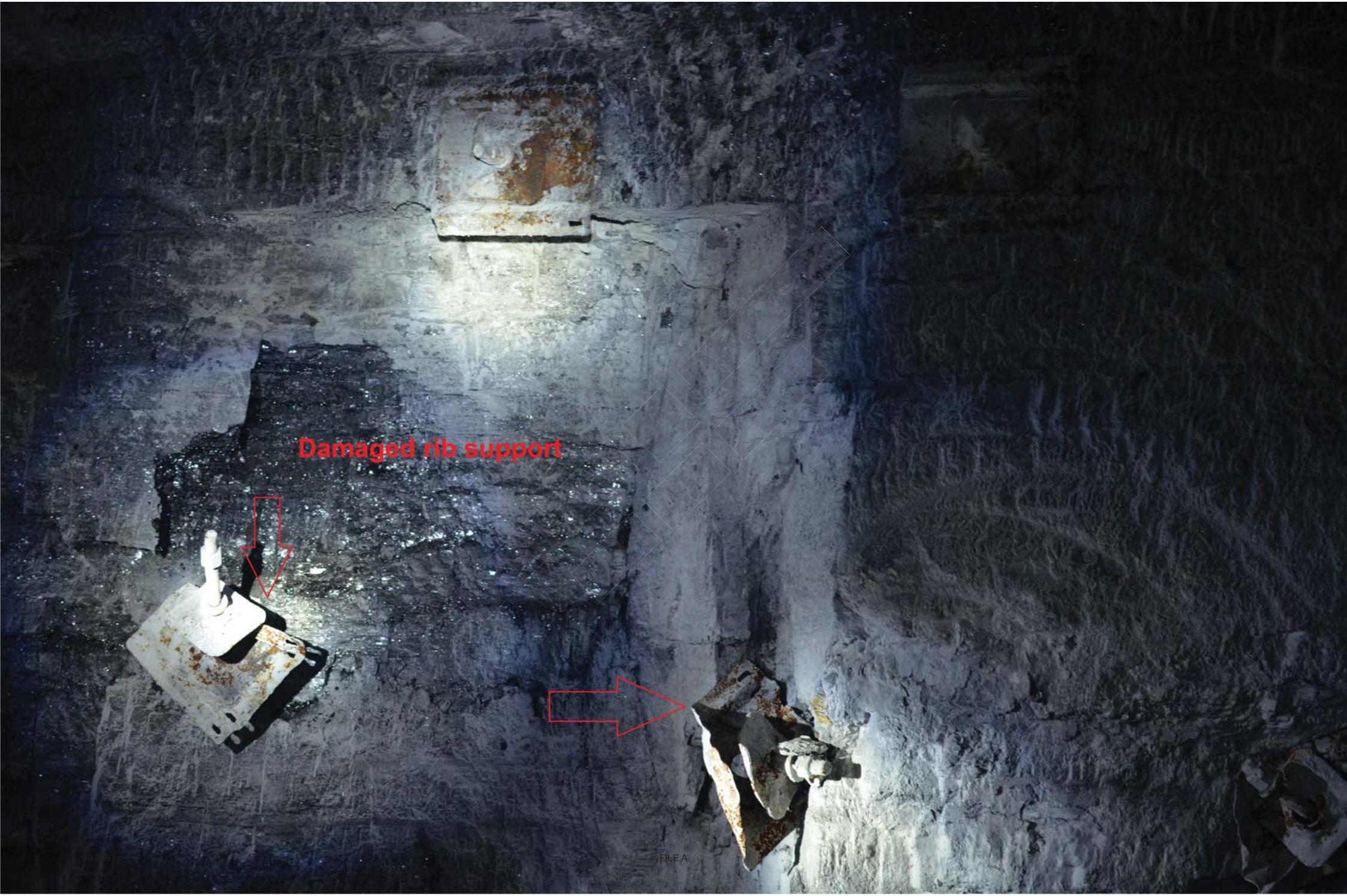
8. The workplace inspections conducted by mine workers are monitored for effectiveness.

9. There is a process which periodically checks for the effectiveness of the Geotechnical Mapping process.

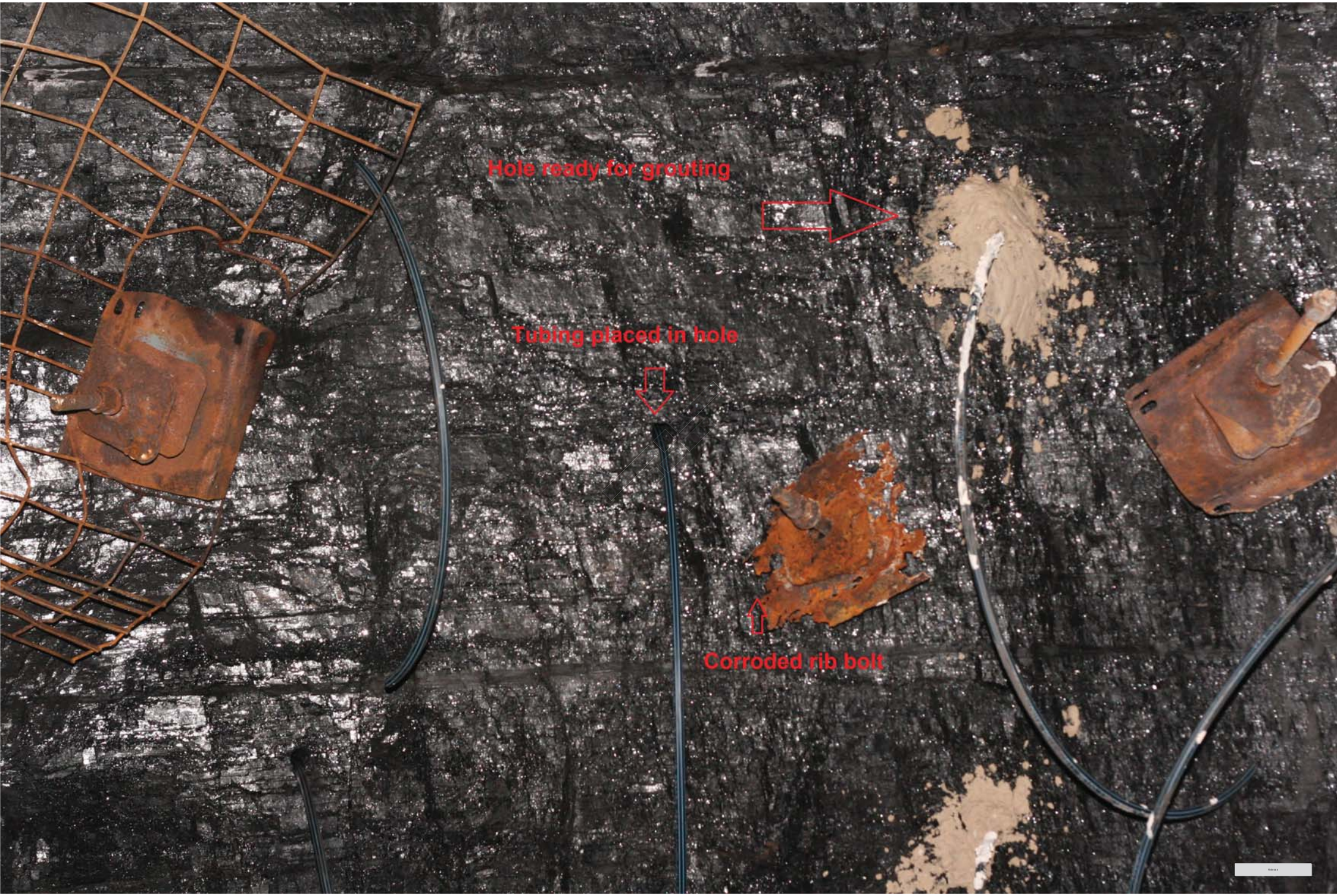
16 Appendices

1 Form 1A
2 Yellow Support Plan
3 Fewzion Plans
4 ERZ Boundary Plan
5 Witness Statements
6 Statutory Inspection Reports
7 Autopsy & Police Reports
8 Operation Management System Underground Geotechnical
9 Grasstree Strata Review and Preview
10 Major Services Contract
11 VLI Documents
12 Strata Control Management Plan
13 Gas Drainage Scope of Works
14 Ian Downes SLAM
15 MOS 13.4.3 Pre-shift Crew Meeting
16 Statutory Inspection Regime
17 Spontaneous Combustion Management Plan
18 Video and Photographs
19 6) Personal inf and Downes Training Records
20 Survey Plans


Fall Zone
Corroded and damaged
rib support

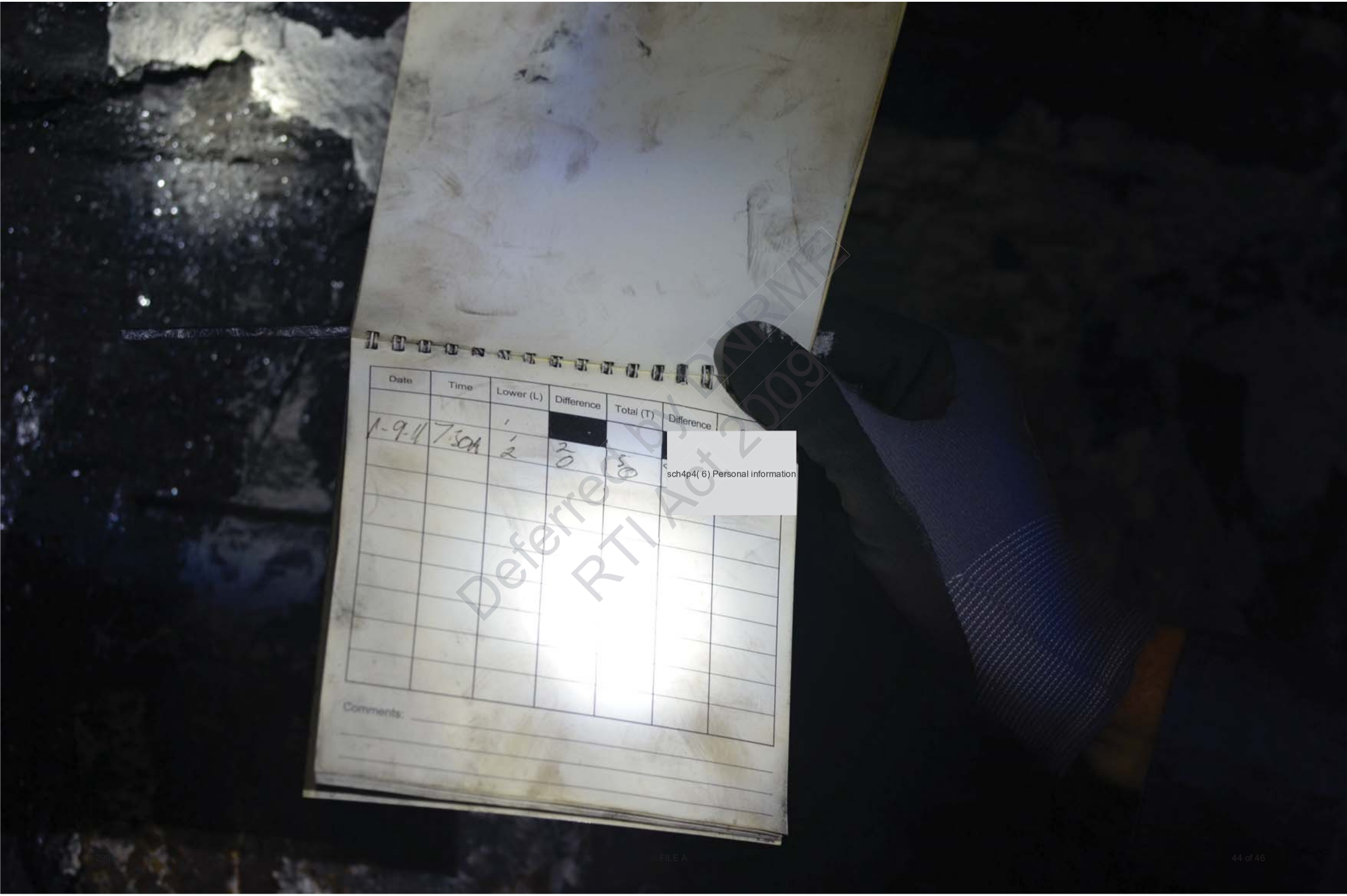

Damaged rib support


Coal and Rock fell from this area
CAUTION


Hole ready for grouting
Tubing placed in hole
Corroded rib bolt


38 of 46

TELLTALE
READING PAD
DO NOT REMOVE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Comments:
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RTI Act 2009