

Mining and Quarrying Safety and Health Act 1999

NATURE AND CAUSE INVESTIGATION REPORT ON
FATAL ACCIDENT

s73 Irrelevant information

JACKS QUARRY
COLLINSVILLE
SUNDAY 29 JULY 2018

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INVESTIGATING OFFICERS:	Mark Desira	Inspector of Mines – Occupational Hygiene	Townsville
	Noel Towers	Inspector of Mines – Mining	Mackay
	Alan Graham	Inspector of Mines – Mechanical	Townsville
SUPPORT OFFICER:	John Barron	Principal Investigations Officer	Brisbane
DATE of REPORT:	Tuesday 29 January 2019		
FILE REF:	MDEA-B35EZY - IR		

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Contents

1	Abbreviations used in report	1
2	List of persons named in report.....	2
3	Glossary of terms used in report.....	3
4	Summary.....	4
5	Personal details of the deceased.....	5
6	Mine details.....	5
7	Notification of accident and release of scene.....	6
8	Investigation	8
8.1	Purpose	8
8.2	Process.....	8
8.3	Other actions	8
8.4	Location of accident.....	9
8.5	Equipment	10
9	Sequence of events.....	12
9.1	Events leading up to the accident	12
9.2	The accident.....	12
9.3	Emergency response.....	16
10	Evidence	17
10.1	Original equipment manufacturers (OEM) report.....	17
10.2	History, service and maintenance	20
10.3	Operating conditions.....	23
10.4	s73 Irrelevant employment.....	25
10.5	Jacks Quarry safety and health management system	25
10.5.1	Risk management.....	25
10.5.2	Procedures and standard working instructions	27
10.5.3	Training and competence.....	28
10.5.4	Supervision	29
10.6	s73 Irrelevant actions	30
10.6.1	Seat belt application.....	30
10.6.2	Mobile phone use.....	31
10.7	s73 Irrelevant communication with workers after the accident	31
10.8	s73 Irrelevant post mortem	33
11	Conclusions and findings	34
11.1	Summary of incident.....	34
11.2	Contributing factors	34
12	Completed actions	36
13	Recommendations	37
14	List of appendices.....	38

1 Abbreviations used in report

DNRME	Department of Natural Resources, Mines and Energy
QPS	Queensland Police Service
FCU	Forensic Crash Unit
OEM	Original Equipment Manufacturer
VIU	Vehicle Inspection Unit
ST	Searles Transport Pty Ltd
SC	Senior Constable
QFES	Queensland Fire and Emergency Services
ROM	Run of mine
SHMS	Safety and health management system
BBM	Belmore Bulk Material Pty Ltd
MQSHA 1999	Mining and Quarrying Safety and Health Act 1999
MQSHR 2017	Mining and Quarrying Safety and Health Regulation 2017
SWMS	Safe work method statements
SOP	Standard operating procedures
SWI	Standard work instruction
QH	Queensland Health
UHF	Ultra high frequency
DDR	Downs Diesel Repairs Pty Ltd (Toowoomba)
DHH	Downs Heavy Haulage Pty Ltd (Toowoomba)
SMP	Safety management plan
SEM	Shultz Earth Moving Pty Ltd
ECU	Electronic Control Unit
VOC	Verification of competency

2 List of persons named in report

Title	First Name	Last Name	Occupation	Company
s73 Irrelevant information				BBM
				Nil
				BBM
Mr	Mark	DESIRA	Inspector of Mines	DNRME
Mr	Trevor	BROWN	Regional Inspector of Mines	DNRME
Mr	Steven	FIRTH	Inspector of Mines	DNRME
SC	Michael	PARKER	Senior Constable – FCU	QPS
Mr	Noel	TOWERS	Inspector of Mines	DNRME
Mr	John	BARRON	Principal Investigations Officer	DNRME
s73 Irrelevant information				BBM
Mr	Alan	GRAHAM	Inspector of Mines	DNRME
s73 Irrelevant information				CJD
				BBM
				BBM
				BBM
				BBM
				DDR
				BBM
				BBM
Prof	David J	WILLIAMS	Forensic Pathologist	QH

3 Glossary of terms used in report

Articulated dump truck	A six (6) wheeled vehicle specifically designed to transport and tip material on uneven terrain.
B Pillar	The centre pillar (B pillar) or main support beam which usually separates two windows in a vehicle cab.
Mine Record Entry	Documented correspondence and or information of any nature that is prescribed in the definition of a Mine Record under section 59 of the Mining and Quarrying Safety and Health Act 1999.
Mine / quarry	A mine is a quarry that is prescribed in the definition of Meaning of Mine under section 9 of the Mining and Quarrying Safety and Health Act 1999.
Material	A colloquial term for overburden, rock, ore and other products associated with excavation of ground.
Bench	A colloquial term used to describe a level, ridge or cutting on a quarry face which is or has been made accessible by road.
Level	A mined, quarried or excavated surface or designated horizontal reference point.
Number # Level	Different areas of elevation are present in Jacks Quarry and were collectively referred to as "Levels" by workers at the quarry.
Ramp	An access road from one level to another which can also be referred as an incline or decline. Generally measured in degrees for an angle or a percentage for a grade.
Run of mine (ROM)	A colloquial term to describe an area where material is stored or stockpiled for processing at a later point in time on a mine or quarry.
Procedure	A document or process which can be referred to in a variety of terms such as Safe Work Method Statements, Standard Operating Procedures, Safe Working Instructions.
UHF	Ultra high frequency radio communication device
Extrication	Vehicle extrication is the process of removing a vehicle from around a person who has been involved in a motor vehicle accident, when conventional means of exit are impossible or inadvisable. A delicate approach is needed to minimize injury to the victim during the extrication.

4 Summary

On Sunday 29 July 2018 at approximately 4:40 pm, s73 Irrelevant informatio received fatal injuries when the Volvo BM A25C articulated dump truck he was operating hit an embankment and turned over on a haul road at Jacks Quarry, South of Collinsville.

Prior to the accident, s73 Irrelev was carting his last load before finishing work for the day. He started his final load from a loading point on a bench and proceeded down a steep haul road and on to an intersection. He was to take an exit point on the intersection and continue on to the fixed plant crusher area to dump the load at a run of mine (ROM) stock pile.

s73 Irrelev failed to negotiate the turn into the intersection and hit an embankment further down the haul road. The truck rolled, spilling the load before coming to rest with the engine cab on its side. s73 Irrelev was trapped inside the cab.

Immediately subsequent to the event, s73 Irrelev was conscious but severely injured and was trapped inside the truck. s73 Irrelev called for assistance and remained trapped until emergency services arrived to affect his extrication. s73 Irrelev passed away due to chest crush injuries shortly after he was extricated from the truck.

s73 Irrelevant information



Figure 1. Accident scene 30 July 2018

5 Personal details of the deceased

Name: s73 Irrelevant information
Age: s73 Irrelevant information
Date of Birth: s73 Irrelevant information
Occupation: Quarry worker
Address: s73 Irrelevant information
Cause of death: Crushed chest due to prime mover accident¹

6 Mine details

Name of Quarry: Jacks Quarry²
Location: Approximately 18 kilometres south of Collinsville
Address: Bowen Development Road, Collinsville QLD 4804
Property details: Registered Owner – s73 Irrelevant information
Lot 3 Survey Plan 234989
Lease Number 711293773
Leased by SEARLES TRANSPORT PTY LTD
(ACN. 069758916), Of Lease D on SP204630,
County of DRAKE, Parish of BIRRALEE,
Local Government WHITSUNDAY³
Quarry Operator: Belmore Bulk Materials Pty Ltd⁴
Site Senior Executive: s73 Irrelevant information
Site Telephone Number: (07) 4785 5124
Site Fax Number: (07) 4785 5660

¹ Appendix 1. 10248935 - Form 8 autopsy report

² Appendix 2. Quarry Registration Certificate

³ Appendix 3. Email Lot 2 on SP196779 and Appendix 4. Jacks Quarry title search

⁴ Appendix 5. Operator for a Mine

⁵ Appendix 6. SSE Appointment

7 Notification of accident and release of scene

Sunday 29 July 2018

At approximately 7:30 pm, Mr Mark DESIRA (Inspector of Mines) received verbal notification of the serious accident from Mr SEARLE (Site Senior Executive). s73 Irrelevant information

s73 Irrelevant information

s73 Irrelevant later provided primary information in relation to the serious accident (fatality) and confirmed the scene was under the control of the Queensland Police Service (QPS)⁷.

Mr DESIRA issued a Directive under the Mining and Quarrying Safety and Health Act 1999, s 167 to secure the scene and isolate the site once the QPS had completed their involvement on site⁸.

Mr Trevor BROWN (Regional Inspector of Mines) assigned Mr Steven FIRTH (Inspector of Mines) and Mr DESIRA as the first response to the scene with Mr FIRTH to be the Lead Investigator for the investigation⁹.

Monday 30 July 2018

At approximately 10:42 am, Mr FIRTH and Mr DESIRA arrived on site to commence the investigation¹⁰.

At approximately 11:20 am, Mr FIRTH and Mr DESIRA met with the QPS Senior Constable Michael PARKER and were escorted to the accident scene where they inspected the truck in situ¹¹.

At approximately 11:40 am, Mr FIRTH and Mr DESIRA commenced taking photographs and recording information of the scene¹².

At approximately 2:20 pm, the scene was prepared to have the truck removed from site. Front end loaders were being used to clear the area surrounding the truck.¹³

At approximately 2:50 pm, Claytons Towing Service recovery vehicles arrived on site¹⁴.

At approximately 5:17 pm, QPS formally released the scene to the Department of Natural Resources, Mines and Energy (DNRME)¹⁵.

⁶ Appendix 7. Mark Desira – Notebook page 104

⁷ Appendix 7. Mark Desira – Notebook page 105

⁸ Appendix 7. Mark Desira – Notebook page 107 and Appendix 8. Mine Record Entry - 29_07_2018 Jacks Quarry

⁹ Appendix 9. Steven Firth – Notebook page 71

¹⁰ Appendix 9. Steven Firth – Notebook page 71

¹¹ Appendix 9. Steven Firth – Notebook page 71

¹² Appendix 9. Steven Firth – Notebook page 72

¹³ Appendix 9. Steven Firth – Notebook page 72

¹⁴ Appendix 9. Steven Firth – Notebook page 72

¹⁵ Appendix 9. Steven Firth – Notebook page 72

Note: While the scene had been released to DNRME, QPS retained authority¹⁶ over the truck and had arranged transportation to a QPS authorised holding yard in Mackay, Queensland.

At approximately 5:48 pm, a prime mover and low loader from M&P Services arrived on site and the truck removal commenced¹⁷.

At approximately 7:22 pm, loading of the truck on the M&P Services low loader was completed¹⁸.

The truck left site and was transported to the Claytons Towing Service secure yard in Mackay¹⁹.

Tuesday 31 July 2018

At approximately 8:00 am, Mr FIRTH, Mr DESIRA, Mr Noel TOWERS (Inspector of Mines) and Mr John BARRON (Principal Investigations Officer) attended the Searles Transport (ST) main office to meet with s73 Irrelev and s73 Irrelevant information to discuss document collection, a visit to the accident scene, and interviews with workers from the quarry.

At approximately 9:50 am, Mr FIRTH, Mr DESIRA, Mr TOWERS and Mr BARRON proceeded to the quarry to inspect the scene, make observations and collect documents held in the quarry weigh bridge office.

At approximately 12:00 pm, Mr FIRTH, Mr DESIRA, Mr TOWERS and Mr BARRON left the quarry and later attended the ST main office back in Collinsville.

At approximately 1:00 pm at the ST main office, Mr FIRTH and Mr BARRON commenced taking records of interview with workers from site²⁰.

At approximately 5:30 pm, Mr FIRTH released the accident scene back to the s73 Irrelev Mr FIRTH issued s73 Irrelev two Directives with respect to plant maintenance, and worker training and competency²¹.

¹⁶ Appendix 10. Vehicle Release

¹⁷ Appendix 11. IMG_2400.jpg

¹⁸ Appendix 12. IMG_2413.jpg

¹⁹ Appendix 13. IMG_2415.jpg

²⁰ Appendix 14. Transcript 31-07-18 s73 Irrelev Appendix 15. Transcript 31-07-18 s73 Ir Appendix 16. Transcript 31-07-18 s73 Irrelev and Appendix 17. Transcript 31-07-18 s73 Irrelev

²¹ Appendix 18. Mine Record Entry - 31_07_2018 Jacks Quarry

8 Investigation

8.1 Purpose

The purpose of the investigation is to determine the nature and cause of the fatal accident involving s73 Irrelevant and report the findings of the investigation to the Chief Inspector of Mines.

8.2 Process

This investigation process consisted of the following activities:

- inspecting the scene of the incident
- accompanying the Forensic Crash Unit (FCU) and Vehicle Inspection Unit (VIU) while they conducted the QPS investigation
- obtaining and reviewing information and photographs taken by QPS
- taking videos and photographs
- obtaining and reviewing documentation collected onsite
- obtaining and reviewing documentation, information and written responses provided by BBM by issuing a document production requirement notice
- interviewing personnel who were on site at the time of the accident and persons associated with the maintenance of the truck prior to it being operated at the quarry
- engagement and consultation with the truck's original equipment manufacturer (OEM) and service providers with regards to inspection and testing
- acquiring s73 Irrelevant autopsy report and toxicology certificate

8.3 Other actions

On Monday 6 August 2018, Mr Alan GRAHAM (Inspector of Mines) contacted Volvo Australia (OEM), to provide assistance with the mechanical inspection and testing of the truck. The services of representatives from Volvo Australia and CJD Equipment Pty Ltd (CJD) were engaged to provide a report on the complete functionality of the truck. CJD Equipment Pty Ltd is the Official Service Agent for Volvo Australia.²²

On Wednesday 8 August 2018, QPS VIU inspected the truck upon the request of the QPS Mackay FCU at the holding yard of Clayton's Towing, Mackay²³. Mr GRAHAM was in attendance during the inspection.

On 4 - 5 September 2018, representatives from Volvo Australia and CJD²⁴ commenced an inspection on the truck at the holding yard in Mackay. Mr FIRTH and Mr GRAHAM were in attendance during the inspection.

²² Appendix 19. Email RE DNRME Inspection requirements - Volvo A25C

²³ Appendix 20. VIU Mechanical Inspection

²⁴ Appendix 21. Mechanical Assessment of Volvo A25C SN 9570 page 1

On 10 - 11 September 2018, further examination and testing sessions were conducted by s73 Irrelevant information in the presence of Mr FIRTH and Mr GRAHAM.

On 25 - 26 September 2018, a final examination and testing session was conducted by s7 s73 Irrelevant information in the presence of Mr FIRTH and Mr GRAHAM at the holding yard in Mackay. Items were taken from the truck and transported to the CJD workshop in Mackay for further detailed examination. These items were dismantled and examined by s7 s73 Irrelevant information in the presence of Mr FIRTH and Mr GRAHAM.²⁵

On 2 January 2019, the Volvo OEM and CJD truck inspection report for the Volvo A25C was supplied to Mr FIRTH²⁶.

8.4 Location of accident

Jacks Quarry is located south of Collinsville in central Queensland. It is a quarry which drills, blasts and excavates hard rock and stone from the ground. This rock is processed with semi-mobile and fixed crushing / screening plant on site. The material the quarry produces is used for rail ballast, shot-firing stemming, building and road construction activities. The quarry and site operations are regulated by the Mining and Quarrying Safety and Health Act 1999 and the Mining and Quarrying Safety and Health Regulation 2017²⁷.

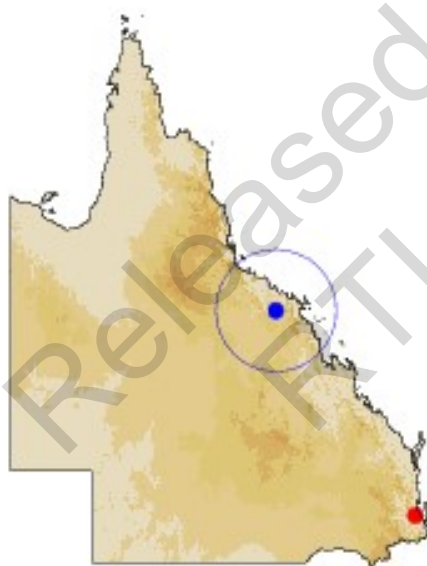


Figure 2. Map of Queensland depicting locations of Collinsville (blue point) and Brisbane (red point)

The accident occurred along an east west perimeter haul road around the main pit. The road provides access from different pit levels to an area where shot rock and mobile crushing plant is stored. The final resting place of the truck was recorded by a hand held

²⁵ Appendix 21. Mechanical Assessment of Volvo A25C SN 9570 and Appendix 22. Alan Graham – Notebook page 111

²⁶ Appendix 23. Email RE Volvo A25 Report

²⁷ Appendix 24. MQSHA 1999 inforce on 29-07-2018 and Appendix 25. MQSHR 2017 inforce on 29-07-2018

GPS unit. The accident occurred within the boundaries of the Quarry as defined on Lease D on SP204630.



Figure 3. Satellite image and approximate location of the accident scene

8.5 Equipment

The truck **s73 Irrelev** was operating was a Volvo BM A25C articulated dump truck (6x6) built in 1995. It is a sprung hauler featuring articulated frame steering with a payload of 22.5 tonnes and a capacity of 13.5 m³²⁸.

The A25C consists of two main sections, the engine unit and the load unit. The two units are joined by the frame steering joint which allows movement about a vertical axis for steering. The hitch also allows the two units to twist, pivot and move in relation to each other along a horizontal axis. This range of movement will allow the load unit to rotate independently of the engine unit. The 6x6 version has three axles with drive on all wheels.²⁹

²⁸ Appendix 26. Volvo Manual page 0:6

²⁹ Appendix 26. Volvo Manual page 0:3

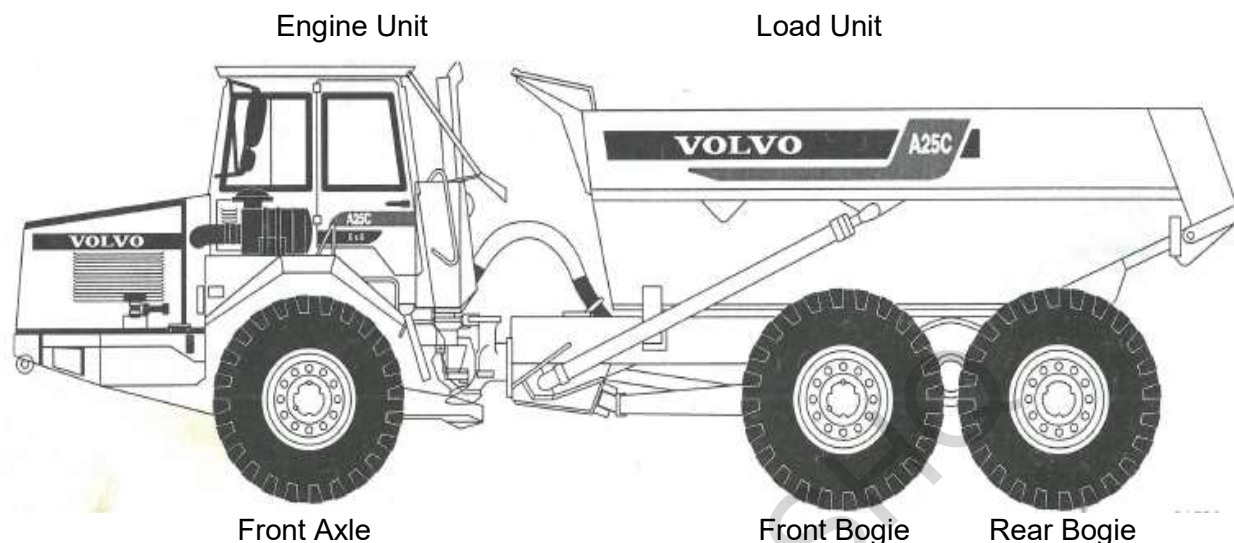


Figure 7. Volvo BM A25C articulated dump truck (6x6)

Note:

Left and right side is determined from the position of the operator when seated in the truck. For the purposes of this report, figure 4 is showing the left hand side of the truck.

The Volvo A25C Operations Manual refers to the 'Engine Unit', whereas the Service Manual refers to the 'Engine Unit' as the 'Tractor Unit'. For the purposes of this report the term 'Engine Unit' will be used.

During the course of the investigation, the Volvo BM A25C (serial number 9570) articulated dump truck involved in the accident was identified as having several naming references, all of which is the same vehicle. The Volvo BM A25C (serial number 9570) articulated dump truck naming references included the following:

- Truck
- Vehicle
- Old girl
- Moxy
- Truck 2411
- T11
- SEM92
- Dumpy
- Dorothy

9 Sequence of events

9.1 Events leading up to the accident

s73 Irrelev commenced day shift on Sunday 29 July 2018 along with fellow quarry workers Mr s73 Irrelevant information Mr s73 Irrelevant i s73 Irrelevant i and Mr s73 Irrelev

s73 Irreleva truck movements for the day involved being loaded with rock which he then delivered to various locations of the quarry³⁰. s73 Irrelev had been the only person to drive the truck during that day.

Prior to the accident, s73 Irrelev travelled up a haul road from Number Two (2) Level to the Number Four (4) Level bench where he was to be loaded (refer to Figure 4). Number Four (4) Level is the top level of the quarry³¹.

s73 Irrelev reached the loading point on Number Four (4) Level and was loaded with shot rock by the excavator driver s73 Irreleva

s73 Irrelev advised s73 Irrelev it was to be the final load for the day. s73 Irrelev was to dump the load at the ROM, approximately 1.6 kilometres away. s73 Irrelev had previously travelled to the ROM via the Number Two (2) Level access.³³

Once loaded with material, s73 Irrelev departed the loading point area on Number Four (4) Level and travelled downhill on the haul road towards Number Two (2) Level³⁴.

Previous loads to the ROM required s73 Irrelev to complete a 90° right turn at the intersection exit point at Number Two (2) Level and continue on to the ROM³⁵.

9.2 The accident

While travelling down the haul road, s73 Irrelev failed to negotiate the right hand turn to the Number Two (2) Level entry point and continued through the haul road intersection³⁶.

Just past the intersection, the truck veered to the left hand side leaving scuff marks in the haul road. The truck continued on and struck an earth embankment ultimately coming to rest on its side.

There were no eye witnesses to the accident³⁷.

³⁰ Appendix 27. QPS Form 1

³¹ Appendix 28. Transcript 23-10-18 s73 Irrelev page 4 from line 45

³² Appendix 16. Transcript 31-07-18 s73 Irrelev page 9 from line 133

³³ Appendix 16. Transcript 31-07-18 s73 Irrelev page 8 from line 124

³⁴ Appendix 16. Transcript 31-07-18 s73 Irrelev page 9 from line 142 and Appendix 28. Transcript 23-10-18 s73 Irrelev page 8 from line 124

³⁵ Appendix 16. Transcript 31-07-18 s73 Irrelev page 9 from line 142

³⁶ Appendix 29. FCU Map Overhead

³⁷ Appendix 14. Transcript 31-07-18 s73 Irrelev Appendix 15. Transcript 31-07-18 s73 Irrelev Appendix 16. Transcript 31-07-18 s73 Irrelev and Appendix 17. Transcript 31-07-18 s73 Irrelev

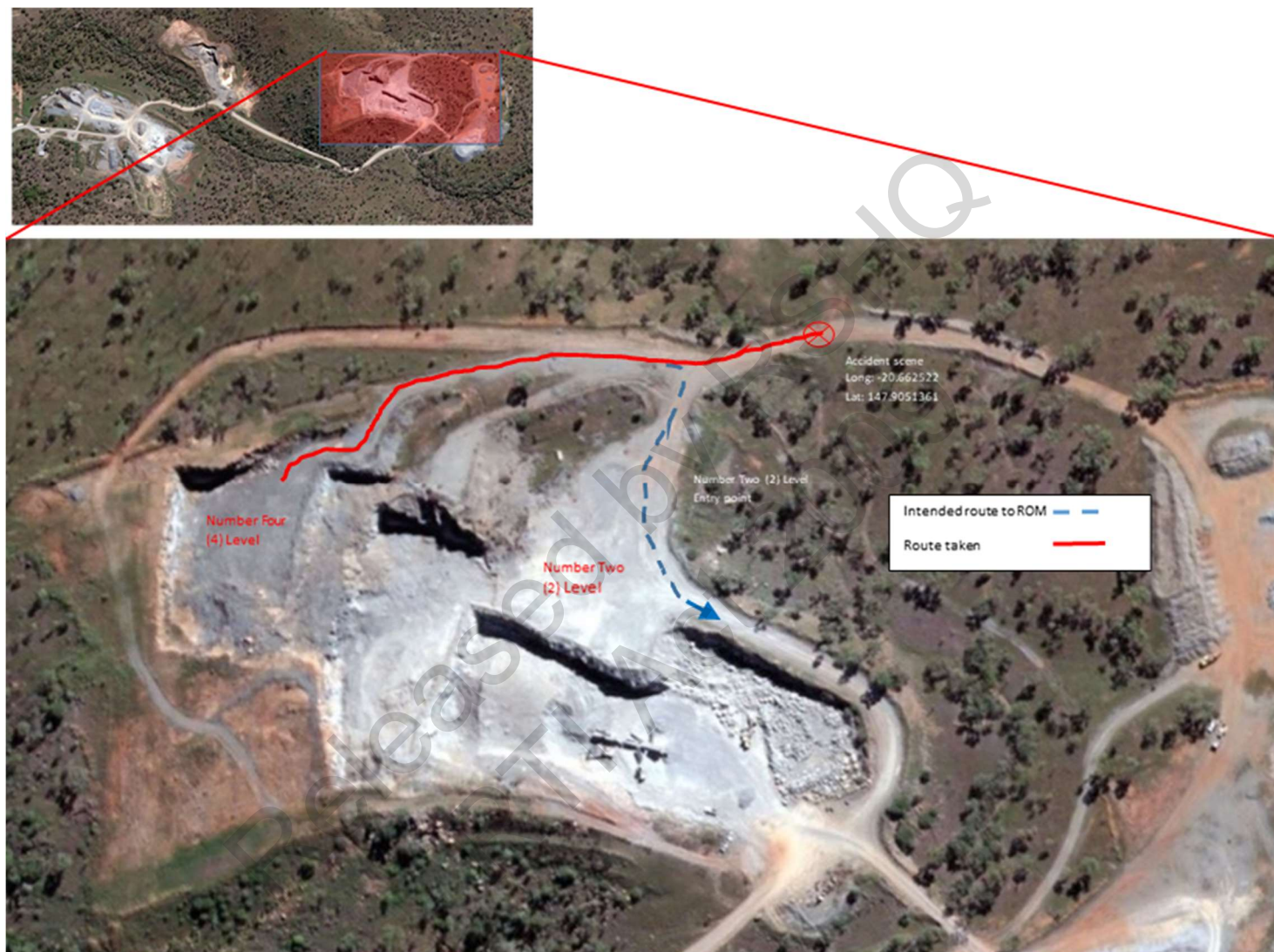


Figure 4. Satellite image with an overlay to demonstrate the probable vehicle route (in red), intended vehicle route from the intersection exit point and approximate location of the accident scene.

Quarry Incident - Fatal. Jacks Quarry Bowen Developmental Road

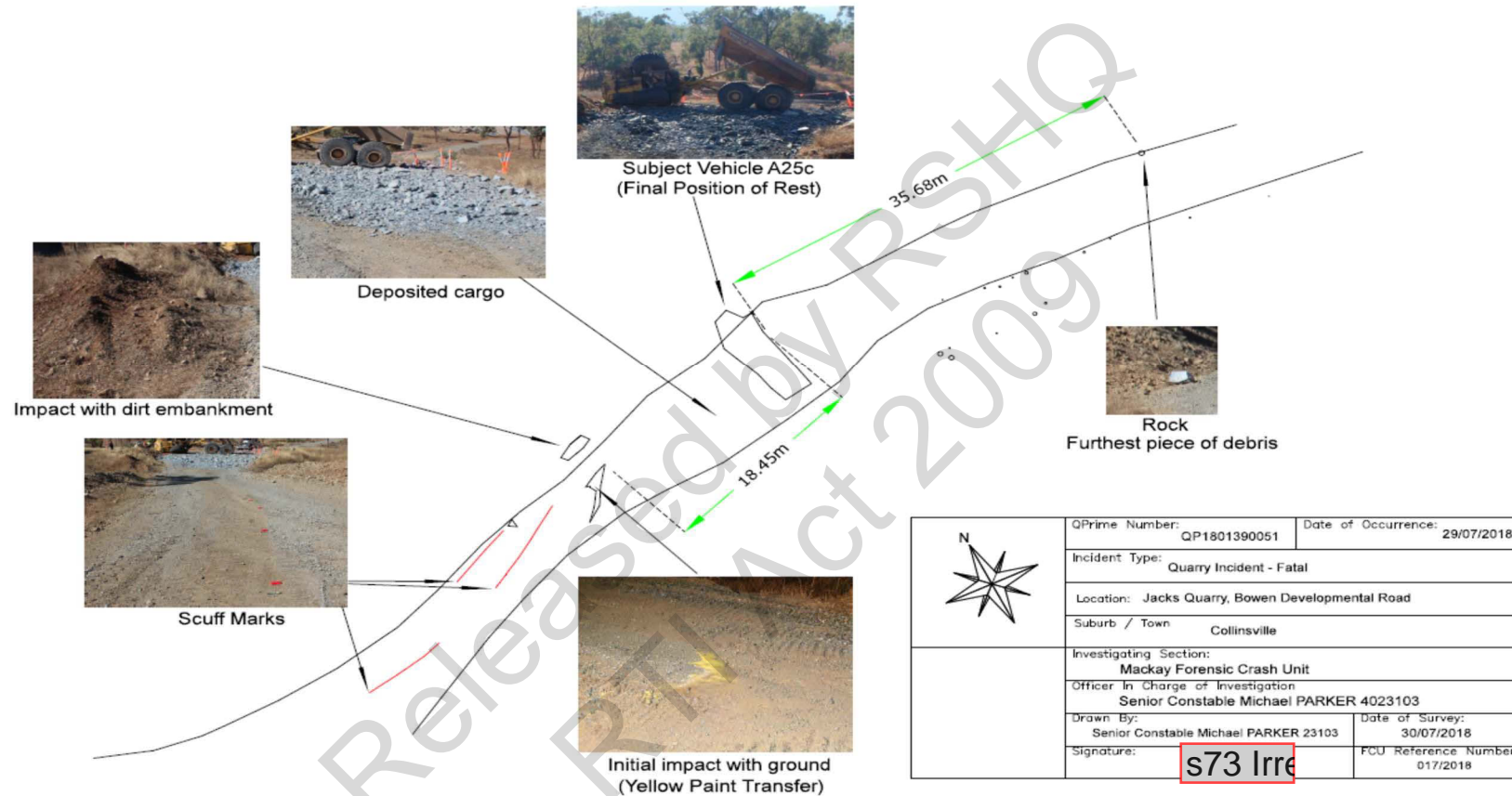


Figure 5. Forensic Crime Unit overhead survey of the scene with photos³⁸

³⁸ Appendix 30. FCU Map with Photos

Quarry Incident - Fatal. Jacks Quarry Bowen Developmental Road

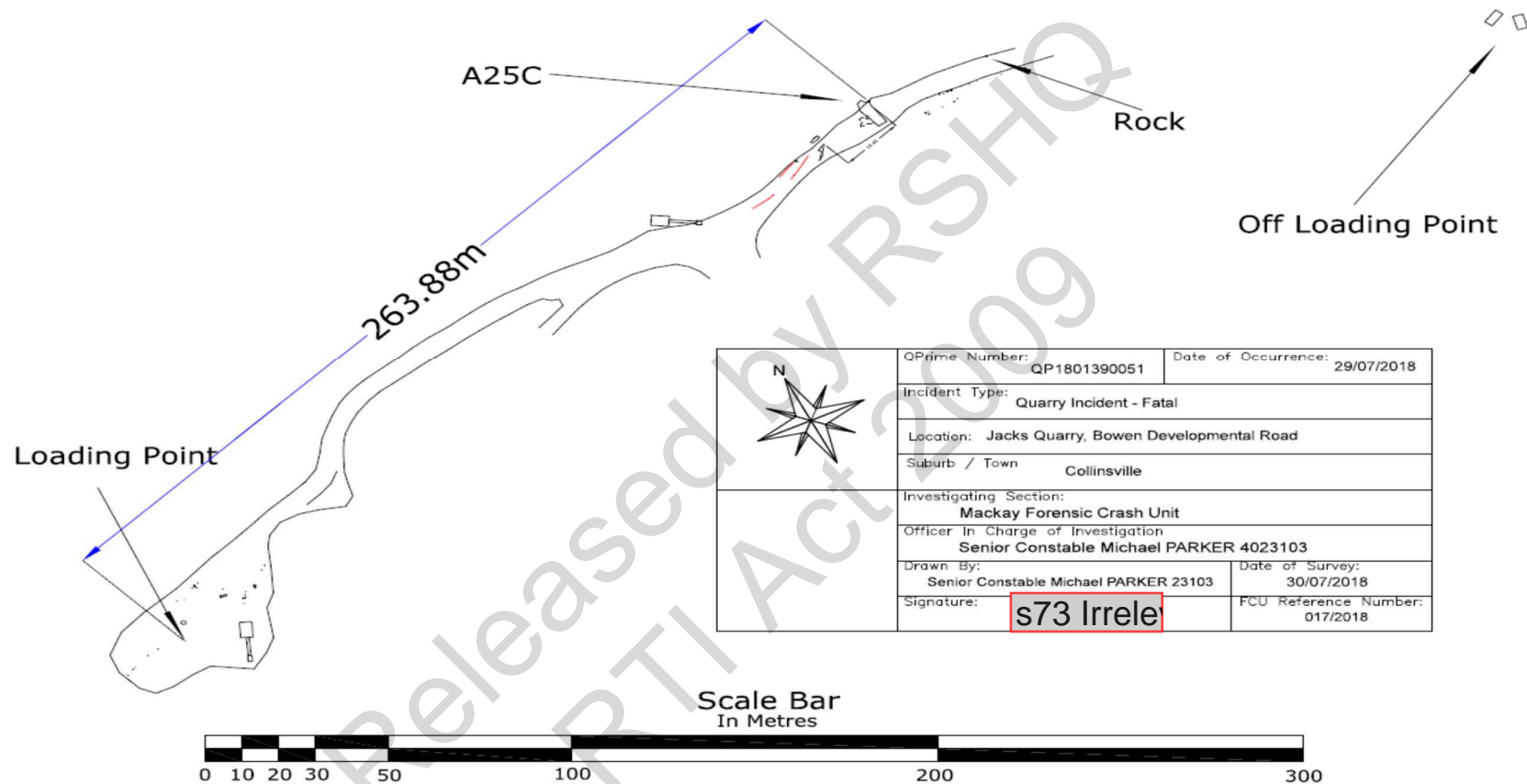


Figure 6. Forensic Crime Unit overhead survey of the scene³⁹

³⁹ Appendix 29. FCU Map Overhead

9.3 Emergency response

s73 Irrelevant although seriously injured, initially survived the accident and was able to call for assistance with a UHF radio located in the truck⁴⁰.

s73 Irrelevant informat and s73 Irre arrived at the scene upon hearing the call over the UHF radio. They found s73 Irrelev responsive and pinned under the cab of the truck⁴¹.

s73 Irrele called s73 Irrelev and requested emergency services be called as s7 s73 Irre had rolled the truck⁴². s73 Irrelevant informat and s73 Irre stayed with s7 s73 Irre while waiting for emergency services to arrive. During this period, s73 Irrelev was able to communicate and mentioned certain items with respect to the truck's performance prior to the accident.⁴³

Emergency services were mobilised at approximately 4:49 pm after they received notification of the accident from s73 Irrelev. The Queensland Ambulance Service (QAS) arrived on site at approximately 5:18 pm⁴⁴.

The Queensland Fire and Emergency Services (QFES) and QPS also attended the scene to assist with the extrication of s73 Irrelevan

The cab of the truck was partially crushed as a result of the accident. QFES stabilised and provided access to the cab⁴⁶.

The condition and confined area of the cab limited one person from QAS to provide treatment to s73 Irrelevan

While QAS rendered assistance, QFES prepared to lift the truck to free s73 Irrelevan

Extrication of s73 Irrelev from the truck commenced at approximately 6:33 pm⁴⁹.

QFES proceeded to lift the truck using specialised hydraulic lifting equipment⁵⁰.

The B pillar in the cab of the truck was removed to allow QFES to extricate s73 Irrelevan

After being extricated from the truck, s73 Irrelevant information and passed away at the scene at approximately 7:14 pm⁵³.

⁴⁰ Appendix 15. Transcript 31-07-18 s73 Irrelev page 6 from line 99, Appendix 16. Transcript 31-07-18 s73 Irrelev page 10 from line 150 and Appendix 17. Transcript 31-07-18 s73 Irrelev page 7 from line 96

⁴¹ Appendix 15. Transcript 31-07-18 s73 Irrelev page 6 from line 99, Appendix 16. Transcript 31-07-18 s73 Irrelev page 10 from line 158 and Appendix 17. Transcript 31-07-18 s73 Irrelev page 7 from line 96

⁴² Appendix 14. Transcript 31-07-18 s73 Irrelev page 7 from line 101

⁴³ Appendix 15. Transcript 31-07-18 s73 Irrelev page 17 from line 264, Appendix 16. Transcript 31-07-18 s73 Irrelev page 16 from line 249 and Appendix 17. Transcript 31-07-18 s73 Irrelev page 17 from line 206

⁴⁴ Appendix 31. QAS - s73 Irrelev fatal incident - IDR 10370321

⁴⁵ Appendix 31. QAS - s73 Irrelev fatal incident - IDR 10370321

⁴⁶ Appendix 31. QAS - s73 Irrelev fatal incident - IDR 10370321

⁴⁷ Appendix 32. QAS Patient Care Record - s73 Irrelev fatal incident - eARf

⁴⁸ Appendix 31. QAS - s73 Irrelev fatal incident - IDR 10370321

⁴⁹ Appendix 31. QAS - s73 Irrelev fatal incident - IDR 10370321

⁵⁰ Appendix 27. QPS Form 1

⁵¹ Appendix 27. QPS Form 1

⁵² Appendix 27. QPS Form 1

⁵³ Appendix 27. QPS Form 1 and Appendix 31. QAS - s73 Irrelev fatal incident - IDR 10370321

10 Evidence

10.1 Original equipment manufacturers (OEM) report

The OEM (supported by CJD Pty Ltd) examined, conducted testing and supplied a mechanical assessment report of the truck to Mr FIRTH. The assessment identified the following:⁵⁴

A25C SN9570 operating hours

- 20160 hours showing on hour meter fitted in the dash.
- 27519 hours showing in service “Contronic” unit which is the internal hour meter in the electronic control unit (ECU – computer management system).

Air circuit attaining maximum pressure

- Air system was checked for cut in and cut out pressure. Low air pressure warning was checked for functionality. Cut out pressure – 8.3 bar / Cut in pressure – 7.0 bar. Visual low brake pressure warning indicator light illuminated at 4.3 bar. This function met OEM specification.
- The red “central warning light” for low brake pressure and audible buzzer were not functioning.
- The compressor air cleaner was blocked.

Brakes - Park Brake

- Brake pads serviceable but show wear. Pads were found to be contaminated with hydraulic oil which has a potential to decrease efficiency.
- Park brake was tested as per the OEM recommendation and result indicated that the park brake ‘hold’ function met OEM specification.
- Static test of parking brake function test actual result 1480 revolutions per minute (RPM – engine speed) before the machine drove through the park brake. This function met OEM specification.

Brake - Front Axle (Pos1 - Left Hand Front, Pos2 – Right Hand Front)

- The front brake system was found to be inoperative when tested.
- Air was found in both front hydraulic brake circuits.
- There was brake fluid in both of the front right and left hand axle brake master cylinders’ reservoirs. Visual inspection showed that both master cylinders were leaking brake fluid through tell tail holes in both brake boosters. It was observed during inspection that the right hand master cylinder reservoir cap vent hole on the right hand side was blocked. This would prevent the master from operating correctly, the brake fluid would not flow into the master cylinder as per normal operation.

⁵⁴ Appendix 21. Mechanical Assessment of Volvo A25C SN 9570

- Both the left and right master cylinders were removed and disassembled for inspection. Visual inspection found the cylinder bores of both master cylinders were scored. This caused the brake fluid to bypass the piston seals and leak externally via tell tail holes on the brake boosters.

Brakes - Middle axle (Pos3 – Left Hand Middle Axle, Pos4 – Right Hand Middle Axle)

- The middle axle brake system was operational. There was correct level of brake fluid in the reservoir.
- The master cylinder output brake pressure measured at callipers was recorded a second time after some air was bled from the brake system.

Brakes - Rear axle (Pos5 – Left Hand Rear Axle, Pos6 – Right Hand Rear Axle)

- The rear axle brake system was found to be inoperative when tested.
- The brake fluid was present in the reservoirs, but the hydraulic brake system was aerated.
- The brake booster showed excessive travel with stroke indicator at maximum. The stroke indicator could not be reset to perform another test. The brake booster was disassembled, and the main booster return spring was broken which prevented the stroke indicator being reset. The broken return spring would have caused reduced movement of the brake booster and as a result would have caused reduced master cylinder output brake pressure.

It was also noted that:

- The maximum stroke electric warning switch was removed from booster.
- The brake fluid was contaminated with dirt which had formed a sludge in the reservoir (The OEM's recommendation is to change and flush brake fluid every 2000 hours).
- A visual inspection found the master cylinder was scored when disassembled for inspection.

Failed brake hydraulic circuit warning circuit

- The hydraulic brake failure warning system was inoperative.
- Various brake booster over stroke senders were removed.
- Relay 23 (brake hydraulic system warning hold relay) was removed from relay holder.
- At inspection the visual indicator light LA3 for brake failure remained illuminated.

Transmission retarder

- At time of dynamic testing the transmission retarder failed to apply.
- Investigation of issue found FU26 (Feed to relay R32 and R33, signal feed to R33 – reduced retarder), FU24 (Feed to transmission control unit and gearshift selector) were both missing from the fuse board. These fuses provide power supply for the retarder and transmission ECU.

- During the inspection it was noted that power for T-ECU was taken from FU25 (signal exhaust retarder, retarder and feed to control unit - TECU).
- Intermittent wiring contact to relay R30 (key dependent feed to transmission control unit). This intermittent loss of voltage caused the transmission to neutralize during testing.

Engine exhaust brake function

- Dynamic test of exhaust brake revealed it was not functioning. Internal inspection found the unit had been in-operable for an extended period. Unit was contaminated with dirt and piston seized in one position.

Suspension components failure

- Both rubber suspension blocks on P5 and P6 appear to have been broken prior to the incident. Visual inspection showed oxidisation of rubber at rubber separation point and metal internal safety rod “polished” from excessive movement.
- Rear axle “A” frame bushing was deteriorated.
- Loaded ride stability of trailer unit could have been compromised due to the condition of these components.

Body hoist raising

- The operation of the machine was tested i.e. lifting, lowering, hold and float functions of dump body. All functions worked as per design and the body did not self-raise with engine running during testing.

A25C Display unit information

- The machine T-ECU and Contronic display unit only stores a list of historic and current error codes for the machine. The machine operational history is not recorded on the A25C.

Transmission oil condition

- The oil sampled showed an increased PQ index (particle quantification). As this was an initial oil sample it did not reflect a trend. The oil sample did show that the oil was not burnt.

Steering system integrity

- Visual and dynamic testing of the steering system was conducted. Steering components were functioning and no binding or leaks were present, however, the machine had slight self-steering to the left hand side. This had to be corrected by holding the steering wheel.
- Self-steering could have been due to the incident, however, damage to the feed rod and linkages was not found.

10.2 History, service and maintenance

On Thursday 13 May 2010, BBM purchased the Volvo BM A25C (serial number 9570) articulated dump truck in used condition⁵⁵.

On Monday 22 February 2016, a 500 hour ("C" type⁵⁶) service sheet was completed by maintenance personnel for BBM. The report recorded 17559 hours for the truck.⁵⁷

sch3p10(3) - Law enforcement or public safety information

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The Volvo A25C Operators Manual stipulates a "B" (250 hour) type service requires the following:⁶⁴

Check:

- Level, brake fluid
- Level, coolant
- Oil level, engine
- Level, anti-freeze brake/compressed air system
- Drain wet air reservoir
- Oil level, hydraulic system
- Oil level in the oil-bath cleaner (optional equipment)
- Oil level, transmission
- Function, control lamps, operating controls, travel and working lights and that there are no leaks
- Ventilation filters, cab
- Drain air reservoirs
- Air pressure, tyres
- Electrolyte level, batteries

⁵⁵ Appendix 33. Ownership of A25C

⁵⁶ Appendix 34. PUB20006630A A25C Volvo BM Operators Manual, page 149

⁵⁷ Appendix 35. Service Report 22.2.16

sch3p10(3) - Law enforcement or public safety information

⁶⁰ Appendix 39. Transcript 14-11-18 s73 Irrelevant page 1 from line 3 and page 3 from line 40

sch3p10(3) - Law enforcement or public safety information

⁶² Appendix 39. Transcript 14-11-18 s73 Irrelevant page 30 from line 488

⁶³ Appendix 39. Transcript 14-11-18 s73 Irrelevant page 31 from line 494

⁶⁴ Appendix 34. PUB20006630A A25C Volvo BM Operators Manual, page 149

- Water trap
- Belt tension, Air Conditioning compressor (optional equipment)
- Oil level, drop box
- Belt tension, alternator
- Bel tension, coolant pump

Change:

- Oil and oil filter, engine
- Oil in bath air cleaner (optional equipment)
- When required: clean the air cleaner cover

Lubricate:

- Steering cylinder bearings
- Frame joint
- Tipping cylinder bearing
- Tipping joint bearings
- Propeller shafts, all apart from between transmission and drop box
- Steering joint bearings

s73 Irrelevant information

s73 Irrelevant information This meant the truck performed at least 2525 hours without a major service which was recommended by the OEM.

sch3p10(3) - Law enforcement or public safety information

⁶⁵ Appendix 39. Transcript 14-11-18 s73 Irrel page 23 from line 365

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Appendix 17. Transcript 31-07-18 s73 Irrelev page 20 from line 240 and page 21 from line 248

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10.3 Operating conditions

The FCU conducted a survey of the scene and recorded measurements of the haul road profile from the top of the ridge on Number Four (4) Level to the final position of rest of the truck. No evidence of braking, sliding or tyres skidding were identified on the haul road except for scuff marks left in the road in close proximity to the accident scene⁷⁵. QPS observed a maximum gradient of 20.52 % with an average gradient of 18.62 % over 189.61 metres⁷⁶. The gradients recorded were within OEM operating capability of the Volvo A25C (6x6)⁷⁷.

Workers at the quarry on Sunday 29 July 2018 stated the following:

- weather conditions was described as a fine with clear visibility⁷⁸
- no rain had occurred during the day⁷⁹
- state of the road was in reasonably good condition⁸⁰
- fauna, cattle or other wildlife were not observed in the area of the accident⁸¹
- minor patches of oil stains were observed on the ground at the loading point on Number (4) Level⁸²

A water truck had been operating near the area where the truck overturned. s73 Irrelevant

s73 Irrelevant information

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⁷⁵ Appendix 30. FCU Map with Photos

⁷⁶ Appendix 45. FCU Map Side Profile (Grade)

⁷⁷ Appendix 34. PUB20006630A A25C Volvo BM Operators Manual, page 76

⁷⁸ Appendix 46. Transcript 22-10-18 s73 Irrelevant page 3 from line 31

⁷⁹ Appendix 46. Transcript 22-10-18 s73 Irrelevant page 3 from line 35

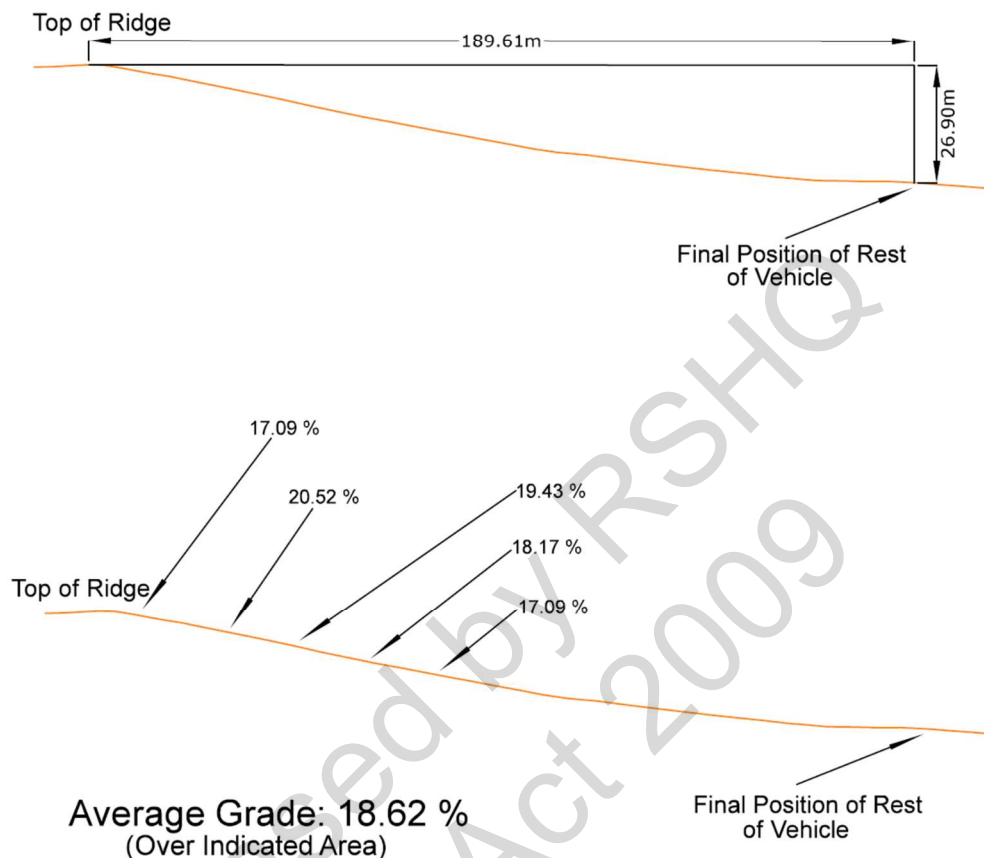
⁸⁰ Appendix 28. Transcript 23-10-18 s73 Irrelevant page 4 from line 38

⁸¹ Appendix 28. Transcript 23-10-18 s73 Irrelevant page 4 from line 42

⁸² Appendix 47. IMG_2260.jpg and Appendix 48. IMG_2261.jpg

⁸³ Appendix 14. Transcript 31-07-18 s73 Irrelevant page 8 from line 124 and Appendix 46. Transcript 22-10-18 s73 Irrelevant page 11 from line 193

Quarry Incident - Fatal. Jacks Quarry Bowen Developmental Road



	QPrime Number: QP1801390051	Date of Occurrence: 29/07/2018
	Incident Type: Quarry Incident - Fatal	
	Location: Jacks Quarry, Bowen Developmental Road	
	Suburb / Town: Collinsville	
	Investigating Section: Mackay Forensic Crash Unit	
	Officer In Charge of Investigation: Senior Constable Michael PARKER 4023103	
	Drawn By: Senior Constable Michael PARKER 23103	Date of Survey: 30/07/2018
	Signature: s73 Irrelev	FCU Reference Number: 017/2018

Figure 8. Forensic Crime Unit survey map side profile (grade)

10.4 s73 Irrelevant employment

sch3p10(3) - Law enforcement or public safety information

s73 Irrelevant information

sch3p10(3) - Law enforcement or public safety information

10.5 Jacks Quarry safety and health management system

During the course of the investigation, information and documents relating to the Safety and health management system (SHMS) were provided to Mr FIRTH by BBM. On Monday 30 July 2018, Mr FIRTH obtained a copy of the Safety Management Plan BBM2 10.1.17 2 (BBM SMP)⁹⁰.

10.5.1 Risk management

The BBM SMP contains documented risk management processes and stated that the management was responsible for the implementation and communication of the risk management processes. The BBM SMP did not provide details on who held the SSE or senior positions in the management structure, nor their responsibilities or competencies required to enable the implementation and communication of the risk management processes.

sch3p10(3) - Law

⁸⁵ Appendix 50. Personal Details

⁸⁶ Appendix 51. Health Assessment

⁸⁷ Appendix 52. Site Induction

⁸⁸ Appendix 53. Roster

⁸⁹ Appendix 17. Transcript 31-07-18 s73 Irrelevant and Appendix 15. Transcript 31-07-18 s73 Irrelevant page 9 from line 97 page 20 from line 302

⁹⁰ Appendix 54. Safety Management Plan BBM2 10.1.17 2

sch3p10(3) - Law enforcement or public safety information

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In addition, the BBM SMP required Management to implement a consultation program. BBM posted safety bulletins on a notice board for workers to read⁹³. The safety bulletins posted included safety bulletin 170 - Articulated Truck Rollover.⁹⁴

sch3p10(3) - Law enforcement or public safety information

⁹³ Appendix 57. Transcript 25-10-18 [redacted] page 35 from line 551

⁹⁴ Appendix 58. IMG_2424.jpg and Appendix 59. IMG_2426.jpg

10.5.2 Procedures and standard working instructions

A document, procedure or process can often be referred to in a variety of colloquial terms in a specific industry. For the purpose of this report, a “procedure” can be considered one or more of the following:

- Safe Work Method Statements (SWMS)
- Standard Operating Procedures (SOP)
- Standard Working Instructions (SWI)
- Written procedures (WP)
- Safe Work Practice (SWP)

Documents were requested to be provided by management from Jacks Quarry and the transport office in Collinsville on Tuesday 31 July 2018. A large proportion of the documents were not provided when requested. Mr FIRTH then further requested BBM to provide information or documentation which could demonstrate the procedures effectively implemented at the time **s73 Irrelev** was working at the quarry.⁹⁵

sch3p10(3) - Law enforcement or public safety information

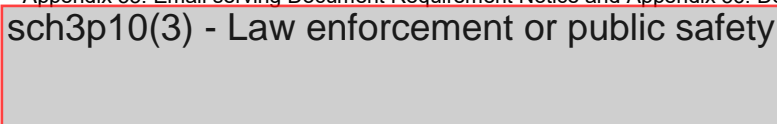


3. SWP for Traffic Rules

- Safe Work Practises – Traffic Rules was obtained¹⁰¹.

⁹⁵ Appendix 55. Email serving Document Requirement Notice and Appendix 56. Document Requirement Notice 001

sch3p10(3) - Law enforcement or public safety



¹⁰¹ Appendix 62. Traffic Rules

10.5.3 Training and competence

The BBM SMP defined how training and competence would be achieved by the following processes:

- Aimed to provide all employees with the training and skills to work safely and competently through toolbox safety talks, pre-shift instructions and a mentoring program.
- All employees were required to have site authorisations to operate machinery and equipment on the quarry by the site senior executive's authorisation or delegate.
- Management were required to record all training on the Yearly Training Plan (Form 13A) and records of all training were to be recorded on the employees file which was to be kept in the site office.

s73 Irrelevant information

On Tuesday 31 July 2018, Mr FIRTH obtained a New Employees Checklist and BBM Site Induction for s73 Irrelevant. BBM had in place a method of assessment to conducting haul truck operations¹⁰³ however there was no record to show that s73 Irrelevant had completed that assessment.

sch3p10(3) - Law enforcement or public safety information

¹⁰² Appendix 17. Transcript 31-07-18 s73 Irrelevant page 10 from line 112

¹⁰³ Appendix 63. Haul Truck Operations Assessment

sch3p10(3) - Law enforcement or public safety information

sch3p10(3) - Law enforcement or public safety information

s73 Irrelevant information

Documents to demonstrate that s73 Irrelevant and s73 Irrelevant held certificates of competency as trainer or assessors were not provided by BBM.

10.5.4 Supervision

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s73 Irrelevant information

sch3p10(3) - Law enforcement or public safety information

- ¹⁰⁸ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 34 from line 449
¹⁰⁹ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 11 from line 123
¹¹⁰ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 10 from line 115
¹¹¹ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 35 from line 454 and Appendix 57. Transcript 25-10-18 s73 Irrelevant page 38 from line 600
¹¹² Appendix 17. Transcript 31-07-18 s73 Irrelevant page 35 from line 462
¹¹³ Appendix 57. Transcript 25-10-18 s73 Irrelevant page 39 from line 610
¹¹⁴ Appendix 57. Transcript 25-10-18 s73 Irrelevant page 10 from line 160 and page 40 from line 632

sch3p10(3) - Law enforcement or public safety information

- ¹¹⁶ Appendix 67. Supervisor Ticket
¹¹⁷ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 10 from line 113
¹¹⁸ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 7 from line 96

s73 Irrelevant information

10.6 s73 Irrelevant actions

10.6.1 Seat belt application

The Volvo BM A25C (serial number 9570) articulated dump truck was manufactured with an operator's seat and a smaller passenger seat which are fitted with seatbelts. The OEM service manual and operator's manual safety rules specify the use of the seatbelt during all operation¹²⁰.

s73 Irrelevant left leg was pinned between the cab and the ground. The top half of his body was inside the cab and his leg was outside the cab. Workers who immediately attended the scene could not verify whether s73 Irrelevant had, or had not, been wearing his seat belt at time of the accident¹²¹. s73 Irrelevant information

s73 Irrelevant information

The QPS FCU inspected the driver's seatbelt assembly at the accident scene and noted:

- it was free of any debris or objects that would have prevented it from securing the seatbelt clip in place
- the seatbelt clipped into the receiver securely and correctly
- the seatbelt was observed to be at the maximum of its extension; being the seatbelt clip was at the end of the sash strap
- the seatbelt clip and receiver were found to operate correctly when force was applied to the assembly
- first responding workers stated that they did not recall seeing s73 Irrelevant wearing a seatbelt when they attended the crash site
- when the seatbelt was clipped into its receiver; it was noted to be at the maximum of its extension, however it was still observed to be a considerable distance inside the cabin of the vehicle
- the dynamics of the crash indicate s73 Irrelevant would not have been able to have his left leg exit the cabin area of the vehicle if he was wearing his seatbelt (at the time of the crash)

The FCU concluded the evidence indicates that s73 Irrelevant was not wearing his seatbelt at the time of the accident.¹²³

¹¹⁹ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 20 from line 236

¹²⁰ Appendix 26. Volvo Manual page: 2 and Appendix 34. PUB20006630A A25C Volvo BM Operators Manual page 84

¹²¹ Appendix 15. Transcript 31-07-18 s73 Irrelevant page 18 from line 276, Appendix 28. Transcript 23-10-18 s73 Irrelevant page 26 from line 431

¹²² Appendix 17. Transcript 31-07-18 s73 Irrelevant page 21 from line 246

¹²³ Appendix 68. RE s73 Irrelevant Fatality at Jacks Quarry on 29th July 2018

10.6.2 Mobile phone use

s73 Irrelevant information

On Monday 13 August 2018, the QPS requested a “Phone Search-Communication Record” with s73 Irrelevant mobile phone service provider. A full report on the activities conducted through the phone from 12:00 am Friday 27 July to 12:00 pm Sunday 29 July 2018 was produced by the provider¹²⁸. This information was later summarised by the QPS to focus on active calls and text messages originating from s73 Irrelevant phone¹²⁹.

s73 Irrelevant information

s73 Irrelevant info In addition, QPS noted on Sunday 29 July 2018, truck (A25C) pre-start records showed a starting hourly count of 20150 was entered. When the truck was inspected at the accident scene, the hour count for the truck was noted to be 20159.8. The truck had been operated for nine point eight (9.8) hours by s73 Irrelevant prior to the s73 Irrelevant information

10.7 s73 Irrelevant communication with workers after the accident

s73 Irrelevant survived the accident and was responsive with workers and emergency services while he was trapped under the cab of the truck.

s73 Irrelevant communicated to workers about an event occurring with the truck earlier in the day as well as how the truck performed while travelling down the haul road just prior to the incident. Several workers recall the following conversations with s73 Irrelevant

s73 Irrelevant information

¹²⁴ Appendix 46. Transcript 22-10-18 s73 Irrelevant page 9 from line 153 and page 18 from line 323, Appendix 15. Transcript 31-07-18 s73 Irrelevant page 17 from line 248, Appendix 68. Transcript 22-10-18 s73 Irrelevant page 40 from line 708, Appendix 28. Transcript 23-10-18 s73 Irrelevant page 9 from line 145 and Appendix 57. s73 Irrelevant page 30 from line 616 page and 9 from line 145

¹²⁵ Appendix 69. Transcript 22-10-18 s73 Irrelevant page 41 from line 720

¹²⁶ Appendix 28. Transcript 23-10-18 s73 Irrelevant page 10 from line 149

¹²⁷ Appendix 17. Transcript 31-07-18 s73 Irrelevant page 16 from line 243, Appendix 15. Transcript 31-07-18 s73 Irrelevant page 18 from line 278

¹²⁸ Appendix 70. Full Phone Records

¹²⁹ Appendix 71. Adjusted Phone records

¹³⁰ Appendix 72. Email Fwd Phone Records for s73 Irrelevant

s73 Irrelevant information

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¹³¹ Appendix 15. Transcript 31-07-18 s73 Ir page 18 from line 267

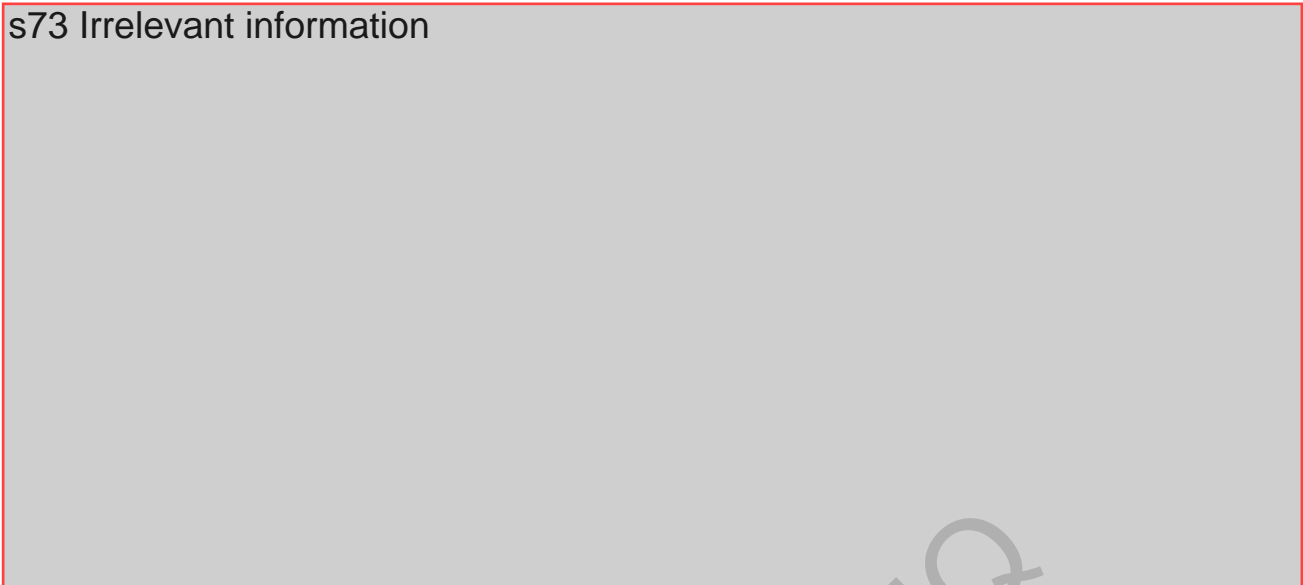
¹³² Appendix 69. Transcript 22-10-18 s73 Ir page 39 from line 697

¹³³ Appendix 16. Transcript 31-07-18 s73 Irre page 16 from line 256

¹³⁴ Appendix 28. Transcript 23-10-18 s73 Irre page 23 from line 379

¹³⁵ Appendix 17. Transcript 31-07-18 s73 Irre page 18 from line 210 and page 28 from line 344

s73 Irrelevant information



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¹³⁶ Appendix 1. 10248935 - Form 8 autopsy report

¹³⁷ Appendix 73. 10239751 - Toxicology certificate

11 Conclusions and findings

11.1 Summary of incident

1. On Sunday 29 July 2018 at approximately 4:40 pm, **s73 Irrelev** received fatal injuries when his truck hit an embankment and turned over on a haul road at Jacks Quarry.
2. The accident occurred while conducting operations at a quarry.
3. At the time of the accident **s73 Irrelev** was employed by BBM.
4. The truck involved in the accident was owned, operated and maintained by BBM.
5. Based on the FCU photos and surveys of the scene, a likely sequence of events of the truck rolling over could have occurred by:
 - 5.1 The engine unit hit and travelled along the embankment
 - 5.2 The load unit travelled sideways.
 - 5.3 The left hand side wheels of the load unit lost contact with the road.
 - 5.4 The load unit went into a roll.
 - 5.5 The load unit rotated and ejected the load.
 - 5.6 The load unit, while rotating, forced the engine unit onto its side.
 - 5.7 The truck came to rest with the load unit on its wheels and the engine unit on its right hand side, trapping **s73 Irrelev** in the cab.
 - 5.8 After coming to rest, the truck's engine continued to run allowing the tray to raise on the dump unit.

11.2 Contributing factors

1. The risk management process documented in the BBM SMP were not being implemented prior to the accident.
2. **s73 Irrelev** did not receive formal training or assessment to a recognised standard on the truck he was operating.
3. **s73 Irrelev** was not a licensed truck driver and was operating the truck under training. It is possible **s73 Irrelev** did not have the appropriate skill and knowledge required to operate the truck to a standard.
4. Telephone records on the day of the accident showed **s73 Irrelev** must have been utilising his phone on a number of occasions whilst driving prior to the accident.

5. Testing of the truck found there was an intermittent electrical fault which caused the transmission to neutralise. The transmission retarder braking function will not operate when the transmission is in neutral.
6. Workers operating the truck had identified and reported on issues relating warning systems and brakes prior to the accident.
7. **s73 Irrelev** tried to apply the truck brakes prior to the accident however the brakes were not effective to prevent the runaway of the truck.
8. Defect issues with the truck's braking systems would have most likely been detected if servicing and testing, by a qualified person, had been conducted in accordance to OEM recommendations with reference to the OEM service manual.
9. The truck was not serviced or being maintained with adequate reference to the OEM recommendations.
10. **s73 Irrelev** claimed he was wearing a seat belt prior to the accident however QPS has concluded he was not wearing a seatbelt at the time of the accident.

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12 Completed actions

1. Preliminary Investigation Report for s73 Irrelevant in Sunday 29 July 2018 completed on Wednesday 8 August 2018¹³⁸.
2. Mines safety alert no. 358 issued on Wednesday 29 August 2018 (Version 1)¹³⁹.
3. A follow up inspection at the quarry was conducted on Friday 28 September 2018¹⁴⁰.

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¹³⁸ Appendix 74. Preliminary Report

¹³⁹ Appendix 75. Fatality involving an articulated dump truck

¹⁴⁰ Appendix 76. Mine Record Entry - 28_09_2018 Jacks Quarry

13 Recommendations

1. A maintenance system for a mine or quarry must be specified and documented in the site SHMS. The maintenance system must adhere to recognised industry standards and OEM guidelines.
2. The Operator or SSE must ensure plant in use, is serviced and maintained so the plant is capable of performing its intended functions and remains within the condition and performance limits of its OEM specifications.
3. The use, condition and performance of plant must be monitored to detect any deterioration causing an unacceptable level of risk. Maintenance and service records should be kept to show all safety critical functions of plant and machinery are being maintained in accordance with the OEM's recommended service schedule and recommendations.
4. Persons conducting maintenance work on plant must possess the appropriate knowledge and skill for the tasks being conducted.
5. Persons conducting maintenance activities must have access to the standard specified by the OEM.
6. All training and assessment for plant operations should be mapped to, or be equivalent to, a recognised industry standard.
7. A copy of the OEM operators' manual should be integrated into the training for persons operating the plant.
8. A copy of the OEM operators' manual should be available for reference by persons when they are operating plant.

14 List of appendices

The following is a list of appendices referenced in the footnotes. Copies of the appendices are provided in the file attached with this report.

Appendix 1. 10248935 - Form 8 autopsy report

Appendix 2. Quarry Registration Certificate

Appendix 3. Email Lot 2 on SP196779

Appendix 4. Jacks Quarry title search

Appendix 5. Operator for a Mine

Appendix 6. SSE Appointment

Appendix 7. Mark Desira – Notebook

Appendix 8. Mine Record Entry - 29_07_2018 Jacks Quarry

Appendix 9. Steven Firth – Notebook

Appendix 10. Vehicle Release

Appendix 11. IMG_2400.jpg

Appendix 12. IMG_2413.jpg

Appendix 13. IMG_2415.jpg

Appendix 14. Transcript 31-07-18 s73 Irrelevant

Appendix 15. Transcript 31-07-18 s73 Irrel

Appendix 16. Transcript 31-07-18 s73 Irreleva

Appendix 17. Transcript 31-07-18 s73 Irrelevant

Appendix 18. Mine Record Entry - 31_07_2018 Jacks Quarry

Appendix 19. Email RE DNRME Inspection requirements - Volvo A25C

Appendix 20. VIU Mechanical Inspection

Appendix 21. Mechanical Assessment of Volvo A25C SN 9570

Appendix 22. Alan Graham – Notebook

Appendix 23. Email RE Volvo A25 Report

Appendix 24. MQSHA 1999 inforce on 29-07-2018

Appendix 25. MQSHR 2017 inforce on 29-07-2018

Appendix 26. Volvo Manual

Appendix 27. QPS Form 1

Appendix 28. Transcript 23-10-18 s73 Irreleva

Appendix 29. FCU Map Overhead

Appendix 30. FCU Map with Photos

Appendix 31. QAS - s73 Irreleva - fatal incident - IDR 10370321

Appendix 32. QAS Patient Care Record- s73 Irreleva - fatal incident – eARf

Appendix 33. Ownership of A25C

Appendix 34. PUB20006630A A25C Volvo BM Operators Manual

Appendix 35. Service Report 22.2.16

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Appendix 39. Transcript 14-11-18 s73 Irreleva

sch3p10(3) - Law enforcement or public safety information

Appendix 42. Prestart T11 Moxy April to July 18

sch3p10(3) - Law enforcement or

Appendix 45. FCU Map Side Profile (Grade)

Appendix 46. Transcript 22-10-18 s73 Irrelevant

Appendix 47. IMG_2260.jpg

Appendix 48. IMG_2261.jpg

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Appendix 50. Personal Details

Appendix 51. Health Assessment

Appendix 52. Site Induction

Appendix 53. Roster

Appendix 54. Safety Management Plan BBM2 10.1.17 2

Appendix 55. Email serving Document Requirement Notice

Appendix 56. Document Requirement Notice 001

Appendix 57. Transcript 25-10-18 s73 Irrelevant

Appendix 58. IMG_2424.jpg

Appendix 59. IMG_2426.jpg

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Appendix 62. Traffic Rules

Appendix 63. Haul Truck Operations Assessment

sch3p10(3) - Law enforcement or

Appendix 67. Supervisor Ticket


Appendix 68. RE s73 Irrelevant Fatality at Jacks Quarry on 29th July 2018

Appendix 69. Transcript 22-10-18 s73 Irrelevant

Appendix 70. Full Phone Records

Appendix 71. Adjusted Phone records

sch3p10(3) - Law enforcement or public safety info



Appendix 75. Fatality involving an articulated dump truck

Appendix 76. Mine Record Entry - 28_09_2018 Jacks Quarry

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