

s.73

From: Andrews, Darren [redacted] sch4p4(6) Personal information
Sent: Tuesday, 16 July 2013 5:56 PM
To: MCWILLIAM Mick; ALBURY Russell
Cc: [redacted]
Subject: Investigation reports into hydraulic hose failure/fire resulting in fractured fibula

Mick/Russell,

Please find attached the electronic copies of the investigation into the above. Note, the fracture is of the Fibula just above the ankle as per the attached medical certificate.

Please note that these reports are subject to legal privilege and as a result I would ask that these not be distributed to any third party without the express permission of the SSE.

Regards,

Darren Andrews
Safety, Health & Environment Manager, Surface Operations



E [redacted]

P
M
sch4p4(6) Personal information

METALLURGICAL COAL

Anglo Coal (Capcoal Management) Pty Ltd

CAPCOAL OPEN CUT OPERATIONS

P.M.B. 1, Middlemount, Qld, 4746

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RTI DL RELEASE - DNRM

INCIDENT INVESTIGATION REPORT

CAPCOAL SURFACE OPERATIONS

Enablon Number: #00027464

Classification: Lost Time Injury

Description: Ankle Injury from Scraper Fire

Incident Date: 01/06/2013

CONTENTS

1.	OVERVIEW / EXECUTIVE SUMMARY PURPOSE	3
2.	INVESTIGATION TEAM	3
3.	DESCRIPTION OF THE INCIDENT	4
4.	TIMELINE OF INCIDENT	4
5.	ROOT CAUSE	5
6.	CONTRIBUTING FACTORS	5
7.	CAUSAL ANALYSIS CHART	5
8.	FINDINGS / CONCLUSIONS	6
9.	PREVENTATIVE ACTIONS / RECOMMENDATIONS	6
10.	INVESTIGATION REPORT SIGN-OFF	7

RTI DL RELEASE - DNRM

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:54 PM	15 th December 2011	1 / 15 th December 2011	2 of 7
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

1. Overview / Executive Summary Purpose

On Saturday 1st of June 2013 at approximately 14:52, a Caterpillar 631G was carting topsoil from virgin country to a new location across from the back access road at X3, when a hydraulic hose has blown causing hydraulic oil to be sprayed onto the hot exhaust and the oil has ignited giving off a dark cloud of smoke and flames which engulfed three sides of the cab of the scraper. The operator has exited the door of the scraper and jumped to the ground for safety and has landed on the hard and uneven ground surface, the operator has injured his right ankle.

After crib, the operator dumped a load at the spoil heap, turned left and was heading back for another load when the hydraulic hose has blown. The damaged hydraulic hose had a 10mm wide by 50mm long split where the hose meets the fitting. The operator removed their seat belt, opened the cab door, hit the park brake (therefore stalling the scraper) and exited the scraper injuring the right ankle.

The automatic fire suppression on the scraper engaged and extinguished the fire. The Open Cut Examiner attended the scene and took control while the Mines Rescue Members attended to the operator. The area was secured and there was a fire watch put in place. The operator was taken away for further treatment.

2. Investigation Team

Name	Position Title	Role in Investigation
sch4p4(6) Personal information	Safety Officer	Facilitator
	Engineer	Participant
	Mining Superintendent	Participant
	Bussola Supervisor	Participant
	Bussola Supervisor	Participant
	Bussola Diesel Fitter	Participant

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:54 PM	15 th December 2011	1 / 15 th December 2011	3 of 7
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

3. Description of the Incident

- Saturday 1st June 14:52; Sunny day with dry conditions
- Operating scraper 631G 2004 model with 9000 hours.
- Noticed darkness from smoke and flames around the operator's cab.
- Seen smoke and flames in windows engulfing the three sides of the machine cab.
- The operator attempted to engage the fire suppression however could not locate the fire suppression button.
- The operator removed the seat belt, opened the cab door, hit the park brake (therefore stalling the scraper) and exited the scraper.
- The operator jumped from the scraper onto the ground.
- Emergency was called by an Orica operator who was close by and saw the flames.
- Fire was put out by the automatic fire suppression unit.
- There was no fire or visible flames witnessed once the operator had landed on the ground.
- A water truck operator watering the circuit was first on the scene followed by the Orica operator.
- At approximately 14:56, the scraper operator's supervisor arrived at scene. The supervisor checked on operator, then switched off the machine at the designated isolation point and took control of the immediate area until the Open Cut Examiner arrived (OCE).
- The OCE attended the scene and took control and co-ordinated with Mines rescue members (MRM).
- The MRM's arrived in the site ambulance attended the operator who had injury to right ankle.
- One of the MRM's was a fitter, who inspected the scraper to ensure there were no further immediate hazards.
- Area secured and a fire watch was put in place.

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:54 PM	15 th December 2011	1 / 15 th December 2011	4 of 7
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

4. Timeline of incident

As per the timeline attached.

5. Root Cause

The Incident Investigation Team has found the root cause/s of this incident to be:

- The operator jumped from the scraper due to the flames around the cab from a burst hydraulic hose.

6. Contributing Factors

Significant Contributing Factors are:

- Panic from smoke and fire.
- Force of the movement and the contact with a hard surface.
- Height jumped from the cab of the scraper to the ground.
- Operator did not shut the equipment down to prevent more oil being sprayed onto the exhaust.

7. Causal Analysis Chart

Organisational Factors	Task / Environmental Conditions	Individual / Team Actions	Absent / Failed Defences	Incident
	Force of the movement and the contact with a hard surface.	Jumping from height and uneven ground		Injury to Ankle
Nil identified			Burst hydraulic hose.	
	Fire and smoke surrounding cabin on machine	Panic from smoke and fire.		

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:54 PM	15 th December 2011	1 / 15 th December 2011	5 of 7
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

8. Findings / Conclusions

The Incident Investigation Team has identified the following key learning's from this incident:

- Panic has been a huge contributor towards the operator jumping from a height and rushing to do so.
- Making the machine fundamentally stable by lowering implements and shutting the machine down should be the initial steps once fire has been discovered on machine. This would stop the fuel to the fire

9. Preventative Actions / Recommendations

The following key actions were identified to prevent recurrence and have been assigned as detailed below in Enablon.

Action Description	Hierarchy of Control	Person Responsible	Due Date	Enablon Task No.
Have discussions with crews in regards with procedure for when plant/equipment on fire.	Admin		10/10/2013	
Emergency equipment fire intervention training for all mining operators and contractors in the truck simulator.	Admin		10/10/2013	

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:54 PM	15 th December 2011	1 / 15 th December 2011	6 of 7
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

10. Investigation Report Sign-Off

The Incident Investigation Team submits this report as a true reflection of the information gathered. To maximise the preventive potential of the investigation report, the findings, conclusions and learning's of the report should be distributed as appropriate.

Investigation Team Leader		
Name	Signature	Date
Accountable Line Manager		
Name	Signature	Date
Safety, Health & Environment Manager		
Name	Signature	Date
General Manager		
Name	Signature	Date

Note: This report is required to be submitted within 30 days of the incident.

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:54 PM	15 th December 2011	1 / 15 th December 2011	7 of 7
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

INCIDENT INVESTIGATION REPORT

CAPCOAL SURFACE OPERATIONS

Enablon Number: 00027464

Classification: Fire on Plant or Machinery

Description: Fire on Scraper at topsoil dump @ X3.

Incident Date: 01/06/2013

CONTENTS

1.	OVERVIEW / EXECUTIVE SUMMARY PURPOSE	3
2.	INVESTIGATION TEAM	3
3.	DESCRIPTION OF THE INCIDENT	4
4.	TIMELINE OF INCIDENT	6
5.	ROOT CAUSE	6
6.	CONTRIBUTING FACTORS	6
7.	NON CONTRIBUTING FACTORS	6
8.	CAUSAL ANALYSIS CHART	6
9.	FINDINGS / CONCLUSIONS	7
10.	PREVENTATIVE ACTIONS / RECOMMENDATIONS	7
11.	INVESTIGATION REPORT SIGN-OFF	8

RTI DL RELEASE - DNRM

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:56 PM	15 th December 2011	1 / 15 th December 2011	2 of 8
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

1. Overview / Executive Summary Purpose

On Saturday 1st of June 2013 at approximately 14:52, a Caterpillar 631G was carting topsoil from virgin country to a new location across from the back access road at X3, when a hydraulic hose has blown causing hydraulic oil to be sprayed onto the hot exhaust. The oil has ignited giving off a dark cloud of smoke and flames which engulfed three sides of the cab of the scraper.

After crib, the operator dumped a load at the spoil heap, turned left and was heading back for another load when the hydraulic hose has blown. The damaged hydraulic hose had a 10mm wide by 50mm long split where the hose meets the fitting. The operator removed their seat belt, opened the cab door, hit the park brake (therefore stalling the scraper) and exited the scraper injuring the right ankle.

The automatic fire suppression on the scraper engaged and extinguished the fire. The Open Cut Examiner attended the scene and took control while the Mines Rescue Members attended to the operator. The area was secured and there was a fire watch put in place. The operator was taken away for further treatment.

2. Investigation Team

Name	Position Title	Role in Investigation
sch4p4(6) Personal information	Safety Officer	Facilitator
	Engineer	Participant
	Mining Superintendent	Participant
	Bussola Supervisor	Participant
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	Bussola Diesel Fitter	Participant

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:56 PM	15 th December 2011	1 / 15 th December 2011	3 of 8
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

3. Description of the Incident

The following information relates to events that occurred on the 01/06/2013;

- Sunny day with dry conditions and some dust. A water truck was being used on the circuit to suppress dust as required.
- Caterpillar 631G Scraper (2004 year model) with 9000 hours on hour meter.
- The scraper was transferring topsoil from virgin country (land previously not mined) to a new dump location across from the back access road at X3.
- The operator has RII certificate for operation of scraper and has over two years of experience operating various different types of scrapers.
- The operator was approved for authorisation to operate for this machinery on the 31/05/13.
- Operator was working a seven day shift on/off roster and was in the 4th shift.
- At approximately 06:00, the operator attended the daily prestart held by the Bussola Supervisor.
- The operator completed a prestart inspection on the scraper and no faults were identified.
- The operator was the only person to operate the scraper for day.
- A SLAM was completed prior to commencing the task.
- At approximately 14:00 to 14:30, the machine was parked up and shut down for crib/lunch.
- After crib, the operator dumped a load at the spoil heap, turned left and heading back for another load.
- At approximately 14:52, the operator noticed darkness from smoke and flames around the three sides of the operator's cab.
- A hydraulic line from the high pressure screen to the hydraulic control valve has burst, spraying hydraulic oil over onto the hot exhaust. The oil has ignited, generating smoke and flames.
- The hydraulic hose had a 10mm wide by 50mm long split on the genuine caterpillar hydraulic hose where the hose meets the fitting. The hose was not flexible and/or movable. Hydraulic oil from the burst hose spilt for approximately 15 metres.

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:56 PM	15 th December 2011	1 / 15 th December 2011	4 of 8
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

- The operator attempted to engage the fire suppression however could not locate the fire suppression button.
- The operator removed the seat belt, opened the cab door, hit the park brake (therefore stalling the scraper) and exited the scraper.
- The operator jumped from the scraper onto the ground.
- Emergency was called by an Orica operator who was close by and saw the flames.
- Fire was put out by the automatic fire suppression unit.
- There was no fire or visible flames witnessed once the operator had landed on the ground.
- A water truck operator watering the circuit was first on the scene followed by the Orica operator.
- At approximately 14:56, the scraper operator's supervisor arrived at scene. The supervisor checked on operator, then switched off the machine at the designated isolation point and took control of the immediate area until the Open Cut Examiner arrived (OCE).
- The OCE attended the scene and took control and co-ordinated with Mines rescue members (MRM).
- The MRM's arrived in the site ambulance attended the operator who had injury to right ankle.
- One of the MRM's was a fitter, who inspected the scraper to ensure there were no further immediate hazards.
- Area secured and a fire watch was put in place.

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:56 PM	15 th December 2011	1 / 15 th December 2011	5 of 8
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

4. Timeline of incident

As per the attached timeline:

5. Root Cause

The Incident Investigation Team has found the root cause/s of this incident to be:

- Burst hydraulic hose from failure.

6. Contributing Factors

Significant Contributing Factors are:

- Hot exhaust.
- Hydraulic oil spraying onto exhaust.
- Location of the hydraulic hose in relation to the exhaust.
- Operator did not shut the equipment down to prevent more oil being sprayed onto the exhaust.

7. Non Contributing Factors

The Incident Investigation Team has found the non-contributing factors of this incident to be:

- Fire suppression unit missing current test tag service tags.

8. Causal Analysis Chart

Organisational Factors	Task / Environmental Conditions	Individual / Team Actions	Absent / Failed Defences	Incident
Nil found.	Hot exhaust on scraper.	Operator operating the scraper.	Burst hydraulic hose.	Fire on Scraper
	Moving topsoil onto stockpile.			

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:56 PM	15 th December 2011	1 / 15 th December 2011	6 of 8
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

9. Findings / Conclusions

The Incident Investigation Team has identified the following key learning's from this incident:

- Hot exhausts of most operating heavy equipment are in close proximity of hydraulic lines.
- Hydraulic oil spraying on the hot exhaust has been the fuel and once the fire started, the excess oil has burnt until the fire suppression engaged.
- Fire suppression system has worked as designed to enable this fire to be extinguished using the correct system without having human interaction in close proximity.
- Hydraulic hoses are difficult to manage their lifespan as they are not on a set scheduled change out; rather they are generally only changed once damaged.

10. Preventative Actions / Recommendations

The following key actions were identified to prevent recurrence and have been assigned as detailed below in Enablon.

Action Description	Hierarchy of Control	Person Responsible	Due Date	Enablon Task No.
Inspect and replace specific hydraulic hoses on all other Bussola scrapers by fitters at next scheduled service.	Eng		25/07/13	
Have fire suppression unit recharged and tested and tagged so current before machine becomes operational.	Eng		25/07/13	
Toolbox employees on procedure once fire identified on plant and equipment.	Admin		10/10/2013	
Emergency equipment fire intervention training for all mining operators and contractors in the truck simulator.	Admin		10/10/2013	

Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:56 PM	15 th December 2011	1 / 15 th December 2011	7 of 8
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			

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Print Date	ORIGINAL ISSUE DATE	VERSION / DATE OF ISSUE	PAGE
5/08/2013 2:56 PM	15 th December 2011	1 / 15 th December 2011	8 of 8
DOC # _SSD1594_REP_11-9 Incident Investigation Report Printed copies of this document are Uncontrolled and deemed valid only on day of printing			