**REVIEW OF INVESTIGATION REPORT (ICAM) PDM OPERATOR and DOZER INUNDATED WITH WATER 10 AUGUST 2018**

The following analysis is my personal opinion only.

The documentation under Review was obtained from Mines Department.

It was obtained by the Legal Representative of the Dozer Operator who was trapped.

The Operator has still not returned to work since the Incident.

It is a 44-page Right to Information Release which includes a completed BMA ICAM Investigation to the QMI (Queensland Mines Inspectorate).

If you hold it up, there is a faint watermark it says

*Released by DNRME RTI Act 2009. Department Natural Resources, released under Right to Information Act 2009.*

This means the Mines Department have finished their investigation and accepted it and closed it off. No further action required or being taken.

Otherwise it is not released.

The incident occurred at the Peak Downs Coal Mine on the 9th of July 2018 at approximately 5:38am.

Within 6 Months a Dozer Fatality occurs at the neighbouring Saraji Mine, where the Dozer fell from a work bench and ended up on its roof in a 2-metre deep accumulation of water and mud.

**CONCLUSION**
a) In an official Investigation Report to the Queensland Mines Inspectorate (QMI), BMA admit that

1. “There is mandate to keep trucks running to meet production targets.”
2. “There is an asset requirement to have this mandate.”

It is a formal admission that “Production before Safety” mandate exists.

BMA have confessed it exists in the Formal ICAM Investigation that has been included in the Report. They even name it’s origin.

“Asset Level Document Operations Execution Mandate

b) BMA/BHP has created some sort of Entity outside the Coal Mining Act that by its own admission is issuing Directions to the Peak Downs Mine and therefore the SSE about how the Site Safety and Health Obligations are to be discharged.

c) Such Directions unless issued by at least the Coal Mine Operator is in direct contravention of the Coal Mining Act

d) There is no mention anywhere of the Asset being the Coal Mine Operator.

e) An Asset cannot be a Coal Mine Operator as it is not a Person (see appendix 4)

f) An undefined unlegislated entity “The Asset” has been deliberately created to issue illegal Directions to the Peak Downs Mine SSE and Supervisors (As well as all other BMA Coal Operations).

g) Such Directions Include “*There is mandate to keep trucks running to meet production targets.”*

*“There is an asset requirement to have this mandate*.” Production before People”

h) BMA ICAM process has clearly demonstrated that there were preconceived Preventative Measure Outcomes. These have not changed since those reported to and recorded by the Regional Inspector of Mines at 8:25am on the 9th of July 2018. This is less than 3 hours since the Incident occurred

i)The QMI accept the existence and validity of the “Asset” by its apparent copying and pasting of the un-changed Preventative Measures

j) The QMI sees and accepts the BMA confession about the Asset having issued official written Mandates to “*keep trucks running to meet production targets*.”

k) The QMI does nothing to address legal non-compliance of the Asset issuing Safety and Health Directions to the BMA Mines

l) The QMI does nothing to change the stated written Mandate. ***“There is mandate to keep trucks running to meet production targets.” “There is an asset requirement to have this mandate.”***

While there are many pertinent points in the ICAM Investigation that I will make comment on in detail later the most pertinent points are on page 29 of 44’

The red row about 3/4 way down directly below the red coloured WAI line is the following question.

*“Why wasn’t pit preparation dewatering prioritised before operation in this instance?”*

There are then 2 Official Answers from the On-Site Peak Downs Mine Management.

They are

***“There is mandate to keep trucks running to meet production targets.”***

***“There is an asset requirement to have this mandate.”***

There are several other mentions of the “Asset”.

The first is on Page 9 of44.

In the paragraph starting “There were four …..”

***It is understood that the reason for multiple SWI’s is that the Asset Level Document BMA ALD Operations Execution mandates this.”***

The second is at the bottom of line of Page 10 of 44,

**“*The asset has not communicated an acceptable standard for response and control for operating (eg. mining) in water*”**

The third is on Page 14, about ¾ way down in the paragraph starting “It is important…”.

**“*BHP’s Assets and Functions have comprehensive approaches to the undertaking of safe work”.***

The fourth is on Page 19 of 44 in the 2nd box of Organisational Factors (System and Processes)

***“The asset has not provided clear guidelines for the requirements and accountabilities of water management through BMA coal mine planning or PDM’s SHMS***

This matter is then further discussed in detail on pages 21 and 22 of 44.

There is a reference in a sentence in the last paragraph on page 21 to

***“It is understood that the reason for multiple SWI’s (Safe Work Instructions) is that the Asset Level Document: BMA ALD Operations Execution mandates this”***

The sixth time is at the start of Section 7.4 on page 23.

***“The asset has not provided clear guidelines for the requirements and accountabilities of water management through BMA coal mine planning or Peak Downs Mine’s SHMS”.***

The seventh time is on page 24 of 44 in Section 9.2 Further opportunities for improvement

***The*** ***Asset Level Document: BMA ALD Operations Execution was last reviewed in 2014. There is an opportunity to review the requirements written into this document and update as required.***

The eighth time is on page 28 of 44 in the 4th “Why” row

***There is not clear overarching guidance from the asset on management of water in mining areas.***

The ninth is on page 34 of 44 in Preventative Action point 5. This is part of the filled in QMI Incident Report Number 139916, dated the 16th of August. This is 2 days after BMA Peak Downs supplied their Formal Investigation Report.

***5) Ensure all Asset Level Document: BMA (ALD) mandated SWI’s are tracked for competence/familiarisation in LMS.***

The tenth and final time is on page 44 of 44. This is the final page of

 ‘Form 5A Queensland mining industry incident report form” Incident report Number 140033 and dated the 28th of August 2018

***5) Ensure all Asset Level Document: BMA (ALD) mandated SWI’s are tracked for competence/familiarisation in LMS.***

What is “The Asset”

What is an “Level Document BMA ALD Operations Execution Mandate”?

What does it say?

Who authored and signed it?

Is it the Holder under the Coal Mining Act?

Is it the Operator under the Coal Mining Act?

**BHP/BMA COAL STRUCTURE**

The best as I can determine is that

Mr James Palmer is listed in the Structure as the Asset President.

Appears that BHP through the Corporate Entity BHP Coal Pty Ltd is the Holder through Mr Palmer.

According to the BHP/BMA website it appears they are stating that BMA is the Operator through its duly registered corporate entity.

I cannot ascertain who the Operator is. It could be Mr Palmer, or someone he has nominated under Sections including, but not limited to Sections 40 and 41 under the Coal Mining Act 1999.

*“BMA owns and operates mines in the Bowen Basin, Queensland, Australia.*

*Queensland Coal comprises the BHP Mitsubishi Alliance (BMA) and BHP Mitsui Coal (BMC) assets in the Bowen Basin in Central Queensland, Australia”* *https://www.bhp.com/media-and-insights/image-gallery/locations-and-operations/bma-australia-basin*

**THE ASSET. Not Recognised under The Qld Coal Mining Act and Regulations**

The Asset is not a duly appointed person as defined under the Coal Mining Act and Regulations.

*Holder, for a coal mine, means the holder under the Mineral Resources Act 1989 of an exploration permit, mineral development licence or mining lease for the coal mine*

*Meaning of coal mine operator*

*(1) A coal mine operator for a coal mine is*

*(a) the holder; or*

*(b) if another person has been appointed as the coal mine operator under section 53 and the appointment is notified to the chief inspector under section 49, the other person.*

*(1) The site senior executive for a coal mine is the most senior officer employed or otherwise engaged by the coal mine operator for the coal mine who—*

*(a) is located at or near the coal mine; and*

*(b) has responsibility for the coal mine.*

“How does an asset communicate”?

In my opinion “An/The Asset” does not and cannot communicate.

Definition of an asset

*An asset is any resource owned by the business. Anything tangible or intangible that can be owned or controlled to produce value and that is held by a company to produce positive economic value is an asset. Simply stated, assets represent value of ownership that can be converted into cash (although cash itself is also considered an asset)*

An Asset is not a conscious communicative educated person/entity. At most if The Asset was in fact some sort of legal recognised entity, it may be able to appoint

Only duly Legally appointed Officers of such an entity may likely be able to communicate on its behalf consider

The Asset is not a duly appointed person and cannot be as defined under the Coal Mining Act and Regulations

**QUEENSLAND MINES INSPECTORATE OVERSITE**

As can be seen the Formal Investigation Report was sent to Keith Brennan (Mines Inspector Mackay Region) on the 14th of August 2018.

There is no indication in any of the RTI documents that Mr Brennan made any comments in relation to the Investigation Report either back to BMA Peak Downs and the Chief Inspector of Coal Mines (CIOCM) when the Report was sent to the Brisbane Office.

There is no indication in any of the RTI documents that the CIOCM had any comment, entered into any formal correspondence with BMA Peak Downs, made any Formal Mine Record Entry in relation to any matter in the Investigation Report.

The documentation under Review was obtained by the Legal Representative of the Dozer Operator who was trapped.

Standard practise as far as I am informed is that Right-To-Information requests are only agreed to

* After the QMI have concluded the Accident Investigation,
* Issued Mine Record Entries including any Corrective Actions required by the QMI in relation to the circumstance if the Incident and to achieve and acceptable level of risk
* Followed up on whether Corrective/Preventative have been enacted and closed up
* Decision of No Action by the DNRME QMI against any Individuals under the Compliance Policy

This means the Mines Department have finished their investigation and accepted it and closed it off. No further action required or being taken.

**LEGISLATIVE COMPLIANCE**

One of the things that stands out in the whole of the BMA Investigation Report is the almost total absence of any mention of any of the applicable elements and Statutory Officials of the Coal Mining Act and Regulations.

The absence is so extreme that it is hard to assume that it is deliberate.

The only explanation that makes any sense is that it is a deliberate ploy not to mention actual compliance to the Act and Regulations; including mentioning any Statutory Official higher than an Open-Cut-Examiner (OCE).

No Mention of Regulations

For instance. when any discussion about actually working near an accumulation of water there is never in the whole document any mention of Regulation 93 Working near a body of water or other liquid.

Water management is called up under the Regulations on page 99

*93 Working near a body of water or other liquid*

*(1) A coal mine’s safety and health management system must provide for controlling risk associated with working near a body of water or other liquid at the mine.*

*(2) The system must provide for the use of a buoyancy aid by a person carrying out the work if a risk assessment identifies a risk of the person drowning*.

Instead there is mention multiple times of Safe Work Instructions (SWI’s).

On page 9 of 44 it states

***It is understood that the reason for multiple SWI’s is that the Asset Level Document BMA ALD Operations Execution mandates this.”***

No Mention Of Coal Mine Operator

There is no mention of the Coal Mine Operator in the Documentation and their obligations and requirements under the Act and Regulations.

No Mention of the Holder

There is no mention of the Holder in the Documentation and their obligations and requirements under the Act and Regulations. This is nothing unusual in this process for it not to be mentioned. Except if the QMI decided to check that the Coal Mine Operator is duly appointed by the Holder.

No Mention of the Site Senior Executive SSE

There is no mention of the SSE and their obligations and requirements under the Act and Regulations in any of the BMA Documentation that I can find.

The only time the Position is mentioned anywhere is the Queensland Government Incident Notification form filled in by Keith Brennan (Regional Inspector of Mines) on page 36 of 44.

Mr Brennan mentions he was contacted by the SSE to relate the incident to him at around 8am on the 9th of July 2018.

The SSE does not even get to be responsible for any of the Preventative Actions listed on page 5 of 44.

**Preconceived Preventative Measure Outcomes**

BMA ICAM process has clearly demonstrated that there were preconceived Preventative Measure Outcomes.

The preventative measures have not changed since those reported to and recorded by the Regional Inspector of Mines at 8:25am on the 9th of July 2018 (page 38 of 44). This is less than 3 hours since the Incident occurred.

The ICAM Investigation is conducted, finalised and sent to the Regional Inspector on the 14th of August 2018 including an Action Plan (page 5 of 44).

The wording is unchanged. No additional Preventative Measures were identified during the full ICAM Investigation.

The exact same wording is then included on the DNRME Form 5A on pages 43 and 44 of 44.

**Previous Peak Downs Dozer Immersion Incident 2017**

A previous Incident was identified during the ICAM as noted on page 26 of 44.

In the row starting with August 2017

“*August 2017 previous dozer event occurred at PDM involving entry into water classified as PL2”*

It seems the ICAM may in fact be referring to an Incident that occurred at PDM on the 29th of June 2017.

The Event Number on the form is 416827168 and the Incident Description is

*“While pushing out mud in the 1N pit, a dozer reversed into a sump that the operator had excavated earlier that shift. The displacement triggered the emergency stop which prevented the operator from tramming back out”*

**Question**

**Does the full Investigation of the Dozer Incident on the 29th of June 2017 contain the exact same Eight Preventative Measures later used in Reports and Investigations of the 9th July 2018?**

**ICAM INVESTIGATION PROCESS. What is it?**

The ICAM Accident Investigation Process has been the only official Process used by BHP/BMA and also the Department of Natural Resources and Mines since at least the early 2000’s.

Mines Department Inspectors are trained to facilitate, lead, conduct a full ICAM Investigation and write and sign off on a Final Written Report.

WHAT IS ICAM

*ICAM is a holistic systemic safety investigation analysis method. It aims to identify both local factors and failures within the broader organisation and productive system that contributed to the incident, such as communication, training, operating procedures, incompatible goals, change management, organisational culture and equipment. Through the analysis of this information, ICAM provides the ability to identify what really went wrong and to make recommendations on necessary remedial actions to reduce risk and build error-tolerant defences against future incidents. The ICAM process incorporates best practice Human Factors and Risk Management principleshttps://www.safetywise.com/single-post/2016/02/24/The-Benefits-of-the-ICAM-Incident-Investigation-Process*

ICAM breaks new ground in the area of incident investigation which, in the past, has tended to focus on intentional or unintentional acts of human error – those things that people did or didn’t do – that led to an incident or accident (the “person model”). While this approach provides a superficial explanation of the incident, it does not consider the underlying factors that contributed to the actions, or the context in which they occurred. Considering only the transparent ‘active’ failures and unsafe acts, rather than identifying those potential causes or ‘latent conditions’ lying dormant within the system, limits the potential of an investigation to prevent the same event from recurring.

QUEENSLAND MINES INSPECTORATE (QMI)

The released information comprises a number of Official Communications from the Peak Downs Mine to the QMI relating to the Dozer in the Sump Incident on the 9th of July 2018.

It comprises

* Page 1 to 3. Official written notification to Keith Brennan (Mines Inspector Mackay Region) on the 9th of July. It comprises ad email cover page and 2-page BMA Notice of Confirmation Form for High Potential Incident or Serious Accident
* Page 4 to 30. Official ICAM Investigation provided to Keith Brennan (Mines Inspector Mackay Region) on the 14th of August 2018. It comprises of an email cover page (pg 4), an Action Plan (pg 5) and page 6 to 30 are the formal completed ICAM.
* Page 31 to35. Incident Report Number 139916 (dated 16th August 2018)
* Page 36 to 39. Queensland Government Incident Notification Form filed by Keith Brennan (Mines Inspector Mackay Region) on 9th July 2018.
* Page 44 to 44. Form 5A Queensland Mining Industry Incident Report Form submitted by Peak Downs Mine dated the 28th August 2018

None of the 44 pages appears to be made up of any QMI documents bar the Notification Form filed in and filed by Keith Brennan (Mines Inspector Mackay Region) some 3 hours on the 9th July post the Incident, and then the Completed QMI Internal Formal Report on the 16th of August 2018.

ANALYSIS OF BMA ICAM REPORT

Page 1, 2 and 3

Copy of 3-page formal notification sent to the DNRME Inspector and the ISHR within 24 hours to let them know an incident has occurred and the basic circumstances on the 9 July 2018.

Page 4

Cover page of email sent on the 14th August after Mr Keith Brennan Regional Coal Mines Inspector (Mackay).

Mentions how BMA used BMA employees external to Peak Downs as part of the full BMA ICAM investigation team and assisted in developing the report attached.

Findings and actions have been shared widely with other BMA sites as well

Questions

1. Were they all Supervisors/Superintendents or where there any production and engineering workers included?
2. Any evidence provided or looked for by DNRME?

Page 5 Action Table

First note similarity to actions from 2017 2-page incident report

1. Were the people involved in the 2017 Investigation involved in the July 9 Incident or subsequent ICAM?
2. If so, did they share the 2017 Investigation?
3. Why have the same problems re-surfaced 12 months later?
4. Have any production and engineering workers ever been made aware of any Preventative Measures arising from the June 2017 Incident?
5. Were DNRME QMI Inspectors informed about June 29th 2017 Incident?
6. Did DNRME Inspectors ever follow up?

Cover page (page 6).

1. When was the photo of the site taken?
2. Has water been pumped out from when the incident and operator recovery occurred?

Page 9 Key Findings

Organisational Factors Point 2

In the paragraph starting “There were four …..”

***“It is understood that the reason for multiple SWI’s is that the Asset Level Document BMA ALD Operations Execution mandates this.”***

1. What is the Asset Level Document BMA ALD Operations Execution?
2. What does it say?
3. Who has developed and authorised this?
4. Who on site is aware?
5. Have production and engineering workers ever been made aware?

Page 10

Pretty self-explanatory. 2 main points

Water management is called up under the Regulations on page 99

https://www.legislation.qld.gov.au/view/pdf/asmade/sl-2017-0165

*93 Working near a body of water or other liquid*

*(1) A coal mine’s safety and health management system must provide for controlling risk associated with working near a body of water or other liquid at the mine.*

*(2) The system must provide for the use of a buoyancy aid by a person carrying out the work if a risk assessment identifies a risk of the person drowning.*

Last Sentence

***“The asset has not communicated an acceptable standard for response and control for operating (eg. mining) in water”***

This statement is repeated on page 19 of 44

1. “How does an asset communicate”? Duly legally appointed officers communicate

Page 11 of 44

Absolutely no mention of total Mining Legislation and Recognised Standards and Company standards

Leadership and Culture

All these Supervisors who seem to have no standard reports to use. Seems no one signs off to say they have read and understood the contents and accepted responsibility for safety in the prescribed work area for the next shift.

Anyone who fails to fill in such a Statutory Report (eg OCE) with any unsafe conditions they found, what they did to remedy the situation, how it was at the end of the shift, who they informed etc would be subject to Disciplinary action, including dismissal.

All these Supervisors (appointed in writing by the SSE) often with no statutory qualifications, do whatever they want, and it seems with no oversight.

Lastly, they are appointed by the SSE to be in charge of only strictly defined sub-sections of the whole mine being worked on the shift concerned

The actual on shift Open Cut Examiner (OCE) has to inspect the whole active mine site, (and often barricaded non-work areas).

They are informed in writing that their job is the Statutory Safety Inspection. Unless something needs immediate action due to unacceptable risk, they are not to issue operational instructions unless through the Supervisor concerned.

Only other comment on the page.

What hypocrisy being concerned some-one reading this would be upset and need a company provided Counsellor

Page 12

2nd paragraph.

1. Were any of the instructions issued by the Supervisor in writing or was it all verbal?
2. Were the Mine 2- way recordings checked to see what conversations the Supervisor had. Was he concerned at all and did he do anything he is able actually prove?

 It appears not. If so they would have mentioned any 2-way radio recordings as proof.

Later in the report on page the oncoming shift Supervisor says no.

Page 14.

Team Members.

1. Who are they?
2. Production and Engineering workers or Supervisors?
3. How many were actual Dozer Operators or Excavator Operators?
4. Is the OCE a full time OCE or a Supervisor who also happens to have an OCE’s ticket

¾ way don page 14.

***BHP’s Assets and Functions.***

Again, if such a thing exists, it can only express anything from duly legally appointed Officers.

Pages 15, 16 and 17

Easiest way to read these pages is to concentrate mainly on the red oval areas and compare what the highlighted rows differ.

Remember that the 3rd Row is what actually happened WAD (work as done)

The line immediately above WAN is work as normal, or what actually occurs every day at work.

The top line WAI stands for Work as Intended. In other words what the computer and so-called mining engineers think it should happen. Sitting in their dust free air-conditioned office, looking at their computer program.

The next page of interest and comment is the ICAM chart on a page numbered 19 of 44.

The 5th box in the 3rd column shows it seems normal for the dozer to operate in 700mm of water.

1. How deep was ever acceptable?

Its coal filled water, black as the coal. Blind faith required and expected of Dozer Operators everything is.

Last column of failed barriers is self-explanatory.

Only question is how and why which does not blame the Excavator and Dozer Operator

3 boxes on next page 20 of 44 speak for themselves

The 3rd box quotes the Supervisor he discussed the over dug trench with next shift supervisor.

Did he lie?

**Page 21 of 44**

Most self-explanatory.

Last paragraph

1. **What is Asset Level Document BMA ALD Operations Execution Mandate**?
2. **What does it say and who authored and signed it?**

Page 23 of 44

7.4.

This is a total disgrace in my opinion.

It shows they know multiple parts of the SHMS (Safety and Health Management System) are flawed, flawed for years, continues to be flawed and nothing needs to change.

All they want to do is try and confine everything to just on Peak downs specific problems. Deliberately overlooking what the real problem is

The problem BMA safety and health system itself.

Page 24

Again, everything is just focused and quite deliberately on this one incident. Not previous incidents on their own site (Page 26 of 44 line starting Aug 2017)

Bottom of page emergency response.

My understanding is that the person (workmate) who actually rescued him should probably be nominated for a Civilian Bravery Award.

Page 25

First paragraph

The only people from other sites are the bosses in Senior enough position to get such a secret process and document.

My assumption is that the vast majority if not all Production and Engineering Workers have never seen it.

The spreadsheets after are pretty self-explanatory.

**Page 29 of 44**.

Read it but as you go down first concentrate on the red row about 1/4 way down and its red mate below.

Then study the why's below.

When you get down the page about 3/4 way do likewise to the red WAN and WAI lines

Carefully study the why answers below them.

Remember that the 3rd Row is what actually happened WAD (Work As Done).

WAD (Work As Done). Represents how the task was executed at the time of the relevant event

WAN is Work As Normal. Represents how the ICAM team understands the task is normally executed on a day-to-day basis in the field at the site

WAI stands for Work As Intended. Represents how the work is intended to be performed in accordance with relevant procedures and industry practice. In other words what the computer and so-called mining engineers think it should happen. Sitting in their dust free ai- conditioned office, looking at their computer program.

The 2nd Why

**There is mandate to keep trucks running to meet production targets**.

Why?

**There is an asset requirement to have this mandate.**

There is a mandate from head office via “The Asset” to put Production before People. Keep the trucks running no matter what.

Its name is very close to below

Asset Level Document Operations Execution Mandate.

The production before safety mandate exists, BMA have confessed it exists, they even name it.

Mines Dept sees the BMA confession does nothing about it.

**Pages 40 to 44**

‘Form 5A Queensland mining industry incident report form” Incident report Number 140033 and dated the 28th of August 2018

APPENDIX 1

ICAM and QUEENSLAND MINES INSPECORATE

*QMI uses an investigative approach developed by BHP Billiton for the mining industry known as ICAM (Incident Cause Analysis Method).*

*Broadly speaking, the fact that the QMI utilises the ICAM methodology in its investigative process means that it operates within a framework regarded as best practice by the industry it regulates.*

*A perusal of the Investigation Process Manual reveals that it provides thorough*

*guidance for inspectors on:*

*• immediate post-incident notification procedures;*

*• liaison with stakeholder entities such as the police and families;*

*• incident site security;*

*• investigation process and planning;*

*• appropriate procedures for dealing with witnesses and taking statements;*

*• conducting site inspections and recording evidence;*

*• preparing reports; and*

*• post-investigation matters such as formal recommendations for prosecution.*

*The manual also provides detailed guidance for QMI inspectors on appropriate interview techniques, and for managing different types of witnesses, including those with challenging behaviours.*

*The manual is also explicitly linked into a framework of supporting guidance such as BHP Billiton’s ICAM Guide, the QMI’s own Compliance Policy, risk assessment tools and witness statement proformas.* <https://cabinet.qld.gov.au/documents/2008/Nov/Imple%20recs%20of%20Ombuds%20Mine%20safety%20report/Attachments/5208T3688.pdf>

Requirement of ICAM as part of Inspectorate Training

Page 42 Annual Report

file:///C:/Users/Admin/Downloads/201314commissionersreportminesafetyandhealth.pdf

Page 5 Training SSHR

<https://www.dnrme.qld.gov.au/__data/assets/pdf_file/0008/964277/qld-guidance-note-25.pdf>

APPENDIX 2

BHP/BMA ICAM

ICAM is the Incident Cause Analysis Method, an industrial safety initiative that draws on the work of the eminent organisational psychologist and human error expert Professor James Reason. The ICAM methodology was developed by Safety Wise’s CEO, Gerry Gibb, with the assistance of Professor Reason, the Australian Transport Safety Bureau (ATSB) and in consultation with safety representatives from industry.

ICAM breaks new ground in the area of incident investigation which, in the past, has tended to focus on intentional or unintentional acts of human error – those things that people did or didn’t do – that led to an incident or accident (the “person model”). While this approach provides a superficial explanation of the incident, it does not consider the underlying factors that contributed to the actions, or the context in which they occurred. Considering only the transparent ‘active’ failures and unsafe acts, rather than identifying those potential causes or ‘latent conditions’ lying dormant within the system, limits the potential of an investigation to prevent the same event from recurring.

ICAM is a holistic systemic safety investigation analysis method. It aims to identify both local factors and failures within the broader organisation and productive system that contributed to the incident, such as communication, training, operating procedures, incompatible goals, change management, organisational culture and equipment. Through the analysis of this information, ICAM provides the ability to identify what really went wrong and to make recommendations on necessary remedial actions to reduce risk and build error-tolerant defences against future incidents. The ICAM process incorporates best practice Human Factors and Risk Management principleshttps://www.safetywise.com/single-post/2016/02/24/The-Benefits-of-the-ICAM-Incident-Investigation-Process

It is a requirement that an ICAM investigation and report be completed following all actual and potential significant HSEC incidents for all BHP Billiton controlled sites and activities. However, with potential incidents the responsible line manager can determine the formality of the investigation ensuring it is consistent with the HSEC Reporting Manual requirements. In all cases the findings of the ICAM shall be included in the report.

<https://www.coursehero.com/file/29538774/ICAM-Methodology-BHPBpdf/>

BHP Billiton’s Incident Cause Analysis Method (ICAM) for incident investigations has been released to universities and adopted by a number of companies, inside and outside the resources sector.

<https://www>.bhp.com/-/media/bhp/documents/investors/reports/2010/sustainabilitysupplementaryinformation2010.pdf?la=en

<http://www.qldminingsafety.org.au/_dbase_upl/2002_Pres_004_bhpbILLITON.pdf>

APPENDIX 3

Excerpt Queensland Coal Mining Act 1999

Obligations of holders, coal mine operators, site senior executives and others

Division 3

**40 Obligations of holders**

(1)This section applies if the holder for a coal mine proposes to appoint under section 53 another person as coal mine operator for the mine.

(2)The holder must—

(a)inform the proposed coal mine operator, by notice, of all relevant information available to the holder that may help the proposed coal mine operator—

(i)ensure the site senior executive for the coal mine develops and implements a safety and health management system for the mine; and

(ii)prepare and implement principal hazard management plans for the mine; and

(b)include in the contract appointing the coal mine operator an obligation on the operator—

(i)to establish a safety and health management system for the mine; and

(ii)other than for exploration activities under an exploration permit or mineral development licence—to be a party to a mines rescue agreement.

**41 Obligations of coal mine operators**

(1)A coal mine operator for a coal mine has the following obligations—

(a)to ensure the risk to coal mine workers while at the operator’s mine is at an acceptable level, including, for example, by providing and maintaining a place of work and plant in a safe state;

(b)to ensure the operator’s own safety and health and the safety and health of others is not affected by the way the operator conducts coal mining operations;

(c)not to carry out an activity at the coal mine that creates a risk to a person on an adjacent or overlapping petroleum authority if the risk is higher than an acceptable level of risk;

(d)to appoint a site senior executive for the mine;

(e)to ensure the site senior executive for the mine—

(i)develops and implements a safety and health management system for the mine; and

(ii)develops, implements and maintains a management structure for the mine that helps ensure the safety and health of persons at the mine;

(f)to audit and review the effectiveness and implementation of the safety and health management system to ensure the risk to persons from coal mining operations is at an acceptable level;

(g)to provide adequate resources to ensure the effectiveness and implementation of the safety and health management system.

(2) Without limiting subsection (1), the coal mine operator has an obligation not to operate the coal mine without a safety and health management system for the mine.

(3)In this section—

adjacent or overlapping petroleum authority means any of the following under an Act as follows if, under that Act, its area is adjacent to, or overlaps with, the land the subject of the mining tenure under which the coal mine is operated—

(a)a petroleum authority under the Petroleum and Gas (Production and Safety) Act 2004;

(b)an authority to prospect, petroleum lease, or water monitoring authority, under the Petroleum Act 1923.

**42 Obligations of site senior executive for coal mine**

A site senior executive for a coal mine has the following obligations in relation to the safety and health of persons who may be affected by coal mining operations—

(a) to ensure the risk to persons from coal mining operations is at an acceptable level;

(b) to ensure the risk to persons from any plant or substance provided by the site senior executive for the performance of work by someone other than the site senior executive’s coal mine workers is at an acceptable level;

(c) to develop and implement a single safety and health management system for all persons at the mine;

(d) to develop, implement and maintain a management structure for the mine that helps ensure the safety and health of persons at the mine;

(e) to train coal mine workers so that they are competent to perform their duties;

(f) to provide for—

(i) adequate planning, organisation, leadership and control of coal mining operations; and

(ii) the carrying out of critical work at the mine that requires particular technical competencies; and

(iii) adequate supervision and control of coal mining operations on each shift at the mine; and

(iv) regular monitoring and assessment of the working environment, work procedures, equipment, and installations at the mine; and

(v) appropriate inspection of each workplace at the mine including, where necessary, pre-shift inspections.

**APPENDIX 5**

**BHP/BMA CORPORATE STRUCTURE**

BMA was formed in 2001 as a 50:50 unincorporated joint venture between BHP Billiton and Mitsubishi Corporation. The joint venture is known as the Central Queensland Coal Associates Joint Venture. BM Alliance Coal Operations Pty Ltd operates as the duly appointed constituted attorney for the Central Queensland Coal Associates Joint Venture Agreement and a Strategic Alliance Agreement dated 28 June 2001.

The operational mines are Blackwater, Broadmeadow, Goonyella Riverside, Peak Downs, Saraji, Crinum and Daunia. https://www.bhp.com/-/media/bhp/regulatory-information-media/coal/bhp-billiton-mitsubishi-alliance/red-hill/red-hill-mining-lease-project-draft-eis-appendices/131213\_coal\_bma\_redhill\_appendixpsocialimpactassessment.pdf

BMA Australia

BMA owns and operates mines in the Bowen Basin, Queensland, Australia. https://www.bhp.com/media-and-insights/image-gallery/locations-and-operations/bma-australia-basin

Queensland Coal

Queensland Coal comprises the BHP Mitsubishi Alliance (BMA) and BHP Mitsui Coal (BMC) assets in the Bowen Basin in Central Queensland, Australia. Queensland Coal has access to key infrastructure in the Bowen Basin, including a modern, multi-user rail network and its own coal-loading terminal at Hay Point, located near the city of Mackay. https://www.bhp.com/our-businesses/minerals-australia/queensland-coal