

QUEENSLAND GOVERNMENT
DEPARTMENT OF NATURAL RESOURCES, MINES AND ENERGY
RESOURCES SAFETY AND HEALTH

Mining and Quarrying Safety and Health Act 1999

INVESTIGATION REPORT

ON THE

FATAL ACCIDENT

CONNOR-SHAYE sch4p4(6) Persona MILNE

**FAIRFIELD QUARRY
CLERMONT, QLD.**

THURSDAY 15th NOVEMBER 2018

LEAD INVESTIGATING OFFICER:

JULIE DEVINE
Senior Inspector of Mines
Townsville

INVESTIGATING OFFICER:

MICHAEL SCULLY
Inspector of Mines - Mechanical
Mackay

NOEL TOWERS
Inspector of Mines
Mackay

SUPPORT OFFICER:

ANDREW SMITH
Principal Investigations Officer
Mackay

JOHN BARRON
Principal Investigations Officer
Brisbane

DATE of REPORT:

17/06/2019

Accident Database Reference No:

FR - JDEE-B6J58X

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Appendix 1. s.73 Irrelevant information

s.73 Irrelevant information

Appendix 2. s.73 Irrelevant information

s.73 Irrelevant information

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Appendix 5. s.73 Irrelevant information

Released by RSHQ
RTI Act 2009

1 ABBREVIATIONS USED WITHIN THE REPORT

Abbreviation	Full Description
BAC	Blood Alcohol Content
Cat	Caterpillar
Chieftain Screen	Chieftain 1400 Powerscreen
CPR	Cardiopulmonary Resuscitation
CV	Conveyor
DNRME	Department of Natural Resources Mines and Energy
HPI	High Potential Incident
JSA	Job Safety Analysis
LCS	Local Control Station
LHS	Left Hand Side, viewed from rear of conveyor tail pulley
MCC	Motor Control Centre
MQSHA	Mining and Quarrying Safety and Health Act 1999
MQSHR	Mining and Quarrying Safety and Health Regulation 2017
MRE	Mine Record Entry
PIO	Principal Investigations Officer
PLC	Programmable Logic Controllers
QAS	Queensland Ambulance Service
QPS	Queensland Police Service
RHS	Right Hand Side, viewed from rear of conveyor tail pulley
ROI	Record of Interview
RTO	Registered Training Organisation
SHMS	Safety and Health Management System
SMS	Safety Management System
SMS Folder	Folder titled "Fairfield Quarry – SMS" from the site office
SWMS	Safe Work Method Statement
SWP	Safe Work Procedure
SOC	Scene of Crime
SOP	Standard Operating Procedure
SSE	Site Senior Executive
TPH	Tonnes per Hour
VSI	Vertical Shaft Impactor
Warrior Screen	Warrior 2400 Powerscreen

2 PERSONS NAMED IN THE REPORT

Title	Surname	First Name	Relevance / Position	Employer	
PIO sch4p4(6) Personal information	BARRON	John	Principal Investigations Officer	DNRME	
			Administration Officer	Clermont Quarries Pty Ltd	
			Maintenance Coordinator	s.73 Irrelevant information	
Inspector	BULGER	Creswick	Inspector of Mines	DNRME	
Inspector sch4p4(6) Personal information	DEVINE	Julie	Senior Inspector of Mines	DNRME	
			Previous Quarry Worker	Clermont Quarries Pty Ltd	
			Previous Quarry Worker	Clermont Quarries Pty Ltd	
			Quarry Worker	Clermont Quarries Pty Ltd	
sch4p4(6) Personal information			Deputy Chief Inspector of Mines – Mineral Mines and Quarries Supervisor prior to s.73 Ir sch4p4(6) Personal information	DNRME	
sch4p4(6) Personal information				Clermont Quarries Pty Ltd	
				Supervisor	Clermont Quarries Pty Ltd
				Safety Co-ordinator	Clermont Quarries Pty Ltd
				QPS, Clermont Station	QPS
				SSE	Clermont Quarries Pty Ltd
Mr	MILNE	Connor-Shaye	Deceased	Clermont Quarries Pty Ltd	
sch4p4(6) Personal information			sch4p4(6) Personal information		
			QPS, Forensic Crash Unit	QPS	
			Quarry Worker	Clermont Quarries Pty Ltd	
			Previous Supervisor	Clermont Quarries Pty Ltd	
			Electrician	Slatts Electrical	
PIO	SMITH	Andrew	Principal Investigations Officer	DNRME	
sch4p4(6) Personal information			Quarry Worker	Clermont Quarries Pty Ltd	
			Quarry Worker	Contractor	
Inspector	SCULLY	Michael	Inspector of Mines – Mechanical	DNRME	
sch4p4(6) Personal information			Quarry Worker	Clermont Quarries Pty Ltd	
Inspector	TOWERS	Noel	Inspector of Mines	DNRME	
sch4p4(6) Personal information			Operations Manager	Clermont Quarries Pty Ltd	

Released Pursuant to RTI 2009

3 GLOSSARY OF TERMS USED WITHIN THE REPORT¹

Belt Conveyor	Apparatus or equipment operated by any power other than manual, by which loads are transported by an endless belt. The endless belt is typically driven by a pulley at one end and around a freely rotating pulley at the other end.
Cleaning Plough	A device positioned across the path of a conveyor at the correct angle to discharge or deflect material. Typically located on the returning side of the endless belt conveyor.
Crusher	<p>A crusher is a machine designed to reduce large rocks into smaller rocks, or rock dust.</p> <p>A Jaw Crusher uses two vertical jaws, one fixed and one swinging, to crush the rock. It is a primary crusher.</p> <p>A Cone Crusher has a gyrating spindle and a concave hopper. Rock is crushed as it is wedged between the spindle and the bowl liner. Rock continues to be broken as it falls to a lower position within the crusher where it is broken again. In this operation, it was being used as a secondary crusher.</p> <p>Vertical Shaft Impactor (VSI) uses a high speed rotor and a crushing chamber against which rocks are thrown against. It utilises velocity rather than surface force to break the rock which allows the breaking force to be applied evenly both across the surface of the rock and through the mass of the rock. This produces a consistent cubical shape.</p>
Competence	The demonstrated skill and knowledge required to carry out the task to a standard necessary for the safety and health of persons. ²
Guard	Part of a conveyor system specifically used to provide protection by means of a physical barrier
Hard Hat	Safety helmet
Head Pulley	A rotating pulley at the discharge end of the conveyor.
High Potential Incident (HPI)	An event, or a series of events, that causes or has the potential to cause a significant adverse effect on the safety or health of a person. ³
Idler	<p>A rotating element which provides support or guidance to a conveyor belt. The terms idlers and rollers are interchangeable, and AS4024.3610:2015 refers to both.</p> <p>Carrying Idlers are a series of rollers used to support a conveyed load. Normally found under the top belt where the material is “carried”.</p> <p>Impact Idlers can be used under points of impact (such as transfer chutes) in place of carrying idlers. Impact idlers are fitted with concentric rubberized rings. They are used when handling bulk material products, such as rocks, as they provide a cushioning effect where the belt is loaded, allowing the energy associated with the impact to be absorbed.</p>

¹ Definitions regarding conveyors are derivatives from AS4024.3610:2015

² MQSHA, s. 13

³ MQSHA, s. 18

Motor Control Centre (MCC)	A central location where some or all of the motors can be controlled. MCC is the physical groupings of combination starters in one assembly. A combination starter is a single enclosure containing the motor starter fuses or circuit breaker and a device for disconnecting power.
Nip Point	The point at which a moving conveyor element meets a fixed or moving element, so that it is possible to nip, pinch, squeeze, entangle or entrap parts of the human body
Pull Wire	A wire connected to a device provided for emergency stop control which, when pulled, activates the device. Also known as a lanyard when used as an emergency stop control.
Pull Wire Switch	A device (noted above) provided for the protection of the conveyor or personnel from a hazard which, when activated, stops the energy to the conveyor.
Programmable Logic Controller (PLC)	An industrial digital computer which can control the operations of that unit.
Return Side of a Conveyor	The return side is the underside or returning part of the endless belt.
Serious Accident	A serious accident causes the death of a person, or a person being admitted to hospital as an inpatient for treatment for the injury. ⁴
Skirting	Rubber strip seal installed at transfer points to minimize material loss and dust emissions.
Tail Pulley	The freely rotating pulley at the opposite end of the conveyor from the head/discharge pulley. It is typically located near the entry point of the product and services the purpose of “returning” the belt.
Transfer chute	An open ended structure used to facilitate the transfer of bulk material from one conveyor to another or for redirecting flow from a delivery point into a process or equipment.

⁴ MSHA, s. 17

4 SUMMARY

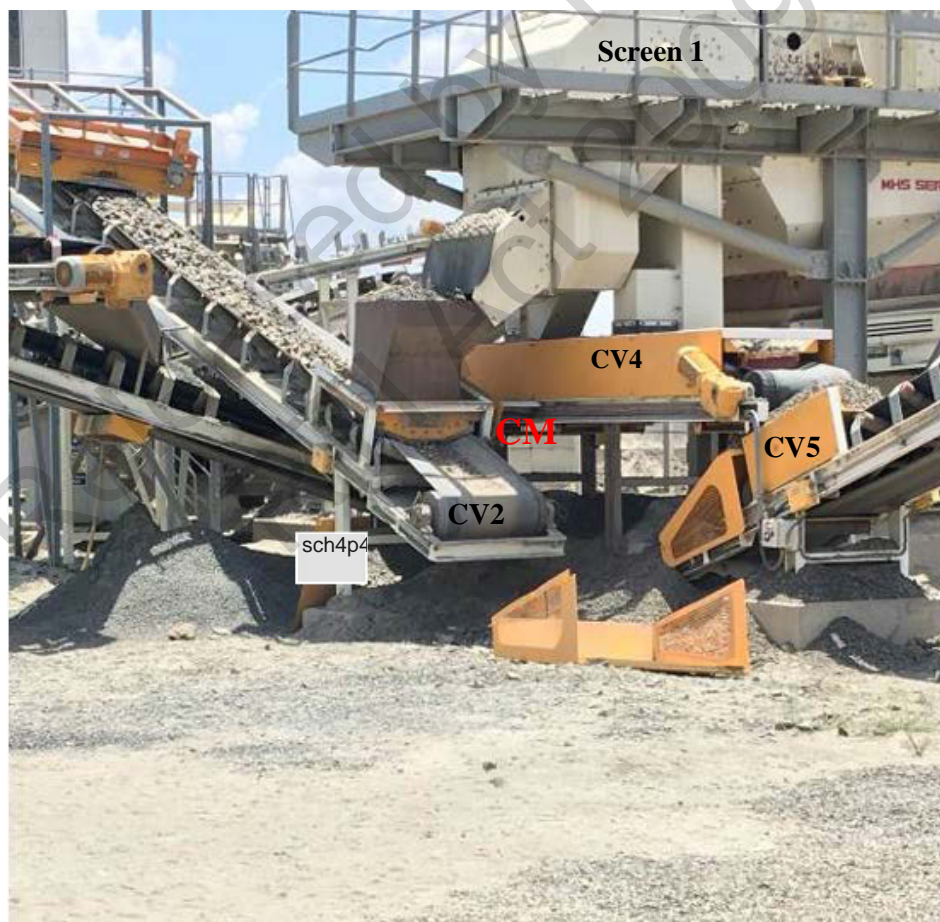
At approximately 11:17 hours on Thursday 15 November 2018, Mr Connor-Shaye MILNE (Quarry Worker) received fatal injuries when he was pulled into the tail pulley of Conveyor 2 (CV2) at the Fixed Plant at Fairfield Quarry, Clermont.

At the time of the accident, Mr MILNE and sch4p4(6) Personal information (Quarry Worker) were removing rocks from the return side of a conveyor belt. They removed a guard and used their hands to clear rocks from the tail pulley of CV2 while the conveyor was operating.

Mr MILNE was adjacent to the tail pulley on the right hand side (RHS) of CV2, between the conveyor and CV4/Screen 1. He was standing on loose aggregate in an area approximately 570 mm in width. sch4p4(6) Personal info was on the left hand side (LHS) of CV2.

While clearing the loose material, Mr MILNE's arm was caught in the CV2 tail pulley. Mr MILNE was then dragged into the tail pulley where he received fatal injuries.

At the time of the incident, Mr MILNE was an employee of Clermont Quarries sch4p4(6) Persc and had been at Fairfield Quarry sch4p4(6) Persc⁵



IMG_1250: Overview of Accident Site showing CV2 tail pulley area, and location of CV2 tail pulley guard (Photograph has been cropped. Positions of personnel shown by their initials.)

⁵ 2.09. s.73 Irrelevant information

5 PERSONAL DETAILS OF THE DECEASED

Name: Connor-Shaye ^{sch4p4(6) Per}MILNE⁶
Age: 21 years
Date of Birth: ^{sch4p4(6) Personal ir}
Occupation: Quarry Worker

Reported Injuries Sustained: Head and chest injuries⁷

Location of Accident: CV2, Fixed Plant, Fairfield Quarry
Latitude: 22°40'40.03"S Longitude: 147°39'47.31"E

Employer: Clermont Quarries Pty Ltd

Primary Contact: ^{sch4p4(6) Personal information}
Next of Kin: ^{sch4p4(6) Personal information}

6 MINE DETAILS

Name of Mine: Fairfield Quarry⁸
Location: Lot 90 on Plan SP251590 and Lot 100 on Plan SP265306
735 Peak Downs Highway, Clermont QLD 4721⁹
Postal Address: PO Box 476, Clermont QLD 4721

Operator: Clermont Quarries Pty Ltd¹⁰ (Clermont Quarries)
Ultimate Holding Company: Capricorn Bulk Haulage Pty Ltd¹¹
Appointment Date: 1/11/2015
ACN: 606 766 250
ABN: 73606766250
Listed: 30/06/2015

Site Senior Executive: ^{sch4p4(6) Personal informatio}

Fairfield Quarry is located approximately 22 km east of Clermont on the Peak Downs highway. Fairfield Quarry produces quarry product through drilling and blasting rock, then processing the rock through a Fixed Plant and mobile screening plants.

Clermont Quarries is also the Operator for three other quarries in Central Queensland: Rolf Creek Quarry (Middlemount); Bore Creek Quarry (Middlemount) and Luxor Quarry (Dysart). The approximate distance between the four quarries is 200 kilometres.

⁶ 2.01 s.73 Irrelevant information

⁷ 2.01

⁸ 1.02

⁹ 2.03

¹⁰ 2.0

¹¹ 2.0

¹² 2.0

7 NOTIFICATION OF ACCIDENT AND RELEASE OF SITE

15 November 2018

At 11:50 hours, Inspector Noel TOWERS (Inspector of Mines) was notified by sch4p4(6) Personal inform (SSE) of a possible fatality at the Fairfield quarry.

At approximately 12 pm, DCIM Hermann FASCHING (Deputy Chief Inspector of Mines – Mineral Mines and Quarries) assigned Inspector Julie DEVINE (Senior Inspector of Mines) to be Lead Investigator.

At approximately 12:30 hours, sch4p4(6) Pers confirmed with Inspector TOWERS the accident was a fatality involving a conveyor belt tail pulley. Inspector TOWERS issued a verbal Directive to sch4p4(6) Pers under section 167 of the *Mining and Quarrying Safety and Health Act 1999* (“the Act”), to secure and isolate the site.

Officers from Queensland Police (QPS) attended the quarry.

At 13:20 hours, Inspector Creswick BULGER (Inspector of Mines) arrived on site, followed by PIO Andrew SMITH (Principal Investigations Officer) at 15:19 hours, Inspector TOWERS at 16:20 hours, and Inspector Michael Scully (Inspector of Mines) at 16:45 hours.

At 20:13 hours, Acting Sergeant sch4p4(6) Personal infor (QPS) handed the scene over to Inspector TOWERS.

Inspector TOWERS and Inspector SCULLY left site at 20:40 hours. sch4p4(6) Person organised MP Security to maintain security at the front entrance gate after the Inspectorate staff left the site.

16 November 2018

At approximately 09:40 hours, Inspector DEVINE, Inspector TOWERS, Inspector SCULLY and PIO SMITH arrived at Fairfield Quarry to continue the investigation.

17 November 2018

At approximately 11:40 hours, Inspector DEVINE handed the site back to the SSE, sch4p4(6) Persona with the following directive requirements:

1. Access to the fixed plant by mine personnel was only allowed for the purpose of carrying out the SSE’s investigation; and
2. The operation of the fixed plant was prohibited until further notice.

The directive issued by Inspector DEVINE was lifted on 05/12/2018.

8 EMERGENCY RESPONSE

When Mr MILNE became caught in the tail pulley ^{sch4p4(6) Personal information} pulled the pull wire on the LHS of CV2, while ^{sch4p4(6) Personal information} pulled the pull wire on the RHS of CV2.¹³ ^{sch4p4(6) Personal information} (Supervisor) attention, and ^{sch4p4(6) Personal information} radioed ^{sch4p4(6) Personal information} (Quarry Worker) to activate the emergency stop button in the Control Room.¹⁴ This cut all power to the plant.

The belt ran backwards, partially releasing Mr MILNE from the tail pulley. Mr MILNE was removed from the conveyor so that first aid could be administered.¹⁵

^{sch4p4(6) Personal information} (Quarry Worker), ^{sch4p4(6) Personal information} (Quarry Worker) commenced Cardiopulmonary Resuscitation (CPR) on Mr MILNE. They were then assisted by ^{sch4p4(6) Personal information} (Operations Manager).¹⁶

CPR continued until the Queensland Ambulance Service (QAS) arrived on site.

At 11:17 hours, ^{sch4p4(6) Personal information} made a triple 0 call. He stayed on the emergency line until QAS arrived approximately 19 minutes later.¹⁷

At 11:40 hours, Mr MILNE was pronounced life extinct by QAS officers while on site.¹⁸

9 INVESTIGATION

9.1 INVESTIGATION PROCESS

This investigation process consisted of:

- Investigating the accident scene on the 15 - 16 /11/2018;¹⁹
- Accompanying the QPS while they conducted their investigation;²⁰
- Taking videos and photographs;²¹
- Investigating the operation of the Fixed Plant on the 05/12/2018;²²
- Obtaining and reviewing site documentation; and
- Interviewing site personnel.²³

¹³ s.73 Irrelevant information

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¹⁷ s.73 Irr

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²² s.73 Irr

²³ 3.0 Milne – Phone Album. All photographs taken by the Inspectorate were compiled in an album, Appendix 3, while relevant videos taken by the Inspectorate are detailed in Appendix 4

²⁴ s.73 Irrelevant information

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9.2 CRUSHING AND SCREENING EQUIPMENT ON SITE

Processing plant at Fairfield Quarry consists of a Fixed Plant, two mobile screening plants and a pre-coater. A generator provides power to the Fixed Plant.

The Fixed Plant consists of:

- Hopper and associated Plate Feeder (Hopper);
- Terex Jaw Crusher MJ42 (Jaw Crusher);
- Terex Triple Deck Screen MHS6203 (Screen 1);
- Terex Cone Crusher MC1000 (Cone Crusher);
- Terex Vertical Shaft Impactor (VSI);
- Terex Triple Deck Screen MHS6203 (Screen 2);
- Control Room;
- Motor Control Centre (MCC); and
- Conveyors, namely CV0 – CV12 (inclusive)

The plant was designed by Terex Jacques and is a combination of Terex units and conveyors made by Thomas Trading.²⁴ The plant was commissioned in July 2013.²⁵

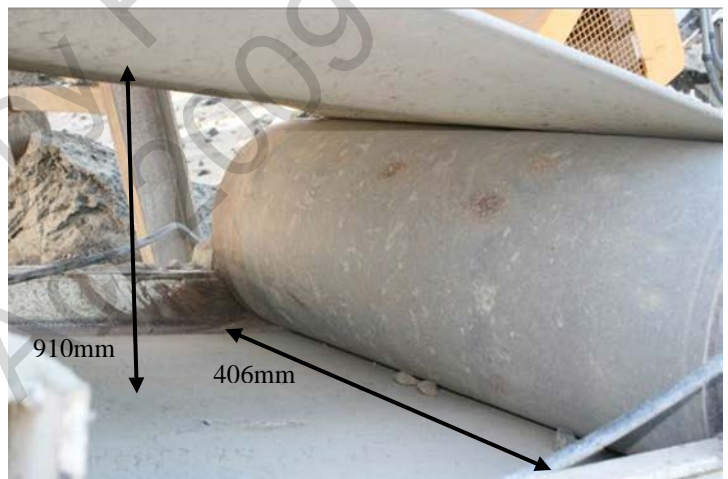
CV2 conveys product from Screen 1 to the Cone Crusher. The conveyor was fitted with a 910mm wide belt with 406 mm in diameter head and tail pulleys. The conveyor was driven by a 7.5 kW drive motor at the head pulley through a KA97 gearbox. Belt speed was nominally 0.75 m/s.²⁶

The conveyors, including CV2, can be operated from either a Local Control Station (LCS) in the vicinity of the conveyor or from the Control Room. The Terex plant units, including Screen 1, can be operated from a Programmable Logic Control (PLC) panel located near the unit (in manual mode) or the Control Room (in remote mode).

During normal operations, the Fixed Plant was operated by one person while a second person feed rock from a stockpile to the Hopper, using either a loader or an excavator. The transfer of rock through the plant could be regulated by the worker in the Control Room adjusting the speed of the pan feeder at the Jaw Crusher.²⁷



IMG_1287: Re-enactment of approximate position of Mr MILNE between CV4/Screen 1 and CV2 prior to the accident.



IMG_0184: CV2 Tail Pulley

²⁴ Thomas Trading is now Thomas Manufacturing.

² s.73 Irrelevant information

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s.73 |

On the 15/11/2018, there were three crushing/screening circuits²⁸ operating prior to morning break, which occurred at approximately 10:00 hours.

The circuit where the accident occurred was *Circuit 1* (Refer to *Figure 1 Schematic of the Fixed Plant*). The flow of product through this circuit was:

Stockpile – Hopper – Plate Feeder – CV0 – Jaw Crusher – CV1 –Screen 1.

Oversize product was re-circulated through the Cone Crusher:

Screen 1 – CV2 - Cone Crusher – CV3 – CV1 –Screen 1.

9.3 EVENTS LEADING UP TO THE ACCIDENT

On the day of the accident, there were 10 workers, including an office worker and the supervisor.

At approximately 05:45 hours, Mr MILNE arrived on site.

At approximately 06:00 hours, sch4p4(6) Personal i chaired a site safety meeting that discussed what tasks the workers would be doing for the day and a safety topic.²⁹

Prior to morning break, Mr MILNE was operating a Caterpillar 966 Loader feeding rock through the Chieftain 1400 Mobile Screen onto *Circuit 2* (Refer to *Figure 1 Schematic of the Fixed Plant*).³⁰

sch4p4(6) Personal inf was in the Control Room operating the Fixed Plant (*Circuit 1*) while sch4p4(6) Personal i was feeding rock to the Hopper with a Caterpillar 988K Loader. As a result of CV3 stopping, the Cone Crusher bogged. The Jaw Crusher subsequently bogged when the plant stopped.³¹

sch4p4(6) Personal in and sch4p4(6) Personal unblocked the Cone Crusher and Jaw Crusher. When unblocking the crushers, Screen 1 and CV2 are not operating. The rock from the crushers discharges onto Screen 1.³² During unblocking, the Jaw Crusher does not crush resulting in large rock discharging onto Screen 1.³³

²⁸ s.73 Irrelevant information

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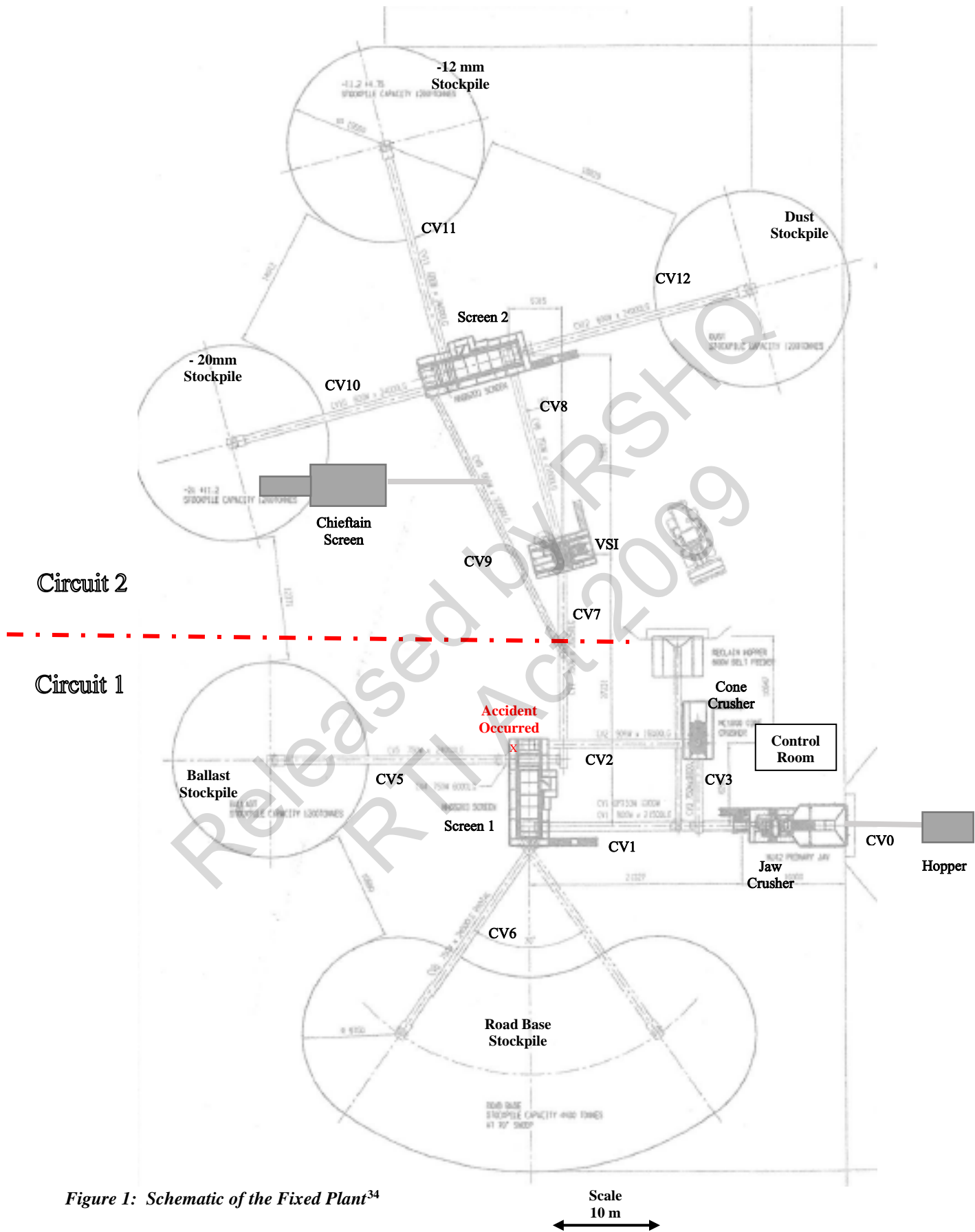


Figure 1: Schematic of the Fixed Plant³⁴

³⁴ s.73 Irrelevant information

After morning break, [sch4p4(6) Personal info] and Mr MILNE assisted [sch4p4(6) Personal info] and [sch4p4(6) Personal info] with starting the Fixed Plant. They removed rock in excess of 75mm from Screen 1, as this size rock is too large to go through the Cone Crusher.³⁵

On start-up, the location of personnel (Refer to *Figure 2: Schematic depicting location of individuals at start-up of Fixed Plant*) was:

- [sch4p4(6) Personal info] was in a light vehicle near CV1;
- [sch4p4(6) Personal info] was near [sch4p4(6) Personal info];³⁶
- [sch4p4(6) Personal info] as in a loader with the bucket under CV6 discharge to minimise product contamination;³⁷
- Mr MILNE and [sch4p4(6) Personal info] were in the Control Room;³⁸ and
- [sch4p4(6) Personal info] was starting the Terex plant from the ground level.

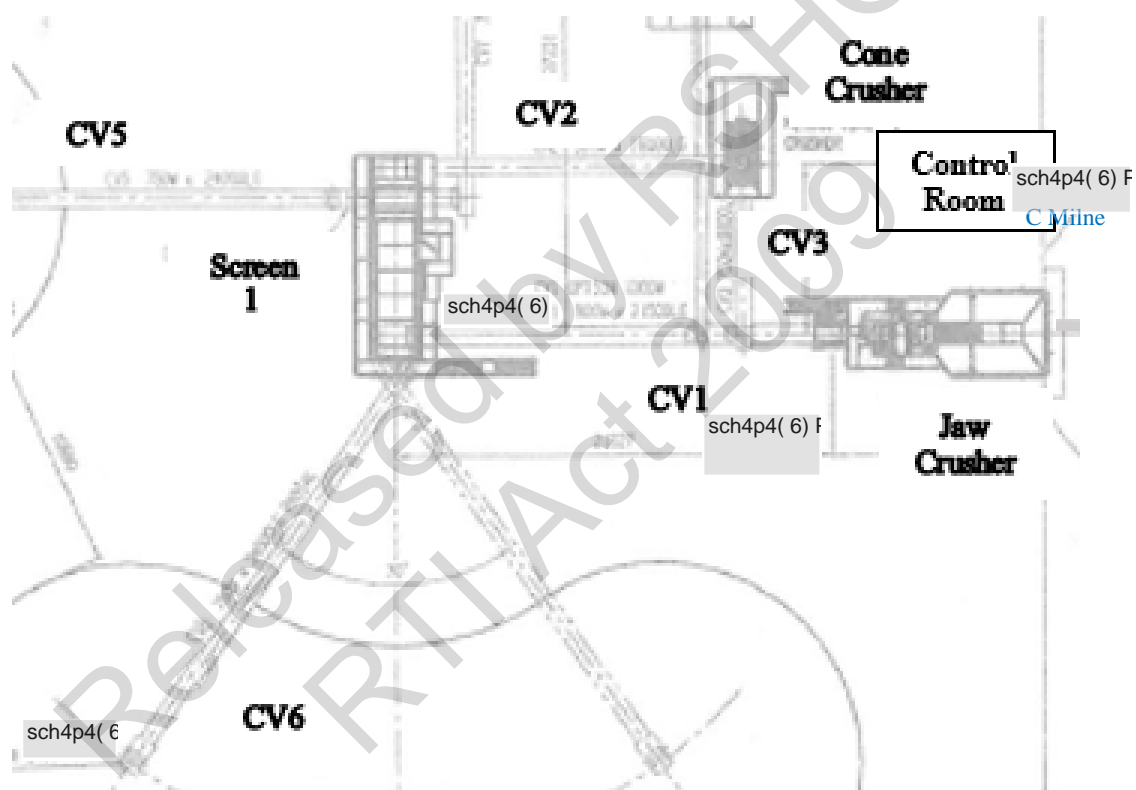


Figure 2: Schematic depicting location of individuals at start-up of Fixed Plant

[sch4p4(6) Personal info] started the Cone Crusher in manual mode and [sch4p4(6) Personal info] started CV1 and CV3 from the control room.³⁹ Due to the risk of rocks falling from Screen 1 near Screen 1 PLC control panel, [sch4p4(6) Personal info] stopped the restart until [sch4p4(6) Personal info] was wearing a hard hat.⁴⁰

[sch4p4(6) Personal info] resumed starting Screen 1 from the ground PLC panels. [sch4p4(6) Personal info] started some of the conveyors, including CV2, from the Control Room.⁴¹

³⁵ s.73 Irrelevant information

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The rock from Screen 1 discharged onto CV2 via the transfer chute, with some rock falling onto the return side of the belt and into the tail pulley area of CV2. [redacted] stated [redacted]

[redacted] went to remove these rocks from the tail pulley area.⁴³ Mr MILNE left the Control Room to assist [redacted]

While CV2 was operating, [redacted] and Mr MILNE removed CV2 tail pulley guard. Using their hands, they then removed rocks from the return side of CV2 near the tail pulley.

[redacted]

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Mr MILNE was on the side closest to Screen 1 (RHS) and [redacted] was on the opposite side (LHS).

[redacted] stated he didn't discuss the process of removing rocks from CV2 with Mr MILNE prior to the accident.⁴⁶

[redacted] also went to assist [redacted] and Mr MILNE but waited until rocks stopped falling off CV2, where they were hitting the CV2 magnet. [redacted]

[redacted]



IMG_1269: Tail pulley of CV2. Rear guard is in foreground.

[redacted] stated he could not see CV2 tail pulley and did not see the accident from the control room.⁴⁸

42 s.73 Irrelevant information

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9.4 PHYSICAL EVIDENCE / INTERVIEWS

9.4.1 Accident Site

The Inspectorate and Police found Mr MILNE's body lying on the ground next to CV2 with a sheet covering him. The safety helmet worn⁴⁹ by sch4p4(6) Personal info and a baseball cap were on the ground on the LHS, and a baseball cap and steel-cap boot were between CV2 and Screen 1 on the RHS.⁵⁰

There was dry, loose spillage rock around CV2 tail pulley area. The gap between CV2 and CV4/Screen 1 was approximately 570mm.⁵¹ This is where Mr MILNE was standing prior to the accident.

The tail pulley rear guard was lying upside down on the ground. The side panel guards were in place.⁵²

CV2 had an idler missing under the transfer chute, which had caused the belt to skew to the LHS. The skirting on the CV2 transfer chute was worn.⁵³ This missing idler and worn skirting allowed rocks to fall from the conveyor.

Where the conveyor was missing the idler, the outside idler mount was bent and the inside idler mount was missing (underneath the conveyor). There were no clips securing the idlers to the cradle frame.⁵⁴ The idlers under the transfer chute were carrying idlers, not impact idlers.

CV2 had not been tracking square as indicated by the belt being off centre at the head pulley, conveyor belt strings⁵⁵ on CV2 tail pulley shaft, and gouges in CV2 structure.⁵⁶

There was no cleaning plough near the CV2 tail pulley.

There were rocks on the return side of CV2. The size of one rock was approximately 100 mm in length.⁵⁷ The



IMG_1276: Material falling off CV2 at transfer chute. Idler missing and skirting worn.



IMG_1270: Tail Pulley of CV2. Gouging visible from belt rubbing against structure. (Photograph cropped)



IMG_1321: RHS of CV2 Tail pulley looking towards Screen 1. Rocks on belt. Cuts in belt and indentation marks on tail pulley.

⁴⁹ s.73 Irrelevant information

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Screen 1/CV2 transfer chute was filled with rock. The CV2 belt had cuts in it and the tail pulley had wear/indentation marks.

During the investigation (post accident 05/12/2018), the Cone Crusher was unblocked and its product discharged onto Screen 1 deck. On starting Screen 1, there was a surge of rock through the transfer chute onto CV2. This surge does not occur when the product is regulated through the Jaw Crusher pan feeder.⁵⁸ Some of these rocks fell onto the return side of the conveyor and rotated through the tail pulley.⁵⁹

There was spillage around the plant and along the walkways.⁶⁰

The RHS CV2 pull wire switch operating shaft (Control Room side) was extended in the activated position.⁶¹ This is the pull wire
sch4p4(6) Personal stated he activated to stop the conveyor.⁶²



IMG_1299: Pull Wire Switch on CV2

The CV2 pull wire switch reset buttons on both the LHS and RHS had cable ties on them. During the investigation (post accident 05/12/2018), a cable tie was removed. The pull wire switch reset button went to the active position and the conveyor would not start.⁶³

9.4.2 Guarding

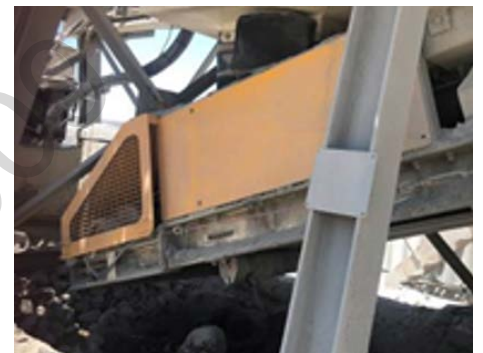
The majority of the tail pulley guarding,⁶⁴ including CV2, consisted of two side panels and a rear panel.

The side guards were solid panels held in place by 4 bolts.

The rear panel had “mesh” inspection areas on both sides, and rested on the conveyor structure with the front section hanging over two lugs on the conveyor structure, and had a bolt hole at the back (centre) which allowed it to be bolted to the conveyor structure.

This bolt was not installed in the CV2 rear panel guard and the LHS lug was broken off.⁶⁵

Around the Fixed Plant and Chieftain Screen, in addition to CV2 tail pulley, there were a number of guards not installed at nip



IMG_1212: Side view of CV3 tail pulley guard (photograph cropped)



IMG_1309: CV2 - Lug for holding tail pulley guard broken on LHS

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points, including tail pulley guards. ⁶⁶ sch4p4(6) Personal information and sch4p4(6) Personal inf identified some of these guards were not in place, and one had been not installed for more than 4 weeks.⁶⁷

9.4.3 Isolation

Equipment at the Fixed Plant, such as conveyors, could be isolated at:

- The Generator, which cuts all power to the plant;⁶⁸
- LCS's;⁶⁹ and
- Switchboards inside the MCC.⁷⁰



IMG_1225: CV0 Local Control Station (LCS)

There were no locks or tags at the “padlock station” in the control room.⁷¹ sch4p4(6) Personal in stated they were kept in the centre cabinet in the main office, and that workers knew they were available.⁷²

sch4p4(6) Personal information

10 MANAGEMENT STRUCTURE

The management structure on site at the time of the accident consisted of:

- Mr MAYES –SSE and Managing Director⁷⁵
- sch4p4(6) Personal in – Operations Manager⁷⁶
- sch4p4(6) Personal in – Supervisor⁷⁷
- sch4p4(6) Personal informat – Safety Co-ordinator⁷⁸
- sch4p4(6) Personal informat Maintenance Co-ordinator⁷⁹

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- sch4p4(6) Personal information – Person appointed to Control Electrical Work⁸⁰

The Safety Management System (SMS) detailed responsibilities for the SSE and Operations Manager but not for the Supervisor; Safety Co-ordinator; or Maintenance Co-ordinator.⁸¹

10.1 SSE AND MANAGING DIRECTOR

The SMS stated the responsibilities of the SSE as:

- *Operational risks are at acceptable levels*
- *Develop and implement and Safety Management System (SMS)*
- *Develop, implement and maintain a management structure*
- *Train workers*
- *Plan, Lead, Organise and Control*
- *Carry out critical work that requires particular technical competencies*
- *Supervision and control*
- *Monitoring the environment, processes, equipment and installations”*⁸²

sch4p4(6) Person was the SSE for all the Clermont Quarries operations⁸³, including Fairfield Quarry.⁸⁴ He is also the managing director for Clermont Quarries.⁸⁵

sch4p4(6) Person: was not on site on the day of the accident. sch4p4(6) Personal information

sch4p4(6) Personal information

10.2 OPERATIONS MANAGER

The SMS stated “*The Operations Manager is responsible for the day-to-day running of the plant and should be the first point of contact for all operation and safety concerns.*”⁸⁹

sch4p4(6) Personal inf did not assign tasks to or supervise workers at site.⁹⁰ If the Supervisor was off site, would act as Supervisor. sch4p4(6) Personal inf was responsible for the management of quarry operations for all the Clermont Quarries including Fairfield Quarry.⁹¹

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sch4p4(6) Personal in was on site when the accident occurred, and had been for the preceding 1 1/2 weeks.
sch4p4(6) Personal information

sch4p4(6) Personal in did not have training records for any of the site procedures, however several procedures had been authorised by sch4p4(6) Personal information had reviewed procedures but not made any changes to them. sch4p4(6) Personal in did not check/audit workers training.⁹³

sch4p4(6) Personal in did not have a process to verify instructions given by him to Supervisors were completed as directed.⁹⁴

10.3 SUPERVISORS

sch4p4(6) Personal information

In the four months prior to the accident, there had been three different supervisors on site: sch4p4 sch4p4(6) Personal information and sch4p4(6) Personal information % sch4p4(6) Personal inforr was the supervisor for approximately 3 months prior to sch4p4(6) Personal information had been on site approximately four weeks prior to the accident.⁹⁷

sch4p4(6) Personal inf did not have a written job description/responsibilities or a documented induction.⁹⁸

sch4p4(6) Personal information

sch4p4(6) Personal information

sch4p4(6) Personal ir stated he generally signed the equipment pre-start inspection sheets after checking them. No Fixed Plant pre-start inspection sheets provided by site had been signed by sch4p4 sch4p4(6) Persc 101

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sch4p4(6) Personal information

Mr MAYES, sch4p4(6) Personal information and sch4p4(6) Personal information did not recall being informed of or seeing workers remove rocks with their hands from operating conveyors.¹⁰³

sch4p4(6) Personal information stated he had completed a site familiarisation with Mr MILNE, when he arrived on site two weeks prior, but had not completed either a site induction or gone through any site procedures as he assumed Mr MILNE had completed these at another Clermont Quarries site.¹⁰⁴

sch4p4(6) Personal information did not have training records for any of the site procedures, however he stated he had read all of them.¹⁰⁵

On the 14/11/2018, sch4p4(6) Personal information investigated an incident where Mr MILNE was potentially in the “drop zone” of a rock being lifted from the Jaw Crusher using an excavator operated by sch4p4(6) Personal information.¹⁰⁶ This incident:

- involved Mr MILNE and sch4p4(6) Personal information
- involved personnel not being trained in procedures;¹⁰⁷
- involved the procedures sch4p4(6) Personal information referenced for “unblocking the Cone Crusher”;¹⁰⁸
- involved equipment not being isolated, as required by the procedure. sch4p4(6) Personal information had supervised the unblocking of the Jaw Crusher approximately 2 weeks prior. He did not check to see if the workers had isolated the equipment.¹⁰⁹

11 SAFETY AND HEALTH MANAGEMENT SYSTEM

The site had developed a SHMS titled Safety Management System (SMS). The printed SMS on site, “Fairfield Quarry – SMS” (SMS Folder) was different to the electronic document provided by site. sch4p4(6) Personal information and sch4p4(6) Personal information stated the electronic document was the current version.¹¹⁰

The investigation looked at the following sections of the SMS:

- Yearly Safety Plan;
- Audits, Inspections and Hazard Reporting;
- Communication – Site Safety Meetings;
- Risk Management and Procedures;
- Training;
- Accident and Incident Reporting and Investigation;

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- Fitness for Work – Drugs and Alcohol; and
- Maintenance of Plant

11.1 YEARLY SAFETY PLAN

The SMS contained a Yearly Safety Plan, which was an annual review of safety targets for the coming year by management and employees.¹¹¹

There is no documentation indicating that a Yearly Safety Plan had been completed since 2016.

The 2016 plan required “ASLS” to come to site “to assist in the implementation and development of a Safety Management System” and the training of workers on JSA’s and the Isolation procedure.¹¹² Mr MAYES and [sch4p4(6) Personal in] could not recall “ASLS” being engaged and coming to site¹¹³ or training workers on JSA’s and Isolation.

11.2 AUDITS, INSPECTIONS AND HAZARD REPORTING

11.2.1 Workplace Audits/Inspections

The SMS chapter “Workplace Inspection and Hazard Reporting” stated “Inspections will be conducted as per the “Inspection Matrix””; “All inspection forms are to be recorded on the “Document Control Master List”, (FORM 3A)” and “High and medium hazards found during the inspection, along with the actions required to control these hazards are to be recorded in the mine record or an action plan. The mine record or action plan is to be signed off as each action is completed”.¹¹⁴

The Inspection Matrix provided by site had not been filled in.¹¹⁵ No FORM 3A or other record of inspections were provided by site.

In the 12 months prior to the accident, three documented inspections were provided by site. These followed the layout of the checklist within the SMS. Two of these inspections required the “Isolation SOP” to be reviewed.¹¹⁶ The practice of the plant being operated with guards missing and workers working on plant without isolating was not identified in a workplace documented inspection.

[sch4p4(6) Personal information] and [sch4p4(6) Person] stated there was no documented hazard [sch4p4(6) Pe] to record identified hazards and their controls.¹¹⁷ As such, guarding non-conformances identified by [sch4p4(6) Personal information] and [sch4p4(6) Persc] had not been documented except in diaries.¹¹⁸

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Apart from a third party production accreditation audit completed by SAI Global in January 2017,¹¹⁹ sch4p4(6) Personal info stated no third party or recent internal audit had been conducted to review the effectiveness and implementation of the SMS. The role of Safety Co-ordinator had been created approximately three months prior to the fatality to address SMS issues, including inspections and audits.¹²⁰

11.2.2 Fixed Plant Pre-start Inspections

The SMS stated “*Mobile plant and all fixed equipment will be inspected prior to operation in accordance with program 10, (FORM 10B).*”¹²¹

No Fixed Plant pre-start inspections sheet was provided for the 15/11/2018. For the period 1st to 15th November 2018, four Fixed Plant pre-start inspection sheets and eight Fixed Plant production sheets were provided.¹²²

On the 07/11/2018, sch4p4(6) Personal info identified the guards were removed from the Jaw Crusher and Screen 2. On the 12/11/2018, sch4p4(6) Personal info again identified the guards were removed from the Jaw Crusher. On both days, the Fixed Plant was operated.

11.3 COMMUNICATION - SITE SAFETY MEETINGS

The SMS chapter “*Consultation*”¹²³ required a site safety meeting to be conducted twice a week. Workers attended a site safety meeting daily prior to commencing work. The minutes¹²⁴ recorded attendees; matters arising from previous meeting; hazards, incidents or near misses, safety alerts, new matters and a Safe Work Procedure (SWP) or SMS program.

On the 15/11/2018, sch4p4(6) Personal info stated he discussed workers tasks and a safety topic about workers putting themselves sch4p4(6) Personal info. The topic was due to the incident on the 14/11/2018 where Mr MILNE was potentially in the drop zone of a rock being lifted out of the Jaw Crusher.¹²⁵ In the minutes, under “*Review any Incidents or near misses*” sch4p4(6) Personal info entered “*None*”.¹²⁶

Mr MAYES had not signed his attendance on the last 34 site safety meetings.¹²⁷

11.4 RISK MANAGEMENT AND PROCEDURES

Site had a register of completed risk assessments¹²⁸ containing 13 Safe Work Method Statements (SWMS), 11 of which were completed in June 2016. These SWMS mainly related to maintenance activities not the operation of plant.

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The SMS chapter “*Safe Work Procedures*” stated “*SWPs will be developed by identifying the hazards, assessing the risks, documenting the controls and providing supervision to ensure people comply with the procedures.*”¹²⁹

The procedures on site did not conform to the SMS example, but were in a variety of formats. Some procedures did not contain who authorised the document; version number; date completed or review date. The printed documents on site were different to the electronic versions.

The majority of SWMS’s provided by site did not relate to these procedures and none to the tasks workers were performing at the Fixed Plant prior to the accident.

11.4.1 Removing Rocks from the Tail Pulley

The site did not have a documented procedure or risk assessment for removing rocks from the tail pulley area. The need to remove rocks from the CV2 tail pulley area can occur when either the Cone Crusher or Jaw Crusher is unbogged. This can occur several times a week.¹³⁰

sch4p4(6) Personal inf stated the process to remove rocks from the conveyor belt was to spray water at them through the mesh in the guards.¹³¹

sch4p4(6) Personal inf stated removing rocks from the conveyor belt with the guard removed was a sch4p4(6) Personal information

sch4p4(6) Personal inf¹³² sch4p4(6) Personal and sch4p4(6) Personal ir confirmed they had also removed rocks from an operating conveyors with their hands.¹³³

11.4.2 Procedures - Crushing Plant Operations

The site had 3 inter-related procedures for crushing operations, the work being undertaking on the day of the accident:

- SOP016 Work Instruction General Crushing Plant Operations¹³⁴, “*to safely inspect and operate machinery at the crushing plant*”;
- SOP023 Work Instruction Conveyor Operations¹³⁵ “*to safely inspect and operate Conveyor systems at the crushing plant*”; and
- P02W01 Crushing and Screening Plant¹³⁶ is an “*Operating Procedure for the Screening Plant*”.

Both SOP016 and SOP023 require an “*Isolation officer*”; a pre-start inspection to be completed; machinery to be “*positively isolated, locked and tested for dead before commencing*”; no build-up of material at the tail or head drum; and all guards “*in place*”. P02W01 does not reference isolation or guarding requirements.

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There was no reference to removing rocks from operating conveyors in these procedures.

Mr MILNE did not have training records for any of these procedures.

11.4.3 Procedures - Isolation and Lockout

The site provided the Inspectorate with three different isolation and lockout procedures:

- SOP017 Standard Work Procedure for Lock & Tagout.¹³⁷ The printed document within the SMS folder was dated 04/04/2017. The printed document was different to the electronic version.
- BMD-PRO-001 Isolation and Tagging Procedure.¹³⁸ This procedure was dated 21/07/2012, and there was an associated Group Isolation Permit BMD-PRO-001.¹³⁹ They were not in the SMS folder.
- FQSOP07 – Lock Out & Tag Out (LOTO)¹⁴⁰. This document had no date, and it was not in the SMS folder.

Procedures SOP017 and BMD-PRO-001 referred to positions, procedures, items and equipment not available on site. Both referred to red and yellow isolation locks. There were only red isolation locks available on site.

There was only evidence of training on SOP017. There were no documented records to verify Mr MILNE had been trained in any of these three isolation procedures. Three of the ten Fixed Plant workers, ^{sch4p4(6) Personal information} and ^{sch4p4(6) Personal ii} had documented training on SOP017,¹⁴¹ however ^{sch4p4(6) Personal ir} stated no one had shown him how to isolate and that the hand-writing on his record was some-one else's.¹⁴²

In the Crib Room at the Site Office, there was a poster detailing “*Life Saving Rules*”. The first rule stated “*Apply personal Isolation lock, tag and test for dead before working on equipment.*”¹⁴³

11.5 TRAINING

The SMS chapter “*Training*”¹⁴⁴ required “*All employees ... to have the appropriate competencies to operate machinery and equipment at the site. ... A training/capability/competency register will be maintained for each employee (FORM 13B).*”

There was no FORM 13B in any of the training files provided by site.

^{sch4p4(6) Personal ir} did not have access to a training matrix on site. Not all training records were retained on site. Training records were available on the computer after the administration staff had scanned and uploaded them.¹⁴⁵

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Regarding Mr MILNE's competencies, sch4p4(6) Personal information stated sch4p4(6) Personal information
sch4p4(6) Personal information

11.5.1 Inductions

The SMS had an *Employee and Contractor Induction (FORM 12C)*; *Induction Questionnaire (FORM 13A)*; an induction training checklist *Induction Process (FORM 12F)*; and an "*Induction Register (FORM 9A)*".¹⁴⁸ sch4p4(6) Personal information was the only person on site who was listed on this register, which was last updated 08/01/2014.

Mr MILNE completed induction paperwork sch4p4(6) Personal information on the 24/10/2018.¹⁴⁹ He had no induction records for Fairfield Quarry. Mr MILNE's answers on the FORM 13A questionnaire were verbatim to the Induction "*Answer Sheet*".¹⁵⁰ This assessment was not signed by who completed the induction. There were two questions relating to isolation.

sch4p4(6) Personal information

Q28. What do we place when plant is being serviced? A - Lock out lock and Danger tag P 51
Q29. Who has access to the site construction area? A - Only inducted persons P 6
Q30. What do we read before using hazardous substances? A - MSDS P 20 / 32
Q31. How do we warn people flammable substances are nearby? A - Signage P 43
Q32. What can we do to prevent fires? A - Good housekeeping and remove flammable material from any ignition sources P 42
Q33. What do we do with faulty electrical equipment? A - Place an out of service tag and send out for repairs P 24

Mr MILNE's Induction Answer Sheet compared to Answer Sheet, q. 28 - 33

sch4p4(6) Personal information stated he completed a site familiarisation of Fairfield Quarry with Mr MILNE but no induction.¹⁵¹

There were no induction records¹⁵² for sch4p4(6) Personal information who stated sch4p4(6) Personal information
sch4p4(6) Personal information

sch4p4(6) Personal information¹⁵³ In his second interview, sch4p4(6) Personal information stated he had received induction training from Mr MAYES, however Mr MAYES denied this.¹⁵⁴

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The Clermont Quarries Fairfield Quarry Site Safety Handbook¹⁵⁵ had been issued to some employees. There was no evidence sch4p4(6) Personal in or Mr MILNE were issued this handbook. The Site Safety Handbook did not mention nip points or guarding but did discuss isolation.

11.5.2 Competencies – Plant

Mr MILNE did not have any training records for operating the Fixed Plant or for any site procedures. He had not completed the assessment sheet CQ01 – Conduct Mobile Crushing and Screening Plant Operations even though he had completed the Fixed Plant Production Sheet for the 13/11/2018 as the Fixed Plant “Operator”.¹⁵⁶

Mr MILNE had training assessment records for the *Small Loader* and *Excavator*, dated 24/10/2018 the same date as his Rolfe Creek induction. The theory section of the assessment sheets were verbatim to the “Assessors Copy”.¹⁵⁷

sch4p4(6) Personal inform stated he had signed training assessment records indicating persons were competent in their practical assessment components without actually completing an assessment. This included Mr MILNE’s practical assessment for the loader and excavator.¹⁵⁸

Both sch4p4(6) Personal ir and sch4p4(6) Personal ii had competencies in crushing and screening plant operations.¹⁵⁹ sch4p4(6) Personal infc stated he was trained and authorised to operate the Fixed Plant.¹⁶⁰

sch4p4(6) Personal ii who was operating the Fixed Plant from the control room, had in-house training and assessment records for the mobile crushing and screening plant operations,¹⁶¹ loader operations and truck operations,¹⁶² and 22 SOPs¹⁶³ (14 of which were unsigned). All these records were dated 29/5/2018. The assessment records for his mobile crushing and screening plant operations and truck operations were incomplete.

sch4p4(6) Personal infor stated Mr MILNE was being trained to operate the Fixed Plant by th sch4p4(6) Person:
sch4p4(6) Personal information
sch4p4(6) Personal information and sch4p4(6) Personal do not have formal trainer/assessor qualifications.¹⁶⁴

11.6 ACCIDENT AND INCIDENT REPORTING AND INVESTIGATION

The removal of rocks from a rotating tail pulley by hand had not been identified as a High Potential Incident (HPI). As a result, no investigation had been completed by the site or suitable controls implemented.

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The incident which occurred on the 14/11/2018 where Mr MILNE was potentially in the “drop zone” of a rock being lifted from the Jaw Crusher was not fully investigated prior to the fatality. The practice of workers not isolating equipment when working on it, as was required by the procedure for this task, was not identified.¹⁶⁵

11.7 FITNESS FOR WORK – DRUGS AND ALCOHOL

sch4p4(6) Personal information

12 MAINTENANCE OF PLANT

The electronic SMS and the SMS Folder in the chapter “*Maintenance*”¹⁶⁹ had not been finalised.

In addition to pre-start checklists, the Fixed Plant workers had compiled a maintenance list which was located in the Control Room.¹⁷⁰ Maintenance personnel also compiled a list during their 250 hour inspections of the Fixed Plant.”¹⁷¹

A number of mechanical issues identified during the investigation were on neither list.¹⁷² The Adamelia Group identified a number of these maintenance issues in 2017.¹⁷³

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RTI Act 2009

13 FINDINGS

- 1) Mr MILNE received fatal injuries at approximately 11:17 hours on the 15th November 2018, when he was pulled into the tail pulley of CV2 at Fairfield Quarry.
- 2) sch4p4(6) Personal info started the Cone Crusher and Screen 1 from the ground level while sch4p4(6) Personal info started the conveyors belts, including CV2, from the Control Room.
- 3) Mr MILNE and sch4p4(6) Personal info were using their hands to remove rocks from the return side of CV2 while it was operating.
- 4) Prior to the accident, Mr MILNE and sch4p4(6) Personal info removed the rear guard from CV2 tail pulley.
- 5) Mr MILNE and sch4p4(6) Personal info did not stop or isolate CV2 prior to removing the guard or removing rocks from the conveyor.
- 6) Mr MILNE was standing on dry loose spillage between CV2 and CV4/Screen. This area had limited space, being approximately 570mm in width. sch4p4(6) Personal info was standing on the opposite side of CV2.
- 7) An unregulated feed of material from Screen 1 onto CV2 resulted in a surge of material falling onto CV2. Some of this material fell onto the return side of CV2 and rotated through the tail pulley.
- 8) The need to remove spillage from CV2 tail pulley area could occur several times a week as a result of unblocking the crusher/s. There is no documented procedure or risk assessment for the task of removing rocks from a conveyor tail pulley area.
- 9) There was inadequate supervision of workers with limited quarrying experience.
- 10) Items of Fixed Plant were routinely operated with guards not in place. sch4p4(6) Personal info had allowed the Fixed Plant to operate with guarding removed while Mr MAYES and sch4p4(6) Personal info had not ensured guarding non-conformances were fixed.
- 11) The tail pulley guard on CV2 was attached in a way that did not require the use of a hand tool to remove it.
- 12) The implementation of the SMS did not ensure that plant is effectively isolated and locked out prior to any work being undertaken on the plant.
- 13) Equipment at the Fixed Plant, including CV2, could be isolated at either the Generator, the Local Control Station located next to the equipment, or the switchboards in the MCC room. Locks are available in the main office.
- 14) The isolation procedures being used onsite were not written for Fairfield quarry. Only three workers had training records for isolation and lockout.
- 15) Workers did not routinely utilise isolation locks and tags when undertaking work on plant and the supervisor did not enforce the isolation procedures.
- 16) The implementation of the SMS did not ensure training of workers occurred to an adequate standard.
- 17) Not all workers have been inducted to work at the quarry.
- 18) There was no evidence Mr MILNE had been given any documented training on the operation and hazards of the Fixed Plant. There was no documented evidence sch4p4(6) Personal info had demonstrated the competency to operate the Fixed Plant.

- 19) Training and assessment documentation was completed by some Supervisors without the training or assessment occurring.
- 20) The implementation of the SMS did not ensure plant was maintained to an adequate standard.
- 21) Spillage onto the return side of CV2 and into the tail pulley area was exacerbated by a missing idler at the transfer chute, damaged skirting below the transfer chute and the absence of a cleaning plough.
- 22) The spillage Mr MILNE was standing on was a result of operating the plant with poorly tracking conveyors; damaged skirting and a missing idler under CV2 transfer chute.

14 CONCLUSIONS

- 1) Mr MILNE was standing on loose aggregate in an area of limited space between CV2 and Screen 1. Mr MILNE and ^{sch4p4(6) Personal info} were removing rocks from the conveyor belt, using their hands, while it was operating. Immediately prior to the accident, Mr MILNE and ^{sch4p4(6) Personal info} had removed the guard from the CV2 tail pulley. This removed the engineering control that was put in place to minimise the risk of being caught in the tail pulley.
- 2) The site had a SMS but it was not implemented effectively to ensure adequate site procedures; training of workers; and maintenance of plant.
- 3) Plant was routinely being operated with guarding not in place and Fixed Plant workers worked on equipment without it being stopped and isolated.
- 4) Some procedures, including isolation procedures, had been copied from other sites and not reviewed so that they were relevant to site. Workers could not fully comply with the procedures as they refer to positions, documents and equipment not on site.
- 5) There was inadequate supervision of workers which did not stop the unsafe practice of operating plant with guarding removed, removing rocks from operating conveyors; and working around/on plant without it being isolated and tested for dead.

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15 COMPLETED ACTIONS

- 1) An investigation report¹⁷⁴ into the accident was prepared by sch4p4(6) Perso and forwarded to Inspector DEVINE. Site personnel also completed a Queensland mining industry accident report form.¹⁷⁵
- 2) A preliminary report¹⁷⁶ was prepared by Inspector DEVINE and submitted to the Deputy Chief Inspector of Mines for forwarding to the Coroner.
- 3) A safety alert¹⁷⁷ was prepared by the Inspectorate and has been issued to industry.
- 4) MRE's and Directives have been issued to Clermont Quarries and sch4p4(6) Perso to ensure the risk from hazards identified during the investigation are controlled.¹⁷⁸
- 5) Fairfield Quarry suspended operations at the Fixed Plant, completed an overarching risk assessment¹⁷⁹, reviewed procedures, created a hazard action register and implemented controls for the hazards identified and interim controls and a timeframe for those controls that could not be implemented immediately.
- 6) sch4p4(6) Person reviewed his management structure and associated position descriptions for Fairfield Quarry¹⁸⁰

16 RECOMMENDATIONS

- 1) Mines and Quarries should have a process for identifying and monitoring the effectiveness of critical controls that are crucial in preventing and mitigating fatal or catastrophic events. The monitoring should be undertaken by competent supervisor/s. Guarding and isolation are examples of critical controls which would minimise the risk of workers being seriously injured by a conveyor.
- 2) Plant maintenance should be based on a preventative strategy in conjunction with the Original Equipment Manufacturers requirements.
- 3) The design of fixed plant installations should be periodically reviewed to ensure they comply with changes to Australian Standards, industry best practices and address operational issues, such as spillage. This would include guarding being secured such that you need to use a tool to remove it.

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APPENDIX 1. STATEMENTS AND RECORDS OF INTERVIEWS

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APPENDIX 2. DOCUMENTS OTHER

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APPENDIX 3. PHOTOGRAPHS

3.0 Milne - Photo Album
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APPENDIX 4. DIGITAL VIDEOS

4.0 IMG_1442.MOV - Started CV6, then CV1. CV3 and Cone Crusher operational. Rocks falling from CV1/Screen 1
Transfer chute to near Electric Panel for manually starting Screen
s.73 Irrelevant information

APPENDIX 5. CIRCUITS AND LOCATION OF PERSONNEL

s.73 Irrelevant information

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RTI Act 2009

s.73 Irrelevant information